

SUPPLEMENTAL REMEDIAL INVESTIGATION REPORT

**PACIFIC CITY PARK
600 THIRD AVENUE SOUTHEAST
PACIFIC, WASHINGTON**



King County

River and Floodplain Management Section
Water and Land Resources Division

Note:

Some pages in this document have been purposely skipped or blank pages inserted so that this document will copy correctly when duplexed.

SUPPLEMENTAL REMEDIAL INVESTIGATION REPORT

**PACIFIC CITY PARK
600 THIRD AVENUE SOUTHEAST
PACIFIC, WASHINGTON**

Prepared for



King County

River and Floodplain Management Section
King County Water and Land Resources Division
201 South Jackson Street, Suite 600
Seattle, Washington 98104

Prepared by

Herrera Environmental Consultants, Inc.
2200 Sixth Avenue, Suite 1100
Seattle, Washington 98121
Telephone: 206-441-9080

In Conjunction with
Aspect Consulting, LLC

June 4, 2019



Prepared for:

King County River and Floodplain Management Section
King County Water and Land Resources Division

For comments or questions contact:

Chris Brummer, PE, LEG. 206-477-4655

Alternate Formats Available.

Call 206-477-4812 or TTY 711

CONTENTS

Certificate of Licensed Hydrogeologist	iii
1. Introduction.....	1
1.1. General Site Information	5
1.2. Site History	5
2. Field investigation.....	9
2.1. Investigation Methods	9
2.1.1. Soil Sampling Methods.....	9
2.1.2. Groundwater Sampling Methods.....	10
2.1.3. Surface Water Sampling Methods.....	13
2.1.4. Soil Vapor Monitoring Methods.....	13
2.2. Investigation Results.....	13
2.2.1. Subsurface Conditions	14
2.2.2. Soil Analytical Results.....	31
2.2.3. Groundwater Analytical Results.....	31
2.2.4. Surface Water Analytical Results.....	32
2.2.5. Soil Vapor Monitoring Results	32
2.2.6. Data Quality Analysis.....	32
3. Conceptual Site Model.....	37
3.1. Physical Conditions	37
3.2. Contaminant Nature and Extent.....	37
3.3. Fate and transport	38
4. Conclusions	43
5. References.....	45

APPENDICES

Appendix A	Historical Aerial Photographs
Appendix B	Site Grading Plan for Apartments at 4th Avenue Southeast
Appendix C	Soil Boring Logs
Appendix D	Laboratory Analytical Reports
Appendix E	Data Quality Assurance Review Memorandum
Appendix F	Soil Vapor Monitoring Data

TABLES

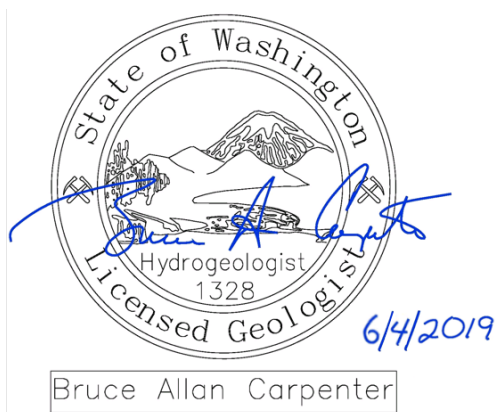
Table 1.	Summary of Water Level Elevation Data from Monitoring Wells, Pacific City Park Remedial Investigation, Pacific, Washington.....	49
Table 2.	Summary of Soil Sample Results, Pacific City Park Remedial Investigation, Pacific, Washington.....	51
Table 3.	Summary of Groundwater Sample Results from Monitoring Wells, Pacific City Park Remedial Investigation, Pacific, Washington.....	75
Table 4.	Summary of Surface Water Sample Results, Pacific City Park Remedial Investigation, Pacific, Washington.....	79
Table 5.	Summary of Soil Vapor Monitoring Data, Pacific City Park Remedial Investigation, Pacific, Washington.....	82

FIGURES

Figure 1.	Vicinity Map, Pacific City Park, Pacific, Washington.....	2
Figure 2.	Site Map, Pacific City Park, Pacific, Washington.....	3
Figure 3.	Approximate Extent of Historical Dumping and Filling, Pacific City Park, Pacific, FigWashington.....	7
Figure 4.	Extent of Fill Soil Containing Refuse, and Soil Boring and Monitoring Well Locations, Pacific City Park, Pacific, Washington.....	11
Figure 5.	Wetlands, Stormwater Conveyance Features, and Surface Water Sample Locations, Pacific City Park, Pacific, Washington.....	15
Figure 6.	Soil Vapor Monitoring Locations, Pacific City Park, Pacific, Washington.....	17
Figure 7.	Cross Section A-A', Pacific City Park, Pacific, Washington.....	19
Figure 8.	Groundwater Level Contour Map, December 21, 2018, Pacific City Park, Pacific, Washington.....	21
Figure 9.	Extent of Diesel- and Lube-oil Range Petroleum Hydrocarbons in Soil, Pacific City Park, Pacific, Washington.....	23
Figure 10.	Extent of Lead in Soil, Pacific City Park, Pacific, Washington.....	25
Figure 11.	Extent of Total Polychlorinated Biphenyls (PCBs) in Soil, Pacific City Park, Pacific, Washington.....	27
Figure 12.	Extent of Total Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs) in Soil, Pacific City Park, Pacific, Washington.....	29
Figure 13.	Extent of Total and Dissolved Metals in Groundwater, Pacific City Park, Pacific, Washington.....	33
Figure 14.	Non-metals Contaminants of Concern in Groundwater, Pacific City Park, Pacific, Washington.....	35
Figure 15.	Extent of Soil and Groundwater Contamination Above Site Screening Levels, Pacific City Park, Pacific, Washington.....	41

CERTIFICATE OF LICENSED HYDROGEOLOGIST

This document has been prepared under the supervision of a licensed hydrogeologist.

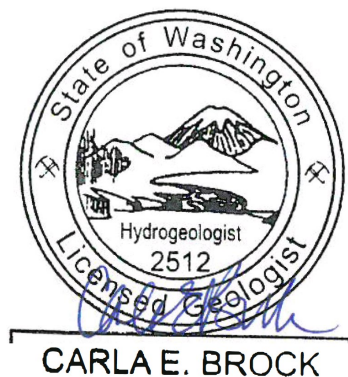


Bruce Carpenter, LHG

Name

June 4, 2019

Date



Carla Brock, LHG

Name

June 4, 2019

Date

1. INTRODUCTION

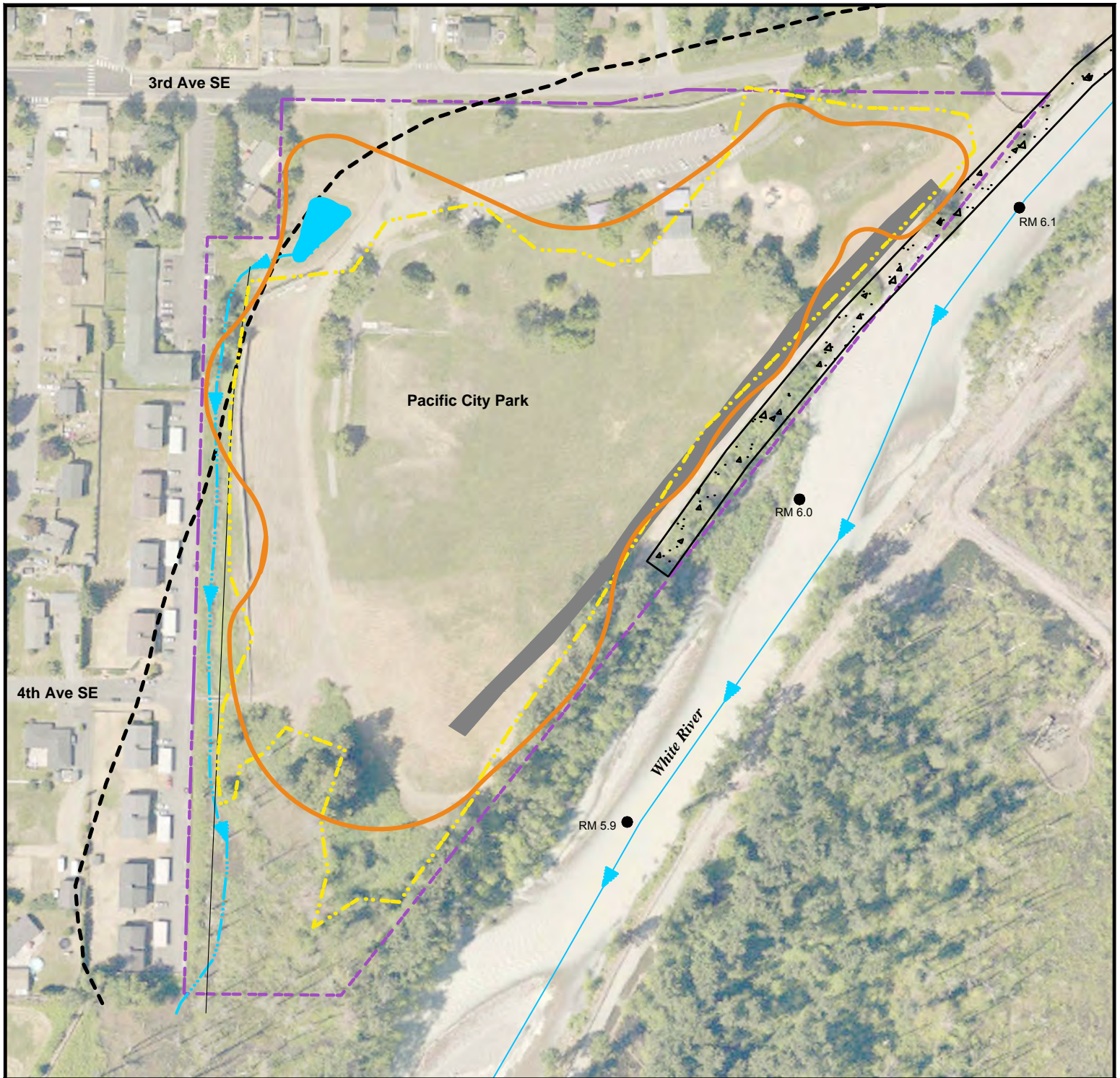
This Supplemental Remedial Investigation (SRI) report was completed for the Pacific City Park, located at 600 Third Avenue Southeast in the City of Pacific, Washington (herein referred to as the Site; Figure1). The Site is located on a portion of a 43-acre parcel of land owned by King County and located on the existing right (west) bank of the White River (Figure 2). The Site was part of the river channel before it was filled with municipal waste and dredge spoils as an informal dumpsite and city dump between approximately 1921 and 1965. The King County Flood Control District is in the planning phase of the Right Bank Flood Protection project, which will extend through the Site. This report supplements the Remedial Investigation (RI) Report (Herrera 2019), submitted by King County to the Washington State Department of Ecology (Ecology), and presents the data and analysis of additional investigation work completed at the Site. Collectively, the information and data presented in the RI Report and this SRI Report meet the requirements of the Model Toxics Control Act (MTCA) Cleanup Regulation, Ch. 173-340 WAC for a remedial investigation: sufficient information and data has been collected to allow for the development and evaluation of cleanup action alternatives.

The supplemental RI was conducted to further evaluate the nature and extent of hazardous substances in soil and groundwater to the south-southwest of the Pacific City Park, which was identified as a data gap in the RI. The SRI included the installation and sampling of three additional groundwater monitoring wells; four soil borings; and collection of additional groundwater, soil, and surface water samples for laboratory analysis, along with soil vapor monitoring in the field. In addition, further historical research was conducted to evaluate potential sources of contaminants of potential concern (COPCs) to soil at the Site and in the Site vicinity. The SRI provides a summary of the fill history, as indicated through historical aerial photos and construction plans, and the results of the data collected to address RI data gaps, including an updated conceptual site model.

King County is requesting an opinion from Ecology, under the Voluntary Cleanup Program (VCP), on the sufficiency of the RI, as documented in the RI Report and this SRI Report, to meet the requirements of the MTCA Cleanup Regulations.



The information included on this map has been compiled by King County staff from a variety of sources and is subject to change without notice. King County makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or rights to the use of such information. This document is not intended for use as a survey product. King County shall not be liable for any general, special, indirect, incidental, or consequential damages including, but not limited to, lost revenues or lost profits resulting from the use or misuse of the information contained on this map. Any sale of this map or information on this map is prohibited except by written permission of King County.



Legend

- Park boundary
- Pacific City Park MTCA site boundary
- Historical edge of river channel based on 1936 aerial photograph (source: King County)
- Approximate lateral extent of fill at Pacific City Park
- Existing stormwater pond
- Existing concrete revetment
- Existing stormwater ditch
- Linear feature identified during 2018 geophysical survey in vicinity of historic levee
- RM 6.0 River mile (10th)

Figure 2.
Site Map, Pacific City Park,
Pacific, Washington.

0 100 200 400 Feet



King County



Aerial source: King County (2017)

O:\proj\Y2017\17-06520-000\CAD\Drawg\Supplemental R\Fig2_Site Map - Layout1.dwg

1.1. GENERAL SITE INFORMATION

Site Name	Pacific City Park
Site Address	600 Third Avenue Southeast
Facility Site Identification number (FSID)	2160
King County Assessor's Parcel No.	3621049040
Cleanup Site ID	21
VCP Project Number	NW3204
Ecology Site Manager	Grant Yang

The project consultant is Mark Ewbank with Herrera Environmental Consultants, Inc. located at 2200 Sixth Avenue, Suite 1100, Seattle, Washington 98121. Telephone: 206-787-8217, and email: MEwbank@herrerainc.com.

Pacific City Park is owned by King County, with a portion, approximately 21 acres, leased to the City of Pacific for use as a city park. Chris Brummer, Supervising Engineer with the River and Floodplain Management Section of the King County Water and Land Resources Division, is the Site contact. His office is located at 201 South Jackson Street, Suite 600, Seattle, Washington, 98104. Telephone: 206-477-4655, and email: Chris.Brummer@kingcounty.gov.

1.2. SITE HISTORY

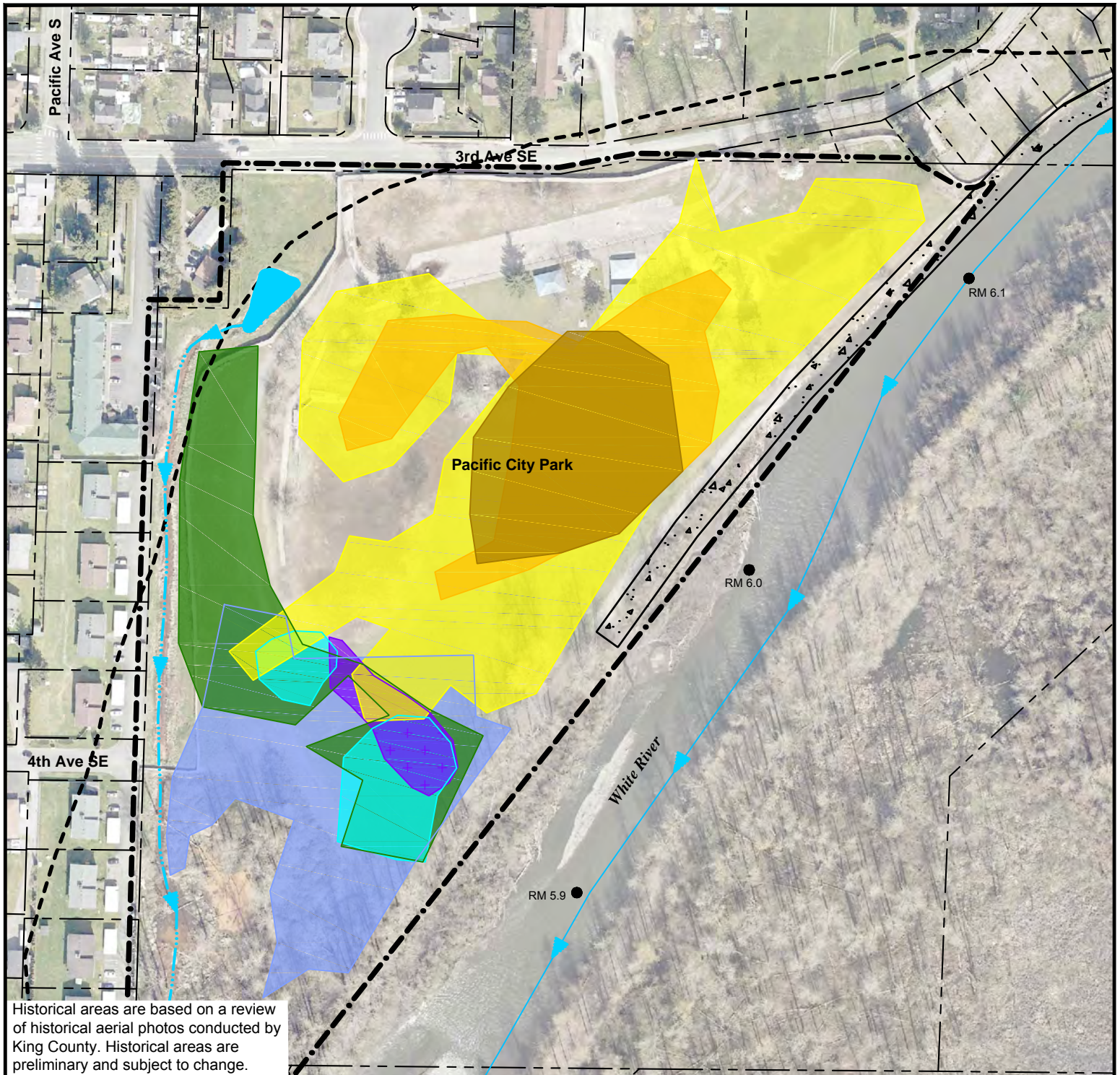
A thorough Site history was provided in the RI Report. However, additional information related to the fill history in the Site vicinity has been obtained and reviewed since the RI Report was prepared; a summary of that information is presented herein. Aerial photographs of the Site vicinity, taken between 1941 and 2011, were reviewed to evaluate the fill history (Appendix A). In addition, Shannon & Wilson completed a review of these historical aerial photographs for the Phase I Environmental Site Assessment (Shannon & Wilson 2015). Lastly, a site grading plan for development of the apartments located to the southwest of Pacific City Park in the 1980s was obtained and reviewed (City of Pacific 2019) (Appendix B).

The aerial photos show that the Site was an undeveloped floodplain from 1931 through 1944, surrounded by residential, agricultural and forested land. Historical aerial photographs dated 1931, 1936, 1955, 1959 and 1965 show ground disturbance and/or apparent debris at the Pacific City Park, consistent with its reported historical use as a dumpsite (Shannon & Wilson 2015). The 1955, 1957, 1959, and 1965 aerial photos indicate that the Site access road terminates in areas with apparent ground disturbance and debris indicative of dumping (Shannon & Wilson 2015). The Site appears to have been cleared and/or graded in the 1968 photo, with more extensive grading and development of the Pacific City Park apparent in the 1972 photo. The 1980 and 1985 aerial photographs show evidence of clearing, grading and/or filling activity to the

southwest of the park where construction of the 4th Avenue SE apartments is evident in the 1990 aerial photograph (Appendix A). A minimal amount of more recent dumping of yard/landscaping debris was also observed in the southern portion of the Pacific City Park in the 2000s, which was determined no relevant for investigative purposes.

The fill soil at the apartments along 4th Avenue SE was placed in 1988 by Kohl Excavating, during the grading and short plat development of Lots 3 and 4 in Fireside Addition #2 for construction of the apartment buildings (see Appendix B, Short Plat 87-PAC-3)(City of Pacific 2019; Flarity 2019). Short Plat 87-PAC-3 indicates that lots 3 and 4 were to be filled to a level above the 100-year flood level per information from Housing and Urban Development prior to construction of any buildings or utilities. No refuse was observed in explorations completed during the SRI in this area.

The results of the RI indicate that portions of Pacific City Park were filled with soil, and other portions of the Site were filled with a combination of soil and refuse. Figure 3 depicts the approximate extent of the historical dumping and filling at Pacific City Park, as interpreted through the review of historical aerial photographs, through the late 1990s. As depicted in Figure 2, the Site is defined by any location where one or more of the COPCs related to the historical dumpsite are present in Site media at concentrations exceeding the screening levels developed for the RI. The presence of fill soil alone, in the absence of COPCs, does not fall under the MTCA definition of a hazardous substance, and therefore is not part of the MTCA Site.



Legend

- Parcel boundary
- Study area
- Historical extent of river floodplain based on 1936 aerial photograph (source: King County)
- Existing stormwater ditch
- Existing concrete revetment
- Existing stormwater pond
- RM 6.0
- River mile (10th)

Historical areas

- | | |
|---|---|
| 1955 dumping | 1989 dumping |
| 1959 dumping | 1990 fill |
| 1965 dumping | 1995 fill |
| 1985 dumping | |

Figure 3.

Approximate Extent of Historical Dumping and Filling, Pacific City Park, Pacific, Washington.

0 100 200 400 Feet



King County



Aerial source: King County (2017)

C:\proj\Y2017\17-06520-000\CAD\Drawings\Supplemental RIFig_Historical dumping.dwg

2. FIELD INVESTIGATION

Herrera staff collected soil samples from three push-probe borings and three new monitoring well borings completed near the south-southwest corner of the Site as part of this investigation. In addition, Herrera collected surface water samples from four locations within the stormwater pond and ditch on the Site; collected groundwater samples from nine existing and three new monitoring wells; and monitored landfill gas at three monitoring wells. The locations of the additional borings and monitoring wells were selected to further evaluate the extent of fill soil and the presence of COPCs in soil and groundwater to the south-southwest of the park (Figure 4). Prior to the start of the work, public and private utility locating services were contacted to locate and mark all underground utilities in the immediate vicinity of the proposed borings and wells.

2.1. INVESTIGATION METHODS

The following subsections describe the investigation methods used to collect soil, groundwater, and surface water samples and to perform soil vapor monitoring. The work was conducted in accordance with the Sampling and Analysis Plan (Herrera 2018). The boring logs, including well construction details, are provided in Appendix C. The extent of fill soil containing refuse previously identified, and soil boring and monitoring well locations at the Site are depicted in Figure 4.

2.1.1. Soil Sampling Methods

On December 17, 2018, Holocene Drilling, Inc. used a track mounted, hollow-stem auger drill rig to install three groundwater monitoring wells (MW-10, MW-11, and MW-12; Figure 4) to a total depth of 15 feet below ground surface (bgs). Soil samples were collected, classified, and screened according to the field sampling methods described in the RI Report. Two soil samples from each boring were collected for laboratory analysis based on the results of field screening and observed soil types.

The monitoring wells were drilled, constructed, and developed using the same field methods described in the RI Report for the previous well installations at the Site. One deviation from prior installations was that the top of each screen in the three new wells was installed to approximately 3 feet bgs to better facilitate soil vapor monitoring, which is shallower than in the previously installed monitoring wells. Each well was completed at the ground surface with a flush-mounted steel monument sealed in concrete.

On December 20, 2018, ESN Northwest used a truck mounted push-probe rig to complete three push probe borings (PP-35, PP-36, and PP-37). Soil samples were collected, classified, and screened according to the sample field sampling methods described in the RI Report. Two soil

samples from each boring were collected for laboratory analysis based on the results of field screening and observed soil types. Following soil sample collection, each push-probe boring was backfilled with bentonite chips and capped at the surface with asphalt cement to match the adjacent ground surface.

A total of 11 soil samples were submitted to OnSite Environmental, Inc. of Redmond, Washington (OnSite) for one or more of the following laboratory analyses to meet the objectives of the investigation:

- Gasoline-range total petroleum hydrocarbons (TPH) by Ecology Method NWTPH-Gx
- Diesel- and oil-range TPH by Ecology Method NWTPH-Dx, with silica gel cleanup
- Carcinogenic polycyclic aromatic hydrocarbons (cPAHs) by US Environmental Protection Agency (EPA) Method 8270D/SIM
- MTCA metals by EPA Methods 6010D/7471B
- Polychlorinated biphenyls (PCBs) by EPA Method 8082A

2.1.2. Groundwater Sampling Methods

On December 21, 2019, three Herrera staff collected groundwater samples from nine existing monitoring wells (MW-1 through MW-9) and three new monitoring wells (MW-10 through MW-12). The groundwater samples were hand delivered to OnSite for the following laboratory analyses:

- Gasoline-range TPH by Ecology Method NWTPH-Gx
- Diesel-and oil-range TPH by Ecology Method NWTPH-Dx
- Volatile organic compounds (VOCs) by EPA Method 8260C
- cPAHs by EPA Method 8270D/SIM
- Total MTCA metals by EPA Methods 200.8/7470A

The samples were collected by the low-flow purge method described in the SAP (Herrera 2018). Samples were held for potential analysis of PCBs pending the results of oil-range TPH analysis, but no oil-range petroleum hydrocarbons were detected so subsequent PCB analysis was not performed.

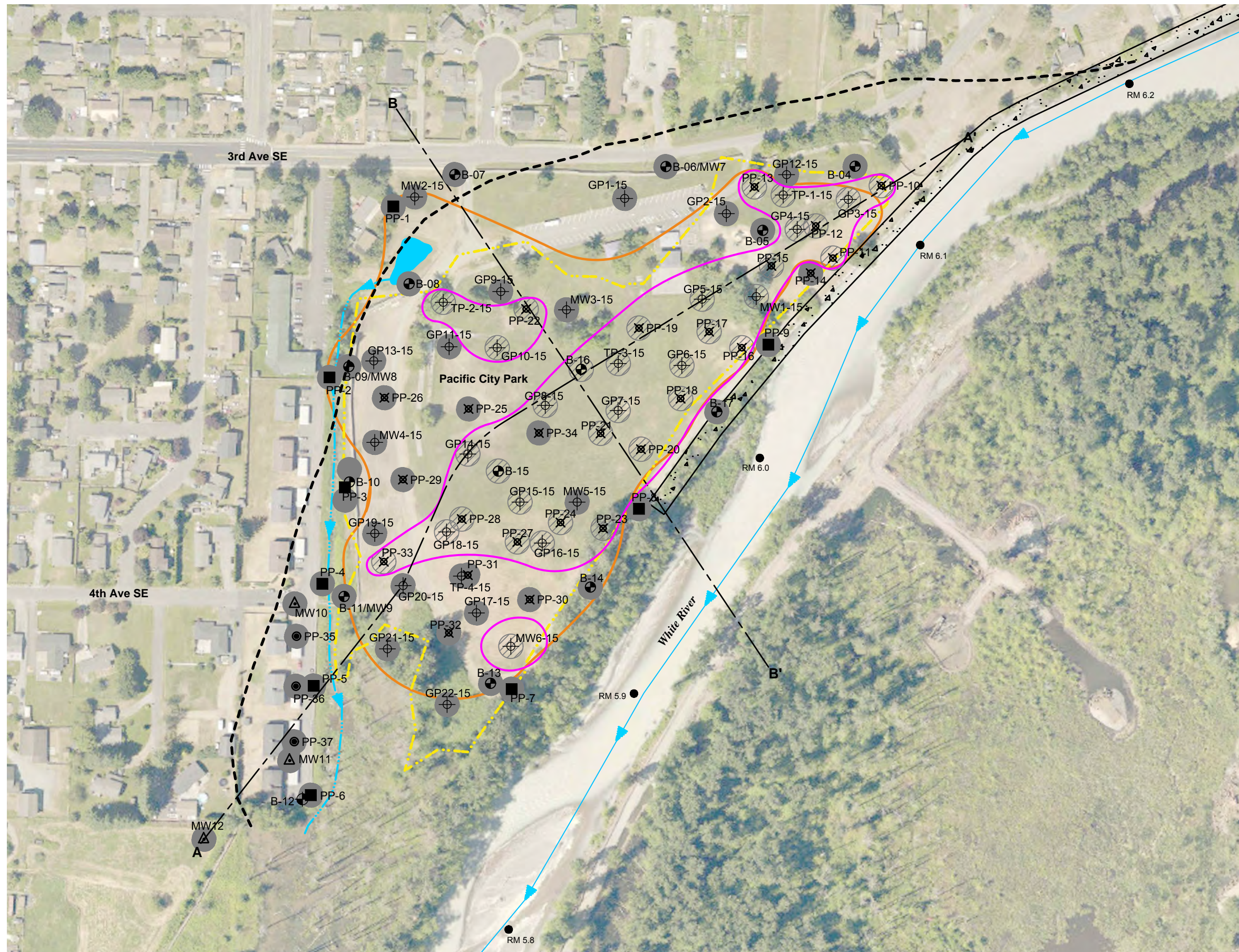


Figure 4.
Extent of Fill Soil Containing
Refuse, and Soil Boring and
Monitoring Well Locations,
Pacific City Park,
Pacific, Washington.

Legend

- — — — — Transect
- - - - - Historical edge of river channel based on 1936 aerial photograph (source: King County)
- — — — — Pacific City Park MTCA site boundary
- Existing concrete revetment
- Existing stormwater pond
- Existing stormwater ditch
- RM 6.0 River mile (10th)
- Probe location (Herrera, 5-2017)
- ⊕ Probe/well/test pit location (Shannon & Wilson, 9-2015)
- ⊗ Geotech boring location (Aspect 2-2018, 3-2018)
- ⊗ Probe location (Herrera 2-2018, 3-2018)
- ⊗ Probe location (Herrera 12-2018)
- △ Monitoring well location (12-2018)
- Approximate lateral extent of fill at Pacific City Park
- Approximate lateral extent of refuse
- Fill identified on boring log
- ⊗ Refuse and fill identified on boring log

Notes

1. Geotechnical boring B-12 is shown on this figure and figure 7 only, no environmental samples were collected.

0 100 200 400 Feet



Aerial source: King County (2017)

O:\proj\Y2017\17-06520-000\CAD\Drawings\Supplemental RA\Fig_all sample locations.dwg

2.1.3. Surface Water Sampling Methods

On December 20, 2019, two Herrera staff collected surface water samples from four locations (SW1 through SW4) including the onsite stormwater pond and along the stormwater ditch, in conjunction with the December 2018 quarterly groundwater sampling event (see Figure 5). The surface water samples were submitted to Onsite for the following laboratory analyses:

- Gasoline-range TPH and BTEX by Ecology Method NWTPH-Gx/EPA Method 8021
- Diesel- and oil-range TPH by Ecology Method NWTPH-Dx
- Total MTCA metals by EPA Methods 6010C/200.8/7470A
- cPAHs by EPA Method 8270D/SIM
- VOCs by EPA Method 8260C
- Hardness by EPA Method 6010D/SM 2340B.

Samples were held for potential analysis of PCBs pending the results of oil-range TPH analysis, but no oil-range petroleum hydrocarbons were detected so subsequent PCB analysis was not performed.

2.1.4. Soil Vapor Monitoring Methods

On December 21, 2018, during the quarterly groundwater sampling event, landfill gas monitoring was conducted at three locations (MW-6, MW-9, and MW-11) (Figure 6). These were the only wells where static groundwater elevations were below the top of the well screen. Landfill gas monitoring was performed using a Landtec Gas Analyzer & Extraction Monitor

(GEM) 2000 Plus gas analyzer and extraction monitor that was calibrated by the supplier prior to use. The wells were purged during monitoring using an Aircheck Sampler pump by SKC, Ltd. at a rate of approximately 3,000 ml/min.

2.2. INVESTIGATION RESULTS

The analytical results for samples collected as part of the SRI are compared to the Site Screening Levels (SSLs) developed in the RI Report based on current and potential future exposure pathways and receptors (Herrera 2019).

2.2.1. Subsurface Conditions

The soil observed in the borings completed for the SRI consisted of 4 to 7.5 feet of fill soil overlying native alluvial deposits, consisting primarily of sand and gravel with varying amounts of silt (see Appendix C). The fill material was identified by the presence of angular gravels resembling typical road base material, lighter or darker colored soil textures compared to deeper native soils, presence of man-made material, characteristics of the soil core sample material such as layering, and findings from previous borings completed at the Site. A thin layer of asphalt was observed at approximately 4.5 feet bgs in boring PP-36, and glass bottle fragments were observed near 1-foot bgs in MW-12. Despite the presence of some man-made material, refuse was not found in any of the six borings. Elevated photo ionization detector (PID) readings were noted between approximately 3 and 5.5 feet bgs in boring MW-10 during sample collection.

Thin peat layers were encountered near 6.5 feet bgs in well MW-12 and at the bottom of borings PP-35 and PP-36. Figure 7 provides a geologic cross section spanning from the northeast to the southwest through the Site that depicts the approximate extents of fill, refuse and fill, and native alluvial deposits, as well as locations where COPCs were detected in soil.

Groundwater measured at the time of drilling ranged from 3 feet bgs in well MW-12 to 7 feet bgs in well MW-10. Table 1 provides a summary of groundwater elevations measured during groundwater sampling conducted in December 2018, as well as during previous sampling events for the RI. Figure 8 depicts a contour map based on static water levels measured in MW-1 through MW-12 and B-03 during the December 2018 sampling event.

The direction of groundwater water flow at the Site is influenced by the stormwater drainage ditch located along the west side of the park. The surface water elevation in the stormwater ditch, measured on a staff gage adjacent to the west of MW-8 on December 21, 2018, was 0.17 feet lower than the static water level measured in the well. This, along with other static groundwater level measurements from the wells, indicates that the groundwater flow direction was to the west-southwest toward the ditch and to the southeast toward the ditch for areas located west of the Park boundary (Figure 8).

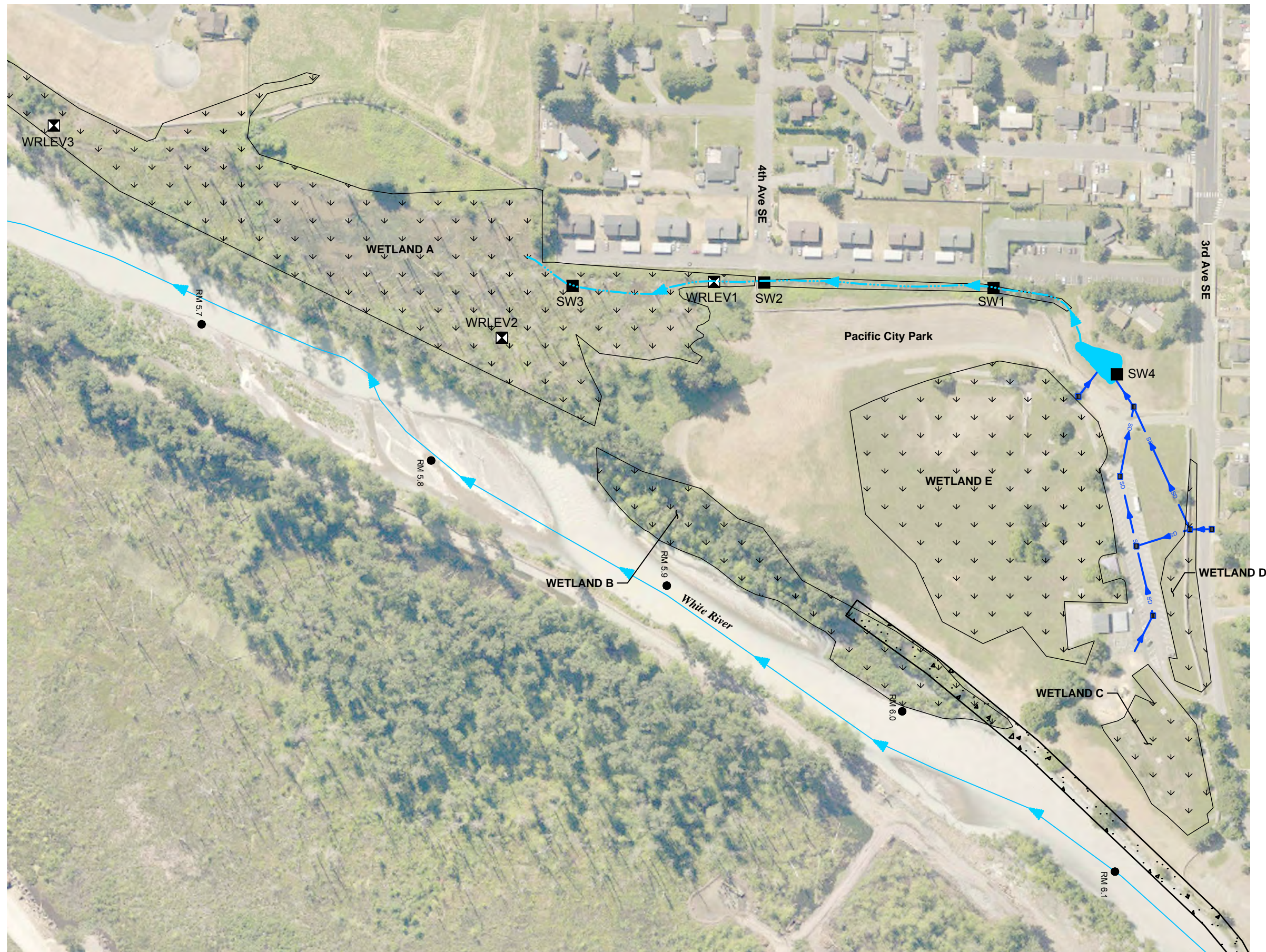


Figure 5.
Wetlands, Stormwater
Conveyance Features, and
Surface Water Sample Locations,
Pacific City Park,
Pacific, Washington.

Legend

- SD — Existing storm drain line
- ↓ ↓ Existing wetland
- Existing stormwater pond
- ▬ ▬ ▬ ▬ Existing concrete revetment
- - - - - Existing stormwater ditch
- ▬ ▬ ▬ ▬ Existing catch basin
- SW# Sample location
- WRLEV# Sample location
- RM 6.0 River mile (10th)

Notes

1. Study area for surface water samples extends south of park to include King County 2010 and 2011 sampling.

0 100 200 400 Feet



Aerial source: King County (2017)

O:\proj\Y2017\17-06520-000\CAD\Drawings\Supplemental RIFig_Surface water sample locs - 11x17 land.dwg

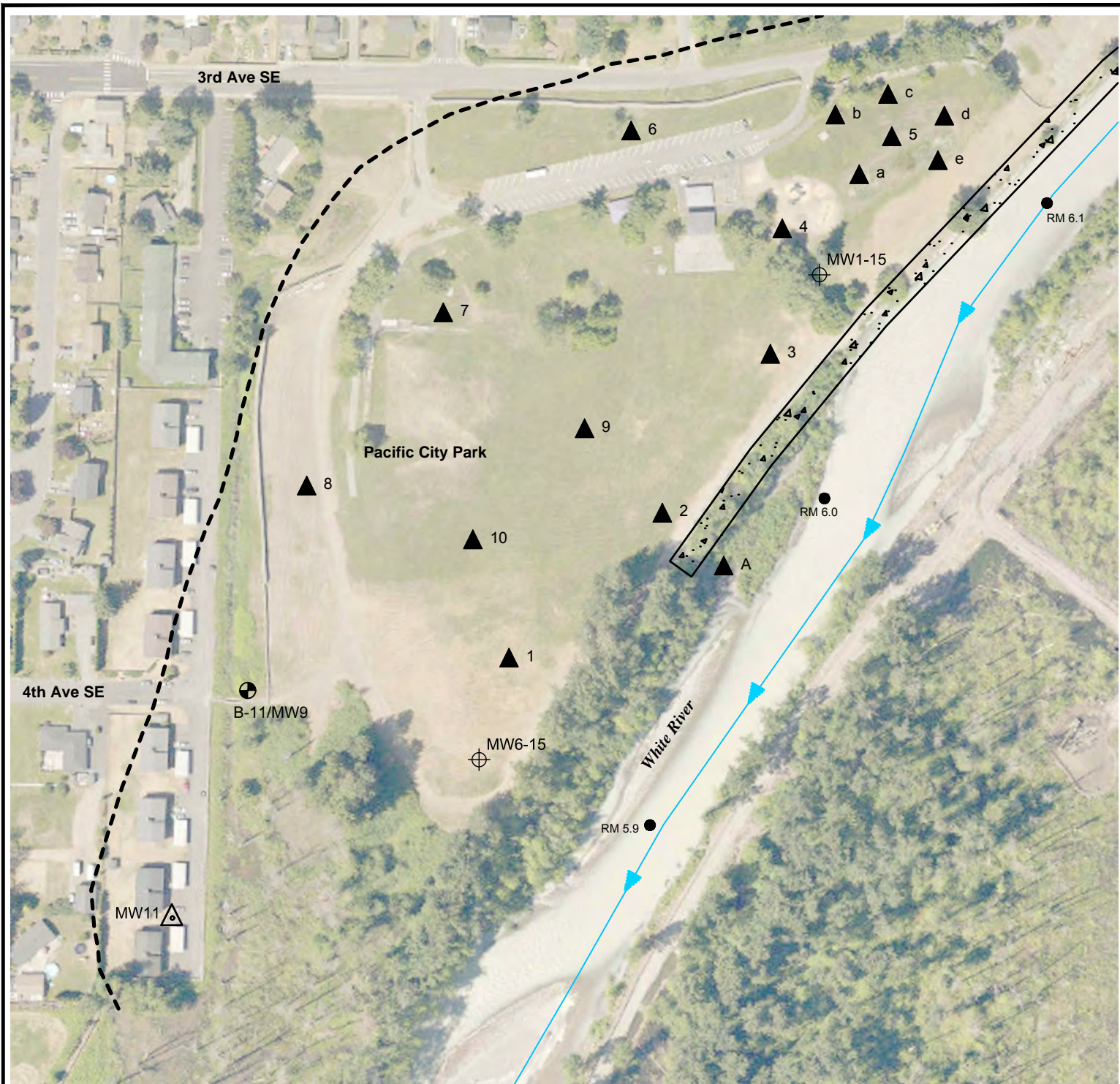
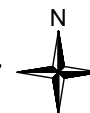


Figure 6.
Soil Vapor Monitoring Locations,
Pacific City Park,
Pacific, Washington.

0 100 200 400 Feet



King County



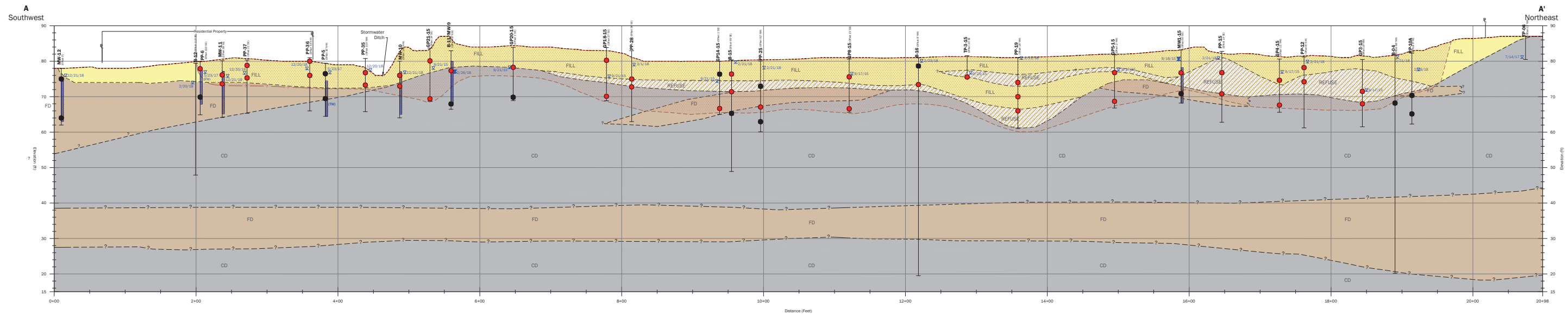


Figure 7.
Cross Section A-A'
Pacific City Park,
Pacific, Washington.

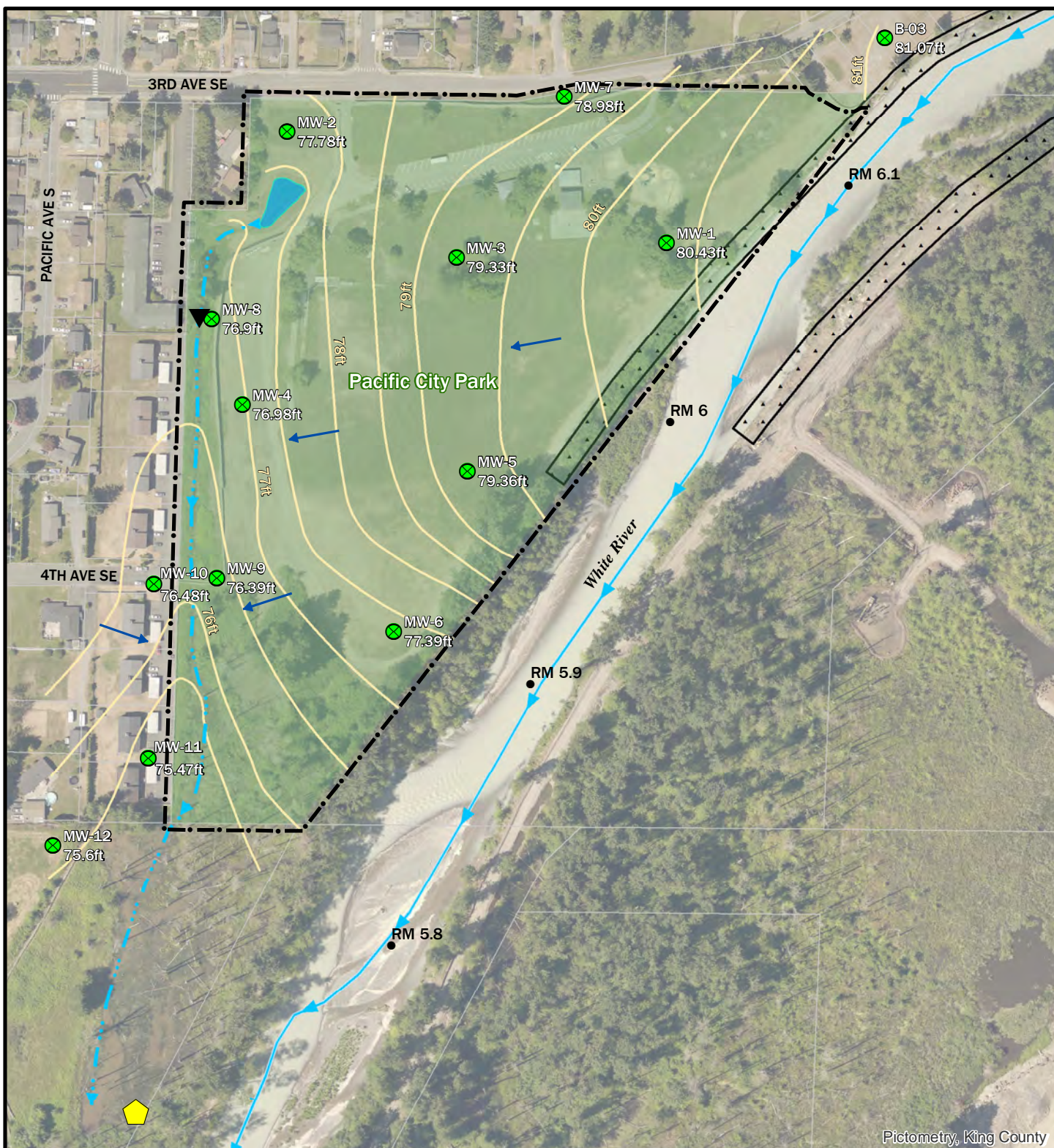
Legend

- Water Level at Time of Drilling and Date Measured
- Well Name and Screen
- Well Screen Interval
- Static Water Level in Well and Date Measured
- FD (Floodplain Deposits)
- FILL (Fill)
- REFUSE (Refuse)
- CD (Channel Deposits)
- Approximate Extent of Soil With One or More COPCs at Concentrations Exceeding the SSLs
- Soil Sample Location With One or More COPCs at Concentrations Exceeding the SSLs
- Soil Sample Location With No COPCs at Concentrations Exceeding the SSLs
- COPCs = Chemicals of Potential Concern
- SSL = Site Screening Levels
- Horizontal Datum is Washington State Plane
- North Units are in US Survey Feet
- Vertical Datum is NAVD88
- 0 25 50 100 Feet
- Horizontal Scale: 1" = 50'
- Vertical Scale: 1" = 10'
- Vertical Exaggeration 5x

King County

Apr 2019
17039

CD
CD



Pictometry, King County

Legend

- Estimated direction of groundwater flow
- Groundwater contour
- Study area
- Existing monitoring wells
- Barometric pressure sensor
- Staff gage
- River mile (10th)
- River
- Stormwater ditch
- Stormwater pond
- Park
- Concrete revetment
- Parcels

The information included on this map has been compiled by King County staff from a variety of sources and is subject to change without notice. King County makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or rights to the use of such information. This document is not intended for use as a survey product. King County shall not be liable for any general, special, indirect, incidental, or consequential damages including, but not limited to, lost revenues or lost profits resulting from the use or misuse of the information contained on this map. Any sale of this map or information on this map is prohibited except by written permission of King County.

Figure 8.
Groundwater Level Contour Map,
December 21, 2018, Pacific City Park,
Pacific, Washington.

0 125 250 500
Feet



Aerial: King County (2017)
Prepared for King County by Herrera
Vertical datum: NAVD88

K:\Projects\Y2017\17-06520-000\ProjectReport\Groundwaterwater_level_contour_20181221.mxd (5/1/2019)

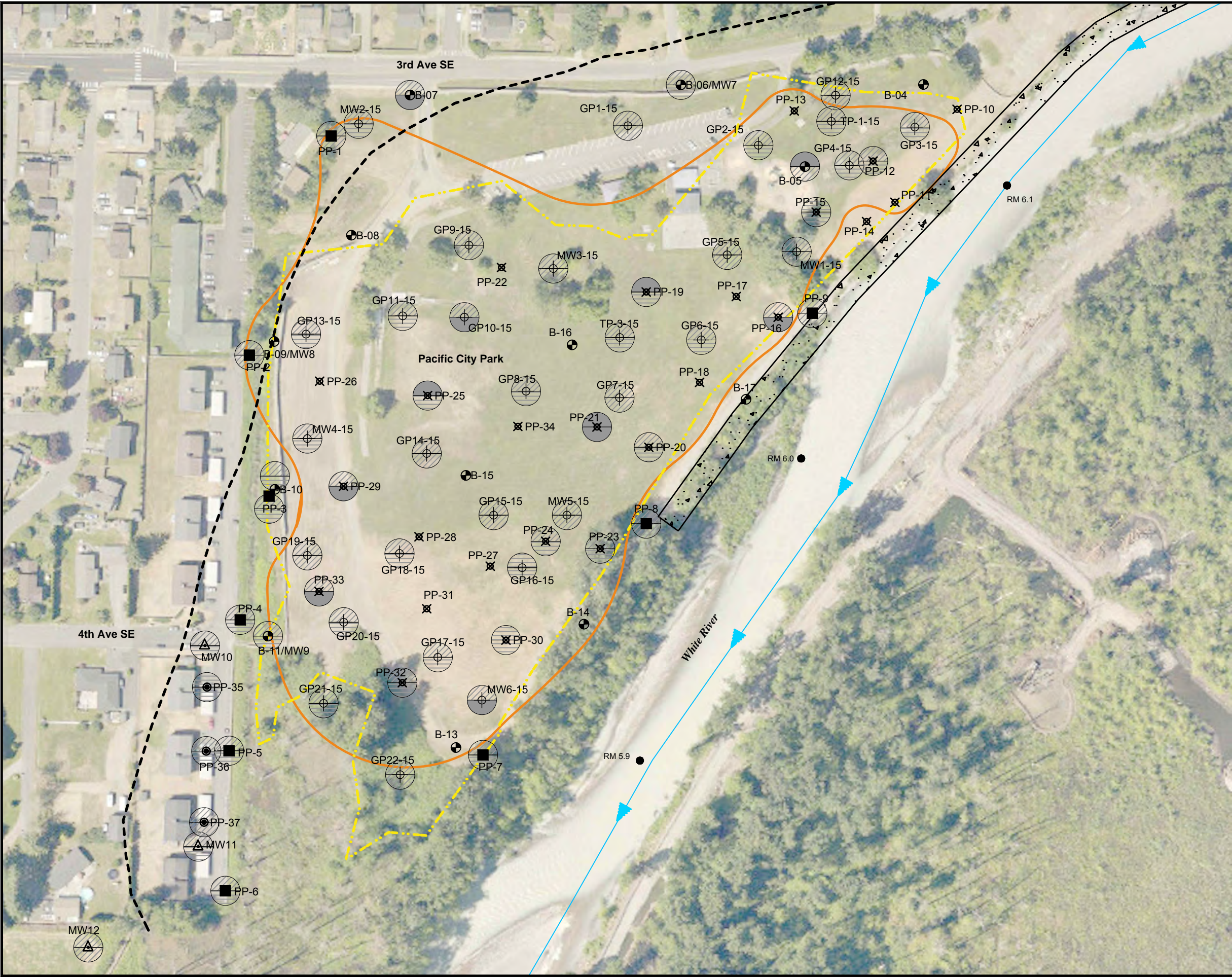


Figure 9.
Extent of Diesel and Lube-oil
Range Petroleum Hydrocarbons
in Soil,
Pacific City Park,
Pacific, Washington.

Legend

- Historical edge of river channel based on 1936 aerial photograph (source: King County)
- Pacific City Park MTCA site boundary
- - - - - Approximate lateral extent of fill at Pacific City Park
- Existing concrete revetment
- Probe location (Herrera, 5-2017)
- Probe/well/test pit location (Shannon & Wilson, 9-2015)
- Geotech boring location (Aspect 2-2018, 3-2018)
- Probe location (Herrera 2-2018, 3-2018)
- Probe location (Herrera 12-2018)
- Monitoring well location (12-2018)
- RM 6.0 River mile (10th)

Sample results

- Diesel results
- Lube-oil results
- Not detected
- Detected below site screening level
- Exceeds site screening level

Notes

- Site screening levels:
 - 200 mg/kg for diesel
 - 2,000 mg/kg for lube-oil
- mg/kg - milligrams per kilogram

0 75 150 300 Feet



Aerial source: King County (2017)

O:\proj\Y2017\17-06520-000\CAD\Drawings\Supplemental R\Fig_Diesel-lube oil - 11x17 land.dwg

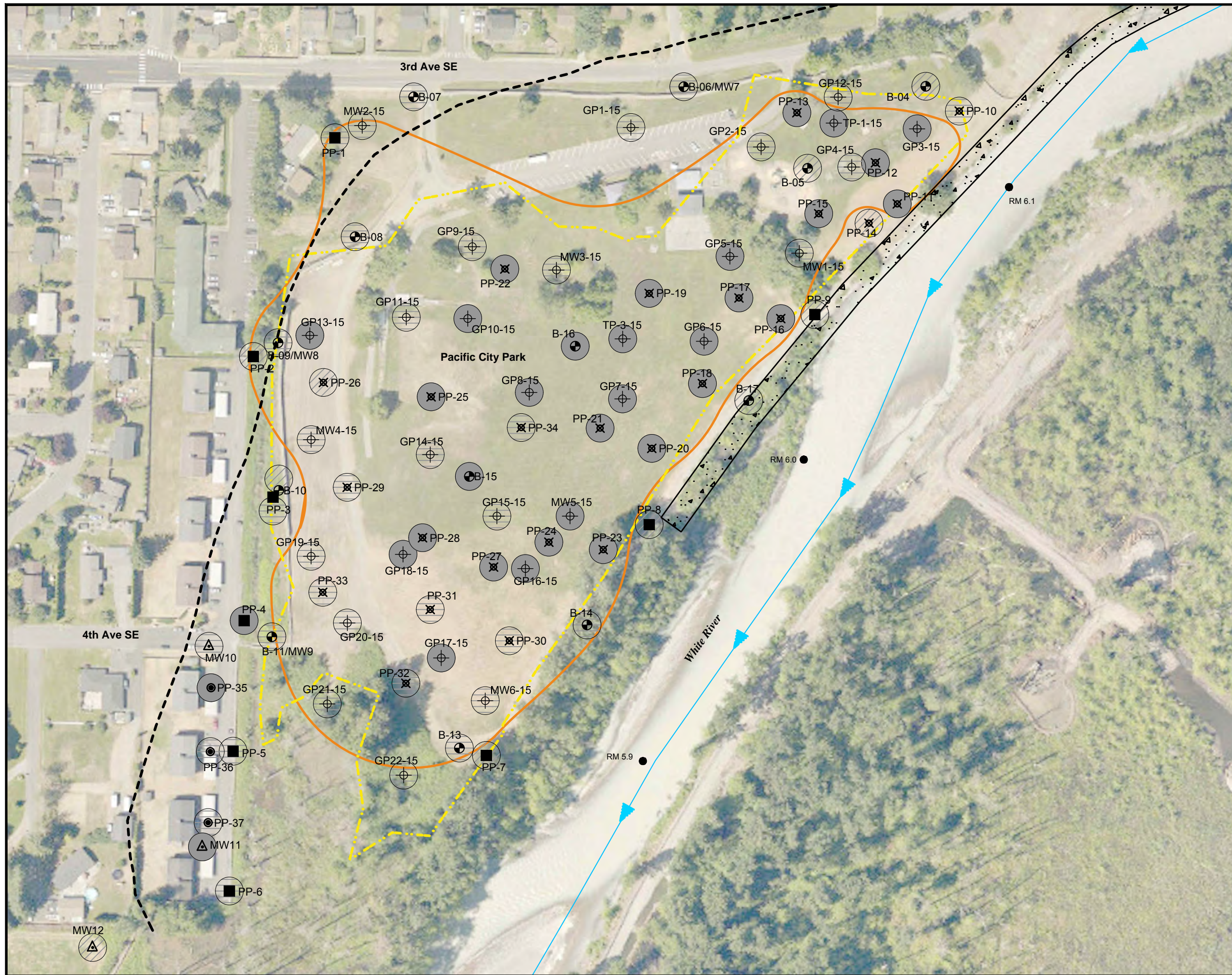


Figure 10.
Extent of Lead in Soil,
Pacific City Park,
Pacific, Washington.

Legend

- Historical edge of river channel based on 1936 aerial photograph (source: King County)
- Pacific City Park MTCA site boundary
- ... Approximate lateral extent of fill at Pacific City Park
- Existing concrete revetment
- Probe location (Herrera, 5-2017)
- ⊕ Probe/well/test pit location (Shannon & Wilson, 9-2015)
- Geotech boring location (Aspect 2-2018, 3-2018)
- ⊗ Probe location (Herrera 2-2018, 3-2018)
- Probe location (Herrera 12-2018)
- △ Monitoring well location (12-2018)
- RM 6.0 River mile (10th)
- Sample results**
- ⊗ Not detected
- ⊕ Detected below site screening level
- Exceeds site screening level

Notes

1. Lead used as an indicator of site metals contamination for MTCA metals (arsenic, cadmium, chromium, lead, and mercury)
2. Site screening levels:
 - 44 mg/kg for lead
2. mg/kg - milligrams per kilogram

0 75 150 300 Feet



Aerial source: King County (2017)

O:\proj\Y2017\17-06520-000\CAD\Drawings\Supplemental R\Fig_metal.dwg

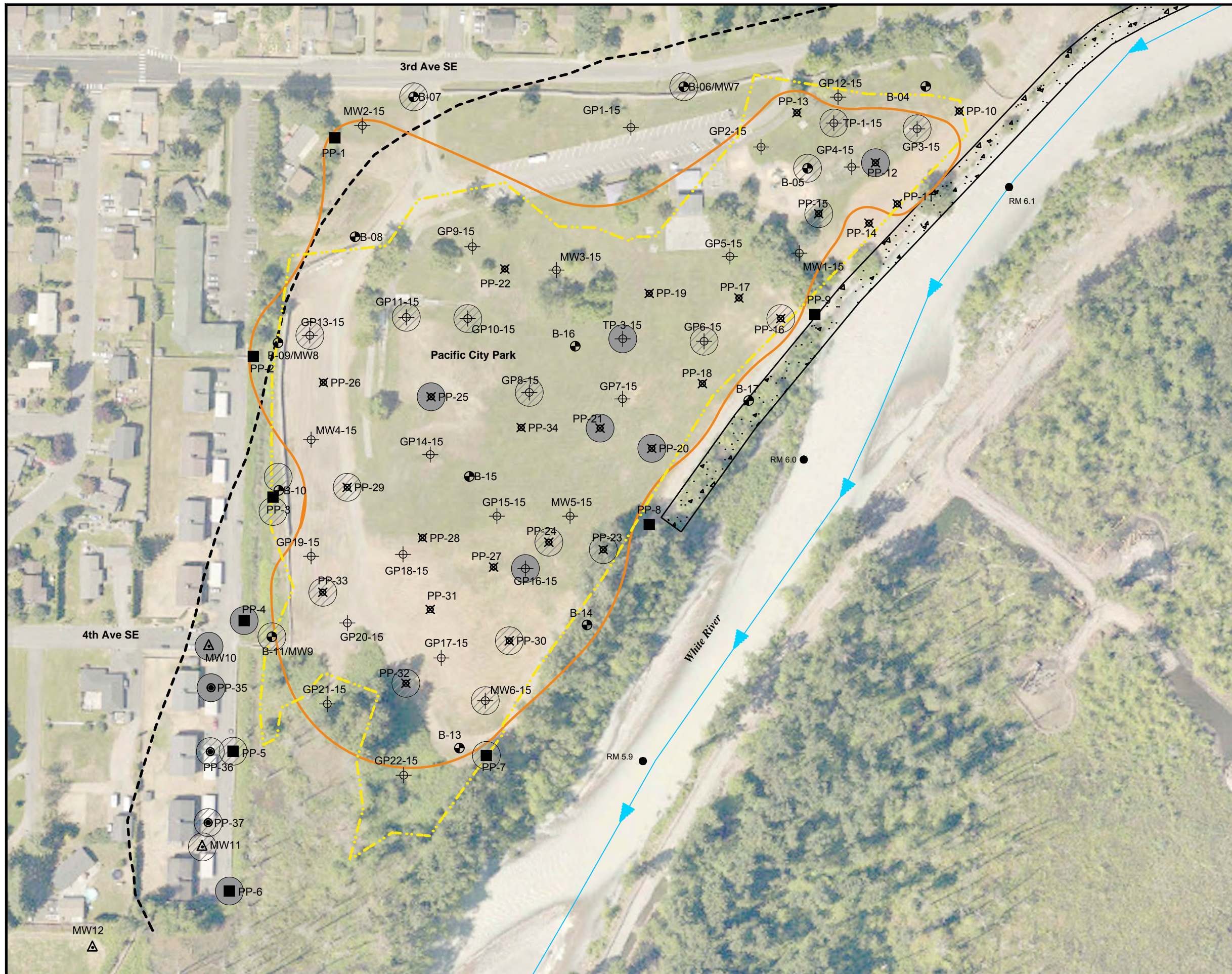


Figure 11.
Extent of Total Polychlorinated
Biphenyls (PCBs) in Soil,
Pacific City Park,
Pacific, Washington.

Legend

- Historical edge of river channel based on 1936 aerial photograph (source: King County)
- Pacific City Park MTCA site boundary
- Approximate lateral extent of fill at Pacific City Park
- Existing concrete revetment
- Probe location (Herrera, 5-2017)
- Probe/well/test pit location (Shannon & Wilson, 9-2015)
- Geotech boring location (Aspect 2-2018, 3-2018)
- Probe location (Herrera 2-2018, 3-2018)
- Probe location (Herrera 12-2018)
- Monitoring well location (12-2018)
- RM 6.0 River mile (10th)

Sample results

- Not detected
- Detected below site screening level
- Exceeds site screening level

Notes

1. Site screening levels:
 - 0.05 mg/kg for total PCBs
2. mg/kg - milligrams per kilogram

0 75 150 300 Feet



Aerial source: King County (2017)

O:\proj\Y2017\17-06520-000\CAD\Drawings\Supplemental R\Fig_PCBs.dwg

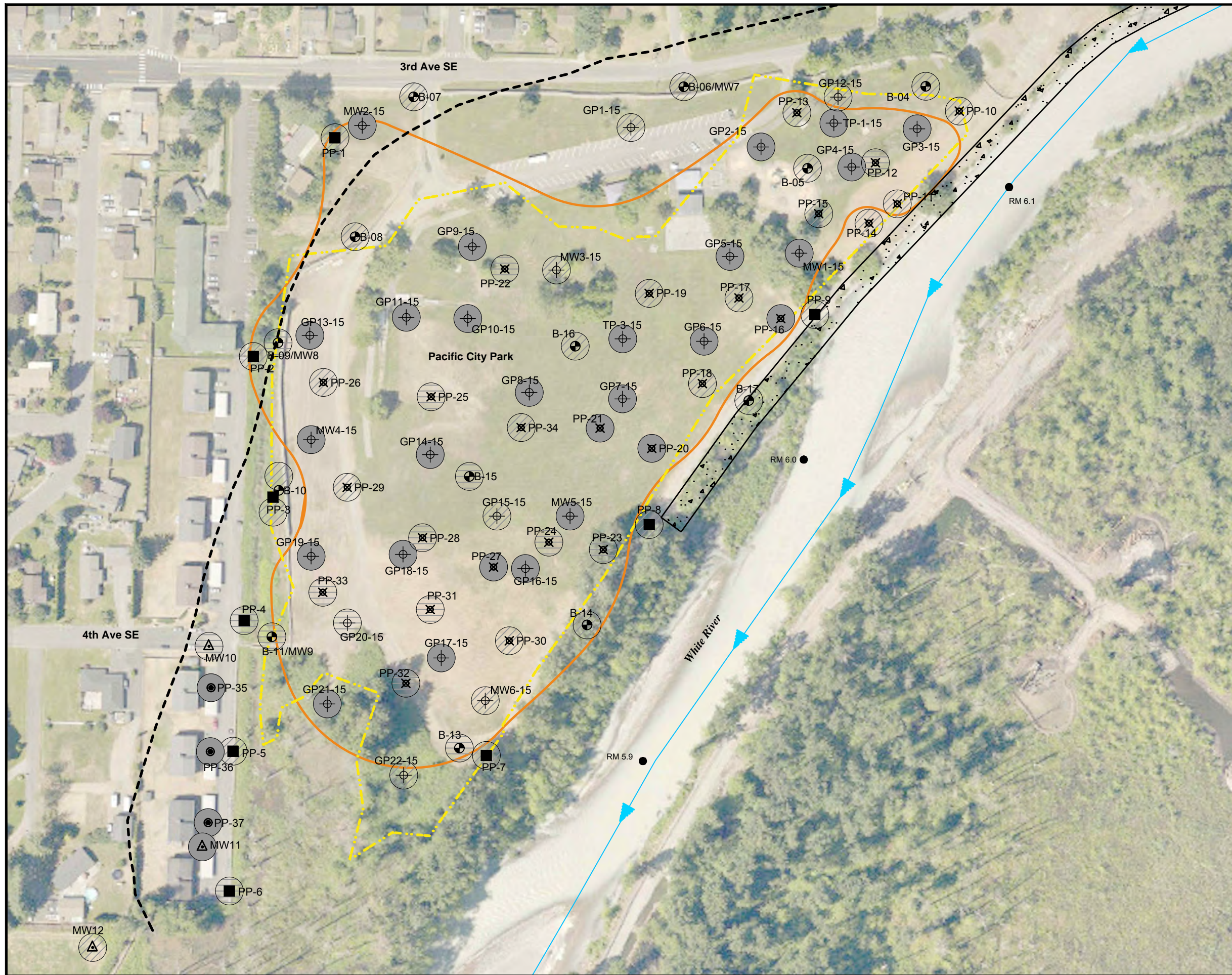


Figure 12.
Extent of Total Carcinogenic
Polycyclic Aromatic
Hydrocarbons (cPAHs) in Soil,
Pacific City Park,
Pacific, Washington.

Legend

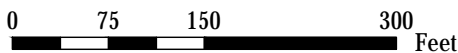
- Historical edge of river channel based on 1936 aerial photograph (source: King County)
- Pacific City Park MTCA site boundary
- ... Approximate lateral extent of fill at Pacific City Park
- Existing concrete revetment
- Probe location (Herrera, 5-2017)
- Probe/well/test pit location (Shannon & Wilson, 9-2015)
- Geotech boring location (Aspect 2-2018, 3-2018)
- Probe location (Herrera 2-2018, 3-2018)
- Probe location (Herrera 12-2018)
- Monitoring well location (12-2018)
- RM 6.0 River mile (10th)

Sample results

- Not detected
- Detected below site screening level
- Exceeds site screening level

Notes

1. Site screening levels:
 - 0.09 mg/kg for total cPAHs
2. mg/kg - milligrams per kilogram



Aerial source: King County (2017)
O:\proj\Y2017\17-06520-000\CAD\Drawings\Supplemental RIFig_cPAH.dwg

2.2.2. Soil Analytical Results

A comprehensive summary of soil analytical data for RI samples is presented in Table 2. Figures 9 through 12 depict the extent of diesel- and lube oil-range TPH, lead, PCBs, and total cPAHs in soil. Concentrations of the COPCs were not detected in soil above the SSLs during the SRI, with the following exceptions:

- Gasoline-range petroleum hydrocarbons were detected in soil at boring MW-10, at a concentration of 110 milligrams/kilogram [mg/kg], which is slightly above the SSL of 100 mg/kg.
- The MTCA metals cadmium, lead and mercury were detected above SSLs in one or both soil samples collected from boring PP35 (Table 2).
- Total PCBs were detected above the SSL of 0.05 mg/kg in samples collected from borings MW-10 and PP35 at concentrations of 0.13 and 0.23 mg/kg, respectively.
- Concentrations of total cPAHs were detected above the SSL of 0.02 mg/kg in samples collected at five locations (MW-10, MW-11, PP35, PP36, and PP-37) at concentrations ranging from 0.021 to 0.787 mg/kg (Table 2).

2.2.3. Groundwater Analytical Results

A summary of groundwater analytical results for samples collected from monitoring wells is presented in Table 3. Figures 13 and 14 depict the extent of total and dissolved metals, and non-metals COPCs in groundwater, respectively. The groundwater analytical data for the December 2018 sampling did not identify concentrations of TPH or cPAHs above the SSLs. Of the five MTCA metals, only total arsenic was detected above the SSL of 3.3 micrograms per liter ($\mu\text{g/L}$) in wells MW-4 and MW-7, at concentrations of 4.5 and 11.0 $\mu\text{g/L}$, respectively.

Three VOCs were detected in the groundwater samples collected in December 2018. Vinyl chloride was detected at a concentration of 0.26 $\mu\text{g/L}$ in the groundwater sample collected from well MW-10 which exceeds the SSL of 0.02 $\mu\text{g/L}$ (Table 3). Two other VOCs, (cis) 1,2-dichloroethene (in MW-3) and chlorobenzene (in samples from MW-4 and MW-9), were detected in groundwater below the SSLs. No other VOCs were detected above the SSLs in any of the samples.

As reported in the RI Report, concentrations of benzene were detected above the SSL in a groundwater grab sample collected from boring PP-5 in 2017 (Herrera, 2019). However, the analytical data for groundwater samples collected from permanent monitoring wells MW-10 and MW_11, located in the vicinity of boring PP-5, did not identify benzene in groundwater above laboratory reporting limits (Table 3).

2.2.4. Surface Water Analytical Results

A summary of surface water analytical results for samples from the onsite stormwater pond and ditch is presented in Table 4. Surface water analytical results were compared to the groundwater SSLs protective of surface water. No petroleum hydrocarbons, total MTCA metals, cPAHs, or VOCs were detected above the SSLs in any of the samples.

2.2.5. Soil Vapor Monitoring Results

A summary of soil vapor monitoring results is presented in Table 5. No methane (CH₄) or hydrogen sulfide (H₂S) were measured in soil gas at wells MW-6, MW-9, or MW-11 during the December 2018 sampling event. Based on these results and previous monitoring conducted and discussed in the RI report, it does not appear that the Site is producing or releasing landfill gas.

2.2.6. Data Quality Analysis

Laboratory analyses for the December 2018 investigation were performed by OnSite Environmental, of Redmond, Washington, an Ecology-accredited laboratory. Laboratory reports and chain of custody forms are provided in Appendix D, and data quality assurance review was completed by Herrera for all analyses performed (see memorandum included in Appendix E). Data were validated based on the following:

- Sample custody, preservation, holding times, and completeness
- Laboratory reporting limits
- Method blank analysis
- Laboratory control sample analysis
- Surrogate compound analysis
- Matrix spike analysis
- Laboratory duplicate analysis.

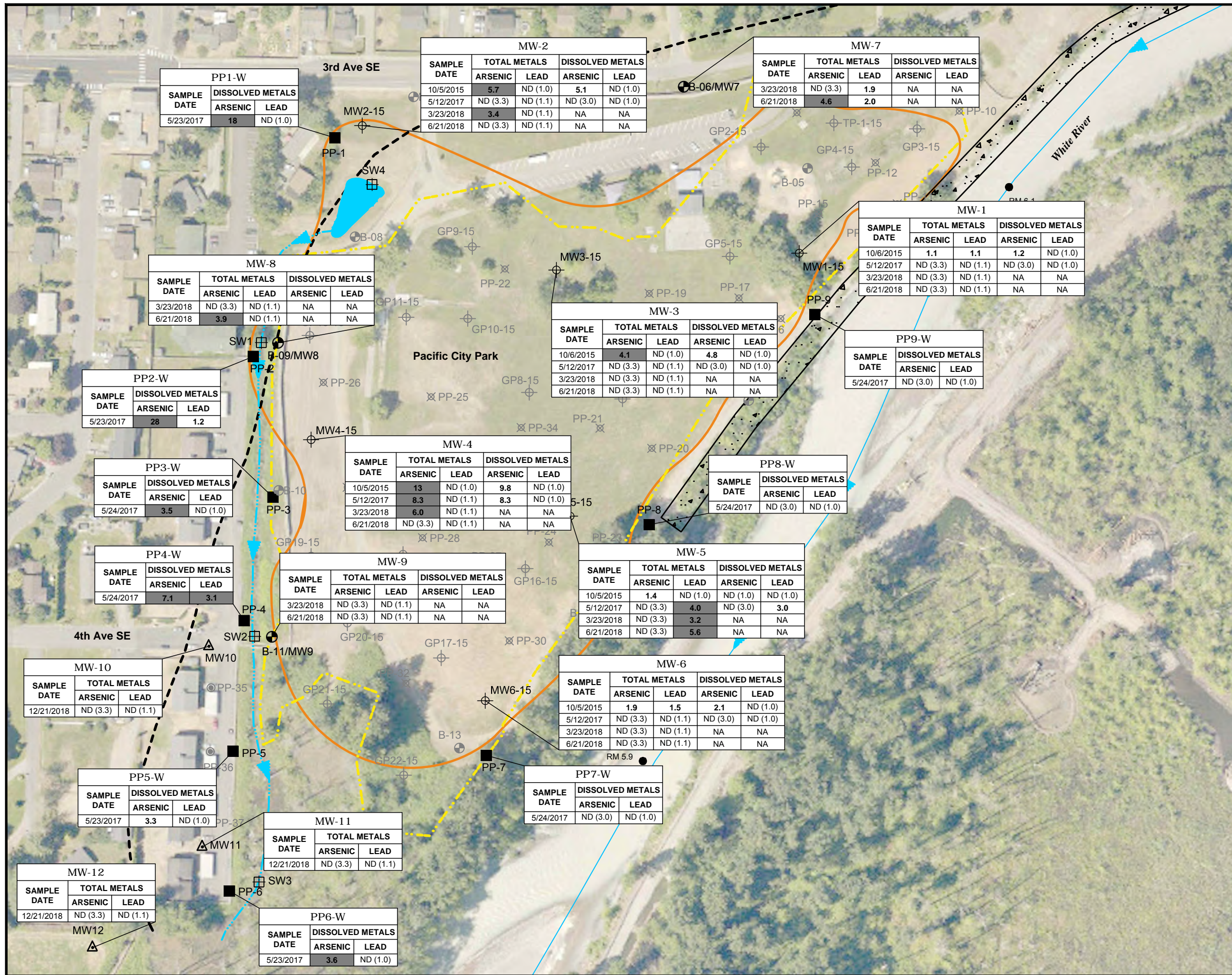


Figure 13.
Extent of Total and Dissolved
Metals in Groundwater,
Pacific City Park,
Pacific, Washington.

Legend

- Historical edge of river channel based on 1936 aerial photograph (source: King County)
- Pacific City Park MTCA site boundary
- Approximate lateral extent of fill at Pacific City Park
- Existing concrete revetment
- Existing stormwater pond
- Existing stormwater ditch
- Probe location (Herrera, 5-2017)
- Surface water sample location (Herrera, 12-2018)
- Probe/well/test pit location (Shannon & Wilson, 9-2015)
- Geotech boring location (Aspect 2-2018, 3-2018)
- Probe location (Herrera 2-2018, 3-2018)
- Probe location (Herrera 12-2018)
- Monitoring well location (12-2018)
- RM 6.0 River mile (10th)
- 1.1 Sample detected above the reporting limit
- 1.1 Sample exceeds site screening level

Notes

- Total and dissolved metals values reported in micrograms per liter (µg/L)
- ND - not detected above the laboratory reporting limit shown in parenthesis
- NA - not analyzed

0 75 150 300 Feet



Aerial source: King County (2017)

O:\proj\Y2017\17-06520-000\CAD\Drawings\Supplemental RIF\fig_metal_GW.dwg

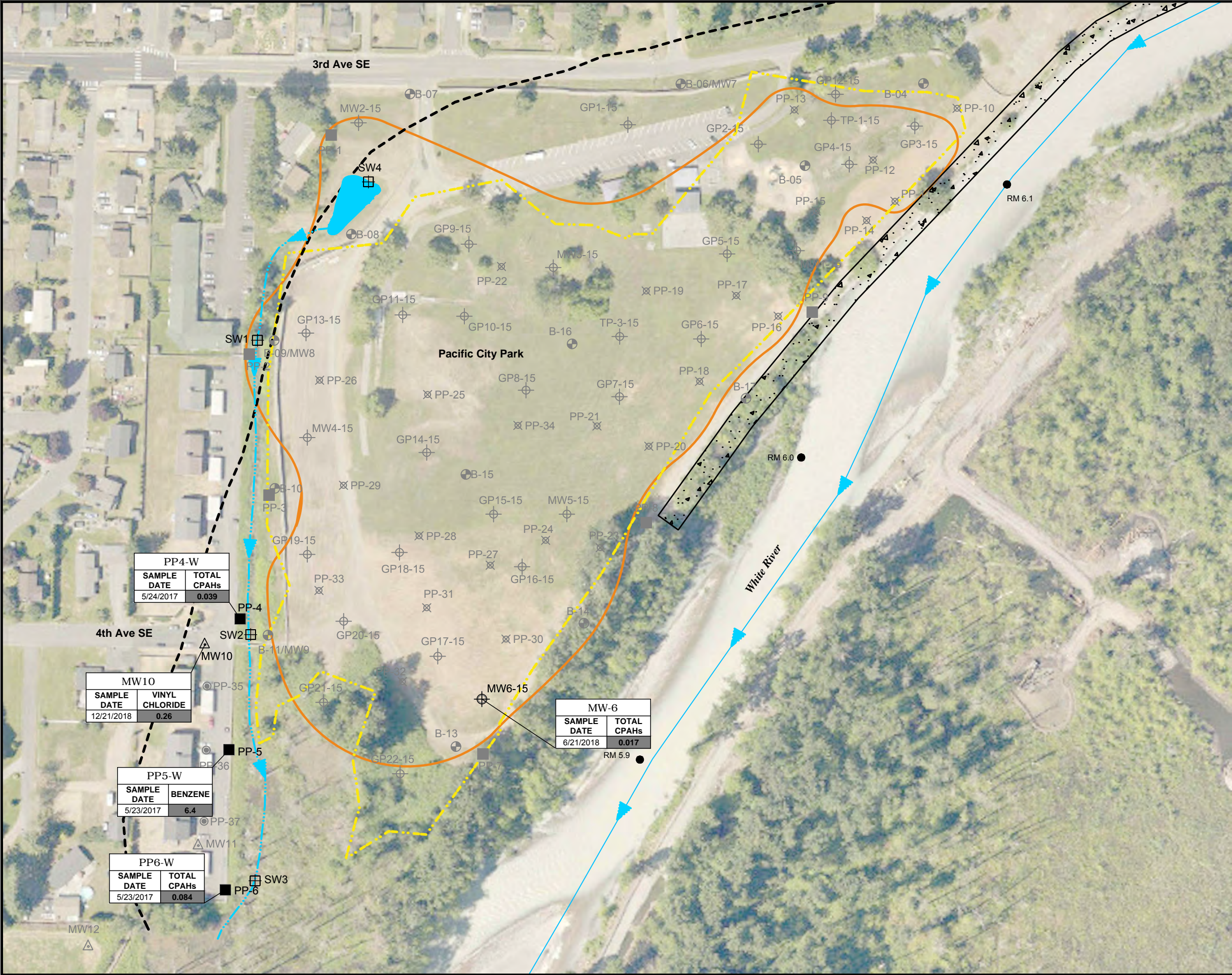


Figure 14.
Non-metals Contaminants of
Concern in Groundwater,
Pacific City Park,
Pacific, Washington.

Legend

- Historical edge of river channel based on 1936 aerial photograph (source: King County)
- Pacific City Park MTCA site boundary
- - - - - Approximate lateral extent of fill at Pacific City Park
- ▬ Existing concrete revetment
- Existing stormwater pond
- Existing stormwater ditch
- Probe location (Herrera, 5-2017)
- Surface water sample location (Herrera, 12-2018)
- Probe/well/test pit location (Shannon & Wilson, 9-2015)
- Geotech boring location (Aspect 2-2018, 3-2018)
- Probe location (Herrera 2-2018, 3-2018)
- Probe location (Herrera 12-2018)
- Monitoring well location (12-2018)
- RM 6.0 River mile (10th)
- 1.1 Sample exceeds site screening level

- Notes**
1. Total and dissolved metals values reported in micrograms per liter (µg/L)
 2. ND - not detected above the laboratory reporting limit shown in parenthesis
 3. NA - not analyzed

0 75 150 300 Feet

King County

N

3. CONCEPTUAL SITE MODEL

The conceptual site model has been updated from the RI Report based on the results of the supplemental RI, including groundwater and surface water sampling and soil vapor monitoring completed during the fourth quarter of 2018. The results of the RI indicate that portions of Pacific City Park were filled with soil, and other portions were filled with a combination of soil and refuse (Figure 3). The sources of COPCs consist of fill soil mixed with refuse, where analytical testing indicated the presence of TPH, PCBs and VOCs, and fill soil containing ubiquitous, low concentrations of metals and total cPAHs. The Pacific City Park Site can be defined by any location where COPCs related to the historical dumpsite are present in media at concentrations exceeding the SSLs. The SSL exceedances found off-property, to the southwest, are interpreted to be attributable to the grading and filling completed during construction of the 4th Avenue SE apartments in 1988 and not associated with fill at the historical dumpsite.

3.1. PHYSICAL CONDITIONS

The soil and groundwater conditions observed in the supplemental RI explorations are consistent with those documented in the RI across the Site. The subsurface soil consists of 4 to 7.5 feet of fill soil, composed of silt, sand and gravel, overlying native alluvial sediments. Except for some surficial glass debris at boring MW-12, there was no refuse observed in the supplemental RI explorations. Cross section A-A' was updated to incorporate the findings of the supplemental RI explorations and is included as Figure 7.

Based on December 2018 water level measurements, groundwater flow was towards the southwest on the east side of the stormwater ditch and to the southeast on the west side of the stormwater ditch (Figure 8). Based on these measurements, groundwater appears to discharge seasonally to the stormwater ditch. Additional water level measurements taken during groundwater sampling events planned in March, June, and September 2019 will be used to further characterize the groundwater flow characteristics around the stormwater ditch. The data will be presented in technical memorandums that will be submitted by King County to Ecology.

3.2. CONTAMINANT NATURE AND EXTENT

The Site is defined by any location where COPCs related to the historical dumpsite are present at concentrations exceeding the SSLs. The Site boundary is depicted on Figure 2. The supplemental RI was conducted to evaluate the extent of fill soil and the presence of COPCs in soil and groundwater to the south-southwest. The following subsections include updated descriptions of the known distribution of concentrations of COPCs to the south-southwest of the Site based on

the supplemental RI and December 2018 groundwater and surface water sampling results. Figure 15 depicts the extent of soil and groundwater contamination exceeding SSLs.

The extent and quality of fill soil beyond the property boundary to the south-southwest was refined through the advancement of soil borings PP-35, PP-36, and PP-37 and installation of monitoring wells MW-10, MW-11, and MW-12. The quality of fill soil in the supplemental RI explorations is consistent with the quality of fill soil encountered outside those portions of the Site where refuse is located. The primary COPCs in fill soil at concentrations exceeding SSLs at the supplemental RI explorations consist of lead and total cPAHs. The secondary chemicals detected in soil in supplemental RI explorations are PCBs, which are co-located with concentrations of total cPAHs and lead in soil.

The results for groundwater samples collected from monitoring wells MW-10, MW-11 or MW-12, installed to the southwest of the property boundary during the supplemental RI, did not identify metals or total cPAHs at concentrations above the SSLs (Table 3). Benzene was detected above the SSL in a groundwater grab sample collected from push probe boring PP-5 in 2017, and based on this, was previously identified as a COPC in groundwater. However, the results of the supplemental RI did not identify benzene in groundwater samples collected from wells MW-10, MW-11 or MW-12.

Vinyl chloride was detected above the SSL in the groundwater sample collected from well MW-10 in December 2018. Vinyl chloride was not detected in surface water samples collected from the stormwater ditch in 2018 and has not been previously detected in groundwater, although it was detected in surface water samples collected from the stormwater ditch in December 2010 and January 2011. The monitoring wells installed as part of the supplemental RI will be sampled quarterly for at least four quarters and the seasonal fluctuations in groundwater levels, flow direction, and contaminant presence and concentrations will be evaluated to support selection and implementation of the final cleanup remedy.

Consistent with June and October 2018 surface water sampling results, there were no SSL exceedances for Site COPCs in surface water samples collected from the drainage ditch along the west side of the Site (locations SW-1, SW-2 and SW-3) in December 2018.

3.3. FATE AND TRANSPORT

The results of the supplemental RI are consistent with the fate and transport conclusions in the RI report. Concentrations of COPCs in soil are highest in the east-central portion of the Site, where the thickest amount of dumpsite refuse has been observed. Outside of the areas where dumpsite refuse has been placed, fill soil contains ubiquitous, low concentrations of total cPAHs and lead. Despite the relatively high concentrations of primary COPCs (including metals, total cPAHs, TPH and PCBs) and the presence of secondary chemicals (including chlorinated solvents, pentachlorophenol and pesticides) in the areas where dumpsite refuse has been placed, there are relatively few detections of any of the COPCs in groundwater. Locally, groundwater

discharges as surface water to the stormwater ditch, but regionally it flows from the White River to the west-southwest.

Groundwater samples collected from monitoring wells located downgradient, to the west-southwest of the dumpsite refuse, including (from north to south) wells MW-8, MW-4, MW-9, MW-10 and MW-11, do not contain concentrations of the primary COPCs above the SSLs. In addition, concentrations of arsenic were detected below the state background level of 5 µg/l, except at well MW-4 where arsenic slightly exceeds the background level. This data indicates that leaching of contaminants from the dumpsite is not affecting groundwater quality at concentrations that pose a risk to human health or the environment.

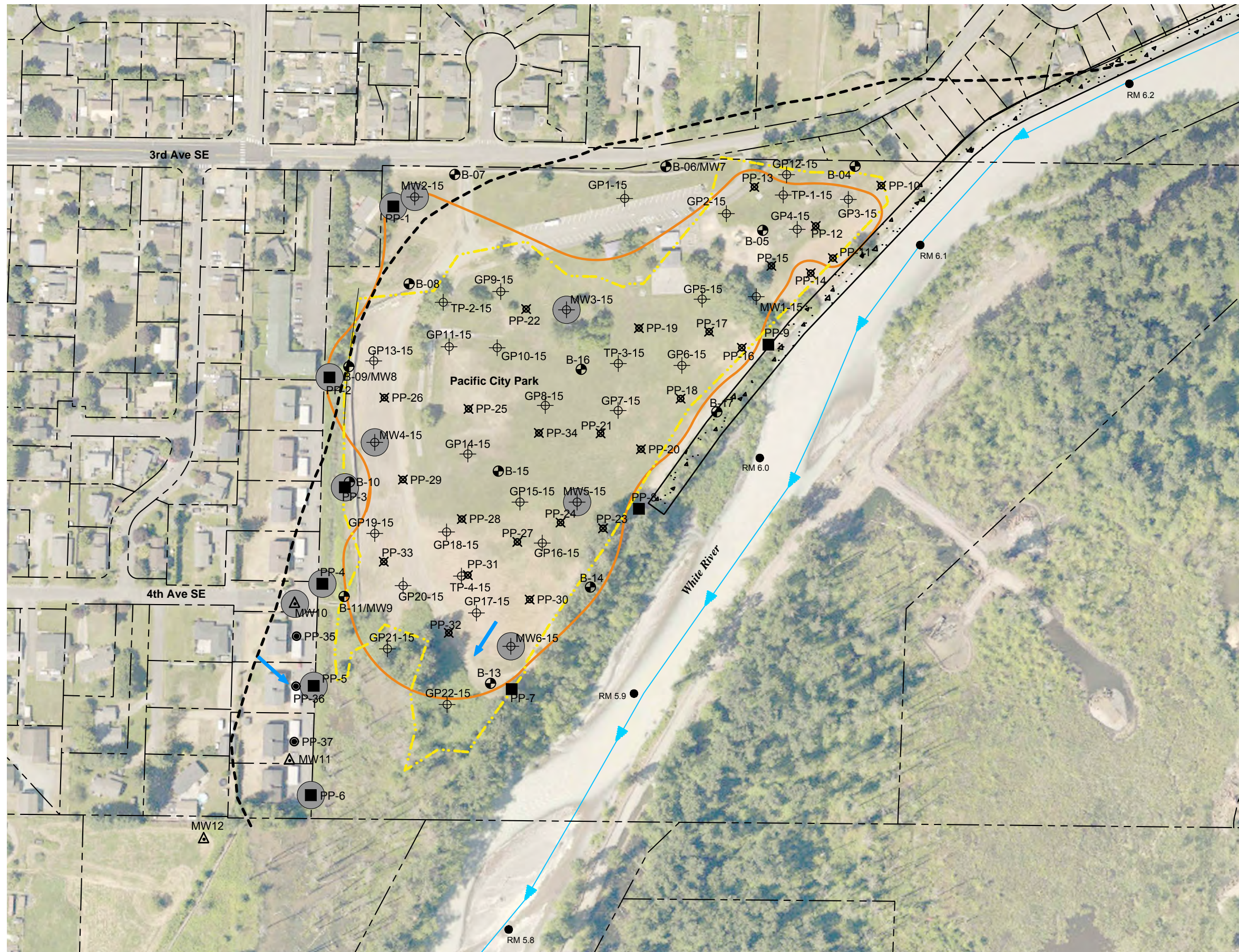


Figure 15.
Extent of Soil and Groundwater
Contamination Above Site
Screening Levels,
Pacific City Park,
Pacific, Washington.

Legend

- Historical edge of river channel based on 1936 aerial photograph (source: King County)
- Pacific City Park MTCA site boundary
- Approximate lateral extent of fill at Pacific City Park
- Existing concrete revetment
- Probe location (Herrera, 5-2017)
- Probe/well/test pit location (Shannon & Wilson, 9-2015)
- Geotech boring location (Aspect 2-2018, 3-2018)
- Probe location (Herrera 2-2018, 3-2018)
- Probe location (Herrera 12-2018)
- Monitoring well location (12-2018)
- One or more contaminants of concern was detected above site screening levels
- RM 6.0 River mile (10th)
- Estimated direction of groundwater flow on 12/28/2018

0 100 200 400 Feet



Aerial source: King County (2017)

O:\proj\Y2017\17-06520-000\CAD\DWG\Supplemental R\Fig_soil_GW-contamination extent.dwg

4. CONCLUSIONS

The remedial investigation for the Site is documented in the RI report (Herrera, 2019) and this supplemental RI report, which together have been prepared in accordance with the Remedial Investigation Checklist Guidance (Ecology 2016) and meet the requirements of MTCA Cleanup Regulations to characterize the nature and extent of contamination at the Site to enable the development, evaluation and selection of a remedial alternative.

Portions of Pacific City Park, located landward of a 1919 levee and concrete revetment on the White River, were filled as a King County refuse dump between approximately 1921 and 1965. The historical information reviewed as part of the RI, including aerial photographs and construction plans for development of surrounding properties, together with the field observations and analytical data from the RI, have been relied upon to establish the fill history at the Site. The sources of COPCs consist of fill soil mixed with refuse, where analytical testing indicated the presence of TPH, PCBs and VOCs, and fill soil containing ubiquitous, low concentrations of metals and total cPAHs. Based on the RI, the Pacific City Site is defined by any location where COPCs related to the historical dumpsite are present in media at concentrations exceeding the screening levels developed for the RI.

The RI has sufficiently characterized the lateral and vertical extent of COPCs in fill soil associated with the historical dumpsite on the property for the purpose of developing and evaluating remedial alternatives for the Site. Based on the results of the RI and groundwater samples collected from MW-10, MW-11 and MW-12, where concentrations of the COPCs associated with the historical dumpsite have not been detected above the SSLs, the nature and extent of primary COPCs in groundwater has been characterized sufficiently for the purpose of developing and evaluating remedial alternatives for the Site.

5. REFERENCES

City of Pacific. 2019. Short Plat 87-PAC-3 record document obtained by Herrera Environmental Consultants, Inc. from the City of Pacific, Washington.

Flarity, Wanda. 2019. Personal communication with George Iftner, Herrera Environmental Consultants, Inc., and Wanda Flarity, City of Pacific, regarding the site development history of apartment buildings located on Lots 3 and 4 of Fireside Addition #2 located north and south of 4th Avenue SE, Pacific, Washington.

Herrera. 2018. Sampling and Analysis Plan, Environmental Exploration, Pacific Park/Dumpsite, Pacific, Washington. Prepared for Prepared for the River and Floodplain Management Section, King County Water and Land Resources Division by Herrera Environmental Consultants, Inc., Seattle, Washington. February 13.

Herrera. 2019. Remedial Investigation Report, Pacific City Park, Pacific, Washington. Prepared for the River and Floodplain Management Section, King County Water and Land Resources Division by Herrera Environmental Consultants, Inc., Seattle, Washington. January 4.

S&W. 2015. Phase I Environmental Site Assessment, Pacific City Park Site, Pacific, Washington. Prepared for King County Water and Land Resources Division, River and Floodplain Management Section, by Shannon and Wilson, Inc., Seattle, Washington, May 11, 2015.

TABLES

**Table 1. Summary of Water Level Elevation Data from Monitoring Wells,
Pacific City Park Remedial Investigation, Pacific, Washington.**

Monitoring Well Identification	Measurement Date	Reference Elevation (feet) ^a	Depth to Water (feet)	Water Level Elevation (feet)
MW-1	5/12/17	83.16	2.33	80.83
	3/23/18		2.84	80.32
	6/21/18		3.12	80.04
	9/26/18		5.8	77.36
	12/21/18		2.73	80.43
MW-2	5/12/17	79.85	1.37	78.48
	3/23/18		1.81	78.04
	6/21/18		2.32	77.53
	9/26/18		3.68	76.17
	12/21/18		2.07	77.78
MW-3	5/12/17	80.01	0.4	79.61
	3/23/18		0.55	79.46
	6/21/18		1.27	78.74
	9/26/18		3.01	77.00
	12/21/18		0.68	79.33
MW-4	5/12/17	80.14	2.73	77.41
	3/23/18		3.09	77.05
	6/21/18		3.53	76.61
	9/26/18		4.54	75.60
	12/21/18		3.16	76.98
MW-5	5/12/17	81.40	1.6	79.80
	3/23/18		2.26	79.14
	6/21/18		2.38	79.02
	9/26/18		4.8	76.60
	12/21/18		2.04	79.36
MW-6	5/12/17	83.81	5.71	78.10
	3/23/18		6.65	77.16
	6/21/18		6.6	77.21
	9/26/18		8.53	75.28
	12/21/18		6.42	77.39
MW-7 ^b	3/23/18	79.82	0.32	79.50
	6/21/18		0.78	79.04
	9/26/18		2.68	77.14
	12/21/18		0.84	78.98
MW-8 ^b	3/23/18	79.95	2.63	77.32
	6/21/18		3.12	76.83
	9/26/18		4.2	75.75
	12/21/18		3.05	76.90

Table 1 (continued). Summary of Water Level Elevation Data from Monitoring Wells, Pacific City Park Remedial Investigation, Pacific, Washington.

Monitoring Well Identification	Measurement Date	Reference Elevation (feet) ^a	Depth to Water (feet)	Water Level Elevation (feet)
MW-9 ^b	3/23/18	82.59	5.85	76.74
	6/21/18		6.02	76.57
	9/26/18		6.98	75.61
	12/21/18		6.2	76.39
MW-10	12/21/18	79.14	2.71	76.43
MW-11	12/21/18	79.52	4.05	75.47
MW-12	12/21/18	78.11	2.51	75.60
B-03 ^c	3/23/18	86.12	5.52	80.60
	6/21/18		5.41	80.71
	9/26/18		8.3	77.82
	12/21/18		5.05	81.07

^a Reference elevation is the top of protective casing (North American Vertical Datum 1988 [NAVD 88])

^b MW-7, MW-8, and MW-9 correspond to probe borings B-06, B-09, and B-11, respectively.

^c Standing water level measurement only at boring location B-03. No groundwater sample was collected.

Table 2. Summary of Soil Sample Results, Pacific City Park Remedial Investigation, Pacific, Washington.																			
Analytical Parameter	Sample Location																	Site Screening Level ^a (mg/kg)	
	GP-1-15		GP-2-15		GP-3-15		GP-4-15		GP-5-15			GP-6-15		GP-7-15		GP-8-15			
	9/17/15		9/17/15		9/17/15		9/17/15		9/17/15			9/17/15		9/17/15		9/17/15			
Depth (feet)	5.0	13.5	4.5	14.0	9.0	12.5	5.0	13.0	5.0	13.0	13 dup	7.5	14.0	5.0	14.0	5.0	14.5	14.5 dup	
Petroleum Hydrocarbons (mg/kg)																			
Gasoline Range Organics	ND (2.96)	ND (3.44)	ND (3.19)	ND (3.13)	ND (3.33)	ND (7.99)	ND (2.87)	ND (3.41)	ND (4.31)	ND (3.20)	ND (3.60)	ND (5.40)	ND (3.35)	ND (3.79)	ND (3.74)	ND (3.05)	ND (3.65)	ND (3.25)	100
Diesel Range Organics	ND (23.0)	ND (25.1)	ND (19.8)	ND (21.2)	ND (24.4)	ND (38.9)	ND (23.8)	ND (25.0)	ND (23.7)	ND (23.2)	ND (21.9)	ND (33.7)	ND (22.5)	ND (19.1)	ND (22.2)	ND (22.9)	ND (24.9)	ND (24.7)	200
Lube Oil Range Organics	ND (57)	ND (63)	75	ND (53)	ND (61)	275	182	ND (63)	ND (59)	ND (58)	ND (55)	217	ND (56)	ND (48)	ND (56)	119	ND (62)	ND (62)	2,000
Volatile Organic Compounds by EPA 8260 (mg/kg)																			
Benzene	ND (0.012)	ND (0.014)	ND (0.013)	ND (0.013)	ND (0.013)	ND (0.030)	ND (0.012)	ND (0.014)	ND (0.017)	ND (0.013)	ND (0.014)	ND (0.022)	ND (0.013)	ND (0.015)	ND (0.015)	ND (0.012)	ND (0.015)	ND (0.013)	0.001
Toluene	ND (0.012)	ND (0.014)	ND (0.013)	ND (0.013)	ND (0.013)	ND (0.030)	ND (0.012)	ND (0.014)	ND (0.017)	ND (0.013)	ND (0.014)	ND (0.022)	ND (0.013)	ND (0.015)	ND (0.015)	ND (0.012)	ND (0.015)	ND (0.013)	0.024
Ethylbenzene	ND (0.018)	ND (0.021)	ND (0.019)	ND (0.019)	ND (0.013)	ND (0.048)	ND (0.017)	ND (0.020)	ND (0.026)	ND (0.019)	ND (0.022)	ND (0.032)	ND (0.020)	ND (0.023)	ND (0.022)	ND (0.018)	ND (0.022)	ND (0.020)	0.014
Total Xylenes	ND (0.012)	ND (0.014)	ND (0.013)	ND (0.013)	ND (0.013)	ND (0.030)	ND (0.012)	ND (0.014)	ND (0.017)	ND (0.013)	ND (0.014)	ND (0.022)	ND (0.013)	ND (0.015)	ND (0.015)	ND (0.012)	ND (0.015)	ND (0.013)	0.52
Acetone	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2.07
2-Butanone	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.38
Carbon Disulfide	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.27
Cis-1,2-Dichloroethene	ND (0.012)	ND (0.014)	ND (0.013)	ND (0.013)	ND (0.013)	ND (0.030)	ND (0.012)	ND (0.014)	ND (0.017)	ND (0.013)	ND (0.014)	ND (0.022)	ND (0.013)	ND (0.015)	ND (0.015)	ND (0.012)	ND (0.015)	ND (0.013)	0.005
Chlorobenzene	ND (0.012)	ND (0.014)	ND (0.013)	ND (0.013)	ND (0.013)	ND (0.030)	ND (0.012)	ND (0.014)	ND (0.017)	ND (0.013)	ND (0.014)	ND (0.022)	ND (0.013)	ND (0.015)	ND (0.015)	ND (0.012)	ND (0.015)	ND (0.013)	0.051
Methylene Chloride	ND (0.012)	ND (0.014)	ND (0.013)	ND (0.013)	ND (0.013)	ND (0.030)	ND (0.012)	ND (0.014)	ND (0.017)	ND (0.013)	ND (0.014)	ND (0.022)	ND (0.013)	ND (0.015)	ND (0.015)	ND (0.012)	ND (0.015)	ND (0.013)	0.005
p-Isopropyltoluene	ND (0.012)	ND (0.014)	ND (0.013)	ND (0.013)	ND (0.013)	ND (0.030)	ND (0.012)	ND (0.014)	ND (0.017)	ND (0.013)	ND (0.014)	ND (0.022)	ND (0.013)	ND (0.015)	ND (0.015)	ND (0.012)	ND (0.015)	ND (0.013)	0.229
Styrene	ND (0.012)	ND (0.014)	ND (0.013)	ND (0.013)	ND (0.013)	ND (0.030)	ND (0.012)	ND (0.014)	ND (0.017)	ND (0.013)	ND (0.014)	ND (0.022)	ND (0.013)	ND (0.015)	ND (0.015)	ND (0.012)	ND (0.015)	ND (0.013)	0.120
Tetrachloroethene	ND (0.012)	ND (0.014)	ND (0.013)	ND (0.013)	ND (0.013)	ND (0.032)	ND (0.012)	ND (0.014)	ND (0.017)	ND (0.013)	ND (0.014)	ND (0.022)	ND (0.013)	0.023	ND (0.015)	ND (0.012)	ND (0.015)	ND (0.013)	0.0013
Trichloroethene	ND (0.012)	ND (0.014)	ND (0.013)	ND (0.013)	ND (0.013)	ND (0.030)	ND (0.012)	ND (0.014)	ND (0.017)	ND (0.013)	ND (0.014)	ND (0.022)	ND (0.013)	ND (0.015)	ND (0.015)	ND (0.012)	ND (0.015)	ND (0.013)	0.001
1,2,4-Trimethylbenzene	ND (0.012)	ND (0.014)	ND (0.013)	ND (0.013)	ND (0.013)	ND (0.030)	ND (0.012)	ND (0.014)	ND (0.017)	ND (0.013)	ND (0.014)	ND (0.022)	ND (0.013)	ND (0.015)	ND (0.015)	ND (0.012)	ND (0.015)	ND (0.013)	NA
Total Metals by EPA 6010D/7471B (mg/kg)																			
Arsenic	1.7	1.4	3.1	2.9	3.4	102	3.8	1.4	7.6	2.3	4.0	50	2.2	6.1	2.4	12	5.9	3.3	20
Barium	23	15	38	21	24	154	36	17	85	23	19	631	23	148	17	224	50	36	41.3
Cadmium	ND (0.17)	ND (0.18)	0.25	ND (0.20)	ND (0.20)	3.8	0.20	ND (0.21)	1.4	ND (0.19)	ND (0.18)	37	ND (0.19)	0.79	ND (0.18)	0.71	ND (0.20)	ND (0.20)	1
Chromium	9.8	13	18	17	11	143	12	11	20	12	14	115	9.7	23	9.59	17	20	15	48
Lead	1.3	1.2	22	1.4	22	2,780	19	1.3	45	1.9	2.0	2,180	1.5	63	1.5	370	3.2	2.1	25
Mercury	ND (0.29)	ND (0.30)	ND (0.23)	ND (0.29)	ND (0.30)	0.55	ND (0.28)	ND (0.32)	ND (0.30)	ND (0.28)	ND (0.27)	9.1	ND (0.30)	2.5	ND (0.28)	ND (0.29)	ND (0.30)	ND (0.29)	0.07
Selenium	1.2	1.3	1.5	1.2	1.1	1.2	1.5	1.1	1.6	1.1	1.4	1.7	1.1	1.3	1.1	1.9	1.5	1.0	10
Silver	ND (0.087)	ND (0.091)	ND (0.084)	ND (0.098)	ND (0.10)	2.5	ND (0.093)	ND (0.11)	0.12	ND (0.095)	ND (0.092)	2.6	ND (0.096)	0.14	ND (0.09)	0.14	ND (0.10)	ND (0.10)	0.61
Polychlorinated Biphenyls (PCBs) by EPA 8082A (mg/kg)																			
Total PCBs	–	–	–	–	–	ND (0.20)	–	–	–	–	–	ND (0.17)	–	–	–	ND (0.11)	–	–	0.05
Semi-Volatile Organic Compounds by EPA 8270D/SIM (mg/kg)																			
Acenaphthene	ND (0.089)	ND (0.101)	ND (0.086)	ND (0.093)	ND (0.095)	ND (0.156)	ND (0.091)	ND (0.096)	ND (0.091)	ND (0.094)	ND (0.090)	ND (0.135)	ND (0.097)	ND (0.083)	ND (0.092)	ND (0.095)	ND (0.109)	ND (0.103)	0.156
Acenaphthylene	ND (0.089)	ND (0.101)	ND (0.086)	ND (0.093)	ND (0.095)	ND (0.156)	ND (0.091)	ND (0.096)	ND (0.091)	ND (0.094)	ND (0.090)	ND (0.135)	ND (0.097)	ND (0.083)	ND (0.092)	ND (0.095)	ND (0.109)	ND (0.103)	NA
Anthracene	ND (0.089)	ND (0.101)	0.091	ND (0.093)	ND (0.095)	ND (0.156)	ND (0.091)	ND (0.096)	ND (0.091)	ND (0.094)	ND (0.090)	ND (0.135)	ND (0.097)	ND (0.083)	ND (0.092)	ND (0.095)	ND (0.109)	ND (0.103)	7.134
Benzyl Alcohol	ND (0.111)	ND (0.126)	ND (0.108)	ND (0.116)	ND (0.119)	ND (0.195)	ND (0.113)	ND (0.120)	ND (0.114)	ND (0.117)	ND (0.112)	ND (0.169)	ND (0.122)	ND (0.103)	ND (0.115)	ND (0.119)	ND (0.136)	ND (0.129)	NA

Table 2 (continued). Summary of Soil Sample Results, Pacific City Park Remedial Investigation, Pacific, Washington.																			
Analytical Parameter	Sample Location																	Site Screening Level ^a (mg/kg)	
	GP-1-15		GP-2-15		GP-3-15		GP-4-15		GP-5-15			GP-6-15		GP-7-15		GP-8-15			
	9/17/15		9/17/15		9/17/15		9/17/15		9/17/15			9/17/15		9/17/15		9/17/15			
Depth (feet)	5.0	13.5	4.5	14.0	9.0	12.5	5.0	13.0	5.0	13.0	13 dup	7.5	14.0	5.0	14.0	5.0	14.5	14.5 dup	
Semi-Volatile Organic Compounds by EPA 8270D/SIM (mg/kg) (continued)																			
Bis(2-Ethylhexyl) Phthalate	ND (0.111)	ND (0.126)	ND (0.108)	ND (0.116)	ND (0.119)	ND (0.195)	ND (0.113)	ND (0.120)	ND (0.114)	ND (0.117)	ND (0.112)	ND (0.169)	ND (0.122)	ND (0.103)	ND (0.115)	ND (0.119)	ND (0.136)	ND (0.129)	0.111
Butyl Benzylphthalate	ND (0.111)	ND (0.126)	ND (0.108)	ND (0.116)	ND (0.119)	ND (0.195)	ND (0.113)	ND (0.120)	ND (0.114)	ND (0.117)	ND (0.112)	ND (0.169)	ND (0.122)	ND (0.103)	ND (0.115)	ND (0.119)	ND (0.136)	ND (0.129)	0.033
Dibutyl Phthalate	ND (0.111)	ND (0.126)	0.13	ND (0.116)	ND (0.119)	ND (0.195)	0.12	ND (0.120)	0.28	ND (0.117)	ND (0.112)	0.17	ND (0.122)	ND (0.103)	ND (0.115)	0.13	ND (0.136)	ND (0.129)	0.17
Di-N-Octyl Phthalate	ND (0.111)	ND (0.126)	ND (0.108)	ND (0.116)	ND (0.119)	ND (0.195)	ND (0.113)	ND (0.120)	ND (0.114)	ND (0.117)	ND (0.112)	ND (0.169)	ND (0.122)	ND (0.103)	ND (0.115)	ND (0.119)	ND (0.136)	ND (0.129)	800
Fluoranthene	ND (0.089)	ND (0.101)	0.13	ND (0.093)	ND (0.095)	ND (0.156)	ND (0.091)	ND (0.096)	ND (0.091)	ND (0.094)	ND (0.090)	0.15	ND (0.097)	ND (0.083)	ND (0.092)	0.11	ND (0.109)	ND (0.103)	0.296
Fluorene	ND (0.089)	ND (0.101)	ND (0.086)	ND (0.093)	ND (0.095)	ND (0.156)	ND (0.091)	ND (0.096)	ND (0.091)	ND (0.094)	ND (0.090)	ND (0.135)	ND (0.097)	ND (0.083)	ND (0.092)	ND (0.095)	ND (0.109)	ND (0.103)	0.080
1-Methylnaphthalene	ND (0.089)	ND (0.101)	ND (0.086)	ND (0.093)	ND (0.095)	ND (0.156)	ND (0.091)	ND (0.096)	ND (0.091)	ND (0.094)	ND (0.090)	ND (0.135)	ND (0.097)	ND (0.083)	ND (0.092)	ND (0.095)	ND (0.109)	ND (0.103)	0.236
2-Methylnaphthalene	ND (0.089)	ND (0.101)	ND (0.086)	ND (0.093)	ND (0.095)	ND (0.156)	ND (0.091)	ND (0.096)	ND (0.091)	ND (0.094)	ND (0.090)	ND (0.135)	ND (0.097)	ND (0.083)	ND (0.092)	ND (0.095)	ND (0.109)	ND (0.103)	0.236
Naphthalene	ND (0.089)	ND (0.101)	ND (0.086)	ND (0.093)	ND (0.095)	ND (0.156)	ND (0.091)	ND (0.096)	ND (0.091)	ND (0.094)	ND (0.090)	ND (0.135)	ND (0.097)	ND (0.083)	ND (0.092)	ND (0.095)	ND (0.109)	ND (0.103)	0.236
4-Nitrophenol	ND (0.553)	ND (0.630)	ND (0.538)	ND (0.578)	ND (0.594)	ND (0.974)	ND (0.566)	ND (0.602)	ND (0.571)	ND (0.586)	ND (0.560)	ND (0.843)	ND (0.608)	ND (0.517)	ND (0.576)	ND (0.594)	ND (0.681)	ND (0.643)	NA
p-Cresol	ND (0.111)	ND (0.126)	ND (0.108)	ND (0.116)	ND (0.119)	ND (0.195)	ND (0.113)	ND (0.120)	ND (0.114)	ND (0.117)	ND (0.112)	ND (0.169)	ND (0.122)	ND (0.103)	ND (0.115)	ND (0.119)	ND (0.136)	ND (0.129)	8,000
Pentachlorophenol	ND (0.111)	ND (0.126)	0.20	ND (0.116)	ND (0.119)	ND (0.195)	ND (0.113)	ND (0.120)	ND (0.114)	ND (0.117)	ND (0.112)	ND (0.169)	ND (0.122)	ND (0.103)	ND (0.115)	ND (0.119)	ND (0.136)	ND (0.129)	0.17
Phenanthrene	ND (0.089)	ND (0.101)	ND (0.086)	ND (0.093)	ND (0.095)	ND (0.156)	ND (0.091)	ND (0.096)	ND (0.091)	ND (0.094)	ND (0.090)	ND (0.135)	ND (0.097)	ND (0.083)	ND (0.092)	ND (0.095)	ND (0.109)	ND (0.103)	0.0067
Phenol	ND (0.221)	ND (0.252)	ND (0.215)	ND (0.231)	ND (0.238)	ND (0.389)	ND (0.226)	ND (0.241)	ND (0.228)	ND (0.234)	ND (0.224)	ND (0.337)	ND (0.243)	ND (0.207)	ND (0.230)	ND (0.237)	ND (0.272)	ND (0.257)	0.757
Pyrene	ND (0.089)	ND (0.101)	0.16	ND (0.093)	ND (0.095)	ND (0.156)	ND (0.091)	ND (0.096)	ND (0.091)	ND (0.094)	ND (0.090)	0.29	ND (0.097)	ND (0.083)	ND (0.092)	0.11	ND (0.109)	ND (0.103)	0.546
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs) by EPA 8270D/SIM (mg/kg)																			
Benzo(a)anthracene	ND (0.089)	ND (0.101)	0.14	ND (0.093)	0.11	0.19	0.12	0.11	0.13	0.11	0.10	0.62	ND (0.097)	0.11	ND (0.092)	0.13	ND (0.109)	ND (0.103)	0.0067
Benzo(a)pyrene	ND (0.089)	ND (0.101)	ND (0.086)	ND (0.093)	ND (0.095)	0.28	ND (0.091)	ND (0.096)	ND (0.091)	ND (0.094)	ND (0.090)	0.93	ND (0.097)	ND (0.083)	ND (0.092)	ND (0.095)	0.55	0.23	0.01
Benzo(b)fluoranthene	ND (0.089)	ND (0.101)	ND (0.086)	ND (0.093)	ND (0.095)	ND (0.156)	ND (0.091)	ND (0.096)	ND (0.091)	ND (0.094)	ND (0.090)	0.51	ND (0.097)	ND (0.083)	ND (0.092)	ND (0.095)	ND (0.109)	ND (0.103)	0.012
Benzo(j,k)fluoranthene	ND (0.089)	ND (0.101)	ND (0.086)	ND (0.093)	ND (0.095)	ND (0.156)	ND (0.091)	ND (0.096)	ND (0.091)	ND (0.094)	ND (0.090)	0.19	ND (0.097)	ND (0.083)	ND (0.092)	ND (0.095)	ND (0.109)	ND (0.103)	0.012
Chrysene	ND (0.089)	ND (0.101)	ND (0.086)	ND (0.093)	ND (0.095)	ND (0.156)	ND (0.091)	ND (0.096)	ND (0.091)	ND (0.094)	ND (0.090)	0.25	ND (0.097)	ND (0.083)	ND (0.092)	ND (0.095)	ND (0.109)	ND (0.103)	0.0067
Dibenz(a,h)anthracene	ND (0.089)	ND (0.101)	ND (0.086)	ND (0.093)	ND (0.095)	ND (0.156)	ND (0.091)	ND (0.096)	ND (0.091)	ND (0.094)	ND (0.090)	ND (0.135)	ND (0.097)	ND (0.083)	ND (0.092)	ND (0.095)	ND (0.109)	53	0.018
Indeno(1,2,3-cd)pyrene	ND (0.089)	ND (0.101)	ND (0.086)	ND (0.093)	ND (0.095)	ND (0.156)	ND (0.091)	ND (0.096)	ND (0.091)	ND (0.094)	ND (0.090)	ND (0.135)	ND (0.097)	ND (0.083)	ND (0.092)	ND (0.095)	ND (0.109)	62	0.035
Total cPAHs (TEQ) ^b	ND (0.08)	ND (0.091)	0.087	ND (0.084)	0.092	0.36	0.089	0.093	0.091	0.091	0.087	1.1	ND (0.088)	0.082	ND (0.083)	0.094	0.60	0.27	0.020
Herbicides by EPA 8151A (mg/kg)																			
2,4-DB	ND (0.029)	ND (0.031)	ND (0.026)	ND (0.030)	ND (0.030)	ND (0.051)	ND (0.029)	ND (0.032)	ND (0.030)	ND (0.030)	ND (0.029)	ND (0.042)	ND (0.030)	ND (0.026)	ND (0.029)	ND (0.030)	ND (0.034)	ND (0.032)	640
2,4,5-T	ND (0.059)	ND (0.063)	ND (0.052)	ND (0.059)	ND (0.059)	ND (0.102)	ND (0.058)	ND (0.065)	ND (0.061)	ND (0.050)	ND (0.058)	ND (0.085)	ND (0.059)	ND (0.051)	ND (0.059)	ND (0.060)	ND (0.068)	ND (0.064)	800
Bentazon	ND (0.059)	ND (0.063)	ND (0.052)	ND (0.059)	ND (0.059)	ND (0.102)	ND (0.058)	ND (0.065)	ND (0.061)	ND (0.050)	ND (0.058)	ND (0.085)	ND (0.059)	ND (0.051)	ND (0.059)	ND (0.060)	ND (0.068)	ND (0.064)	2,400
Chloramben	ND (0.024)	ND (0.025)	23	ND (0.024)	ND (0.024)	ND (0.041)	25	ND (0.026)	24	ND (0.024)	ND (0.023)	ND (0.034)	ND (0.024)	ND (0.021)	ND (0.023)	26	ND (0.027)	ND (0.025)	1,200
Chlorthal-dimethyl	ND (0.029)	ND (0.031)	ND (0.026)	ND (0.030)	ND (0.030)	ND (0.051)	ND (0.029)	ND (0.032)	ND (0.030)	ND (0.030)	ND (0.029)	ND (0.042)	ND (0.030)	ND (0.026)	ND (0.029)	ND (0.030)	ND (0.034)	ND (0.032)	800
Dalapon	ND (0.024)	ND (0.025)	ND (0.021)	ND (0.024)	ND (0.024)	ND (0.041)	ND (0.023)	ND (0.026)	ND (0.024)	ND (0.024)	ND (0.023)	ND (0.034)	ND (0.024)	ND (0.021)	ND (0.023)	ND (0.024)	ND (0.027)	ND (0.025)	2,400
Dinoseb	ND (0.059)	ND (0.063)	ND (0.052)	ND (0.059)	ND (0.059)	ND (0.102)	ND (0.058)	ND (0.065)	ND (0.061)	ND (0.050)	ND (0.058)	ND (0.085)	ND (0.059)	ND (0.051)	ND (0.059)	ND (0.060)	ND (0.068)	ND (0.064)	80
Picloram	ND (0.059)	ND (0.063)	ND (0.052)	ND (0.059)	ND (0.059)	ND (0.102)	ND (0.058)	ND (0.065)	ND (0.061)	ND (0.050)	ND (0.058)	ND (0.085)	ND (0.059)	ND (0.051)	ND (0.059)	ND (0.060)	ND (0.068)	ND (0.064)	5,600
Silvex	ND (0.024)	ND (0.025)	ND (0.021)	ND (0.024)	ND (0.024)	ND (0.041)	ND (0.023)	ND (0.026)	ND (0.024)	ND (0.024)	ND (0.023)	ND (0.034)	ND (0.024)	ND (0.021)	ND (0.023)	ND (0.024)	ND (0.027)	ND (0.025)	640

Table 2 (continued). Summary of Soil Sample Results, Pacific City Park Remedial Investigation, Pacific, Washington.																			
Analytical Parameter	Sample Location																		Site Screening Level ^a (mg/kg)
	GP-1-15		GP-2-15		GP-3-15		GP-4-15		GP-5-15			GP-6-15		GP-7-15		GP-8-15			
	9/17/15		9/17/15		9/17/15		9/17/15		9/17/15			9/17/15		9/17/15		9/17/15			
	Sample Date																		
Depth (feet)	5.0	13.5	4.5	14.0	9.0	12.5	5.0	13.0	5.0	13.0	13 dup	7.5	14.0	5.0	14.0	5.0	14.5	14.5 dup	
Organochlorine Pesticides by EPA 8081(mg/kg)																			
4,4'-DDD	ND (0.023)	ND (0..025)	ND (0.021)	ND (0.023)	ND (0.023)	ND (0.039)	ND (0.023)	ND (0.025)	ND (0.023)	ND (0.024)	ND (0.022)	ND (0.031)	ND (0.023)	0.074	ND (0.023)	ND (0.023)	ND (0.026)	ND (0.025)	0.01
4,4'-DDE	ND (0.023)	ND (0..025)	ND (0.021)	ND (0.023)	ND (0.023)	ND (0.039)	ND (0.023)	ND (0.025)	ND (0.023)	ND (0.024)	ND (0.022)	ND (0.031)	ND (0.023)	ND (0.199)	ND (0.023)	ND (0.023)	ND (0.026)	ND (0.025)	0.01
Cis-Chlordane (alpha)	ND (0.011)	ND (0.012)	ND (0.010)	ND (0.011)	ND (0.011)	ND (0.020)	ND (0.011)	ND (0.013)	ND (0.012)	ND (0.012)	ND (0.011)	ND (0.016)	ND (0.012)	ND (0.010)	ND (0.011)	ND (0.012)	ND (0.013)	ND (0.013)	0.01
Endosulfan I	ND (0.011)	ND (0.012)	ND (0.010)	ND (0.011)	ND (0.011)	ND (0.020)	ND (0.011)	ND (0.013)	ND (0.012)	ND (0.012)	ND (0.011)	ND (0.016)	ND (0.012)	ND (0.010)	ND (0.011)	ND (0.012)	ND (0.013)	ND (0.013)	0.005
Endosulfan II	ND (0.023)	ND (0..025)	ND (0.021)	ND (0.023)	ND (0.023)	ND (0.039)	ND (0.023)	ND (0.025)	ND (0.023)	ND (0.024)	ND (0.022)	ND (0.031)	ND (0.023)	0.063	ND (0.023)	ND (0.023)	ND (0.026)	ND (0.025)	0.01
Endosulfan Sulfate	ND (0.023)	ND (0..025)	ND (0.021)	ND (0.023)	ND (0.023)	ND (0.039)	ND (0.023)	ND (0.025)	ND (0.023)	ND (0.024)	ND (0.022)	ND (0.031)	ND (0.023)	ND (0.199)	ND (0.023)	ND (0.023)	ND (0.026)	ND (0.025)	NA
Gamma-Chlordane	ND (0.011)	ND (0.012)	ND (0.010)	ND (0.011)	ND (0.011)	ND (0.020)	ND (0.011)	ND (0.013)	ND (0.012)	ND (0.012)	ND (0.011)	ND (0.016)	ND (0.012)	ND (0.010)	ND (0.011)	ND (0.012)	ND (0.013)	ND (0.013)	0.01
Methoxychlor	ND (0.057)	ND (0.062)	ND (0.051)	ND (0.058)	ND (0.059)	ND (0.100)	ND (0.058)	ND (0.063)	ND (0.058)	ND (0.060)	ND (0.056)	ND (0.079)	ND (0.058)	ND (0.050)	ND (0.057)	ND (0.057)	ND (0.064)	ND (0.063)	0.01

SEE END OF TABLE 7 FOR COMPLETE LIST OF TABLE NOTES.

BOLD values detected above the reporting limit.

Shaded values exceed the site screening level

Native Soil
Fill/Refuse

Table 2 (continued). Summary of Soil Sample Results, Pacific City Park Remedial Investigation, Pacific, Washington.																
Analytical Parameter	Sample Location															Site Screening Level ^a (mg/kg)
	GP-9-15		GP-10-15		GP-11-15		GP-12-15		GP-13-15		GP-14-15			GP-15-15		
	9/17/15		9/17/15		9/17/15		9/18/15		9/21/15		9/21/15			9/21/15		
Sample Date	9/17/15		9/17/15		9/17/15		9/18/15		9/21/15		9/21/15			9/21/15		
Depth (feet)	5.0	12.5	4.5	13.0	4.5	14.5	4.0	13.5	4.5	13.5	3.5	13.5	13.5 dup	6.0	14.0	
Petroleum Hydrocarbons (mg/kg)																
Gasoline Range Organics	ND (2.98)	ND (3.30)	ND (4.64)	ND (3.48)	ND (2.85)	ND (6.73)	ND (3.03)	ND (3.34)	ND (3.30)	ND (2.98)	ND (2.98)	ND (2.98)	ND (2.98)	ND (2.98)	ND (2.98)	100
Diesel Range Organics	ND (25)	ND (25)	ND (27)	ND (24)	ND (21)	ND (36)	ND (23)	ND (25)	ND (22)	ND (27)	ND (20)	ND (34)	ND (27)	ND (25)	ND (26)	200
Lube Oil Range Organics	ND (62)	ND (63)	3,840	ND (60)	103	ND (91)	ND (58)	ND (63)	462	ND (68)	ND (50)	ND (86)	ND (66)	ND (64)	ND (65)	2,000
Volatile Organic Compounds by EPA 8260 (mg/kg)																
Benzene	ND (0.012)	ND (0.013)	ND (0.019)	ND (0.014)	ND (0.011)	ND (0.027)	ND (0.012)	ND (0.013)	ND (0.013)	ND (0.016)	ND (0.014)	ND (0.025)	ND (0.016)	ND (0.018)	ND (0.015)	0.001
Toluene	ND (0.012)	ND (0.013)	ND (0.019)	ND (0.014)	ND (0.011)	ND (0.027)	ND (0.012)	ND (0.013)	ND (0.013)	ND (0.016)	ND (0.014)	ND (0.025)	ND (0.016)	ND (0.018)	ND (0.015)	0.024
Ethylbenzene	ND (0.018)	ND (0.020)	ND (0.028)	ND (0.021)	ND (0.017)	ND (0.040)	ND (0.018)	ND (0.020)	ND (0.020)	ND (0.024)	ND (0.021)	ND (0.037)	ND (0.024)	ND (0.027)	ND (0.022)	0.014
Total Xylenes	ND (0.012)	ND (0.013)	ND (0.019)	ND (0.014)	ND (0.011)	ND (0.027)	ND (0.012)	ND (0.013)	ND (0.013)	ND (0.016)	ND (0.014)	ND (0.025)	ND (0.016)	ND (0.018)	ND (0.015)	0.52
Acetone	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2.07
2-Butanone	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.38
Carbon Disulfide	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.27
Cis-1,2-dichloroethene	ND (0.012)	ND (0.013)	ND (0.019)	ND (0.014)	ND (0.011)	ND (0.027)	ND (0.012)	ND (0.013)	ND (0.013)	ND (0.016)	ND (0.014)	ND (0.025)	ND (0.016)	ND (0.018)	ND (0.015)	0.005
Chlorobenzene	ND (0.012)	ND (0.013)	ND (0.019)	ND (0.014)	ND (0.011)	ND (0.027)	ND (0.012)	ND (0.013)	ND (0.013)	ND (0.016)	ND (0.014)	ND (0.025)	ND (0.016)	ND (0.018)	ND (0.015)	0.051
Methylene Chloride	ND (0.012)	ND (0.013)	ND (0.019)	ND (0.014)	ND (0.011)	ND (0.027)	ND (0.012)	ND (0.013)	ND (0.013)	ND (0.016)	ND (0.014)	ND (0.025)	ND (0.016)	ND (0.018)	ND (0.015)	0.005
p-Isopropyltoluene	ND (0.012)	ND (0.013)	ND (0.019)	ND (0.014)	ND (0.011)	ND (0.027)	ND (0.012)	ND (0.013)	ND (0.013)	ND (0.016)	ND (0.014)	ND (0.025)	ND (0.016)	ND (0.018)	ND (0.015)	0.229
Styrene	ND (0.012)	ND (0.014)	ND (0.013)	ND (0.013)	ND (0.013)	ND (0.030)	ND (0.012)	ND (0.014)	ND (0.017)	ND (0.013)	ND (0.014)	ND (0.022)	ND (0.013)	ND (0.015)	ND (0.015)	0.120
Tetrachlorethene	ND (0.012)	ND (0.013)	ND (0.019)	ND (0.014)	ND (0.011)	ND (0.027)	ND (0.012)	ND (0.013)	ND (0.013)	ND (0.016)	ND (0.014)	ND (0.025)	ND (0.016)	ND (0.018)	ND (0.015)	0.0013
Trichloroethene	ND (0.012)	ND (0.013)	0.066	ND (0.014)	ND (0.011)	ND (0.027)	ND (0.012)	ND (0.013)	ND (0.013)	ND (0.016)	ND (0.014)	ND (0.025)	ND (0.016)	ND (0.018)	ND (0.015)	0.001
1,2,4-Trimethylbenzene	ND (0.012)	ND (0.014)	ND (0.013)	ND (0.013)	ND (0.013)	ND (0.030)	ND (0.012)	ND (0.014)	ND (0.017)	ND (0.013)	ND (0.014)	ND (0.022)	ND (0.013)	ND (0.015)	ND (0.015)	NA
Total Metals by EPA 6010D/7471B (mg/kg)																
Arsenic	1.9	2.7	39.7	1.2	2.5	3.0	2.8	1.2	3.4	3.3	2.9	7.7	4.6	2.5	1.7	20
Barium	29	59	232	31	33	72	27	18	40	73	36	95	103	42	32	41.3
Cadmium	ND (0.18)	ND (0.22)	8.3	ND (0.19)	ND (0.16)	ND (0.28)	ND (0.20)	ND (0.20)	0.19	ND (0.22)	0.19	ND (0.30)	ND (0.24)	0.39	ND (0.21)	1
Chromium	18	21	314	14	14	22	13	14	19	24	13	23	32	18	12	48
Lead	8.3	3.6	3,320	2.06	40	4.3	3.5	1.3	424	4.3	20	5.2	6.2	15	1.6	25
Mercury	ND (0.28)	ND (0.30)	ND (0.31)	ND (0.30)	ND (0.25)	ND (0.45)	ND (0.29)	ND (0.31)	ND (0.26)	ND (0.33)	ND (0.28)	ND (0.46)	ND (0.31)	ND (0.33)	ND (0.30)	0.07
Selenium	0.74	1.7	0.96	1.0	0.80	1.4	1.4	0.89	0.99	2.1	0.96	3.2	2.5	0.66	0.83	10
Silver	ND (0.091)	ND (0.109)	1.99	ND (0.093)	ND (0.080)	ND (0.14)	ND (0.10)	ND (0.099)	ND (0.091)	ND (0.11)	ND (0.093)	ND (0.15)	ND (0.12)	ND (0.12)	ND (0.11)	0.61
Polychlorinated Biphenyls (PCBs) by EPA 8082A (mg/kg)																
Total PCBs	–	–	ND (0.13)	–	ND (0.11)	–	–	–	ND (0.11)	–	–	–	–	–	–	0.05
Semi-Volatile Organic Compounds by EPA 8270D/SIM (mg/kg)																
Acenapthene	ND (0.095)	ND (0.108)	29.2	ND (0.101)	ND (0.085)	ND (0.144)	ND (0.095)	ND (0.100)	ND (0.087)	ND (0.111)	ND (0.092)	ND (0.146)	ND (0.114)	ND (0.117)	ND (0.108)	0.156
Acenaphthylene	ND (0.095)	ND (0.108)	0.13	ND (0.101)	ND (0.085)	ND (0.144)	ND (0.095)	ND (0.100)	ND (0.087)	ND (0.111)	ND (0.092)	ND (0.146)	ND (0.114)	ND (0.117)	ND (0.108)	NA
Anthracene	ND (0.095)	ND (0.108)	106	ND (0.101)	ND (0.085)	ND (0.144)	ND (0.095)	ND (0.100)	ND (0.087)	ND (0.111)	ND (0.092)	ND (0.146)	ND (0.114)	ND (0.117)	ND (0.108)	7.134
Benzyl Alcohol	ND (0.119)	ND (0.135)	ND (0.138)	ND (0.127)	ND (0.106)	ND (0.180)	ND (0.118)	ND (0.124)	ND (0.109)	ND (0.139)	ND (0.115)	ND (0.182)	ND (0.142)	ND (0.146)	ND (0.134)	NA
Bis(2-Ethylhexyl) Phthalate	ND (0.119)	ND (0.135)	1.6	ND (0.127)	ND (0.106)	ND (0.180)	ND (0.118)	ND (0.124)	0.17	ND (0.139)	0.12	0.25	ND (0.142)	0.15	ND (0.134)	0.111

Table 2 (continued). Summary of Soil Sample Results, Pacific City Park Remedial Investigation, Pacific, Washington.																
Analytical Parameter	Sample Location															Site Screening Level ^a (mg/kg)
	GP-9-15		GP-10-15		GP-11-15		GP-12-15		GP-13-15		GP-14-15			GP-15-15		
	9/17/15		9/17/15		9/17/15		9/18/15		9/21/15		9/21/15			9/21/15		
Depth (feet)	5.0	12.5	4.5	13.0	4.5	14.5	4.0	13.5	4.5	13.5	3.5	13.5	13.5 dup	6.0	14.0	
Semi-Volatile Organic Compounds by EPA 8270D/SIM (mg/kg) (continued)																
Butyl Benzylphthalate	ND (0.119)	ND (0.135)	ND (0.138)	ND (0.127)	ND (0.106)	ND (0.180)	ND (0.118)	ND (0.124)	ND (0.109)	ND (0.139)	ND (0.115)	ND (0.182)	ND (0.142)	ND (0.146)	ND (0.134)	0.033
Di-N-Octyl Phthalate	ND (0.119)	ND (0.135)	ND (0.138)	ND (0.127)	ND (0.106)	ND (0.180)	ND (0.118)	ND (0.124)	ND (0.109)	ND (0.139)	ND (0.115)	ND (0.182)	ND (0.142)	ND (0.146)	ND (0.134)	0.17
Dibutyl Phthalate	ND (0.119)	ND (0.135)	0.18	ND (0.127)	ND (0.106)	ND (0.180)	ND (0.118)	ND (0.124)	ND (0.109)	ND (0.139)	ND (0.115)	ND (0.182)	ND (0.142)	ND (0.146)	ND (0.134)	800
Fluoranthene	ND (0.095)	ND (0.108)	365	0.11	ND (0.085)	0.19	ND (0.095)	ND (0.100)	0.14	ND (0.111)	ND (0.092)	ND (0.146)	ND (0.114)	ND (0.117)	ND (0.108)	0.296
Fluorene	ND (0.095)	ND (0.108)	37.5	ND (0.101)	ND (0.085)	ND (0.144)	ND (0.095)	ND (0.100)	ND (0.087)	ND (0.111)	ND (0.092)	ND (0.146)	ND (0.114)	ND (0.117)	ND (0.108)	0.080
2-Methylnaphthalene	ND (0.095)	ND (0.108)	3.1	ND (0.101)	ND (0.085)	ND (0.144)	ND (0.095)	ND (0.100)	ND (0.087)	ND (0.111)	ND (0.092)	ND (0.146)	ND (0.114)	ND (0.117)	ND (0.108)	0.236
1-Methylnaphthalene	ND (0.095)	ND (0.108)	6.1	ND (0.101)	ND (0.085)	ND (0.144)	ND (0.095)	ND (0.100)	ND (0.087)	ND (0.111)	ND (0.092)	ND (0.146)	ND (0.114)	ND (0.117)	ND (0.108)	0.236
Naphthalene	ND (0.095)	ND (0.108)	4.4	ND (0.101)	ND (0.085)	ND (0.144)	ND (0.095)	ND (0.100)	ND (0.087)	ND (0.00002)	ND (0.00002)	ND (0.00004)	ND (0.110)	ND (0.00003)	ND (0.00002)	0.236
4-Nitrophenol	ND (0.595)	ND (0.68)	1.4	ND (0.633)	ND (0.528)	ND (0.899)	ND (0.592)	ND (0.622)	ND (0.546)	ND (0.693)	ND (0.576)	ND (0.910)	ND (0.711)	ND (0.732)	ND (0.672)	NA
p-Cresol	ND (0.119)	ND (0.135)	ND (0.138)	ND (0.127)	ND (0.106)	ND (0.180)	ND (0.118)	ND (0.124)	ND (0.109)	ND (0.139)	ND (0.115)	ND (0.182)	ND (0.142)	ND (0.146)	ND (0.134)	8,000
Pentachlorophenol	ND (0.119)	ND (0.135)	ND (0.138)	ND (0.127)	ND (0.106)	ND (0.180)	ND (0.118)	ND (0.124)	ND (0.109)	ND (0.139)	ND (0.115)	ND (0.182)	ND (0.142)	ND (0.146)	ND (0.134)	0.17
Phenanthrene	ND (0.095)	ND (0.108)	317	ND (0.101)	ND (0.085)	ND (0.144)	ND (0.095)	ND (0.100)	ND (0.087)	ND (0.111)	ND (0.092)	ND (0.146)	ND (0.114)	ND (0.117)	ND (0.108)	0.0067
Phenol	ND (0.238)	ND (0.270)	ND (0.276)	ND (0.253)	ND (0.211)	ND (0.360)	ND (0.237)	ND (0.249)	ND (0.218)	ND (0.277)	ND (0.231)	ND (0.364)	ND (0.284)	ND (0.293)	ND (0.269)	0.757
Pyrene	ND (0.095)	ND (0.108)	345	ND (0.101)	ND (0.085)	0.19	ND (0.095)	ND (0.100)	0.13	ND (0.111)	ND (0.092)	ND (0.146)	ND (0.114)	ND (0.117)	ND (0.108)	0.546
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs) by EPA 8270D/SIM (mg/kg)																
Benzo(a)anthracene	0.11	0.12	164	ND (0.10)	0.11	0.20	ND (0.095)	ND (0.092)	0.13	ND (0.111)	ND (0.092)	ND (0.146)	ND (0.114)	ND (0.117)	ND (0.108)	0.0067
Benzo(a)pyrene	ND (0.095)	0.24	91	0.213	ND (0.085)	0.59	ND (0.095)	ND (0.092)	ND (0.087)	0.45	ND (0.092)	0.64	0.54	ND (0.117)	ND (0.108)	0.01
Benzo(b)fluoranthene	ND (0.095)	ND (0.108)	186	ND (0.101)	ND (0.085)	ND (0.144)	ND (0.095)	ND (0.092)	0.23	ND (0.111)	ND (0.092)	ND (0.146)	ND (0.114)	ND (0.117)	ND (0.108)	0.012
Benzo(j,k)fluoranthene	ND (0.095)	ND (0.108)	28	ND (0.101)	ND (0.085)	ND (0.144)	ND (0.095)	ND (0.092)	ND (0.087)	ND (0.111)	ND (0.092)	ND (0.146)	ND (0.114)	ND (0.117)	ND (0.108)	0.012
Chrysene	ND (0.095)	ND (0.108)	193	ND (0.101)	ND (0.085)	ND (0.144)	ND (0.095)	ND (0.092)	ND (0.087)	ND (0.111)	ND (0.092)	ND (0.146)	ND (0.114)	ND (0.117)	ND (0.108)	0.0067
Dibenz(a,h)anthracene	ND (0.095)	ND (0.108)	62	ND (0.101)	ND (0.085)	ND (0.144)	ND (0.095)	ND (0.092)	ND (0.087)	ND (0.111)	ND (0.095)	ND (0.146)	53	ND (0.117)	ND (0.108)	0.018
Indeno(1,2,3-cd)pyrene	ND (0.095)	ND (0.108)	53	ND (0.101)	ND (0.085)	ND (0.144)	ND (0.095)	ND (0.092)	ND (0.087)	ND (0.111)	ND (0.095)	ND (0.146)	62	ND (0.117)	ND (0.108)	0.035
Total cPAHs (TEQ) ^b	0.092	0.25	213	0.25	0.083	0.66	ND (0.86)	ND (0.090)	0.10	0.48	ND (0.083)	0.64	0.58	ND (0.117)	ND (0.108)	0.020
Herbicides by EPA 8151A (mg/kg)																
2,4-DB	ND (0.030)	ND (0.033)	ND (0.034)	ND (0.032)	ND (0.027)	ND (0.047)	ND (0.031)	ND (0.031)	ND (0.028)	ND (0.034)	ND (0.028)	ND (0.046)	ND (0.036)	ND (0.036)	ND (0.033)	640
2,4,5-T	ND (0.061)	ND (0.067)	ND (0.068)	ND (0.064)	ND (0.054)	ND (0.093)	ND (0.062)	ND (0.062)	ND (0.056)	ND (0.068)	ND (0.057)	ND (0.092)	ND (0.071)	ND (0.073)	ND (0.067)	800
Bentazon	ND (0.061)	ND (0.067)	ND (0.068)	ND (0.064)	ND (0.054)	ND (0.093)	ND (0.062)	ND (0.062)	ND (0.056)	ND (0.068)	ND (0.057)	ND (0.092)	ND (0.071)	ND (0.073)	ND (0.067)	2,400
Chloramben	ND (0.024)	ND (0.027)	ND (0.027)	ND (0.025)	ND (0.022)	ND (0.037)	ND (0.025)	ND (0.025)	ND (0.022)	ND (0.027)	ND (0.023)	ND (0.037)	ND (0.028)	ND (0.029)	ND (0.027)	1,200
Chlorthal-dimethyl	ND (0.030)	ND (0.033)	ND (0.034)	ND (0.032)	ND (0.027)	ND (0.047)	ND (0.031)	ND (0.031)	ND (0.028)	ND (0.034)	ND (0.028)	ND (0.046)	ND (0.036)	ND (0.036)	ND (0.033)	800
Dalapon	ND (0.024)	ND (0.027)	ND (0.027)	ND (0.025)	ND (0.022)	ND (0.037)	ND (0.025)	ND (0.025)	ND (0.022)	ND (0.027)	ND (0.023)	ND (0.037)	ND (0.028)	ND (0.029)	ND (0.027)	2,400
Dinoseb	ND (0.061)	ND (0.067)	ND (0.068)	ND (0.064)	ND (0.054)	ND (0.093)	ND (0.062)	ND (0.062)	ND (0.056)	ND (0.068)	ND (0.057)	ND (0.092)	ND (0.071)	ND (0.073)	ND (0.067)	80
Picloram	ND (0.061)	ND (0.067)	ND (0.068)	ND (0.064)	ND (0.054)	ND (0.093)	ND (0.062)	ND (0.062)	ND (0.056)	ND (0.068)	ND (0.057)	ND (0.092)	ND (0.071)	ND (0.073)	ND (0.067)	5,600
Silvex	ND (0.024)	ND (0.027)	ND (0.027)	ND (0.025)	ND (0.022)	ND (0.037)	ND (0.025)	ND (0.025)	ND (0.022)	ND (0.027)	ND (0.023)	ND (0.037)	ND (0.028)	ND (0.029)	ND (0.027)	640

Table 2 (continued). Summary of Soil Sample Results, Pacific City Park Remedial Investigation, Pacific, Washington.																
Analytical Parameter	Sample Location															Site Screening Level ^a (mg/kg)
	GP-9-15		GP-10-15		GP-11-15		GP-12-15		GP-13-15		GP-14-15			GP-15-15		
	9/17/15		9/17/15		9/17/15		9/18/15		9/21/15		9/21/15			9/21/15		
	Sample Date															
Depth (feet)	5.0	12.5	4.5	13.0	4.5	14.5	4.0	13.5	4.5	13.5	3.5	13.5	13.5 dup	6.0	14.0	
Organochlorine Pesticides by EPA 8081 (mg/kg)																
4,4'-DDD	ND (0.024)	ND (0.027)	ND (0.026)	ND (0.024)	ND (0.022)	ND (0.038)	o	ND (0.024)	ND (0.021)	ND (0.027)	ND (0.021)	ND (0.034)	ND (0.027)	ND (0.027)	ND (0.025)	0.01
4,4'-DDE	ND (0.024)	ND (0.027)	ND (0.026)	ND (0.024)	ND (0.022)	ND (0.038)	ND (0.024)	ND (0.024)	ND (0.021)	ND (0.027)	ND (0.021)	ND (0.034)	ND (0.027)	ND (0.027)	ND (0.025)	0.01
Cis-Chlordane (alpha)	ND (0.012)	ND (0.013)	ND (0.013)	ND (0.012)	ND (0.011)	ND (0.019)	ND (0.012)	ND (0.012)	ND (0.011)	ND (0.014)	ND (0.011)	ND (0.017)	ND (0.013)	ND (0.014)	ND (0.012)	0.01
Endosulfan I	ND (0.012)	ND (0.013)	ND (0.013)	ND (0.012)	ND (0.011)	ND (0.019)	ND (0.012)	ND (0.012)	ND (0.011)	ND (0.014)	ND (0.011)	ND (0.017)	ND (0.013)	ND (0.014)	ND (0.012)	0.005
Endosulfan II	ND (0.024)	ND (0.027)	ND (0.026)	ND (0.024)	0.056	ND (0.038)	ND (0.024)	ND (0.024)	ND (0.021)	ND (0.027)	ND (0.021)	ND (0.034)	ND (0.027)	ND (0.027)	ND (0.025)	0.01
Endosulfan Sulfate	ND (0.024)	ND (0.027)	ND (0.026)	ND (0.024)	0.060	ND (0.038)	ND (0.024)	ND (0.024)	ND (0.021)	ND (0.027)	ND (0.021)	ND (0.034)	ND (0.027)	ND (0.027)	ND (0.025)	NA
Gamma-Chlordane	ND (0.012)	ND (0.013)	ND (0.013)	ND (0.012)	ND (0.011)	ND (0.019)	ND (0.012)	ND (0.012)	ND (0.011)	ND (0.014)	ND (0.011)	ND (0.017)	ND (0.013)	ND (0.014)	ND (0.012)	0.01
Methoxychlor	ND (0.059)	ND (0.066)	ND (0.065)	ND (0.060)	0.127	ND (0.094)	ND (0.060)	ND (0.059)	ND (0.053)	ND (0.067)	ND (0.053)	ND (0.085)	ND (0.066)	ND (0.069)	ND (0.062)	0.01

SEE END OF TABLE 7 FOR COMPLETE LIST OF TABLE NOTES.

BOLD values detected above the reporting limit.

Shaded values exceed the site screening level

Native Soil
Fill/Refuse

Table 2 (continued). Summary of Soil Sample Results, Pacific City Park Remedial Investigation, Pacific, Washington.																	
Analytical Parameter	Sample Location																Site Screening Level ^a (mg/kg)
	GP-16-15		GP-17-15			GP-18-15		GP-19-15		GP-20-15		GP-21-15		GP-22-15			
	9/21/15		9/21/15			9/21/15		9/21/15		9/21/15		9/21/15		9/22/15			
Sample Date	9/21/15		9/21/15			9/21/15		9/21/15		9/21/15		9/21/15		9/22/15			
Depth (feet)	8.0	13.5	7.0	14.5	7 dup	3.0	14.0	5.0	14.5	5.5	14.0	4.0	14.0	1.5	3.0	3.0 dup	
Petroleum Hydrocarbons (mg/kg)																	
Gasoline Range Organics	ND (4.83)	ND (3.95)	ND (4.2)	ND (3.9)	ND (3.8)	ND (3.5)	ND (3.7)	ND (3.1)	ND (4.7)	ND (3.3)	ND (3.6)	3.7	ND (4.0)	ND (3.5)	ND (3.6)	ND (2.7)	100
Diesel Range Organics	72	ND (25)	ND (27.2)	ND (20.2)	ND (23.9)	ND (20.3)	ND (23.6)	ND (20.7)	ND (24.8)	ND (19.7)	ND (20.8)	ND (23.3)	ND (21.8)	ND (21.4)	ND (20.4)	ND (19.3)	200
Lube Oil Range Organics	427	ND (63)	70	ND (51)	401	302	ND (59)	ND (52)	ND (62)	285	ND (52)	728	ND (55)	ND (53)	ND (51)	ND (48)	2,000
Sum of Diesel and Lube Oil Range Organics	499	–	70	–	401	302	–	–	–	285	–	728	–	–	–	–	2,000
Volatile Organic Compounds by EPA 8260 (mg/kg)																	
Benzene	ND (0.019)	ND (0.016)	ND (0.017)	ND (0.016)	ND (0.015)	ND (0.014)	ND (0.015)	ND (0.012)	ND (0.019)	ND (0.013)	ND (0.014)	ND (0.013)	ND (0.016)	ND (0.014)	ND (0.014)	ND (0.010)	0.001
Toluene	0.022	ND (0.016)	ND (0.017)	ND (0.016)	ND (0.015)	ND (0.014)	ND (0.015)	ND (0.012)	ND (0.019)	ND (0.013)	ND (0.014)	ND (0.013)	ND (0.016)	ND (0.014)	ND (0.014)	ND (0.010)	0.024
Ethylbenzene	ND (0.029)	ND (0.024)	ND (0.025)	ND (0.023)	ND (0.023)	ND (0.021)	ND (0.022)	ND (0.019)	ND (0.028)	ND (0.020)	ND (0.022)	ND (0.020)	ND (0.024)	ND (0.021)	ND (0.022)	ND (0.016)	0.014
Total Xylenes	0.029	ND (0.016)	ND (0.017)	ND (0.016)	ND (0.015)	ND (0.014)	ND (0.015)	ND (0.012)	ND (0.019)	ND (0.013)	ND (0.014)	ND (0.013)	ND (0.016)	ND (0.014)	ND (0.014)	ND (0.010)	0.52
Acetone	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2.07
2-Butanone	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.38
Carbon Disulfide	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.27
Cis-1,2-dichloroethene	ND (0.019)	ND (0.016)	ND (0.017)	ND (0.016)	ND (0.015)	ND (0.014)	ND (0.015)	ND (0.012)	ND (0.019)	ND (0.013)	ND (0.014)	ND (0.013)	ND (0.016)	ND (0.014)	ND (0.014)	ND (0.010)	0.005
Chlorobenzene	ND (0.019)	ND (0.016)	ND (0.017)	ND (0.016)	ND (0.015)	ND (0.014)	ND (0.015)	ND (0.012)	ND (0.019)	ND (0.013)	ND (0.014)	ND (0.013)	ND (0.016)	ND (0.014)	ND (0.014)	ND (0.010)	0.051
Methylene Chloride	ND (0.019)	ND (0.016)	ND (0.017)	ND (0.016)	ND (0.015)	ND (0.014)	ND (0.015)	ND (0.012)	0.020	ND (0.013)	0.015	0.014	ND (0.016)	ND (0.014)	ND (0.014)	ND (0.010)	0.005
p-Isopropyltoluene	ND (0.019)	ND (0.016)	ND (0.017)	ND (0.016)	ND (0.015)	ND (0.014)	ND (0.015)	ND (0.012)	ND (0.019)	ND (0.013)	ND (0.014)	0.13	ND (0.016)	ND (0.014)	ND (0.014)	ND (0.010)	0.229
Styrene	ND (0.012)	ND (0.014)	ND (0.013)	ND (0.013)	ND (0.013)	ND (0.030)	ND (0.012)	ND (0.014)	ND (0.017)	ND (0.013)	ND (0.014)	ND (0.022)	ND (0.013)	ND (0.015)	ND (0.015)	ND (0.012)	0.120
Tetrachlorethene	ND (0.019)	ND (0.016)	ND (0.017)	ND (0.016)	ND (0.015)	ND (0.014)	ND (0.015)	ND (0.012)	ND (0.019)	ND (0.013)	ND (0.014)	ND (0.013)	ND (0.016)	ND (0.014)	ND (0.014)	ND (0.010)	0.0013
Trichloroethene	ND (0.019)	ND (0.016)	ND (0.017)	ND (0.016)	ND (0.015)	ND (0.014)	ND (0.015)	ND (0.012)	ND (0.019)	ND (0.013)	ND (0.014)	ND (0.013)	ND (0.016)	ND (0.014)	ND (0.014)	ND (0.010)	0.001
1,2,4-Trimethylbenzene	ND (0.012)	ND (0.014)	ND (0.013)	ND (0.013)	ND (0.013)	ND (0.030)	ND (0.012)	ND (0.014)	ND (0.017)	ND (0.013)	ND (0.014)	ND (0.022)	ND (0.013)	ND (0.015)	ND (0.015)	ND (0.012)	NA
Total Metals by EPA 6010D/7471B (mg/kg)																	
Arsenic	18.5	1.8	8.7	2.0	5.7	5.2	5.6	3.5	2.7	4.0	1.9	2.6	2.8	3.8	3.8	4.0	20
Barium	78	26	52	22	38	47	25	44	38	32	21	40	27	46	44	44	41.3
Cadmium	1.9	ND (0.198)	0.36	ND (0.19)	3.2	0.32	ND (0.18)	ND (0.18)	ND (0.20)	ND (0.17)	ND (0.18)	0.23	ND (0.20)	ND (0.17)	ND (0.19)	ND (0.18)	1
Chromium	57	13	16	12	19	18	56	22	17	19	11	22	14	18	19	19	48
Lead	552	2.2	49	2.6	39	60	5.7	5.4	2.2	19.6	2.3	18	3.4	5.1	4.1	5.5	25
Mercury	ND (0.42)	ND (0.29)	ND (0.31)	ND (0.26)	ND (0.29)	ND (0.24)	ND (0.26)	ND (0.24)	ND (0.28)	ND (0.27)	ND (0.27)	ND (0.25)	ND (0.28)	0.38	ND (0.25)	ND (0.25)	0.07
Selenium	ND (0.63)	0.89	1.5	0.99	1.5	1.1	0.90	1.1	0.86	1.2	0.9	0.85	0.78	1.7	1.6	1.8	10
Silver	0.18	ND (0.10)	ND (0.117)	ND (0.095)	ND (0.102)	ND (0.091)	ND (0.090)	ND (0.088)	ND (0.099)	ND (0.085)	ND (0.092)	ND (0.095)	ND (0.099)	ND (0.084)	ND (0.097)	ND (0.091)	0.61
Polychlorinated Biphenyls (PCBs) by EPA 8082A (mg/kg)																	
Total PCBs	0.42	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.05
Semi-Volatile Organic Compounds by EPA 8270D/SIM (mg/kg)																	
Acenaphthene	ND (0.133)	ND (0.097)	ND (0.111)	ND (0.091)	ND (0.100)	ND (0.085)	ND (0.095)	ND (0.086)	ND (0.102)	ND (0.085)	ND (0.092)	ND (0.091)	ND (0.092)	ND (0.086)	ND (0.092)	ND (0.090)	0.156
Acenaphthylene	ND (0.133)	ND (0.097)	ND (0.111)	ND (0.091)	ND (0.100)	ND (0.085)	ND (0.095)	ND (0.086)	ND (0.102)	ND (0.085)	ND (0.092)	ND (0.091)	ND (0.092)	ND (0.086)	ND (0.092)	ND (0.090)	NA
Anthracene	ND (0.133)	ND (0.097)	ND (0.111)	ND (0.091)	ND (0.100)	ND (0.085)	ND (0.095)	ND (0.086)	ND (0.102)	ND (0.085)	ND (0.092)	0.13	0.15	ND (0.086)	ND (0.092)	ND (0.090)	7.134
Benzyl Alcohol	ND (0.166)	ND (0.121)	ND (0.139)	ND (0.113)	ND (0.124)	ND (0.107)	ND (0.119)	ND (0.108)	ND (0.128)	ND (0.106)	ND (0.115)	ND (0.114)	ND (0.115)	ND (0.108)	ND (0.115)	ND (0.113)	NA

Table 2 (continued). Summary of Soil Sample Results, Pacific City Park Remedial Investigation, Pacific, Washington.																	
Analytical Parameter	Sample Location																Site Screening Level ^a (mg/kg)
	GP-16-15		GP-17-15			GP-18-15		GP-19-15		GP-20-15		GP-21-15		GP-22-15			
	9/21/15		9/21/15			9/21/15		9/21/15		9/21/15		9/21/15		9/22/15			
Depth (feet)	8.0	13.5	7.0	14.5	7 dup	3.0	14.0	5.0	14.5	5.5	14.0	4.0	14.0	1.5	3.0	3.0 dup	
Bis (2-Ethylhexyl) Phthalate	2.5	ND (0.121)	ND (0.139)	ND (0.113)	1.09	ND (0.107)	0.38	ND (0.108)	ND (0.128)	0.21	ND (0.115)	2.76	ND (0.115)	ND (0.108)	ND (0.115)	ND (0.113)	0.111
Semi-Volatile Organic Compounds by EPA 8270D/SIM (mg/kg) (continued)																	
Butyl Benzylphthalate	0.17	ND (0.121)	ND (0.139)	ND (0.113)	ND (0.124)	ND (0.107)	ND (0.119)	0.27	ND (0.128)	ND (0.106)	ND (0.115)	0.18	ND (0.115)	ND (0.108)	ND (0.115)	ND (0.113)	0.033
Dibutyl Phthalate	ND (0.166)	ND (0.121)	ND (0.139)	ND (0.113)	ND (0.124)	ND (0.107)	ND (0.119)	ND (0.108)	ND (0.128)	ND (0.106)	ND (0.115)	ND (0.114)	ND (0.115)	ND (0.108)	ND (0.115)	ND (0.113)	0.17
Di-N-Octyl Phthalate	ND (0.166)	ND (0.121)	ND (0.139)	ND (0.113)	ND (0.124)	0.17	ND (0.119)	ND (0.108)	ND (0.128)	ND (0.106)	ND (0.115)	ND (0.114)	ND (0.115)	ND (0.108)	ND (0.115)	ND (0.113)	800
Fluoranthene	0.15	ND (0.097)	ND (0.111)	ND (0.091)	0.13	0.11	ND (0.095)	ND (0.086)	ND (0.102)	0.096	ND (0.092)	0.25	0.13	ND (0.086)	ND (0.092)	ND (0.090)	0.296
Fluorene	ND (0.133)	ND (0.097)	ND (0.111)	ND (0.091)	ND (0.100)	ND (0.085)	ND (0.095)	ND (0.086)	ND (0.102)	ND (0.085)	ND (0.092)	ND (0.091)	ND (0.092)	ND (0.086)	ND (0.092)	ND (0.090)	0.080
2-Methylnaphthalene	ND (0.133)	ND (0.097)	ND (0.111)	ND (0.091)	ND (0.100)	ND (0.085)	ND (0.095)	ND (0.086)	ND (0.102)	ND (0.085)	ND (0.092)	ND (0.091)	ND (0.092)	ND (0.086)	ND (0.092)	ND (0.090)	0.236
1-Methylnaphthalene	ND (0.133)	ND (0.097)	ND (0.111)	ND (0.091)	ND (0.100)	ND (0.085)	ND (0.095)	ND (0.086)	ND (0.102)	ND (0.085)	ND (0.092)	ND (0.091)	ND (0.092)	ND (0.086)	ND (0.092)	ND (0.090)	0.236
Naphthalene	ND (0.133)	ND (0.097)	ND (0.111)	ND (0.091)	ND (0.100)	ND (0.085)	ND (0.095)	ND (0.086)	ND (0.102)	ND (0.085)	ND (0.092)	ND (0.091)	ND (0.092)	ND (0.086)	ND (0.092)	ND (0.090)	0.236
4-Nitrophenol	ND (0.831)	ND (0.605)	ND (0.694)	ND (0.566)	ND (0.622)	ND (0.533)	ND (0.596)	ND (0.539)	ND (0.638)	ND (0.530)	ND (0.575)	ND (0.571)	ND (0.575)	ND (0.540)	ND (0.575)	ND (0.565)	NA
p-Cresol	ND (0.166)	ND (0.121)	ND (0.139)	ND (0.113)	ND (0.124)	ND (0.107)	ND (0.119)	ND (0.108)	ND (0.128)	ND (0.106)	ND (0.115)	ND (0.114)	ND (0.115)	ND (0.108)	ND (0.115)	ND (0.113)	8,000
Pentachlorophenol	ND (0.166)	ND (0.121)	ND (0.139)	ND (0.113)	ND (0.124)	ND (0.107)	ND (0.119)	ND (0.108)	ND (0.128)	ND (0.106)	ND (0.115)	ND (0.114)	ND (0.115)	ND (0.108)	ND (0.115)	ND (0.113)	0.17
Phenanthrene	ND (0.133)	ND (0.097)	ND (0.111)	ND (0.091)	ND (0.100)	ND (0.085)	ND (0.095)	ND (0.086)	ND (0.102)	ND (0.085)	ND (0.092)	0.11	0.13	ND (0.086)	ND (0.092)	ND (0.090)	0.0067
Phenol	ND (0.333)	ND (0.242)	ND (0.278)	ND (0.226)	ND (0.249)	ND (0.213)	ND (0.238)	ND (.216)	ND (0.255)	ND (0.212)	ND (0.230)	0.57	ND (0.230)	ND (0.216)	ND (0.230)	ND (0.226)	0.757
Pyrene	0.19	ND (0.097)	0.13	ND (0.091)	0.14	0.12	ND (0.095)	ND (0.086)	ND (0.102)	0.090	ND (0.092)	0.23	0.11	ND (0.086)	ND (0.092)	ND (0.090)	0.546
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs) by EPA 8270D/SIM (mg/kg)																	
Benzo(a)anthracene	0.21	ND (0.097)	0.19	ND (0.091)	ND (0.100)	0.16	ND (0.095)	ND (0.086)	ND (0.102)	0.13	ND (0.092)	0.16	0.12	ND (0.086)	ND (0.092)	ND (0.090)	0.0067
Benzo(a)pyrene	ND (0.133)	ND (0.097)	ND (0.111)	ND (0.091)	ND (0.100)	ND (0.085)	0.17	ND (0.086)	0.28	ND (0.085)	ND (0.092)	ND (0.091)	ND (0.092)	ND (0.086)	ND (0.092)	ND (0.090)	0.01
Benzo(b)fluoranthene	ND (0.133)	ND (0.097)	ND (0.111)	ND (0.091)	ND (0.100)	ND (0.085)	0.19	0.17	ND (0.102)	ND (0.085)	ND (0.092)	ND (0.091)	ND (0.092)	ND (0.086)	ND (0.092)	ND (0.090)	0.012
Benzo(j,k)fluoranthene	ND (0.133)	ND (0.097)	ND (0.111)	ND (0.091)	ND (0.100)	ND (0.085)	ND (0.095)	ND (0.086)	ND (0.102)	ND (0.085)	ND (0.092)	ND (0.091)	ND (0.092)	ND (0.086)	ND (0.092)	ND (0.090)	0.012
Chrysene	ND (0.133)	ND (0.097)	ND (0.111)	ND (0.091)	ND (0.100)	0.095	ND (0.095)	ND (0.086)	ND (0.102)	ND (0.085)	ND (0.092)	0.23	ND (0.092)	ND (0.086)	ND (0.092)	ND (0.090)	0.0067
Dibenz(a,h)anthracene	ND (0.133)	ND (0.097)	ND (0.111)	ND (0.091)	ND (0.100)	ND (0.085)	ND (0.009)	ND (0.086)	ND (0.102)	ND (0.085)	ND (0.092)	ND (0.091)	ND (0.092)	ND (0.086)	ND (0.092)	ND (0.090)	0.018
Indeno(1,2,3-cd)pyrene	ND (0.133)	ND (0.097)	ND (0.111)	ND (0.091)	ND (0.100)	ND (0.085)	ND (0.009)	ND (0.086)	ND (0.102)	ND (0.085)	ND (0.092)	ND (0.091)	ND (0.092)	ND (0.086)	ND (0.092)	ND (0.090)	0.035
Total cPAHs (TEQ) ^b	0.13	ND (0.088)	0.10	ND (0.082)	ND (0.090)	0.089	0.54	0.091	0.32	0.086	ND (0.083)	0.096	0.091	ND (0.078)	ND (0.083)	ND (0.081)	0.020
Herbicides by EPA 8151A (mg/kg)																	
2,4-DB	ND (0.041)	ND (0.031)	ND (0.035)	ND (0.029)	ND (0.031)	ND (0.027)	ND (0.030)	ND (0.027)	ND (0.032)	ND (0.027)	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.027)	ND (0.029)	ND (0.028)	640
2,4,5-T	ND (0.082)	ND (0.063)	ND (0.071)	ND (0.057)	ND (0.063)	ND (0.055)	ND (0.059)	ND (0.055)	ND (0.064)	ND (0.054)	ND (0.058)	ND (0.059)	ND (0.059)	ND (0.055)	ND (0.058)	ND (0.056)	800
Bentazon	ND (0.082)	ND (0.063)	ND (0.071)	ND (0.057)	ND (0.063)	ND (0.055)	ND (0.059)	ND (0.055)	ND (0.064)	ND (0.054)	ND (0.058)	ND (0.059)	ND (0.059)	ND (0.055)	ND (0.058)	ND (0.056)	2,400
Chloramben	ND (0.033)	ND (0.025)	ND (0.028)	ND (0.023)	ND (0.025)	ND (0.022)	ND (0.024)	ND (0.022)	ND (0.026)	ND (0.022)	ND (0.023)	ND (0.023)	ND (0.024)	ND (0.022)	ND (0.023)	ND (0.022)	1,200
Chlorthal-dimethyl	ND (0.041)	ND (0.031)	ND (0.035)	ND (0.029)	ND (0.031)	ND (0.027)	ND (0.030)	ND (0.027)	ND (0.032)	ND (0.027)	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.027)	ND (0.029)	ND (0.028)	800
Dalapon	ND (0.033)	ND (0.025)	ND (0.028)	ND (0.023)	ND (0.025)	ND (0.022)	ND (0.024)	ND (0.022)	ND (0.026)	ND (0.022)	ND (0.023)	ND (0.023)	ND (0.024)	ND (0.022)	ND (0.023)	ND (0.022)	2,400
Dinoseb	ND (0.082)	ND (0.063)	ND (0.071)	ND (0.057)	ND (0.063)	ND (0.055)	ND (0.059)	ND (0.055)	ND (0.064)	ND (0.054)	ND (0.058)	ND (0.059)	ND (0.059)	ND (0.055)	ND (0.058)	ND (0.056)	80
Picloram	ND (0.082)	ND (0.063)	ND (0.071)	ND (0.057)	ND (0.063)	ND (0.055)	ND (0.059)	ND (0.055)	ND (0.064)	ND (0.054)	ND (0.058)	ND (0.059)	ND (0.059)	ND (0.055)	ND (0.058)	ND (0.056)	5,600
Silvex	ND (0.033)	ND (0.025)	ND (0.028)	ND (0.023)	ND (0.025)	ND (0.022)	ND (0.024)	ND (0.022)	ND (0.026)	ND (0.022)	ND (0.023)	ND (0.023)	ND (0.024)	ND (0.022)	ND (0.023)	ND (0.022)	640

Table 2 (continued). Summary of Soil Sample Results, Pacific City Park Remedial Investigation, Pacific, Washington.																	
Analytical Parameter	Sample Location																Site Screening Level ^a (mg/kg)
	GP-16-15		GP-17-15			GP-18-15		GP-19-15		GP-20-15		GP-21-15		GP-22-15			
	9/21/15		9/21/15			9/21/15		9/21/15		9/21/15		9/21/15		9/22/15			
	Sample Date	9/21/15		9/21/15			9/21/15		9/21/15		9/21/15		9/21/15		9/22/15		
Depth (feet)	8.0	13.5	7.0	14.5	7 dup	3.0	14.0	5.0	14.5	5.5	14.0	4.0	14.0	1.5	3.0	3.0 dup	
Organochlorine Pesticides by EPA 8081 (mg/kg)																	
4,4'-DDD	ND (0.029)	ND (0.025)	ND (0.027)	ND (0.021)	ND (0.025)	ND (0.021)	ND (0.022)	ND (0.020)	ND (0.023)	ND (0.019)	ND (0.023)	ND (0.022)	ND (0.021)	ND (0.021)	ND (0.020)	ND (0.022)	0.01
4,4'-DDE	ND (0.029)	ND (0.025)	ND (0.027)	ND (0.021)	ND (0.025)	ND (0.021)	ND (0.022)	ND (0.020)	ND (0.023)	ND (0.019)	ND (0.023)	ND (0.022)	ND (0.021)	ND (0.021)	ND (0.020)	ND (0.022)	0.01
Endosulfan I	ND (0.015)	ND (0.012)	ND (0.013)	ND (0.011)	ND (0.013)	ND (0.010)	ND (0.011)	ND (0.010)	ND (0.011)	ND (0.010)	ND (0.011)	ND (0.011)	ND (0.010)	ND (0.011)	ND (0.010)	ND (0.011)	0.01
Endosulfan II	ND (0.029)	ND (0.025)	ND (0.027)	ND (0.021)	ND (0.025)	ND (0.021)	ND (0.022)	ND (0.020)	ND (0.023)	ND (0.019)	ND (0.023)	ND (0.022)	ND (0.021)	ND (0.021)	ND (0.020)	ND (0.022)	0.005
Cis-Chlordane (alpha)	ND (0.015)	ND (0.012)	ND (0.013)	ND (0.011)	ND (0.013)	ND (0.010)	ND (0.011)	ND (0.010)	ND (0.011)	ND (0.010)	ND (0.011)	ND (0.011)	ND (0.010)	ND (0.011)	ND (0.010)	ND (0.011)	0.01
Endosulfan Sulfate	ND (0.029)	ND (0.025)	ND (0.027)	ND (0.021)	ND (0.025)	ND (0.021)	ND (0.022)	ND (0.020)	ND (0.023)	ND (0.019)	ND (0.023)	ND (0.022)	ND (0.021)	ND (0.021)	ND (0.020)	ND (0.022)	NA
Gamma-Chlordane	ND (0.015)	ND (0.012)	ND (0.013)	ND (0.011)	ND (0.013)	ND (0.010)	ND (0.011)	ND (0.010)	ND (0.011)	ND (0.010)	ND (0.011)	ND (0.011)	ND (0.010)	ND (0.011)	ND (0.010)	ND (0.011)	0.01
Methoxychlor	ND (0.073)	ND (0.062)	ND (0.067)	ND (0.052)	ND (0.064)	ND (0.052)	ND (0.054)	ND (0.051)	ND (0.057)	ND (0.047)	ND (0.057)	ND (0.056)	ND (0.052)	ND (0.053)	ND (0.0500)	ND (0.054)	0.01

SEE END OF TABLE 7 FOR COMPLETE LIST OF TABLE NOTES.

BOLD values detected above the reporting limit.

Shaded values exceed the site screening level

Native Soil
Fill/Refuse

Table 2 (continued). Summary of Soil Sample Results, Pacific City Park Remedial Investigation, Pacific, Washington.														
Analytical Parameter	Sample Location													Site Screening Level ^a (mg/kg)
	MW-1-15		MW-2-15		MW-3-15		MW-4-15		MW-5-15		MW-6-15			
	9/18/15		9/18/15		9/18/15		9/22/15		9/22/15		9/22/15			
Sample Date	9/18/15		9/18/15		9/18/15		9/22/15		9/22/15		9/22/15			
Depth (feet)	6.0	12.0	3.0	13	6.5	15.0	6.0	14.5	5.0	12.5	5.5	5.5 dup	14.0	
Petroleum Hydrocarbons (mg/kg)														
Gasoline Range Organics	ND (2.7)	ND (3.3)	ND (3.3)	ND (5.5)	ND (3.88)	ND (3.69)	ND (2.66)	ND (4.89)	ND (3.79)	ND (3.57)	ND (3.59)	ND (4.29)	ND (3.88)	100
Diesel Range Organics	ND (24.0)	ND (23.9)	ND (21.9)	ND (37.8)	ND (23)	ND (26)	ND (22)	ND (29)	ND (24)	ND (24)	ND (20)	ND (20)	ND (20)	200
Lube Oil Range Organics	ND (60)	ND (60)	137	ND (95)	ND (59)	ND (64)	1,250	ND (74)	ND (61)	ND (61)	ND (50)	4,080	ND (51)	2,000
Volatile Organic Compounds by EPA 8260 (mg/kg)														
Benzene	ND (0.011)	ND (0.013)	ND (0.013)	ND (0.022)	ND (0.016)	ND (0.015)	ND (0.011)	ND (0.020)	ND (0.015)	ND (0.014)	ND (0.014)	ND (0.016)	ND (0.017)	0.001
Toluene	ND (0.011)	ND (0.013)	ND (0.013)	ND (0.022)	ND (0.016)	ND (0.015)	ND (0.011)	ND (0.020)	ND (0.015)	ND (0.014)	ND (0.014)	ND (0.016)	ND (0.017)	0.024
Ethylbenzene	ND (0.016)	ND (0.020)	ND (0.020)	ND (0.033)	ND (0.023)	ND (0.022)	ND (0.016)	ND (0.029)	ND (0.023)	ND (0.021)	ND (0.022)	ND (0.023)	ND (0.026)	0.014
Total Xylenes	ND (0.011)	ND (0.013)	ND (0.013)	ND (0.022)	ND (0.016)	ND (0.015)	ND (0.011)	ND (0.020)	ND (0.015)	ND (0.014)	ND (0.014)	ND (0.016)	ND (0.017)	0.52
Acetone	–	–	–	–	–	–	–	–	–	–	–	–	–	2.07
2-Butanone	–	–	–	–	–	–	–	–	–	–	–	–	–	1.38
Carbon Disulfide	–	–	–	–	–	–	–	–	–	–	–	–	–	0.27
Cis-1,2-dichloroethene	ND (0.011)	ND (0.013)	ND (0.013)	ND (0.022)	ND (0.016)	ND (0.015)	ND (0.011)	ND (0.020)	ND (0.015)	ND (0.014)	ND (0.014)	ND (0.016)	ND (0.017)	0.005
Chlorobenzene	ND (0.011)	ND (0.013)	ND (0.013)	ND (0.022)	ND (0.016)	ND (0.015)	ND (0.011)	ND (0.020)	ND (0.015)	ND (0.014)	ND (0.014)	ND (0.016)	ND (0.017)	0.051
Methylene Chloride	ND (0.011)	ND (0.013)	ND (0.013)	ND (0.022)	ND (0.016)	ND (0.015)	ND (0.011)	ND (0.020)	ND (0.015)	ND (0.014)	ND (0.014)	ND (0.016)	ND (0.017)	0.005
p-Isopropyltoluene	ND (0.011)	ND (0.013)	ND (0.013)	ND (0.022)	ND (0.016)	ND (0.015)	ND (0.011)	ND (0.020)	ND (0.015)	ND (0.014)	ND (0.014)	ND (0.016)	ND (0.017)	0.229
Styrene	ND (0.012)	ND (0.014)	ND (0.013)	ND (0.013)	ND (0.013)	ND (0.030)	ND (0.012)	ND (0.014)	ND (0.017)	ND (0.013)	ND (0.014)	ND (0.022)	ND (0.013)	0.120
Tetrachlorethene	ND (0.011)	ND (0.013)	ND (0.013)	ND (0.022)	ND (0.016)	ND (0.015)	ND (0.011)	ND (0.020)	ND (0.015)	ND (0.014)	ND (0.014)	ND (0.016)	ND (0.017)	0.0013
Trichloroethene	ND (0.011)	ND (0.013)	ND (0.013)	ND (0.022)	ND (0.016)	ND (0.015)	ND (0.011)	ND (0.020)	ND (0.015)	ND (0.014)	ND (0.014)	ND (0.016)	ND (0.017)	0.001
1,2,4-Trimethylbenzene	ND (0.012)	ND (0.014)	ND (0.013)	ND (0.013)	ND (0.013)	ND (0.030)	ND (0.012)	ND (0.014)	ND (0.017)	ND (0.013)	ND (0.014)	ND (0.022)	ND (0.013)	NA
Total Metals by EPA 6010D/7471B (mg/kg)														
Arsenic	3.7	2.7	3.1	8.1	3.8	1.6	4	4.5	4.6	2.2	3.5	3.3	3.9	20
Barium	31	20	28	74	17	27	45	80	98	30	39	29	28	41.3
Cadmium	0.44	ND (0.20)	ND (0.17)	ND (0.28)	ND (0.21)	ND (0.23)	ND (0.19)	ND (0.25)	5.4	ND (0.19)	ND (0.17)	ND (0.19)	ND (0.17)	1
Chromium	17	14	15	22	12	12	26	21	24	15	18	12	13	48
Lead	41.1	3.4	23	4.9	1.3	1.5	19	3.8	56	7.7	12	14	2.0	25
Mercury	ND (0.26)	ND (0.28)	ND (0.24)	ND (0.44)	ND (0.30)	ND (0.32)	ND (0.28)	ND (0.34)	ND (0.27)	ND (0.28)	ND (0.27)	ND (0.29)	ND (0.28)	0.07
Selenium	1.1	1.0	0.89	2.35	0.86	0.98	1.2	2.5	1.6	1.3	1.5	1.1	1.4	10
Silver	ND (0.094)	ND (0.10)	ND (0.084)	ND (0.14)	ND (0.10)	ND (0.11)	ND (0.094)	ND (0.13)	ND (0.092)	ND (0.094)	ND (0.087)	ND (0.095)	ND (0.087)	0.61
Polychlorinated Biphenyls (PCBs) by EPA 8082A (mg/kg)														
Total PCBs	–	–	–	–	–	–	–	–	–	–	–	ND (0.11)	–	0.05
Semi-Volatile Organic Compounds by EPA 8270D/SIM (mg/kg)														
Acenapthene	ND (0.094)	ND (0.098)	ND (0.091)	ND (0.152)	ND (0.099)	ND (0.108)	0.093	ND (0.123)	ND (0.096)	ND (0.097)	ND (0.089)	ND (0.095)	ND (0.094)	0.156
Acenaphthylene	ND (0.094)	ND (0.098)	ND (0.091)	ND (0.152)	ND (0.099)	ND (0.108)	ND (0.092)	ND (0.123)	ND (0.096)	ND (0.097)	ND (0.089)	ND (0.095)	ND (0.094)	NA
Anthracene	ND (0.094)	ND (0.098)	ND (0.091)	ND (0.152)	ND (0.099)	ND (0.108)	0.84	ND (0.123)	ND (0.096)	ND (0.097)	ND (0.089)	ND (0.095)	ND (0.094)	7.134
Benzyl Alcohol	ND (0.118)	ND (0.122)	ND (0.114)	ND (0.190)	ND (0.124)	ND (0.135)	ND (0.114)	ND (0.154)	ND (0.120)	ND (0.121)	ND (0.111)	ND (0.118)	ND (0.119)	NA
Bis (2-Ethylhexyl) Phthalate	ND (0.118)	ND (0.122)	0.12	0.33	ND (0.124)	ND (0.135)	ND (0.114)	ND (0.154)	ND (0.120)	ND (0.121)	ND (0.111)	ND (0.118)	ND (0.119)	0.111

Table 2 (continued). Summary of Soil Sample Results, Pacific City Park Remedial Investigation, Pacific, Washington.														
Analytical Parameter	Sample Location													Site Screening Level ^a (mg/kg)
	MW-1-15		MW-2-15		MW-3-15		MW-4-15		MW-5-15		MW-6-15			
Sample Date	9/18/15		9/18/15		9/18/15		9/22/15		9/22/15		9/22/15			
Depth (feet)	6.0	12.0	3.0	13	6.5	15.0	6.0	14.5	5.0	12.5	5.5	5.5 dup	14.0	
Semi-Volatile Organic Compounds by EPA 8270D/SIM (mg/kg) (continued)														
Butyl Benzylphthalate	ND (0.118)	ND (0.122)	ND (0.114)	ND (0.190)	ND (0.124)	ND (0.135)	ND (0.114)	ND (0.154)	ND (0.120)	ND (0.121)	ND (0.111)	ND (0.118)	ND (0.119)	0.033
Dibutyl Phthalate	ND (0.118)	ND (0.122)	ND (0.114)	ND (0.190)	ND (0.124)	ND (0.135)	0.14	ND (0.154)	0.14	0.15	0.13	0.16	0.14	0.17
Di-N-Octyl Phthalate	ND (0.118)	ND (0.122)	ND (0.114)	ND (0.190)	ND (0.124)	ND (0.135)	ND (0.114)	ND (0.154)	ND (0.120)	ND (0.121)	ND (0.111)	ND (0.118)	ND (0.119)	800
Fluoranthene	ND (0.094)	ND (0.098)	0.16	ND (0.152)	ND (0.099)	ND (0.108)	0.47	ND (0.123)	ND (0.096)	ND (0.097)	ND (0.089)	0.11	ND (0.094)	0.296
Fluorene	ND (0.094)	ND (0.098)	ND (0.091)	ND (0.152)	ND (0.099)	ND (0.108)	0.18	ND (0.123)	ND (0.096)	ND (0.097)	ND (0.089)	ND (0.095)	ND (0.094)	0.080
1-Methylnaphthalene	ND (0.094)	ND (0.098)	ND (0.091)	ND (0.152)	ND (0.099)	ND (0.108)	0.18	ND (0.123)	ND (0.096)	ND (0.097)	ND (0.089)	ND (0.095)	ND (0.094)	0.236
2-Methylnaphthalene	ND (0.094)	ND (0.098)	ND (0.091)	ND (0.152)	ND (0.099)	ND (0.108)	0.16	ND (0.123)	ND (0.096)	ND (0.097)	ND (0.089)	ND (0.095)	ND (0.094)	0.236
Naphthalene	ND (0.094)	ND (0.098)	ND (0.091)	ND (0.152)	ND (0.099)	ND (0.108)	ND (0.092)	ND (0.123)	ND (0.096)	ND (0.097)	ND (0.089)	ND (0.095)	ND (0.094)	0.236
4-Nitrophenol	ND (0.590)	ND (0.612)	ND (0.570)	ND (0.952)	ND (0.618)	ND (0.618)	0.80	ND (0.0445)	ND (0.036)	ND (0.038)	ND (0.553)	ND (0.594)	ND (0.588)	NA
p-Cresol	ND (0.118)	ND (0.122)	ND (0.114)	ND (0.190)	ND (0.124)	ND (0.135)	ND (0.114)	ND (0.154)	ND (0.120)	ND (0.121)	ND (0.111)	ND (0.118)	ND (0.119)	8,000
Pentachlorophenol	ND (0.118)	ND (0.122)	ND (0.114)	ND (0.190)	ND (0.124)	ND (0.135)	ND (0.114)	ND (0.154)	ND (0.120)	ND (0.121)	ND (0.111)	ND (0.118)	ND (0.119)	0.17
Phenanthrene	ND (0.094)	ND (0.098)	ND (0.091)	ND (0.152)	ND (0.099)	ND (0.108)	0.82	ND (0.123)	ND (0.096)	ND (0.097)	ND (0.089)	ND (0.095)	ND (0.094)	0.0067
Phenol	ND (0.236)	ND (0.245)	ND (0.228)	ND (0.381)	ND (0.247)	ND (0.270)	ND (0.229)	ND (0.308)	ND (0.241)	ND (0.241)	ND (0.221)	ND (0.235)	ND (0.238)	0.757
Pyrene	ND (0.094)	ND (0.098)	0.15	ND (0.152)	ND (0.099)	ND (0.108)	0.72	ND (0.123)	ND (0.096)	ND (0.097)	ND (0.089)	ND (0.095)	ND (0.094)	0.546
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs) by EPA 8270D/SIM (mg/kg)														
Benzo(a)anthracene	0.13	ND (0.098)	0.14	ND (0.152)	ND (0.099)	ND (0.108)	0.33	ND (0.123)	0.13	ND (0.097)	ND (0.089)	ND (0.095)	ND (0.094)	0.0067
Benzo(a)pyrene	ND (0.094)	ND (0.098)	ND (0.091)	0.52	ND (0.099)	ND (0.108)	0.20	0.27	0.17	ND (0.097)	ND (0.089)	ND (0.095)	ND (0.094)	0.01
Benzo(b)fluoranthene	ND (0.094)	ND (0.098)	0.26	ND (0.152)	ND (0.099)	ND (0.108)	0.35	ND (0.123)	ND (0.096)	ND (0.097)	ND (0.089)	ND (0.095)	ND (0.094)	0.012
Benzo(j,k)fluoranthene	ND (0.094)	ND (0.098)	0.11	ND (0.152)	ND (0.099)	ND (0.108)	ND (0.092)	ND (0.123)	ND (0.096)	ND (0.097)	ND (0.089)	ND (0.095)	ND (0.094)	0.012
Chrysene	ND (0.094)	ND (0.098)	ND (0.091)	ND (0.152)	ND (0.099)	ND (0.108)	0.30	ND (0.123)	ND (0.096)	ND (0.097)	ND (0.089)	ND (0.095)	ND (0.094)	0.0067
Dibenz(a,h)anthracene	ND (0.094)	ND (0.098)	ND (0.091)	ND (0.152)	ND (0.099)	ND (0.108)	ND (0.008)	ND (0.123)	ND (0.096)	ND (0.097)	ND (0.089)	ND (0.095)	ND (0.094)	0.018
Indeno(1,2,3-cd)pyrene	ND (0.094)	ND (0.098)	ND (0.091)	ND (0.152)	ND (0.099)	ND (0.108)	ND (0.008)	ND (0.123)	ND (0.096)	ND (0.097)	ND (0.089)	ND (0.095)	ND (0.094)	0.035
Total cPAHs (TEQ) ^b	0.093	ND (0.089)	0.10	0.58	ND (0.089)	ND (0.098)	0.28	0.27	0.18	ND (0.087)	ND (0.080)	ND (0.085)	ND (0.086)	0.020
Herbicides by EPA 8151A (mg/kg)														
2,4-DB	ND (0.028)	ND (0.030)	ND (0.028)	ND (0.047)	ND (0.031)	ND (0.034)	ND (0.028)	ND (0.037)	ND (0.030)	ND (0.032)	ND (0.027)	0.022	0.019	640
2,4,5-T	ND (0.056)	ND (0.059)	ND (0.056)	ND (0.094)	ND (0.063)	ND (0.068)	ND (0.056)	ND (0.074)	ND (0.061)	ND (0.063)	ND (0.054)	0.071	ND (0.028)	800
Bentazon	ND (0.056)	ND (0.059)	ND (0.056)	ND (0.094)	ND (0.056)	ND (0.068)	ND (0.056)	ND (0.074)	ND (0.061)	ND (0.063)	ND (0.054)	0.071	ND (0.028)	2,400
Chloramben	ND (0.023)	ND (0.024)	ND (0.022)	ND (0.038)	ND (0.025)	ND (0.027)	ND (0.022)	ND (0.030)	ND (0.024)	ND (0.025)	ND (0.022)	0.029	0.021	1,200
Chlorthal-dimethyl	ND (0.028)	ND (0.030)	ND (0.028)	ND (0.047)	ND (0.031)	ND (0.034)	ND (0.028)	ND (0.037)	ND (0.030)	ND (0.032)	ND (0.027)	0.022	0.019	800
Dalapon	ND (0.023)	ND (0.024)	ND (0.022)	ND (0.038)	ND (0.025)	ND (0.027)	ND (0.022)	ND (0.030)	ND (0.024)	ND (0.025)	ND (0.022)	0.029	0.021	2,400
Dinoseb	ND (0.056)	ND (0.059)	ND (0.056)	ND (0.094)	ND (0.056)	ND (0.068)	ND (0.056)	ND (0.074)	ND (0.061)	ND (0.063)	ND (0.054)	0.040	0.028	80
Picloram	ND (0.056)	ND (0.059)	ND (0.056)	ND (0.094)	ND (0.063)	ND (0.068)	ND (0.056)	ND (0.074)	ND (0.061)	ND (0.063)	ND (0.054)	0.040	0.028	5,600
Silvex	ND (0.023)	ND (0.024)	ND (0.022)	ND (0.038)	ND (0.031)	ND (0.034)	ND (0.028)	ND (0.037)	ND (0.030)	ND (0.032)	ND (0.027)	0.022	0.019	640

Table 2 (continued). Summary of Soil Sample Results, Pacific City Park Remedial Investigation, Pacific, Washington.														
Analytical Parameter	Sample Location													Site Screening Level ^a (mg/kg)
	MW-1-15		MW-2-15		MW-3-15		MW-4-15		MW-5-15		MW-6-15			
	Sample Date	9/18/15		9/18/15		9/18/15		9/22/15		9/22/15		9/22/15		
Depth (feet)	6.0	12.0	3.0	13	6.5	15.0	6.0	14.5	5.0	12.5	5.5	5.5 dup	14.0	
Organochlorine Pesticides by EPA 8081 (mg/kg)														
4,4'-DDD	ND (0.024)	ND (0.023)	ND (0.022)	ND (0.035)	ND (0.024)	ND (0.025)	ND (0.020)	ND (0.030)	ND (0.023)	ND (0.024)	ND (0.022)	ND (0.023)	ND (0.021)	0.01
4,4'-DDE	ND (0.024)	ND (0.023)	ND (0.022)	ND (0.035)	ND (0.024)	ND (0.025)	ND (0.020)	ND (0.030)	ND (0.023)	ND (0.024)	ND (0.022)	ND (0.023)	ND (0.021)	0.01
Cis-Chlordane (alpha)	ND (0.012)	ND (0.012)	ND (0.011)	ND (0.018)	ND (0.012)	ND (0.013)	ND (0.010)	ND (0.015)	ND (0.012)	ND (0.012)	ND (0.011)	ND (0.012)	ND (0.011)	0.01
Endosulfan I	ND (0.012)	ND (0.012)	ND (0.011)	ND (0.018)	ND (0.012)	ND (0.013)	ND (0.010)	ND (0.015)	ND (0.012)	ND (0.012)	ND (0.011)	ND (0.012)	ND (0.011)	0.005
Endosulfan II	ND (0.024)	ND (0.023)	ND (0.022)	ND (0.035)	ND (0.024)	ND (0.025)	ND (0.020)	ND (0.030)	ND (0.023)	ND (0.024)	ND (0.022)	ND (0.023)	ND (0.021)	0.01
Endosulfan Sulfate	ND (0.024)	ND (0.023)	ND (0.022)	ND (0.035)	ND (0.024)	ND (0.025)	ND (0.020)	ND (0.030)	ND (0.023)	ND (0.024)	ND (0.022)	ND (0.023)	ND (0.021)	NA
Gamma-Chlordane	ND (0.012)	ND (0.012)	ND (0.011)	ND (0.018)	ND (0.012)	ND (0.013)	ND (0.010)	ND (0.015)	ND (0.012)	ND (0.012)	ND (0.011)	ND (0.012)	ND (0.011)	0.01
Methoxychlor	ND (0.059)	ND (0.058)	ND (0.054)	ND (0.088)	ND (0.059)	ND (0.063)	ND (0.049)	ND (0.075)	ND (0.058)	ND (0.060)	ND (0.056)	ND (0.058)	ND (0.053)	0.01

SEE END OF TABLE 7 FOR COMPLETE LIST OF TABLE NOTES.

BOLD values detected above the reporting limit.

Shaded values exceed the site screening level

Native Soil
Fill/Refuse

Table 2 (continued). Summary of Soil Sample Results, Pacific City Park Remedial Investigation, Pacific, Washington.								
Analytical Parameter	Sample Location						Site Screening Level ^a (mg/kg)	
	MW-10		MW-11		MW-12	TP-1-15		TP-3-15
Sample Date	12/17/18		12/17/18		12/17/18	9/23/15		9/23/15
Depth (feet)	4	7	4	6.5	3	5.5		6.0
Petroleum Hydrocarbons (mg/kg)								
Gasoline Range Organics	110	ND (7.2)	ND (3.9)	–	ND (5.2)	ND (5.83)	ND (3.66)	100
Diesel Range Organics	ND (37)	ND (29)	ND (32)	ND (29)	ND (33)	ND (27)	ND (24)	200
Lube Oil Range Organics	130	ND (59)	170	ND (58)	ND (66)	895	267	2,000
Volatile Organic Compounds by EPA 8260 (mg/kg)								
Benzene	–	–	–	–	–	ND (0.023)	ND (0.015)	0.001
Toluene	–	–	–	–	–	ND (0.023)	ND (0.015)	0.024
Ethylbenzene	–	–	–	–	–	ND (0.035)	ND (0.022)	0.014
Total Xylenes	–	–	–	–	–	ND (0.023)	ND (0.015)	0.52
Acetone	–	–	–	–	–	–	–	2.07
2-Butanone	–	–	–	–	–	–	–	1.38
Carbon Disulfide	–	–	–	–	–	–	–	0.27
Cis-1,2-dichloroethene	–	–	–	–	–	ND (0.023)	ND (0.015)	0.005
Chlorobenzene	–	–	–	–	–	ND (0.023)	ND (0.015)	0.051
Methylene Chloride	–	–	–	–	–	ND (0.023)	ND (0.015)	0.005
p-Isopropyltoluene	–	–	–	–	–	ND (0.023)	ND (0.015)	0.229
Styrene	–	–	–	–	–	ND (0.015)	ND (0.015)	0.120
Tetrachlorethene	–	–	–	–	–	ND (0.023)	ND (0.015)	0.0013
Trichloroethene	–	–	–	–	–	ND (0.023)	ND (0.015)	0.001
1,2,4-Trimethylbenzene	–	–	–	–	–	ND (0.015)	ND (0.015)	NA
Total Metals by EPA 6010D/7471B (mg/kg)								
Arsenic	ND (15)	–	ND (12)	ND (12)	ND (13)	5.2	17	20
Barium	–	–	–	–	–	78	315	41.3
Cadmium	ND (0.73)	–	ND (0.58)	ND (0.58)	ND (0.66)	0.61	1.4	1
Chromium	29	–	31	9.9	11	22	30	48
Lead	21	–	32	ND (5.8)	ND (6.6)	88	364	25
Mercury	ND (0.36)	–	ND (0.29)	ND (0.29)	ND (0.33)	ND (0.35)	ND (0.30)	0.07
Selenium	–	–	–	–	–	1.0	1.2	10
Silver	–	–	–	–	–	0.20	0.47	0.61
Polychlorinated Biphenyls (PCBs) by EPA 8082A (mg/kg)								
Total PCBs	ND (0.073)	0.13	ND (0.058)	ND (0.058)	–	ND (0.13)	0.23	0.05
Semi-Volatile Organic Compounds by EPA 8270D/SIM (mg/kg)								
Acenaphthene	–	–	–	–	–	ND (0.110)	ND (0.098)	0.156
Acenaphthylene	–	–	–	–	–	ND (0.110)	ND (0.098)	NA
Anthracene	–	–	–	–	–	ND (0.110)	ND (0.098)	7.134
Benzyl Alcohol	–	–	–	–	–	ND (0.138)	ND (0.122)	NA
Bis (2-Ethylhexyl) Phthalate	–	–	–	–	–	ND (0.138)	ND (0.122)	0.111

Table 2 (continued). Summary of Soil Sample Results, Pacific City Park Remedial Investigation, Pacific, Washington.								
Analytical Parameter	Sample Location						Site Screening Level ^a (mg/kg)	
	MW-10		MW-11		MW-12	TP-1-15		TP-3-15
Sample Date	12/17/18		12/17/18		12/17/18	9/23/15		9/23/15
Depth (feet)	4	7	4	6.5	3	5.5		6.0
Semi-Volatile Organic Compounds by EPA 8270D/SIM (mg/kg)2(continued)								
Butyl Benzylphthalate	–	–	–	–	–	ND (0.138)	ND (0.122)	0.033
Dibutyl Phthalate	–	–	–	–	–	0.31	0.14	0.17
Di-N-Octyl Phthalate	–	–	–	–	–	ND (0.138)	ND (0.122)	800
Fluoranthene	–	–	–	–	–	ND (0.110)	0.15	0.296
Fluorene	–	–	–	–	–	ND (0.110)	ND (0.098)	0.080
1-Methylnaphthalene	–	–	–	–	–	ND (0.110)	ND (0.098)	0.236
2-Methylnaphthalene	–	–	–	–	–	ND (0.110)	ND (0.098)	0.236
Naphthalene	–	–	–	–	–	ND (0.110)	ND (0.098)	0.236
4-Nitrophenol	–	–	–	–	–	0.041	0.049	NA
p-Cresol	–	–	–	–	–	ND (0.138)	ND (0.122)	8,000
Pentachlorophenol	–	–	–	–	–	ND (0.138)	ND (0.122)	0.17
Phenanthrene	–	–	–	–	–	ND (0.110)	ND (0.098)	0.0067
Phenol	–	–	–	–	–	ND (0.276)	ND (0.244)	0.757
Pyrene	–	–	–	–	–	ND (0.110)	0.14	0.546
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs) by EPA 8270D/SIM (mg/kg)								
Benzo(a)anthracene	0.012	–	0.040	ND (0.008)	ND (0.009)	0.16	ND (0.098)	0.0067
Benzo(a)pyrene	0.016	–	0.049	0.065	ND (0.009)	ND (0.110)	ND (0.098)	0.01
Benzo(b)fluoranthene	0.021	–	0.060	0.020	ND (0.009)	ND (0.110)	0.22	0.012
Benzo(j,k)fluoranthene	ND (0.005)	–	0.020	ND (0.008)	ND (0.009)	ND (0.110)	ND (0.098)	0.012
Chrysene	0.022	–	0.051	ND (0.008)	ND (0.009)	ND (0.110)	ND (0.098)	0.0067
Dibenz(a,h)anthracene	ND (0.005)	–	0.009	0.008	ND (0.009)	ND (0.110)	ND (0.098)	0.018
Indeno(1,2,3-cd)pyrene	0.012	–	0.037	0.037	ND (0.009)	ND (0.110)	ND (0.098)	0.035
Total cPAHs (TEQ) ^b	0.022	–	0.066	0.07	ND (0.007)	0.10	0.099	0.020
Herbicides by EPA 8151A (mg/kg)								
2,4-DB	–	–	–	–	–	0.024	ND (0.015)	640
2,4,5-T	–	–	–	–	–	ND (0.034)	ND (0.031)	800
Bentazon	–	–	–	–	–	ND (0.034)	ND (0.031)	2,400
Chloramben	–	–	–	–	–	0.077	0.11	1,200
Chlorthal-dimethyl	–	–	–	–	–	0.024	ND (0.015)	800
Dalapon	–	–	–	–	–	0.077	0.11	2,400
Dinoseb	–	–	–	–	–	0.045	0.032	80
Picloram	–	–	–	–	–	0.045	0.032	5,600
Silvex	–	–	–	–	–	0.024	ND (0.015)	640

Table 2 (continued). Summary of Soil Sample Results, Pacific City Park Remedial Investigation, Pacific, Washington.								
Analytical Parameter	Sample Location							Site Screening Level ^a (mg/kg)
	MW-10		MW-11		MW-12	TP-1-15	TP-3-15	
Sample Date	12/17/18		12/17/18		12/17/18	9/23/15	9/23/15	
Depth (feet)	4	7	4	6.5	3	5.5	6.0	
Organochlorine Pesticides by EPA 8081 (mg/kg)								
4,4'-DDD	–	–	–	–	–	ND (0.024)	ND (0.023)	0.01
4,4'-DDE	–	–	–	–	–	ND (0.024)	ND (0.023)	0.01
Cis-Chlordane (alpha)	–	–	–	–	–	ND (0.012)	ND (0.012)	0.01
Endosulfan I	–	–	–	–	–	ND (0.012)	ND (0.012)	0.005
Endosulfan II	–	–	–	–	–	ND (0.024)	ND (0.023)	0.01
Endosulfan Sulfate	–	–	–	–	–	ND (0.024)	ND (0.023)	NA
Gamma-Chlordane	–	–	–	–	–	ND (0.012)	ND (0.012)	0.01
Methoxychlor	–	–	–	–	–	ND (0.059)	ND (0.058)	0.01

SEE END OF TABLE 7 FOR COMPLETE LIST OF TABLE NOTES.

BOLD values detected above the reporting limit.

Shaded values exceed the site screening level

Native Soil
Fill/Refuse

Table 2 (continued). Summary of Soil Sample Results, Pacific City Park Remedial Investigation, Pacific, Washington.																			
Analytical Parameter	Sample Location																	Site Screening Level ^a (mg/kg)	
	PP1		PP2		PP3		PP4		PP5		PP6		PP7		PP8		PP9		
	5/23/2017		5/23/2017		5/24/2017		5/24/2017		5/23/2017		5/23/2017		5/24/2017		5/24/2017		5/24/2017		
Sample Date	5/23/2017		5/23/2017		5/24/2017		5/24/2017		5/23/2017		5/23/2017		5/24/2017		5/24/2017		5/24/2017		
Depth (feet)	2.0	10	2.5	10	2.5	10	3.0	10	2.5	10	2.0	10	0	10	0.5	10	0	10	
Petroleum Hydrocarbons by Methods NWTPH-Gx and NWTPH-Dx (mg/kg)																			
Gasoline	ND (6.9)	ND (8.0)	ND (7.8)	ND (9.0)	ND (6.6)	ND (7.0)	ND (7.4)	ND (7.1)	ND (7.0)	ND (8.1)	ND (5.7)	ND (9.7)	ND (6.6)	ND (7.8)	ND (6.1)	ND (9.6)	ND (5.6)	ND (7.0)	100
Diesel Range Organics	ND (31)	ND (33)	ND (33)	ND (36)	ND (31)	ND (31)	ND (54)	ND (55)	ND (68)	ND (34)	ND (29)	ND (37)	ND (31)	ND (31)	ND (28)	ND (36)	ND (26)	ND (31)	200
Lube Oil Range Organics	ND (62)	ND (67)	ND (66)	ND (73)	140	ND (62)	500	570	620	ND (67)	62	ND (75)	63	ND (63)	ND (57)	ND (71)	ND (52)	ND (62)	2,000
Volatile Organic Compounds by EPA 8260C (mg/kg)																			
Benzene	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	0.001
Toluene	0.019	0.020	0.025	0.019	ND (0.006)	0.016	0.016	0.011	ND (0.006)	0.016	0.010	0.008	ND (0.007)	0.022	0.014	0.021	0.014	0.015	0.024
Ethylbenzene	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	0.014
Total Xylenes	ND (0.002)	ND (0.003)	ND (0.003)	ND (0.003)	ND (0.002)	ND (0.003)	ND (0.002)	ND (0.003)	ND (0.002)	ND (0.003)	ND (0.002)	ND (0.003)	ND (0.003)	ND (0.003)	ND (0.003)	ND (0.003)	ND (0.003)	ND (0.003)	0.52
Acetone	ND (0.011)	0.051	0.071	0.088	0.058	0.028	ND (0.011)	0.051	ND (0.012)	0.046	0.011	0.10	ND (0.014)	0.019	0.027	0.016	ND (0.013)	0.015	2.07
2-Butanone	ND (0.006)	0.012	0.019	0.023	0.013	ND (0.006)	ND (0.006)	0.007	ND (0.006)	0.013	ND (0.005)	0.025	ND (0.007)	ND (0.007)	ND (0.007)	ND (0.007)	ND (0.006)	ND (0.006)	1.38
Carbon Disulfide	ND (0.002)	ND (0.002)	ND (0.001)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.001)	ND (0.006)	0.002	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	0.27
Cis-1,2-dichloroethene	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	0.005
Chlorobenzene	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	0.051
Methylene Chloride	ND (0.011)	ND (0.013)	ND (0.012)	ND (0.014)	ND (0.012)	ND (0.012)	ND (0.011)	ND (0.013)	ND (0.012)	ND (0.013)	ND (0.001)	ND (0.015)	ND (0.014)	ND (0.013)	ND (0.013)	ND (0.014)	ND (0.013)	ND (0.012)	0.005
p-Isopropyltoluene	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.069)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.057)	ND (0.001)	0.229
Styrene	0.019	0.020	0.025	0.019	ND (0.006)	0.016	0.016	0.011	ND (0.006)	0.016	0.010	0.008	ND (0.007)	0.022	0.014	0.021	0.014	0.015	0.120
Tetrachloroethene	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	0.0013
Trichloroethene	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	0.001
1,2,4-Trimethylbenzene	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	0.012	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA
Total Metals by EPA 6010D/7471B (mg/kg)																			
Arsenic	ND (12)	ND (13)	ND (13)	ND (15)	ND (13)	ND (12)	ND (13)	ND (12)	ND (13)	ND (13)	ND (12)	ND (15)	ND (12)	ND (13)	ND (11)	ND (14)	ND (10)	ND (12)	20
Cadmium	ND (0.62)	ND (0.67)	ND (0.66)	ND (0.73)	ND (0.63)	ND (0.62)	ND (0.63)	ND (0.62)	ND (0.65)	ND (0.67)	ND (0.58)	ND (0.74)	ND (0.61)	ND (0.63)	ND (0.57)	ND (0.71)	ND (0.52)	ND (0.62)	1
Chromium	20	13	11	11	27	9.5	29	13	23	13	29	14	12	11	13	13	25	14	48
Lead	8.9	ND (6.7)	ND (6.6)	ND (7.3)	25	ND (6.2)	84	ND (6.2)	27	ND (6.7)	9.7	ND (7.4)	ND (6.1)	ND (6.3)	ND (5.7)	ND (7.1)	ND (5.2)	ND (6.2)	25
Mercury	ND (0.31)	ND (0.33)	ND (0.33)	ND (0.36)	ND (0.31)	ND (0.31)	ND (0.32)	ND (0.31)	ND (0.33)	ND (0.34)	ND (0.29)	ND (0.37)	ND (0.31)	ND (0.31)	ND (0.28)	ND (0.36)	ND (0.26)	ND (0.31)	0.07
Polychlorinated Biphenyls (PCBs) by EPA 8082A (mg/kg)																			
Total PCBs	–	–	–	–	ND (0.063)	–	0.18	ND (0.062)	ND (0.065)	–	0.12	–	ND (0.061)	–	–	–	–	–	0.05
Semi-Volatile Organic Compounds by EPA 8270D/SIM (mg/kg)																			
Acenaphthene	ND (0.008)	ND (0.009)	ND (0.009)	ND (0.010)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.009)	ND (0.009)	ND (0.008)	ND (0.010)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.010)	ND (0.007)	ND (0.008)	0.156
Acenaphthylene	ND (0.008)	ND (0.009)	ND (0.009)	ND (0.010)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.009)	ND (0.009)	ND (0.008)	ND (0.010)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.010)	ND (0.007)	ND (0.008)	NA
Anthracene	ND (0.008)	ND (0.009)	ND (0.009)	ND (0.010)	ND (0.008)	ND (0.008)	0.009	ND (0.008)	ND (0.009)	ND (0.009)	ND (0.008)	ND (0.010)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.010)	ND (0.007)	ND (0.008)	7.134
Benzyl Alcohol	ND (0.210)	ND (0.220)	ND (0.220)	ND (0.240)	ND (0.210)	ND (0.210)	ND (0.210)	ND (0.210)	ND (0.220)	ND (0.220)	ND (0.190)	ND (0.250)	ND (0.200)	ND (0.210)	0.70	ND (0.240)	ND (0.170)	ND (0.210)	NA
Bis (2-Ethylhexyl) Phthalate	0.052	ND (0.045)	ND (0.044)	ND (0.048)	ND (0.042)	ND (0.041)	ND (0.042)	ND (0.041)	ND (0.044)	ND (0.045)	ND (0.039)	ND (0.050)	ND (0.041)	ND (0.042)	ND (0.038)	ND (0.047)	ND (0.035)	ND (0.041)	0.111
Butyl Benzylphthalate	ND (0.041)	ND (0.045)	ND (0.044)	ND (0.048)	ND (0.042)	ND (0.041)	ND (0.042)	ND (0.041)	ND (0.044)	ND (0.045)	ND (0.039)	ND (0.050)	ND (0.041)	ND (0.042)	ND (0.038)	ND (0.047)	ND (0.035)	ND (0.041)	0.033
Dibutyl Phthalate	ND (0.21)	ND (0.22)	ND (0.22)	ND (0.24)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.22)	ND (0.22)	ND (0.19)	ND (0.25)	ND (0.20)	ND (0.21)	ND (0.19)	ND (0.24)	ND (0.17)	ND (0.21)	0.17

Table 2 (continued). Summary of Soil Sample Results, Pacific City Park Remedial Investigation, Pacific, Washington.																			
Analytical Parameter	Sample Location																	Site Screening Level ^a (mg/kg)	
	PP1		PP2		PP3		PP4		PP5		PP6		PP7		PP8		PP9		
	5/23/2017		5/23/2017		5/24/2017		5/24/2017		5/23/2017		5/23/2017		5/24/2017		5/24/2017		5/24/2017		
Depth (feet)	2.0	10	2.5	10	2.5	10	3.0	10	2.5	10	2.0	10	0	10	0.5	10	0	10	
Semi-Volatile Organic Compounds by EPA 8270D/SIM (mg/kg) (continued)																			
Di-N-Octyl Phthalate	ND (0.041)	ND (0.045)	ND (0.044)	ND (0.048)	ND (0.042)	ND (0.041)	ND (0.042)	ND (0.041)	ND (0.044)	ND (0.045)	ND (0.039)	ND (0.050)	ND (0.041)	ND (0.042)	ND (0.038)	ND (0.047)	ND (0.035)	ND (0.041)	800
Fluoranthene	ND (0.008)	ND (0.009)	ND (0.009)	ND (0.010)	ND (0.008)	ND (0.008)	0.042	ND (0.008)	ND (0.009)	ND (0.009)	0.013	ND (0.010)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.010)	ND (0.007)	ND (0.008)	0.296
Fluorene	ND (0.008)	ND (0.009)	ND (0.009)	ND (0.010)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.009)	ND (0.009)	ND (0.008)	ND (0.010)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.010)	ND (0.007)	ND (0.008)	0.080
1-Methylnaphthalene	ND (0.008)	ND (0.009)	ND (0.009)	ND (0.010)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.009)	ND (0.009)	ND (0.008)	ND (0.010)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.010)	ND (0.007)	ND (0.008)	0.236
2-Methylnaphthalene	ND (0.008)	ND (0.009)	ND (0.009)	ND (0.010)	ND (0.008)	ND (0.008)	0.017	0.010	ND (0.009)	ND (0.009)	ND (0.010)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.009)	ND (0.009)	ND (0.010)	ND (0.008)	0.236
Naphthalene	ND (0.008)	ND (0.009)	ND (0.009)	ND (0.010)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.009)	ND (0.009)	ND (0.008)	ND (0.010)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.010)	ND (0.007)	ND (0.008)	0.236
4-Nitrophenol	ND (0.041)	ND (0.045)	ND (0.044)	ND (0.048)	ND (0.042)	ND (0.041)	ND (0.042)	ND (0.041)	ND (0.044)	ND (0.045)	ND (0.039)	ND (0.050)	ND (0.041)	ND (0.042)	ND (0.038)	ND (0.047)	ND (0.035)	ND (0.041)	NA
p-Cresol	ND (0.041)	ND (0.045)	ND (0.044)	ND (0.048)	ND (0.042)	ND (0.041)	ND (0.042)	ND (0.041)	ND (0.044)	ND (0.045)	ND (0.039)	ND (0.050)	ND (0.041)	ND (0.042)	ND (0.038)	ND (0.047)	ND (0.035)	ND (0.041)	8,000
Pentachlorophenol	ND (0.21)	ND (0.22)	ND (0.22)	ND (0.24)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.22)	ND (0.22)	ND (0.19)	ND (0.25)	ND (0.20)	ND (0.21)	ND (0.19)	ND (0.24)	ND (0.17)	ND (0.21)	0.17
Phenanthrene	ND (0.008)	ND (0.009)	ND (0.009)	ND (0.010)	ND (0.008)	ND (0.008)	0.028	0.011	ND (0.009)	ND (0.009)	ND (0.008)	ND (0.010)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.010)	ND (0.007)	ND (0.008)	0.0067
Phenol	ND (0.041)	ND (0.045)	ND (0.044)	ND (0.048)	ND (0.042)	ND (0.041)	ND (0.042)	ND (0.041)	ND (0.044)	ND (0.045)	ND (0.039)	ND (0.050)	ND (0.041)	ND (0.042)	ND (0.038)	ND (0.047)	ND (0.035)	ND (0.041)	0.757
Pyrene	ND (0.008)	ND (0.009)	ND (0.009)	ND (0.010)	ND (0.008)	ND (0.008)	0.046	ND (0.008)	ND (0.009)	ND (0.009)	0.015	ND (0.010)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.010)	ND (0.007)	ND (0.008)	0.546
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs) by EPA 8270D/SIM (mg/kg)																			
Benzo(a)anthracene	ND (0.008)	ND (0.009)	ND (0.009)	ND (0.010)	ND (0.008)	ND (0.008)	0.029	ND (0.008)	ND (0.009)	ND (0.009)	0.008	ND (0.010)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.010)	ND (0.007)	ND (0.008)	0.0067
Benzo(a)pyrene	ND (0.008)	ND (0.009)	ND (0.009)	ND (0.010)	ND (0.008)	ND (0.008)	0.034	ND (0.008)	ND (0.009)	ND (0.009)	0.012	ND (0.010)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.010)	ND (0.007)	ND (0.008)	0.01
Benzo(b)fluoranthene	ND (0.008)	ND (0.009)	ND (0.009)	ND (0.010)	ND (0.008)	ND (0.008)	0.042	ND (0.008)	ND (0.009)	ND (0.009)	0.016	ND (0.010)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.010)	ND (0.007)	ND (0.008)	0.012
Benzo(j,k)fluoranthene	ND (0.008)	ND (0.009)	ND (0.009)	ND (0.010)	ND (0.008)	ND (0.008)	0.014	ND (0.008)	ND (0.009)	ND (0.009)	ND (0.008)	ND (0.010)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.010)	ND (0.007)	ND (0.008)	0.012
Chrysene	ND (0.008)	ND (0.009)	ND (0.009)	ND (0.010)	ND (0.008)	ND (0.008)	0.037	0.014	ND (0.009)	ND (0.009)	0.012	ND (0.010)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.010)	ND (0.007)	ND (0.008)	0.0067
Dibenz(a,h)anthracene	ND (0.008)	ND (0.009)	ND (0.009)	ND (0.010)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.009)	ND (0.009)	ND (0.008)	ND (0.010)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.010)	ND (0.007)	ND (0.008)	0.018
Indeno(1,2,3-cd)pyrene	ND (0.008)	ND (0.009)	ND (0.009)	ND (0.010)	ND (0.008)	ND (0.008)	0.027	ND (0.008)	ND (0.009)	ND (0.009)	0.009	ND (0.010)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.010)	ND (0.007)	ND (0.008)	0.035
Total cPAHs (TEQ) ^b	ND (0.006)	ND (0.007)	ND (0.007)	ND (0.007)	ND (0.006)	ND (0.006)	0.046	0.006	ND (0.007)	ND (0.007)	0.016	ND (0.008)	ND (0.006)	ND (0.006)	ND (0.006)	ND (0.007)	ND (0.005)	ND (0.006)	0.020

SEE END OF TABLE 7 FOR COMPLETE LIST OF TABLE NOTES.

BOLD values detected above the reporting limit.

Shaded values exceed the site screening level

Native Soil
Fill/Refuse

Table 2 (continued). Summary of Soil Sample Results, Pacific City Park Remedial Investigation, Pacific, Washington.															
Analytical Parameter	Sample Location														Site Screening Level ^a (mg/kg)
	PP10		PP11		PP12			PP13	PP14		PP15		PP16		
	2/28/18		2/28/18		2/21/18			2/21/18	2/28/18		2/21/18		2/28/18		
Depth (feet)	11	17	5	10	2	7	10	10	5	12	6	12	1	11	
Petroleum Hydrocarbons by Method NWTPH-Dx (mg/kg)															
Diesel Range Organics	–	–	–	–	ND (31)	ND (130)	ND (32)	–	–	–	81	–	ND (320)	–	200
Lube Oil Range Organics	–	–	–	–	69	800	82	–	–	–	550	–	3,200	–	2,000
Sum of Diesel and Lube Oil Range Organics	–	–	–	–	69	800	82	–	–	–	631	–	3,200	–	2,000
Volatile Petroleum Products Including Gasoline, Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX) by NWTPH-GX (mg/kg)															
Gasoline	–	–	–	–	–	–	–	–	–	–	–	–	ND (5.3)	–	100
Benzene	–	–	–	–	–	–	–	–	–	–	–	–	ND (0.020)	–	0.001
Toluene	–	–	–	–	–	–	–	–	–	–	–	–	ND (0.053)	–	0.024
Ethylbenzene	–	–	–	–	–	–	–	–	–	–	–	–	ND (0.053)	–	0.014
Total Xylenes	–	–	–	–	–	–	–	–	–	–	–	–	ND (0.11)	–	0.52
Total Metals by EPA 6010D/7471B (mg/kg)															
Arsenic	ND (16)	ND (12)	19	ND (13)	ND (12)	16	ND (13)	ND (12)	ND (12)	ND (13)	ND (15)	24	ND (11)	ND (12)	20
Cadmium	ND (0.82)	ND (0.62)	1.7	0.72	ND (0.62)	4.1	ND (0.64)	3.5	ND (0.62)	ND (0.65)	0.79	1.0	ND (0.53)	1.2	1
Chromium	22	15	39	36	15	31	25	29	12	11	22	34	20	24	48
Lead	15	ND (6.2)	840	480	8.8	500	30	330	ND (6.2)	ND (6.5)	75	270	17	200	25
Mercury	ND (0.41)	ND (0.31)	0.41	1.2	ND (0.31)	0.76	ND (0.32)	ND (0.31)	ND (0.31)	ND (0.32)	ND (0.38)	ND (0.30)	ND (0.27)	ND (0.31)	0.07
Polychlorinated Biphenyls (PCBs) by EPA 8082A (mg/kg)															
Total PCBs	–	–	–	–	ND (0.062)	0.29	ND (0.064)	–	–	–	ND (0.076)	–	ND (0.053)	–	0.05
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs) by EPA 8270D/SIM (mg/kg)															
Benzo(a)anthracene	ND (0.011)	ND (0.008)	ND (0.009)	ND (0.008)	0.008	0.010	ND (0.009)	ND (0.008)	ND (0.008)	ND (0.009)	ND (0.010)	ND (0.008)	0.20	0.12	0.0067
Benzo(a)pyrene	ND (0.011)	ND (0.008)	ND (0.009)	ND (0.008)	0.015	0.011	ND (0.009)	ND (0.008)	ND (0.008)	ND (0.009)	ND (0.010)	ND (0.008)	0.058	0.10	0.01
Benzo(b)fluoranthene	ND (0.011)	ND (0.008)	ND (0.009)	ND (0.008)	0.016	0.014	ND (0.009)	ND (0.008)	ND (0.008)	ND (0.009)	ND (0.010)	ND (0.008)	0.086	0.15	0.012
Benzo(j,k)fluoranthene	ND (0.011)	ND (0.008)	ND (0.009)	ND (0.008)	ND (0.008)	ND (0.010)	ND (0.009)	ND (0.008)	ND (0.008)	ND (0.009)	ND (0.010)	ND (0.008)	ND (0.036)	0.049	0.012
Chrysene	ND (0.011)	ND (0.008)	ND (0.009)	ND (0.008)	0.014	0.013	ND (0.009)	ND (0.008)	ND (0.008)	ND (0.009)	ND (0.010)	ND (0.008)	0.060	0.11	0.0067
Dibenz(a,h)anthracene	ND (0.011)	ND (0.008)	ND (0.009)	ND (0.008)	ND (0.008)	ND (0.010)	ND (0.009)	ND (0.008)	ND (0.008)	ND (0.009)	ND (0.010)	ND (0.008)	ND (0.036)	0.015	0.018
Indeno(1,2,3-cd)pyrene	ND (0.011)	ND (0.008)	ND (0.009)	ND (0.008)	0.012	ND (0.010)	ND (0.009)	ND (0.008)	ND (0.008)	ND (0.009)	ND (0.010)	ND (0.008)	0.036	0.069	0.035
Total cPAHs (TEQ) ^b	ND (0.008)	ND (0.006)	ND (0.007)	ND (0.006)	0.020	0.015	ND (0.007)	ND (0.006)	ND (0.006)	ND (0.007)	ND (0.008)	ND (0.060)	0.094	0.14	0.020

SEE END OF TABLE 7 FOR COMPLETE LIST OF TABLE NOTES.

BOLD values detected above the reporting limit.

Shaded values exceed the site screening level

Native Soil
Fill/Refuse

Table 2 (continued). Summary of Soil Sample Results, Pacific City Park Remedial Investigation, Pacific, Washington.														
Analytical Parameter	Sample Location													Site Screening Level ^a (mg/kg)
	PP17			PP18			PP19			PP20				
Sample Date	2/28/18			2/28/18			2/21/18			2/28/18				
Depth (feet)	1	5	10	3	5	10	7	10	15	2	5	10	15	
Petroleum Hydrocarbons by Method NWTPH-Dx (mg/kg)														
Diesel Range Organics	–	–	–	–	–	–	400	–	–	ND (29)	ND (200)	ND (32)	ND (58)	200
Lube Oil Range Organics	–	–	–	–	–	–	370	–	–	380	1,300	95	320	2,000
Sum of Diesel and Lube Oil Range Organics	–	–	–	–	–	–	770	–	–	380	1,300	95	320	2,000
Volatile Petroleum Products Including Gasoline, Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX) by NWTPH-GX (mg/kg)														
Gasoline	–	–	–	–	–	–	–	–	–	–	–	–	–	100
Benzene	–	–	–	–	–	–	–	–	–	–	–	–	–	0.001
Toluene	–	–	–	–	–	–	–	–	–	–	–	–	–	0.024
Ethylbenzene	–	–	–	–	–	–	–	–	–	–	–	–	–	0.014
Total Xylenes	–	–	–	–	–	–	–	–	–	–	–	–	–	0.52
Total Metals by EPA 6010D/7471B (mg/kg)														
Arsenic	19	ND (12)	ND (12)	ND (12)	ND (20)	ND (13)	ND (13)	ND (12)	ND (12)	ND (12)	ND (15)	ND (13)	ND (14)	20
Cadmium	4.0	4.5	1.6	2.4	3.1	1.2	ND (0.63)	0.95	3.2	ND (0.58)	3.7	ND (0.64)	ND (0.70)	1
Chromium	57	59	24	63	39	40	17	30	17	15	53	22	15	48
Lead	7,300	380	29	130	230	97	82	340	96	28	630	270	330	25
Mercury	ND (0.32)	ND (0.30)	ND (0.29)	ND (0.31)	ND (0.49)	ND (0.33)	ND (0.32)	ND (0.29)	ND (0.30)	ND (0.29)	ND (0.37)	ND (0.32)	ND (0.35)	0.07
Polychlorinated Biphenyls (PCBs) by EPA 8082A (mg/kg)														
Total PCBs	–	–	–	–	–	–	–	–	–	ND (0.058)	0.74	ND (0.064)	ND (0.070)	0.05
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs) by EPA 8270D/SIM (mg/kg)														
Benzo(a)anthracene	ND (0.009)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.013)	ND (0.009)	ND (0.008)	ND (0.008)	ND (0.008)	0.0080	0.23	ND (0.043)	ND (0.046)	0.0067
Benzo(a)pyrene	ND (0.009)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.013)	ND (0.009)	ND (0.008)	ND (0.008)	ND (0.008)	0.013	0.22	ND (0.043)	ND (0.046)	0.01
Benzo(b)fluoranthene	ND (0.009)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.013)	ND (0.009)	ND (0.008)	ND (0.008)	ND (0.008)	0.023	0.20	ND (0.043)	ND (0.046)	0.012
Benzo(j,k)fluoranthene	ND (0.009)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.013)	ND (0.009)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.0077)	ND (0.098)	ND (0.043)	ND (0.046)	0.012
Chrysene	ND (0.009)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.013)	ND (0.009)	ND (0.008)	ND (0.008)	ND (0.008)	0.019	0.37	ND (0.043)	ND (0.046)	0.0067
Dibenz(a,h)anthracene	ND (0.009)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.013)	ND (0.009)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.0077)	ND (0.098)	ND (0.043)	ND (0.046)	0.018
Indeno(1,2,3-cd)pyrene	ND (0.009)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.013)	ND (0.009)	ND (0.008)	ND (0.008)	ND (0.008)	0.013	0.12	ND (0.043)	ND (0.046)	0.035
Total cPAHs (TEQ) ^b	ND (0.007)	ND (0.006)	ND (0.006)	ND (0.006)	ND (0.010)	ND (0.007)	ND (0.006)	ND (0.006)	ND (0.006)	0.018	0.29	ND (0.032)	ND (0.035)	0.020

SEE END OF TABLE 7 FOR COMPLETE LIST OF TABLE NOTES.

BOLD values detected above the reporting limit.

Shaded values exceed the site screening level

Native Soil
Fill/Refuse

Table 2 (continued). Summary of Soil Sample Results, Pacific City Park Remedial Investigation, Pacific, Washington.														
Analytical Parameter	Sample Location													Site Screening Level ^a (mg/kg)
	PP21				PP22			PP23				PP24		
Sample Date					2/21/18			2/28/18				2/28/18		
Depth (feet)	2	6	10	15	4	9	13	2	5	10	15	7	10	
Petroleum Hydrocarbons by Method NWTPH-Dx (mg/kg)														
Diesel Range Organics	57	150	1,800	110	–	–	–	ND (29)	–	–	–	ND (35)	–	200
Lube Oil Range Organics	540	960	10,000	1,200	–	–	–	200	–	–	–	130	–	2,000
Sum of Diesel and Lube Oil Range Organics	597	1,110	11,800	1,310	–	–	–	200	–	–	–	130	–	2,000
Volatile Petroleum Products Including Gasoline, Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX) by NWTPH-GX (mg/kg)														
Gasoline	–	–	39	–	–	–	–	ND (13)	–	–	–	ND (7.5)	–	100
Benzene	–	–	ND (0.024)	–	–	–	–	ND (0.025)	–	–	–	ND (0.020)	–	0.001
Toluene	–	–	ND (0.12)	–	–	–	–	ND (0.13)	–	–	–	ND (0.075)	–	0.024
Ethylbenzene	–	–	ND (0.12)	–	–	–	–	ND (0.13)	–	–	–	ND (0.075)	–	0.014
Total Xylenes	–	–	ND (0.24)	–	–	–	–	ND (0.26)	–	–	–	ND (0.15)	–	0.52
Total Metals by EPA 6010D/7471B (mg/kg)														
Arsenic	ND (13)	17	ND (16)	ND (14)	ND (13)	ND (12)	ND (12)	ND (12)	ND (11)	ND (13)	ND (15)	ND (14)	ND (12)	20
Cadmium	0.90	27	6.2	ND (1.4)	ND (0.64)	ND (0.61)	2.4	ND (0.59)	ND (0.55)	ND (0.67)	ND (0.76)	2.3	ND (0.58)	1
Chromium	30	74	23	20	9.9	9.9	36	19	15	13	18	18	10	48
Lead	740	2,800	180	ND (14)	ND (6.4)	ND (6.1)	270	460	97	ND (6.7)	220	480	ND (5.8)	25
Mercury	0.87	ND (0.51)	ND (0.410)	ND (0.68)	ND (0.32)	ND (0.31)	ND (0.29)	ND (0.29)	ND (0.27)	ND (0.34)	ND (0.38)	ND (0.35)	ND (0.29)	0.07
Polychlorinated Biphenyls (PCBs) by EPA 8082A (mg/kg)														
Total PCBs	0.52	0.27	1.33	ND (0.14)	–	–	–	ND (0.059)	–	–	–	ND (0.069)	–	0.05
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs) by EPA 8270D/SIM (mg/kg)														
Benzo(a)anthracene	0.076	0.14	0.90	ND (0.018)	0.056	ND (0.004)	ND (0.008)	0.012	0.18	ND (0.009)	ND (0.010)	ND (0.018)	ND (0.008)	0.0067
Benzo(a)pyrene	0.062	0.13	0.85	ND (0.018)	0.064	ND (0.004)	ND (0.008)	0.011	0.044	ND (0.009)	ND (0.010)	ND (0.018)	ND (0.008)	0.01
Benzo(b)fluoranthene	0.11	0.22	1.3	ND (0.018)	0.088	ND (0.004)	ND (0.008)	0.017	0.10	ND (0.009)	ND (0.010)	0.031	ND (0.008)	0.012
Benzo(j,k)fluoranthene	0.033	0.077	0.30	ND (0.018)	0.029	ND (0.004)	ND (0.008)	ND (0.0078)	ND (0.015)	ND (0.009)	ND (0.010)	ND (0.018)	ND (0.008)	0.012
Chrysene	0.097	0.18	1.0	ND (0.018)	0.086	ND (0.004)	ND (0.008)	0.017	0.044	ND (0.009)	ND (0.010)	0.035	ND (0.008)	0.0067
Dibenz(a,h)anthracene	0.010	0.024	0.19	ND (0.018)	0.017	ND (0.004)	ND (0.008)	ND (0.0078)	0.019	ND (0.009)	ND (0.010)	ND (0.018)	ND (0.008)	0.018
Indeno(1,2,3-cd)pyrene	0.040	0.11	0.71	ND (0.018)	0.051	ND (0.004)	ND (0.008)	0.0082	0.026	ND (0.009)	ND (0.010)	ND (0.018)	ND (0.008)	0.035
Total cPAHs (TEQ) ^b	0.090	0.19	1.2	ND (0.014)	0.089	ND (0.006)	ND (0.006)	0.0059	0.078	ND (0.007)	ND (0.008)	0.016	ND (0.006)	0.020

SEE END OF TABLE 7 FOR COMPLETE LIST OF TABLE NOTES.

BOLD values detected above the reporting limit.

Shaded values exceed the site screening level

Native Soil
Fill/Refuse

Table 2 (continued). Summary of Soil Sample Results, Pacific City Park Remedial Investigation, Pacific, Washington.															
Analytical Parameter	Sample Location														Site Screening Level ^a (mg/kg)
	PP25			PP26		PP27		PP28		PP29			PP30		
	2/21/18			2/21/18		2/28/18		3/1/18		3/1/18			2/28/18		
Sample Date	2/21/18			2/21/18		2/28/18		3/1/18		3/1/18			2/28/18		
Depth (feet)	7	13	17	11	17	7	10	8	10	3	5	10	5	10	
Petroleum Hydrocarbons by Method NWTPH-Dx (mg/kg)															
Diesel Range Organics	–	1,400	49	–	–	–	–	–	–	ND (280)	–	–	71	–	200
Lube Oil Range Organics	–	1,200	130	–	–	–	–	–	–	5,900	–	–	630	–	2,000
Sum of Diesel and Lube Oil Range Organics	–	2,600	179	–	–	–	–	–	–	5,900	–	–	701	–	2,000
Volatile Petroleum Products Including Gasoline, Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX) by NWTPH-GX (mg/kg)															
Gasoline	–	400	ND (15)	–	–	–	–	–	–	–	–	–	–	–	100
Benzene	–	ND (0.026)	ND (0.15)	–	–	–	–	–	–	–	–	–	–	–	0.001
Toluene	–	ND (0.13)	ND (0.15)	–	–	–	–	–	–	–	–	–	–	–	0.024
Ethylbenzene	–	ND (0.13)	ND (0.15)	–	–	–	–	–	–	–	–	–	–	–	0.014
Total Xylenes	–	ND (0.13)	ND (0.15)	–	–	–	–	–	–	–	–	–	–	–	0.52
Total Metals by EPA 6010D/7471B (mg/kg)															
Arsenic	ND (14)	ND (17)	ND (19)	ND (12)	ND (15)	ND (15)	ND (12)	ND (13)	ND (12)	ND (11)	ND (13)	ND (13)	ND (13)	ND (11)	20
Cadmium	ND (0.68)	1.9	ND (0.93)	ND (0.58)	ND (0.77)	0.88	ND (0.61)	ND (0.63)	ND (0.62)	ND (0.56)	ND (0.66)	ND (0.66)	0.83	ND (0.57)	1
Chromium	13	38	28	21	15	28	12	25	23	25	15	16	16	14	48
Lead	8.8	140	ND (9.3)	ND (5.8)	ND (7.7)	180	ND (6.1)	49	6.8	8.8	ND (6.5)	ND (6.6)	31	ND (5.7)	25
Mercury	ND (0.34)	ND (0.42)	ND (0.47)	ND (0.29)	ND (0.39)	ND (0.36)	ND (0.30)	ND (0.31)	ND (0.31)	ND (0.28)	ND (0.32)	ND (0.33)	ND (0.32)	ND (0.28)	0.07
Polychlorinated Biphenyls (PCBs) by EPA 8082A (mg/kg)															
Total PCBs	–	1.36	ND (0.093)	–	–	–	–	–	–	ND (0.056)	–	–	ND (0.064)	–	0.05
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs) by EPA 8270D/SIM (mg/kg)															
Benzo(a)anthracene	ND (0.009)	ND (0.011)	ND (0.012)	ND (0.008)	ND (0.010)	0.036	ND (0.008)	ND (0.008)	0.011	ND (0.038)	ND (0.009)	ND (0.009)	ND (0.085)	ND (0.008)	0.0067
Benzo(a)pyrene	ND (0.009)	ND (0.011)	ND (0.012)	ND (0.008)	ND (0.010)	0.038	ND (0.008)	ND (0.008)	0.010	ND (0.038)	ND (0.009)	ND (0.009)	ND (0.085)	ND (0.008)	0.01
Benzo(b)fluoranthene	ND (0.009)	ND (0.011)	ND (0.012)	ND (0.008)	ND (0.010)	0.049	ND (0.008)	ND (0.008)	0.0084	ND (0.038)	ND (0.009)	ND (0.009)	ND (0.085)	ND (0.008)	0.012
Benzo(j,k)fluoranthene	ND (0.009)	ND (0.011)	ND (0.012)	ND (0.008)	ND (0.010)	0.014	ND (0.008)	ND (0.008)	ND (0.0083)	ND (0.038)	ND (0.009)	ND (0.009)	ND (0.085)	ND (0.008)	0.012
Chrysene	ND (0.009)	0.012	ND (0.012)	ND (0.008)	ND (0.010)	0.051	ND (0.008)	ND (0.008)	0.011	ND (0.038)	ND (0.009)	ND (0.009)	ND (0.085)	ND (0.008)	0.0067
Dibenz(a,h)anthracene	ND (0.009)	ND (0.011)	ND (0.012)	ND (0.008)	ND (0.010)	ND (0.0097)	ND (0.008)	ND (0.008)	ND (0.0083)	ND (0.038)	ND (0.009)	ND (0.009)	ND (0.085)	ND (0.008)	0.018
Indeno(1,2,3-cd)pyrene	ND (0.009)	ND (0.011)	ND (0.012)	ND (0.008)	ND (0.010)	0.025	ND (0.008)	ND (0.008)	ND (0.0083)	ND (0.038)	ND (0.009)	ND (0.009)	ND (0.085)	ND (0.008)	0.035
Total cPAHs (TEQ) ^b	ND (0.007)	0.008	ND (0.009)	ND (0.006)	ND (0.008)	0.051	ND (0.006)	ND (0.006)	0.013	ND (0.029)	ND (0.007)	ND (0.007)	ND (0.064)	ND (0.006)	0.020

SEE END OF TABLE 7 FOR COMPLETE LIST OF TABLE NOTES.

BOLD values detected above the reporting limit.

Shaded values exceed the site screening level

Native Soil
Fill/Refuse

Table 2 (continued). Summary of Soil Sample Results, Pacific City Park Remedial Investigation, Pacific, Washington.																	
Analytical Parameter	Sample Location																Site Screening Level ^a (mg/kg)
	PP31		PP32			PP33			PP34		PP35		PP36		PP37		
	3/1/18		3/1/18			3/1/18			3/1/18		12/20/18		12/20/18		12/20/18		
Sample Date	3/1/18		3/1/18			3/1/18			3/1/18		12/20/18		12/20/18		12/20/18		
Depth (feet)	3	11	4	7	10	3	5	10	8	15	4	7.5	1	5	1.5	5	
Petroleum Hydrocarbons by Method NWTPH-Dx (mg/kg)																	
Diesel Range Organics	–	–	–	ND (60)	–	ND (750)	–	–	–	–	ND (120)	58	ND (30)	ND (42)	29	–	200
Lube Oil Range Organics	–	–	–	650	–	12,000	–	–	–	–	730	210	190	670	ND (57)	–	2,000
Sum of Diesel and Lube Oil Range Organics	–	–	–	650	–	12,000	–	–	–	–	730	268	190	670	29	–	2,000
Volatile Petroleum Products Including Gasoline, Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX) by NWTPH-GX (mg/kg)																	
Gasoline	–	–	–	–	ND (13)	ND (12)	–	–	–	–	ND (4.1)	–	ND (5.5)	ND (7.0)	ND (6.3)		100
Benzene	–	–	–	–	ND (0.026)	ND (0.024)	–	–	–	–	–	–	–	–	–	–	0.001
Toluene	–	–	–	–	ND (0.13)	ND (0.12)	–	–	–	–	–	–	–	–	–	–	0.024
Ethylbenzene	–	–	–	–	ND (0.13)	ND (0.12)	–	–	–	–	–	–	–	–	–	–	0.014
Total Xylenes	–	–	–	–	ND (0.26)	ND (0.24)	–	–	–	–	–	–	–	–	–	–	0.52
Total Metals by EPA 6010D/7471B (mg/kg)																	
Arsenic	ND (11)	ND (12)	ND (12)	ND (12)	ND (12)	ND (11)	ND (12)	ND (13)	ND (12)	–	ND (12)	ND (12)	ND (12)	ND (13)	ND (11)	–	20
Cadmium	ND (0.56)	ND (0.62)	ND (0.62)	ND (0.61)	ND (0.61)	ND (0.56)	ND (0.59)	ND (0.67)	ND (0.61)	–	1.3	ND (0.60)	ND (0.60)	ND (0.63)	ND (0.57)	–	1
Chromium	21	12	16	15	20	17	19	13	12	–	38	26	38	36	21	–	48
Lead	12	ND (6.2)	12	15	ND (6.1)	8.1	7.3	ND (6.7)	6.1	–	580	28	9.9	11	10	–	25
Mercury	ND (0.28)	ND (0.31)	ND (0.31)	ND (0.31)	ND (0.31)	ND (0.28)	ND (0.30)	ND (0.34)	ND (0.30)	–	0.31	ND (0.30)	ND (0.30)	ND (0.32)	ND (0.28)	–	0.07
Polychlorinated Biphenyls (PCBs) by EPA 8082A (mg/kg)																	
Total PCBs	–	–	–	ND (0.061)	ND (0.061)	ND (0.056)	–	–	–	–	0.23	ND (0.060)	ND (0.060)	ND (0.063)	ND (0.057)	ND (0.062)	0.05
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs) by EPA 8270D/SIM (mg/kg)																	
Benzo(a)anthracene	ND (0.008)	ND (0.008)	0.010	0.038	ND (0.008)	ND (0.075)	ND (0.008)	ND (0.009)	ND (0.008)	ND (0.009)	0.19	0.23	0.010	ND (0.017)	0.014	0.60	0.0067
Benzo(a)pyrene	ND (0.008)	ND (0.008)	0.011	0.036	ND (0.008)	ND (0.075)	ND (0.008)	ND (0.009)	ND (0.008)	ND (0.009)	0.35	0.084	0.016	0.018	0.016	0.57	0.01
Benzo(b)fluoranthene	0.0093	ND (0.008)	0.024	0.051	ND (0.008)	0.14	ND (0.008)	ND (0.009)	ND (0.008)	ND (0.009)	0.38	0.12	0.017	0.020	0.019	0.76	0.012
Benzo(j,k)fluoranthene	ND (0.008)	ND (0.008)	ND (0.008)	0.013	ND (0.008)	ND (0.075)	ND (0.008)	ND (0.009)	ND (0.008)	ND (0.009)	0.11	0.062	ND (0.008)	ND (0.017)	ND (0.008)	0.24	0.012
Chrysene	ND (0.008)	ND (0.008)	0.015	0.055	ND (0.008)	0.19	ND (0.008)	ND (0.009)	ND (0.008)	ND (0.009)	0.24	0.83	0.019	0.026	0.020	0.64	0.0067
Dibenz(a,h)anthracene	ND (0.008)	ND (0.008)	ND (0.008)	0.009	ND (0.008)	ND (0.075)	ND (0.008)	ND (0.009)	ND (0.008)	ND (0.009)	0.053	0.015	ND (0.008)	ND (0.017)	ND (0.008)	0.086	0.018
Indeno(1,2,3-cd)pyrene	ND (0.008)	ND (0.008)	0.0095	0.025	ND (0.008)	ND (0.075)	ND (0.008)	ND (0.009)	ND (0.008)	ND (0.009)	0.26	0.045	0.012	ND (0.017)	0.011	0.42	0.035
Total cPAHs (TEQ) ^b	0.006	ND (0.006)	0.016	0.050	ND (0.006)	0.068	ND (0.006)	ND (0.007)	ND (0.006)	ND (0.007)	0.452	0.141	0.021	0.024	0.028	0.787	0.020

SEE END OF TABLE 7 FOR COMPLETE LIST OF TABLE NOTES.

BOLD values detected above the reporting limit.

Shaded values exceed the site screening level

Native Soil
Fill/Refuse

Table 2 (continued). Summary of Soil Sample Results, Pacific Park City Park Remedial Investigation, Pacific, Washington.																		
Analytical Parameter	Sample Location																Site Screening Level ^a (mg/kg)	
	B-04	B-05		B-06			B-07			B-08			B-09		B-10	B-11		
Sample Date	2/21/18	2/20/18		2/22/18			2/27/18			2/26/18			2/22/18		2/26/18	2/26/18		
Depth (feet)	12.5	7.5	12.5	2.5	10	12.5	2.5	7.5	12.5	5	7.5	12.5	5	15	7.5	2.5	12.5	
Petroleum Hydrocarbons by Method NWTPH-Dx (mg/kg)																		
Diesel Range Organics	–	440	–	ND (31)	ND (31)	ND (32)	ND (150)	ND (310)	ND (33)	–	–	–	–	–	ND (30)	ND (33)	–	200
Lube Oil Range Organics	–	ND (220)	–	150	ND (61)	130	4,400	1,800	180	–	–	–	–	–	88	380	–	2,000
Sum of Diesel and Lube Oil Range Organics ^b	–	See footnote	–	150	–	130	4,400	1,800	180	–	–	–	–	–	88	380	–	2,000
Volatile Petroleum Products Including Gasoline, Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX) by NWTPH-GX (mg/kg)																		
Gasoline	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	100
Benzene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.001
Toluene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.024
Ethylbenzene	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.014
Total Xylenes	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.52
Total Metals by EPA 6010D/7471B (mg/kg)																		
Arsenic	ND (13)	ND (12)	ND (13)	ND (12)	ND (13)	ND (13)	ND (12)	ND (12)	ND (13)	ND (14)	–	ND (13)	ND (15)	ND (16)	ND (12)	ND (13)	ND (12)	20
Cadmium	ND (0.64)	ND (0.60)	ND (0.63)	0.75	ND (0.61)	ND (0.64)	ND (0.58)	ND (0.62)	ND (0.66)	ND (0.69)	–	ND (0.67)	ND (0.77)	ND (0.78)	ND (0.59)	ND (0.65)	ND (0.60)	1
Chromium	16	430	11	13	13	11	15	14	10	16	–	18	16	24	8.0	16	13	48
Lead	ND (6.4)	ND (6.0)	ND (6.3)	20	ND (6.1)	ND (6.4)	6.0	ND (6.2)	ND (6.6)	6.9	–	ND (6.7)	20	ND (7.8)	ND (5.9)	15	ND (6.0)	25
Mercury	ND (0.32)	ND (0.30)	ND (0.32)	ND (0.31)	ND (0.31)	ND (0.32)	ND (0.29)	ND (0.31)	ND (0.33)	ND (0.35)	–	ND (0.34)	ND (0.39)	ND (0.39)	ND (0.29)	ND (0.32)	ND (0.30)	0.07
Polychlorinated Biphenyls (PCBs) by EPA 8082A (mg/kg)																		
Total PCBs	–	ND (0.060)	–	ND (0.062)	–	ND (0.064)	ND (0.058)	ND (0.062)	ND (0.066)	–	–	–	–	–	ND (0.059)	ND (0.26)	–	0.05
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs) by EPA 8270D/SIM (mg/kg)																		
Benzo(a)anthracene	ND (0.009)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.009)	ND (0.039)	ND (0.041)	ND (0.009)	ND (0.009)	–	ND (0.009)	ND (0.010)	ND (0.010)	ND (0.008)	0.016	ND (0.008)	0.0067
Benzo(a)pyrene	ND (0.009)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.009)	ND (0.039)	ND (0.041)	ND (0.009)	ND (0.009)	–	ND (0.009)	ND (0.010)	ND (0.010)	ND (0.008)	0.019	ND (0.008)	0.01
Benzo(b)fluoranthene	ND (0.009)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.009)	ND (0.039)	ND (0.041)	ND (0.009)	ND (0.009)	–	ND (0.009)	0.011	ND (0.010)	ND (0.008)	0.053	ND (0.008)	0.012
Benzo(j,k)fluoranthene	ND (0.009)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.009)	ND (0.039)	ND (0.041)	ND (0.009)	ND (0.009)	–	ND (0.009)	ND (0.010)	ND (0.010)	ND (0.008)	0.014	ND (0.008)	0.012
Chrysene	ND (0.009)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.009)	ND (0.039)	ND (0.041)	ND (0.009)	ND (0.009)	–	ND (0.009)	0.012	ND (0.010)	ND (0.008)	0.035	ND (0.008)	0.0067
Dibenz(a,h)anthracene	ND (0.009)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.009)	ND (0.039)	ND (0.041)	ND (0.009)	ND (0.009)	–	ND (0.009)	ND (0.010)	ND (0.010)	ND (0.008)	ND (0.009)	ND (0.008)	0.018
Indeno(1,2,3-cd)pyrene	ND (0.009)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.009)	ND (0.039)	ND (0.041)	ND (0.009)	ND (0.009)	–	ND (0.009)	ND (0.010)	ND (0.010)	ND (0.008)	0.017	ND (0.008)	0.035
Total cPAHs (TEQ) ^c	ND (0.006)	ND (0.006)	ND (0.006)	ND (0.006)	ND (0.006)	ND (0.007)	ND (0.029)	ND (0.031)	ND (0.007)	ND (0.007)	–	ND (0.007)	0.008	ND (0.008)	ND (0.006)	0.030	ND (0.006)	0.020

SEE END OF TABLE 7 FOR COMPLETE LIST OF TABLE NOTES.

BOLD values detected above the reporting limit.

Shaded values exceed the site screening level

Native Soil
Fill/Refuse

Table 2 (continued). Summary of Soil Sample Results, Pacific Park City Park Remedial Investigation, Pacific, Washington.													
Analytical Parameter	Sample Location												Site Screening Level ^a (mg/kg)
	B-13		B-14		B-15			B-16			B-17		
	2/23/18		2/21/18		2/21/18			2/23/18			2/20/18		
Sample Date	2/23/18		2/21/18		2/21/18			2/23/18			2/20/18		
Depth (feet)	7.5	15	5	10	5	7.5	15	2.5	7.5	17.5	10	15	
Petroleum Hydrocarbons by Method NWTPH-Dx (mg/kg)													
Diesel Range Organics	–	–	–	–	–	–	–	–	–	–	–	–	200
Lube Oil Range Organics	–	–	–	–	–	–	–	–	–	–	–	–	2,000
Volatile Petroleum Products Including Gasoline, Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX) by NWTPH-GX (mg/kg)													
Gasoline	–	–	–	–	–	–	–	–	–	–	–	–	100
Benzene	–	–	–	–	–	–	–	–	–	–	–	–	0.001
Toluene	–	–	–	–	–	–	–	–	–	–	–	–	0.024
Ethylbenzene	–	–	–	–	–	–	–	–	–	–	–	–	0.014
Total Xylenes	–	–	–	–	–	–	–	–	–	–	–	–	0.52
Total Metals by EPA 6010D/7471B (mg/kg)													
Arsenic	ND (17)	ND (13)	ND (13)	ND (12)	ND (17)	ND (15)	ND (13)	ND (14)	ND (12)	ND (13)	ND (12)	ND (11)	20
Cadmium	ND (0.84)	ND (0.66)	ND (0.67)	ND (0.62)	1.3	ND (0.76)	ND (0.67)	ND (0.71)	1.6	ND (0.66)	ND (0.61)	ND (0.54)	1
Chromium	24	8.9	23	17	35	31	17	18	28	16	23	9.6	48
Lead	12	ND (6.6)	31	33	75	49	ND (6.7)	9.2	68	ND (6.6)	ND (6.1)	ND (5.4)	25
Mercury	ND (0.42)	ND (0.33)	ND (0.34)	ND (0.31)	ND (0.43)	ND (0.38)	ND (0.34)	ND (0.36)	ND (0.29)	ND (0.33)	ND (0.31)	ND (0.27)	0.07
Polychlorinated Biphenyls (PCBs) by EPA 8082A (mg/kg)													
Total PCBs	–	–	–	–	–	–	–	–	–	–	–	–	0.05
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs) by EPA 8270D/SIM (mg/kg)													
Benzo(a)anthracene	ND (0.011)	ND (0.009)	ND (0.009)	ND (0.008)	ND (0.012)	ND (0.010)	ND (0.009)	ND (0.010)	ND (0.008)	ND (0.009)	ND (0.008)	ND (0.007)	0.0067
Benzo(a)pyrene	ND (0.011)	ND (0.009)	ND (0.009)	ND (0.008)	ND (0.012)	ND (0.010)	ND (0.009)	ND (0.010)	ND (0.008)	ND (0.009)	ND (0.008)	ND (0.007)	0.01
Benzo(b)fluoranthene	0.014	ND (0.009)	ND (0.009)	ND (0.008)	0.014	ND (0.010)	ND (0.009)	ND (0.010)	ND (0.008)	ND (0.009)	ND (0.008)	ND (0.007)	0.012
Benzo(j,k)fluoranthene	ND (0.011)	ND (0.009)	ND (0.009)	ND (0.008)	ND (0.012)	ND (0.010)	ND (0.009)	ND (0.010)	ND (0.008)	ND (0.009)	ND (0.008)	ND (0.007)	0.012
Chrysene	0.016	ND (0.009)	ND (0.009)	ND (0.008)	ND (0.012)	ND (0.010)	ND (0.009)	ND (0.010)	ND (0.008)	ND (0.009)	ND (0.008)	ND (0.007)	0.0067
Dibenz(a,h)anthracene	ND (0.011)	ND (0.009)	ND (0.009)	ND (0.008)	ND (0.012)	ND (0.010)	ND (0.009)	ND (0.010)	ND (0.008)	ND (0.009)	ND (0.008)	ND (0.007)	0.018
Indeno(1,2,3-cd)pyrene	ND (0.011)	ND (0.009)	ND (0.009)	ND (0.008)	ND (0.012)	ND (0.010)	ND (0.009)	ND (0.010)	ND (0.008)	ND (0.009)	ND (0.008)	ND (0.007)	0.035
Total cPAHs (TEQ) ^c	0.009	ND (0.007)	ND (0.007)	ND (0.006)	0.010	ND (0.008)	ND (0.007)	ND (0.007)	ND (0.006)	ND (0.067)	ND (0.006)	ND (0.006)	0.020

BOLD values detected above the reporting limit.

Shaded values exceed the site screening level

Native Soil
Fill/Refuse

^a Refer to Table 6 “Proposed Site Screening Levels for Soil” for notes on how each screening level was selected.

^b Total carcinogenic polycyclic aromatic hydrocarbons (cPAHs) toxicity equivalency (TEQ) concentration was calculated using one-half the reporting limit for compounds that were not detected above the reporting limit.

^c The gas chromatogram for sample B06_7.5 indicates weathered diesel fuel, so the reported concentration was compared to the SSL for diesel.

mg/kg = milligrams per kilogram

ND = not detected above laboratory reporting limits (shown in parentheses)

– = not analyzed or not applicable

Table 3. Summary of Groundwater Sample Results from Monitoring Wells, Pacific City Park Remedial Investigation, Pacific, Washington.																						
Sample Location	Sample Date	Analytical Parameter (µg/L)																				
		Petroleum Hydrocarbons			Volatile Organic Compounds								Total Metals					Dissolved Metals				
		GRO	DRO	Lube Oil	Benzene	Toluene	Ethylbenzene	Xylenes	(cis) 1,2-Dichloroethene	1,4-Dichloro benzene	Chlorobenzene	Vinyl chloride	Arsenic	Cadmium	Chromium	Lead	Mercury	Arsenic	Cadmium	Chromium	Lead	Mercury
Site Screening Level (µg/L)		1,000	500	500	0.44	57	29	1,000	16		100	0.02	3.3	4.4	50	2.5	0.5	3.3	4.4	50	2.5	0.5
MW-1	10/6/15	ND (50)	ND (50)	ND (100)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (0.20)	ND (1.0)	ND (0.20)	1.1	ND (0.20)	ND (0.50)	1.1	ND (0.10)	1.2	ND (0.20)	ND (0.50)	ND (1.0)	ND (0.10)
	5/12/17	ND (100)	ND (260)	ND (420)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (3.3)	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	ND (3.0)	ND (4.0)	ND (10)	ND (1.0)	ND (0.50)
	3/23/18	ND (100)	ND (260)	ND (410)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (3.3)	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	NA	NA	NA	NA	NA
	6/21/18	ND (100)	ND (260)	ND (410)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (3.3)	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	NA	NA	NA	NA	NA
	9/26/18	ND (100)	ND (270)	ND (430)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (3.3)	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	NA	NA	NA	NA	NA
	12/21/18	ND (100)	ND (260)	ND (410)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (3.3)	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	NA	NA	NA	NA	NA
MW-2	10/5/15	ND (50)	ND (50)	ND (100)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (0.20)	ND (1.0)	ND (0.20)	5.7	ND (0.20)	2.3	ND (1.0)	ND (0.10)	5.1	ND (0.20)	1.6	ND (1.0)	ND (0.10)
	5/12/17	ND (100)	ND (270)	ND (440)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (3.3)	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	ND (3.0)	ND (4.0)	ND (10)	ND (1.0)	ND (0.50)
	3/23/18	ND (110)	ND (260)	ND (420)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	3.4	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	NA	NA	NA	NA	NA
	6/21/18	ND (100)	ND (270)	ND (430)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (3.3)	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	NA	NA	NA	NA	NA
	9/26/18	ND (100)	ND (260)	ND (410)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	4.9	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	NA	NA	NA	NA	NA
	12/21/18	ND (100)	ND (260)	ND (410)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (3.3)	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	NA	NA	NA	NA	NA
MW-3	10/6/15	ND (50)	ND (50)	ND (100)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (0.20)	ND (1.0)	ND (0.20)	4.1	ND (0.20)	2.8	ND (1.0)	ND (0.10)	4.8	ND (0.20)	1.5	ND (1.0)	ND (0.10)
	5/12/17	ND (100)	ND (260)	ND (420)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (3.3)	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	ND (3.0)	ND (4.0)	ND (10)	ND (1.0)	ND (0.50)
	3/23/18	ND (100)	ND (260)	ND (410)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	0.22	ND (0.20)	ND (0.20)	ND (0.20)	ND (3.3)	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	NA	NA	NA	NA	NA
	6/21/18	ND (100)	ND (260)	ND (410)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (3.3)	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	NA	NA	NA	NA	NA
	9/26/18	ND (100)	ND (260)	ND (410)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	0.35	ND (0.20)	ND (0.20)	ND (0.20)	ND (3.3)	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	NA	NA	NA	NA	NA
	12/21/18	ND (100)	ND (260)	ND (410)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	0.30	ND (0.20)	ND (0.20)	ND (0.20)	ND (3.3)	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	NA	NA	NA	NA	NA
MW-4	10/5/15	ND (50)	ND (50)	ND (100)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (0.20)	5.7	ND (0.20)	13	ND (0.20)	2.7	ND (1.0)	ND (0.10)	9.8	ND (0.20)	1.5	ND (1.0)	ND (0.10)
	5/12/17	ND (100)	ND (260)	ND (420)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (3.3)	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	8.3	ND (4.0)	ND (10)	ND (1.0)	ND (0.50)
	3/23/18	ND (110)	ND (270)	ND (440)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	1.1	ND (0.20)	6.0	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	NA	NA	NA	NA	NA
	6/21/18	ND (100)	ND (270)	ND (430)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (3.3)	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	NA	NA	NA	NA	NA
	9/26/18	ND (100)	ND (250)	ND (410)	0.22	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	4.6	ND (0.20)	14	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	NA	NA	NA	NA	NA
	12/21/18	ND (100)	ND (260)	ND (410)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	3.7	ND (0.20)	11	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	NA	NA	NA	NA	NA
MW-5	10/5/15	ND (50)	ND (50)	ND (100)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (0.20)	ND (1.0)	ND (0.20)	1.4	ND (0.20)	0.52	ND (1.0)	ND (0.10)	ND (1.0)	ND (0.20)	ND (0.5)	ND (1.0)	ND (0.10)
	5/12/17	ND (100)	ND (260)	ND (410)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (3.3)	ND (4.4)	ND (11)	4.0	ND (0.50)	ND (3.0)	ND (4.0)	ND (10)	3.0	ND (0.50)
	3/23/18	ND (100)	ND (260)	ND (420)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (3.3)	ND (4.4)	ND (11)	3.2	ND (0.50)	NA	NA	NA	NA	NA
	6/21/18	ND (100)	ND (260)	ND (410)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (3.3)	ND (4.4)	ND (11)	5.6	ND (0.50)	NA	NA	NA	NA	NA
	9/26/18	ND (100)	ND (260)	ND (410)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (3.3)	ND (4.4)	ND (11)	1.9	ND (0.50)	NA	NA	NA	NA	NA
	12/21/18	ND (100)	ND (260)	ND (410)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (3.3)	ND (4.4)	ND (11)	1.5	ND (0.50)	NA	NA	NA	NA	NA
MW-6	10/5/15	ND (50)	ND (50)	ND (100)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (0.20)	ND (1.0)	ND (0.20)	1.9	ND (0.20)	0.74	1.5	ND (0.10)	2.1	ND (0.20)	ND (0.50)	ND (1.0)	ND (0.10)
	5/12/17	ND (100)	ND (260)	ND (410)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (3.3)	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	ND (3.0)	ND (4.0)	ND (10)	ND (1.0)	ND (0.50)
	3/23/18	ND (110)	ND (280)	ND (450)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (3.3)	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	NA	NA	NA	NA	NA
	6/21/18	ND (100)	ND (260)	ND (410)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (3.3)	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	NA	NA	NA	NA	NA
	9/26/18	ND (100)	ND (260)	ND (410)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	0.20	ND (0.20)	ND (0.20)	4.5	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	NA	NA	NA	NA	NA
	12/21/18	ND (100)	ND (260)	ND (410)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (3.3)	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	NA	NA	NA	NA	NA

Table 3 (continued). Summary of Groundwater Sample Results from Monitoring Wells, Pacific City Park Remedial Investigation, Pacific, Washington.																						
Sample Location	Sample Date	Analytical Parameter (µg/L)																				
		Petroleum Hydrocarbons			Volatile Organic Compounds								Total Metals					Dissolved Metals				
		GRO	DRO	Lube Oil	Benzene	Toluene	Ethylbenzene	Xylenes	(cis) 1,2-Dichloroethene	1,4-Dichloro benzene	Chlorobenzene	Vinyl chloride	Arsenic	Cadmium	Chromium	Lead	Mercury	Arsenic	Cadmium	Chromium	Lead	Mercury
Site Screening Level (µg/L)		1,000	500	500	0.44	57	29	1,000	16	NA	100	0.02	3.3	4.4	50	2.5	0.5	3.3	4.4	50	2.5	0.5
MW-7	3/23/18	ND (100)	ND (260)	ND (410)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (3.3)	ND (4.4)	ND (11)	1.9	ND (0.50)	NA	NA	NA	NA	NA
	6/21/18	ND (100)	ND (260)	ND (410)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	4.6	ND (4.4)	ND (11)	2.0	ND (0.50)	NA	NA	NA	NA	NA
	9/26/18	ND (100)	ND (260)	ND (410)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	5.5	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	NA	NA	NA	NA	NA
	12/21/18	ND (100)	ND (270)	ND (440)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	4.5	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	NA	NA	NA	NA	NA
MW-8	3/23/18	ND (100)	ND (260)	ND (420)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (3.3)	ND (4.4)	ND (11)	ND (1.1)	ND (1.1)	NA	NA	NA	NA	NA
	6/21/18	ND (100)	ND (260)	ND (410)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	3.9	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	NA	NA	NA	NA	NA
	9/26/18	ND (100)	ND (260)	ND (410)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (3.3)	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	NA	NA	NA	NA	NA
	12/21/18	ND (100)	ND (260)	ND (420)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (3.3)	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	NA	NA	NA	NA	NA
MW-9	3/23/18	ND (100)	ND (260)	ND (420)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (3.3)	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	NA	NA	NA	NA	NA
	6/21/18	ND (100)	ND (260)	ND (410)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (3.3)	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	NA	NA	NA	NA	NA
	9/26/18	ND (100)	ND (250)	ND (410)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	0.38	ND (0.20)	3.6	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	NA	NA	NA	NA	NA
	12/21/18	ND (100)	ND (260)	ND (420)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	0.43	ND (0.20)	ND (3.3)	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	NA	NA	NA	NA	NA
MW-10	12/21/18	ND (100)	ND (270)	ND (430)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)	0.26	ND (3.3)	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	NA	NA	NA	NA	NA
MW-11	12/21/18	ND (100)	ND (260)	ND (410)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (3.3)	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	NA	NA	NA	NA	NA
MW-12	12/21/18	ND (100)	ND (260)	ND (420)	ND (0.20)	ND (1.0)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (3.3)	ND (4.4)	ND (11)	ND (1.1)	ND (0.50)	NA	NA	NA	NA	NA

Note: MW7, MW8, and MW9 correspond to borings B06, B09, and B11

BOLD values detected above the reporting limit.

Shaded values exceed site criteria.

cPAHs (TEQ) = Carcinogenic polycyclic aromatic hydrocarbons toxic equivalency

DRO = Diesel range organics

PCBs = Polychlorinated biphenyls

GRO = Gasoline range organics

µg/L = micrograms per liter

NA = not analyzed or not applicable

ND = not detected above laboratory reporting limits shown in parentheses

Table 3 (continued). Summary of Groundwater Sample Results, Pacific City Park Remedial Investigation, Pacific, Washington.															
Sample Location	Sample Date	Field Parameters					Analytical Parameter (µg/L)								
		Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH (std units)	Turbidity (NTU)	Total PCBs	Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs)							
								Benzo(a) anthracene	Chrysene	Benzo(b) fluoranthene	Benzo(j,k) fluoranthene	Benzo(a) pyrene	Indeno(1,2,3-cd) pyrene	Dibenz(a,h) anthracene	Total cPAHs (TEQ)
Site Screening Level (µg/L)		NA	NA	NA	NA	NA	0.05	0.01	0.016	0.01	0.01	0.01	0.01	0.01	0.015
MW-1	10/6/15	NR	NR	NR	NR	NR	NA	ND (0.100)	ND (0.100)	ND (0.100)	ND (0.100)	ND (0.100)	ND (0.100)	ND (0.100)	ND (0.076)
	5/12/17	9.0	3.28	98	6.84	Clear	NA	ND (0.0095)	ND (0.0095)	ND (0.0095)	ND (0.0095)	ND (0.0095)	ND (0.0095)	ND (0.0095)	ND (0.0072)
	3/23/18	6.9	4.67	97	6.94	Clear	NA	ND (0.0094)	ND (0.0094)	ND (0.0094)	ND (0.0094)	ND (0.0094)	ND (0.0094)	ND (0.0094)	ND (0.0071)
	6/21/18	11.3	1.69	77	6.79	Clear	NA	ND (0.0095)	ND (0.0095)	ND (0.0095)	ND (0.0095)	ND (0.0095)	ND (0.0095)	ND (0.0095)	ND (0.0072)
	9/26/18	14.2	2.76	113	6.64	Clear	NA	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.0076)
	12/21/18	7.9	4.35	93	4.45	1.0	NA	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.0076)
MW-2	10/5/15	NR	NR	NR	NR	NR	NA	ND (0.100)	ND (0.100)	ND (0.100)	ND (0.100)	ND (0.100)	ND (0.100)	ND (0.100)	ND (0.072)
	5/12/17	11.9	2.47	296	6.58	Clear	NA	ND (0.0099)	ND (0.0099)	ND (0.0099)	ND (0.0099)	ND (0.0099)	ND (0.0099)	ND (0.0099)	ND (0.0075)
	3/23/18	9.8	0.66	328	6.54	Clear	NA	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.0083)
	6/21/18	13.7	3.28	270	6.33	Clear	NA	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.0076)
	9/26/18	15.8	0.23	276	6.30	Clear	NA	ND (0.0094)	ND (0.0094)	ND (0.0094)	ND (0.0094)	ND (0.0094)	ND (0.0094)	ND (0.0094)	ND (0.0071)
	12/21/18	11.5	0.38	314	4.38	30.4	NA	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.0076)
MW-3	10/6/15	NR	NR	NR	NR	NR	NA	ND (0.100)	ND (0.100)	ND (0.100)	ND (0.100)	ND (0.100)	ND (0.100)	ND (0.100)	ND (0.072)
	5/12/17	10.9	0.69	332	7.08	Clear	NA	ND (0.0095)	ND (0.0095)	ND (0.0095)	ND (0.0095)	ND (0.0095)	ND (0.0095)	ND (0.0095)	ND (0.0072)
	3/23/18	8.1	0.50	332	7.01	Clear	NA	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.0076)
	6/21/18	12.8	0.11	281	7.08	Clear	NA	ND (0.0097)	ND (0.0097)	ND (0.0097)	ND (0.0097)	ND (0.0097)	ND (0.0097)	ND (0.0097)	ND (0.0073)
	9/26/18	14.5	0.12	322	6.65	Clear	NA	ND (0.0095)	ND (0.0095)	ND (0.0095)	ND (0.0095)	ND (0.0095)	ND (0.0095)	ND (0.0095)	ND (0.0072)
	12/21/18	10.1	0.09	414	4.75	85.6	NA	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.0076)
MW-4	10/5/15	NR	NR	NR	NR	NR	NA	ND (0.100)	ND (0.100)	ND (0.100)	ND (0.100)	ND (0.100)	ND (0.100)	ND (0.100)	ND (0.072)
	5/12/17	11.5	0.19	348	6.60	Clear	NA	ND (0.0096)	ND (0.0096)	ND (0.0096)	ND (0.0096)	ND (0.0096)	ND (0.0096)	ND (0.0096)	ND (0.0072)
	3/23/18	9.1	0.55	307	6.15	Clear	NA	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.0076)
	6/21/18	15.4	2.05	309	6.62	Clear	NA	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.0076)
	9/26/18	20.4	1.47	325	6.10	Clear	NA	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.0076)
	12/21/18	11.8	0.21	351	4.55	9.4	NA	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.0076)
MW-5	10/5/15	NR	NR	NR	NR	NR	NA	ND (0.100)	ND (0.100)	ND (0.100)	ND (0.100)	ND (0.100)	ND (0.100)	ND (0.100)	ND (0.072)
	5/12/17	9.5	1.06	156	7.08	Clear	NA	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.0076)
	3/23/18	6.7	0.47	129	6.69	Clear	NA	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.0076)
	6/21/18	11.6	0.08	126	7.44	Clear	NA	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.0076)
	9/26/18	15.3	0.26	193	6.90	Clear	NA	ND (0.0094)	ND (0.0094)	ND (0.0094)	ND (0.0094)	ND (0.0094)	ND (0.0094)	ND (0.0094)	ND (0.0071)
	12/21/18	10.0	0.45	182	5.14	5.4	NA	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.0076)
MW-6	10/5/15	NR	NR	NR	NR	NR	NA	ND (0.100)	ND (0.100)	ND (0.100)	ND (0.100)	ND (0.100)	ND (0.100)	ND (0.100)	ND (0.072)
	5/12/17	10.2	0.25	132	6.25	Clear	NA	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.0076)
	3/23/18	6.9	0.73	161	5.95	Clear	NA	ND (0.0094)	ND (0.0094)	ND (0.0094)	ND (0.0094)	ND (0.0094)	ND (0.0094)	ND (0.0094)	ND (0.0071)
	6/21/18	12.4	0.14	154	6.69	Clear	NA	0.014	0.014	0.012	0.012	0.011	0.012	0.011	0.017
	9/26/18	15.1	0.44	341	6.25	Clear	NA	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.0076)
	12/21/18	11.0	0.17	206	3.90	3.2	NA	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.0076)

Table 3 (continued). Summary of Groundwater Sample Results, Pacific City Park Remedial Investigation, Pacific, Washington.															
Sample Location	Sample Date	Field Parameters					Analytical Parameter (µg/L)								
		Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH (std units)	Turbidity (NTU)	Total PCBs	Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs)							
								Benzo(a) anthracene	Chrysene	Benzo(b) fluoranthene	Benzo(j,k) fluoranthene	Benzo(a) pyrene	Indeno(1,2,3-cd) pyrene	Dibenz(a,h) anthracene	Total cPAHs (TEQ)
Site Screening Level (µg/L)		NA	NA	NA	NA	NA	0.05	0.01	0.016	0.01	0.01	0.01	0.01	0.01	0.015
MW-7	3/23/18	6.9	0.52	127	6.94	Clear	NA	ND (0.0094)	ND (0.0094)	ND (0.0094)	ND (0.0094)	ND (0.0094)	ND (0.0094)	ND (0.0094)	ND (0.0071)
	6/21/18	16.2	0.12	137	6.59	Clear	NA	ND (0.0096)	ND (0.0096)	ND (0.0096)	ND (0.0096)	ND (0.0096)	ND (0.0096)	ND (0.0096)	ND (0.0072)
	9/26/18	16.2	0.49	151	6.47	Clear	NA	ND (0.0094)	ND (0.0094)	ND (0.0094)	ND (0.0094)	ND (0.0094)	ND (0.0094)	ND (0.0094)	ND (0.0071)
	12/21/18	8.8	0.23	188	4.41	9.7	NA	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.0076)
MW-8	3/23/18	10.8	0.45	400	6.62	Clear	NA	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.0076)
	6/21/18	13.4	2.44	384	6.24	Clear	NA	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.0076)
	9/26/18	16.4	0.61	325	6.56	Clear	NA	ND (0.0094)	ND (0.0094)	ND (0.0094)	ND (0.0094)	ND (0.0094)	ND (0.0094)	ND (0.0094)	ND (0.0071)
	12/21/18	11.8	0.72	340	6.66	59	NA	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.0083)
MW-9	3/23/18	10.5	0.42	294	6.22	Clear	NA	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.0083)
	6/21/18	11.5	2.65	240	6.58	Clear	NA	ND (0.0098)	ND (0.0098)	ND (0.0098)	ND (0.0098)	ND (0.0098)	ND (0.0098)	ND (0.0098)	ND (0.0074)
	9/26/18	14.5	0.60	249	6.41	Clear	NA	ND (0.0098)	ND (0.0098)	ND (0.0098)	ND (0.0098)	ND (0.0098)	ND (0.0098)	ND (0.0098)	ND (0.0074)
	12/21/18	12.3	0.33	323	6.74	23	NA	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.0083)
MW-10	12/21/18	12.9	0.29	291	6.83	24	NA	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.0076)
MW-11	12/21/18	11.6	2.01	409	6.81	8.5	NA	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.0076)
MW-12	12/21/18	8.3	2.26	265	6.34	9	NA	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.0076)

Note: MW7, MW8, and MW9 correspond to borings B06, B09, and B11

BOLD values detected above the reporting limit.

Shaded values exceed site criteria.

cPAHs (TEQ) = Carcinogenic polycyclic aromatic hydrocarbons toxic equivalency

DRO = Diesel range organics

PCBs = Polychlorinated biphenyls

GRO = Gasoline range organics

µg/L = micrograms per liter

NA = not analyzed or not applicable

ND = not detected above laboratory reporting limits shown in parentheses

NR = not reported

Table 4. Summary of Surface Water Sample Results, Pacific City Park Remedial Investigation, Pacific, Washington.																								
Parameter	Sample Identification																							
	WRLEV1-Drainage Ditch				WRLEV2-Upstream Wetland				WRLEV3-Downstream Wetland				SW1			SW2			SW3			SW4		SSL ^a
	12/8/10	1/4/11	2/28/11	3/10/11	12/8/10	1/4/11	2/28/11	3/10/11	12/8/10	1/4/11	2/28/11	3/10/11	6/29/18	10/9/18	12/20/18	6/29/18	10/9/18	12/20/18	6/29/18	10/9/18	12/20/18	10/9/18	12/20/18	
Field Parameters																								
Temp (°C)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	14.2	12.2	9.7	14.7	12.3	10.5	14.3	12.9	10.5	12.9	11.5	NA
DO (mg/L)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.62	1.2	1.24	1.84	0.36	1.28	1.12	0.8	0.59	0.65	2.53	NA
Cond (µS/cm)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	153.7	204	209	170	208	182	178	151	180	179	182	NA
pH (std units)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.73	6.84	7.07	6.84	6.74	6.88	6.94	6.65	6.94	6.69	7.10	NA
Turbidity (NTU)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	13.72	Clear	12.5	10.76	Clear	25	12.33	Clear	11.5	Clear	11.2	NA
Conventional Parameters (µg/L)																								
TKN	1.75	1.58	0.997	0.772	0.31	3.23	2.54	0.202	1.48	1.63	0.954	1.04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate+Nitrite Nitrogen	ND (0.01)	ND (0.01)	ND (0.04)	ND (0.04)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.04)	ND (0.04)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP	0.136	0.134	0.132	0.134	0.115	0.142	0.070	0.035	0.162	0.205	0.170	0.196	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OP	ND (0.02)	0.049	0.026	0.086	0.007	0.016	0.024	0.025	ND (0.005)	0.014	0.024	0.060	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hardness (mg CaCO3/L)	125	141	86.6	64.6	47.8	39	22	26.9	113	125	90.5	88	66	62	85	71	51	77	74	51	69	45	69	NA
Petroleum Hydrocarbons (µg/L)																								
GRO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	1,000
DRO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (250)	ND (250)	ND (260)	ND (260)	ND (260)	ND (270)	ND (260)	ND (260)	ND (250)	ND (250)	ND (260)	500
Lube Oil RO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (410)	ND (410)	ND (410)	ND (420)	ND (420)	ND (420)	ND (420)	ND (410)	ND (400)	ND (400)	ND (410)	500
Volatile Organic Compounds (µg/L)																								
Benzene	ND (0.2)	ND (0.2)	NA	NA	ND (0.2)	ND (0.2)	NA	NA	ND (0.2)	ND (0.2)	NA	NA	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	0.44
Toluene	ND (0.2)	ND (0.2)	NA	NA	0.551	0.5	NA	NA	ND (0.2)	ND (0.2)	NA	NA	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	1.1	ND (1.0)	ND (1.0)	ND (1.0)	57
Ethylbenzene	ND (0.2)	ND (0.2)	NA	NA	ND (0.2)	ND (0.2)	NA	NA	ND (0.2)	ND (0.2)	NA	NA	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	29
Xylenes	ND (0.2)	ND (0.2)	NA	NA	ND (0.2)	ND (0.2)	NA	NA	ND (0.2)	ND (0.2)	NA	NA	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	1,000
Acetone	ND (2)	ND (2)	NA	NA	ND (2)	ND (2)	NA	NA	ND (4)	ND (2)	NA	NA	ND (5.0)	ND (5.0)	ND (7.0)	ND (5.0)	ND (5.0)	ND (7.0)	ND (5.0)	ND (5.0)	ND (7.0)	ND (5.0)	ND (7.0)	7,200
(cis)1,2-Dichloroethene	ND (0.2)	ND (0.2)	NA	NA	ND (0.2)	ND (0.2)	NA	NA	ND (0.2)	ND (0.2)	NA	NA	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	16
Chlorobenzene	ND (0.2)	ND (0.2)	NA	NA	ND (0.2)	ND (0.2)	NA	NA	ND (0.2)	ND (0.2)	NA	NA	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	100
Vinyl Chloride	0.0308	0.0371	NA	NA	ND (0.01)	ND (0.01)	NA	NA	ND (0.01)	ND (0.02)	NA	NA	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	0.02

Table 4 (continued). Summary of Surface Water Sample Results, Pacific City Park Remedial Investigation, Pacific, Washington.																								
Parameter	Sample Identification																							
	WRLEV1-Drainage Ditch				WRLEV2-Upstream Wetland				WRLEV3-Downstream Wetland				SW1			SW2			SW3			SW4		SSL ^a
	12/8/10	1/4/11	2/28/11	3/10/11	12/8/10	1/4/11	2/28/11	3/10/11	12/8/10	1/4/11	2/28/11	3/10/11	6/29/18	10/9/18	12/20/18	6/29/18	10/9/18	12/20/18	6/29/18	10/9/18	12/20/18	10/9/18	12/20/18	
Total Metals (µg/L)																								
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	3.3
Cadmium	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (4.4)	ND (4.4)	ND (4.4)	ND (4.4)	ND (4.4)	ND (4.4)	ND (4.4)	ND (4.4)	ND (4.4)	ND (4.4)	ND (4.4)	4.4
Calcium	37,900	42,600	25,600	18,700	14,300	11,900	6,450	7,790	35,400	39,900	28,500	26,300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	ND (1)	1.08	ND (1)	ND (1)	0.32	ND (1)	ND (1)	ND (0.2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (11)	ND (11)	ND (11)	ND (11)	ND (11)	ND (11)	ND (11)	ND (11)	ND (11)	ND (11)	ND (11)	74
Copper	ND (0.4)	ND (0.4)	ND (2)	ND (2)	ND (0.4)	ND (2)	ND (2)	ND (2)	ND (0.4)	ND (0.4)	ND (2)	ND (2)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,300
Iron	NA	NA	NA	6,850	NA	NA	NA	2,240	NA	NA	NA	8,580	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,000
Lead	ND (0.1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	2.5
Magnesium	7,370	8,500	5,520	4,330	2,930	2,280	1,440	1,820	6,090	6,200	4,700	5,390	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	0.50
Dissolved Metals (µg/L)																								
Chromium	ND (1)	1.12	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (0.2)	ND (1)	ND (1)	ND (1)	ND (1)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	74
Copper	ND (0.4)	ND (2)	ND (2)	ND (2)	ND (0.4)	ND (0.4)	ND (0.4)	ND (0.4)	ND (0.4)	ND (0.4)	ND (0.4)	ND (0.4)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,300
Lead	ND (0.1)	ND (0.1)	ND (0.5)	ND (0.1)	ND (0.1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.5
Zinc	6.72	4.89	3.42	3.17	ND (2.5)	ND (2.5)	ND (0.5)	2.82	2.5	ND (2.5)	ND (2.5)	ND (2.5)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50
Carcinogenic Polycyclic Aromatic Hydrocarbons (µg/L)																								
Benzo(a) anthracene	ND (0.0094)	ND (0.0096)	NA	NA	ND (0.0094)	ND (0.0095)	NA	NA	ND (0.0094)	ND (0.0095)	NA	NA	ND (0.011)	ND (0.011)	ND (0.010)	ND (0.010)	ND (0.0099)	ND (0.010)	ND (0.010)	ND (0.0098)	ND (0.010)	ND (0.010)	ND (0.011)	0.01
Benzo(b) fluoranthene	ND (0.0094)	ND (0.0096)	NA	NA	ND (0.0094)	ND (0.0095)	NA	NA	ND (0.0094)	ND (0.0095)	NA	NA	ND (0.011)	ND (0.011)	ND (0.010)	ND (0.010)	ND (0.0099)	ND (0.010)	ND (0.010)	ND (0.0098)	ND (0.010)	ND (0.010)	ND (0.011)	0.01
Benzo(j,k) fluoranthene	ND (0.0094)	ND (0.0096)	NA	NA	ND (0.0094)	ND (0.0095)	NA	NA	ND (0.0094)	ND (0.0095)	NA	NA	ND (0.011)	ND (0.011)	ND (0.010)	ND (0.010)	ND (0.0099)	ND (0.010)	ND (0.010)	ND (0.0098)	ND (0.010)	ND (0.010)	ND (0.011)	0.01
Benzo(a) pyrene	ND (0.0094)	ND (0.0096)	NA	NA	ND (0.0094)	ND (0.0095)	NA	NA	ND (0.0094)	ND (0.0095)	NA	NA	ND (0.011)	ND (0.011)	ND (0.010)	ND (0.010)	ND (0.0099)	ND (0.010)	ND (0.010)	ND (0.0098)	ND (0.010)	ND (0.010)	ND (0.011)	0.01
Chrysene	ND (0.0094)	ND (0.0096)	NA	NA	ND (0.0094)	ND (0.0095)	NA	NA	ND (0.0094)	ND (0.0095)	NA	NA	ND (0.011)	ND (0.011)	ND (0.010)	ND (0.010)	ND (0.0099)	ND (0.010)	ND (0.010)	ND (0.0098)	ND (0.010)	ND (0.010)	ND (0.011)	0.016
Indeno(1,2,3-cd)pyrene	ND (0.0094)	ND (0.0096)	NA	NA	ND (0.0094)	ND (0.0095)	NA	NA	ND (0.0094)	ND (0.0095)	NA	NA	ND (0.011)	ND (0.011)	ND (0.010)	ND (0.010)	ND (0.0099)	ND (0.010)	ND (0.010)	ND (0.0098)	ND (0.010)	ND (0.010)	ND (0.011)	0.01
Dibenz(a,h) anthracene	ND (0.0094)	ND (0.0096)	NA	NA	ND (0.0094)	ND (0.0095)	NA	NA	ND (0.0094)	ND (0.0095)	NA	NA	ND (0.011)	ND (0.011)	ND (0.010)	ND (0.010)	ND (0.0099)	ND (0.010)	ND (0.010)	ND (0.0098)	ND (0.010)	ND (0.010)	ND (0.011)	0.01
Total cPAHs TEQ ^b	ND (0.0071)	ND (0.0072)	NA	NA	ND (0.0071)	ND (0.0072)	NA	NA	ND (0.0071)	ND (0.0072)	NA	NA	ND (0.008)	ND (0.008)	NA	ND (0.008)	ND (0.007)	NA	ND (0.008)	ND (0.007)	NA	ND (0.008)	NA	0.085

Table 4 (continued). Summary of Surface Water Sample Results, Pacific City Park Remedial Investigation, Pacific, Washington.																								
Parameter	Sample Identification																							
	WRLEV1-Drainage Ditch				WRLEV2-Upstream Wetland				WRLEV3-Downstream Wetland				SW1			SW2			SW3			SW4		SSL ^a
	12/8/10	1/4/11	2/28/11	3/10/11	12/8/10	1/4/11	2/28/11	3/10/11	12/8/10	1/4/11	2/28/11	3/10/11	6/29/18	10/9/18	12/20/18	6/29/18	10/9/18	12/20/18	6/29/18	10/9/18	12/20/18	10/9/18	12/20/18	
Semivolatile Organic Compounds (µg/L)																								
2-Methylphenol	ND (0.024)	ND (0.024)	NA	NA	0.539	0.307	NA	NA	0.113	0.0574	NA	NA	NA			NA			NA					NA
4-Methylphenol	ND (0.047)	ND (0.048)	NA	NA	1.55	0.197	NA	NA	ND (0.047)	ND (0.048)	NA	NA	NA			NA			NA					NA
Acenaphthene	ND (0.0189)	ND (0.0096)	NA	NA	ND (0.0094)	ND (0.0095)	NA	NA	ND (0.0189)	ND (0.0095)	NA	NA	NA			NA			NA					30
Acenaphthylene	ND (0.0094)	ND (0.0096)	NA	NA	ND (0.0094)	ND (0.0095)	NA	NA	ND (0.0094)	ND (0.0095)	NA	NA	NA			NA			NA					NA
Benzoic Acid	1	1.9	NA	NA	1.75	0.909	NA	NA	ND (0.472)	1.55	NA	NA	NA			NA			NA					NA
Benzyl Alcohol	ND (0.094)	ND (0.096)	NA	NA	0.263	0.21	NA	NA	0.225	ND (0.095)	NA	NA	NA			NA			NA					NA
Butyl Benzyl Phthalate	0.102	ND (0.048)	NA	NA	ND (0.047)	0.092	NA	NA	ND (0.047)	ND (0.048)	NA	NA	NA			NA			NA					1.0
Bis(2-Ethylhexyl) phthalate	0.99	NS (0.26)	NA	NA	0.488	0.23	NA	NA	ND (0.472)	1.77	NA	NA	NA			NA			NA					1.0
Diethyl Phthalate	ND (0.024)	ND (0.024)	NA	NA	0.026	ND (0.024)	NA	NA	ND (0.472)	ND (0.024)	NA	NA	NA			NA			NA					NA
Di-n-butyl Phthalate	0.176	0.14	NA	NA	0.134	0.14	NA	NA	0.149	0.126	NA	NA	NA			NA			NA					8
Naphthalene	ND (0.0189)	0.0241	NA	NA	ND (0.0094)	0.013	NA	NA	0.0231	0.0338	NA	NA	NA			NA			NA					4,710

Bold values detected above the reporting limit
Shaded values exceed the site screening level

^a Refer to Table 7 “Proposed Site Screening Levels for Groundwater and Surface Water” for notes on how each screening level was selected.

^b Total carcinogenic polycyclic aromatic hydrocarbon (cPAHs) toxic equivalency (TEQ) concentration was calculated using one-half the reporting limit for compounds that were not detected above the reporting limit.

mg/L = milligrams per liter
µg/L = micrograms per liter
NA = not analyzed
ND = not detected above laboratory reporting limits shown in parentheses
SSL = site screening levels

Table 5. Summary of Soil Vapor Monitoring Data, Pacific City Park Remedial Investigation, Pacific, Washington.																									
	Sample Identification ^a																								
	1	2	3	4	5	6	7	8	9	10	a	b	c	d	e	MW6	MW9	MW6	MW9	MW1	MW6	MW9	MW6	MW9	MW11
Sample Date	10/23/1984															3/23/18		6/21/18		9/26/18			12/21/18		
Parameter																									
Methane (% Vol)	Trace	0	0	0	0.3	0	0	0	NA	0	0.4	Trace	0.2	Trace	Trace	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trace Gas ^b (ppm)	0.1	0.3	-0.1	0	6.2	0	0	NA	0	-0.1	0	0	0	0.1	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
H2S (ppm)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

^a Samples 1 through 10, and a through e by King County 1984. Samples MW6 and MW9 by Herrera 2018.

^b Trace gases include any organic or inorganic gases with an ionization potential <10.2 electron volts (eV) detected by photo-ionization detector (PID).

NA = not analyzed

ppm = parts per million

H₂S = hydrogen sulfide

APPENDIX A

Historical Aerial Photographs



INQUIRY #: 4204066.9

YEAR: 1941

| = 750'





INQUIRY #: 4204066.9

YEAR: 1943

| = 500'





INQUIRY #: 4204066.9

YEAR: 1957

| = 500'



K-SN



INQUIRY #: 4204066.9

YEAR: 1965

1 inch = 500'





INQUIRY #: 4204066.9

YEAR: 1968

| = 500'





INQUIRY #: 4204066.9

YEAR: 1972

| = 500'





INQUIRY #: 4204066.9

YEAR: 1980

| = 500'





INQUIRY #: 4204066.9

YEAR: 1985

| = 500'





INQUIRY #: 4204066.9

YEAR: 1990

| = 500'





INQUIRY #: 4204066.9

YEAR: 2005

| = 500'





INQUIRY #: 4204066.9

YEAR: 2006

| = 500'





INQUIRY #: 4204066.9

YEAR: 2009

| = 500'





INQUIRY #: 4204066.9

YEAR: 2011

| = 500'



APPENDIX B

Site Grading Plan for Apartments at 4th Avenue Southeast



CITY OF PACIFIC

COUNTY OF KING

100 - 3rd AVENUE SOUTHEAST

PACIFIC, WASHINGTON 98047

PHONE (206) 833-2660

May 11, 1987

Kohl Excavating
3330 East Valley Highway
Renton, WA 98055

RE: Short Plat 87-PAC-3

Dear Sirs:

Please be advised that Council granted preliminary plat approval for the above noted short plat subject to the following conditions for final plat approval.

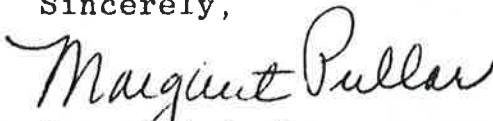
- 1) An 8-inch water main be extended from Fireside Addition No. 2 plat east to the easterly property line of the proposed short plat then southerly along the 30 foot access easement to the south end of the property. A fitting shall be provided at the location to be approved by the City Engineer for future extension.
- 2) The north 30 feet of the existing property be dedicated to the city for road and utilities.
- 3) A 30 foot easement be provided along the easterly property line for ingress, egress, and utilities and appropriate fire truck turnaround.
- 4) Fourth Avenue SE be improved to city standards from the terminus of the existing curb and gutter street section by Fireside Addition No. 2 plat east to the east property line of the proposed short plat culminating in a turnaround.
- 5) The 8-inch sanitary sewer main be extended along 4th Avenue SE and south along the 30 foot access and utility easement to provide service to the southerly lots of the proposed short plat. Department of Ecology and Metro approvals will be required prior to city approval for construction.
- 6) A no-protest agreement be signed with the city for the formation of a future LID to construct sidewalks along 4th Avenue SE.
(Copy enclosed)

Page 2
Kohl Excavating
Short Plat 87-PAC-3
May 11, 1987

- 7) Fire protection be provided by means of the installation of fire hydrants as necessary to the satisfaction and approval of the City Fire Marshall.
- 8) The site be filled to a level above the 100 year HUD level prior to construction of any buildings or utilities without negative impact to adjacent properties. Developer shall obtain all necessary flood control permits with the County prior to City approval for construction.]
- 9) Street lights are to be provided at the time of construction by the property owner.
- 10) Type I landscaping shall be provided along the west side of the properties.

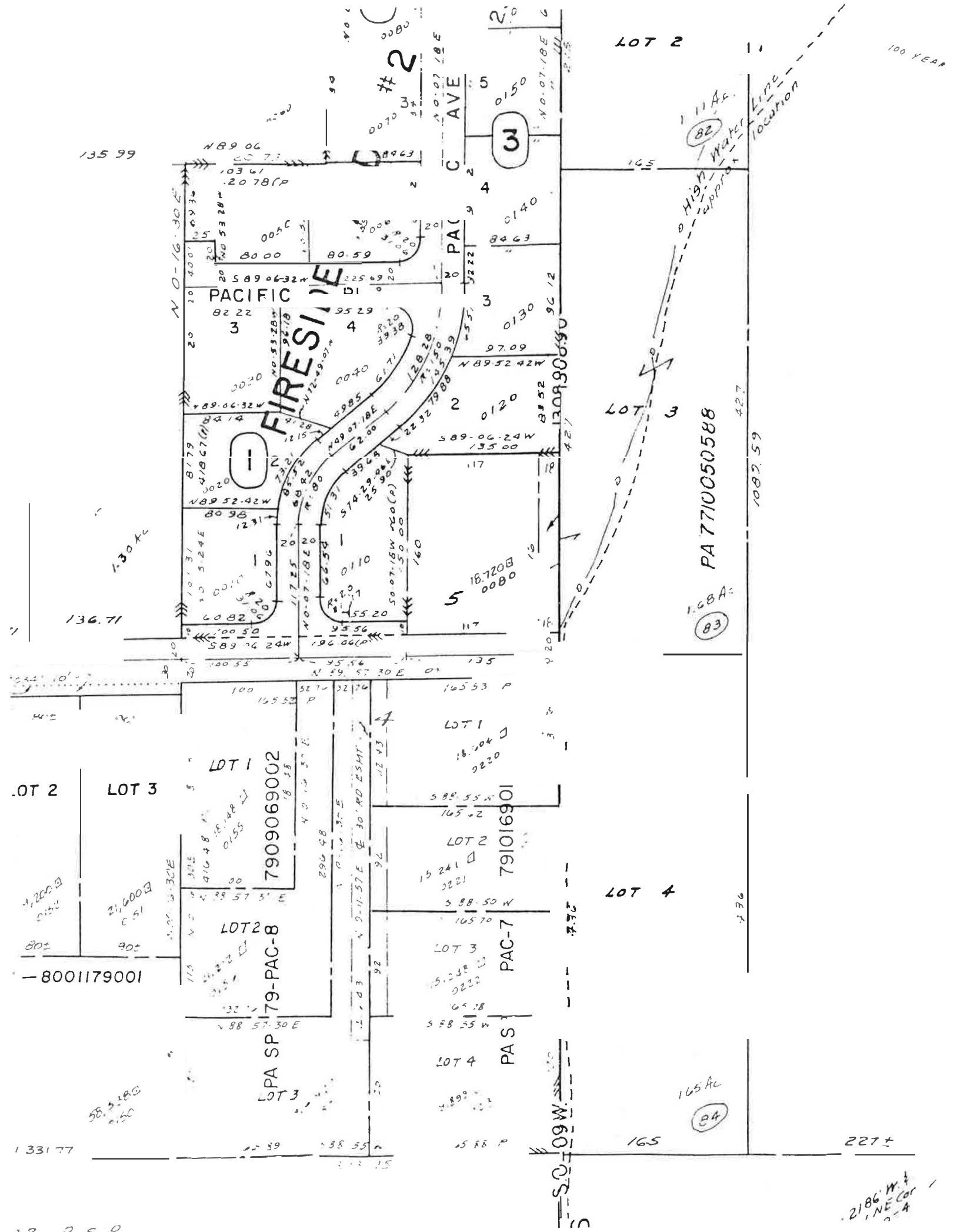
You now have 18 months in which to complete the above conditions and submit for final plat approval. Should you have any questions or need additional information please contact our city engineer, Ron Garrow at 838-2868.

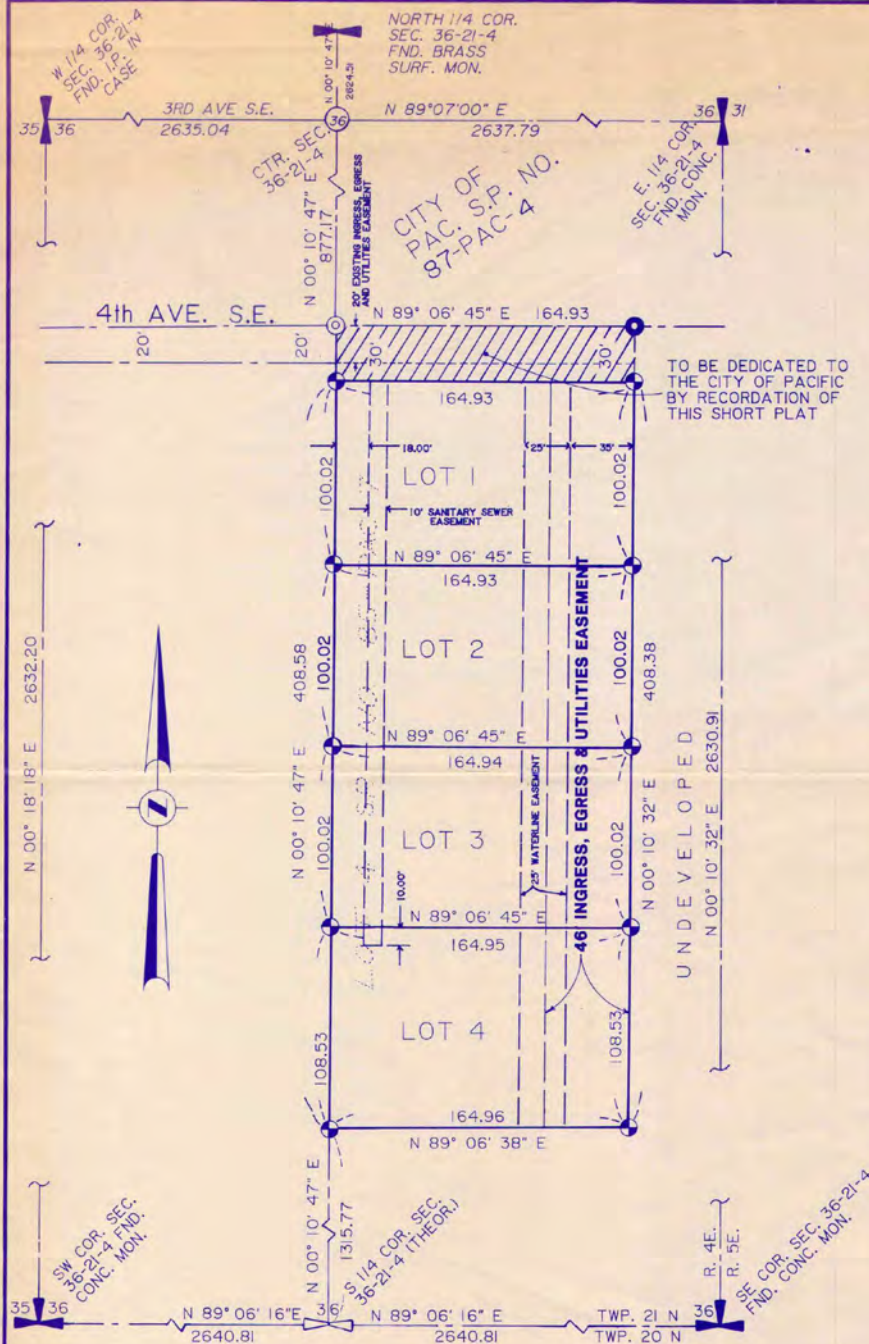
Sincerely,


Margaret J. Pullar, CMC
City Clerk

MJP/s

cc: Ron Garrow





CITY OF PACIFIC SHORT PLAT No. 87-PAC-3

A PORTION OF SE 1/4, SECTION 36, T. 21 N., R. 4 E., W.M.
KING COUNTY ASSESSOR'S CERTIFICATE
 EXAMINED AND APPROVED THIS _____ DAY OF _____, 19____,

ASSESSOR _____ DEPUTY ASSESSOR _____
COUNTY FINANCE DEPT. CERTIFICATE

I HEREBY CERTIFY THAT THE TAXES HAVE BEEN PAID IN ACCORDANCE WITH SECTION 1, CHAPTER NO. 188, LAWS OF 1927 (RCW 58.08.030 & .040) AND THAT A DEPOSIT HAS BEEN MADE WITH THE COUNTY FINANCE DEPARTMENT IN SUFFICIENT AMOUNT TO PAY THE TAXES FOR THE FOLLOWING YEAR.

OFFICER COUNTY FINANCE DEPARTMENT _____

CITY TREASURER'S CERTIFICATE

I HEREBY CERTIFY THAT THERE ARE NO DELINQUENT SPECIAL ASSESSMENTS CERTIFIED TO THIS OFFICE FOR COLLECTION AND THAT ALL SPECIAL ASSESSMENTS CERTIFIED TO THIS OFFICE FOR COLLECTION ON ANY OF THE PROPERTY HEREIN CONTAINED, DEDICATED AS STREETS, ALLEYS OR FOR OTHER PUBLIC USE, ARE PAID IN FULL.

CITY TREASURER _____ DATE _____

APPROVALS

EXAMINED AND APPROVED THIS _____ DAY OF _____, 19____.

CITY ENGINEER, CITY OF PACIFIC _____

DECLARATION

KNOWN ALL MEN BY THESE PRESENTS, THAT WE, THE UNDERSIGNED, OWNERS IN FEE SIMPLE (AND/OR CONTRACT PURCHASERS OF THE LAND HEREIN DESCRIBED) DO HEREBY MAKE A SHORT SUBDIVISION THEREOF PURSUANT TO RCW 58.17.060 AND DECLARE THIS SHORT PLAT TO BE THE GRAPHIC REPRESENTATION OF SAME, AND THAT SAID SHORT SUBDIVISION IS MADE WITH THE FREE CONSENT AND IN ACCORDANCE WITH THE DESIRE OF THE OWNERS.

IN WITNESS WHEREOF WE HAVE SET OUR HANDS AND SEALS.

_____, 19____
 IVAN CHRISTIANSON, PRESIDENT
 KOHL EXCAVATING PROFITSHARING

LEGEND

- SET 1/2" REBAR W/ PLASTIC SURVEY CAP (L.S. NOS. 9634 & 10356)
- ⊙ SET BRASS SURFACE DISC MONUMENT
- SET CONCRETE MONUMENT

LEGAL DESCRIPTION

LOT 4 OF CITY OF PACIFIC SHORT PLAT NO. 77-PAC-12, RECORDED UNDER RECORDING NO. 7710050588, RECORDS OF KING COUNTY, WASHINGTON.

ACKNOWLEDGEMENTS

STATE OF WASHINGTON
 COUNTY OF KING

THIS IS TO CERTIFY THAT ON THE _____ DAY OF _____, 19____, BEFORE ME, THE UNDERSIGNED, A NOTARY PUBLIC, HAVE PERSONALLY APPEARED TO ME KNOWN TO BE THE PERSONS WHO EXECUTED THE FOREGOING DEDICATION, AND WHO ACKNOWLEDGED TO ME THAT THEY SIGNED AND SEALED THE SAME AS THEIR FREE AND VOLUNTARY ACT AND DEED FOR THE USES AND PURPOSES THEREIN MENTIONED.

WITNESS MY HAND AND OFFICIAL SEAL THE DAY AND YEAR FIRST ABOVE WRITTEN.

NOTARY PUBLIC IN AND FOR THE STATE OF WASHINGTON
 RESIDING AT _____

RECORDER'S CERTIFICATE **8808039003**

Filed for record this _____ day of _____, 19____ at _____ M
 in book **62** of **SURVEYS** at page **3** at the request of
NOEL E. TOWNSEND
SURVEYOR & PLANNER

Mgr.

Supt. of Records

SURVEYOR'S CERTIFICATE

This map correctly represents a survey made by me or under my direction in conformance with the requirements of the Survey Recording Act at the request of **IVAN CHRISTIANSON** in JUNE, 1987.

Certificate No. 9634



TOWNSEND-CHASTAIN & ASSOC., INC.

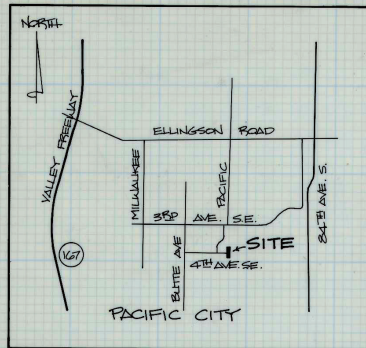
DEVELOPMENT CONSULTANTS
 LAND SURVEYORS
 409 SOUTH 3rd AVENUE
 KENT, WASHINGTON 98032
 (206) 854-2043



CLIENT **IVAN CHRISTIANSON**

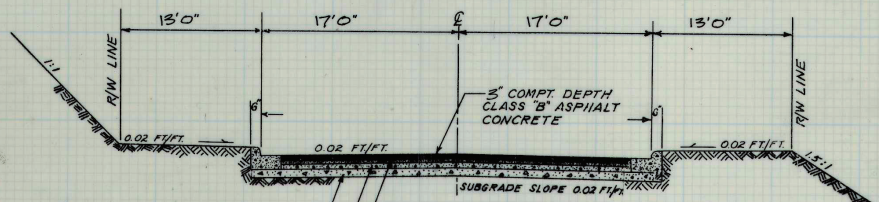
PROJECT **BOUNDARY SURVEY
 CITY OF PACIFIC SHORT PLAT
 NO. 87-PAC-3.**

DRAWN BY **GGP** SCALE **1" = 50'** SHEET **1**
 APPROVED DATE **6/1987** F. BOOK **JUN 86012** OF _____



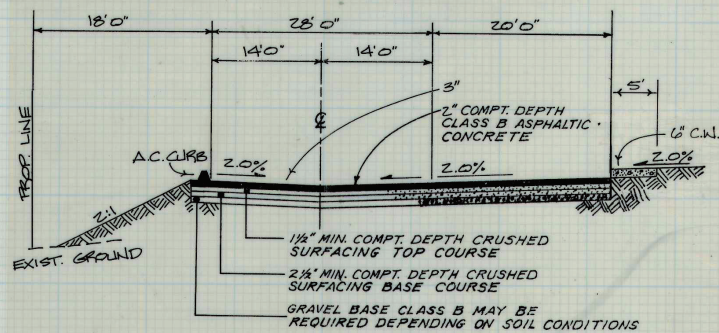
VICINITY MAP

4TH AVENUE S.E.
CROSS SECTION



NOTE: CUT EXISTING A.C. PAVEMENT BACK ONE FOOT FROM EDGE AND MEET WITH NEW A.C. PAVING.

1 1/2" MIN. COMPT. DEPTH CR. SURFACING TOP COURSE
2 1/2" MIN. COMPT. DEPTH CR. SURFACING BASE COURSE
GRAVEL CLASS B MAY BE REQUIRED DEPENDING ON SOIL CONDITIONS



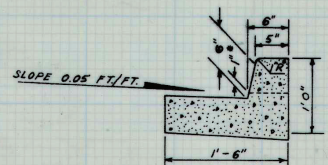
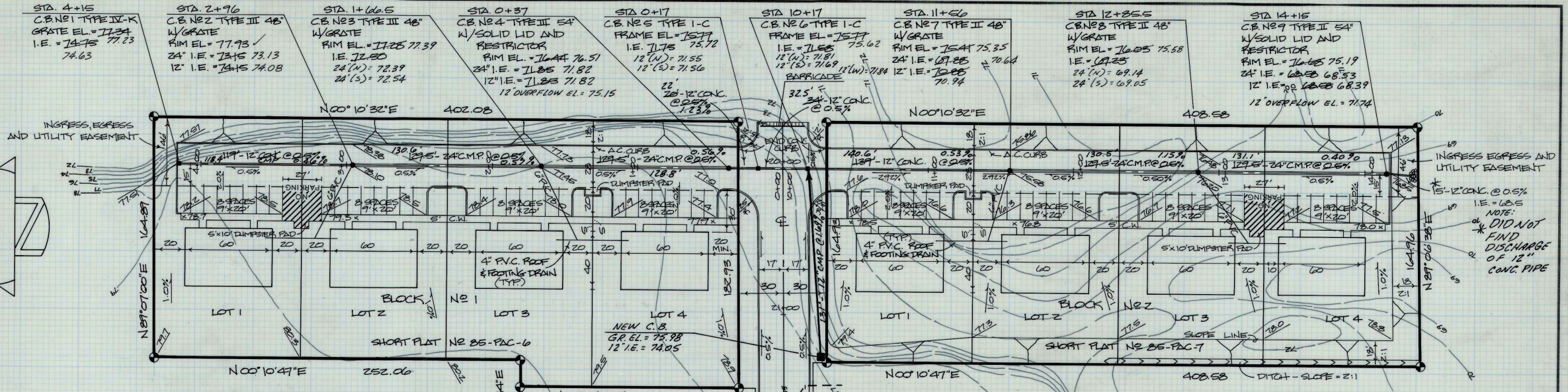
TYPICAL SECTION - DRIVEWAY & PARKING SPACES
NO SCALE

STORMWATER DRAINAGE PLAN NOTES (WHERE APPLICABLE)

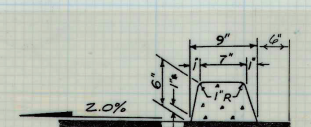
1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF PACIFIC SPECIFICATIONS.
2. ALL SEDIMENTATION/EROSION FACILITIES MUST BE IN OPERATION PRIOR TO CLEARING AND BUILDING CONSTRUCTION, AND THEY MUST BE SATISFACTORILY MAINTAINED UNTIL CONSTRUCTION IS COMPLETED AND THE POTENTIAL FOR ONSITE EROSION HAS PASSED.
3. ALL DISTURBED AREAS SHALL BE SEEDED OR STABILIZED BY OTHER SURFACE WATER MANAGEMENT METHODS FOR THE PREVENTION OF ONSITE EROSION AFTER THE COMPLETION OF CONSTRUCTION.
4. ALL BUILDING DOWNSPOUTS SHALL DISCHARGE TO A.C. PAVEMENT SURFACE.
5. A COPY OF THESE APPROVED PLANS MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
6. ALL CATCH BASIN GRATES SHALL BE DERESSED 0.10 FEET BELOW PAVEMENT LEVEL.
7. CORRUGATED ALUMINUM PIPE SHALL MEET THE REQUIREMENTS FOR CURRENT AASHTO SPEC. M-196, 6" DIAM. THRU 10" DIAM. SHALL BE 18 GAUGE WITH 1 1/2" x 1/2" CORRUGATIONS, 12" DIAM. THRU 30" DIAM. SHALL BE 16 GAUGE WITH 2 2/3" x 1/2" CORRUGATIONS.
8. MINIMUM COVER FOR CORRUGATED ALUMINUM PIPE SHALL BE 1 FOOT.
9. P.V.C. PIPE SHALL BE CL. 200 SDR-21.
10. ALL STEEL PARTS AND SURFACES MUST BE GALVANIZED AND TREATED WITH ASPHALT TREATMENT 1 OR BETTER.

LEGEND

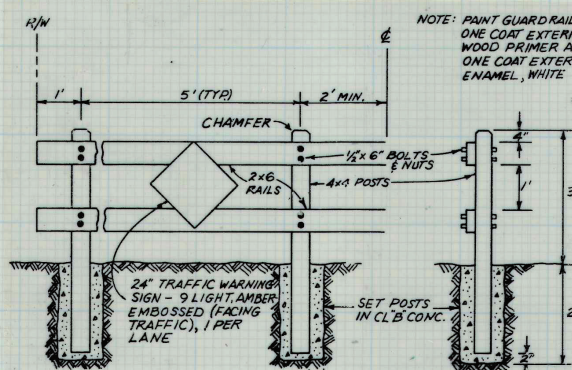
- UTILITY POLE W/ STREET LIGHT
- TELEPHONE RISER
- WATER VALVE
- WATER METER
- GUY ANCHOR
- FENCE LINE
- ✱ TREE W/ DIAMETER



CEMENT CONCRETE CURB & GUTTER
NOT TO SCALE



EXTRUDED ASPHALT OR CEMENT CONCRETE CURB
NOT TO SCALE



BARRICADE DETAIL
NO SCALE

NEW CONCRETE CURB
ADJUST VALVE BOX TO NEW A.C. P.V.M.T.

REMOVE EXIST. A.C. PAVEMENT TO EXIST. END OF CURB
MATCH NEW A.C. PAVEMENT TO EXIST. END OF CURB
PACIFIC AVENUE S.
REMOVE EXIST. CURB



DATUM
USC & GS
BRASS SURFACE MONUMENT
AT INTX. PACIFIC AVE. S. & 4TH AVE. SE. - ELEV. = 77.97

NOTE: PAINT GUARDRAIL WITH ONE COAT EXTERIOR WOOD PRIMER AND ONE COAT EXTERIOR ENAMEL, WHITE

EXIST. HYDRANT & H2O VALVE

SAN SEW. M.H.
RIM = 77.69 77.25
I.E. = 77.14 77.16 & CHANNEL
ADJUST M.H. RIM TO NEW A.C. P.V.M.T.

REMOVE EXIST. A.C. PAVEMENT TO EXIST. END OF CURB
MATCH NEW A.C. PAVEMENT TO EXIST. END OF CURB
PACIFIC AVENUE S.
REMOVE EXIST. CURB

REMOVE EXIST. A.C. PAVEMENT TO EXIST. END OF CURB
MATCH NEW A.C. PAVEMENT TO EXIST. END OF CURB
PACIFIC AVENUE S.
REMOVE EXIST. CURB

DATUM
USC & GS
BRASS SURFACE MONUMENT
AT INTX. PACIFIC AVE. S. & 4TH AVE. SE. - ELEV. = 77.97

NOTE: PAINT GUARDRAIL WITH ONE COAT EXTERIOR WOOD PRIMER AND ONE COAT EXTERIOR ENAMEL, WHITE

REMOVE EXIST. A.C. PAVEMENT TO EXIST. END OF CURB
MATCH NEW A.C. PAVEMENT TO EXIST. END OF CURB
PACIFIC AVENUE S.
REMOVE EXIST. CURB

REMOVE EXIST. A.C. PAVEMENT TO EXIST. END OF CURB
MATCH NEW A.C. PAVEMENT TO EXIST. END OF CURB
PACIFIC AVENUE S.
REMOVE EXIST. CURB

REMOVE EXIST. A.C. PAVEMENT TO EXIST. END OF CURB
MATCH NEW A.C. PAVEMENT TO EXIST. END OF CURB
PACIFIC AVENUE S.
REMOVE EXIST. CURB

REMOVE EXIST. A.C. PAVEMENT TO EXIST. END OF CURB
MATCH NEW A.C. PAVEMENT TO EXIST. END OF CURB
PACIFIC AVENUE S.
REMOVE EXIST. CURB

REMOVE EXIST. A.C. PAVEMENT TO EXIST. END OF CURB
MATCH NEW A.C. PAVEMENT TO EXIST. END OF CURB
PACIFIC AVENUE S.
REMOVE EXIST. CURB

REMOVE EXIST. A.C. PAVEMENT TO EXIST. END OF CURB
MATCH NEW A.C. PAVEMENT TO EXIST. END OF CURB
PACIFIC AVENUE S.
REMOVE EXIST. CURB

REMOVE EXIST. A.C. PAVEMENT TO EXIST. END OF CURB
MATCH NEW A.C. PAVEMENT TO EXIST. END OF CURB
PACIFIC AVENUE S.
REMOVE EXIST. CURB

REMOVE EXIST. A.C. PAVEMENT TO EXIST. END OF CURB
MATCH NEW A.C. PAVEMENT TO EXIST. END OF CURB
PACIFIC AVENUE S.
REMOVE EXIST. CURB

REMOVE EXIST. A.C. PAVEMENT TO EXIST. END OF CURB
MATCH NEW A.C. PAVEMENT TO EXIST. END OF CURB
PACIFIC AVENUE S.
REMOVE EXIST. CURB

REMOVE EXIST. A.C. PAVEMENT TO EXIST. END OF CURB
MATCH NEW A.C. PAVEMENT TO EXIST. END OF CURB
PACIFIC AVENUE S.
REMOVE EXIST. CURB

REMOVE EXIST. A.C. PAVEMENT TO EXIST. END OF CURB
MATCH NEW A.C. PAVEMENT TO EXIST. END OF CURB
PACIFIC AVENUE S.
REMOVE EXIST. CURB

SAN SEW. M.H.
RIM = 77.69 77.25
I.E. = 77.14 77.16 & CHANNEL
ADJUST M.H. RIM TO NEW A.C. P.V.M.T.

REMOVE EXIST. A.C. PAVEMENT TO EXIST. END OF CURB
MATCH NEW A.C. PAVEMENT TO EXIST. END OF CURB
PACIFIC AVENUE S.
REMOVE EXIST. CURB

REMOVE EXIST. A.C. PAVEMENT TO EXIST. END OF CURB
MATCH NEW A.C. PAVEMENT TO EXIST. END OF CURB
PACIFIC AVENUE S.
REMOVE EXIST. CURB

REMOVE EXIST. A.C. PAVEMENT TO EXIST. END OF CURB
MATCH NEW A.C. PAVEMENT TO EXIST. END OF CURB
PACIFIC AVENUE S.
REMOVE EXIST. CURB

REMOVE EXIST. A.C. PAVEMENT TO EXIST. END OF CURB
MATCH NEW A.C. PAVEMENT TO EXIST. END OF CURB
PACIFIC AVENUE S.
REMOVE EXIST. CURB

REMOVE EXIST. A.C. PAVEMENT TO EXIST. END OF CURB
MATCH NEW A.C. PAVEMENT TO EXIST. END OF CURB
PACIFIC AVENUE S.
REMOVE EXIST. CURB

REMOVE EXIST. A.C. PAVEMENT TO EXIST. END OF CURB
MATCH NEW A.C. PAVEMENT TO EXIST. END OF CURB
PACIFIC AVENUE S.
REMOVE EXIST. CURB

REMOVE EXIST. A.C. PAVEMENT TO EXIST. END OF CURB
MATCH NEW A.C. PAVEMENT TO EXIST. END OF CURB
PACIFIC AVENUE S.
REMOVE EXIST. CURB

REMOVE EXIST. A.C. PAVEMENT TO EXIST. END OF CURB
MATCH NEW A.C. PAVEMENT TO EXIST. END OF CURB
PACIFIC AVENUE S.
REMOVE EXIST. CURB

REMOVE EXIST. A.C. PAVEMENT TO EXIST. END OF CURB
MATCH NEW A.C. PAVEMENT TO EXIST. END OF CURB
PACIFIC AVENUE S.
REMOVE EXIST. CURB

REMOVE EXIST. A.C. PAVEMENT TO EXIST. END OF CURB
MATCH NEW A.C. PAVEMENT TO EXIST. END OF CURB
PACIFIC AVENUE S.
REMOVE EXIST. CURB

REMOVE EXIST. A.C. PAVEMENT TO EXIST. END OF CURB
MATCH NEW A.C. PAVEMENT TO EXIST. END OF CURB
PACIFIC AVENUE S.
REMOVE EXIST. CURB

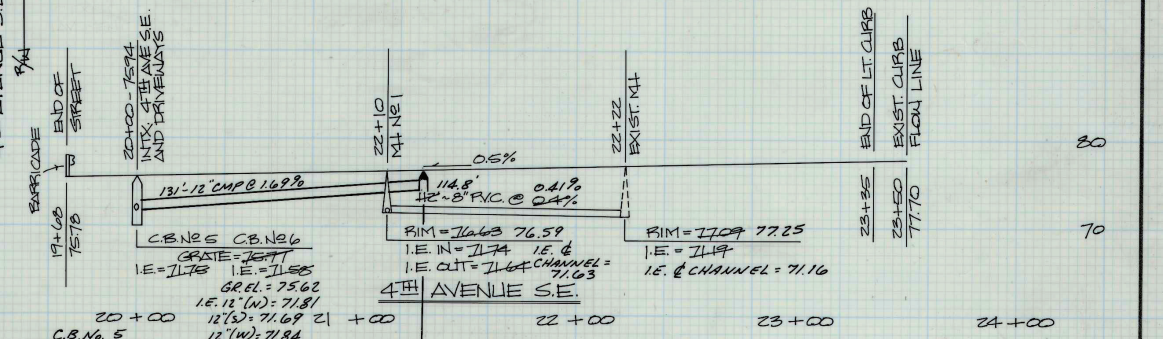
REMOVE EXIST. A.C. PAVEMENT TO EXIST. END OF CURB
MATCH NEW A.C. PAVEMENT TO EXIST. END OF CURB
PACIFIC AVENUE S.
REMOVE EXIST. CURB

REMOVE EXIST. A.C. PAVEMENT TO EXIST. END OF CURB
MATCH NEW A.C. PAVEMENT TO EXIST. END OF CURB
PACIFIC AVENUE S.
REMOVE EXIST. CURB

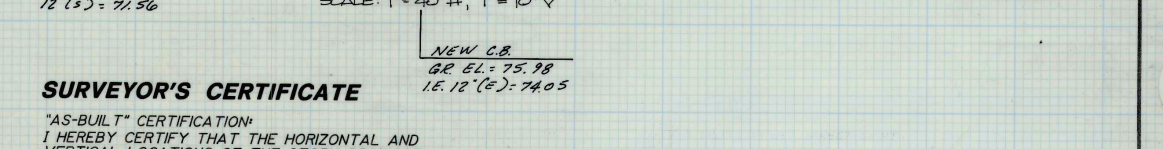
REMOVE EXIST. A.C. PAVEMENT TO EXIST. END OF CURB
MATCH NEW A.C. PAVEMENT TO EXIST. END OF CURB
PACIFIC AVENUE S.
REMOVE EXIST. CURB

REMOVE EXIST. A.C. PAVEMENT TO EXIST. END OF CURB
MATCH NEW A.C. PAVEMENT TO EXIST. END OF CURB
PACIFIC AVENUE S.
REMOVE EXIST. CURB

DRIVEWAY PROFILES
SCALE: 1" = 20' H, 1" = 5' V



CURB FLOW LINE PROFILE
SCALE: 1" = 40' H, 1" = 10' V



SURVEYOR'S CERTIFICATE

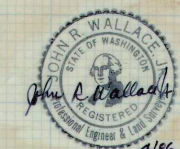
"AS-BUILT" CERTIFICATION:
I HEREBY CERTIFY THAT THE HORIZONTAL AND VERTICAL LOCATIONS OF THE STORM DRAINAGE SHOWN HEREON IS THE RESULT OF A FIELD SURVEY PERFORMED BY ME OR UNDER MY DIRECTION.

NOEL E. TOWNSEND P.L.S. No. 9634

DATE



APPROVED BY: RON GARROW
12 AUG. 86



TOWNSEND - CHASTAIN & ASSOC., INC.
DEVELOPMENT CONSULTANTS
LAND SURVEYORS
409 SOUTH 3rd AVENUE
KENT, WASHINGTON 98032
(206) 854-2043

REV. NO.	DATE	DESCRIPTION	APP. BY
1	4 APRIL 86	STREET AND STORM DRAINAGE CITY OF PACIFIC SHORT PLATS BS-PAC-6 BS-PAC-7	PETER KOHL - NIAN CHRISTIANSON
DRAWN BY	SCALE	1 INCH EQUALS 40 FEET	SHEET 1
APPROVED	DATE	4 APRIL 86	OF 2

86011 & 86012

APPENDIX C

Soil Boring Logs



SOIL BORING AND MONITORING WELL CONSTRUCTION RECORD

HERRERA

Project Name: Pacific Park
 Project Number: 17-06520-000
 Client: King County
 Location: Corner of 4th Avenue SE
 HEC Rep.: George Iftner
 Start/End Date: 12/17/2018
 Screen: 3' - 15' bgs

Monitoring Well MW-10
 Total depth: 15 feet
 Sheet 1 of 1

Drilling Contractor: Holocene Drilling
 Drilling Method: Hollow Stem Auger
 Sampling Method: 18 inch split spoon
 Ground Elevation: _____
 Air Monitoring (y/n): Yes
 Instrument(s): Photoionization Detector (PID)

PID Reading (ppm)	Sample Type, Interval	% Recovery	Depth (feet, BGS)	Water Level (feet)	Soil Group	Soil Description	Monitoring Well Construction Detail
			1		AC GP-GM	Asphalt underlain by gravel base course Gray-brown sandy GRAVEL with silt, FILL, damp.	
			2		GP	Gray-brown sandy GRAVEL trace silt, poor recovery, FILL, damp.	
20	18-inch Split Spoon	10%	3			Gray-brown sandy GRAVEL trace silt, poor recovery, FILL, damp.	
			4		SM	Gray very silty SAND with gravel and roots, FILL, moist. Soil sample MW10-4 collected at 8:55.	
41	18-inch Split Spoon	80%	5	▼ 5.0		Dark brown fine to medium SAND trace silt, FILL, wet.	
2	18-inch Split Spoon	60%	6		SP	With wood fragments at 6.5 feet. Soil sample MW10-7 collected at 9:10.	
			7			Dark gray-brown sandy GRAVEL trace silt (small wood fragments), NATIVE, wet.	
0	18-inch Split Spoon	60%	8		GP	2" lense of dark gray fine to medium SAND	
0	18-inch Split Spoon	50%	9				
			10				
0	18-inch Split Spoon	85%	11		SP	Dark brown-black fine to medium SAND trace silt, wet.	
0	18-inch Split Spoon	95%	12			Dark gray SILT, wet.	
			13		ML	Dark brown-black medium SAND, wet.	
0	18-inch Split Spoon	65%	14		SW	Dark gray SILT, wet.	
			15		ML	Brown-black fine to medium SAND in shoe.	
					SP		

Notes:

- Last sample 13 feet to 14.5 feet, drilled out bottom to set screen from 3 feet to 15 feet.
- Bottom of exploration at 16 feet.



SOIL BORING AND MONITORING WELL CONSTRUCTION RECORD

HERRERA

Monitoring Well **MW-11**

Total depth: **15 feet**

Sheet **1 of 1**

Project Name: **Pacific Park**

Project Number: **17-06520-000**

Client: **King County**

Location: **Corner of 4th Avenue SE South Apartment**

HEC Rep.: **George Iftner**

Start/End Date: **12/17/2018**

Screen: **3' - 15' bgs**

Drilling Contractor: **Holocene Drilling**

Drilling Method: **Hollow Stem Auger**

Sampling Method: **18 inch split spoon**

Ground Elevation: _____

Air Monitoring (y/n): **Yes**

Instrument(s): **Photoionization Detector (PID)**

PID Reading (ppm)	Sample Type, Interval	% Recovery	Depth (feet, BGS)	Water Level (feet)	Soil Group	Soil Description	Monitoring Well Construction Detail
			1		AC	Asphalt underlain by gravel base course	
0	18-inch Split Spoon	100%	2		GP-GM	Gray-brown sandy GRAVEL with silt, FILL, damp.	
0	18-inch Split Spoon	0	3				
			4				
0	18-inch Split Spoon	50%	5		SM	Dark brown silty fine to medium SAND, trace gravel, FILL, moist. Soil sample MW11-4 collected at 10:45.	
0	18-inch Split Spoon	50%	6		SP	Dark brown-black fine to medium SAND, trace silt, (roots), NATIVE, moist. Soil sample MW11-6.5 collected at 11:00.	
0	18-inch Split Spoon	20	7	▼ 7.0			
			8				
0	18-inch Split Spoon	60%	9				
			10		GP	Dark brown rounded GRAVEL with sand, wet.	
0	18-inch Split Spoon	10%	11		SP	Dark brown-black fine to medium SAND, trace gravel, wet.	
0	18-inch Split Spoon	10%	12		GP	Dark brown-black fine to medium sandy GRAVEL, Trace silt, wet.	
			13				
0	18-inch Split Spoon	75%	14		SP	Dark brown-black fine to medium SAND, trace gravel, wet.	
			15				

Notes:

- Last sample 13 feet to 14.5 feet, drilled out bottom to set screen from 3 feet to 15 feet.
- Bottom of exploration at 16 feet.



SOIL BORING AND MONITORING WELL CONSTRUCTION RECORD

HERRERA

Monitoring Well **MW-12**

Total depth: **15 feet**

Sheet **1 of 1**

Project Name: **Pacific Park**

Project Number: **17-06520-000**

Client: **King County**

Location: **NE corner of King County parcel, South of 508 4th Ave SE**

HEC Rep.: **George Iftner**

Start/End Date: **12/17/2018**

Screen: **3' - 15' bgs**

Drilling Contractor: **Holocene Drilling**

Drilling Method: **Hollow Stem Auger**

Sampling Method: **18 inch split spoon**

Ground Elevation: _____

Air Monitoring (y/n): **Yes**

Instrument(s): **Photoionization Detector (PID)**

PID Reading (ppm)	Sample Type, Interval	% Recovery	Depth (feet, BGS)	Water Level (feet)	Soil Group	Soil Description	Monitoring Well Construction Detail
0	18-inch Split Spoon	95%	1		SM	Grass, then brown sandy fine to medium GRAVEL with silt, (glass bottle fragments) FILL, damp.	
0	18-inch Split Spoon	0%	2		SM	Dark brown silty fine to medium SAND, FILL, damp to Wet.	
			3	▼		Soil sample MW12-3 collected at 14:00.	
0	18-inch Split Spoon	70%	4	3.0			
0	18-inch Split Spoon	80%	5		SM	Dark black-brown silty fine-to medium SAND, NATIVE, wet.	
			6		PT	Dark black-brown peat layer, wet.	
0	18-inch Split Spoon	70%	7		SP	Black-brown fine to medium SAND, trace silt, wet.	
0	18-inch Split Spoon	50%	8				
			9				
0	18-inch Split Spoon	80%	10		PT	4-inch thick dark black-brown peat layer, wet.	
					SP	Black-brown fine to medium SAND, trace silt, wet.	
0	18-inch Split Spoon	80%	11		ML	Dark gray SILT, wet.	
			12				
0	18-inch Split Spoon	65%	13		SM	Dark gray silty fine to medium SAND, wet.	
0	18-inch Split Spoon	95%	14			Soil sample MW12-14 collected at 14:30.	
			15				

Notes:

- Last sample 13 feet to 14.5 feet, drilled out bottom to set screen from 3 feet to 15 feet.
- Bottom of exploration at 16 feet.



SOIL PROBE BORING LOG

Boring ID PP35
 Total depth 15 feet
 Sheet 1 of 1

Project name Pacific Park
 Project number 17-06520-000
 Client King County
 HEC rep. George Iftner

Drilling Contractor ESN
 Location In front of apartment building
At 502 4th Ave. SE
 Date December 20, 2018

Drilling method Push-probe rig
 Sampling method 5 ft core with plastic liner
 Air monitoring (Y/N) Yes
 Instrument(s) Photoionization detector

PID (ppm)	Sample type, interval	% recovery	Water level (feet)	Depth (feet, BGS)	Soil group	Soil description
0	5-foot core with liner	80	▼ 3.6		AC	Asphalt underlain by gravel base course
				1	GP-GM	Gray-brown sandy GRAVEL with silt, FILL, damp.
					GM	Gray-brown silty GRAVEL with sand, FILL, damp.
				2		
				3		
0	5-foot core with liner	60			SM	Dark gray fine to medium silty SAND with gravel, FILL, moist to wet. Static water level 3.6 feet. Soil sample PP35-4 collected at 10:50. 2” layer of brown crushed GRAVEL at 4.3 feet.
				4		
				5	SP-SM	Dark gray-brown gravelly fine to medium SAND with silt, FILL, wet.
				6		
				7	SP-SM	Light brown sandy GRAVEL trace silt, FILL, wet.
0	5-foot core with liner	45				Dark gray-brown gravelly fine to medium SAND with silt, NATIVE, wet. Soil sample PP35-7.5 collected at 11:00.
				8		
				9		
				10		
				11		
				12		
				13		
			14	GP	Dark gray-brown fine to medium GRAVEL with brown-black medium sand, trace silt, wet.	
				15	ML	Silt with peat in bottom of sampler.
						Backfilled borehole with bentonite chips.



SOIL PROBE BORING LOG

Boring ID PP36
 Total depth 15 feet
 Sheet 1 of 1

Project name Pacific Park Drilling Contractor ESN Drilling method Push-probe rig
 Project number 17-06520-000 Location In front of apartment building Sampling method 5 ft core with plastic liner
 Client King County At 504 4th Ave. SE Air monitoring (Y/N) Yes
 HEC rep. George Iftner Date December 20, 2018 Instrument(s) Photoionization detector

PID (ppm)	Sample type, interval	% recovery	Water level (feet)	Depth (feet, BGS)	Soil group	Soil description
0	5-foot core with liner	80	▼ 3.4		AC	Asphalt underlain by gravel base course.
				1	GP-GM	Gray-brown sandy GRAVEL trace silt, FILL, damp.
					GM	Brown very silty GRAVEL with sand, FILL, damp. Soil sample PP36-1 collected at 9:40.
				2		
				3		
						Static water level 3.4 feet.
				4	ML	Light brown SILT with sand, FILL, wet.
5	AC	3” layer of asphalt at 4.5 feet bgs.				
0	5-foot core with liner	60			ML	Same SILT as above, FILL, wet. Soil sample PP36-5 collected at 9:55.
				6		
					SP	Brown-black fine to medium SAND trace silt, NATIVE, wet.
				7		
				8		
				9		
					GP	Dark brown fine to medium rounded GRAVEL trace silt, wet.
10						
0	5-foot core with liner	45				
			12			
			13			
				ML	Gray-brown SILT, wet.	
			14			
			15		Peat in bottom of sampler.	
					Backfilled borehole with bentonite chips.	

PID - photoionization detector



SOIL PROBE BORING LOG

Boring ID PP37
 Total depth 15 feet
 Sheet 1 of 1

Project name Pacific Park Drilling Contractor ESN Drilling method Push-probe rig
 Project number 17-06520-000 Location In front of apartment building Sampling method 5 ft core with plastic liner
 Client King County At 504 4th Ave. SE Air monitoring (Y/N) Yes
 HEC rep. George Iftner Date December 20, 2018 Instrument(s) Photoionization detector

PID (ppm)	Sample type, interval	% recovery	Water level (feet)	Depth (feet, BGS)	Soil group	Soil description
0	5-foot core with liner	80	▼ 4.0		AC	Asphalt underlain by gravel base course.
				1	GP-GM	Black-brown to gray-brown sandy GRAVEL with silt, FILL, damp. Soil sample PP37-1.5 collected at 8:50.
				2	SM	Dark brown silty fine to medium SAND trace gravel, FILL, damp.
				3		
				4		Static water level 4.0 feet.
				5		Soil sample PP37-5 collected at 9:05. Color change to dark gray-brown.
0	5-foot core with liner	60		6	SP	Brown-black fine to medium SAND trace silt, NATIVE, wet (with small piece of charcoal).
				7		
				8		
				9		
				10		
				11		
0	5-foot core with liner	45		12	GP	Dark gray-green and brown sandy fine to medium rounded GRAVEL trace silt, wet.
				13		
				14		
				15		
						Backfilled borehole with bentonite chips.

APPENDIX D

Laboratory Analytical Reports



**OnSite
Environmental Inc.**

14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

December 28, 2018

Mark Ewbank
Herrera Environmental Consultants, Inc.
2200 6th Avenue, Suite 1100
Seattle, WA 98121

Re: Analytical Data for Project 17-06520-000
Laboratory Reference No. 1812-188

Dear Mark:

Enclosed are the analytical results and associated quality control data for samples submitted on December 18, 2018.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures



Date of Report: December 28, 2018
Samples Submitted: December 18, 2018
Laboratory Reference: 1812-188
Project: 17-06520-000

Case Narrative

Samples were collected on December 17, 2018 and received by the laboratory on December 18, 2018. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

NWTPH Gx Analysis

The chromatogram for sample MW10-4 is similar to mineral spirits with diesel.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.



Date of Report: December 28, 2018
 Samples Submitted: December 18, 2018
 Laboratory Reference: 1812-188
 Project: 17-06520-000

GASOLINE RANGE ORGANICS
NWTPH-Gx

Matrix: Soil
 Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW10-4					
Laboratory ID:	12-188-01					
Gasoline	110	11	NWTPH-Gx	12-26-18	12-26-18	Z
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Fluorobenzene</i>	92	57-129				
Client ID:	MW11-4					
Laboratory ID:	12-188-03					
Gasoline	ND	3.9	NWTPH-Gx	12-26-18	12-26-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Fluorobenzene</i>	79	57-129				
Client ID:	MW12-3					
Laboratory ID:	12-188-05					
Gasoline	ND	5.2	NWTPH-Gx	12-26-18	12-26-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Fluorobenzene</i>	79	57-129				



Date of Report: December 28, 2018
 Samples Submitted: December 18, 2018
 Laboratory Reference: 1812-188
 Project: 17-06520-000

**GASOLINE RANGE ORGANICS
 NWTPH-Gx
 QUALITY CONTROL**

Matrix: Soil
 Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1226S1					
Gasoline	ND	5.0	NWTPH-Gx	12-26-18	12-26-18	
Surrogate:	Percent Recovery	Control Limits				
Fluorobenzene	76	57-129				

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	12-223-01							
	ORIG	DUP						
Gasoline	ND	ND	NA	NA	NA	NA	30	
Surrogate:								
Fluorobenzene				83	82	57-129		



Date of Report: December 28, 2018
 Samples Submitted: December 18, 2018
 Laboratory Reference: 1812-188
 Project: 17-06520-000

DIESEL AND HEAVY OIL RANGE ORGANICS
NWTPH-Dx

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW10-4					
Laboratory ID:	12-188-01					
Diesel Range Organics	ND	37	NWTPH-Dx	12-19-18	12-19-18	U1
Lube Oil Range Organics	130	73	NWTPH-Dx	12-19-18	12-19-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	67	50-150				

Client ID:	MW11-4					
Laboratory ID:	12-188-03					
Diesel Range Organics	ND	32	NWTPH-Dx	12-19-18	12-19-18	U1
Lube Oil Range Organics	170	58	NWTPH-Dx	12-19-18	12-19-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	71	50-150				

Client ID:	MW12-3					
Laboratory ID:	12-188-05					
Diesel Range Organics	ND	33	NWTPH-Dx	12-19-18	12-19-18	
Lube Oil Range Organics	ND	66	NWTPH-Dx	12-19-18	12-19-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	71	50-150				



Date of Report: December 28, 2018
 Samples Submitted: December 18, 2018
 Laboratory Reference: 1812-188
 Project: 17-06520-000

**DIESEL AND HEAVY OIL RANGE ORGANICS
 NWTPH-Dx
 QUALITY CONTROL**

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1219S1					
Diesel Range Organics	ND	25	NWTPH-Dx	12-19-18	12-19-18	
Lube Oil Range Organics	ND	50	NWTPH-Dx	12-19-18	12-19-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	74	50-150				

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	12-187-03							
	ORIG	DUP						
Diesel Range	ND	ND	NA	NA	NA	NA	NA	
Lube Oil Range	ND	ND	NA	NA	NA	NA	NA	
<i>Surrogate:</i>								
<i>o-Terphenyl</i>				75	59	50-150		



Date of Report: December 28, 2018
 Samples Submitted: December 18, 2018
 Laboratory Reference: 1812-188
 Project: 17-06520-000

**TOTAL METALS
 EPA 6010D/7471B**

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW10-4					
Laboratory ID:	12-188-01					
Arsenic	ND	15	EPA 6010D	12-20-18	12-20-18	
Cadmium	ND	0.73	EPA 6010D	12-20-18	12-20-18	
Chromium	29	0.73	EPA 6010D	12-20-18	12-20-18	
Lead	21	7.3	EPA 6010D	12-20-18	12-20-18	
Mercury	ND	0.36	EPA 7471B	12-21-18	12-21-18	

Client ID:	MW11-4					
Laboratory ID:	12-188-03					
Arsenic	ND	12	EPA 6010D	12-20-18	12-20-18	
Cadmium	ND	0.58	EPA 6010D	12-20-18	12-20-18	
Chromium	31	0.58	EPA 6010D	12-20-18	12-20-18	
Lead	32	5.8	EPA 6010D	12-20-18	12-20-18	
Mercury	ND	0.29	EPA 7471B	12-21-18	12-21-18	

Client ID:	MW12-3					
Laboratory ID:	12-188-05					
Arsenic	ND	13	EPA 6010D	12-20-18	12-20-18	
Cadmium	ND	0.66	EPA 6010D	12-20-18	12-20-18	
Chromium	11	0.66	EPA 6010D	12-20-18	12-20-18	
Lead	ND	6.6	EPA 6010D	12-20-18	12-20-18	
Mercury	ND	0.33	EPA 7471B	12-21-18	12-21-18	



Date of Report: December 28, 2018
 Samples Submitted: December 18, 2018
 Laboratory Reference: 1812-188
 Project: 17-06520-000

**TOTAL METALS
 EPA 6010D/7471B
 QUALITY CONTROL**

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1220SM1					
Arsenic	ND	10	EPA 6010D	12-20-18	12-20-18	
Cadmium	ND	0.50	EPA 6010D	12-20-18	12-20-18	
Chromium	ND	0.50	EPA 6010D	12-20-18	12-20-18	
Lead	ND	5.0	EPA 6010D	12-20-18	12-20-18	
Laboratory ID:	MB1221S2					
Mercury	ND	0.25	EPA 7471B	12-21-18	12-21-18	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	12-188-05							
	ORIG	DUP						
Arsenic	ND	ND	NA	NA	NA	NA	20	
Cadmium	ND	ND	NA	NA	NA	NA	20	
Chromium	8.10	8.70	NA	NA	NA	7	20	
Lead	ND	ND	NA	NA	NA	NA	20	
Laboratory ID:	12-200-10							
Mercury	ND	ND	NA	NA	NA	NA	20	

MATRIX SPIKES

Laboratory ID:	12-188-05									
	MS	MSD	MS	MSD		MS	MSD			
Arsenic	97.7	98.4	100	100	ND	98	98	75-125	1	20
Cadmium	46.1	46.5	50.0	50.0	ND	92	93	75-125	1	20
Chromium	110	110	100	100	8.10	102	102	75-125	0	20
Lead	225	230	250	250	ND	90	92	75-125	2	20
Laboratory ID:	12-200-10									
Mercury	0.585	0.583	0.500	0.500	0.0428	108	108	80-120	0	20



Date of Report: December 28, 2018
 Samples Submitted: December 18, 2018
 Laboratory Reference: 1812-188
 Project: 17-06520-000

cPAHs EPA 8270D/SIM

Matrix: Soil
 Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW10-4					
Laboratory ID:	12-188-01					
Benzo[a]anthracene	0.012	0.0097	EPA 8270D/SIM	12-20-18	12-21-18	
Chrysene	0.022	0.0097	EPA 8270D/SIM	12-20-18	12-21-18	
Benzo[b]fluoranthene	0.021	0.0097	EPA 8270D/SIM	12-20-18	12-21-18	
Benzo(j,k)fluoranthene	ND	0.0097	EPA 8270D/SIM	12-20-18	12-21-18	
Benzo[a]pyrene	0.016	0.0097	EPA 8270D/SIM	12-20-18	12-21-18	
Indeno(1,2,3-c,d)pyrene	0.012	0.0097	EPA 8270D/SIM	12-20-18	12-21-18	
Dibenz[a,h]anthracene	ND	0.0097	EPA 8270D/SIM	12-20-18	12-21-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>2-Fluorobiphenyl</i>	<i>87</i>	<i>40 - 117</i>				
<i>Pyrene-d10</i>	<i>82</i>	<i>38 - 119</i>				
<i>Terphenyl-d14</i>	<i>79</i>	<i>47 - 135</i>				



Date of Report: December 28, 2018
 Samples Submitted: December 18, 2018
 Laboratory Reference: 1812-188
 Project: 17-06520-000

cPAHs EPA 8270D/SIM

Matrix: Soil
 Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW11-4					
Laboratory ID:	12-188-03					
Benzo[a]anthracene	0.040	0.0078	EPA 8270D/SIM	12-20-18	12-21-18	
Chrysene	0.051	0.0078	EPA 8270D/SIM	12-20-18	12-21-18	
Benzo[b]fluoranthene	0.060	0.0078	EPA 8270D/SIM	12-20-18	12-21-18	
Benzo(j,k)fluoranthene	0.020	0.0078	EPA 8270D/SIM	12-20-18	12-21-18	
Benzo[a]pyrene	0.049	0.0078	EPA 8270D/SIM	12-20-18	12-21-18	
Indeno(1,2,3-c,d)pyrene	0.037	0.0078	EPA 8270D/SIM	12-20-18	12-21-18	
Dibenz[a,h]anthracene	0.0088	0.0078	EPA 8270D/SIM	12-20-18	12-21-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>2-Fluorobiphenyl</i>	<i>79</i>	<i>40 - 117</i>				
<i>Pyrene-d10</i>	<i>76</i>	<i>38 - 119</i>				
<i>Terphenyl-d14</i>	<i>72</i>	<i>47 - 135</i>				



Date of Report: December 28, 2018
 Samples Submitted: December 18, 2018
 Laboratory Reference: 1812-188
 Project: 17-06520-000

cPAHs EPA 8270D/SIM

Matrix: Soil
 Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW12-3					
Laboratory ID:	12-188-05					
Benzo[a]anthracene	ND	0.0089	EPA 8270D/SIM	12-20-18	12-21-18	
Chrysene	ND	0.0089	EPA 8270D/SIM	12-20-18	12-21-18	
Benzo[b]fluoranthene	ND	0.0089	EPA 8270D/SIM	12-20-18	12-21-18	
Benzo(j,k)fluoranthene	ND	0.0089	EPA 8270D/SIM	12-20-18	12-21-18	
Benzo[a]pyrene	ND	0.0089	EPA 8270D/SIM	12-20-18	12-21-18	
Indeno(1,2,3-c,d)pyrene	ND	0.0089	EPA 8270D/SIM	12-20-18	12-21-18	
Dibenz[a,h]anthracene	ND	0.0089	EPA 8270D/SIM	12-20-18	12-21-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>2-Fluorobiphenyl</i>	<i>88</i>	<i>40 - 117</i>				
<i>Pyrene-d10</i>	<i>85</i>	<i>38 - 119</i>				
<i>Terphenyl-d14</i>	<i>83</i>	<i>47 - 135</i>				



Date of Report: December 28, 2018
 Samples Submitted: December 18, 2018
 Laboratory Reference: 1812-188
 Project: 17-06520-000

**cPAHs EPA 8270D/SIM
 METHOD BLANK QUALITY CONTROL**

Matrix: Soil
 Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID: MB1220S1						
Benzo[a]anthracene	ND	0.0067	EPA 8270D/SIM	12-20-18	12-21-18	
Chrysene	ND	0.0067	EPA 8270D/SIM	12-20-18	12-21-18	
Benzo[b]fluoranthene	ND	0.0067	EPA 8270D/SIM	12-20-18	12-21-18	
Benzo[j,k]fluoranthene	ND	0.0067	EPA 8270D/SIM	12-20-18	12-21-18	
Benzo[a]pyrene	ND	0.0067	EPA 8270D/SIM	12-20-18	12-21-18	
Indeno(1,2,3-c,d)pyrene	ND	0.0067	EPA 8270D/SIM	12-20-18	12-21-18	
Dibenz[a,h]anthracene	ND	0.0067	EPA 8270D/SIM	12-20-18	12-21-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>2-Fluorobiphenyl</i>	<i>94</i>	<i>40 - 117</i>				
<i>Pyrene-d10</i>	<i>90</i>	<i>38 - 119</i>				
<i>Terphenyl-d14</i>	<i>89</i>	<i>47 - 135</i>				



Date of Report: December 28, 2018
 Samples Submitted: December 18, 2018
 Laboratory Reference: 1812-188
 Project: 17-06520-000

**cPAHs EPA 8270D/SIM
 MS/MSD QUALITY CONTROL**

Matrix: Soil
 Units: mg/Kg

Analyte	Result		Spike Level		Source Result	Percent Recovery	Recovery Limits		RPD	RPD Limit	Flags
MATRIX SPIKES											
Laboratory ID:	12-188-05										
	MS	MSD	MS	MSD		MS	MSD				
Benzo[a]anthracene	0.0799	0.0804	0.0833	0.0833	ND	96	97	55 - 132	1	20	
Chrysene	0.0742	0.0742	0.0833	0.0833	ND	89	89	51 - 126	0	20	
Benzo[b]fluoranthene	0.0781	0.0748	0.0833	0.0833	ND	94	90	45 - 133	4	21	
Benzo(j,k)fluoranthene	0.0710	0.0751	0.0833	0.0833	ND	85	90	49 - 131	6	24	
Benzo[a]pyrene	0.0823	0.0827	0.0833	0.0833	ND	99	99	50 - 127	0	21	
Indeno(1,2,3-c,d)pyrene	0.0771	0.0780	0.0833	0.0833	ND	93	94	45 - 133	1	22	
Dibenz[a,h]anthracene	0.0698	0.0716	0.0833	0.0833	ND	84	86	46 - 132	3	20	
Surrogate:											
2-Fluorobiphenyl						78	86	40 - 117			
Pyrene-d10						80	81	38 - 119			
Terphenyl-d14						78	78	47 - 135			



Date of Report: December 28, 2018
Samples Submitted: December 18, 2018
Laboratory Reference: 1812-188
Project: 17-06520-000

% MOISTURE

Date Analyzed: 12-19-18

Client ID	Lab ID	% Moisture
MW10-4	12-188-01	31
MW11-4	12-188-03	14
MW12-3	12-188-05	25





Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
- B - The analyte indicated was also found in the blank sample.
- C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
- E - The value reported exceeds the quantitation range and is an estimate.
- F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
- H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
- I - Compound recovery is outside of the control limits.
- J - The value reported was below the practical quantitation limit. The value is an estimate.
- K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
- L - The RPD is outside of the control limits.
- M - Hydrocarbons in the gasoline range are impacting the diesel range result.
- M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
- N - Hydrocarbons in the lube oil range are impacting the diesel range result.
- N1 - Hydrocarbons in diesel range are impacting lube oil range results.
- O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
- P - The RPD of the detected concentrations between the two columns is greater than 40.
- Q - Surrogate recovery is outside of the control limits.
- S - Surrogate recovery data is not available due to the necessary dilution of the sample.
- T - The sample chromatogram is not similar to a typical _____.
- U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- U1 - The practical quantitation limit is elevated due to interferences present in the sample.
- V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
- W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
- X - Sample extract treated with a mercury cleanup procedure.
- X1 - Sample extract treated with a sulfuric acid/silica gel cleanup procedure.
- Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.
- Z - The sample chromatogram is similar to mineral spirits with diesel.

ND - Not Detected at PQL
 PQL - Practical Quantitation Limit
 RPD - Relative Percent Difference



Chain of Custody

Company: **HERRERA**
Project Number: **17-06520-000**
Project Name: **Pacific Park**
Project Manager: **Mark Eubank**
Sampled by: **G. Ifner**

**Turnaround Request
(in working days)**

(Select One)

- ☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days)
☐ _____ (other)

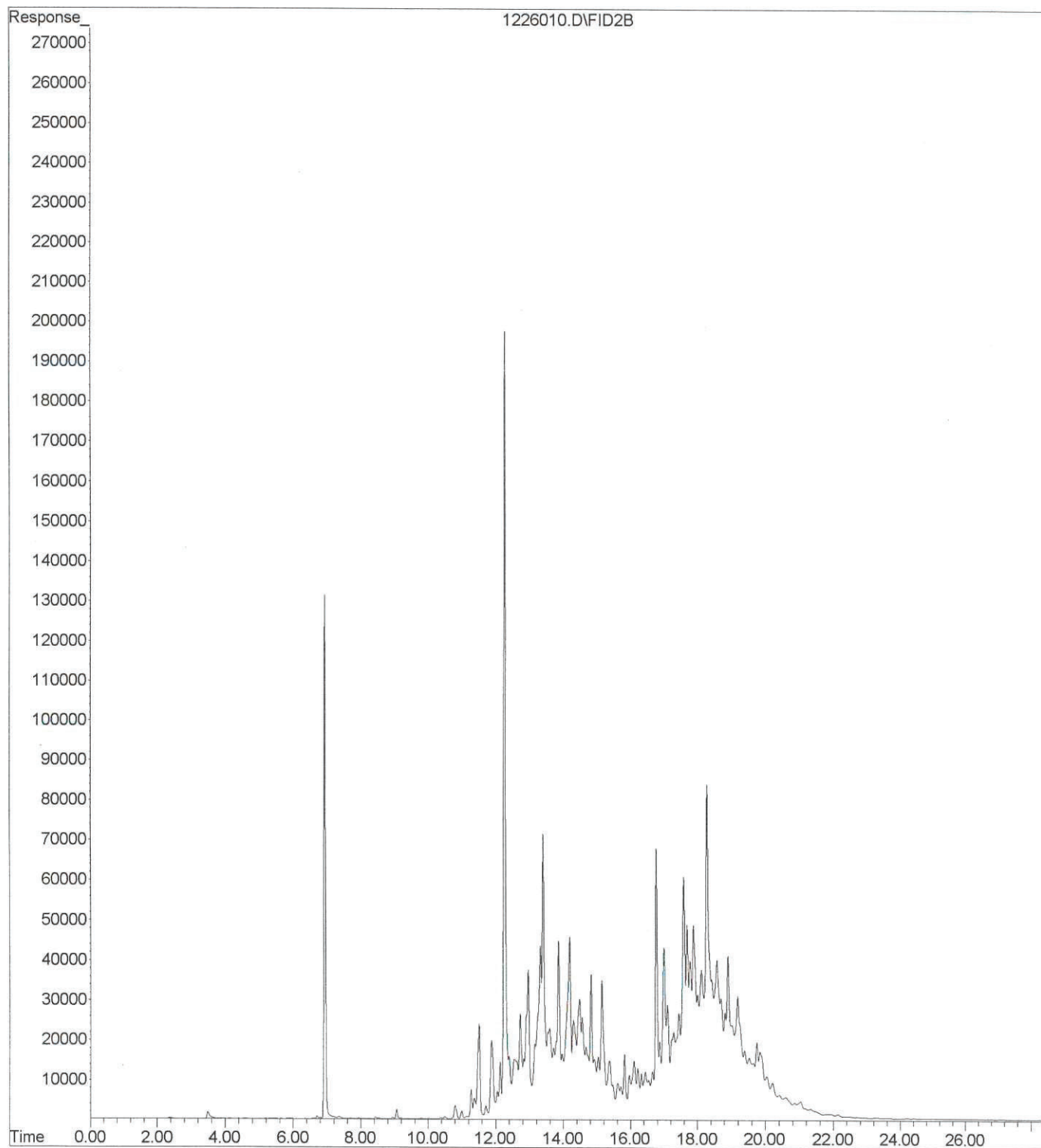
Number of Containers

Laboratory Number: **12-188**

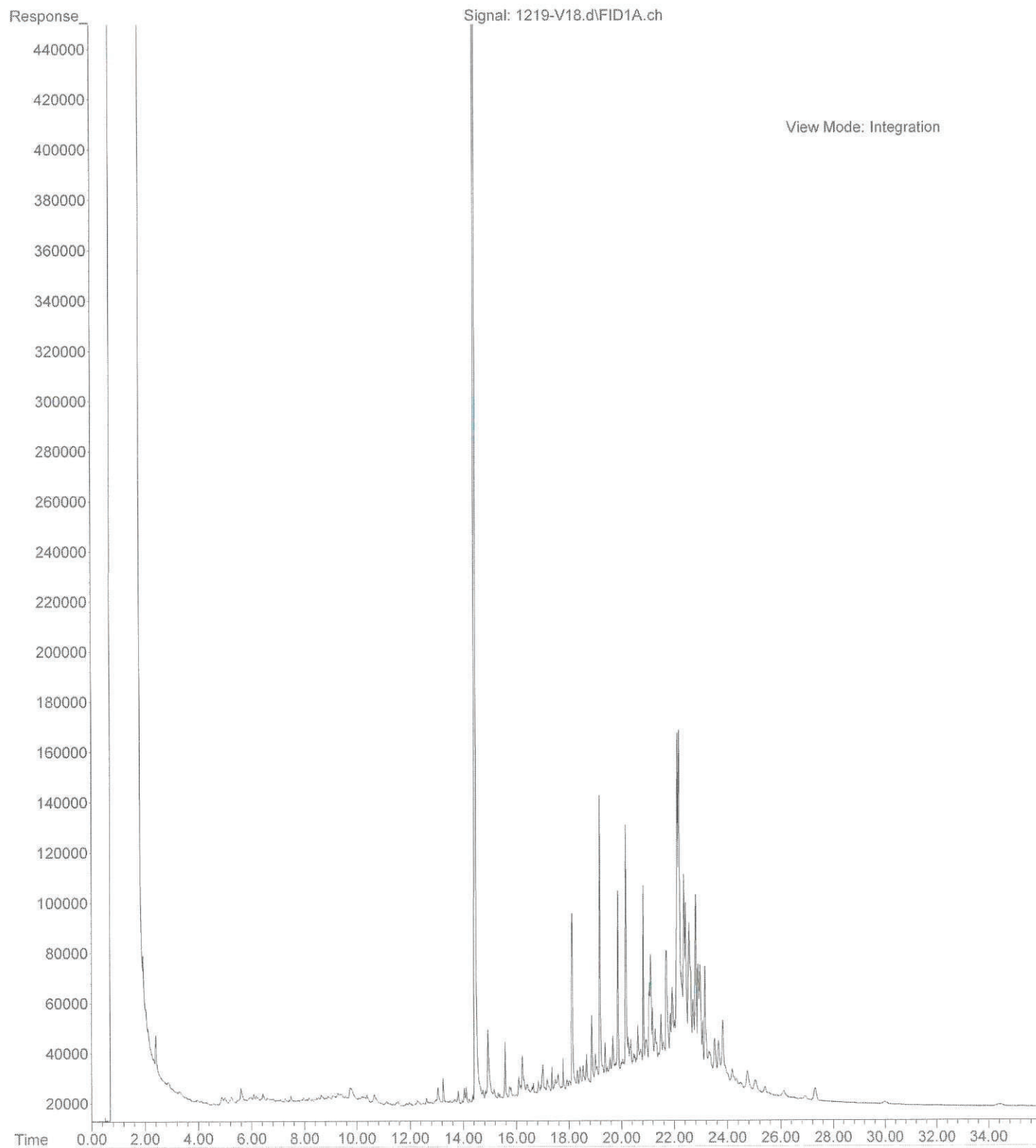
Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number	NWTPH	NWTPH	NWTPH	NWTPH	Volatiles	Halogen	EDB	Semivolatile (with 16 PAHs & PCBs)	Organochlorine	Organophosphate	Chlorinated	Total R	Total M	TCLP	HEM (C)	CPA	% Moisture	
1	MW10-4	12/17/18	8:55	Soil	2			✓	✓										✓		✓		b
2	MW10-7		9:10		2																		
3	MW11-4		10:45		2			✓	✓										✓		✓		b
4	MW11-6.5		11:00		2																		
5	MW12-3		14:00		2			✓	✓										✓		✓		b
6	MW12-14		14:30	✓	2																		
7	Trip Blank.	✓	X	Water	1																		

	Signature	Company	Date	Time	Comments/Special Instructions
Relinquished	<i>George Ifner</i>	Herrera	12/18/18	10:22	Hold all for PCB5, pending Do results. Hold MW10-7, MW11-6.5, MW12-14.
Received	<i>[Signature]</i>	COE	12/18/18	1207	
Relinquished					
Received					
Relinquished					
Received					Data Package: Standard <input type="checkbox"/> Level III <input type="checkbox"/> Level IV <input type="checkbox"/>
Reviewed/Date		Reviewed/Date			Chromatograms with final report <input type="checkbox"/> Electronic Data Deliverables (EDDs) <input type="checkbox"/>

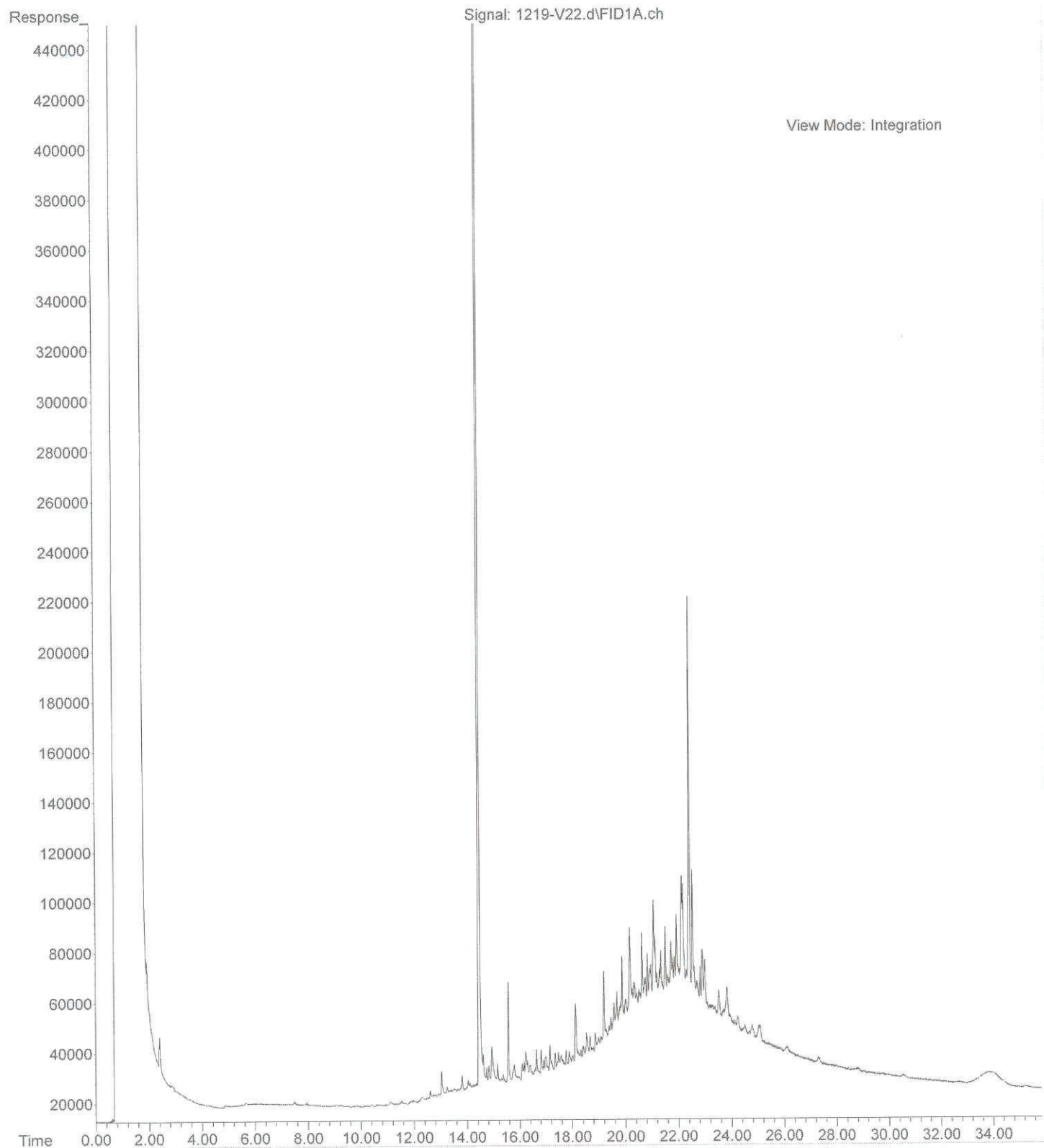
File : X:\BTEX\DARYL\DATA\D181226\1226010.D
Operator :
Acquired : 26 Dec 2018 16:21 using AcqMethod 181220G.M
Instrument : Daryl
Sample Name: 12-188-01s
Misc Info :
Vial Number: 10



File :C:\msdchem\2\data\V181219\1219-V18.d
Operator : JT
Acquired : 19 Dec 2018 19:08 using AcqMethod V180601F.M
Instrument : Vigo
Sample Name: 12-188-01
Misc Info :
Vial Number: 18



File :C:\msdchem\2\data\V181219\1219-V22.d
Operator : JT
Acquired : 19 Dec 2018 21:48 using AcqMethod V180601F.M
Instrument : Vigo
Sample Name: 12-188-03
Misc Info :
Vial Number: 22





**OnSite
Environmental Inc.**

14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

January 9, 2019

Mark Ewbank
Herrera Environmental Consultants, Inc.
2200 6th Avenue, Suite 1100
Seattle, WA 98121

Re: Analytical Data for Project 17-06520-000
Laboratory Reference No. 1812-188B

Dear Mark:

Enclosed are the analytical results and associated quality control data for samples submitted on December 18, 2018.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures



OnSite Environmental, Inc. 14648 NE 95th Street, Redmond, WA 98052 (425) 883-3881

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: January 9, 2019
Samples Submitted: December 18, 2018
Laboratory Reference: 1812-188B
Project: 17-06520-000

Case Narrative

Samples were collected on December 17, 2018 and received by the laboratory on December 18, 2018. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

NWTPH-Gx Analysis

Sample MW10-7 was extracted and analyzed outside of hold time.

NWTPH-Dx Analysis

Samples MW10-7 and MW11-6.5 were extracted and analyzed outside of hold time.

PAHs EPA 8270D/SIM Analysis

Sample MW11-6.5 was extracted and analyzed outside of hold time.

Please note that any other QA/QC issues associated with these extractions and analyses will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.



Date of Report: January 9, 2019
 Samples Submitted: December 18, 2018
 Laboratory Reference: 1812-188B
 Project: 17-06520-000

GASOLINE RANGE ORGANICS
NWTPH-Gx

Matrix: Soil
 Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW10-7					
Laboratory ID:	12-188-02					
Gasoline	ND	7.2	NWTPH-Gx	1-2-19	1-2-19	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Fluorobenzene</i>	85	57-129				



Date of Report: January 9, 2019
 Samples Submitted: December 18, 2018
 Laboratory Reference: 1812-188B
 Project: 17-06520-000

**GASOLINE RANGE ORGANICS
 NWTPH-Gx
 QUALITY CONTROL**

Matrix: Soil
 Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0102S1					
Gasoline	ND	5.0	NWTPH-Gx	1-2-19	1-2-19	
Surrogate:	Percent Recovery	Control Limits				
Fluorobenzene	87	57-129				

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	12-188-02							
	ORIG	DUP						
Gasoline	ND	ND	NA	NA	NA	NA	NA	30
Surrogate:								
Fluorobenzene				85	84	57-129		



Date of Report: January 9, 2019
 Samples Submitted: December 18, 2018
 Laboratory Reference: 1812-188B
 Project: 17-06520-000

DIESEL AND HEAVY OIL RANGE ORGANICS
NWTPH-Dx

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW10-7					
Laboratory ID:	12-188-02					
Diesel Range Organics	ND	29	NWTPH-Dx	1-3-19	1-3-19	
Lube Oil Range Organics	ND	59	NWTPH-Dx	1-3-19	1-3-19	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	71	50-150				
Client ID:	MW11-6.5					
Laboratory ID:	12-188-04					
Diesel Range Organics	ND	29	NWTPH-Dx	1-3-19	1-3-19	
Lube Oil Range Organics	ND	58	NWTPH-Dx	1-3-19	1-3-19	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	72	50-150				



Date of Report: January 9, 2019
 Samples Submitted: December 18, 2018
 Laboratory Reference: 1812-188B
 Project: 17-06520-000

**DIESEL AND HEAVY OIL RANGE ORGANICS
 NWTPH-Dx
 QUALITY CONTROL**

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0103S1					
Diesel Range Organics	ND	25	NWTPH-Dx	1-3-19	1-3-19	
Lube Oil Range Organics	ND	50	NWTPH-Dx	1-3-19	1-3-19	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	82	50-150				

Analyte	Result		Spike Level		Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE										
Laboratory ID:	12-250-33									
	ORIG	DUP								
Diesel Range	ND	ND	NA	NA		NA	NA	NA	NA	
Lube Oil Range Organics	77.5	66.6	NA	NA		NA	NA	15	NA	
Surrogate:										
o-Terphenyl						70	80	50-150		



Date of Report: January 9, 2019
 Samples Submitted: December 18, 2018
 Laboratory Reference: 1812-188B
 Project: 17-06520-000

PCBs EPA 8082A

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: MW10-4						
Laboratory ID: 12-188-01						
Aroclor 1016	ND	0.073	EPA 8082A	1-3-19	1-7-19	
Aroclor 1221	ND	0.073	EPA 8082A	1-3-19	1-7-19	
Aroclor 1232	ND	0.073	EPA 8082A	1-3-19	1-7-19	
Aroclor 1242	ND	0.073	EPA 8082A	1-3-19	1-7-19	
Aroclor 1248	ND	0.073	EPA 8082A	1-3-19	1-7-19	
Aroclor 1254	ND	0.073	EPA 8082A	1-3-19	1-7-19	
Aroclor 1260	ND	0.073	EPA 8082A	1-3-19	1-7-19	
Surrogate: DCB	Percent Recovery 84	Control Limits 39-130				
Client ID: MW10-7						
Laboratory ID: 12-188-02						
Aroclor 1016	ND	0.059	EPA 8082A	1-3-19	1-7-19	
Aroclor 1221	ND	0.059	EPA 8082A	1-3-19	1-7-19	
Aroclor 1232	ND	0.059	EPA 8082A	1-3-19	1-7-19	
Aroclor 1242	ND	0.059	EPA 8082A	1-3-19	1-7-19	
Aroclor 1248	ND	0.059	EPA 8082A	1-3-19	1-7-19	
Aroclor 1254	0.13	0.059	EPA 8082A	1-3-19	1-7-19	
Aroclor 1260	ND	0.059	EPA 8082A	1-3-19	1-7-19	
Surrogate: DCB	Percent Recovery 78	Control Limits 39-130				
Client ID: MW11-4						
Laboratory ID: 12-188-03						
Aroclor 1016	ND	0.058	EPA 8082A	1-3-19	1-7-19	
Aroclor 1221	ND	0.058	EPA 8082A	1-3-19	1-7-19	
Aroclor 1232	ND	0.058	EPA 8082A	1-3-19	1-7-19	
Aroclor 1242	ND	0.058	EPA 8082A	1-3-19	1-7-19	
Aroclor 1248	ND	0.058	EPA 8082A	1-3-19	1-7-19	
Aroclor 1254	ND	0.058	EPA 8082A	1-3-19	1-7-19	
Aroclor 1260	ND	0.058	EPA 8082A	1-3-19	1-7-19	
Surrogate: DCB	Percent Recovery 83	Control Limits 39-130				



Date of Report: January 9, 2019
 Samples Submitted: December 18, 2018
 Laboratory Reference: 1812-188B
 Project: 17-06520-000

PCBs EPA 8082A

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW11-6.5					
Laboratory ID:	12-188-04					
Aroclor 1016	ND	0.058	EPA 8082A	1-3-19	1-7-19	
Aroclor 1221	ND	0.058	EPA 8082A	1-3-19	1-7-19	
Aroclor 1232	ND	0.058	EPA 8082A	1-3-19	1-7-19	
Aroclor 1242	ND	0.058	EPA 8082A	1-3-19	1-7-19	
Aroclor 1248	ND	0.058	EPA 8082A	1-3-19	1-7-19	
Aroclor 1254	ND	0.058	EPA 8082A	1-3-19	1-7-19	
Aroclor 1260	ND	0.058	EPA 8082A	1-3-19	1-7-19	
Surrogate:	Percent Recovery	Control Limits				
DCB	83	39-130				



Date of Report: January 9, 2019
 Samples Submitted: December 18, 2018
 Laboratory Reference: 1812-188B
 Project: 17-06520-000

**PCBs EPA 8082A
 QUALITY CONTROL**

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0103S1					
Aroclor 1016	ND	0.050	EPA 8082A	1-3-19	1-3-19	
Aroclor 1221	ND	0.050	EPA 8082A	1-3-19	1-3-19	
Aroclor 1232	ND	0.050	EPA 8082A	1-3-19	1-3-19	
Aroclor 1242	ND	0.050	EPA 8082A	1-3-19	1-3-19	
Aroclor 1248	ND	0.050	EPA 8082A	1-3-19	1-3-19	
Aroclor 1254	ND	0.050	EPA 8082A	1-3-19	1-3-19	
Aroclor 1260	ND	0.050	EPA 8082A	1-3-19	1-3-19	
Surrogate:	Percent Recovery	Control Limits				
DCB	91	39-130				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES											
Laboratory ID:	12-249-01										
	MS	MSD	MS	MSD		MS	MSD				
Aroclor 1260	0.341	0.317	0.500	0.500	ND	68	63	45-118	7	15	
Surrogate:											
DCB						65	64	39-130			



Date of Report: January 9, 2019
Samples Submitted: December 18, 2018
Laboratory Reference: 1812-188B
Project: 17-06520-000

**TOTAL METALS
EPA 6010D/7471B**

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW11-6.5					
Laboratory ID:	12-188-04					
Arsenic	ND	12	EPA 6010D	1-3-19	1-3-19	
Cadmium	ND	0.58	EPA 6010D	1-3-19	1-3-19	
Chromium	9.9	0.58	EPA 6010D	1-3-19	1-3-19	
Lead	ND	5.8	EPA 6010D	1-3-19	1-3-19	
Mercury	ND	0.29	EPA 7471B	1-4-19	1-4-19	



Date of Report: January 9, 2019
 Samples Submitted: December 18, 2018
 Laboratory Reference: 1812-188B
 Project: 17-06520-000

**TOTAL METALS
 EPA 6010D/7471B
 QUALITY CONTROL**

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0103SM1					
Arsenic	ND	10	EPA 6010D	1-3-19	1-3-19	
Cadmium	ND	0.50	EPA 6010D	1-3-19	1-3-19	
Chromium	ND	0.50	EPA 6010D	1-3-19	1-3-19	
Lead	ND	5.0	EPA 6010D	1-3-19	1-3-19	

Laboratory ID:	MB0104S1					
Mercury	ND	0.25	EPA 7471B	1-4-19	1-4-19	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	12-255-13							
	ORIG	DUP						
Arsenic	ND	ND	NA	NA	NA	NA	20	
Cadmium	ND	ND	NA	NA	NA	NA	20	
Chromium	34.1	31.6	NA	NA	NA	8	20	
Lead	ND	ND	NA	NA	NA	NA	20	

Laboratory ID:	12-255-13							
Mercury	ND	ND	NA	NA	NA	NA	20	

MATRIX SPIKES

Laboratory ID:	12-255-13									
	MS	MSD	MS	MSD		MS	MSD			
Arsenic	97.4	97.6	100	100	ND	97	98	75-125	0	20
Cadmium	44.5	45.8	50.0	50.0	ND	89	92	75-125	3	20
Chromium	127	129	100	100	34.1	93	95	75-125	1	20
Lead	224	229	250	250	ND	90	92	75-125	2	20

Laboratory ID:	12-255-13									
Mercury	0.530	0.524	0.500	0.500	0.0150	103	102	80-120	1	20



Date of Report: January 9, 2019
 Samples Submitted: December 18, 2018
 Laboratory Reference: 1812-188B
 Project: 17-06520-000

cPAHs EPA 8270D/SIM

Matrix: Soil
 Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW11-6.5					
Laboratory ID:	12-188-04					
Benzo[a]anthracene	ND	0.0078	EPA 8270D/SIM	1-4-19	1-7-19	
Chrysene	ND	0.0078	EPA 8270D/SIM	1-4-19	1-7-19	
Benzo[b]fluoranthene	0.020	0.0078	EPA 8270D/SIM	1-4-19	1-7-19	
Benzo(j,k)fluoranthene	ND	0.0078	EPA 8270D/SIM	1-4-19	1-7-19	
Benzo[a]pyrene	0.065	0.0078	EPA 8270D/SIM	1-4-19	1-7-19	
Indeno(1,2,3-c,d)pyrene	0.037	0.0078	EPA 8270D/SIM	1-4-19	1-7-19	
Dibenz[a,h]anthracene	0.0084	0.0078	EPA 8270D/SIM	1-4-19	1-7-19	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>2-Fluorobiphenyl</i>	<i>92</i>	<i>40 - 117</i>				
<i>Pyrene-d10</i>	<i>98</i>	<i>38 - 119</i>				
<i>Terphenyl-d14</i>	<i>89</i>	<i>47 - 135</i>				



Date of Report: January 9, 2019
 Samples Submitted: December 18, 2018
 Laboratory Reference: 1812-188B
 Project: 17-06520-000

cPAHs EPA 8270D/SIM
METHOD BLANK QUALITY CONTROL

Matrix: Soil
 Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID: MB0104S1						
Benzo[a]anthracene	ND	0.0067	EPA 8270D/SIM	1-4-19	1-4-19	
Chrysene	ND	0.0067	EPA 8270D/SIM	1-4-19	1-4-19	
Benzo[b]fluoranthene	ND	0.0067	EPA 8270D/SIM	1-4-19	1-4-19	
Benzo(j,k)fluoranthene	ND	0.0067	EPA 8270D/SIM	1-4-19	1-4-19	
Benzo[a]pyrene	ND	0.0067	EPA 8270D/SIM	1-4-19	1-4-19	
Indeno(1,2,3-c,d)pyrene	ND	0.0067	EPA 8270D/SIM	1-4-19	1-4-19	
Dibenz[a,h]anthracene	ND	0.0067	EPA 8270D/SIM	1-4-19	1-4-19	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>2-Fluorobiphenyl</i>	<i>91</i>	<i>40 - 117</i>				
<i>Pyrene-d10</i>	<i>83</i>	<i>38 - 119</i>				
<i>Terphenyl-d14</i>	<i>80</i>	<i>47 - 135</i>				



Date of Report: January 9, 2019
 Samples Submitted: December 18, 2018
 Laboratory Reference: 1812-188B
 Project: 17-06520-000

cPAHs EPA 8270D/SIM
MS/MSD QUALITY CONTROL

Matrix: Soil
 Units: mg/Kg

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES											
Laboratory ID:	12-268-07										
	MS	MSD	MS	MSD		MS	MSD				
Benzo[a]anthracene	0.0569	0.0597	0.0833	0.0833	ND	68	72	55 - 132	5	20	
Chrysene	0.0548	0.0571	0.0833	0.0833	ND	66	69	51 - 126	4	20	
Benzo[b]fluoranthene	0.0609	0.0608	0.0833	0.0833	ND	73	73	45 - 133	0	21	
Benzo(j,k)fluoranthene	0.0585	0.0626	0.0833	0.0833	ND	70	75	49 - 131	7	24	
Benzo[a]pyrene	0.0649	0.0667	0.0833	0.0833	ND	78	80	50 - 127	3	21	
Indeno(1,2,3-c,d)pyrene	0.0582	0.0606	0.0833	0.0833	ND	70	73	45 - 133	4	22	
Dibenz[a,h]anthracene	0.0565	0.0586	0.0833	0.0833	ND	68	70	46 - 132	4	20	
Surrogate:											
2-Fluorobiphenyl						69	75	40 - 117			
Pyrene-d10						61	65	38 - 119			
Terphenyl-d14						58	61	47 - 135			



Date of Report: January 9, 2019
Samples Submitted: December 18, 2018
Laboratory Reference: 1812-188B
Project: 17-06520-000

% MOISTURE

Date Analyzed: 1-3-19

Client ID	Lab ID	% Moisture
MW10-7	12-188-02	15
MW11-6.5	12-188-04	14





Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
- B - The analyte indicated was also found in the blank sample.
- C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
- E - The value reported exceeds the quantitation range and is an estimate.
- F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
- H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
- I - Compound recovery is outside of the control limits.
- J - The value reported was below the practical quantitation limit. The value is an estimate.
- K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
- L - The RPD is outside of the control limits.
- M - Hydrocarbons in the gasoline range are impacting the diesel range result.
- M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
- N - Hydrocarbons in the lube oil range are impacting the diesel range result.
- N1 - Hydrocarbons in diesel range are impacting lube oil range results.
- O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
- P - The RPD of the detected concentrations between the two columns is greater than 40.
- Q - Surrogate recovery is outside of the control limits.
- S - Surrogate recovery data is not available due to the necessary dilution of the sample.
- T - The sample chromatogram is not similar to a typical _____.
- U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- U1 - The practical quantitation limit is elevated due to interferences present in the sample.
- V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
- W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
- X - Sample extract treated with a mercury cleanup procedure.
- X1 - Sample extract treated with a sulfuric acid/silica gel cleanup procedure.
- Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.
- Z -
- ND - Not Detected at PQL
- PQL - Practical Quantitation Limit
- RPD - Relative Percent Difference



Chain of Custody

Company: HERRERA

Project Number: 17-06520-000

Project Name: Pacific Park

Project Manager: Mark Eubank

Sampled by: G. Ifner

**Turnaround Request
(in working days)**

(Check One)

☐ Same Day ☐ 1 Day

☐ 2 Days ☐ 3 Days

☒ Standard (7 Days)

☐ _____ (other)

Laboratory Number: 12-188

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number	NWTP	NWTP	NWTP	NWTP	Volatiles	Halogen	EDB/E	Semiv (with h	PAHs	PCBs	Organ	Organ	Chlori	Total F	Total N	TCLP	HEM	cPA	% Mo
1	MW10-4	12/17/18	8:55	Soil	2			✓	✓						(X)					✓			✓	
2	MW10-7		9:10		2			(X)	(X)						(X)									(X)
3	MW11-4		10:45		2			✓	✓						(X)					✓			✓	
4	MW11-6.5		11:00		2				(X)						(X)					(X)			(X)	(X)
5	MW12-3		14:00		2			✓	✓											✓			✓	
6	MW12-14		14:30	↓	2																			
7	Trip Blank.	↓	X	Water	1																			

Signature	Company	Date	Time	Comments/Special Instructions
<u>George Ifner</u>	<u>Herrera</u>	<u>12/18/18</u>	<u>10:22</u>	Hold all for PCB5, pending Do results. Hold MW10-7, MW11-6.5, MW12-14. (X) added 12/18. DB (STA)
<u>[Signature]</u>	<u>ODE</u>	<u>12/18/18</u>	<u>1207</u>	
Relinquished				Data Package: Standard <input type="checkbox"/> Level III <input type="checkbox"/> Level IV <input type="checkbox"/>
Received				Chromatograms with final report <input type="checkbox"/> Electronic Data Deliverables (EDDs) <input type="checkbox"/>
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date	Reviewed/Date			



14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

January 3, 2019

George Iftner
Herrera Environmental Consultants, Inc.
2200 6th Avenue, Suite 1100
Seattle, WA 98121

Re: Analytical Data for Project 17-06520-000
Laboratory Reference No. 1812-229

Dear George:

Enclosed are the analytical results and associated quality control data for samples submitted on December 21, 2018.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read 'DB', with a long horizontal flourish extending to the right.

David Baumeister
Project Manager

Enclosures



OnSite Environmental, Inc. 14648 NE 95th Street, Redmond, WA 98052 (425) 883-3881

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: January 3, 2019
Samples Submitted: December 21, 2018
Laboratory Reference: 1812-229
Project: 17-06520-000

Case Narrative

Samples were collected on December 20, 2018 and received by the laboratory on December 21, 2018. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Total Metals EPA 6010D/7471B Analysis

The duplicate RPD for Lead is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-229
 Project: 17-06520-000

GASOLINE RANGE ORGANICS
NWTPH-Gx

Matrix: Soil
 Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	PP35-4					
Laboratory ID:	12-229-01					
Gasoline	ND	4.1	NWTPH-Gx	12-26-18	12-26-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Fluorobenzene</i>	78	57-129				
Client ID:	PP36-5					
Laboratory ID:	12-229-03					
Gasoline	ND	7.0	NWTPH-Gx	12-26-18	12-26-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Fluorobenzene</i>	80	57-129				
Client ID:	PP36-1					
Laboratory ID:	12-229-04					
Gasoline	ND	5.5	NWTPH-Gx	12-26-18	12-26-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Fluorobenzene</i>	85	57-129				
Client ID:	PP37-1.5					
Laboratory ID:	12-229-05					
Gasoline	ND	6.3	NWTPH-Gx	12-26-18	12-26-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Fluorobenzene</i>	75	57-129				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-229
 Project: 17-06520-000

**GASOLINE RANGE ORGANICS
 NWTPH-Gx
 QUALITY CONTROL**

Matrix: Soil
 Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1226S2					
Gasoline	ND	5.0	NWTPH-Gx	12-26-18	12-26-18	
Surrogate:	Percent Recovery	Control Limits				
Fluorobenzene	77	57-129				

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	12-228-01							
	ORIG	DUP						
Gasoline	ND	ND	NA	NA	NA	NA	30	
Surrogate:								
Fluorobenzene				75	68	57-129		



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-229
 Project: 17-06520-000

**DIESEL AND HEAVY OIL RANGE ORGANICS
 NWTPH-Dx**

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	PP35-4					
Laboratory ID:	12-229-01					
Diesel Range Organics	ND	120	NWTPH-Dx	12-26-18	12-26-18	U1
Lube Oil	730	58	NWTPH-Dx	12-26-18	12-26-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	<i>84</i>	<i>50-150</i>				

Client ID:	PP36-5					
Laboratory ID:	12-229-03					
Diesel Range Organics	ND	42	NWTPH-Dx	12-26-18	12-26-18	U1
Lube Oil	670	63	NWTPH-Dx	12-26-18	12-26-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	<i>83</i>	<i>50-150</i>				

Client ID:	PP36-1					
Laboratory ID:	12-229-04					
Diesel Range Organics	ND	30	NWTPH-Dx	12-26-18	12-26-18	
Lube Oil	190	60	NWTPH-Dx	12-26-18	12-26-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	<i>94</i>	<i>50-150</i>				

Client ID:	PP37-1.5					
Laboratory ID:	12-229-05					
Diesel Range Organics	29	28	NWTPH-Dx	12-26-18	12-26-18	
Lube Oil Range Organics	ND	57	NWTPH-Dx	12-26-18	12-26-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	<i>87</i>	<i>50-150</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-229
 Project: 17-06520-000

**DIESEL AND HEAVY OIL RANGE ORGANICS
 NWTPH-Dx
 QUALITY CONTROL**

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1226S1					
Diesel Range Organics	ND	25	NWTPH-Dx	12-26-18	12-26-18	
Lube Oil Range Organics	ND	50	NWTPH-Dx	12-26-18	12-26-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	90	50-150				

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	12-222-02							
	ORIG	DUP						
Diesel Range Organics	35.3	29.7	NA	NA	NA	NA	17	NA
Lube Oil Range	ND	ND	NA	NA	NA	NA	NA	NA
<i>Surrogate:</i>								
<i>o-Terphenyl</i>				90	87	50-150		



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-229
 Project: 17-06520-000

**TOTAL METALS
 EPA 6010D/7471B**

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: PP35-4						
Laboratory ID: 12-229-01						
Arsenic	ND	12	EPA 6010D	12-26-18	12-26-18	
Cadmium	1.3	0.58	EPA 6010D	12-26-18	12-26-18	
Chromium	38	0.58	EPA 6010D	12-26-18	12-26-18	
Lead	580	5.8	EPA 6010D	12-26-18	12-26-18	
Mercury	0.31	0.29	EPA 7471B	12-26-18	12-26-18	

Client ID: PP36-5						
Laboratory ID: 12-229-03						
Arsenic	ND	13	EPA 6010D	12-26-18	12-26-18	
Cadmium	ND	0.63	EPA 6010D	12-26-18	12-26-18	
Chromium	36	0.63	EPA 6010D	12-26-18	12-26-18	
Lead	11	6.3	EPA 6010D	12-26-18	12-26-18	
Mercury	ND	0.32	EPA 7471B	12-26-18	12-26-18	

Client ID: PP36-1						
Laboratory ID: 12-229-04						
Arsenic	ND	12	EPA 6010D	12-26-18	12-26-18	
Cadmium	ND	0.60	EPA 6010D	12-26-18	12-26-18	
Chromium	38	0.60	EPA 6010D	12-26-18	12-26-18	
Lead	9.9	6.0	EPA 6010D	12-26-18	12-26-18	
Mercury	ND	0.30	EPA 7471B	12-26-18	12-26-18	

Client ID: PP37-1.5						
Laboratory ID: 12-229-05						
Arsenic	ND	11	EPA 6010D	12-26-18	12-26-18	
Cadmium	ND	0.57	EPA 6010D	12-26-18	12-26-18	
Chromium	21	0.57	EPA 6010D	12-26-18	12-26-18	
Lead	10	5.7	EPA 6010D	12-26-18	12-26-18	
Mercury	ND	0.28	EPA 7471B	12-26-18	12-26-18	



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-229
 Project: 17-06520-000

**TOTAL METALS
 EPA 6010D/7471B
 QUALITY CONTROL**

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1226SM2					
Arsenic	ND	10	EPA 6010D	12-26-18	12-26-18	
Cadmium	ND	0.50	EPA 6010D	12-26-18	12-26-18	
Chromium	ND	0.50	EPA 6010D	12-26-18	12-26-18	
Lead	ND	5.0	EPA 6010D	12-26-18	12-26-18	

Laboratory ID:	MB1226S1					
Mercury	ND	0.25	EPA 7471B	12-26-18	12-26-18	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	12-228-02							
	ORIG	DUP						
Arsenic	16.0	14.5	NA	NA	NA	NA	10	20
Cadmium	ND	ND	NA	NA	NA	NA	NA	20
Chromium	42.1	34.7	NA	NA	NA	NA	19	20
Lead	33.9	24.6	NA	NA	NA	NA	32	20 K

Laboratory ID:	12-195-01							
Mercury	ND	ND	NA	NA	NA	NA	NA	20

MATRIX SPIKES

Laboratory ID:	12-228-02									
	MS	MSD	MS	MSD		MS	MSD			
Arsenic	104	110	100	100	16.0	88	94	75-125	6	20
Cadmium	44.9	44.8	50.0	50.0	ND	90	90	75-125	0	20
Chromium	137	153	100	100	42.1	95	111	75-125	11	20
Lead	272	251	250	250	33.9	95	87	75-125	8	20

Laboratory ID:	12-195-01									
Mercury	0.521	0.524	0.500	0.500	0.0100	102	103	80-120	1	20



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-229
 Project: 17-06520-000

TCLP METALS
EPA 1311/6010D/7470A

Matrix: TCLP Extract
 Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	PP36-1					
Laboratory ID:	12-229-04					
Arsenic	ND	0.40	EPA 6010D	1-3-19	1-3-19	
Barium	0.33	0.20	EPA 6010D	1-3-19	1-3-19	
Cadmium	ND	0.020	EPA 6010D	1-3-19	1-3-19	
Chromium	ND	0.020	EPA 6010D	1-3-19	1-3-19	
Lead	ND	0.20	EPA 6010D	1-3-19	1-3-19	
Mercury	ND	0.0050	EPA 7470A	1-3-19	1-3-19	
Selenium	ND	0.40	EPA 6010D	1-3-19	1-3-19	
Silver	ND	0.040	EPA 6010D	1-3-19	1-3-19	



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-229
 Project: 17-06520-000

TCLP METALS
EPA 1311/6010D/7470A
QUALITY CONTROL

Matrix: TCLP Extract
 Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0103TM1					
Arsenic	ND	0.40	EPA 6010D	1-3-19	1-3-19	
Barium	ND	0.20	EPA 6010D	1-3-19	1-3-19	
Cadmium	ND	0.020	EPA 6010D	1-3-19	1-3-19	
Chromium	ND	0.020	EPA 6010D	1-3-19	1-3-19	
Lead	ND	0.20	EPA 6010D	1-3-19	1-3-19	
Selenium	ND	0.40	EPA 6010D	1-3-19	1-3-19	
Silver	ND	0.040	EPA 6010D	1-3-19	1-3-19	

Laboratory ID:	MB0103T1					
Mercury	ND	0.0050	EPA 7470A	1-3-19	1-3-19	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	12-229-04							
	ORIG	DUP						
Arsenic	ND	ND	NA	NA	NA	NA	20	
Barium	0.326	0.322	NA	NA	NA	1	20	
Cadmium	ND	ND	NA	NA	NA	NA	20	
Chromium	ND	ND	NA	NA	NA	NA	20	
Lead	ND	ND	NA	NA	NA	NA	20	
Selenium	ND	ND	NA	NA	NA	NA	20	
Silver	ND	ND	NA	NA	NA	NA	20	

Laboratory ID:	12-229-04							
Mercury	ND	ND	NA	NA	NA	NA	20	

MATRIX SPIKES

Laboratory ID:	12-229-04									
	MS	MSD	MS	MSD		MS	MSD			
Arsenic	3.93	4.22	4.00	4.00	ND	98	105	75-125	7	20
Barium	4.13	4.13	4.00	4.00	0.326	95	95	75-125	0	20
Cadmium	1.86	1.87	2.00	2.00	ND	93	94	75-125	1	20
Chromium	3.96	3.99	4.00	4.00	ND	99	100	75-125	1	20
Lead	9.31	9.32	10.0	10.0	ND	93	93	75-125	0	20
Selenium	4.31	4.17	4.00	4.00	ND	108	104	75-125	3	20
Silver	0.932	0.938	1.00	1.00	ND	93	94	75-125	1	20

Laboratory ID:	12-229-04									
Mercury	0.0469	0.0460	0.0500	0.0500	ND	94	92	75-125	2	20



OnSite Environmental, Inc. 14648 NE 95th Street, Redmond, WA 98052 (425) 883-3881

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-229
 Project: 17-06520-000

cPAHs EPA 8270D/SIM

Matrix: Soil
 Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	PP35-4					
Laboratory ID:	12-229-01					
Benzo[a]anthracene	0.19	0.0077	EPA 8270D/SIM	12-27-18	12-27-18	
Chrysene	0.24	0.0077	EPA 8270D/SIM	12-27-18	12-27-18	
Benzo[b]fluoranthene	0.38	0.0077	EPA 8270D/SIM	12-27-18	12-27-18	
Benzo(j,k)fluoranthene	0.11	0.0077	EPA 8270D/SIM	12-27-18	12-27-18	
Benzo[a]pyrene	0.35	0.0077	EPA 8270D/SIM	12-27-18	12-27-18	
Indeno(1,2,3-c,d)pyrene	0.26	0.0077	EPA 8270D/SIM	12-27-18	12-27-18	
Dibenz[a,h]anthracene	0.053	0.0077	EPA 8270D/SIM	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>2-Fluorobiphenyl</i>	<i>60</i>	<i>40 - 117</i>				
<i>Pyrene-d10</i>	<i>62</i>	<i>38 - 119</i>				
<i>Terphenyl-d14</i>	<i>58</i>	<i>47 - 135</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-229
 Project: 17-06520-000

cPAHs EPA 8270D/SIM

Matrix: Soil
 Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	PP36-5					
Laboratory ID:	12-229-03					
Benzo[a]anthracene	ND	0.017	EPA 8270D/SIM	12-27-18	12-27-18	
Chrysene	0.026	0.017	EPA 8270D/SIM	12-27-18	12-27-18	
Benzo[b]fluoranthene	0.020	0.017	EPA 8270D/SIM	12-27-18	12-27-18	
Benzo(j,k)fluoranthene	ND	0.017	EPA 8270D/SIM	12-27-18	12-27-18	
Benzo[a]pyrene	0.018	0.017	EPA 8270D/SIM	12-27-18	12-27-18	
Indeno(1,2,3-c,d)pyrene	ND	0.017	EPA 8270D/SIM	12-27-18	12-27-18	
Dibenz[a,h]anthracene	ND	0.017	EPA 8270D/SIM	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>2-Fluorobiphenyl</i>	<i>74</i>	<i>40 - 117</i>				
<i>Pyrene-d10</i>	<i>74</i>	<i>38 - 119</i>				
<i>Terphenyl-d14</i>	<i>72</i>	<i>47 - 135</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-229
 Project: 17-06520-000

cPAHs EPA 8270D/SIM

Matrix: Soil
 Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	PP36-1					
Laboratory ID:	12-229-04					
Benzo[a]anthracene	0.010	0.0080	EPA 8270D/SIM	12-27-18	12-27-18	
Chrysene	0.019	0.0080	EPA 8270D/SIM	12-27-18	12-27-18	
Benzo[b]fluoranthene	0.017	0.0080	EPA 8270D/SIM	12-27-18	12-27-18	
Benzo(j,k)fluoranthene	ND	0.0080	EPA 8270D/SIM	12-27-18	12-27-18	
Benzo[a]pyrene	0.016	0.0080	EPA 8270D/SIM	12-27-18	12-27-18	
Indeno(1,2,3-c,d)pyrene	0.012	0.0080	EPA 8270D/SIM	12-27-18	12-27-18	
Dibenz[a,h]anthracene	ND	0.0080	EPA 8270D/SIM	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>2-Fluorobiphenyl</i>	<i>69</i>	<i>40 - 117</i>				
<i>Pyrene-d10</i>	<i>66</i>	<i>38 - 119</i>				
<i>Terphenyl-d14</i>	<i>65</i>	<i>47 - 135</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-229
 Project: 17-06520-000

cPAHs EPA 8270D/SIM

Matrix: Soil
 Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	PP37-1.5					
Laboratory ID:	12-229-05					
Benzo[a]anthracene	0.014	0.0076	EPA 8270D/SIM	12-27-18	12-27-18	
Chrysene	0.020	0.0076	EPA 8270D/SIM	12-27-18	12-27-18	
Benzo[b]fluoranthene	0.019	0.0076	EPA 8270D/SIM	12-27-18	12-27-18	
Benzo(j,k)fluoranthene	ND	0.0076	EPA 8270D/SIM	12-27-18	12-27-18	
Benzo[a]pyrene	0.016	0.0076	EPA 8270D/SIM	12-27-18	12-27-18	
Indeno(1,2,3-c,d)pyrene	0.011	0.0076	EPA 8270D/SIM	12-27-18	12-27-18	
Dibenz[a,h]anthracene	ND	0.0076	EPA 8270D/SIM	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>2-Fluorobiphenyl</i>	<i>75</i>	<i>40 - 117</i>				
<i>Pyrene-d10</i>	<i>74</i>	<i>38 - 119</i>				
<i>Terphenyl-d14</i>	<i>73</i>	<i>47 - 135</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-229
 Project: 17-06520-000

cPAHs EPA 8270D/SIM
METHOD BLANK QUALITY CONTROL

Matrix: Soil
 Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID: MB1227S1						
Benzo[a]anthracene	ND	0.0067	EPA 8270D/SIM	12-27-18	12-27-18	
Chrysene	ND	0.0067	EPA 8270D/SIM	12-27-18	12-27-18	
Benzo[b]fluoranthene	ND	0.0067	EPA 8270D/SIM	12-27-18	12-27-18	
Benzo(j,k)fluoranthene	ND	0.0067	EPA 8270D/SIM	12-27-18	12-27-18	
Benzo[a]pyrene	ND	0.0067	EPA 8270D/SIM	12-27-18	12-27-18	
Indeno(1,2,3-c,d)pyrene	ND	0.0067	EPA 8270D/SIM	12-27-18	12-27-18	
Dibenz[a,h]anthracene	ND	0.0067	EPA 8270D/SIM	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>2-Fluorobiphenyl</i>	<i>76</i>	<i>40 - 117</i>				
<i>Pyrene-d10</i>	<i>80</i>	<i>38 - 119</i>				
<i>Terphenyl-d14</i>	<i>79</i>	<i>47 - 135</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-229
 Project: 17-06520-000

cPAHs EPA 8270D/SIM
SB/SBD QUALITY CONTROL

Matrix: Soil
 Units: mg/Kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB1227S1									
	SB	SBD	SB	SBD	SB	SBD				
Benzo[a]anthracene	0.0771	0.0780	0.0833	0.0833	93	94	64 - 132	1	15	
Chrysene	0.0711	0.0731	0.0833	0.0833	85	88	64 - 127	3	15	
Benzo[b]fluoranthene	0.0721	0.0739	0.0833	0.0833	87	89	57 - 128	2	15	
Benzo(j,k)fluoranthene	0.0747	0.0754	0.0833	0.0833	90	91	62 - 130	1	15	
Benzo[a]pyrene	0.0801	0.0814	0.0833	0.0833	96	98	62 - 125	2	15	
Indeno(1,2,3-c,d)pyrene	0.0737	0.0749	0.0833	0.0833	88	90	55 - 130	2	15	
Dibenz[a,h]anthracene	0.0712	0.0729	0.0833	0.0833	85	88	58 - 129	2	15	
Surrogate:										
2-Fluorobiphenyl					75	80	40 - 117			
Pyrene-d10					78	81	38 - 119			
Terphenyl-d14					77	77	47 - 135			



Date of Report: January 3, 2019
Samples Submitted: December 21, 2018
Laboratory Reference: 1812-229
Project: 17-06520-000

% MOISTURE

Date Analyzed: 12-26-18

Client ID	Lab ID	% Moisture
PP35-4	12-229-01	14
PP36-5	12-229-03	21
PP36-1	12-229-04	17
PP37-1.5	12-229-05	12





Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
- B - The analyte indicated was also found in the blank sample.
- C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
- E - The value reported exceeds the quantitation range and is an estimate.
- F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
- H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
- I - Compound recovery is outside of the control limits.
- J - The value reported was below the practical quantitation limit. The value is an estimate.
- K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
- L - The RPD is outside of the control limits.
- M - Hydrocarbons in the gasoline range are impacting the diesel range result.
- M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
- N - Hydrocarbons in the lube oil range are impacting the diesel range result.
- N1 - Hydrocarbons in diesel range are impacting lube oil range results.
- O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
- P - The RPD of the detected concentrations between the two columns is greater than 40.
- Q - Surrogate recovery is outside of the control limits.
- S - Surrogate recovery data is not available due to the necessary dilution of the sample.
- T - The sample chromatogram is not similar to a typical _____.
- U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- U1 - The practical quantitation limit is elevated due to interferences present in the sample.
- V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
- W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
- X - Sample extract treated with a mercury cleanup procedure.
- X1 - Sample extract treated with a sulfuric acid/silica gel cleanup procedure.
- Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.
- Z -
- ND - Not Detected at PQL
- PQL - Practical Quantitation Limit
- RPD - Relative Percent Difference



Chain of Custody

Company: HERRERA
Project Number: 17-06520-000
Project Name: Pacific Park.
Project Manager: George Ifthner
Sampled by: G. Ifthner, K. Bliss

**Turnaround Request
(in working days)**

(Choose One)

- ☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days)
☐ _____ (other)

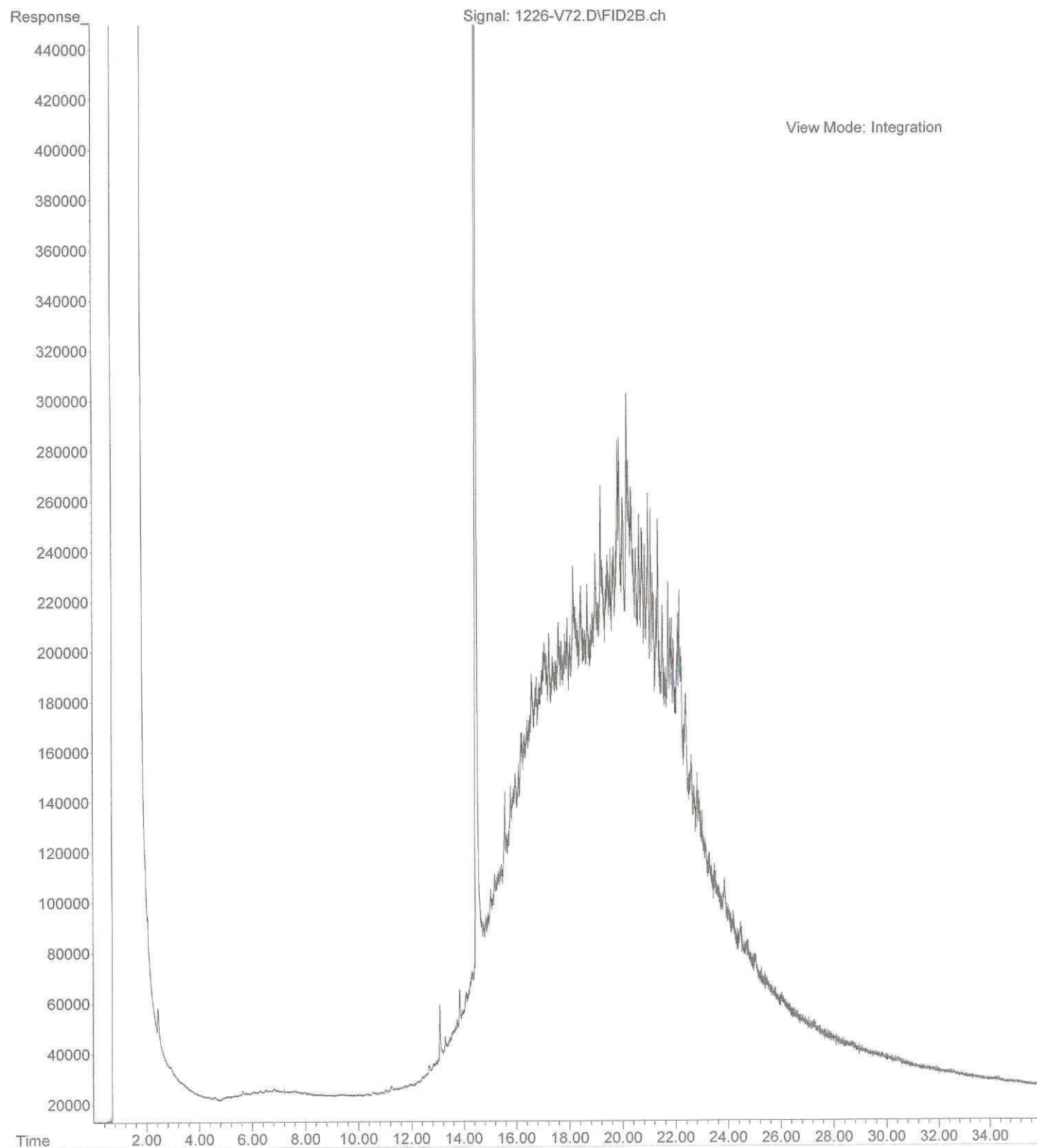
Number of Containers

Laboratory Number: **12-229**

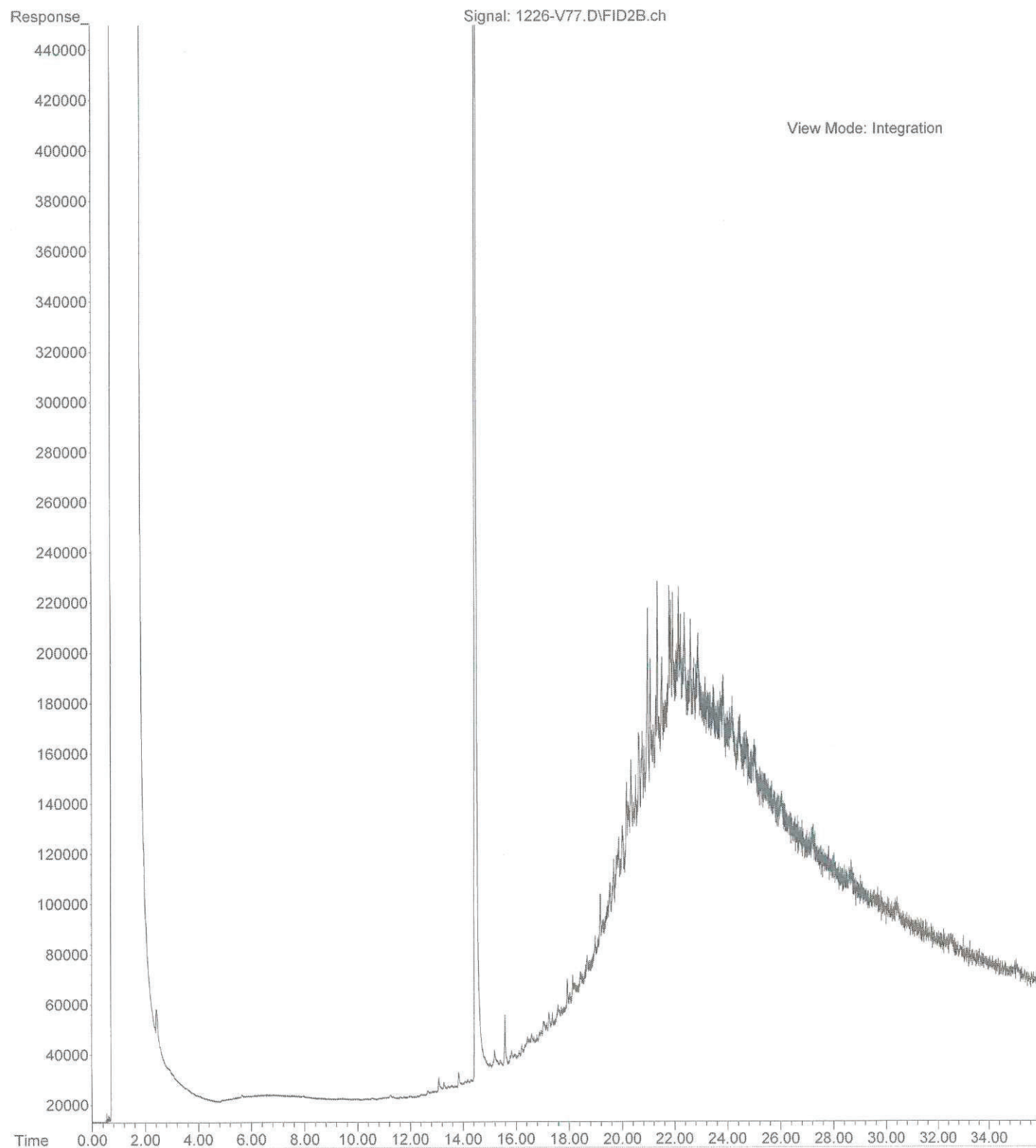
Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number	NWTPH	NWTPH	NWTPH	NWTPH	Volatiles	Halogenes	EDB E	Semivolatile (with LC)	PAHs	PCBs	Organics	Organics	Chlorinated	Total R	Total M	TCLP	HEM (C	C	% Moist	
1	PP35-4	12/20/18	10:50	Soil	2			✓	✓											✓		✓		X	
2	PP35-7.5	}	11:00		2																				
3	PP36-5		09:55		2			✓	✓											✓		✓		X	
4	PP36-1		09:40		2			✓	✓											✓	✓	✓		X	
5	PP37-1.5		08:50		2			✓	✓											✓		✓		X	
6	PP37-5		09:05	↓	2																				
7	Trip Blank.		↓	—	Water	1																			

	Signature	Company	Date	Time	Comments/Special Instructions
Relinquished	<u>George Ifthner</u>	<u>Herrera</u>	<u>12/20/18</u>	<u>16:00</u>	<u>Hold for PCB analysis</u> <u>pending DO results</u>
Received	<u>[Signature]</u>	<u>Specdy</u>	<u>12/21/18</u>	<u>10:47</u>	
Relinquished	<u>[Signature]</u>	<u>Specdy</u>	<u>12/21/18</u>	<u>13:55</u>	
Received	<u>Walter Lisen</u>	<u>OSE</u>	<u>12/21/18</u>	<u>1355</u>	
Relinquished					Data Package: Standard <input type="checkbox"/> Level III <input type="checkbox"/> Level IV <input type="checkbox"/>
Received					
Reviewed/Date		Reviewed/Date			Chromatograms with final report <input type="checkbox"/> Electronic Data Deliverables (EDDs) <input type="checkbox"/>

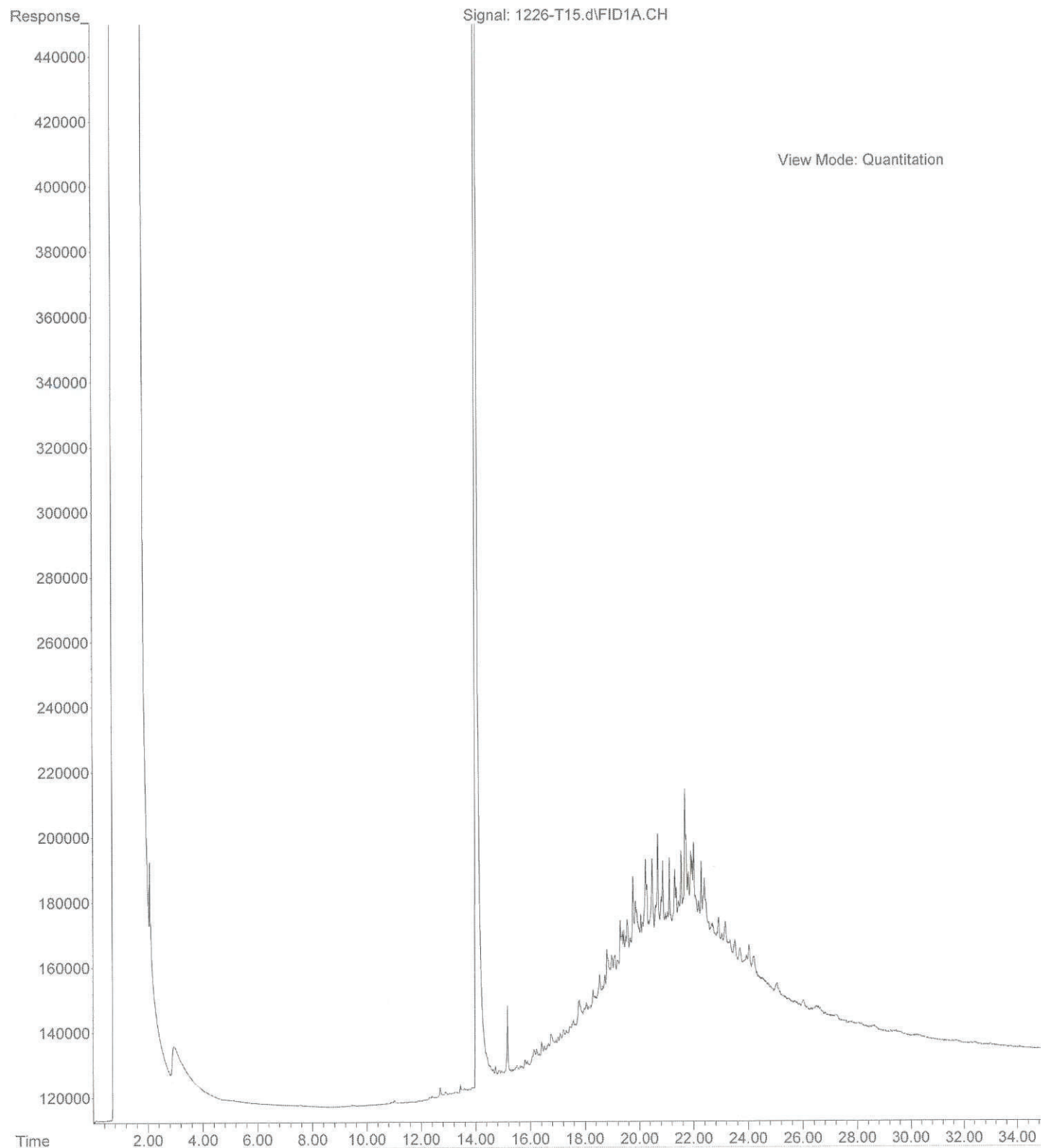
File :X:\DIESELS\VIGO\DATA\V181226.SEC\1226-V72.D
Operator : JT
Acquired : 26 Dec 2018 21:27 using AcqMethod V180601F.M
Instrument : Vigo
Sample Name: 12-229-01
Misc Info :
Vial Number: 72



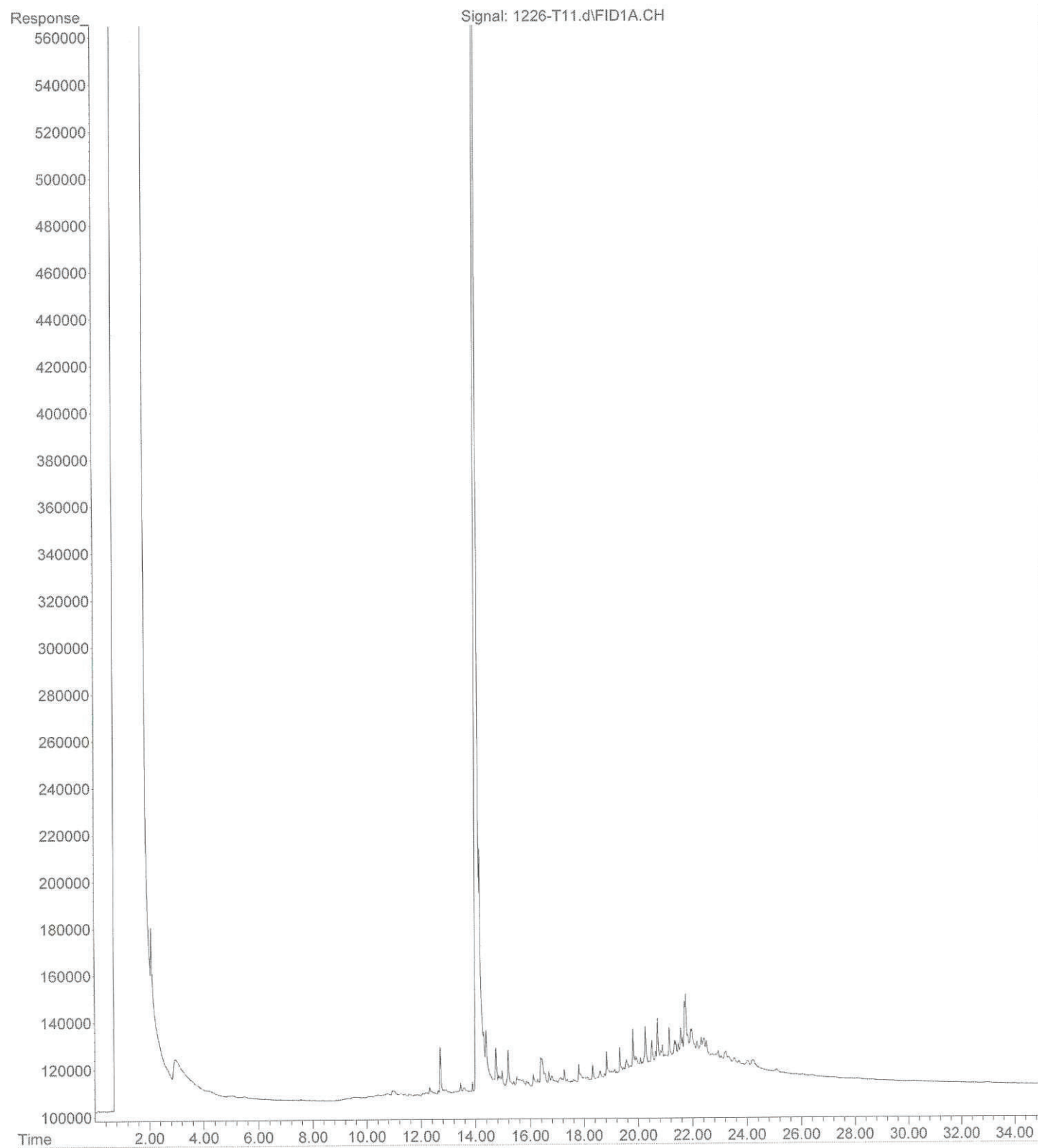
File :X:\DIESELS\VIGO\DATA\V181226.SEC\1226-V77.D
Operator : JT
Acquired : 27 Dec 2018 00:46 using AcqMethod V180601F.M
Instrument : Vigo
Sample Name: 12-229-03
Misc Info :
Vial Number: 77



File :X:\DIESELS\TERI\DATA\T181226\1226-T15.d
Operator : JT
Acquired : 26 Dec 2018 19:00 using AcqMethod T180110F.M
Instrument : Teri
Sample Name: 12-229-04
Misc Info :
Vial Number: 15



File :X:\DIESELS\TERI\DATA\T181226\1226-T11.d
Operator : JT
Acquired : 26 Dec 2018 16:09 using AcqMethod T180110F.M
Instrument : Teri
Sample Name: 12-229-05
Misc Info :
Vial Number: 11





14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

January 15, 2019

George Iftner
Herrera Environmental Consultants, Inc.
2200 6th Avenue, Suite 1100
Seattle, WA 98121

Re: Analytical Data for Project 17-06520-000
Laboratory Reference No. 1812-229B

Dear George:

Enclosed are the analytical results and associated quality control data for samples submitted on December 21, 2018.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read "DB", with a long horizontal stroke extending to the right.

David Baumeister
Project Manager

Enclosures



OnSite Environmental, Inc. 14648 NE 95th Street, Redmond, WA 98052 (425) 883-3881

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: January 15, 2019
Samples Submitted: December 21, 2018
Laboratory Reference: 1812-229B
Project: 17-06520-000

Case Narrative

Samples were collected on December 20, 2018 and received by the laboratory on December 21, 2018. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

NWTPH-Dx Analysis

Per client request, sample PP35-7.5 was extracted and analyzed outside of hold time.

Total Metals EPA 6010D/7471B Analysis

The duplicate RPD for Lead is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

PAHs EPA 8270D/SIM Analysis

Per client request, samples PP35-7.5 and PP37-5 were extracted and analyzed outside of hold time.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.



Date of Report: January 15, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-229B
 Project: 17-06520-000

DIESEL AND HEAVY OIL RANGE ORGANICS
NWTPH-Dx

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	PP35-7.5					
Laboratory ID:	12-229-02					
Diesel Range Organics	58	30	NWTPH-Dx	1-4-19	1-8-19	N
Lube Oil Range Organics	210	61	NWTPH-Dx	1-4-19	1-8-19	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	91	50-150				



Date of Report: January 15, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-229B
 Project: 17-06520-000

**DIESEL AND HEAVY OIL RANGE ORGANICS
 NWTPH-Dx
 QUALITY CONTROL**

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0104S1					
Diesel Range Organics	ND	25	NWTPH-Dx	1-4-19	1-4-19	
Lube Oil Range Organics	ND	50	NWTPH-Dx	1-4-19	1-4-19	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	93	50-150				

Analyte	Result		Spike Level		Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE										
Laboratory ID:	01-001-06									
	ORIG	DUP								
Diesel Range Organics	120	82.0	NA	NA		NA	NA	38	NA	
Lube Oil Range	ND	ND	NA	NA		NA	NA	NA	NA	
Surrogate:										
o-Terphenyl						90	90	50-150		



Date of Report: January 15, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-229B
 Project: 17-06520-000

PCBs EPA 8082A

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: PP35-4						
Laboratory ID:	12-229-01					
Aroclor 1016	ND	0.058	EPA 8082A	1-14-19	1-14-19	
Aroclor 1221	ND	0.058	EPA 8082A	1-14-19	1-14-19	
Aroclor 1232	ND	0.058	EPA 8082A	1-14-19	1-14-19	
Aroclor 1242	ND	0.058	EPA 8082A	1-14-19	1-14-19	
Aroclor 1248	ND	0.058	EPA 8082A	1-14-19	1-14-19	
Aroclor 1254	0.23	0.058	EPA 8082A	1-14-19	1-14-19	
Aroclor 1260	ND	0.058	EPA 8082A	1-14-19	1-14-19	
Surrogate:	Percent Recovery	Control Limits				
DCB	64	39-130				
Client ID: PP35-7.5						
Laboratory ID:	12-229-02					
Aroclor 1016	ND	0.060	EPA 8082A	1-14-19	1-14-19	
Aroclor 1221	ND	0.060	EPA 8082A	1-14-19	1-14-19	
Aroclor 1232	ND	0.060	EPA 8082A	1-14-19	1-14-19	
Aroclor 1242	ND	0.060	EPA 8082A	1-14-19	1-14-19	
Aroclor 1248	ND	0.060	EPA 8082A	1-14-19	1-14-19	
Aroclor 1254	ND	0.060	EPA 8082A	1-14-19	1-14-19	
Aroclor 1260	ND	0.060	EPA 8082A	1-14-19	1-14-19	
Surrogate:	Percent Recovery	Control Limits				
DCB	56	39-130				
Client ID: PP36-5						
Laboratory ID:	12-229-03					
Aroclor 1016	ND	0.063	EPA 8082A	1-14-19	1-14-19	
Aroclor 1221	ND	0.063	EPA 8082A	1-14-19	1-14-19	
Aroclor 1232	ND	0.063	EPA 8082A	1-14-19	1-14-19	
Aroclor 1242	ND	0.063	EPA 8082A	1-14-19	1-14-19	
Aroclor 1248	ND	0.063	EPA 8082A	1-14-19	1-14-19	
Aroclor 1254	ND	0.063	EPA 8082A	1-14-19	1-14-19	
Aroclor 1260	ND	0.063	EPA 8082A	1-14-19	1-14-19	
Surrogate:	Percent Recovery	Control Limits				
DCB	51	39-130				



Date of Report: January 15, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-229B
 Project: 17-06520-000

PCBs EPA 8082A

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	PP36-1					
Laboratory ID:	12-229-04					
Aroclor 1016	ND	0.060	EPA 8082A	1-14-19	1-14-19	
Aroclor 1221	ND	0.060	EPA 8082A	1-14-19	1-14-19	
Aroclor 1232	ND	0.060	EPA 8082A	1-14-19	1-14-19	
Aroclor 1242	ND	0.060	EPA 8082A	1-14-19	1-14-19	
Aroclor 1248	ND	0.060	EPA 8082A	1-14-19	1-14-19	
Aroclor 1254	ND	0.060	EPA 8082A	1-14-19	1-14-19	
Aroclor 1260	ND	0.060	EPA 8082A	1-14-19	1-14-19	
Surrogate:	Percent Recovery	Control Limits				
DCB	45	39-130				
Client ID:	PP37-1.5					
Laboratory ID:	12-229-05					
Aroclor 1016	ND	0.057	EPA 8082A	1-14-19	1-14-19	
Aroclor 1221	ND	0.057	EPA 8082A	1-14-19	1-14-19	
Aroclor 1232	ND	0.057	EPA 8082A	1-14-19	1-14-19	
Aroclor 1242	ND	0.057	EPA 8082A	1-14-19	1-14-19	
Aroclor 1248	ND	0.057	EPA 8082A	1-14-19	1-14-19	
Aroclor 1254	ND	0.057	EPA 8082A	1-14-19	1-14-19	
Aroclor 1260	ND	0.057	EPA 8082A	1-14-19	1-14-19	
Surrogate:	Percent Recovery	Control Limits				
DCB	50	39-130				
Client ID:	PP37-5					
Laboratory ID:	12-229-06					
Aroclor 1016	ND	0.062	EPA 8082A	1-14-19	1-14-19	
Aroclor 1221	ND	0.062	EPA 8082A	1-14-19	1-14-19	
Aroclor 1232	ND	0.062	EPA 8082A	1-14-19	1-14-19	
Aroclor 1242	ND	0.062	EPA 8082A	1-14-19	1-14-19	
Aroclor 1248	ND	0.062	EPA 8082A	1-14-19	1-14-19	
Aroclor 1254	ND	0.062	EPA 8082A	1-14-19	1-14-19	
Aroclor 1260	ND	0.062	EPA 8082A	1-14-19	1-14-19	
Surrogate:	Percent Recovery	Control Limits				
DCB	48	39-130				



Date of Report: January 15, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-229B
 Project: 17-06520-000

**PCBs EPA 8082A
 QUALITY CONTROL**

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0114S1					
Aroclor 1016	ND	0.050	EPA 8082A	1-14-19	1-14-19	
Aroclor 1221	ND	0.050	EPA 8082A	1-14-19	1-14-19	
Aroclor 1232	ND	0.050	EPA 8082A	1-14-19	1-14-19	
Aroclor 1242	ND	0.050	EPA 8082A	1-14-19	1-14-19	
Aroclor 1248	ND	0.050	EPA 8082A	1-14-19	1-14-19	
Aroclor 1254	ND	0.050	EPA 8082A	1-14-19	1-14-19	
Aroclor 1260	ND	0.050	EPA 8082A	1-14-19	1-14-19	
Surrogate:	Percent Recovery	Control Limits				
DCB	83	39-130				

Analyte	Result		Spike Level		Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0114S1									
	SB	SBD	SB	SBD		SB	SBD			
Aroclor 1260	0.414	0.381	0.500	0.500	N/A	83	76	56-124	8	18
Surrogate:										
DCB						80	79	39-130		



Date of Report: January 15, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-229B
 Project: 17-06520-000

**TOTAL METALS
 EPA 6010D/7471B**

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	PP35-7.5					
Laboratory ID:	12-229-02					
Arsenic	ND	12	EPA 6010D	1-7-19	1-7-19	
Cadmium	ND	0.60	EPA 6010D	1-7-19	1-7-19	
Chromium	26	1.2	EPA 6010D	1-7-19	1-7-19	
Lead	28	6.0	EPA 6010D	1-7-19	1-7-19	
Mercury	ND	0.30	EPA 7471B	1-7-19	1-7-19	



Date of Report: January 15, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-229B
 Project: 17-06520-000

**TOTAL METALS
 EPA 6010D/7471B
 QUALITY CONTROL**

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0107SM1					
Arsenic	ND	10	EPA 6010D	1-7-19	1-7-19	
Cadmium	ND	0.50	EPA 6010D	1-7-19	1-7-19	
Chromium	ND	1.0	EPA 6010D	1-7-19	1-7-19	
Lead	ND	5.0	EPA 6010D	1-7-19	1-7-19	

Laboratory ID:	MB0107S1					
Mercury	ND	0.25	EPA 7471B	1-7-19	1-7-19	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	01-022-01							
	ORIG	DUP						
Arsenic	ND	ND	NA	NA	NA	NA	20	
Cadmium	ND	ND	NA	NA	NA	NA	20	
Chromium	31.3	32.5	NA	NA	NA	4	20	
Lead	ND	ND	NA	NA	NA	NA	20	

Laboratory ID:	01-021-01							
Mercury	ND	ND	NA	NA	NA	NA	20	

MATRIX SPIKES

Laboratory ID:	01-022-01									
	MS	MSD	MS	MSD		MS	MSD			
Arsenic	89.6	87.1	100	100	ND	90	87	75-125	3	20
Cadmium	42.5	42.5	50.0	50.0	ND	85	85	75-125	0	20
Chromium	123	127	100	100	31.3	92	96	75-125	3	20
Lead	238	238	250	250	ND	95	95	75-125	0	20

Laboratory ID:	01-021-01									
Mercury	0.554	0.564	0.500	0.500	0.0389	103	105	80-120	2	20



Date of Report: January 15, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-229B
 Project: 17-06520-000

cPAHs EPA 8270D/SIM

Matrix: Soil
 Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	PP35-7.5					
Laboratory ID:	12-229-02					
Benzo[a]anthracene	0.24	0.0081	EPA 8270D/SIM	1-4-19	1-7-19	
Chrysene	0.83	0.0081	EPA 8270D/SIM	1-4-19	1-7-19	
Benzo[b]fluoranthene	0.12	0.0081	EPA 8270D/SIM	1-4-19	1-7-19	
Benzo(j,k)fluoranthene	0.062	0.0081	EPA 8270D/SIM	1-4-19	1-7-19	
Benzo[a]pyrene	0.084	0.0081	EPA 8270D/SIM	1-4-19	1-7-19	
Indeno(1,2,3-c,d)pyrene	0.045	0.0081	EPA 8270D/SIM	1-4-19	1-7-19	
Dibenz[a,h]anthracene	0.015	0.0081	EPA 8270D/SIM	1-4-19	1-7-19	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>2-Fluorobiphenyl</i>	<i>84</i>	<i>40 - 117</i>				
<i>Pyrene-d10</i>	<i>93</i>	<i>38 - 119</i>				
<i>Terphenyl-d14</i>	<i>88</i>	<i>47 - 135</i>				



Date of Report: January 15, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-229B
 Project: 17-06520-000

cPAHs EPA 8270D/SIM

Matrix: Soil
 Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	PP37-5					
Laboratory ID:	12-229-06					
Benzo[a]anthracene	0.60	0.0083	EPA 8270D/SIM	1-4-19	1-7-19	
Chrysene	0.64	0.0083	EPA 8270D/SIM	1-4-19	1-7-19	
Benzo[b]fluoranthene	0.76	0.0083	EPA 8270D/SIM	1-4-19	1-7-19	
Benzo(j,k)fluoranthene	0.24	0.0083	EPA 8270D/SIM	1-4-19	1-7-19	
Benzo[a]pyrene	0.57	0.0083	EPA 8270D/SIM	1-4-19	1-7-19	
Indeno(1,2,3-c,d)pyrene	0.42	0.0083	EPA 8270D/SIM	1-4-19	1-7-19	
Dibenz[a,h]anthracene	0.086	0.0083	EPA 8270D/SIM	1-4-19	1-7-19	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
2-Fluorobiphenyl	87	40 - 117				
Pyrene-d10	94	38 - 119				
Terphenyl-d14	86	47 - 135				



Date of Report: January 15, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-229B
 Project: 17-06520-000

cPAHs EPA 8270D/SIM
METHOD BLANK QUALITY CONTROL

Matrix: Soil
 Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<hr/>						
Laboratory ID:	MB0104S1					
Benzo[a]anthracene	ND	0.0067	EPA 8270D/SIM	1-4-19	1-4-19	
Chrysene	ND	0.0067	EPA 8270D/SIM	1-4-19	1-4-19	
Benzo[b]fluoranthene	ND	0.0067	EPA 8270D/SIM	1-4-19	1-4-19	
Benzo[j,k]fluoranthene	ND	0.0067	EPA 8270D/SIM	1-4-19	1-4-19	
Benzo[a]pyrene	ND	0.0067	EPA 8270D/SIM	1-4-19	1-4-19	
Indeno(1,2,3-c,d)pyrene	ND	0.0067	EPA 8270D/SIM	1-4-19	1-4-19	
Dibenz[a,h]anthracene	ND	0.0067	EPA 8270D/SIM	1-4-19	1-4-19	
<hr/>						
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>2-Fluorobiphenyl</i>	<i>91</i>	<i>40 - 117</i>				
<i>Pyrene-d10</i>	<i>83</i>	<i>38 - 119</i>				
<i>Terphenyl-d14</i>	<i>80</i>	<i>47 - 135</i>				



Date of Report: January 15, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-229B
 Project: 17-06520-000

**cPAHs EPA 8270D/SIM
 MS/MSD QUALITY CONTROL**

Matrix: Soil
 Units: mg/Kg

Analyte	Result		Spike Level		Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES										
Laboratory ID:	12-268-07									
	MS	MSD	MS	MSD		MS	MSD			
Benzo[a]anthracene	0.0569	0.0597	0.0833	0.0833	ND	68	72	55 - 132	5	20
Chrysene	0.0548	0.0571	0.0833	0.0833	ND	66	69	51 - 126	4	20
Benzo[b]fluoranthene	0.0609	0.0608	0.0833	0.0833	ND	73	73	45 - 133	0	21
Benzo(j,k)fluoranthene	0.0585	0.0626	0.0833	0.0833	ND	70	75	49 - 131	7	24
Benzo[a]pyrene	0.0649	0.0667	0.0833	0.0833	ND	78	80	50 - 127	3	21
Indeno(1,2,3-c,d)pyrene	0.0582	0.0606	0.0833	0.0833	ND	70	73	45 - 133	4	22
Dibenz[a,h]anthracene	0.0565	0.0586	0.0833	0.0833	ND	68	70	46 - 132	4	20
Surrogate:										
2-Fluorobiphenyl						69	75	40 - 117		
Pyrene-d10						61	65	38 - 119		
Terphenyl-d14						58	61	47 - 135		



Date of Report: January 15, 2019
Samples Submitted: December 21, 2018
Laboratory Reference: 1812-229B
Project: 17-06520-000

% MOISTURE

Date Analyzed: 12-26-18&1-7-19

Client ID	Lab ID	% Moisture
PP35-7.5	12-229-02	17
PP37-5	12-229-06	19





Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
- B - The analyte indicated was also found in the blank sample.
- C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
- E - The value reported exceeds the quantitation range and is an estimate.
- F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
- H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
- I - Compound recovery is outside of the control limits.
- J - The value reported was below the practical quantitation limit. The value is an estimate.
- K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
- L - The RPD is outside of the control limits.
- M - Hydrocarbons in the gasoline range are impacting the diesel range result.
- M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
- N - Hydrocarbons in the lube oil range are impacting the diesel range result.
- N1 - Hydrocarbons in diesel range are impacting lube oil range results.
- O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
- P - The RPD of the detected concentrations between the two columns is greater than 40.
- Q - Surrogate recovery is outside of the control limits.
- S - Surrogate recovery data is not available due to the necessary dilution of the sample.
- T - The sample chromatogram is not similar to a typical _____.
- U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- U1 - The practical quantitation limit is elevated due to interferences present in the sample.
- V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
- W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
- X - Sample extract treated with a mercury cleanup procedure.
- X1 - Sample extract treated with a sulfuric acid/silica gel cleanup procedure.
- Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.
- Z -
- ND - Not Detected at PQL
- PQL - Practical Quantitation Limit
- RPD - Relative Percent Difference



Chain of Custody

Company: HERRERA

Project Number: 17-06520-000

Project Name: Pacific Park.

Project Manager: George Ifthner

Sampled by: G. Ifthner, K. Bliss

**Turnaround Request
(in working days)**

(Check One)

☐ Same Day ☐ 1 Day

☐ 2 Days ☐ 3 Days

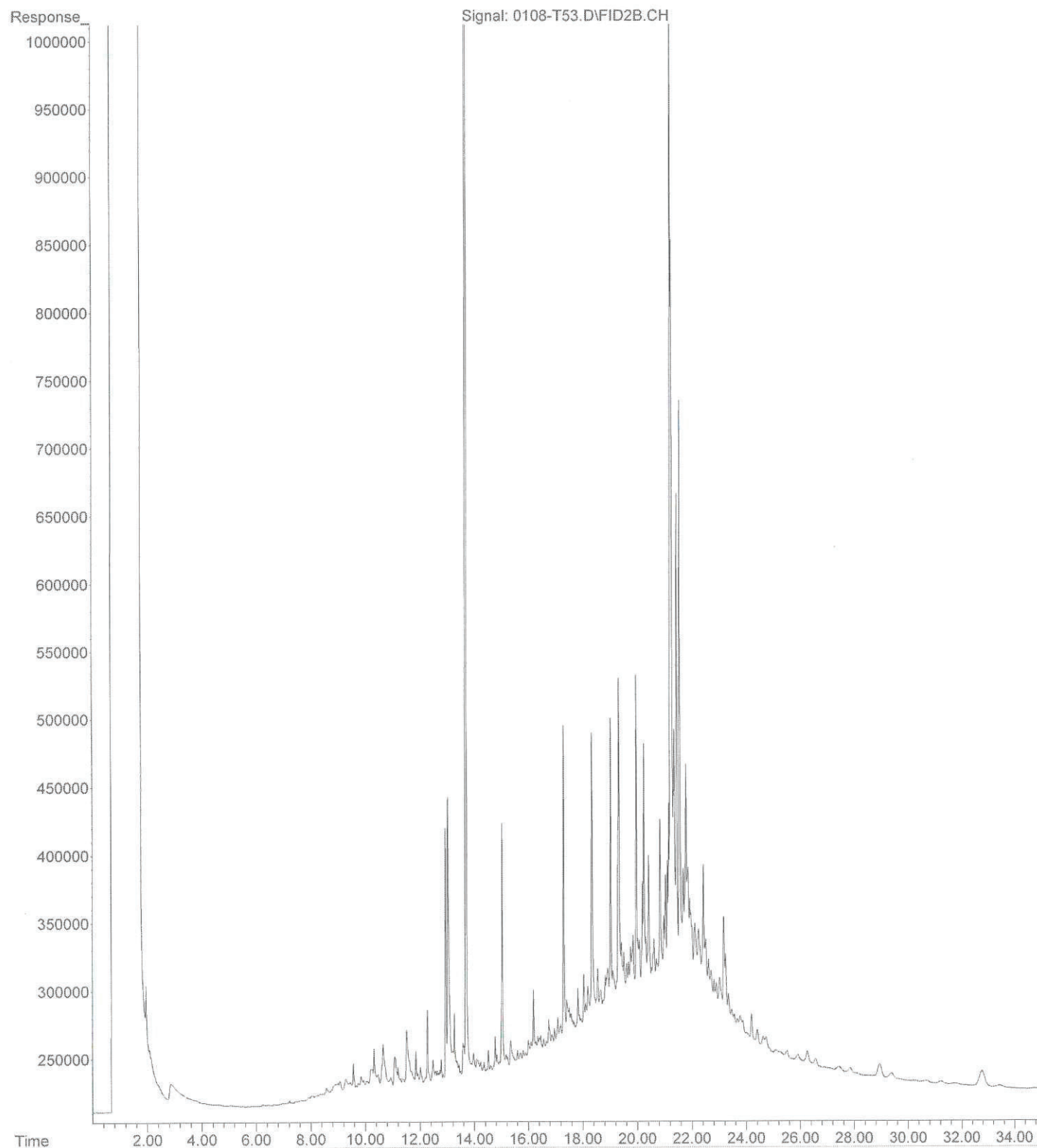
☒ Standard (7 Days)

☐ _____ (other)

Laboratory Number: 12-229																							
Number of Containers		NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (<input type="checkbox"/> Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	cPAHs				% Moisture
2				✓	✓						⊗					✓							
2					⊗						⊗					⊗							
2				✓	✓						⊗					✓							
2				✓	✓						⊗					✓							
2				✓	✓						⊗					✓							
2											⊗												
1											⊗												

	Signature	Company	Date	Time	Comments/Special Instructions
Relinquished	<u>George Ifthner</u>	<u>Herrera</u>	<u>12/20/18</u>	<u>16:00</u>	<u>Hold for PCB analysis</u> <u>pending DO results</u> <u>⊗ Added 1/4/19. DB (STA)</u>
Received	<u>[Signature]</u>	<u>specdy</u>	<u>12/21/18</u>	<u>10:47</u>	
Relinquished	<u>[Signature]</u>	<u>specdy</u>	<u>12/21/18</u>	<u>13:55</u>	
Received	<u>Hester Lisen</u>	<u>OSE</u>	<u>12/21/18</u>	<u>1355</u>	
Relinquished					
Received					Data Package: Standard <input type="checkbox"/> Level III <input type="checkbox"/> Level IV <input type="checkbox"/>
Reviewed/Date		Reviewed/Date			Chromatograms with final report <input type="checkbox"/> Electronic Data Deliverables (EDDs) <input type="checkbox"/>

File :C:\msdchem\1\data\T190108.SEC\0108-T53.D
Operator : JT
Acquired : 08 Jan 2019 9:43 using AcqMethod T190108F.M
Instrument : Teri
Sample Name: 12-229-02
Misc Info :
Vial Number: 53





14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

January 3, 2019

George Iftner
Herrera Environmental Consultants, Inc.
2200 6th Avenue, Suite 1100
Seattle, WA 98121

Re: Analytical Data for Project 17-06520-000
Laboratory Reference No. 1812-233

Dear George:

Enclosed are the analytical results and associated quality control data for samples submitted on December 21, 2018.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read "DB", with a long horizontal flourish extending to the right.

David Baumeister
Project Manager

Enclosures



OnSite Environmental, Inc. 14648 NE 95th Street, Redmond, WA 98052 (425) 883-3881

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: January 3, 2019
Samples Submitted: December 21, 2018
Laboratory Reference: 1812-233
Project: 17-06520-000

Case Narrative

Samples were collected on December 20, 2018 and received by the laboratory on December 21, 2018. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-233
 Project: 17-06520-000

GASOLINE RANGE ORGANICS
NWTPH-Gx

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	SW1					
Laboratory ID:	12-233-01					
Gasoline	ND	100	NWTPH-Gx	12-26-18	12-26-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Fluorobenzene</i>	85	66-117				
Client ID:	SW2					
Laboratory ID:	12-233-02					
Gasoline	ND	100	NWTPH-Gx	12-26-18	12-26-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Fluorobenzene</i>	80	66-117				
Client ID:	SW3					
Laboratory ID:	12-233-03					
Gasoline	ND	100	NWTPH-Gx	12-26-18	12-26-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Fluorobenzene</i>	82	66-117				
Client ID:	SW4					
Laboratory ID:	12-233-04					
Gasoline	ND	100	NWTPH-Gx	12-26-18	12-26-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Fluorobenzene</i>	80	66-117				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-233
 Project: 17-06520-000

**GASOLINE RANGE ORGANICS
 NWTPH-Gx
 QUALITY CONTROL**

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1226W1					
Gasoline	ND	100	NWTPH-Gx	12-26-18	12-26-18	
Surrogate:	Percent Recovery	Control Limits				
Fluorobenzene	79	66-117				

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	12-233-01							
	ORIG	DUP						
Gasoline	ND	ND	NA	NA	NA	NA	NA	30
Surrogate:								
Fluorobenzene				85	80	66-117		



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-233
 Project: 17-06520-000

**DIESEL AND HEAVY OIL RANGE ORGANICS
 NWTPH-Dx**

Matrix: Water
 Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	SW1					
Laboratory ID:	12-233-01					
Diesel Range Organics	ND	0.26	NWTPH-Dx	12-26-18	12-26-18	
Lube Oil Range Organics	ND	0.41	NWTPH-Dx	12-26-18	12-26-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	86	50-150				

Client ID:	SW2					
Laboratory ID:	12-233-02					
Diesel Range Organics	ND	0.27	NWTPH-Dx	12-26-18	12-26-18	
Lube Oil Range Organics	ND	0.42	NWTPH-Dx	12-26-18	12-26-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	89	50-150				

Client ID:	SW3					
Laboratory ID:	12-233-03					
Diesel Range Organics	ND	0.25	NWTPH-Dx	12-26-18	12-26-18	
Lube Oil Range Organics	ND	0.40	NWTPH-Dx	12-26-18	12-26-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	91	50-150				

Client ID:	SW4					
Laboratory ID:	12-233-04					
Diesel Range Organics	ND	0.26	NWTPH-Dx	12-26-18	12-26-18	
Lube Oil Range Organics	ND	0.41	NWTPH-Dx	12-26-18	12-26-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	100	50-150				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-233
 Project: 17-06520-000

**DIESEL AND HEAVY OIL RANGE ORGANICS
 NWTPH-Dx
 QUALITY CONTROL**

Matrix: Water
 Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1226W1					
Diesel Range Organics	ND	0.25	NWTPH-Dx	12-26-18	12-26-18	
Lube Oil Range Organics	ND	0.40	NWTPH-Dx	12-26-18	12-26-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	90	50-150				

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	12-233-01							
	ORIG	DUP						
Diesel Range	ND	ND	NA	NA	NA	NA	NA	
Lube Oil Range	ND	ND	NA	NA	NA	NA	NA	
<i>Surrogate:</i>								
<i>o-Terphenyl</i>				86	91	50-150		



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-233
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
 page 1 of 2

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	SW1					
Laboratory ID:	12-233-01					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloromethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Vinyl Chloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Trichlorofluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Acetone	ND	7.0	EPA 8260C	12-27-18	12-27-18	
Iodomethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Carbon Disulfide	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methylene Chloride	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl t-Butyl Ether	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Vinyl Acetate	ND	1.0	EPA 8260C	12-27-18	12-27-18	
2,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Butanone	ND	5.0	EPA 8260C	12-27-18	12-27-18	
Bromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroform	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Carbon Tetrachloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Benzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Trichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Dibromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromodichloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Toluene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-233
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
 page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	SW1					
Laboratory ID:	12-233-01					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Tetrachloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Hexanone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Dibromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromoethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Ethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
m,p-Xylene	ND	0.40	EPA 8260C	12-27-18	12-27-18	
o-Xylene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Styrene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromoform	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Isopropylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Propylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
4-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3,5-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
tert-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
sec-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
p-Isopropyltoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Hexachlorobutadiene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Naphthalene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>97</i>	<i>75-127</i>				
<i>Toluene-d8</i>	<i>97</i>	<i>80-127</i>				
<i>4-Bromofluorobenzene</i>	<i>100</i>	<i>78-125</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-233
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
 page 1 of 2

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	SW2					
Laboratory ID:	12-233-02					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloromethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Vinyl Chloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Trichlorofluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Acetone	ND	7.0	EPA 8260C	12-27-18	12-27-18	
Iodomethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Carbon Disulfide	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methylene Chloride	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl t-Butyl Ether	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Vinyl Acetate	ND	1.0	EPA 8260C	12-27-18	12-27-18	
2,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Butanone	ND	5.0	EPA 8260C	12-27-18	12-27-18	
Bromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroform	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Carbon Tetrachloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Benzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Trichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Dibromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromodichloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Toluene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-233
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
 page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	SW2					
Laboratory ID:	12-233-02					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Tetrachloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Hexanone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Dibromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromoethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Ethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
m,p-Xylene	ND	0.40	EPA 8260C	12-27-18	12-27-18	
o-Xylene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Styrene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromoform	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Isopropylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Propylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
4-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3,5-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
tert-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
sec-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
p-Isopropyltoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Hexachlorobutadiene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Naphthalene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>93</i>	<i>75-127</i>				
<i>Toluene-d8</i>	<i>94</i>	<i>80-127</i>				
<i>4-Bromofluorobenzene</i>	<i>99</i>	<i>78-125</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-233
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
 page 1 of 2

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	SW3					
Laboratory ID:	12-233-03					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloromethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Vinyl Chloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Trichlorofluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Acetone	ND	7.0	EPA 8260C	12-27-18	12-27-18	
Iodomethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Carbon Disulfide	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methylene Chloride	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl t-Butyl Ether	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Vinyl Acetate	ND	1.0	EPA 8260C	12-27-18	12-27-18	
2,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Butanone	ND	5.0	EPA 8260C	12-27-18	12-27-18	
Bromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroform	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Carbon Tetrachloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Benzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Trichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Dibromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromodichloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Toluene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-233
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
 page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	SW3					
Laboratory ID:	12-233-03					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Tetrachloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Hexanone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Dibromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromoethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Ethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
m,p-Xylene	ND	0.40	EPA 8260C	12-27-18	12-27-18	
o-Xylene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Styrene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromoform	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Isopropylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Propylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
4-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3,5-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
tert-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
sec-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
p-Isopropyltoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Hexachlorobutadiene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Naphthalene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>96</i>	<i>75-127</i>				
<i>Toluene-d8</i>	<i>100</i>	<i>80-127</i>				
<i>4-Bromofluorobenzene</i>	<i>106</i>	<i>78-125</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-233
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
 page 1 of 2

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	SW4					
Laboratory ID:	12-233-04					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloromethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Vinyl Chloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Trichlorofluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Acetone	ND	7.0	EPA 8260C	12-27-18	12-27-18	
Iodomethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Carbon Disulfide	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methylene Chloride	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl t-Butyl Ether	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Vinyl Acetate	ND	1.0	EPA 8260C	12-27-18	12-27-18	
2,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Butanone	ND	5.0	EPA 8260C	12-27-18	12-27-18	
Bromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroform	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Carbon Tetrachloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Benzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Trichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Dibromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromodichloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Toluene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-233
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
 page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	SW4					
Laboratory ID:	12-233-04					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Tetrachloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Hexanone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Dibromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromoethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Ethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
m,p-Xylene	ND	0.40	EPA 8260C	12-27-18	12-27-18	
o-Xylene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Styrene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromoform	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Isopropylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Propylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
4-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3,5-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
tert-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
sec-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
p-Isopropyltoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Hexachlorobutadiene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Naphthalene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>95</i>	<i>75-127</i>				
<i>Toluene-d8</i>	<i>96</i>	<i>80-127</i>				
<i>4-Bromofluorobenzene</i>	<i>102</i>	<i>78-125</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-233
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
 page 1 of 2

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	Trip Blank					
Laboratory ID:	12-233-05					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloromethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Vinyl Chloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Trichlorofluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Acetone	ND	7.0	EPA 8260C	12-27-18	12-27-18	
Iodomethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Carbon Disulfide	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methylene Chloride	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl t-Butyl Ether	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Vinyl Acetate	ND	1.0	EPA 8260C	12-27-18	12-27-18	
2,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Butanone	ND	5.0	EPA 8260C	12-27-18	12-27-18	
Bromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroform	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Carbon Tetrachloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Benzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Trichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Dibromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromodichloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Toluene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-233
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
 page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	Trip Blank					
Laboratory ID:	12-233-05					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Tetrachloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Hexanone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Dibromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromoethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Ethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
m,p-Xylene	ND	0.40	EPA 8260C	12-27-18	12-27-18	
o-Xylene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Styrene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromoform	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Isopropylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Propylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
4-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3,5-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
tert-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
sec-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
p-Isopropyltoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Hexachlorobutadiene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Naphthalene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>97</i>	<i>75-127</i>				
<i>Toluene-d8</i>	<i>99</i>	<i>80-127</i>				
<i>4-Bromofluorobenzene</i>	<i>106</i>	<i>78-125</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-233
 Project: 17-06520-000

**VOLATILE ORGANICS EPA 8260C
 METHOD BLANK QUALITY CONTROL**

page 1 of 2

Matrix: Water

Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID: MB1227W1						
Dichlorodifluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloromethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Vinyl Chloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Trichlorofluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Acetone	ND	7.0	EPA 8260C	12-27-18	12-27-18	
Iodomethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Carbon Disulfide	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methylene Chloride	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl t-Butyl Ether	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Vinyl Acetate	ND	1.0	EPA 8260C	12-27-18	12-27-18	
2,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Butanone	ND	5.0	EPA 8260C	12-27-18	12-27-18	
Bromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroform	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Carbon Tetrachloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Benzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Trichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Dibromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromodichloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Toluene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-233
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
METHOD BLANK QUALITY CONTROL
 page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID: MB1227W1						
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Tetrachloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Hexanone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Dibromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromoethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Ethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
m,p-Xylene	ND	0.40	EPA 8260C	12-27-18	12-27-18	
o-Xylene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Styrene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromoform	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Isopropylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Propylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
4-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3,5-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
tert-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
sec-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
p-Isopropyltoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Hexachlorobutadiene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Naphthalene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>96</i>	<i>75-127</i>				
<i>Toluene-d8</i>	<i>96</i>	<i>80-127</i>				
<i>4-Bromofluorobenzene</i>	<i>103</i>	<i>78-125</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-233
 Project: 17-06520-000

**VOLATILE ORGANICS EPA 8260C
 SB/SBD QUALITY CONTROL**

Matrix: Water

Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery	RPD	RPD	Flags
					Recovery	Limits	Limit			
SPIKE BLANKS										
Laboratory ID:	SB1227W1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	9.85	9.60	10.0	10.0	99	96	62-129	3	15	
Benzene	10.1	9.88	10.0	10.0	101	99	77-127	2	15	
Trichloroethene	10.2	9.63	10.0	10.0	102	96	70-120	6	15	
Toluene	10.5	9.88	10.0	10.0	105	99	82-123	6	15	
Chlorobenzene	10.6	9.97	10.0	10.0	106	100	79-120	6	15	
Surrogate:										
Dibromofluoromethane					94	101	75-127			
Toluene-d8					93	95	80-127			
4-Bromofluorobenzene					101	100	78-125			



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-233
 Project: 17-06520-000

TOTAL METALS
EPA 200.8/7470A

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	SW1					
Laboratory ID:	12-233-01					
Arsenic	ND	3.3	EPA 200.8	12-28-18	12-28-18	
Cadmium	ND	4.4	EPA 200.8	12-28-18	12-28-18	
Chromium	ND	11	EPA 200.8	12-28-18	12-28-18	
Lead	ND	1.1	EPA 200.8	12-28-18	12-28-18	
Mercury	ND	0.50	EPA 7470A	1-2-19	1-2-19	

Client ID:	SW2					
Laboratory ID:	12-233-02					
Arsenic	ND	3.3	EPA 200.8	12-28-18	12-28-18	
Cadmium	ND	4.4	EPA 200.8	12-28-18	12-28-18	
Chromium	ND	11	EPA 200.8	12-28-18	12-28-18	
Lead	ND	1.1	EPA 200.8	12-28-18	12-28-18	
Mercury	ND	0.50	EPA 7470A	1-2-19	1-2-19	

Client ID:	SW3					
Laboratory ID:	12-233-03					
Arsenic	ND	3.3	EPA 200.8	12-28-18	12-28-18	
Cadmium	ND	4.4	EPA 200.8	12-28-18	12-28-18	
Chromium	ND	11	EPA 200.8	12-28-18	12-28-18	
Lead	ND	1.1	EPA 200.8	12-28-18	12-28-18	
Mercury	ND	0.50	EPA 7470A	1-2-19	1-2-19	

Client ID:	SW4					
Laboratory ID:	12-233-04					
Arsenic	ND	3.3	EPA 200.8	12-28-18	12-28-18	
Cadmium	ND	4.4	EPA 200.8	12-28-18	12-28-18	
Chromium	ND	11	EPA 200.8	12-28-18	12-28-18	
Lead	ND	1.1	EPA 200.8	12-28-18	12-28-18	
Mercury	ND	0.50	EPA 7470A	1-2-19	1-2-19	



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-233
 Project: 17-06520-000

**TOTAL METALS
 EPA 200.8/7470A
 QUALITY CONTROL**

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1228WM1					
Arsenic	ND	3.3	EPA 200.8	12-28-18	12-28-18	
Cadmium	ND	4.4	EPA 200.8	12-28-18	12-28-18	
Chromium	ND	11	EPA 200.8	12-28-18	12-28-18	
Lead	ND	1.1	EPA 200.8	12-28-18	12-28-18	

Laboratory ID:	MB0102W1					
Mercury	ND	0.50	EPA 7470A	1-2-19	1-2-19	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	12-175-06							
	ORIG	DUP						
Arsenic	ND	ND	NA	NA	NA	NA	20	
Cadmium	ND	ND	NA	NA	NA	NA	20	
Chromium	ND	ND	NA	NA	NA	NA	20	
Lead	ND	ND	NA	NA	NA	NA	20	

Laboratory ID:	12-230-01							
Mercury	ND	ND	NA	NA	NA	NA	20	

MATRIX SPIKES

Laboratory ID:	12-175-06									
	MS	MSD	MS	MSD		MS	MSD			
Arsenic	233	234	222	222	ND	105	106	75-125	1	20
Cadmium	225	224	222	222	ND	101	101	75-125	0	20
Chromium	205	208	222	222	ND	92	94	75-125	2	20
Lead	214	217	222	222	ND	96	98	75-125	2	20

Laboratory ID:	12-230-01									
Mercury	11.7	11.6	12.5	12.5	ND	94	93	75-125	1	20



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-233
 Project: 17-06520-000

cPAHs EPA 8270D/SIM

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	SW1					
Laboratory ID:	12-233-01					
Benzo[a]anthracene	ND	0.010	EPA 8270D/SIM	12-26-18	12-26-18	
Chrysene	ND	0.010	EPA 8270D/SIM	12-26-18	12-26-18	
Benzo[b]fluoranthene	ND	0.010	EPA 8270D/SIM	12-26-18	12-26-18	
Benzo(j,k)fluoranthene	ND	0.010	EPA 8270D/SIM	12-26-18	12-26-18	
Benzo[a]pyrene	ND	0.010	EPA 8270D/SIM	12-26-18	12-26-18	
Indeno(1,2,3-c,d)pyrene	ND	0.010	EPA 8270D/SIM	12-26-18	12-26-18	
Dibenz[a,h]anthracene	ND	0.010	EPA 8270D/SIM	12-26-18	12-26-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>2-Fluorobiphenyl</i>	<i>62</i>	<i>21 - 110</i>				
<i>Pyrene-d10</i>	<i>76</i>	<i>19 - 111</i>				
<i>Terphenyl-d14</i>	<i>75</i>	<i>32 - 137</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-233
 Project: 17-06520-000

cPAHs EPA 8270D/SIM

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	SW2					
Laboratory ID:	12-233-02					
Benzo[a]anthracene	ND	0.010	EPA 8270D/SIM	12-26-18	12-26-18	
Chrysene	ND	0.010	EPA 8270D/SIM	12-26-18	12-26-18	
Benzo[b]fluoranthene	ND	0.010	EPA 8270D/SIM	12-26-18	12-26-18	
Benzo(j,k)fluoranthene	ND	0.010	EPA 8270D/SIM	12-26-18	12-26-18	
Benzo[a]pyrene	ND	0.010	EPA 8270D/SIM	12-26-18	12-26-18	
Indeno(1,2,3-c,d)pyrene	ND	0.010	EPA 8270D/SIM	12-26-18	12-26-18	
Dibenz[a,h]anthracene	ND	0.010	EPA 8270D/SIM	12-26-18	12-26-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>2-Fluorobiphenyl</i>	<i>65</i>	<i>21 - 110</i>				
<i>Pyrene-d10</i>	<i>80</i>	<i>19 - 111</i>				
<i>Terphenyl-d14</i>	<i>81</i>	<i>32 - 137</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-233
 Project: 17-06520-000

cPAHs EPA 8270D/SIM

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	SW3					
Laboratory ID:	12-233-03					
Benzo[a]anthracene	ND	0.010	EPA 8270D/SIM	12-26-18	12-26-18	
Chrysene	ND	0.010	EPA 8270D/SIM	12-26-18	12-26-18	
Benzo[b]fluoranthene	ND	0.010	EPA 8270D/SIM	12-26-18	12-26-18	
Benzo(j,k)fluoranthene	ND	0.010	EPA 8270D/SIM	12-26-18	12-26-18	
Benzo[a]pyrene	ND	0.010	EPA 8270D/SIM	12-26-18	12-26-18	
Indeno(1,2,3-c,d)pyrene	ND	0.010	EPA 8270D/SIM	12-26-18	12-26-18	
Dibenz[a,h]anthracene	ND	0.010	EPA 8270D/SIM	12-26-18	12-26-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>2-Fluorobiphenyl</i>	<i>70</i>	<i>21 - 110</i>				
<i>Pyrene-d10</i>	<i>79</i>	<i>19 - 111</i>				
<i>Terphenyl-d14</i>	<i>79</i>	<i>32 - 137</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-233
 Project: 17-06520-000

cPAHs EPA 8270D/SIM

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	SW4					
Laboratory ID:	12-233-04					
Benzo[a]anthracene	ND	0.011	EPA 8270D/SIM	12-26-18	12-27-18	
Chrysene	ND	0.011	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo[b]fluoranthene	ND	0.011	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo(j,k)fluoranthene	ND	0.011	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo[a]pyrene	ND	0.011	EPA 8270D/SIM	12-26-18	12-27-18	
Indeno(1,2,3-c,d)pyrene	ND	0.011	EPA 8270D/SIM	12-26-18	12-27-18	
Dibenz[a,h]anthracene	ND	0.011	EPA 8270D/SIM	12-26-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>2-Fluorobiphenyl</i>	<i>76</i>	<i>21 - 110</i>				
<i>Pyrene-d10</i>	<i>71</i>	<i>19 - 111</i>				
<i>Terphenyl-d14</i>	<i>86</i>	<i>32 - 137</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-233
 Project: 17-06520-000

cPAHs EPA 8270D/SIM
METHOD BLANK QUALITY CONTROL

Matrix: Water

Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<hr/>						
Laboratory ID:	MB1226W1					
Benzo[a]anthracene	ND	0.010	EPA 8270D/SIM	12-26-18	12-26-18	
Chrysene	ND	0.010	EPA 8270D/SIM	12-26-18	12-26-18	
Benzo[b]fluoranthene	ND	0.010	EPA 8270D/SIM	12-26-18	12-26-18	
Benzo(j,k)fluoranthene	ND	0.010	EPA 8270D/SIM	12-26-18	12-26-18	
Benzo[a]pyrene	ND	0.010	EPA 8270D/SIM	12-26-18	12-26-18	
Indeno(1,2,3-c,d)pyrene	ND	0.010	EPA 8270D/SIM	12-26-18	12-26-18	
Dibenz[a,h]anthracene	ND	0.010	EPA 8270D/SIM	12-26-18	12-26-18	
<hr/>						
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>2-Fluorobiphenyl</i>	<i>37</i>	<i>21 - 110</i>				
<i>Pyrene-d10</i>	<i>79</i>	<i>19 - 111</i>				
<i>Terphenyl-d14</i>	<i>79</i>	<i>32 - 137</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-233
 Project: 17-06520-000

**cPAHs EPA 8270D/SIM
 SB/SBD QUALITY CONTROL**

Matrix: Water

Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB1226W1									
	SB	SBD	SB	SBD	SB	SBD				
Benzo[a]anthracene	0.501	0.514	0.500	0.500	100	103	57 - 127	3	15	
Chrysene	0.462	0.468	0.500	0.500	92	94	51 - 120	1	15	
Benzo[b]fluoranthene	0.486	0.502	0.500	0.500	97	100	54 - 124	3	17	
Benzo(j,k)fluoranthene	0.478	0.484	0.500	0.500	96	97	50 - 127	1	18	
Benzo[a]pyrene	0.514	0.526	0.500	0.500	103	105	50 - 120	2	16	
Indeno(1,2,3-c,d)pyrene	0.507	0.524	0.500	0.500	101	105	46 - 132	3	20	
Dibenz[a,h]anthracene	0.493	0.505	0.500	0.500	99	101	49 - 129	2	18	
Surrogate:										
2-Fluorobiphenyl					64	60	21 - 110			
Pyrene-d10					81	81	19 - 111			
Terphenyl-d14					83	82	32 - 137			





Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
- B - The analyte indicated was also found in the blank sample.
- C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
- E - The value reported exceeds the quantitation range and is an estimate.
- F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
- H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
- I - Compound recovery is outside of the control limits.
- J - The value reported was below the practical quantitation limit. The value is an estimate.
- K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
- L - The RPD is outside of the control limits.
- M - Hydrocarbons in the gasoline range are impacting the diesel range result.
- M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
- N - Hydrocarbons in the lube oil range are impacting the diesel range result.
- N1 - Hydrocarbons in diesel range are impacting lube oil range results.
- O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
- P - The RPD of the detected concentrations between the two columns is greater than 40.
- Q - Surrogate recovery is outside of the control limits.
- S - Surrogate recovery data is not available due to the necessary dilution of the sample.
- T - The sample chromatogram is not similar to a typical _____.
- U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- U1 - The practical quantitation limit is elevated due to interferences present in the sample.
- V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
- W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
- X - Sample extract treated with a mercury cleanup procedure.
- X1 - Sample extract treated with a sulfuric acid/silica gel cleanup procedure.
- Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.
- Z -
- ND - Not Detected at PQL
- PQL - Practical Quantitation Limit
- RPD - Relative Percent Difference



Chain of Custody

Company: **HERRERA**

Project Number: **17-66520-000**

Project Name: **Pacific Park**

Project Manager: **George Ifthar**

Sampled by: **G. Ifthar, K. Bliss**

**Turnaround Request
(in working days)**

(Select One)

- ☐ Same Day ☐ 1 Day
- ☐ 2 Days ☐ 3 Days
- ☒ Standard (7 Days)
(TPH analysis 5 Days)
- ☐ _____ (other)

Number of Containers

Laboratory Number:

12-233

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	CPAHs	% Moisture
1	SW1	12/20/18	15:00	water	12			✓	✓	✓										✓			✓	
2	SW2	1	14:15	1	12			✓	✓	✓										✓			✓	
3	SW3	1	13:40	1	12			✓	✓	✓										✓			✓	
4	SW4	1	13:00	1	12			✓	✓	✓										✓			✓	
5	Trip Blank	X	X	X	15					✓														

	Signature	Company	Date	Time	Comments/Special Instructions
Relinquished	<i>George Ifthar</i>	Herrera	12/20/18	16:10	Hold Samples for PCBs — pending Dx results.
Received	<i>m</i>	speedy	12/21/18	10:47	
Relinquished	<i>m</i>	speedy	12/21/18	13:55	
Received	<i>Wade L...</i>	OSE	12/21/18	13:55	
Relinquished					Data Package: Standard <input type="checkbox"/> Level III <input type="checkbox"/> Level IV <input type="checkbox"/>
Received					
Reviewed/Date		Reviewed/Date			Chromatograms with final report <input type="checkbox"/> Electronic Data Deliverables (EDDs) <input type="checkbox"/>



14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

January 31, 2019

George Iftner
Herrera Environmental Consultants, Inc.
2200 6th Avenue, Suite 1100
Seattle, WA 98121

Re: Analytical Data for Project 17-06520-000
Laboratory Reference No. 1812-233B

Dear George:

Enclosed are the analytical results and associated quality control data for samples submitted on December 21, 2018.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read 'DB', with a long horizontal flourish extending to the right.

David Baumeister
Project Manager

Enclosures



OnSite Environmental, Inc. 14648 NE 95th Street, Redmond, WA 98052 (425) 883-3881

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: January 31, 2019
Samples Submitted: December 21, 2018
Laboratory Reference: 1812-233B
Project: 17-06520-000

Case Narrative

Samples were collected on December 20, 2018 and received by the laboratory on December 21, 2018. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.



Date of Report: January 31, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-233B
 Project: 17-06520-000

HARDNESS
EPA 200.7/SM 2340B

Matrix: Water
 Units: mg eqt. CaCO₃/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	SW1					
Laboratory ID:	12-233-01					
Hardness	85	2.0	200.7/SM 2340B	1-30-19	1-30-19	

Client ID:	SW2					
Laboratory ID:	12-233-02					
Hardness	77	1.0	200.7/SM 2340B	1-30-19	1-30-19	

Client ID:	SW3					
Laboratory ID:	12-233-03					
Hardness	69	1.0	200.7/SM 2340B	1-30-19	1-30-19	

Client ID:	SW4					
Laboratory ID:	12-233-04					
Hardness	69	1.0	200.7/SM 2340B	1-30-19	1-30-19	



Date of Report: January 31, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-233B
 Project: 17-06520-000

**HARDNESS
 EPA 200.7/SM 2340B
 QUALITY CONTROL**

Matrix: Water
 Units: mg eqt. CaCO₃/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0130WH1					
Hardness	ND	1.0	200.7/SM 2340B	1-30-19	1-30-19	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	12-233-01							
	ORIG	DUP						
Hardness	84.6	87.0	NA	NA	NA	NA	3	20

MATRIX SPIKES

Laboratory ID:	12-233-01									
	MS	MSD	MS	MSD	MS	MSD				
Hardness	220	222	132	132	84.6	103	104	75-125	1	20

SPIKE BLANK

Laboratory ID:	SB0130WH1									
	SB		SB		SB					
Hardness	128		132		97			80-120	NA	NA





Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
- B - The analyte indicated was also found in the blank sample.
- C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
- E - The value reported exceeds the quantitation range and is an estimate.
- F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
- H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
- I - Compound recovery is outside of the control limits.
- J - The value reported was below the practical quantitation limit. The value is an estimate.
- K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
- L - The RPD is outside of the control limits.
- M - Hydrocarbons in the gasoline range are impacting the diesel range result.
- M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
- N - Hydrocarbons in the lube oil range are impacting the diesel range result.
- N1 - Hydrocarbons in diesel range are impacting lube oil range results.
- O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
- P - The RPD of the detected concentrations between the two columns is greater than 40.
- Q - Surrogate recovery is outside of the control limits.
- S - Surrogate recovery data is not available due to the necessary dilution of the sample.
- T - The sample chromatogram is not similar to a typical _____.
- U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- U1 - The practical quantitation limit is elevated due to interferences present in the sample.
- V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
- W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
- X - Sample extract treated with a mercury cleanup procedure.
- X1 - Sample extract treated with a sulfuric acid/silica gel cleanup procedure.
- Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.
- Z -
- ND - Not Detected at PQL
- PQL - Practical Quantitation Limit
- RPD - Relative Percent Difference



Chain of Custody

Company: **HERRERA**
Project Number: **17-66520-000**
Project Name: **Pacific Park.**
Project Manager: **George Ifthar**
Sampled by: **G. Ifthar, K. Bliss**
**Turnaround Request
(in working days)**

(Select One)

- ☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days)
 (TPH analysis 5 Days)
☐ _____ (other)

Number of Containers

Laboratory Number:

12-233

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HClD	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (<input type="checkbox"/> Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	CPAHS	HARDNESS	% Moisture
1	SW1	12/20/18	15:00	water	12			✓	✓	✓										✓			✓	⊗	
2	SW2	1	14:15	1	12			✓	✓	✓										✓			✓	⊗	
3	SW3	1	13:40	1	12			✓	✓	✓										✓			✓	⊗	
4	SW4	1	13:00	1	12			✓	✓	✓										✓			✓	⊗	
5	Trip Blank	X	X	X	15					✓															

	Signature	Company	Date	Time	Comments/Special Instructions
Relinquished	<i>George Ifthar</i>	Herrera	12/20/18	16:10	Hold Samples for PCBs — pending Dx results. ⊗ Added 1/28/19. PB (5 DAYS)
Received	<i>m</i>	speedy	12/21/18	10:47	
Relinquished	<i>m</i>	speedy	12/21/18	13:55	
Received	<i>Kate L...</i>	OSE	12/21/18	13:55	
Relinquished					
Received					
Reviewed/Date		Reviewed/Date			Data Package: Standard <input type="checkbox"/> Level III <input type="checkbox"/> Level IV <input type="checkbox"/> Chromatograms with final report <input type="checkbox"/> Electronic Data Deliverables (EDDs) <input type="checkbox"/>



14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

January 3, 2019

George Iftner
Herrera Environmental Consultants, Inc.
2200 6th Avenue, Suite 1100
Seattle, WA 98121

Re: Analytical Data for Project 17-06520-000
Laboratory Reference No. 1812-235

Dear George:

Enclosed are the analytical results and associated quality control data for samples submitted on December 21, 2018.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read 'DB', with a long horizontal flourish extending to the right.

David Baumeister
Project Manager

Enclosures



OnSite Environmental, Inc. 14648 NE 95th Street, Redmond, WA 98052 (425) 883-3881

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: January 3, 2019
Samples Submitted: December 21, 2018
Laboratory Reference: 1812-235
Project: 17-06520-000

Case Narrative

Samples were collected on December 21, 2018 and received by the laboratory on December 21, 2018. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

GASOLINE RANGE ORGANICS
NWTPH-Gx

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-1					
Laboratory ID:	12-235-01					
Gasoline	ND	100	NWTPH-Gx	12-26-18	12-26-18	
Surrogate:	<i>Percent Recovery</i>	<i>Control Limits</i>				
Fluorobenzene	79	66-117				
Client ID:	MW-2					
Laboratory ID:	12-235-02					
Gasoline	ND	100	NWTPH-Gx	12-26-18	12-26-18	
Surrogate:	<i>Percent Recovery</i>	<i>Control Limits</i>				
Fluorobenzene	79	66-117				
Client ID:	MW-3					
Laboratory ID:	12-235-03					
Gasoline	ND	100	NWTPH-Gx	12-26-18	12-26-18	
Surrogate:	<i>Percent Recovery</i>	<i>Control Limits</i>				
Fluorobenzene	79	66-117				
Client ID:	MW-4					
Laboratory ID:	12-235-04					
Gasoline	ND	100	NWTPH-Gx	12-26-18	12-26-18	
Surrogate:	<i>Percent Recovery</i>	<i>Control Limits</i>				
Fluorobenzene	77	66-117				
Client ID:	MW-5					
Laboratory ID:	12-235-05					
Gasoline	ND	100	NWTPH-Gx	12-26-18	12-26-18	
Surrogate:	<i>Percent Recovery</i>	<i>Control Limits</i>				
Fluorobenzene	79	66-117				
Client ID:	MW-6					
Laboratory ID:	12-235-06					
Gasoline	ND	100	NWTPH-Gx	12-26-18	12-26-18	
Surrogate:	<i>Percent Recovery</i>	<i>Control Limits</i>				
Fluorobenzene	79	66-117				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

GASOLINE RANGE ORGANICS
NWTPH-Gx

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-7					
Laboratory ID:	12-235-07					
Gasoline	ND	100	NWTPH-Gx	12-26-18	12-26-18	
Surrogate:	<i>Percent Recovery</i>	<i>Control Limits</i>				
Fluorobenzene	78	66-117				
Client ID:	MW-8					
Laboratory ID:	12-235-08					
Gasoline	ND	100	NWTPH-Gx	12-26-18	12-26-18	
Surrogate:	<i>Percent Recovery</i>	<i>Control Limits</i>				
Fluorobenzene	79	66-117				
Client ID:	MW-9					
Laboratory ID:	12-235-09					
Gasoline	ND	100	NWTPH-Gx	12-26-18	12-26-18	
Surrogate:	<i>Percent Recovery</i>	<i>Control Limits</i>				
Fluorobenzene	78	66-117				
Client ID:	MW-10					
Laboratory ID:	12-235-10					
Gasoline	ND	100	NWTPH-Gx	12-26-18	12-26-18	
Surrogate:	<i>Percent Recovery</i>	<i>Control Limits</i>				
Fluorobenzene	77	66-117				
Client ID:	MW-11					
Laboratory ID:	12-235-11					
Gasoline	ND	100	NWTPH-Gx	12-26-18	12-26-18	
Surrogate:	<i>Percent Recovery</i>	<i>Control Limits</i>				
Fluorobenzene	76	66-117				
Client ID:	MW-12					
Laboratory ID:	12-235-12					
Gasoline	ND	100	NWTPH-Gx	12-26-18	12-26-18	
Surrogate:	<i>Percent Recovery</i>	<i>Control Limits</i>				
Fluorobenzene	79	66-117				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

**GASOLINE RANGE ORGANICS
 NWTPH-Gx
 QUALITY CONTROL**

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1226W1					
Gasoline	ND	100	NWTPH-Gx	12-26-18	12-26-18	
Surrogate:	Percent Recovery	Control Limits				
Fluorobenzene	79	66-117				
Laboratory ID:	MB1226W2					
Gasoline	ND	100	NWTPH-Gx	12-26-18	12-26-18	
Surrogate:	Percent Recovery	Control Limits				
Fluorobenzene	79	66-117				

Analyte	Result		Spike Level		Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE										
Laboratory ID:	12-233-01									
	ORIG	DUP								
Gasoline	ND	ND	NA	NA		NA	NA	NA	30	
Surrogate:										
Fluorobenzene						85	80	66-117		
Laboratory ID:	12-233-02									
	ORIG	DUP								
Gasoline	ND	ND	NA	NA		NA	NA	NA	30	
Surrogate:										
Fluorobenzene						80	80	66-117		



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

**DIESEL AND HEAVY OIL RANGE ORGANICS
 NWTPH-Dx**

Matrix: Water
 Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-1					
Laboratory ID:	12-235-01					
Diesel Range Organics	ND	0.26	NWTPH-Dx	12-27-18	12-27-18	
Lube Oil Range Organics	ND	0.41	NWTPH-Dx	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	91	50-150				

Client ID:	MW-2					
Laboratory ID:	12-235-02					
Diesel Range Organics	ND	0.26	NWTPH-Dx	12-27-18	12-27-18	
Lube Oil Range Organics	ND	0.41	NWTPH-Dx	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	100	50-150				

Client ID:	MW-3					
Laboratory ID:	12-235-03					
Diesel Range Organics	ND	0.26	NWTPH-Dx	12-27-18	12-27-18	
Lube Oil Range Organics	ND	0.41	NWTPH-Dx	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	100	50-150				

Client ID:	MW-4					
Laboratory ID:	12-235-04					
Diesel Range Organics	ND	0.26	NWTPH-Dx	12-27-18	12-27-18	
Lube Oil Range Organics	ND	0.41	NWTPH-Dx	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	101	50-150				

Client ID:	MW-5					
Laboratory ID:	12-235-05					
Diesel Range Organics	ND	0.26	NWTPH-Dx	12-27-18	12-27-18	
Lube Oil Range Organics	ND	0.41	NWTPH-Dx	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	99	50-150				

Client ID:	MW-6					
Laboratory ID:	12-235-06					
Diesel Range Organics	ND	0.26	NWTPH-Dx	12-27-18	12-27-18	
Lube Oil Range Organics	ND	0.41	NWTPH-Dx	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	107	50-150				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

**DIESEL AND HEAVY OIL RANGE ORGANICS
 NWTPH-Dx**

Matrix: Water
 Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-7					
Laboratory ID:	12-235-07					
Diesel Range Organics	ND	0.27	NWTPH-Dx	12-27-18	12-27-18	
Lube Oil Range Organics	ND	0.44	NWTPH-Dx	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	99	50-150				

Client ID:	MW-8					
Laboratory ID:	12-235-08					
Diesel Range Organics	ND	0.26	NWTPH-Dx	12-27-18	12-27-18	
Lube Oil Range Organics	ND	0.42	NWTPH-Dx	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	103	50-150				

Client ID:	MW-9					
Laboratory ID:	12-235-09					
Diesel Range Organics	ND	0.26	NWTPH-Dx	12-27-18	12-27-18	
Lube Oil Range Organics	ND	0.41	NWTPH-Dx	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	100	50-150				

Client ID:	MW-10					
Laboratory ID:	12-235-10					
Diesel Range Organics	ND	0.27	NWTPH-Dx	12-27-18	12-27-18	
Lube Oil Range Organics	ND	0.43	NWTPH-Dx	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	106	50-150				

Client ID:	MW-11					
Laboratory ID:	12-235-11					
Diesel Range Organics	ND	0.26	NWTPH-Dx	12-27-18	12-27-18	
Lube Oil Range Organics	ND	0.41	NWTPH-Dx	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	106	50-150				

Client ID:	MW-12					
Laboratory ID:	12-235-12					
Diesel Range Organics	ND	0.26	NWTPH-Dx	12-27-18	12-27-18	
Lube Oil Range Organics	ND	0.42	NWTPH-Dx	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	98	50-150				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

**DIESEL AND HEAVY OIL RANGE ORGANICS
 NWTPH-Dx
 QUALITY CONTROL**

Matrix: Water
 Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1227W2					
Diesel Range Organics	ND	0.25	NWTPH-Dx	12-27-18	12-27-18	
Lube Oil Range Organics	ND	0.40	NWTPH-Dx	12-27-18	12-27-18	
Surrogate:	Percent Recovery	Control Limits				
<i>o</i> -Terphenyl	102	50-150				

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	12-235-01							
	ORIG	DUP						
Diesel Range	ND	ND	NA	NA	NA	NA	NA	NA
Lube Oil Range	ND	ND	NA	NA	NA	NA	NA	NA
Surrogate:								
<i>o</i> -Terphenyl				91	96	50-150		
Laboratory ID:	12-235-12							
	ORIG	DUP						
Diesel Range	ND	ND	NA	NA	NA	NA	NA	NA
Lube Oil Range	ND	ND	NA	NA	NA	NA	NA	NA
Surrogate:								
<i>o</i> -Terphenyl				98	103	50-150		



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
 page 1 of 2

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-1					
Laboratory ID:	12-235-01					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloromethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Vinyl Chloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Trichlorofluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Acetone	ND	7.0	EPA 8260C	12-27-18	12-27-18	
Iodomethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Carbon Disulfide	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methylene Chloride	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl t-Butyl Ether	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Vinyl Acetate	ND	1.0	EPA 8260C	12-27-18	12-27-18	
2,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Butanone	ND	5.0	EPA 8260C	12-27-18	12-27-18	
Bromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroform	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Carbon Tetrachloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Benzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Trichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Dibromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromodichloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Toluene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
 page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-1					
Laboratory ID:	12-235-01					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Tetrachloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Hexanone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Dibromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromoethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Ethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
m,p-Xylene	ND	0.40	EPA 8260C	12-27-18	12-27-18	
o-Xylene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Styrene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromoform	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Isopropylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Propylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
4-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3,5-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
tert-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
sec-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
p-Isopropyltoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Hexachlorobutadiene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Naphthalene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>98</i>	<i>75-127</i>				
<i>Toluene-d8</i>	<i>99</i>	<i>80-127</i>				
<i>4-Bromofluorobenzene</i>	<i>98</i>	<i>78-125</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
 page 1 of 2

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-2					
Laboratory ID:	12-235-02					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloromethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Vinyl Chloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Trichlorofluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Acetone	ND	7.0	EPA 8260C	12-27-18	12-27-18	
Iodomethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Carbon Disulfide	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methylene Chloride	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl t-Butyl Ether	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Vinyl Acetate	ND	1.0	EPA 8260C	12-27-18	12-27-18	
2,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Butanone	ND	5.0	EPA 8260C	12-27-18	12-27-18	
Bromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroform	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Carbon Tetrachloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Benzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Trichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Dibromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromodichloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Toluene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
 page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-2					
Laboratory ID:	12-235-02					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Tetrachloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Hexanone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Dibromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromoethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Ethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
m,p-Xylene	ND	0.40	EPA 8260C	12-27-18	12-27-18	
o-Xylene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Styrene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromoform	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Isopropylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Propylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
4-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3,5-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
tert-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
sec-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
p-Isopropyltoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Hexachlorobutadiene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Naphthalene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>92</i>	<i>75-127</i>				
<i>Toluene-d8</i>	<i>98</i>	<i>80-127</i>				
<i>4-Bromofluorobenzene</i>	<i>105</i>	<i>78-125</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
 page 1 of 2

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-3					
Laboratory ID:	12-235-03					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloromethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Vinyl Chloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Trichlorofluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Acetone	ND	7.0	EPA 8260C	12-27-18	12-27-18	
Iodomethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Carbon Disulfide	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methylene Chloride	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl t-Butyl Ether	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Vinyl Acetate	ND	1.0	EPA 8260C	12-27-18	12-27-18	
2,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
(cis) 1,2-Dichloroethene	0.30	0.20	EPA 8260C	12-27-18	12-27-18	
2-Butanone	ND	5.0	EPA 8260C	12-27-18	12-27-18	
Bromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroform	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Carbon Tetrachloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Benzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Trichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Dibromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromodichloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Toluene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
 page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-3					
Laboratory ID:	12-235-03					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Tetrachloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Hexanone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Dibromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromoethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Ethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
m,p-Xylene	ND	0.40	EPA 8260C	12-27-18	12-27-18	
o-Xylene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Styrene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromoform	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Isopropylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Propylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
4-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3,5-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
tert-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
sec-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
p-Isopropyltoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Hexachlorobutadiene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Naphthalene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>89</i>	<i>75-127</i>				
<i>Toluene-d8</i>	<i>93</i>	<i>80-127</i>				
<i>4-Bromofluorobenzene</i>	<i>98</i>	<i>78-125</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
 page 1 of 2

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-4					
Laboratory ID:	12-235-04					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloromethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Vinyl Chloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Trichlorofluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Acetone	ND	7.0	EPA 8260C	12-27-18	12-27-18	
Iodomethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Carbon Disulfide	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methylene Chloride	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl t-Butyl Ether	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Vinyl Acetate	ND	1.0	EPA 8260C	12-27-18	12-27-18	
2,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Butanone	ND	5.0	EPA 8260C	12-27-18	12-27-18	
Bromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroform	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Carbon Tetrachloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Benzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Trichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Dibromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromodichloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Toluene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
 page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-4					
Laboratory ID:	12-235-04					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Tetrachloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Hexanone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Dibromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromoethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chlorobenzene	3.7	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Ethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
m,p-Xylene	ND	0.40	EPA 8260C	12-27-18	12-27-18	
o-Xylene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Styrene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromoform	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Isopropylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Propylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
4-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3,5-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
tert-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
sec-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
p-Isopropyltoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Hexachlorobutadiene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Naphthalene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>97</i>	<i>75-127</i>				
<i>Toluene-d8</i>	<i>98</i>	<i>80-127</i>				
<i>4-Bromofluorobenzene</i>	<i>107</i>	<i>78-125</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
 page 1 of 2

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-5					
Laboratory ID:	12-235-05					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloromethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Vinyl Chloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Trichlorofluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Acetone	ND	7.0	EPA 8260C	12-27-18	12-27-18	
Iodomethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Carbon Disulfide	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methylene Chloride	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl t-Butyl Ether	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Vinyl Acetate	ND	1.0	EPA 8260C	12-27-18	12-27-18	
2,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Butanone	ND	5.0	EPA 8260C	12-27-18	12-27-18	
Bromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroform	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Carbon Tetrachloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Benzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Trichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Dibromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromodichloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Toluene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
 page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-5					
Laboratory ID:	12-235-05					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Tetrachloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Hexanone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Dibromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromoethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Ethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
m,p-Xylene	ND	0.40	EPA 8260C	12-27-18	12-27-18	
o-Xylene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Styrene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromoform	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Isopropylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Propylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
4-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3,5-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
tert-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
sec-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
p-Isopropyltoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Hexachlorobutadiene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Naphthalene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>96</i>	<i>75-127</i>				
<i>Toluene-d8</i>	<i>99</i>	<i>80-127</i>				
<i>4-Bromofluorobenzene</i>	<i>104</i>	<i>78-125</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
 page 1 of 2

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-6					
Laboratory ID:	12-235-06					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloromethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Vinyl Chloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Trichlorofluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Acetone	ND	7.0	EPA 8260C	12-27-18	12-27-18	
Iodomethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Carbon Disulfide	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methylene Chloride	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl t-Butyl Ether	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Vinyl Acetate	ND	1.0	EPA 8260C	12-27-18	12-27-18	
2,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Butanone	ND	5.0	EPA 8260C	12-27-18	12-27-18	
Bromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroform	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Carbon Tetrachloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Benzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Trichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Dibromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromodichloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Toluene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
 page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-6					
Laboratory ID:	12-235-06					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Tetrachloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Hexanone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Dibromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromoethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Ethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
m,p-Xylene	ND	0.40	EPA 8260C	12-27-18	12-27-18	
o-Xylene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Styrene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromoform	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Isopropylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Propylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
4-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3,5-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
tert-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
sec-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
p-Isopropyltoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Hexachlorobutadiene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Naphthalene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>100</i>	<i>75-127</i>				
<i>Toluene-d8</i>	<i>97</i>	<i>80-127</i>				
<i>4-Bromofluorobenzene</i>	<i>105</i>	<i>78-125</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
 page 1 of 2

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-7					
Laboratory ID:	12-235-07					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloromethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Vinyl Chloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Trichlorofluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Acetone	ND	7.0	EPA 8260C	12-27-18	12-27-18	
Iodomethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Carbon Disulfide	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methylene Chloride	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl t-Butyl Ether	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Vinyl Acetate	ND	1.0	EPA 8260C	12-27-18	12-27-18	
2,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Butanone	ND	5.0	EPA 8260C	12-27-18	12-27-18	
Bromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroform	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Carbon Tetrachloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Benzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Trichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Dibromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromodichloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Toluene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
 page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-7					
Laboratory ID:	12-235-07					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Tetrachloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Hexanone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Dibromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromoethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Ethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
m,p-Xylene	ND	0.40	EPA 8260C	12-27-18	12-27-18	
o-Xylene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Styrene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromoform	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Isopropylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Propylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
4-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3,5-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
tert-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
sec-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
p-Isopropyltoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Hexachlorobutadiene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Naphthalene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>89</i>	<i>75-127</i>				
<i>Toluene-d8</i>	<i>94</i>	<i>80-127</i>				
<i>4-Bromofluorobenzene</i>	<i>100</i>	<i>78-125</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
 page 1 of 2

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-8					
Laboratory ID:	12-235-08					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloromethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Vinyl Chloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Trichlorofluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Acetone	ND	7.0	EPA 8260C	12-27-18	12-27-18	
Iodomethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Carbon Disulfide	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methylene Chloride	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl t-Butyl Ether	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Vinyl Acetate	ND	1.0	EPA 8260C	12-27-18	12-27-18	
2,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Butanone	ND	5.0	EPA 8260C	12-27-18	12-27-18	
Bromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroform	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Carbon Tetrachloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Benzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Trichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Dibromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromodichloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Toluene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
 page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-8					
Laboratory ID:	12-235-08					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Tetrachloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Hexanone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Dibromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromoethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Ethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
m,p-Xylene	ND	0.40	EPA 8260C	12-27-18	12-27-18	
o-Xylene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Styrene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromoform	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Isopropylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Propylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
4-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3,5-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
tert-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
sec-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
p-Isopropyltoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Hexachlorobutadiene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Naphthalene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>94</i>	<i>75-127</i>				
<i>Toluene-d8</i>	<i>98</i>	<i>80-127</i>				
<i>4-Bromofluorobenzene</i>	<i>107</i>	<i>78-125</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
 page 1 of 2

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-9					
Laboratory ID:	12-235-09					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloromethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Vinyl Chloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Trichlorofluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Acetone	ND	7.0	EPA 8260C	12-27-18	12-27-18	
Iodomethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Carbon Disulfide	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methylene Chloride	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl t-Butyl Ether	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Vinyl Acetate	ND	1.0	EPA 8260C	12-27-18	12-27-18	
2,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Butanone	ND	5.0	EPA 8260C	12-27-18	12-27-18	
Bromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroform	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Carbon Tetrachloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Benzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Trichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Dibromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromodichloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Toluene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
 page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-9					
Laboratory ID:	12-235-09					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Tetrachloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Hexanone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Dibromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromoethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chlorobenzene	0.43	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Ethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
m,p-Xylene	ND	0.40	EPA 8260C	12-27-18	12-27-18	
o-Xylene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Styrene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromoform	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Isopropylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Propylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
4-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3,5-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
tert-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
sec-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
p-Isopropyltoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Hexachlorobutadiene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Naphthalene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>91</i>	<i>75-127</i>				
<i>Toluene-d8</i>	<i>95</i>	<i>80-127</i>				
<i>4-Bromofluorobenzene</i>	<i>104</i>	<i>78-125</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
 page 1 of 2

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-10					
Laboratory ID:	12-235-10					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloromethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Vinyl Chloride	0.26	0.20	EPA 8260C	12-27-18	12-27-18	
Bromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Trichlorofluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Acetone	ND	7.0	EPA 8260C	12-27-18	12-27-18	
Iodomethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Carbon Disulfide	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methylene Chloride	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl t-Butyl Ether	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Vinyl Acetate	ND	1.0	EPA 8260C	12-27-18	12-27-18	
2,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Butanone	ND	5.0	EPA 8260C	12-27-18	12-27-18	
Bromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroform	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Carbon Tetrachloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Benzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Trichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Dibromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromodichloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Toluene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
 page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-10					
Laboratory ID:	12-235-10					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Tetrachloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Hexanone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Dibromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromoethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Ethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
m,p-Xylene	ND	0.40	EPA 8260C	12-27-18	12-27-18	
o-Xylene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Styrene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromoform	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Isopropylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Propylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
4-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3,5-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
tert-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
sec-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
p-Isopropyltoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Hexachlorobutadiene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Naphthalene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>94</i>	<i>75-127</i>				
<i>Toluene-d8</i>	<i>95</i>	<i>80-127</i>				
<i>4-Bromofluorobenzene</i>	<i>102</i>	<i>78-125</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
 page 1 of 2

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-11					
Laboratory ID:	12-235-11					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloromethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Vinyl Chloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Trichlorofluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Acetone	ND	7.0	EPA 8260C	12-27-18	12-27-18	
Iodomethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Carbon Disulfide	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methylene Chloride	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl t-Butyl Ether	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Vinyl Acetate	ND	1.0	EPA 8260C	12-27-18	12-27-18	
2,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Butanone	ND	5.0	EPA 8260C	12-27-18	12-27-18	
Bromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroform	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Carbon Tetrachloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Benzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Trichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Dibromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromodichloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Toluene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
 page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-11					
Laboratory ID:	12-235-11					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Tetrachloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Hexanone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Dibromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromoethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Ethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
m,p-Xylene	ND	0.40	EPA 8260C	12-27-18	12-27-18	
o-Xylene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Styrene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromoform	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Isopropylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Propylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
4-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3,5-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
tert-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
sec-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
p-Isopropyltoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Hexachlorobutadiene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Naphthalene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>92</i>	<i>75-127</i>				
<i>Toluene-d8</i>	<i>97</i>	<i>80-127</i>				
<i>4-Bromofluorobenzene</i>	<i>103</i>	<i>78-125</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
 page 1 of 2

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-12					
Laboratory ID:	12-235-12					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloromethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Vinyl Chloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Trichlorofluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Acetone	ND	7.0	EPA 8260C	12-27-18	12-27-18	
Iodomethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Carbon Disulfide	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methylene Chloride	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl t-Butyl Ether	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Vinyl Acetate	ND	1.0	EPA 8260C	12-27-18	12-27-18	
2,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Butanone	ND	5.0	EPA 8260C	12-27-18	12-27-18	
Bromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroform	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Carbon Tetrachloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Benzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Trichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Dibromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromodichloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Toluene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
 page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-12					
Laboratory ID:	12-235-12					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Tetrachloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Hexanone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Dibromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromoethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Ethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
m,p-Xylene	ND	0.40	EPA 8260C	12-27-18	12-27-18	
o-Xylene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Styrene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromoform	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Isopropylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Propylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
4-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3,5-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
tert-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
sec-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
p-Isopropyltoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Hexachlorobutadiene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Naphthalene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>94</i>	<i>75-127</i>				
<i>Toluene-d8</i>	<i>103</i>	<i>80-127</i>				
<i>4-Bromofluorobenzene</i>	<i>105</i>	<i>78-125</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
 page 1 of 2

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	Trip Blank					
Laboratory ID:	12-235-13					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloromethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Vinyl Chloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Trichlorofluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Acetone	ND	7.0	EPA 8260C	12-27-18	12-27-18	
Iodomethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Carbon Disulfide	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methylene Chloride	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl t-Butyl Ether	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Vinyl Acetate	ND	1.0	EPA 8260C	12-27-18	12-27-18	
2,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Butanone	ND	5.0	EPA 8260C	12-27-18	12-27-18	
Bromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroform	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Carbon Tetrachloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Benzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Trichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Dibromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromodichloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Toluene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
 page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	Trip Blank					
Laboratory ID:	12-235-13					
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Tetrachloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Hexanone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Dibromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromoethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Ethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
m,p-Xylene	ND	0.40	EPA 8260C	12-27-18	12-27-18	
o-Xylene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Styrene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromoform	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Isopropylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Propylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
4-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3,5-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
tert-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
sec-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
p-Isopropyltoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Hexachlorobutadiene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Naphthalene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>89</i>	<i>75-127</i>				
<i>Toluene-d8</i>	<i>97</i>	<i>80-127</i>				
<i>4-Bromofluorobenzene</i>	<i>105</i>	<i>78-125</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

**VOLATILE ORGANICS EPA 8260C
 METHOD BLANK QUALITY CONTROL**

page 1 of 2

Matrix: Water

Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<hr/>						
Laboratory ID:	MB1227W1					
Dichlorodifluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloromethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Vinyl Chloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Trichlorofluoromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Acetone	ND	7.0	EPA 8260C	12-27-18	12-27-18	
Iodomethane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Carbon Disulfide	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methylene Chloride	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl t-Butyl Ether	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Vinyl Acetate	ND	1.0	EPA 8260C	12-27-18	12-27-18	
2,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Butanone	ND	5.0	EPA 8260C	12-27-18	12-27-18	
Bromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chloroform	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Carbon Tetrachloride	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Benzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Trichloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Dibromomethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromodichloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Toluene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260C	12-27-18	12-27-18	



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

VOLATILE ORGANICS EPA 8260C
METHOD BLANK QUALITY CONTROL
 page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID: MB1227W1						
1,1,2-Trichloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Tetrachloroethene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Hexanone	ND	2.0	EPA 8260C	12-27-18	12-27-18	
Dibromochloromethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromoethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Chlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Ethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
m,p-Xylene	ND	0.40	EPA 8260C	12-27-18	12-27-18	
o-Xylene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Styrene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromoform	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Isopropylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Bromobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichloropropane	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Propylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
2-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
4-Chlorotoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3,5-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
tert-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trimethylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
sec-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,3-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
p-Isopropyltoluene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,4-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
n-Butylbenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
Hexachlorobutadiene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
Naphthalene	ND	1.0	EPA 8260C	12-27-18	12-27-18	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260C	12-27-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>96</i>	<i>75-127</i>				
<i>Toluene-d8</i>	<i>96</i>	<i>80-127</i>				
<i>4-Bromofluorobenzene</i>	<i>103</i>	<i>78-125</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

**VOLATILE ORGANICS EPA 8260C
 SB/SBD QUALITY CONTROL**

Matrix: Water

Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery	RPD	RPD	Flags
					Recovery	Limits	Limit			
SPIKE BLANKS										
Laboratory ID:	SB1227W1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	9.85	9.60	10.0	10.0	99	96	62-129	3	15	
Benzene	10.1	9.88	10.0	10.0	101	99	77-127	2	15	
Trichloroethene	10.2	9.63	10.0	10.0	102	96	70-120	6	15	
Toluene	10.5	9.88	10.0	10.0	105	99	82-123	6	15	
Chlorobenzene	10.6	9.97	10.0	10.0	106	100	79-120	6	15	
Surrogate:										
Dibromofluoromethane					94	101	75-127			
Toluene-d8					93	95	80-127			
4-Bromofluorobenzene					101	100	78-125			



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

TOTAL METALS
EPA 200.8/7470A

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-1					
Laboratory ID:	12-235-01					
Arsenic	ND	3.3	EPA 200.8	1-2-18	1-2-18	
Cadmium	ND	4.4	EPA 200.8	1-2-18	1-2-18	
Chromium	ND	11	EPA 200.8	1-2-18	1-2-18	
Lead	ND	1.1	EPA 200.8	1-2-18	1-2-18	
Mercury	ND	0.50	EPA 7470A	1-2-18	1-2-18	

Client ID:	MW-2					
Laboratory ID:	12-235-02					
Arsenic	6.5	3.3	EPA 200.8	1-2-18	1-2-18	
Cadmium	ND	4.4	EPA 200.8	1-2-18	1-2-18	
Chromium	ND	11	EPA 200.8	1-2-18	1-2-18	
Lead	ND	1.1	EPA 200.8	1-2-18	1-2-18	
Mercury	ND	0.50	EPA 7470A	1-2-18	1-2-18	

Client ID:	MW-3					
Laboratory ID:	12-235-03					
Arsenic	ND	3.3	EPA 200.8	1-2-18	1-2-18	
Cadmium	ND	4.4	EPA 200.8	1-2-18	1-2-18	
Chromium	ND	11	EPA 200.8	1-2-18	1-2-18	
Lead	ND	1.1	EPA 200.8	1-2-18	1-2-18	
Mercury	ND	0.50	EPA 7470A	1-2-18	1-2-18	

Client ID:	MW-4					
Laboratory ID:	12-235-04					
Arsenic	11	3.3	EPA 200.8	1-2-18	1-2-18	
Cadmium	ND	4.4	EPA 200.8	1-2-18	1-2-18	
Chromium	ND	11	EPA 200.8	1-2-18	1-2-18	
Lead	ND	1.1	EPA 200.8	1-2-18	1-2-18	
Mercury	ND	0.50	EPA 7470A	1-2-18	1-2-18	



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

TOTAL METALS
EPA 200.8/7470A

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-5					
Laboratory ID:	12-235-05					
Arsenic	ND	3.3	EPA 200.8	1-2-18	1-2-18	
Cadmium	ND	4.4	EPA 200.8	1-2-18	1-2-18	
Chromium	ND	11	EPA 200.8	1-2-18	1-2-18	
Lead	1.5	1.1	EPA 200.8	1-2-18	1-2-18	
Mercury	ND	0.50	EPA 7470A	1-2-18	1-2-18	

Client ID:	MW-6					
Laboratory ID:	12-235-06					
Arsenic	ND	3.3	EPA 200.8	1-2-18	1-2-18	
Cadmium	ND	4.4	EPA 200.8	1-2-18	1-2-18	
Chromium	ND	11	EPA 200.8	1-2-18	1-2-18	
Lead	ND	1.1	EPA 200.8	1-2-18	1-2-18	
Mercury	ND	0.50	EPA 7470A	1-2-18	1-2-18	

Client ID:	MW-7					
Laboratory ID:	12-235-07					
Arsenic	4.5	3.3	EPA 200.8	1-2-18	1-2-18	
Cadmium	ND	4.4	EPA 200.8	1-2-18	1-2-18	
Chromium	ND	11	EPA 200.8	1-2-18	1-2-18	
Lead	ND	1.1	EPA 200.8	1-2-18	1-2-18	
Mercury	ND	0.50	EPA 7470A	1-2-18	1-2-18	

Client ID:	MW-8					
Laboratory ID:	12-235-08					
Arsenic	ND	3.3	EPA 200.8	1-2-18	1-2-18	
Cadmium	ND	4.4	EPA 200.8	1-2-18	1-2-18	
Chromium	ND	11	EPA 200.8	1-2-18	1-2-18	
Lead	ND	1.1	EPA 200.8	1-2-18	1-2-18	
Mercury	ND	0.50	EPA 7470A	1-2-18	1-2-18	



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

TOTAL METALS
EPA 200.8/7470A

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-9					
Laboratory ID:	12-235-09					
Arsenic	ND	3.3	EPA 200.8	1-2-18	1-2-18	
Cadmium	ND	4.4	EPA 200.8	1-2-18	1-2-18	
Chromium	ND	11	EPA 200.8	1-2-18	1-2-18	
Lead	ND	1.1	EPA 200.8	1-2-18	1-2-18	
Mercury	ND	0.50	EPA 7470A	1-2-18	1-2-18	

Client ID:	MW-10					
Laboratory ID:	12-235-10					
Arsenic	ND	3.3	EPA 200.8	1-2-18	1-2-18	
Cadmium	ND	4.4	EPA 200.8	1-2-18	1-2-18	
Chromium	ND	11	EPA 200.8	1-2-18	1-2-18	
Lead	ND	1.1	EPA 200.8	1-2-18	1-2-18	
Mercury	ND	0.50	EPA 7470A	1-2-18	1-2-18	

Client ID:	MW-11					
Laboratory ID:	12-235-11					
Arsenic	3.5	3.3	EPA 200.8	1-2-18	1-2-18	
Cadmium	ND	4.4	EPA 200.8	1-2-18	1-2-18	
Chromium	ND	11	EPA 200.8	1-2-18	1-2-18	
Lead	ND	1.1	EPA 200.8	1-2-18	1-2-18	
Mercury	ND	0.50	EPA 7470A	1-2-18	1-2-18	

Client ID:	MW-12					
Laboratory ID:	12-235-12					
Arsenic	6.2	3.3	EPA 200.8	1-2-18	1-2-18	
Cadmium	ND	4.4	EPA 200.8	1-2-18	1-2-18	
Chromium	ND	11	EPA 200.8	1-2-18	1-2-18	
Lead	ND	1.1	EPA 200.8	1-2-18	1-2-18	
Mercury	ND	0.50	EPA 7470A	1-2-18	1-2-18	



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

**TOTAL METALS
 EPA 200.8/7470A
 QUALITY CONTROL**

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0102WM1					
Arsenic	ND	3.3	EPA 200.8	1-2-18	1-2-18	
Cadmium	ND	4.4	EPA 200.8	1-2-18	1-2-18	
Chromium	ND	11	EPA 200.8	1-2-18	1-2-18	
Lead	ND	1.1	EPA 200.8	1-2-18	1-2-18	

Laboratory ID:	MB0102W1					
Mercury	ND	0.50	EPA 7470A	1-2-18	1-2-18	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	12-262-05							
	ORIG	DUP						
Arsenic	ND	ND	NA	NA	NA	NA	20	
Cadmium	ND	ND	NA	NA	NA	NA	20	
Chromium	ND	ND	NA	NA	NA	NA	20	
Lead	ND	ND	NA	NA	NA	NA	20	

Laboratory ID:	12-230-01							
Mercury	ND	ND	NA	NA	NA	NA	20	

MATRIX SPIKES

Laboratory ID:	12-262-05									
	MS	MSD	MS	MSD		MS	MSD			
Arsenic	233	228	222	222	ND	105	103	75-125	2	20
Cadmium	237	218	222	222	ND	107	98	75-125	8	20
Chromium	225	218	222	222	ND	101	98	75-125	3	20
Lead	224	214	222	222	ND	101	96	75-125	5	20

Laboratory ID:	12-230-01									
Mercury	11.7	11.6	12.5	12.5	ND	94	93	75-125	1	20



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

cPAHs EPA 8270D/SIM

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-1					
Laboratory ID:	12-235-01					
Benzo[a]anthracene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Chrysene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo[b]fluoranthene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo(j,k)fluoranthene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo[a]pyrene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Indeno(1,2,3-c,d)pyrene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Dibenz[a,h]anthracene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>2-Fluorobiphenyl</i>	<i>54</i>	<i>21 - 110</i>				
<i>Pyrene-d10</i>	<i>63</i>	<i>19 - 111</i>				
<i>Terphenyl-d14</i>	<i>66</i>	<i>32 - 137</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

cPAHs EPA 8270D/SIM

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-2					
Laboratory ID:	12-235-02					
Benzo[a]anthracene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Chrysene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo[b]fluoranthene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo(j,k)fluoranthene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo[a]pyrene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Indeno(1,2,3-c,d)pyrene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Dibenz[a,h]anthracene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>2-Fluorobiphenyl</i>	<i>67</i>	<i>21 - 110</i>				
<i>Pyrene-d10</i>	<i>67</i>	<i>19 - 111</i>				
<i>Terphenyl-d14</i>	<i>73</i>	<i>32 - 137</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

cPAHs EPA 8270D/SIM

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-3					
Laboratory ID:	12-235-03					
Benzo[a]anthracene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Chrysene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo[b]fluoranthene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo(j,k)fluoranthene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo[a]pyrene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Indeno(1,2,3-c,d)pyrene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Dibenz[a,h]anthracene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>2-Fluorobiphenyl</i>	<i>66</i>	<i>21 - 110</i>				
<i>Pyrene-d10</i>	<i>69</i>	<i>19 - 111</i>				
<i>Terphenyl-d14</i>	<i>75</i>	<i>32 - 137</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

cPAHs EPA 8270D/SIM

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-4					
Laboratory ID:	12-235-04					
Benzo[a]anthracene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Chrysene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo[b]fluoranthene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo(j,k)fluoranthene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo[a]pyrene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Indeno(1,2,3-c,d)pyrene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Dibenz[a,h]anthracene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>2-Fluorobiphenyl</i>	<i>53</i>	<i>21 - 110</i>				
<i>Pyrene-d10</i>	<i>68</i>	<i>19 - 111</i>				
<i>Terphenyl-d14</i>	<i>70</i>	<i>32 - 137</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

cPAHs EPA 8270D/SIM

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-5					
Laboratory ID:	12-235-05					
Benzo[a]anthracene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Chrysene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo[b]fluoranthene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo(j,k)fluoranthene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo[a]pyrene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Indeno(1,2,3-c,d)pyrene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Dibenz[a,h]anthracene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>2-Fluorobiphenyl</i>	<i>57</i>	<i>21 - 110</i>				
<i>Pyrene-d10</i>	<i>70</i>	<i>19 - 111</i>				
<i>Terphenyl-d14</i>	<i>68</i>	<i>32 - 137</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

cPAHs EPA 8270D/SIM

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-6					
Laboratory ID:	12-235-06					
Benzo[a]anthracene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Chrysene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo[b]fluoranthene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo(j,k)fluoranthene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo[a]pyrene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Indeno(1,2,3-c,d)pyrene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Dibenz[a,h]anthracene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>2-Fluorobiphenyl</i>	<i>61</i>	<i>21 - 110</i>				
<i>Pyrene-d10</i>	<i>76</i>	<i>19 - 111</i>				
<i>Terphenyl-d14</i>	<i>77</i>	<i>32 - 137</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

cPAHs EPA 8270D/SIM

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-7					
Laboratory ID:	12-235-07					
Benzo[a]anthracene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Chrysene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo[b]fluoranthene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo(j,k)fluoranthene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo[a]pyrene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Indeno(1,2,3-c,d)pyrene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Dibenz[a,h]anthracene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>2-Fluorobiphenyl</i>	<i>60</i>	<i>21 - 110</i>				
<i>Pyrene-d10</i>	<i>71</i>	<i>19 - 111</i>				
<i>Terphenyl-d14</i>	<i>70</i>	<i>32 - 137</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

cPAHs EPA 8270D/SIM

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-8					
Laboratory ID:	12-235-08					
Benzo[a]anthracene	ND	0.011	EPA 8270D/SIM	12-26-18	12-27-18	
Chrysene	ND	0.011	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo[b]fluoranthene	ND	0.011	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo(j,k)fluoranthene	ND	0.011	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo[a]pyrene	ND	0.011	EPA 8270D/SIM	12-26-18	12-27-18	
Indeno(1,2,3-c,d)pyrene	ND	0.011	EPA 8270D/SIM	12-26-18	12-27-18	
Dibenz[a,h]anthracene	ND	0.011	EPA 8270D/SIM	12-26-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>2-Fluorobiphenyl</i>	<i>57</i>	<i>21 - 110</i>				
<i>Pyrene-d10</i>	<i>66</i>	<i>19 - 111</i>				
<i>Terphenyl-d14</i>	<i>68</i>	<i>32 - 137</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

cPAHs EPA 8270D/SIM

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-9					
Laboratory ID:	12-235-09					
Benzo[a]anthracene	ND	0.011	EPA 8270D/SIM	12-26-18	12-27-18	
Chrysene	ND	0.011	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo[b]fluoranthene	ND	0.011	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo(j,k)fluoranthene	ND	0.011	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo[a]pyrene	ND	0.011	EPA 8270D/SIM	12-26-18	12-27-18	
Indeno(1,2,3-c,d)pyrene	ND	0.011	EPA 8270D/SIM	12-26-18	12-27-18	
Dibenz[a,h]anthracene	ND	0.011	EPA 8270D/SIM	12-26-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>2-Fluorobiphenyl</i>	<i>65</i>	<i>21 - 110</i>				
<i>Pyrene-d10</i>	<i>75</i>	<i>19 - 111</i>				
<i>Terphenyl-d14</i>	<i>75</i>	<i>32 - 137</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

cPAHs EPA 8270D/SIM

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-10					
Laboratory ID:	12-235-10					
Benzo[a]anthracene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Chrysene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo[b]fluoranthene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo(j,k)fluoranthene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo[a]pyrene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Indeno(1,2,3-c,d)pyrene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
Dibenz[a,h]anthracene	ND	0.010	EPA 8270D/SIM	12-26-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>2-Fluorobiphenyl</i>	<i>63</i>	<i>21 - 110</i>				
<i>Pyrene-d10</i>	<i>72</i>	<i>19 - 111</i>				
<i>Terphenyl-d14</i>	<i>72</i>	<i>32 - 137</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

cPAHs EPA 8270D/SIM

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-11					
Laboratory ID:	12-235-11					
Benzo[a]anthracene	ND	0.011	EPA 8270D/SIM	12-26-18	12-27-18	
Chrysene	ND	0.011	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo[b]fluoranthene	ND	0.011	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo(j,k)fluoranthene	ND	0.011	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo[a]pyrene	ND	0.011	EPA 8270D/SIM	12-26-18	12-27-18	
Indeno(1,2,3-c,d)pyrene	ND	0.011	EPA 8270D/SIM	12-26-18	12-27-18	
Dibenz[a,h]anthracene	ND	0.011	EPA 8270D/SIM	12-26-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>2-Fluorobiphenyl</i>	<i>69</i>	<i>21 - 110</i>				
<i>Pyrene-d10</i>	<i>67</i>	<i>19 - 111</i>				
<i>Terphenyl-d14</i>	<i>77</i>	<i>32 - 137</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

cPAHs EPA 8270D/SIM

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-12					
Laboratory ID:	12-235-12					
Benzo[a]anthracene	ND	0.0097	EPA 8270D/SIM	12-26-18	12-27-18	
Chrysene	ND	0.0097	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo[b]fluoranthene	ND	0.0097	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo(j,k)fluoranthene	ND	0.0097	EPA 8270D/SIM	12-26-18	12-27-18	
Benzo[a]pyrene	ND	0.0097	EPA 8270D/SIM	12-26-18	12-27-18	
Indeno(1,2,3-c,d)pyrene	ND	0.0097	EPA 8270D/SIM	12-26-18	12-27-18	
Dibenz[a,h]anthracene	ND	0.0097	EPA 8270D/SIM	12-26-18	12-27-18	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>2-Fluorobiphenyl</i>	<i>65</i>	<i>21 - 110</i>				
<i>Pyrene-d10</i>	<i>70</i>	<i>19 - 111</i>				
<i>Terphenyl-d14</i>	<i>73</i>	<i>32 - 137</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

cPAHs EPA 8270D/SIM
METHOD BLANK QUALITY CONTROL

Matrix: Water

Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<hr/>						
Laboratory ID:	MB1226W1					
Benzo[a]anthracene	ND	0.010	EPA 8270D/SIM	12-26-18	12-26-18	
Chrysene	ND	0.010	EPA 8270D/SIM	12-26-18	12-26-18	
Benzo[b]fluoranthene	ND	0.010	EPA 8270D/SIM	12-26-18	12-26-18	
Benzo(j,k)fluoranthene	ND	0.010	EPA 8270D/SIM	12-26-18	12-26-18	
Benzo[a]pyrene	ND	0.010	EPA 8270D/SIM	12-26-18	12-26-18	
Indeno(1,2,3-c,d)pyrene	ND	0.010	EPA 8270D/SIM	12-26-18	12-26-18	
Dibenz[a,h]anthracene	ND	0.010	EPA 8270D/SIM	12-26-18	12-26-18	
<hr/>						
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>2-Fluorobiphenyl</i>	<i>37</i>	<i>21 - 110</i>				
<i>Pyrene-d10</i>	<i>79</i>	<i>19 - 111</i>				
<i>Terphenyl-d14</i>	<i>79</i>	<i>32 - 137</i>				



Date of Report: January 3, 2019
 Samples Submitted: December 21, 2018
 Laboratory Reference: 1812-235
 Project: 17-06520-000

**cPAHs EPA 8270D/SIM
 SB/SBD QUALITY CONTROL**

Matrix: Water

Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB1226W1									
	SB	SBD	SB	SBD	SB	SBD				
Benzo[a]anthracene	0.501	0.514	0.500	0.500	100	103	57 - 127	3	15	
Chrysene	0.462	0.468	0.500	0.500	92	94	51 - 120	1	15	
Benzo[b]fluoranthene	0.486	0.502	0.500	0.500	97	100	54 - 124	3	17	
Benzo(j,k)fluoranthene	0.478	0.484	0.500	0.500	96	97	50 - 127	1	18	
Benzo[a]pyrene	0.514	0.526	0.500	0.500	103	105	50 - 120	2	16	
Indeno(1,2,3-c,d)pyrene	0.507	0.524	0.500	0.500	101	105	46 - 132	3	20	
Dibenz[a,h]anthracene	0.493	0.505	0.500	0.500	99	101	49 - 129	2	18	
Surrogate:										
2-Fluorobiphenyl					64	60	21 - 110			
Pyrene-d10					81	81	19 - 111			
Terphenyl-d14					83	82	32 - 137			





Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
- B - The analyte indicated was also found in the blank sample.
- C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
- E - The value reported exceeds the quantitation range and is an estimate.
- F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
- H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
- I - Compound recovery is outside of the control limits.
- J - The value reported was below the practical quantitation limit. The value is an estimate.
- K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
- L - The RPD is outside of the control limits.
- M - Hydrocarbons in the gasoline range are impacting the diesel range result.
- M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
- N - Hydrocarbons in the lube oil range are impacting the diesel range result.
- N1 - Hydrocarbons in diesel range are impacting lube oil range results.
- O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
- P - The RPD of the detected concentrations between the two columns is greater than 40.
- Q - Surrogate recovery is outside of the control limits.
- S - Surrogate recovery data is not available due to the necessary dilution of the sample.
- T - The sample chromatogram is not similar to a typical _____.
- U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- U1 - The practical quantitation limit is elevated due to interferences present in the sample.
- V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
- W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
- X - Sample extract treated with a mercury cleanup procedure.
- X1 - Sample extract treated with a sulfuric acid/silica gel cleanup procedure.
- Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.
- Z -
- ND - Not Detected at PQL
- PQL - Practical Quantitation Limit
- RPD - Relative Percent Difference




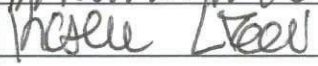
Chain of Custody

Company: Herrera
Project Number: 17-00520-000
Project Name: Pacific Park
Project Manager: George Irtner
Sampled by: Brianna Blaud / Kyle Bliss

Turnaround Request (in working days)	
(Check One)	
<input type="checkbox"/> Same Day	<input type="checkbox"/> 1 Day
<input type="checkbox"/> 2 Days	<input type="checkbox"/> 3 Days
<input checked="" type="checkbox"/> Standard (7 Days)	
<input type="checkbox"/> _____ (other)	

Laboratory Number: **12-235**

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (<input type="checkbox"/> Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	CPHs by 8270	% Moisture
1	MW-1	12.21.18	1205	ground water	11			X	X	X										X			X	
2	MW-2		1025		11			X	X	X										X			X	
3	MW-3		1455		11			X	X	X										X			X	
4	MW-4		1415		11			X	X	X										X			X	
5	MW-5		1250		11			X	X	X										X			X	
6	MW-6		1335		11			X	X	X										X			X	
7	MW-7		1115		11			X	X	X										X			X	
8	MW-8		1430		11			X	X	X										X			X	
9	MW-9		1540		11			X	X	X										X			X	
10	MW-10		1330		11			X	X	X										X			X	

	Signature	Company	Date	Time	Comments/Special Instructions
Relinquished		Herrera	12.21.18	1721	Hold for PCBs pending DX analysis
Received		OSE	12/21/18	1721	
Relinquished					
Received					
Relinquished					
Received					
		Data Package: Standard <input type="checkbox"/> Level III <input type="checkbox"/> Level IV <input type="checkbox"/>			
Reviewed/Date		Reviewed/Date			Chromatograms with final report <input type="checkbox"/> Electronic Data Deliverables (EDDs) <input type="checkbox"/>



Page 2 of 2

Company:	Herrera
Project Number:	17-06520-006
Project Name:	Pacific Park
Project Manager:	George Iftner
Sampled by:	Brianna Bland / Kyle Bliss

**Turnaround Request
(in working days)**

(Check One)


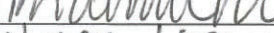
☐ Same Day ☐ 1 Day

☐ 2 Days ☐ 3 Days

☒ Standard (7 Days)

☐ _____ (other)

Laboratory Number:						
	NWTPH-HCID					
	NWTPH-Gx/BTEX					
X	NWTPH-Gx	X				
X	NWTPH-Dx (<input type="checkbox"/> Acid / SG Clean-up)	X				
X	Volatiles 8260C	X				
	Halogenated Volatiles 8260C					
	EDB EPA 8011 (Water Only)					
	Semivolatiles 8270D/SIM (with low-level PAHs)					
	PAHs 8270D/SIM (low-level)					
	PCBs 8082A					
	Organochlorine Pesticides 8081B					
	Organophosphorus Pesticides 8270D/SIM					
	Chlorinated Acid Herbicides 8151A					
	Total RCRA Metals					
X	Total MTCA Metals	X				
	TCLP Metals					
	HEM (oil and grease) 1664A					
X	CATK by 8270	X				
	% Moisture					

	Signature	Company	Date	Time	Comments/Special Instructions
Relinquished		Herrera	12/21/18	1721	Hold for PCBs pending Dx analysis
Received		CSE	12/21/18	1721	
Relinquished					
Received					
Relinquished					
Received					Data Package: Standard <input type="checkbox"/> Level III <input type="checkbox"/> Level IV <input type="checkbox"/>
Reviewed/Date		Reviewed/Date			Chromatograms with final report <input type="checkbox"/> Electronic Data Deliverables (EDDs) <input type="checkbox"/>

APPENDIX E

Data Quality Assurance Review Memorandum

Herrera Environmental Consultants, Inc.

Internal Memorandum

Date: February 08, 2019
To: Project File 17-06520-000
Copy To:
From: Gina Catarra
Subject: Data Quality Assurance Review of the Pacific Park/Dumpsite Data

This memorandum presents a review of data quality for 5 soil samples and 12 groundwater samples collected from the Pacific Park/Dumpsite property on December 17 and 21, 2018. OnSite Environmental, Inc. (OnSite), of Redmond, Washington analyzed the samples for

- Gasoline-range petroleum hydrocarbons (TPH-G) by Ecology's NWPTH-Gx method
- Diesel- and lube oil-range petroleum hydrocarbons by Ecology's NWTPH-Dx method
- Volatile organic compounds (VOCs) by EPA method 8260C
- Polycyclic aromatic hydrocarbons (PAHs) by EPA method 8270D/SIM
- Polychlorinated biphenyls (PCBs) by EPA method 8082A
- Total Model Toxics Control Act (MTCA) metals (arsenic, cadmium, chromium, lead, and mercury) by EPA 6010D/7471B

Results for the following samples were validated.

Sample ID	Lab Ref. No.	Date Collected	Analyses
MW10-4	1812-188	12/17/18	Gx, Dx, metals, cPAHs, PCBs
MW10-7	1812-188	12/17/18	Gx, Dx, PCBs
MW11-4	1812-188	12/17/18	Gx, Dx, metals, cPAHs, PCBs
MS11-6.5	1812-188	12/17/18	Dx, metals, cPAHs, PCBs
MW12-3	1812-188	12/17/18	Gx, Dx, metals, cPAHs, PCBs
MW-1	1812-234	12/21/18	Gx, Dx, VOCs, metals, cPAHs

Sample ID	Lab Ref. No.	Date Collected	Analyses
MW-2	1812-234	12/21/18	Gx, Dx, VOCs, metals, cPAHs
MW-3	1812-234	12/21/18	Gx, Dx, VOCs, metals, cPAHs
MW-4	1812-234	12/21/18	Gx, Dx, VOCs, metals, cPAHs
MW-5	1812-234	12/21/18	Gx, Dx, VOCs, metals, cPAHs
MW-6	1812-234	12/21/18	Gx, Dx, VOCs, metals, cPAHs
MW-7	1812-234	12/21/18	Gx, Dx, VOCs, metals, cPAHs
MW-8	1812-234	12/21/18	Gx, Dx, VOCs, metals, cPAHs
MW-9	1812-234	12/21/18	Gx, Dx, VOCs, metals, cPAHs
MW-10	1812-234	12/21/18	Gx, Dx, VOCs, metals, cPAHs
MW-11	1812-234	12/21/18	Gx, Dx, VOCs, metals, cPAHs
MW-12	1812-234	12/21/18	Gx, Dx, VOCs, metals, cPAHs

The laboratory's performance was reviewed in accordance with quality control (QC) criteria established in the *Pacific Park/Dumpsite Environmental and Economic Assessment Sampling and Analysis Plan* (SAP) (Herrera 2017), by the laboratory, and in the specified methods.

Quality control data summaries submitted by the laboratory were reviewed; raw data were not submitted by the laboratory. Data qualifiers (flags) were added to the sample results in the laboratory reports. Data validation results are summarized below, followed by definitions of data qualifiers.

Custody, Preservation, Holding Times, and Completeness—Acceptable with Qualification

The samples were properly preserved and sample custody was maintained from sample collection to receipt at the laboratory. With the exceptions below, samples were analyzed within the required method holding times. The laboratory reports were complete and contained results for all samples and tests requested on the chain-of-custody (COC) forms.

Samples MW10-7 and MW11-6.5 were extracted outside of holding time as noted in the table below because analysis was added one day outside of the 14 day holding time criterion. All results have been qualified as estimated (J or UJ), as noted in the table below.

Sample ID	Parameter	Reason for Qualification	Qualifier
MW10-7	Gx, Dx	Holding time exceeded	UJ
MW11-6.5	Dx, cPAHs	Holding time exceeded	J or UJ

Laboratory Reporting Limits—Acceptable

The laboratory reporting limits were reasonable for the specified methods and were below relevant comparison criteria. No data were qualified based on laboratory reporting limits.

Method Blank Analysis—Acceptable

Method blanks were analyzed at the required frequency. Method blanks did not contain levels of target analytes above the laboratory reporting limits.

Laboratory Control Sample Analysis—Acceptable

Blank spike (BS) or blank spike/blank spike duplicate (BS/BSD) samples were analyzed for gasoline/BTEX and cPAHs. The percent recovery values met the criteria established by the laboratory.

Surrogate Spike Analysis—Acceptable

Surrogate compounds were added to all samples and laboratory QC samples for all NWTPH-Gx, NWTPH-Dx, VOCs, cPAHs, and PCBs analyses. All surrogate percent recoveries met the control limits specified by the laboratory or method.

Matrix Spike Analysis—Acceptable

Matrix spike/matrix spike duplicate (MS/MSD) samples were analyzed for cPAHs, PCBs and metals. The percent recovery values met the control limits established by the methods.

Laboratory Duplicate Analysis—Acceptable

Laboratory duplicate samples were analyzed for metals; MS/MSD samples were analyzed for cPAHs and PCBs. The relative percent difference (RPD) was calculated for each analyte where both duplicate values were greater than five times the reporting limit (RL). The difference between duplicate values was calculated if the detected compound concentration was less than five times the RL in either the sample or the duplicate. The relative percent difference (RPD) values or difference values met the control limits established by the laboratory or specified method, except as noted below.

DEFINITION OF DATA QUALIFIERS

The following are data qualifier definitions applied for this project.

Data Qualifier	Definition
J	Value is an estimate based on analytical results
R	Value is rejected based on analytical results
U	Value is below the reporting limit
UJ	Value is below the reporting limit and is an estimate based on analytical results

REFERENCES

Herrera. 2017. Pacific Park/Dumpsite Environmental and Economic Assessment, Pacific, Washington, Sampling and Analysis Plan. Prepared by Herrera Environmental Consultants for River and Floodplain Management Section, King County Water and Land Resources Division. April 2017.

APPENDIX F

Soil Vapor Monitoring Data

**Pacific Park
Gas Monitoring Data Sheet**

Gas Probe ID: MW6
Sample ID: NA
Date & Time: 7/21/18 @ 12:23

Canister ID: NA
Initial Canister Pressure: NA
Final Canister Pressure: NA

Total Casing Volume (cc): $618 \text{ cc/ft} \times 6.42 = 3,970 \text{ (1 well Vol.)}$

Field Personnel: G. Iftner

Casing Volume Purged	Volume Purged (cc)	Purge Rate (ml/min)	Purge Time	CH ₄ (% volume)	CO ₂ (% volume)	O ₂ (% volume)	H ₂ S (ppmv)
0	0	3000	0 sec	0.0	5.8	11.9	0
1/4	0 993	3000	20 sec	0.0	10.1	4.6	0
1/2	0 1,986	3000	40 sec	0.0	10.1	3.8	0
3/4	0 2,979	3000	60 sec	0.0	10.1	2.9	0
1	0 3,970	3000	80 sec	0.0	10.1	2.7	0
1 1/4	0 4,965	3000	100 sec	0.0	10.1	2.7	0
1 1/2	0 5,958	3000	120 sec	0.0	10.1	2.6	0
1 3/4	0 6,951	3000	140 sec	0.0	10.1	2.6	0
2	0 7,940	3000	160 sec	0.0	10.1	2.6	0
2 1/4	0	3000	sec				
2 1/2	0	3000	sec				
2 3/4	0	3000	sec				
3	0	3000	sec				

Comments: Static WL = 6.42' $3,970 \text{ (1 well Vol.)} / 3,000 \text{ ml/min (purged by SKC)} = 1.32 \text{ min} = 80 \text{ seconds}$
Barometric pressure = 30.20" Hg.

Equipment Used: SKC Pump, Gem 2000+, Water Level Meter

**Pacific Park
Gas Monitoring Data Sheet**

Gas Probe ID: MW 9
 Sample ID: NA
 Date & Time: 12/21/18 @ 15:00

Canister ID: NA
 Initial Canister Pressure: NA
 Final Canister Pressure: NA

Total Casing Volume (cc): 618 cc/ft. x 6.2' = 3,830 (1 well vol)
cc

Field Personnel: G. Iftner

Casing Volume Purged	Volume Purged (cc)	Purge Rate (ml/min)	Purge Time	CH ₄ (% volume)	CO ₂ (% volume)	O ₂ (% volume)	H ₂ S (ppmv)
0	0	3000	<u>0</u> sec	0.0	0.2	19.9	0.0
1/4	0 <u>957.5</u>	3000	<u>19</u> sec	0.0	0.6	19.6	0.0
1/2	0 <u>1915</u>	3000	<u>38</u> sec	0.0	0.2	20.5	0.0
3/4	0 <u>2,873</u>	3000	<u>57</u> sec	0.0	0.2	20.5	0.0
1	0 <u>3,830</u>	3000	<u>76</u> sec	0.0	0.2	20.5	0.0
1 1/4	0 <u>4,788</u>	3000	<u>95</u> sec	0.0	0.2	20.5	0.0
1 1/2	0 <u>5,745</u>	3000	<u>114</u> sec	0.0	0.2	20.5	0.0
1 3/4	0 <u>6,703</u>	3000	<u>133</u> sec	0.0	0.2	20.5	0.0
2	0 <u>7,660</u>	3000	<u>152</u> sec	0.0	0.2	20.5	0.0
2 1/4	0	3000	sec				
2 1/2	0	3000	sec				
2 3/4	0	3000	sec				
3	0	3000	sec				

Comments: Static WL = 6.2' 3,830 cc / 3,000 ml/min = 1.28 min = 76 seconds

Barometric pressure = 30.21

Equipment Used: SKC Pump, Gem 2000+, Water Level Meter

**Pacific Park
Gas Monitoring Data Sheet**

Gas Probe ID:

Sample ID: NA

Date & Time:

MW-11

12/21/18 11:00 AM.

Canister ID:

Initial Canister Pressure:

Final Canister Pressure:

NA

NA

NA

Total Casing Volume (cc): $618 \text{ cu ft} \times 4.05 = 2,500 \text{ cc} = 1 \text{ well vol.}$

Field Personnel: G. Iftner

Casing Volume Purged	Volume Purged (cc)	Purge Rate (ml/min)	Purge Time	CH ₄ (% volume)	CO ₂ (% volume)	O ₂ (% volume)	H ₂ S (ppmv)
0	0	3000	— sec	0.0	2.0	17.5	0.0
1/4	625	3000	12 sec	0.0	2.2	15.4	0.0
1/2	1,250	3000	25 sec	0.0	2.2	15.3	0.0
3/4	1,875	3000	37 sec	0.0	2.2	15.3	0.0
1	2,500	3000	50 sec	0.0	2.2	15.3	0.0
1 1/4	3,125	3000	62 sec	0.0	2.3	15.3	0.0
1 1/2	3,750	3000	75 sec	0.0	2.4	15.3	0.0
1 3/4	4,375	3000	87 sec	0.0	2.4	15.3	0.0
2	5,000	3000	100 sec	0.0	2.4	15.3	0.0
2 1/4	0	3000	sec				
2 1/2	0	3000	sec				
2 3/4	0	3000	sec				
3	0	3000	sec				

Comments: Static WL = 4.05' $2500/3000 \text{ ml/min (SKC purge rate)} = 0.83 \text{ min} = 50 \text{ seconds}$.
12-13 seconds / 1/4 well vol.

Barometric Pressure 30.21" Hg

Equipment Used: SKC Pump, Gem 2000+, Water Level Meter

