



May 31, 2017

Guy Barrett
Washington State Department of Ecology
Southwest Regional Office
P.O. Box 47600
Olympia, Washington 98504

Via email: gbar461@ecy.wa.gov

Regarding: Annual Monitoring Report
Ecology Facility Site ID #28, Cleanup Site ID #2272
Nippon Dynawave Packaging - Chlor-Alkali Plant Site
3535 Industrial Way
Longview, Washington
PBS Project No. 17759.000

Dear Mr. Barrett:

This letter report serves as the annual report for the Nippon Dynawave Packaging Company (NDP) Chlor-Alkali site (site) located at 3535 Industrial Way in Longview, Washington. This report provides a summary of work completed at the site from April 1, 2016 to March 31, 2017.

SITE LOCATION

The Chlor-Alkali site is located within the Nippon Dynawave Packaging mill complex, which consists of the kraft pulp and paper mill, as well as the liquid packaging paper and extruder operations. Nippon Dynawave Packaging purchased the mill complex from Weyerhaeuser NR Company (Weyerhaeuser) on September 1, 2016. The Nippon Dynawave Packaging facility is surrounded by other industrial facilities, including the North Pacific Paper Corporation (NORPAC) facility and Weyerhaeuser lumber mill to the east and the Weyerhaeuser truck shop to the west. A portion of the site is currently leased by Axiall Corporation (Axiall) from Nippon Dynawave Packaging. The entire facility is zoned as heavy industrial. Figure 1 shows the site location.

The Chlor-Alkali site is within an area under an Agreed Order and associated Restrictive Covenant related to historical mercury contamination. The area under the Restrictive Covenant includes the entire portion of the site leased to Axiall, a portion of the truck shop parcel owned by Weyerhaeuser, and portions of the Nippon Dynawave Packaging mill complex. The extent of the Restrictive Covenant and the properties within the area are shown in Figure 2.

OPERATIONAL HISTORY

As a result of the historical operations prior to 1976 (production of chlorine and sodium hydroxide for use by the pulp and paper industry), mercury was released to the site from equipment and process leaks and spills. Historical operations and contaminant sources were removed when chlorine production in the No. 1 Cell Room ceased in 1975 (remediation of surface impoundments began in 1972). In 1976, the mercury cells in the No. 2 Cell Room were converted to diaphragm cells (a non mercury-based process). Cell Room No. 1, where historical mercury

processing occurred, was demolished in 1991 and Cell Room No. 2 continued to operate until 1999. Chlor-Alkali production ceased at the facility in March 1999.

In 1985, the Washington State Department of Ecology (Ecology) designated the Chlor-Alkali plant as a medium priority on the Washington hazardous waste site list (Cleanup Site #2272, Facility Site ID #28) due to mercury concentrations exceeding the Environmental Protection Agency (EPA) maximum contaminant level (MCL) in groundwater wells. Groundwater has been sampled at the site since 1991. Mercury present at the site is inorganic, has relatively low mobility, and is considered the only constituent of concern at the site.

In 2005, Ecology approved a long-term monitoring plan. After reviewing the 2010 Groundwater Monitoring Report, a revised monitoring schedule was proposed by Ecology in 2011. Under the revised schedule, one year of quarterly sampling was to be completed once every five years. The western monitoring wells (MW wells) would only be sampled once during the sample year. Groundwater sampling under this schedule was completed in 2014. In December 2015, Ecology approved a revised long term monitoring schedule, which consists of one single monitoring event once every five years. Since the western monitoring wells (MW-1 to MW-4) were decommissioned in February 2016 under approval from Ecology, the single monitoring event will be conducted in the remaining HLA and CH wells.

The current Compliance Monitoring Plan for the site specifies that an annual compliance monitoring report is to be prepared summarizing the results of groundwater monitoring, additional work, and notable changes to site conditions for the monitoring period.

SITE GEOLOGY AND HYDROGEOLOGY

Geology

The site is located on the floodplain of the Columbia River. Over the years, dredged sediment and gravel fill have been placed across portions of the site at a thickness of between 2 and 20 feet. Alluvium underlying the fill consists of silt, sandy silt, and silty sand. Fine-grained alluvial deposits predominate to a depth of approximately 200 feet, where the alluvium becomes generally a coarse-grained mixture of sand, gravel, and cobbles. Flows of the Columbia River Basalt Group underlie the alluvium.

The site is flat and overlies a remnant of Mount Coffin, an isolated basalt erosional peak that was leveled and covered with a thin layer of fill before the plant was built. Basalt at the site is encountered at variable depths because of the buried remnant of Mt. Coffin, ranging from less than 5 feet at the Mt. Coffin remnant to greater than 300 feet elsewhere.

Hydrogeology

Groundwater occurring in alluvium is referred to as alluvial (or alluvial zone) groundwater, and groundwater occurring in basalt as basalt (or basalt zone) groundwater. These zones do not exist in a "layer cake" arrangement at the site. Instead, the buried but steep relief associated with the remnant of Mt. Coffin allows basalt groundwater and alluvial groundwater to occur side-by-side in the southern portion of the site. Groundwater in both of these zones discharges to the Columbia River, which lies on the west boundary of the site and which controls the base level of the local and regional hydrologic systems.

Groundwater occurs in the upper part of the fill and alluvium deposits under unconfined conditions at depths of 8 to 15 feet below ground surface (bgs) in the west area and 2.5 to 4.5 feet bgs in the more easterly former No. 1

Cell Room area. Groundwater elevations in the upper finer-grained part of the alluvium, as determined by site monitoring wells, are controlled by seasonal variations in precipitation and, to a lesser extent, by fluctuations in the Columbia River stage. Figure 2 presents the location of existing monitoring wells at the site.

In general, groundwater elevations tend to be highest in spring and lowest in late summer or early fall. Based on the Remedial Investigation (RI) findings, the hydraulic gradient in the alluvium ranges from 0.04 to 0.008 feet per foot, the hydraulic conductivity is estimated at 28 feet per day, and the horizontal groundwater flow velocity ranges from 1 to 6 feet per day.

The direction of groundwater flow varies across the site but is generally toward the river, as is the stormwater flow direction. In the central and western portions of the site, groundwater generally flows to the west-southwest. In the eastern portion of the site, groundwater in the alluvium flows around the less permeable, buried remnant of Mt. Coffin, with south-southeasterly flow east of Mt. Coffin and west to southwesterly flow west of Mt. Coffin. The area where the elevation of basalt exceeds 10 feet (that is, basalt is present within 10 feet of the surface) exhibits a greater effect on shallow groundwater flow, as noted in the RI. Based on RI findings, the hydraulic gradient in the basalt zone is estimated at 0.03 feet/feet, the hydraulic conductivity is estimated at 6×10^3 feet/day, and the horizontal groundwater flow velocity is estimated at approximately 0.004 feet/day.

Below a depth of approximately 200 feet, groundwater occurs in a confined alluvial aquifer. The total thickness of this aquifer is poorly documented, but is at least 130 feet thick.

NATURE AND EXTENT OF CONTAMINATION IN GROUNDWATER

The mercury released to the environment at the Chlor-Alkali plant was elemental and inorganic, with relatively low mobility. Elemental mercury is very dense and readily sinks under gravity through openings in media through which it travels (e.g. large pores, fractures, joints). Mercury stops moving when it encounters a pore or fracture too small for it to enter. The residual mercury will then slowly dissolve into groundwater or soil pore water. In the unsaturated zone, mercury also will enter the vapor phase. Because of its density, high surface tension, presence as a separate-phase liquid, and accumulation in basalt fractures, active mercury remediation at the site is inherently complex and difficult.

Use of mercury at the plant ceased in 1976, and all of the processes and equipment using mercury have been either converted to another type of process or removed. As a result, there are no remaining sources of mercury at the site other than the residual from the earlier releases.

The distribution of mercury in the two water-bearing zones (alluvial groundwater and basalt groundwater) is predominantly a result of the proximity of the zones to historical sources (particularly, the former No. 1 Cell Room and former surface impoundment area) and of groundwater flow. Site groundwater sampling results have shown that mercury concentrations are generally below detection limits in all areas of the site except at the former No. 1 Cell Room and former surface impoundment area. In these areas, 2014 groundwater sampling results indicate that mercury concentration in alluvial and basalt groundwater range from below the detection limit of 0.2 micrograms per liter ($\mu\text{g/L}$) to up to 57 $\mu\text{g/L}$.

Results from the RI include the following additional information:

- Mercury concentration in groundwater are remaining steady or decreasing with time. The rate of decrease is slowest in the area of the former No. 1 Cell Room and the former surface impoundments.

Except for in these areas, mercury concentrations are at or below the drinking water maximum contaminant level (MCL) of 2 µg/L for mercury.

- Potential explanations for the slow decrease in mercury concentrations in the area of the former No. 1 Cell Room include the following:
 - The amount of groundwater flux (and therefore the rate of flushing) is limited because the asphalt cap reduces rainfall infiltration, and the permeability of the basalt and alluvium fill above the basalt is very low.
 - It is possible that small amounts of elemental mercury may be present below the water table as isolated globules in basalt fractures. If present, these globules could serve as an ongoing source of dissolved mercury in basalt groundwater.
- Although transient fluctuations in mercury concentrations may occur as a result of unusually high groundwater levels and rainfall conditions, concentrations in groundwater are not expected to increase substantially over time. The original mercury sources were removed from the plant 35 years ago. Additional mercury sources were addressed in subsequent removal actions. Furthermore, results from soil and groundwater sampling suggest that leaching of mercury from soil to groundwater by infiltration and percolation of precipitation is not a major factor influencing mercury concentrations in groundwater.
- Mercury is not present in groundwater upgradient of the former No. 1 Cell Room and former surface impoundment area based on semiannual groundwater sampling data from monitoring wells CH-7 and CH-8 collected from 1998 to 2009.
- The basalt portion of the shallow aquifer contains higher mercury concentrations than the alluvial aquifer, but transmits less groundwater flow; therefore, mercury flux contributed by the basalt aquifer constitutes a relatively insignificant amount of mercury to the surrounding groundwater and Columbia River.

RECENT SITE ACTIVITIES

The following section summarizes recent site activities, including the current groundwater monitoring program and recent site redevelopment activities.

Groundwater Monitoring Program

In accordance with the long-term monitoring program for the site, groundwater monitoring activities were not conducted for the current annual period (January to December 2016). Based on the revised schedule and the approved 2015 Annual Report, one single monitoring event for the site will occur in the first quarter of 2019. Figure 2 presents the locations of the current groundwater monitoring well network.

Impervious Conditions

Site activities associated with the Coffin Rock substation project resulted in the removal of an approximately 1,100 square foot building and construction of approximately 1,200 square feet of impervious surfaces. The total impervious area remains unchanged (approximately 28.2 acres) from that reported last year.

The extent of existing impermeable surfaces is shown in Figure 3.

Additional Work

In 2016, Nippon Dynawave Packaging submitted notification to Ecology for proposed construction activities related to the Coffin Rock substation project. The proposed construction within the site consists of two power poles for a new electric transmission line and an expansion of the Coffin Rock substation. The three project areas are located in the northeast portion of the site.

Soil and groundwater samples were collected from the proposed excavation areas in order to determine appropriate waste management and to develop waste profiles. On February 21, 2017, PBS Engineering and Environmental (PBS) collected a total of 13 soil samples. In the substation area, five soil samples were collected at depths of approximately 2 to 3 feet, and six soil samples were collected at depths of approximately 5 to 7 feet. Soil samples from the power pole locations were collected at depths of approximately 2 to 3 feet.

Soil samples were submitted for initial analysis for diesel- and heavy oil-range petroleum hydrocarbons by NWTPH-Dx, gasoline-range hydrocarbons by NWTPH-Gx, and Resource Conservation and Recovery Act (RCRA) metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver). The groundwater sample was submitted for analysis of total mercury.

Soil samples in all three project areas showed detectable levels of total mercury. Eight soil samples were above the site-specific screening level of 4 milligrams per kilogram (mg/kg) and were analyzed for leachable mercury by toxicity characteristic leaching procedure (TCLP). All soil samples analyzed by TCLP were below the limit of 0.2 mg/kg. Based on soil sample results, it was determined that soil from the areas sampled could be disposed of as non-hazardous solid waste. Mercury soil data is presented in Table 1.

On March 1, 2017, PBS mobilized to the site to collect a single groundwater sample from a test pit in the substation area. The sample was collected using a mini disposable bailer from a depth of approximately 5 to 6 feet. Soil and groundwater sample locations are shown in Figures 4 and 5.

Results of groundwater sampling indicated a concentration of total mercury above the limit of 0.2 milligrams per liter (mg/L). Due to these results, Nippon Dynawave Packaging revised the design of the substation expansion area in order to minimize the excavation depth and need for dewatering groundwater during construction. Soil and groundwater laboratory reports are included in Attachment 1.

Construction activities are currently in progress and are expected to be completed by early June 2017.

Please feel free to contact me at 503.806.2253 or mark.leece@pbsusa.com with any questions or comments.

Sincerely,



Mark Leece, PE
Principal Engineer

cc: Greg Bean, Nippon Dynawave Packaging
Brian Wood, Nippon Dynawave Packaging
Luke Hart, Axiall
Carol Wiseman, Weyerhaeuser
Paul Gianotti, Weyerhaeuser
Anthony Rizzo, Weyerhaeuser
Kim Wigfield, Ecology
Shingo Yamazaki, Ecology

Attachment(s): Figure 1. Vicinity Map
Figure 2. Site Map
Figure 3. Impervious Surfaces
Figure 4. Soil and Groundwater Sample Locations
Figure 5. Soil Sample Locations

Table 1. Summary of Soil Sampling Analytical Results

Attachment 1. Laboratory Reports and Chain-of-Custody Documentation

LS:ML:BW

FIGURES

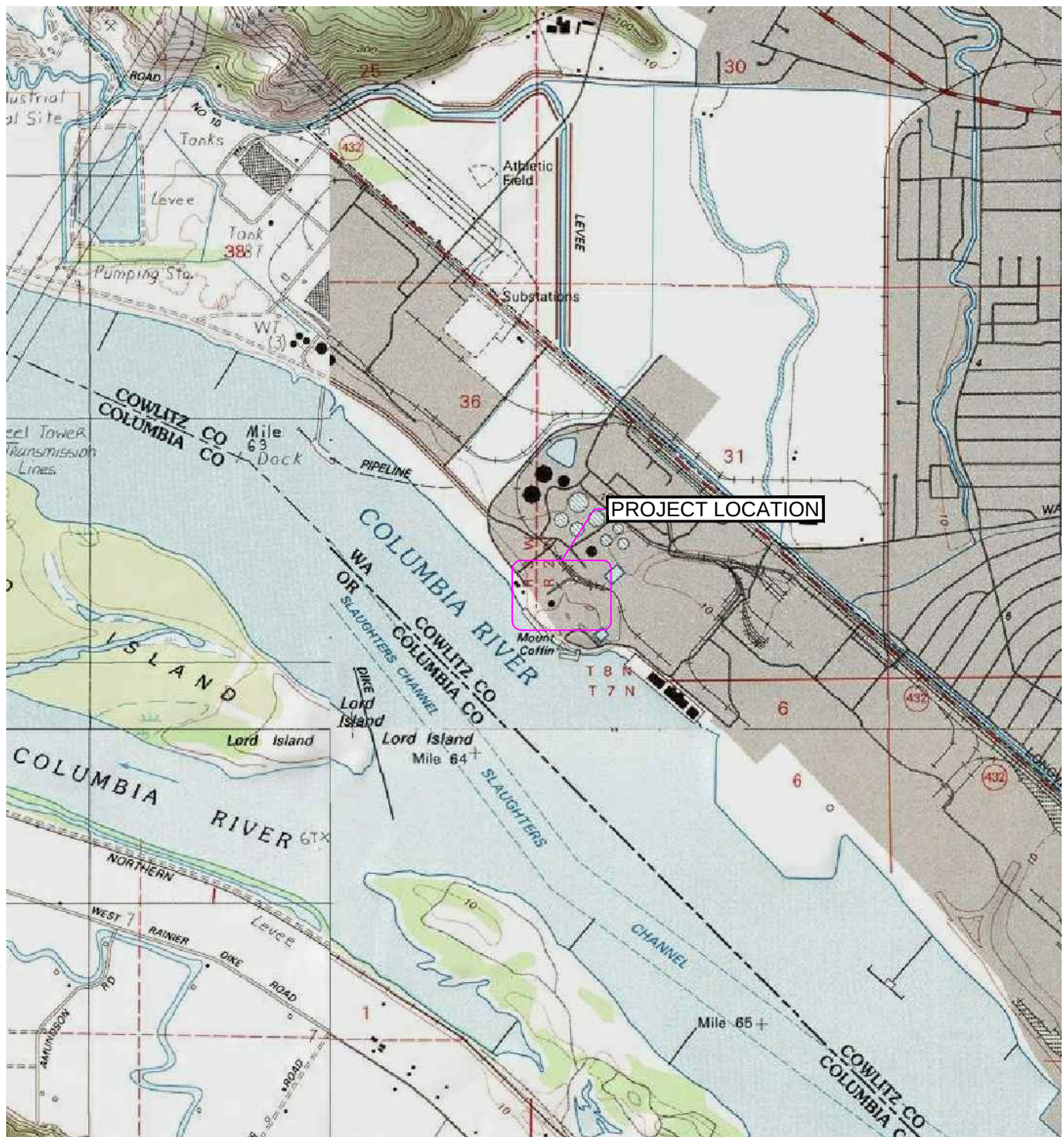
Figure 1. Vicinity Map

Figure 2. Site Plan

Figure 3. Impervious Surfaces

Figure 4. Soil and Groundwater Sample Locations

Figure 5. Soil Sample Locations



SOURCE: USGS KELSO WA OR QUADRANGLE 1990.



SITE

WASHINGTON



SCALE: 1" = 2,000'



PREPARED FOR: NIPPON DYNAWAVE PACKAGING



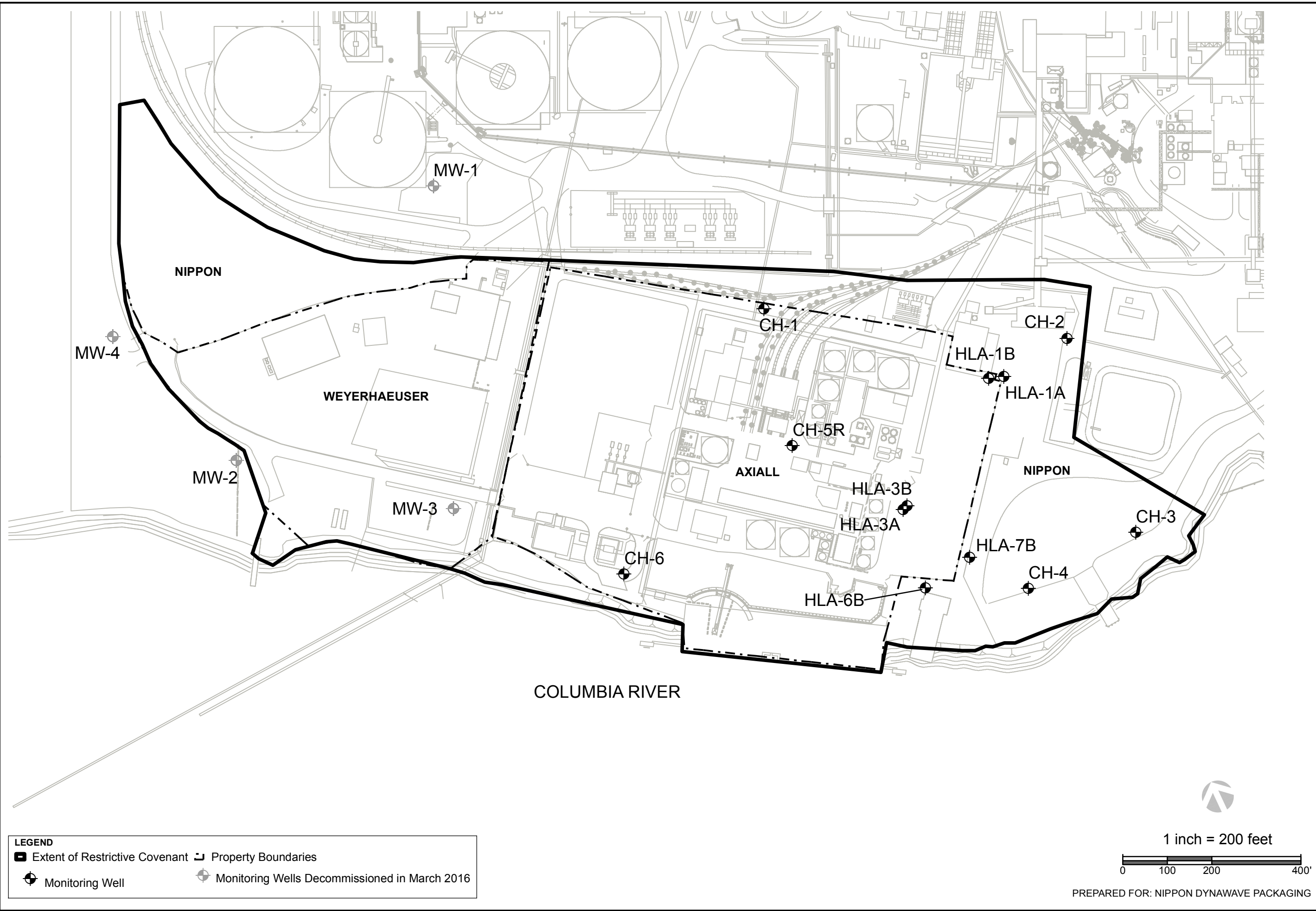
VICINITY MAP
3535 INDUSTRIAL WAY
LONGVIEW, WASHINGTON

APRIL 2017
17759.000

FIGURE

1

L:\Projects\17000\17700-17799\17759-000\GIS\Maps\17759-000 Figure2 Site Plan.mxd



LEGEND

	Extent of Restrictive Covenant		Property Boundaries
	Monitoring Well		Monitoring Wells Decommissioned in March 2016

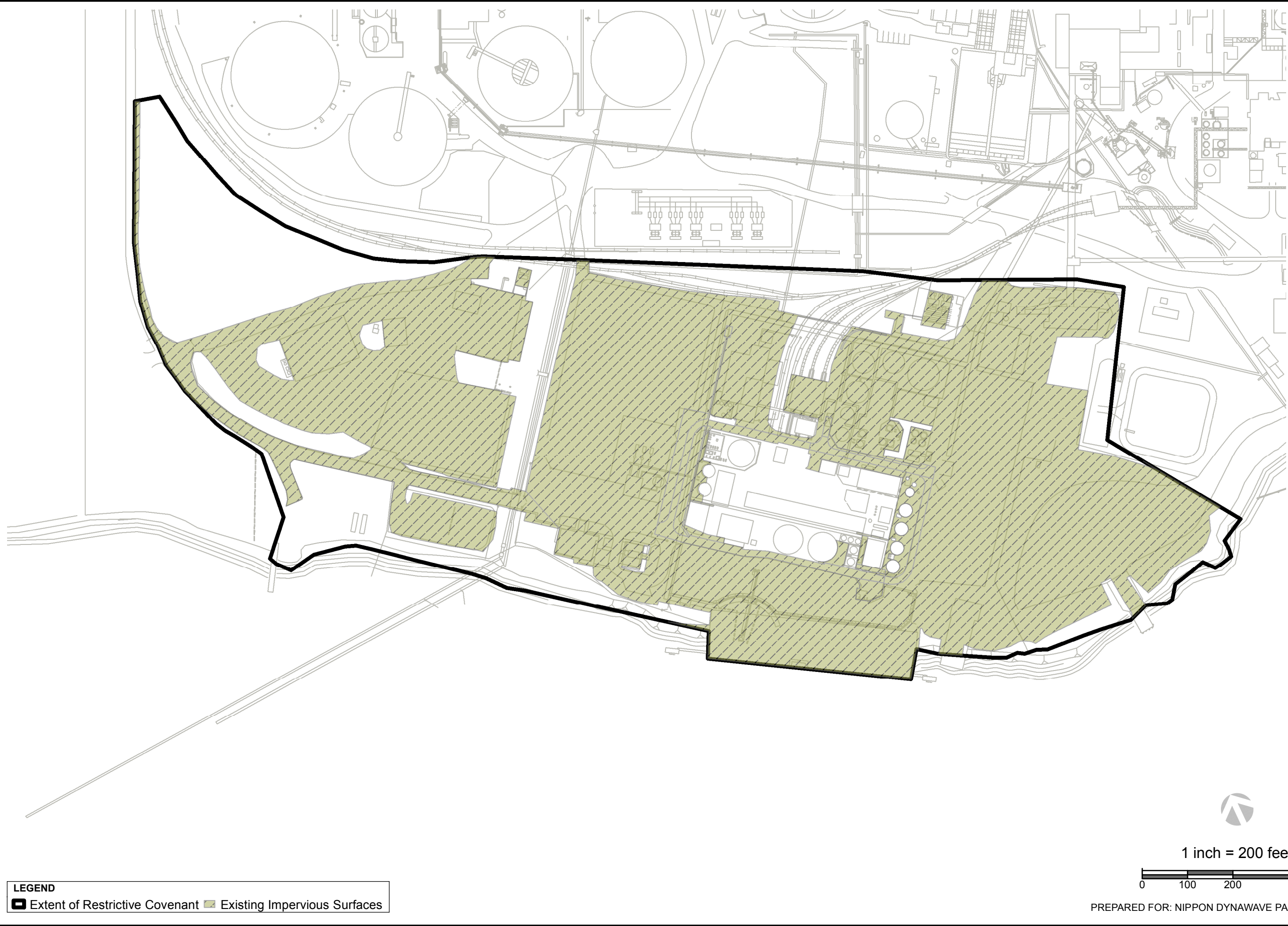
1 inch = 200 feet

0 100 200 400'

PREPARED FOR: NIPPON DYNAWAVE PACKAGING

SITE PLAN CHLOR-ALKALI PLANT 3535 INDUSTRIAL WAY, LONGVIEW, WASHINGTON	PBS Engineering and Environmental Inc. 4412 SW Corbett Avenue Portland, OR 97239 503.248.1939 pbsusa.com
PROJECT 17759.000	
DATE MAY 2017	
FIGURE 2	

L:\Projects\17000\17700-17799\17759-000\GIS\Maps\17759.000_Figure3_Impervious.mxd



LEGEND
■ Extent of Restrictive Covenant ■ Existing Impervious Surfaces

1 inch = 200 feet
0 100 200 400'
PREPARED FOR: NIPPON DYNAWAVE PACKAGING

IMPERVIOUS SURFACES
CHLOR-ALKALI PLANT
3535 INDUSTRIAL WAY, LONGVIEW, WASHINGTON

PROJECT
17759.000
DATE
MAY 2017
FIGURE
3

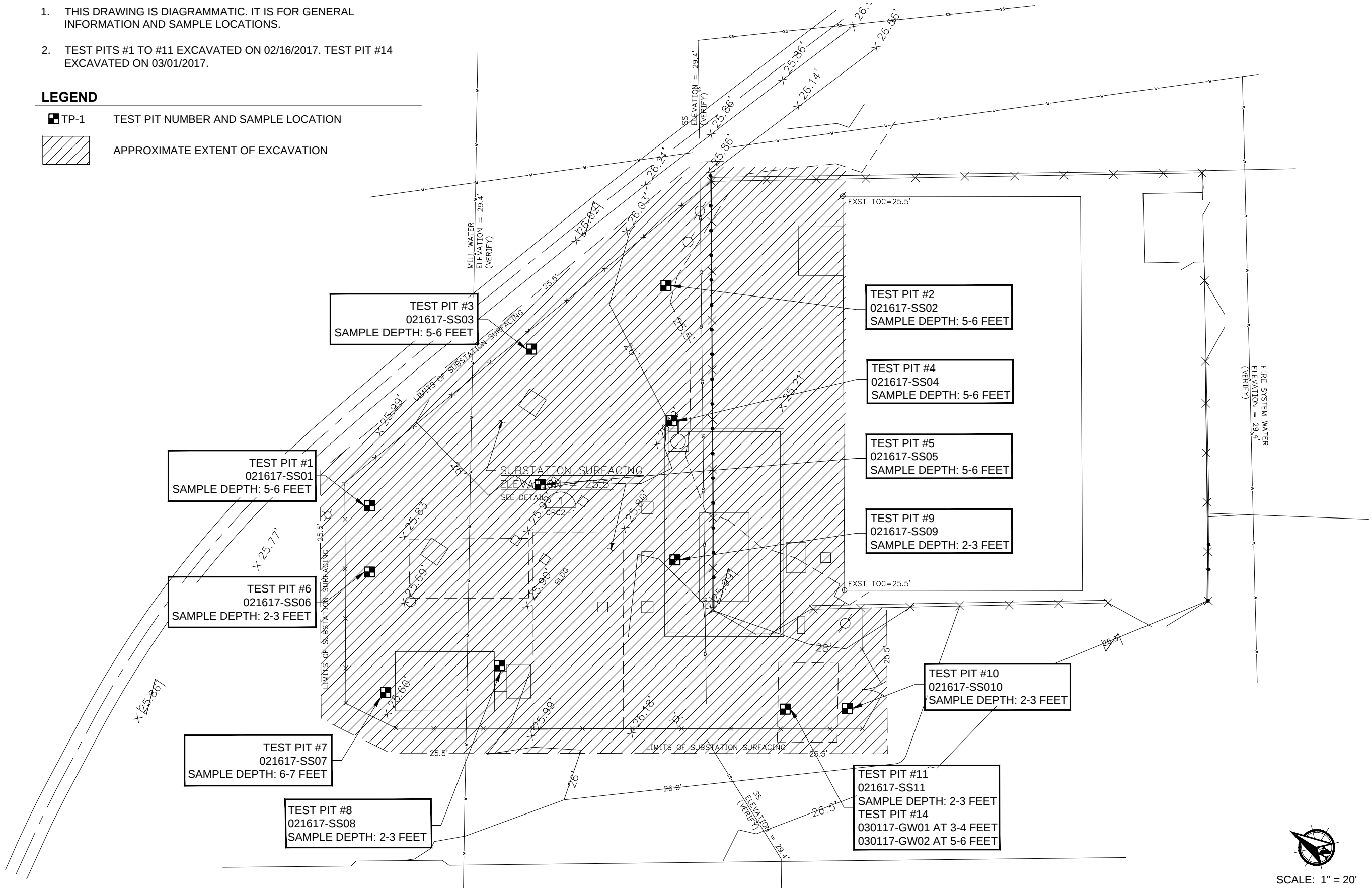
Filename: L:\Projects\17000\17700-17799\17759-000\DWG\17759.000_FIG 4.dwg Layout Tab: 11X17 DRAWINGS User: Lizabeth Saldivar CAD Plot Date/Time: 5/15/2017 12:12:02 PM

GENERAL NOTES

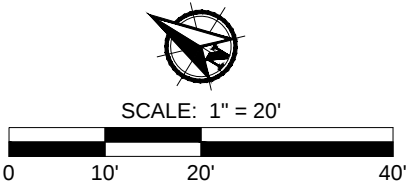
- 1. THIS DRAWING IS DIAGRAMMATIC. IT IS FOR GENERAL INFORMATION AND SAMPLE LOCATIONS.
- 2. TEST PITS #1 TO #11 EXCAVATED ON 02/16/2017. TEST PIT #14 EXCAVATED ON 03/01/2017.

LEGEND

- TP-1 TEST PIT NUMBER AND SAMPLE LOCATION
- APPROXIMATE EXTENT OF EXCAVATION



SITE PLAN



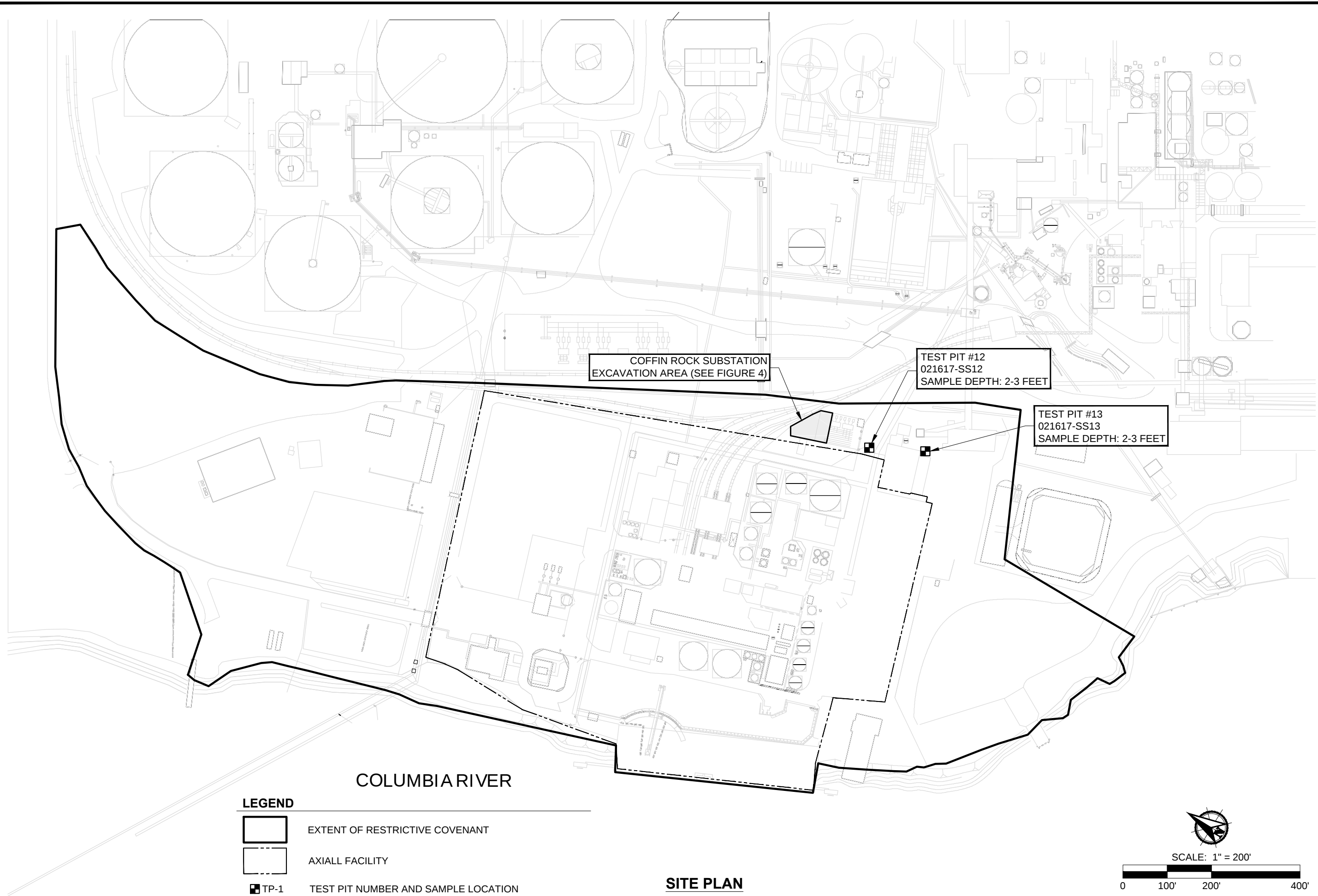
PREPARED FOR: NIPPON DYNAWAVE PACKAGING

SOIL AND GROUNDWATER SAMPLE LOCATIONS
COFFIN ROCK SUBSTATION
3535 INDUSTRIAL WAY, LONGVIEW, WASHINGTON

PROJECT
17759.000
DATE
MAY 2017
FIGURE



Filename: L:\Projects\17000\17700-17799\17759\17759-000\DWG\17759-000_FIG 5.dwg User: Lizbeth Saldivar CAD Plot Date/Time: 5/15/2017 12:14:24 PM Layout Tab: 11X17 DRAWINGS



Full Size Sheet Format Is 11x17; If Printed Size Is Not 11x17, Then This Sheet Format Has Been Modified & Indicated Drawing Scale Is Not Accurate.

PREPARED FOR: NIPPON DYNAWAVE PACKAGING

SOIL SAMPLE LOCATIONS

CHLOR-ALKALI PLANT

3535 INDUSTRIAL WAY, LONGVIEW, WASHINGTON

PROJECT
17759.000
DATE
MAY 2017
FIGURE

5

TABLES

Table 1. Summary of Soil Sampling Analytical Results

Table 1. Summary of Soil Sampling Analytical Results

Coffin Rock Substation Project
Longview, Washington

Sample ID	Sample Date	Sample Depth (ft bgs)	Total Mercury (mg/kg)	TCLP Mercury (mg/L)
021617-SS01	2/16/2017	5-6	2.18	NA
021617-SS02	2/16/2017	5-6	0.326	NA
021617-SS03	2/16/2017	5-6	0.796	NA
021617-SS04	2/16/2017	5-6	11.7	0.0174
021617-SS05	2/16/2017	5-6	0.383	NA
021617-SS06	2/16/2017	2-3	4.86	ND (0.004)
021617-SS07	2/16/2017	6-7	120	ND (0.004)
021617-SS08	2/16/2017	2-3	0.585	NA
021617-SS09	2/16/2017	2-3	6.69	ND (0.004)
021617-SS10	2/16/2017	2-3	9.77	0.00477
021617-SS11	2/16/2017	2-3	101	0.00980
021617-SS12	2/16/2017	2-3	20.7	ND (0.004)
021617-SS13	2/16/2017	2-3	19.6	ND (0.004)

ft bgs: feet below ground surface

mg/kg: milligrams per kilogram

mg/L: milligrams per liter

NA: not analyzed for this parameter

ND (MRL): analyte not detected (method reporting limit)

ATTACHMENT 1

Laboratory Reports and Chain-of-Custody Documentation

Friday, March 3, 2017

Heidi Yantz
PBS Engineering and Environmental
4412 SW Corbett Ave
Portland, OR 97239

RE: 17745.000 / [none]

Enclosed are the results of analyses for work order A7B0534, which was received by the laboratory on 2/16/2017 at 5:45:00PM.

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

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

Apex Laboratories



Lisa Domenighini, Client Services Manager

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

PBS Engineering and Environmental
4412 SW Corbett Ave
Portland, OR 97239

Project: **17745.000**
Project Number: [none]
Project Manager: Heidi Yantz

Reported:
03/03/17 12:55

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
021617-SS01	A7B0534-01	Soil	02/16/17 09:30	02/16/17 17:45
021617-SS02	A7B0534-02	Soil	02/16/17 09:50	02/16/17 17:45
021617-SS03	A7B0534-03	Soil	02/16/17 10:10	02/16/17 17:45
021617-SS04	A7B0534-04	Soil	02/16/17 10:20	02/16/17 17:45
021617-SS05	A7B0534-05	Soil	02/16/17 10:40	02/16/17 17:45
021617-SS06	A7B0534-06	Soil	02/16/17 12:30	02/16/17 17:45
021617-SS07	A7B0534-07	Soil	02/16/17 13:00	02/16/17 17:45
021617-SS08	A7B0534-08	Soil	02/16/17 13:20	02/16/17 17:45
021617-SS09	A7B0534-09	Soil	02/16/17 13:40	02/16/17 17:45
021617-SS10	A7B0534-10	Soil	02/16/17 13:55	02/16/17 17:45
021617-SS11	A7B0534-11	Soil	02/16/17 14:05	02/16/17 17:45
021617-SS12	A7B0534-12	Soil	02/16/17 14:30	02/16/17 17:45
021617-SS13	A7B0534-13	Soil	02/16/17 15:20	02/16/17 17:45

Apex Laboratories



Lisa Domenighini, Client Services Manager

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

PBS Engineering and Environmental

4412 SW Corbett Ave
Portland, OR 97239

Project: **17745.000**

Project Number: [none]

Project Manager: Heidi Yantz

Reported:

03/03/17 12:55

ANALYTICAL CASE NARRATIVE

Work Order: A7B0534

Amended Report Revision 1:

Additional Analysis-

This report supersedes all previous reports.

The final report has been amended to include TCLP Mercury by EPA method 6020/1311 to samples 021617-SS04, 021617-SS06, 021617-SS09 and 021617-SS10.

Lisa Domenighini
Client Services Manager
03/03/17

PBS Engineering and Environmental

Project: 17745.000

4412 SW Corbett Ave
Portland, OR 97239Project Number: [none]
Project Manager: Heidi YantzReported:
03/03/17 12:55

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
021617-SS01 (A7B0534-01)			Matrix: Soil	Batch: 7020679				
Diesel	ND	---	26.4	mg/kg dry	1	02/16/17 22:28	NWTPH-Dx	
Oil	ND	---	52.9	"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 95 %</i>		<i>Limits: 50-150 %</i>		"	"	"
021617-SS02 (A7B0534-02)			Matrix: Soil	Batch: 7020679				
Diesel	ND	---	25.0	mg/kg dry	1	02/16/17 22:49	NWTPH-Dx	
Oil	ND	---	50.0	"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 100 %</i>		<i>Limits: 50-150 %</i>		"	"	"
021617-SS03 (A7B0534-03)			Matrix: Soil	Batch: 7020679				
Diesel	ND	---	25.0	mg/kg dry	1	02/16/17 23:09	NWTPH-Dx	
Oil	ND	---	50.0	"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 97 %</i>		<i>Limits: 50-150 %</i>		"	"	"
021617-SS04 (A7B0534-04)			Matrix: Soil	Batch: 7020679				
Diesel	ND	---	25.0	mg/kg dry	1	02/16/17 23:29	NWTPH-Dx	
Oil	ND	---	50.0	"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 96 %</i>		<i>Limits: 50-150 %</i>		"	"	"
021617-SS05 (A7B0534-05)			Matrix: Soil	Batch: 7020679				
Diesel	ND	---	25.1	mg/kg dry	1	02/16/17 23:50	NWTPH-Dx	
Oil	ND	---	50.1	"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 96 %</i>		<i>Limits: 50-150 %</i>		"	"	"
021617-SS06 (A7B0534-06)			Matrix: Soil	Batch: 7020679				
Diesel	ND	---	25.0	mg/kg dry	1	02/17/17 00:10	NWTPH-Dx	
Oil	ND	---	50.0	"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 99 %</i>		<i>Limits: 50-150 %</i>		"	"	"
021617-SS07 (A7B0534-07)			Matrix: Soil	Batch: 7020679				
Diesel	ND	---	26.4	mg/kg dry	1	02/17/17 00:31	NWTPH-Dx	
Oil	64.4	---	52.9	"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 96 %</i>		<i>Limits: 50-150 %</i>		"	"	"
021617-SS08 (A7B0534-08)			Matrix: Soil	Batch: 7020679				
Diesel	ND	---	25.0	mg/kg dry	1	02/17/17 00:51	NWTPH-Dx	
Oil	ND	---	50.0	"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 96 %</i>		<i>Limits: 50-150 %</i>		"	"	"

Apex Laboratories

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



Lisa Domenighini, Client Services Manager

PBS Engineering and Environmental

4412 SW Corbett Ave
Portland, OR 97239

Project: 17745.000

Project Number: [none]

Project Manager: Heidi Yantz

Reported:

03/03/17 12:55

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
021617-SS09 (A7B0534-09)			Matrix: Soil		Batch: 7020679			
Diesel	ND	---	25.0	mg/kg dry	1	02/17/17 01:12	NWTPH-Dx	
Oil	ND	---	50.0	"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 96 %</i>		<i>Limits: 50-150 %</i>		"	"	"
021617-SS10 (A7B0534-10)			Matrix: Soil		Batch: 7020679			
Diesel	ND	---	25.0	mg/kg dry	1	02/17/17 01:32	NWTPH-Dx	
Oil	324	---	50.0	"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 93 %</i>		<i>Limits: 50-150 %</i>		"	"	"
021617-SS11 (A7B0534-11)			Matrix: Soil		Batch: 7020679			
Diesel	ND	---	25.0	mg/kg dry	1	02/17/17 02:13	NWTPH-Dx	
Oil	54.9	---	50.0	"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 94 %</i>		<i>Limits: 50-150 %</i>		"	"	"
021617-SS12 (A7B0534-12)			Matrix: Soil		Batch: 7020679			
Diesel	122	---	25.0	mg/kg dry	1	02/17/17 02:33	NWTPH-Dx	F-11
Oil	ND	---	50.0	"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 89 %</i>		<i>Limits: 50-150 %</i>		"	"	"
021617-SS13 (A7B0534-13)			Matrix: Soil		Batch: 7020679			
Diesel	ND	---	25.0	mg/kg dry	1	02/17/17 02:54	NWTPH-Dx	
Oil	ND	---	50.0	"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 89 %</i>		<i>Limits: 50-150 %</i>		"	"	"

Apex Laboratories



Lisa Domenighini, Client Services Manager

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

PBS Engineering and Environmental

4412 SW Corbett Ave
Portland, OR 97239

Project: 17745.000

Project Number: [none]

Project Manager: Heidi Yantz

Reported:

03/03/17 12:55

ANALYTICAL SAMPLE RESULTS

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

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
021617-SS01 (A7B0534-01)			Matrix: Soil		Batch: 7020672			
Gasoline Range Organics	ND	---	7.86	mg/kg dry	50	02/16/17 19:48	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			Recovery: 90 %	Limits: 50-150 %	1	"	"	
1,4-Difluorobenzene (Sur)			90 %	Limits: 50-150 %	"	"	"	
021617-SS02 (A7B0534-02)			Matrix: Soil		Batch: 7020672			
Gasoline Range Organics	ND	---	7.00	mg/kg dry	50	02/16/17 20:42	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			Recovery: 91 %	Limits: 50-150 %	1	"	"	
1,4-Difluorobenzene (Sur)			91 %	Limits: 50-150 %	"	"	"	
021617-SS03 (A7B0534-03)			Matrix: Soil		Batch: 7020672			
Gasoline Range Organics	ND	---	7.21	mg/kg dry	50	02/16/17 21:09	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			Recovery: 90 %	Limits: 50-150 %	1	"	"	
1,4-Difluorobenzene (Sur)			90 %	Limits: 50-150 %	"	"	"	
021617-SS04 (A7B0534-04)			Matrix: Soil		Batch: 7020672			
Gasoline Range Organics	ND	---	7.36	mg/kg dry	50	02/16/17 21:36	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			Recovery: 91 %	Limits: 50-150 %	1	"	"	
1,4-Difluorobenzene (Sur)			91 %	Limits: 50-150 %	"	"	"	
021617-SS05 (A7B0534-05)			Matrix: Soil		Batch: 7020672			
Gasoline Range Organics	ND	---	6.70	mg/kg dry	50	02/16/17 22:02	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			Recovery: 94 %	Limits: 50-150 %	1	"	"	
1,4-Difluorobenzene (Sur)			92 %	Limits: 50-150 %	"	"	"	
021617-SS06 (A7B0534-06)			Matrix: Soil		Batch: 7020672			
Gasoline Range Organics	ND	---	6.91	mg/kg dry	50	02/16/17 22:29	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			Recovery: 91 %	Limits: 50-150 %	1	"	"	
1,4-Difluorobenzene (Sur)			91 %	Limits: 50-150 %	"	"	"	
021617-SS07 (A7B0534-07)			Matrix: Soil		Batch: 7020672			
Gasoline Range Organics	ND	---	7.11	mg/kg dry	50	02/16/17 22:56	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			Recovery: 92 %	Limits: 50-150 %	1	"	"	
1,4-Difluorobenzene (Sur)			92 %	Limits: 50-150 %	"	"	"	
021617-SS08 (A7B0534-08)			Matrix: Soil		Batch: 7020672			
Gasoline Range Organics	ND	---	6.69	mg/kg dry	50	02/16/17 23:23	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			Recovery: 92 %	Limits: 50-150 %	1	"	"	
1,4-Difluorobenzene (Sur)			92 %	Limits: 50-150 %	"	"	"	

Apex Laboratories



Lisa Domenighini, Client Services Manager

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

PBS Engineering and Environmental

4412 SW Corbett Ave
Portland, OR 97239

Project: 17745.000

Project Number: [none]

Project Manager: Heidi Yantz

Reported:

03/03/17 12:55

ANALYTICAL SAMPLE RESULTS

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

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
021617-SS09 (A7B0534-09)			Matrix: Soil		Batch: 7020672			
Gasoline Range Organics	ND	---	6.51	mg/kg dry	50	02/16/17 23:50	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 90 %</i>	<i>Limits: 50-150 %</i>	1	"	"	
<i>1,4-Difluorobenzene (Sur)</i>			<i>92 %</i>	<i>Limits: 50-150 %</i>	"	"	"	
021617-SS10 (A7B0534-10)			Matrix: Soil		Batch: 7020672			
Gasoline Range Organics	ND	---	6.13	mg/kg dry	50	02/17/17 00:17	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 92 %</i>	<i>Limits: 50-150 %</i>	1	"	"	
<i>1,4-Difluorobenzene (Sur)</i>			<i>93 %</i>	<i>Limits: 50-150 %</i>	"	"	"	
021617-SS11 (A7B0534-11)			Matrix: Soil		Batch: 7020672			
Gasoline Range Organics	ND	---	7.18	mg/kg dry	50	02/17/17 00:43	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 89 %</i>	<i>Limits: 50-150 %</i>	1	"	"	
<i>1,4-Difluorobenzene (Sur)</i>			<i>92 %</i>	<i>Limits: 50-150 %</i>	"	"	"	
021617-SS12 (A7B0534-12)			Matrix: Soil		Batch: 7020672			
Gasoline Range Organics	ND	---	5.97	mg/kg dry	50	02/17/17 01:10	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 93 %</i>	<i>Limits: 50-150 %</i>	1	"	"	
<i>1,4-Difluorobenzene (Sur)</i>			<i>93 %</i>	<i>Limits: 50-150 %</i>	"	"	"	
021617-SS13 (A7B0534-13)			Matrix: Soil		Batch: 7020672			
Gasoline Range Organics	ND	---	6.18	mg/kg dry	50	02/17/17 01:37	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 91 %</i>	<i>Limits: 50-150 %</i>	1	"	"	
<i>1,4-Difluorobenzene (Sur)</i>			<i>92 %</i>	<i>Limits: 50-150 %</i>	"	"	"	

Apex Laboratories



Lisa Domenighini, Client Services Manager

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

PBS Engineering and Environmental
4412 SW Corbett Ave
Portland, OR 97239Project: 17745.000
Project Number: [none]
Project Manager: Heidi YantzReported:
03/03/17 12:55

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
021617-SS01 (A7B0534-01) Matrix: Soil								
Batch: 7020685								
Arsenic	ND	---	1.48	mg/kg dry	10	02/17/17 11:59	EPA 6020A	
Barium	52.7	---	2.97	"	"	"	"	
Cadmium	ND	---	0.297	"	"	"	"	
Chromium	8.17	---	1.48	"	"	"	"	
Lead	2.43	---	0.297	"	"	"	"	
Mercury	2.18	---	0.119	"	"	"	"	
Selenium	ND	---	1.48	"	"	"	"	
Silver	ND	---	0.297	"	"	"	"	
021617-SS02 (A7B0534-02) Matrix: Soil								
Batch: 7020685								
Arsenic	2.90	---	1.35	mg/kg dry	10	02/17/17 12:03	EPA 6020A	
Barium	45.3	---	2.70	"	"	"	"	
Cadmium	ND	---	0.270	"	"	"	"	
Chromium	16.3	---	1.35	"	"	"	"	
Lead	3.20	---	0.270	"	"	"	"	
Mercury	0.326	---	0.108	"	"	"	"	
Selenium	ND	---	1.35	"	"	"	"	
Silver	ND	---	0.270	"	"	"	"	
021617-SS03 (A7B0534-03) Matrix: Soil								
Batch: 7020685								
Arsenic	2.75	---	1.38	mg/kg dry	10	02/17/17 12:06	EPA 6020A	
Barium	56.0	---	2.76	"	"	"	"	
Cadmium	ND	---	0.276	"	"	"	"	
Chromium	8.87	---	1.38	"	"	"	"	
Lead	5.02	---	0.276	"	"	"	"	
Mercury	0.796	---	0.110	"	"	"	"	
Selenium	ND	---	1.38	"	"	"	"	
Silver	ND	---	0.276	"	"	"	"	
021617-SS04 (A7B0534-04) Matrix: Soil								
Batch: 7020685								
Arsenic	68.7	---	1.29	mg/kg dry	10	02/17/17 12:09	EPA 6020A	Q-42
Barium	70.9	---	2.57	"	"	"	"	
Cadmium	0.528	---	0.257	"	"	"	"	Q-42
Chromium	49.2	---	1.29	"	"	"	"	Q-42

Apex Laboratories



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

Lisa Domenighini, Client Services Manager

PBS Engineering and Environmental
4412 SW Corbett Ave
Portland, OR 97239

Project: **17745.000**
Project Number: [none]
Project Manager: Heidi Yantz

Reported:
03/03/17 12:55

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
021617-SS04 (A7B0534-04) Matrix: Soil								
Lead	48.9	---	0.257	mg/kg dry	10	"	EPA 6020A	Q-42
Selenium	ND	---	1.29	"	"	"	"	
Silver	ND	---	0.257	"	"	"	"	
021617-SS04 (A7B0534-04RE2) Matrix: Soil								
Batch: 7020685								
Mercury	11.7	---	1.03	mg/kg dry	100	02/17/17 14:54	EPA 6020A	Q-42
021617-SS05 (A7B0534-05) Matrix: Soil								
Batch: 7020685								
Arsenic	2.43	---	1.37	mg/kg dry	10	02/17/17 12:42	EPA 6020A	
Barium	58.0	---	2.75	"	"	"	"	
Cadmium	ND	---	0.275	"	"	"	"	
Chromium	10.1	---	1.37	"	"	"	"	
Lead	3.05	---	0.275	"	"	"	"	
Mercury	0.383	---	0.110	"	"	"	"	
Selenium	ND	---	1.37	"	"	"	"	
Silver	ND	---	0.275	"	"	"	"	
021617-SS06 (A7B0534-06) Matrix: Soil								
Batch: 7020685								
Arsenic	2.20	---	1.36	mg/kg dry	10	02/17/17 12:45	EPA 6020A	
Barium	56.4	---	2.71	"	"	"	"	
Cadmium	ND	---	0.271	"	"	"	"	
Chromium	11.2	---	1.36	"	"	"	"	
Lead	10.3	---	0.271	"	"	"	"	
Mercury	4.86	---	0.109	"	"	"	"	
Selenium	ND	---	1.36	"	"	"	"	
Silver	ND	---	0.271	"	"	"	"	
021617-SS07 (A7B0534-07) Matrix: Soil								
Batch: 7020685								
Arsenic	ND	---	1.35	mg/kg dry	10	02/17/17 12:49	EPA 6020A	
Barium	85.6	---	2.71	"	"	"	"	
Cadmium	ND	---	0.271	"	"	"	"	
Chromium	8.15	---	1.35	"	"	"	"	
Lead	5.13	---	0.271	"	"	"	"	
Selenium	ND	---	1.35	"	"	"	"	
Silver	ND	---	0.271	"	"	"	"	

Apex Laboratories



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

Lisa Domenighini, Client Services Manager

PBS Engineering and Environmental

Project: 17745.000

4412 SW Corbett Ave
Portland, OR 97239Project Number: [none]
Project Manager: Heidi YantzReported:
03/03/17 12:55

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
021617-SS07 (A7B0534-07RE1)			Matrix: Soil					
Batch: 7020685								
Mercury	120	---	10.8	mg/kg dry	1000	02/17/17 15:15	EPA 6020A	
021617-SS08 (A7B0534-08)			Matrix: Soil					
Batch: 7020685								
Arsenic	ND	---	1.39	mg/kg dry	10	02/17/17 12:52	EPA 6020A	
Barium	50.6	---	2.79	"	"	"	"	
Cadmium	ND	---	0.279	"	"	"	"	
Chromium	8.39	---	1.39	"	"	"	"	
Lead	3.16	---	0.279	"	"	"	"	
Selenium	ND	---	1.39	"	"	"	"	
Silver	ND	---	0.279	"	"	"	"	
021617-SS08 (A7B0534-08RE1)			Matrix: Soil					
Batch: 7020685								
Mercury	0.585	---	0.112	mg/kg dry	10	02/17/17 15:20	EPA 6020A	
021617-SS09 (A7B0534-09)			Matrix: Soil					
Batch: 7020685								
Mercury	6.69	---	1.13	mg/kg dry	100	02/17/17 14:21	EPA 6020A	
021617-SS09 (A7B0534-09RE1)			Matrix: Soil					
Batch: 7020685								
Arsenic	18.1	---	1.41	mg/kg dry	10	02/17/17 17:57	EPA 6020A	
Barium	195	---	2.82	"	"	"	"	
Cadmium	ND	---	0.282	"	"	"	"	
Chromium	23.4	---	1.41	"	"	"	"	
Lead	16.9	---	0.282	"	"	"	"	
Selenium	ND	---	1.41	"	"	"	"	
Silver	ND	---	0.282	"	"	"	"	
021617-SS10 (A7B0534-10)			Matrix: Soil					
Batch: 7020685								
Mercury	9.77	---	0.970	mg/kg dry	100	02/17/17 14:24	EPA 6020A	
021617-SS10 (A7B0534-10RE1)			Matrix: Soil					
Batch: 7020685								
Arsenic	32.1	---	1.21	mg/kg dry	10	02/17/17 18:00	EPA 6020A	
Barium	964	---	2.43	"	"	"	"	
Cadmium	ND	---	0.243	"	"	"	"	

Apex Laboratories

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



Lisa Domenighini, Client Services Manager

PBS Engineering and Environmental
4412 SW Corbett Ave
Portland, OR 97239Project: 17745.000
Project Number: [none]
Project Manager: Heidi YantzReported:
03/03/17 12:55

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
021617-SS10 (A7B0534-10RE1) Matrix: Soil								
Chromium	8.27	---	1.21	mg/kg dry	10	"	EPA 6020A	
Lead	27.0	---	0.243	"	"	"	"	
Selenium	ND	---	1.21	"	"	"	"	
Silver	ND	---	0.243	"	"	"	"	
021617-SS11 (A7B0534-11) Matrix: Soil								
Batch: 7020685								
Arsenic	ND	---	12.9	mg/kg dry	100	02/17/17 14:27	EPA 6020A	R-04
Barium	91.4	---	25.8	"	"	"	"	
Cadmium	ND	---	2.58	"	"	"	"	R-04
Chromium	ND	---	12.9	"	"	"	"	R-04
Lead	5.54	---	2.58	"	"	"	"	
Selenium	ND	---	12.9	"	"	"	"	R-04
Silver	ND	---	2.58	"	"	"	"	R-04
021617-SS11 (A7B0534-11RE1) Matrix: Soil								
Batch: 7020685								
Mercury	101	---	10.3	mg/kg dry	1000	02/17/17 15:24	EPA 6020A	
021617-SS12 (A7B0534-12RE1) Matrix: Soil								
Batch: 7020685								
Arsenic	ND	---	2.39	mg/kg dry	20	02/17/17 18:03	EPA 6020A	R-04
Barium	84.2	---	4.78	"	"	"	"	
Cadmium	ND	---	0.478	"	"	"	"	R-04
Chromium	8.86	---	2.39	"	"	"	"	
Lead	8.86	---	0.478	"	"	"	"	
Mercury	20.7	---	0.956	"	100	02/17/17 15:27	"	
Selenium	ND	---	2.39	"	20	02/17/17 18:03	"	R-04
Silver	ND	---	0.478	"	"	"	"	R-04
021617-SS13 (A7B0534-13) Matrix: Soil								
Batch: 7020685								
Mercury	19.6	---	1.00	mg/kg dry	100	02/17/17 15:30	EPA 6020A	Q-42
021617-SS13 (A7B0534-13RE1) Matrix: Soil								
Batch: 7020685								
Arsenic	ND	---	2.51	mg/kg dry	20	02/17/17 18:07	EPA 6020A	R-04
Barium	53.4	---	5.02	"	"	"	"	
Cadmium	ND	---	0.502	"	"	"	"	R-04
Chromium	8.80	---	2.51	"	"	"	"	

Apex Laboratories

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



Lisa Domenighini, Client Services Manager

PBS Engineering and Environmental

4412 SW Corbett Ave
Portland, OR 97239

Project: 17745.000

Project Number: [none]

Project Manager: Heidi Yantz

Reported:

03/03/17 12:55

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
021617-SS13 (A7B0534-13RE1)			Matrix: Soil					
Lead	4.26	---	0.502	mg/kg dry	20	"	EPA 6020A	
Selenium	ND	---	2.51	"	"	"	"	R-04
Silver	ND	---	0.502	"	"	"	"	R-04

Apex Laboratories



Lisa Domenighini, Client Services Manager

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

PBS Engineering and Environmental

4412 SW Corbett Ave
Portland, OR 97239

Project: 17745.000

Project Number: [none]

Project Manager: Heidi Yantz

Reported:

03/03/17 12:55

ANALYTICAL SAMPLE RESULTS

TCLP Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
021617-SS04 (A7B0534-04)			Matrix: Soil					
Batch: 7030243								
Mercury	0.0174	---	0.00400	mg/L	5	03/02/17 18:43	1311/6020A	
021617-SS06 (A7B0534-06)			Matrix: Soil					
Batch: 7030243								
Mercury	ND	---	0.00400	mg/L	5	03/02/17 18:46	1311/6020A	
021617-SS07 (A7B0534-07RE1)			Matrix: Soil					
Batch: 7020772								
Mercury	ND	---	0.00400	mg/L	5	02/21/17 13:37	1311/6020A	A-01
021617-SS09 (A7B0534-09)			Matrix: Soil					
Batch: 7030243								
Mercury	ND	---	0.00400	mg/L	5	03/02/17 19:05	1311/6020A	
021617-SS10 (A7B0534-10)			Matrix: Soil					
Batch: 7030243								
Mercury	0.00477	---	0.00400	mg/L	5	03/02/17 19:08	1311/6020A	
021617-SS11 (A7B0534-11RE1)			Matrix: Soil					
Batch: 7020772								
Mercury	0.00980	---	0.00400	mg/L	5	02/21/17 13:28	1311/6020A	
021617-SS12 (A7B0534-12RE1)			Matrix: Soil					
Batch: 7020772								
Mercury	ND	---	0.00400	mg/L	5	02/21/17 13:31	1311/6020A	
021617-SS13 (A7B0534-13RE1)			Matrix: Soil					
Batch: 7020772								
Mercury	ND	---	0.00400	mg/L	5	02/21/17 13:34	1311/6020A	

Apex Laboratories



Lisa Domenighini, Client Services Manager

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

PBS Engineering and Environmental

4412 SW Corbett Ave
Portland, OR 97239

Project: 17745.000

Project Number: [none]

Project Manager: Heidi Yantz

Reported:

03/03/17 12:55

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
021617-SS01 (A7B0534-01)			Matrix: Soil		Batch: 7020663			
% Solids	70.8	---	1.00	% by Weight	1	02/17/17 08:14	EPA 8000C	
021617-SS02 (A7B0534-02)			Matrix: Soil		Batch: 7020663			
% Solids	80.6	---	1.00	% by Weight	1	02/17/17 08:14	EPA 8000C	
021617-SS03 (A7B0534-03)			Matrix: Soil		Batch: 7020663			
% Solids	76.1	---	1.00	% by Weight	1	02/17/17 08:14	EPA 8000C	
021617-SS04 (A7B0534-04)			Matrix: Soil		Batch: 7020663			
% Solids	82.5	---	1.00	% by Weight	1	02/17/17 08:14	EPA 8000C	
021617-SS05 (A7B0534-05)			Matrix: Soil		Batch: 7020663			
% Solids	74.8	---	1.00	% by Weight	1	02/17/17 08:14	EPA 8000C	
021617-SS06 (A7B0534-06)			Matrix: Soil		Batch: 7020663			
% Solids	78.1	---	1.00	% by Weight	1	02/17/17 08:14	EPA 8000C	
021617-SS07 (A7B0534-07)			Matrix: Soil		Batch: 7020663			
% Solids	74.7	---	1.00	% by Weight	1	02/17/17 08:14	EPA 8000C	
021617-SS08 (A7B0534-08)			Matrix: Soil		Batch: 7020663			
% Solids	77.0	---	1.00	% by Weight	1	02/17/17 08:14	EPA 8000C	
021617-SS09 (A7B0534-09)			Matrix: Soil		Batch: 7020663			
% Solids	77.8	---	1.00	% by Weight	1	02/17/17 08:14	EPA 8000C	
021617-SS10 (A7B0534-10)			Matrix: Soil		Batch: 7020663			
% Solids	85.0	---	1.00	% by Weight	1	02/17/17 08:14	EPA 8000C	
021617-SS11 (A7B0534-11)			Matrix: Soil		Batch: 7020663			
% Solids	78.8	---	1.00	% by Weight	1	02/17/17 08:14	EPA 8000C	
021617-SS12 (A7B0534-12)			Matrix: Soil		Batch: 7020663			
% Solids	85.6	---	1.00	% by Weight	1	02/17/17 08:14	EPA 8000C	
021617-SS13 (A7B0534-13)			Matrix: Soil		Batch: 7020663			
% Solids	83.8	---	1.00	% by Weight	1	02/17/17 08:14	EPA 8000C	

Apex Laboratories



Lisa Domenighini, Client Services Manager

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

PBS Engineering and Environmental

4412 SW Corbett Ave
Portland, OR 97239

Project: 17745.000

Project Number: [none]

Project Manager: Heidi Yantz

Reported:

03/03/17 12:55

QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7020679 - EPA 3546 (Fuels)						Soil						
Blank (7020679-BLK1)						Prepared: 02/16/17 18:25		Analyzed: 02/16/17 21:05				
NWTPH-Dx												
Diesel	ND	---	25.0	mg/kg wet	1	---	---	---	---	---	---	
Oil	ND	---	50.0	"	"	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)		Recovery: 104 %		Limits: 50-150 %		Dilution: 1x						
LCS (7020679-BS1)						Prepared: 02/16/17 18:25		Analyzed: 02/16/17 21:25				
NWTPH-Dx												
Diesel	118	---	25.0	mg/kg wet	1	125	---	95	76-115%	---	---	
Surr: o-Terphenyl (Surr)		Recovery: 108 %		Limits: 50-150 %		Dilution: 1x						
Duplicate (7020679-DUP2)						Prepared: 02/16/17 18:45		Analyzed: 02/17/17 03:14				
QC Source Sample: 021617-SS13 (A7B0534-13)												
NWTPH-Dx												
Diesel	ND	---	25.0	mg/kg dry	1	---	20.7	---	---	31	30%	Q-05
Oil	ND	---	50.0	"	"	---	41.5	---	---	32	30%	Q-05
Surr: o-Terphenyl (Surr)		Recovery: 87 %		Limits: 50-150 %		Dilution: 1x						

Apex Laboratories



Lisa Domenighini, Client Services Manager

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

PBS Engineering and Environmental

4412 SW Corbett Ave
Portland, OR 97239

Project: 17745.000

Project Number: [none]

Project Manager: Heidi Yantz

Reported:

03/03/17 12:55

QUALITY CONTROL (QC) SAMPLE RESULTS

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

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7020672 - EPA 5035A						Soil						
Blank (7020672-BLK1)						Prepared: 02/16/17 13:00		Analyzed: 02/16/17 17:32				
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	3.33	mg/kg wet	50	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)		Recovery: 88 %		Limits: 50-150 %		Dilution: 1x						
1,4-Difluorobenzene (Sur)		89 %		50-150 %		"						
LCS (7020672-BS2)						Prepared: 02/16/17 13:00		Analyzed: 02/16/17 17:05				
NWTPH-Gx (MS)												
Gasoline Range Organics	22.4	---	5.00	mg/kg wet	50	25.0	---	90	70-130%	---	---	
Surr: 4-Bromofluorobenzene (Sur)		Recovery: 90 %		Limits: 50-150 %		Dilution: 1x						
1,4-Difluorobenzene (Sur)		92 %		50-150 %		"						
Duplicate (7020672-DUP2)						Prepared: 02/16/17 09:30		Analyzed: 02/16/17 20:15				
QC Source Sample: 021617-SS01 (A7B0534-01)												
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	7.96	mg/kg dry	50	---	ND	---	---	---	30%	
Surr: 4-Bromofluorobenzene (Sur)		Recovery: 95 %		Limits: 50-150 %		Dilution: 1x						
1,4-Difluorobenzene (Sur)		92 %		50-150 %		"						

Apex Laboratories



Lisa Domenighini, Client Services Manager

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

PBS Engineering and Environmental

4412 SW Corbett Ave
Portland, OR 97239

Project: 17745.000

Project Number: [none]

Project Manager: Heidi Yantz

Reported:

03/03/17 12:55

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7020685 - EPA 3051A												
Soil												
Blank (7020685-BLK1)												
						Prepared: 02/17/17 08:22 Analyzed: 02/17/17 11:53						
EPA 6020A												
Arsenic	ND	---	1.00	mg/kg wet	10	---	---	---	---	---	---	
Barium	ND	---	2.00	"	"	---	---	---	---	---	---	
Cadmium	ND	---	0.200	"	"	---	---	---	---	---	---	
Chromium	ND	---	1.00	"	"	---	---	---	---	---	---	
Lead	ND	---	0.200	"	"	---	---	---	---	---	---	
Mercury	ND	---	0.0800	"	"	---	---	---	---	---	---	
Selenium	ND	---	1.00	"	"	---	---	---	---	---	---	
Silver	ND	---	0.200	"	"	---	---	---	---	---	---	
LCS (7020685-BS1)												
						Prepared: 02/17/17 08:22 Analyzed: 02/17/17 11:56						
EPA 6020A												
Arsenic	53.4	---	1.00	mg/kg wet	10	50.0	---	107	80-120%	---	---	
Barium	53.6	---	2.00	"	"	"	---	107	"	---	---	
Cadmium	54.2	---	0.200	"	"	"	---	108	"	---	---	
Chromium	53.0	---	1.00	"	"	"	---	106	"	---	---	
Lead	55.9	---	0.200	"	"	"	---	112	"	---	---	
Mercury	1.07	---	0.0800	"	"	1.00	---	107	"	---	---	
Selenium	28.6	---	1.00	"	"	25.0	---	114	"	---	---	
Silver	26.4	---	0.200	"	"	"	---	106	"	---	---	
Duplicate (7020685-DUP1)												
						Prepared: 02/17/17 08:22 Analyzed: 02/17/17 12:12						
QC Source Sample: 021617-SS04 (A7B0534-04)												
EPA 6020A												
Arsenic	51.2	---	1.27	mg/kg dry	10	---	68.7	---	---	29	40%	
Barium	83.9	---	2.55	"	"	---	70.9	---	---	17	40%	
Cadmium	0.267	---	0.255	"	"	---	0.528	---	---	65	40%	Q-05
Chromium	43.5	---	1.27	"	"	---	49.2	---	---	12	40%	
Lead	42.9	---	0.255	"	"	---	48.9	---	---	13	40%	
Selenium	ND	---	1.27	"	"	---	ND	---	---	---	40%	
Silver	ND	---	0.255	"	"	---	ND	---	---	---	40%	
Duplicate (7020685-DUP2)												
						Prepared: 02/17/17 08:22 Analyzed: 02/17/17 15:06						
QC Source Sample: 021617-SS04 (A7B0534-04RE2)												
EPA 6020A												
Mercury	9.94	---	1.02	mg/kg dry	100	---	11.7	---	---	16	40%	Q-16

Apex Laboratories

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



Lisa Domenighini, Client Services Manager

PBS Engineering and Environmental

4412 SW Corbett Ave
Portland, OR 97239

Project: 17745.000

Project Number: [none]

Project Manager: Heidi Yantz

Reported:

03/03/17 12:55

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7020685 - EPA 3051A						Soil						
Matrix Spike (7020685-MS1)						Prepared: 02/17/17 08:22 Analyzed: 02/17/17 12:15						
QC Source Sample: 021617-SS04 (A7B0534-04)												
EPA 6020A												
Arsenic	88.8	---	1.26	mg/kg dry	10	63.2	68.7	32	75-125%	---	---	Q-04
Barium	137	---	2.53	"	"	"	70.9	106	"	---	---	
Cadmium	64.3	---	0.253	"	"	"	0.528	101	"	---	---	
Chromium	94.9	---	1.26	"	"	"	49.2	72	"	---	---	Q-04
Lead	91.7	---	0.253	"	"	"	48.9	68	"	---	---	Q-04
Selenium	33.8	---	1.26	"	"	31.5	ND	107	"	---	---	
Silver	31.2	---	0.253	"	"	"	ND	99	"	---	---	
Matrix Spike (7020685-MS2)						Prepared: 02/17/17 08:22 Analyzed: 02/17/17 15:33						
QC Source Sample: 021617-SS13 (A7B0534-13)												
EPA 6020A												
Mercury	35.9	---	0.951	mg/kg dry	100	1.19	19.6	1370	75-125%	---	---	Q-04
Matrix Spike (7020685-MS3)						Prepared: 02/17/17 08:22 Analyzed: 02/17/17 15:09						
QC Source Sample: 021617-SS04 (A7B0534-04RE2)												
EPA 6020A												
Mercury	10.7	---	1.01	mg/kg dry	100	1.26	11.7	-81	75-125%	---	---	Q-03, Q-16
Matrix Spike (7020685-MS4)						Prepared: 02/17/17 08:22 Analyzed: 02/17/17 18:10						
QC Source Sample: 021617-SS13 (A7B0534-13RE1)												
EPA 6020A												
Arsenic	59.4	---	2.38	mg/kg dry	20	59.5	1.76	97	75-125%	---	---	Q-16
Barium	109	---	4.76	"	"	"	53.4	94	"	---	---	Q-16
Cadmium	59.3	---	0.476	"	"	"	ND	100	"	---	---	Q-16
Chromium	65.8	---	2.38	"	"	"	8.80	96	"	---	---	Q-16
Lead	64.4	---	0.476	"	"	"	4.26	101	"	---	---	Q-16
Selenium	31.0	---	2.38	"	"	29.7	ND	105	"	---	---	Q-16
Silver	28.9	---	0.476	"	"	"	ND	97	"	---	---	Q-16

Apex Laboratories

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



Lisa Domenighini, Client Services Manager

PBS Engineering and Environmental

4412 SW Corbett Ave
Portland, OR 97239

Project: 17745.000

Project Number: [none]

Project Manager: Heidi Yantz

Reported:

03/03/17 12:55

QUALITY CONTROL (QC) SAMPLE RESULTS

TCLP Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7020772 - EPA 1311/3015						Soil						
Blank (7020772-BLK1)						Prepared: 02/21/17 09:09		Analyzed: 02/21/17 12:49				
1311/6020A												
Mercury	ND	---	0.00400	mg/L	5	---	---	---	---	---	---	TCLP
LCS (7020772-BS1)						Prepared: 02/21/17 09:09		Analyzed: 02/21/17 12:52				
1311/6020A												
Mercury	0.0493	---	0.00400	mg/L	5	0.0500	---	99	80-120%	---	---	TCLP
Matrix Spike (7020772-MS3)						Prepared: 02/21/17 09:09		Analyzed: 02/21/17 13:40				
QC Source Sample: 021617-SS07 (A7B0534-07RE1)												
1311/6020A												
Mercury	0.0512	---	0.00400	mg/L	5	0.0500	ND	102	50-150%	---	---	Q-16

Apex Laboratories



Lisa Domenighini, Client Services Manager

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

PBS Engineering and Environmental

4412 SW Corbett Ave
Portland, OR 97239

Project: 17745.000

Project Number: [none]

Project Manager: Heidi Yantz

Reported:

03/03/17 12:55

QUALITY CONTROL (QC) SAMPLE RESULTS

TCLP Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030243 - EPA 1311/3015						Solid						
Blank (7030243-BLK1)					Prepared: 03/02/17 09:49		Analyzed: 03/02/17 18:33					
1311/6020A												
Mercury	ND	---	0.00400	mg/L	5	---	---	---	---	---	---	TCLPa
LCS (7030243-BS1)					Prepared: 03/02/17 09:49		Analyzed: 03/02/17 18:37					
1311/6020A												
Mercury	0.0540	---	0.00400	mg/L	5	0.0500	---	108	80-120%	---	---	TCLPa
Matrix Spike (7030243-MS1)					Prepared: 03/02/17 09:49		Analyzed: 03/02/17 19:13					
QC Source Sample: 021617-SS10 (A7B0534-10)												
1311/6020A												
Mercury	0.0600	---	0.00400	mg/L	5	0.0500	0.00477	111	50-150%	---	---	

Apex Laboratories



Lisa Domenighini, Client Services Manager

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

PBS Engineering and Environmental 4412 SW Corbett Ave Portland, OR 97239	Project: 17745.000 Project Number: [none] Project Manager: Heidi Yantz	Reported: 03/03/17 12:55
---	---	------------------------------------

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7020663 - Total Solids (Dry Weight)						Soil						
Duplicate (7020663-DUP6)					Prepared: 02/16/17 19:38			Analyzed: 02/17/17 08:14				
QC Source Sample: 021617-SS01 (A7B0534-01)												
EPA 8000C												
% Solids	71.2	---	1.00	% by Weight	1	---	70.8	---	---	0.5	10%	
Duplicate (7020663-DUP7)					Prepared: 02/16/17 19:38			Analyzed: 02/17/17 08:14				
QC Source Sample: 021617-SS13 (A7B0534-13)												
EPA 8000C												
% Solids	82.1	---	1.00	% by Weight	1	---	83.8	---	---	2	10%	

Apex Laboratories

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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

PBS Engineering and Environmental

4412 SW Corbett Ave
Portland, OR 97239

Project: 17745.000

Project Number: [none]

Project Manager: Heidi Yantz

Reported:

03/03/17 12:55

SAMPLE PREPARATION INFORMATION

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3546 (Fuels)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7020679							
A7B0534-01	Soil	NWTPH-Dx	02/16/17 09:30	02/16/17 18:45	10.68g/5mL	10g/5mL	0.94
A7B0534-02	Soil	NWTPH-Dx	02/16/17 09:50	02/16/17 18:45	10.28g/5mL	10g/5mL	0.97
A7B0534-03	Soil	NWTPH-Dx	02/16/17 10:10	02/16/17 18:45	10.58g/5mL	10g/5mL	0.95
A7B0534-04	Soil	NWTPH-Dx	02/16/17 10:20	02/16/17 18:45	10.47g/5mL	10g/5mL	0.96
A7B0534-05	Soil	NWTPH-Dx	02/16/17 10:40	02/16/17 18:45	10.68g/5mL	10g/5mL	0.94
A7B0534-06	Soil	NWTPH-Dx	02/16/17 12:30	02/16/17 18:45	10.62g/5mL	10g/5mL	0.94
A7B0534-07	Soil	NWTPH-Dx	02/16/17 13:00	02/16/17 18:45	10.12g/5mL	10g/5mL	0.99
A7B0534-08	Soil	NWTPH-Dx	02/16/17 13:20	02/16/17 18:45	10.63g/5mL	10g/5mL	0.94
A7B0534-09	Soil	NWTPH-Dx	02/16/17 13:40	02/16/17 18:45	10.42g/5mL	10g/5mL	0.96
A7B0534-10	Soil	NWTPH-Dx	02/16/17 13:55	02/16/17 18:45	10.15g/5mL	10g/5mL	0.99
A7B0534-11	Soil	NWTPH-Dx	02/16/17 14:05	02/16/17 18:45	10.84g/5mL	10g/5mL	0.92
A7B0534-12	Soil	NWTPH-Dx	02/16/17 14:30	02/16/17 18:45	10.61g/5mL	10g/5mL	0.94
A7B0534-13	Soil	NWTPH-Dx	02/16/17 15:20	02/16/17 18:45	10.79g/5mL	10g/5mL	0.93

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

Prep: EPA 5035A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7020672							
A7B0534-01	Soil	NWTPH-Gx (MS)	02/16/17 09:30	02/16/17 09:30	6.09g/5mL	5g/5mL	0.82
A7B0534-02	Soil	NWTPH-Gx (MS)	02/16/17 09:50	02/16/17 09:50	5.35g/5mL	5g/5mL	0.94
A7B0534-03	Soil	NWTPH-Gx (MS)	02/16/17 10:10	02/16/17 10:10	5.82g/5mL	5g/5mL	0.86
A7B0534-04	Soil	NWTPH-Gx (MS)	02/16/17 10:20	02/16/17 10:20	4.81g/5mL	5g/5mL	1.04
A7B0534-05	Soil	NWTPH-Gx (MS)	02/16/17 10:40	02/16/17 10:40	6.68g/5mL	5g/5mL	0.75
A7B0534-06	Soil	NWTPH-Gx (MS)	02/16/17 12:30	02/16/17 12:30	5.81g/5mL	5g/5mL	0.86
A7B0534-07	Soil	NWTPH-Gx (MS)	02/16/17 13:00	02/16/17 13:00	6.17g/5mL	5g/5mL	0.81
A7B0534-08	Soil	NWTPH-Gx (MS)	02/16/17 13:20	02/16/17 13:20	6.26g/5mL	5g/5mL	0.80
A7B0534-09	Soil	NWTPH-Gx (MS)	02/16/17 13:40	02/16/17 13:40	6.33g/5mL	5g/5mL	0.79
A7B0534-10	Soil	NWTPH-Gx (MS)	02/16/17 13:55	02/16/17 13:55	5.61g/5mL	5g/5mL	0.89
A7B0534-11	Soil	NWTPH-Gx (MS)	02/16/17 14:05	02/16/17 14:05	5.43g/5mL	5g/5mL	0.92
A7B0534-12	Soil	NWTPH-Gx (MS)	02/16/17 14:30	02/16/17 14:30	5.69g/5mL	5g/5mL	0.88
A7B0534-13	Soil	NWTPH-Gx (MS)	02/16/17 15:20	02/16/17 15:20	5.73g/5mL	5g/5mL	0.87

Total Metals by EPA 6020 (ICPMS)

Apex Laboratories

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



Lisa Domenighini, Client Services Manager

PBS Engineering and Environmental

4412 SW Corbett Ave
Portland, OR 97239

Project: 17745.000

Project Number: [none]

Project Manager: Heidi Yantz

Reported:

03/03/17 12:55

SAMPLE PREPARATION INFORMATION

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7020685							
A7B0534-01	Soil	EPA 6020A	02/16/17 09:30	02/17/17 08:22	0.476g/50mL	0.5g/50mL	1.05
A7B0534-02	Soil	EPA 6020A	02/16/17 09:50	02/17/17 08:22	0.46g/50mL	0.5g/50mL	1.09
A7B0534-03	Soil	EPA 6020A	02/16/17 10:10	02/17/17 08:22	0.476g/50mL	0.5g/50mL	1.05
A7B0534-04	Soil	EPA 6020A	02/16/17 10:20	02/17/17 08:22	0.471g/50mL	0.5g/50mL	1.06
A7B0534-04RE2	Soil	EPA 6020A	02/16/17 10:20	02/17/17 08:22	0.471g/50mL	0.5g/50mL	1.06
A7B0534-05	Soil	EPA 6020A	02/16/17 10:40	02/17/17 08:22	0.487g/50mL	0.5g/50mL	1.03
A7B0534-06	Soil	EPA 6020A	02/16/17 12:30	02/17/17 08:22	0.472g/50mL	0.5g/50mL	1.06
A7B0534-07	Soil	EPA 6020A	02/16/17 13:00	02/17/17 08:22	0.494g/50mL	0.5g/50mL	1.01
A7B0534-07RE1	Soil	EPA 6020A	02/16/17 13:00	02/17/17 08:22	0.494g/50mL	0.5g/50mL	1.01
A7B0534-08	Soil	EPA 6020A	02/16/17 13:20	02/17/17 08:22	0.466g/50mL	0.5g/50mL	1.07
A7B0534-08RE1	Soil	EPA 6020A	02/16/17 13:20	02/17/17 08:22	0.466g/50mL	0.5g/50mL	1.07
A7B0534-09	Soil	EPA 6020A	02/16/17 13:40	02/17/17 08:22	0.456g/50mL	0.5g/50mL	1.10
A7B0534-09RE1	Soil	EPA 6020A	02/16/17 13:40	02/17/17 08:22	0.456g/50mL	0.5g/50mL	1.10
A7B0534-10	Soil	EPA 6020A	02/16/17 13:55	02/17/17 08:22	0.485g/50mL	0.5g/50mL	1.03
A7B0534-10RE1	Soil	EPA 6020A	02/16/17 13:55	02/17/17 08:22	0.485g/50mL	0.5g/50mL	1.03
A7B0534-11	Soil	EPA 6020A	02/16/17 14:05	02/17/17 08:22	0.492g/50mL	0.5g/50mL	1.02
A7B0534-11RE1	Soil	EPA 6020A	02/16/17 14:05	02/17/17 08:22	0.492g/50mL	0.5g/50mL	1.02
A7B0534-12RE1	Soil	EPA 6020A	02/16/17 14:30	02/17/17 08:22	0.489g/50mL	0.5g/50mL	1.02
A7B0534-13	Soil	EPA 6020A	02/16/17 15:20	02/17/17 08:22	0.476g/50mL	0.5g/50mL	1.05
A7B0534-13RE1	Soil	EPA 6020A	02/16/17 15:20	02/17/17 08:22	0.476g/50mL	0.5g/50mL	1.05

TCLP Metals by EPA 6020 (ICPMS)

Prep: EPA 1311/3015

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7020772							
A7B0534-07RE1	Soil	1311/6020A	02/16/17 13:00	02/21/17 09:09	5mL/50mL	5mL/50mL	1.00
A7B0534-11RE1	Soil	1311/6020A	02/16/17 14:05	02/21/17 09:09	5mL/50mL	5mL/50mL	1.00
A7B0534-12RE1	Soil	1311/6020A	02/16/17 14:30	02/21/17 09:09	5mL/50mL	5mL/50mL	1.00
A7B0534-13RE1	Soil	1311/6020A	02/16/17 15:20	02/21/17 09:09	5mL/50mL	5mL/50mL	1.00
Batch: 7030243							
A7B0534-04	Soil	1311/6020A	02/16/17 10:20	03/02/17 09:49	5mL/50mL	5mL/50mL	1.00
A7B0534-06	Soil	1311/6020A	02/16/17 12:30	03/02/17 09:49	5mL/50mL	5mL/50mL	1.00
A7B0534-09	Soil	1311/6020A	02/16/17 13:40	03/02/17 09:49	5mL/50mL	5mL/50mL	1.00

Apex Laboratories

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



Lisa Domenighini, Client Services Manager

PBS Engineering and Environmental

4412 SW Corbett Ave
 Portland, OR 97239

Project: **17745.000**

Project Number: [none]

Project Manager: Heidi Yantz

Reported:

03/03/17 12:55

SAMPLE PREPARATION INFORMATION**TCLP Metals by EPA 6020 (ICPMS)****Prep: EPA 1311/3015**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A7B0534-10	Soil	1311/6020A	02/16/17 13:55	03/02/17 09:49	5mL/50mL	5mL/50mL	1.00

Percent Dry Weight**Prep: Total Solids (Dry Weight)**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7020663							
A7B0534-01	Soil	EPA 8000C	02/16/17 09:30	02/16/17 19:38	1N/A/1N/A	1N/A/1N/A	NA
A7B0534-02	Soil	EPA 8000C	02/16/17 09:50	02/16/17 19:38	1N/A/1N/A	1N/A/1N/A	NA
A7B0534-03	Soil	EPA 8000C	02/16/17 10:10	02/16/17 19:38	1N/A/1N/A	1N/A/1N/A	NA
A7B0534-04	Soil	EPA 8000C	02/16/17 10:20	02/16/17 19:38	1N/A/1N/A	1N/A/1N/A	NA
A7B0534-05	Soil	EPA 8000C	02/16/17 10:40	02/16/17 19:38	1N/A/1N/A	1N/A/1N/A	NA
A7B0534-06	Soil	EPA 8000C	02/16/17 12:30	02/16/17 19:38	1N/A/1N/A	1N/A/1N/A	NA
A7B0534-07	Soil	EPA 8000C	02/16/17 13:00	02/16/17 19:38	1N/A/1N/A	1N/A/1N/A	NA
A7B0534-08	Soil	EPA 8000C	02/16/17 13:20	02/16/17 19:38	1N/A/1N/A	1N/A/1N/A	NA
A7B0534-09	Soil	EPA 8000C	02/16/17 13:40	02/16/17 19:38	1N/A/1N/A	1N/A/1N/A	NA
A7B0534-10	Soil	EPA 8000C	02/16/17 13:55	02/16/17 19:38	1N/A/1N/A	1N/A/1N/A	NA
A7B0534-11	Soil	EPA 8000C	02/16/17 14:05	02/16/17 19:38	1N/A/1N/A	1N/A/1N/A	NA
A7B0534-12	Soil	EPA 8000C	02/16/17 14:30	02/16/17 19:38	1N/A/1N/A	1N/A/1N/A	NA
A7B0534-13	Soil	EPA 8000C	02/16/17 15:20	02/16/17 19:38	1N/A/1N/A	1N/A/1N/A	NA

Apex Laboratories



Lisa Domenighini, Client Services Manager

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

PBS Engineering and Environmental

4412 SW Corbett Ave
Portland, OR 97239

Project: **17745.000**

Project Number: [none]

Project Manager: Heidi Yantz

Reported:

03/03/17 12:55

Notes and Definitions

Qualifiers:

- A-01 Sample had been decanted prior to analysis.
- F-11 The hydrocarbon pattern indicates possible weathered diesel, or a contribution from a related component.
- Q-03 Spike recovery and/or RPD is outside control limits due to the high concentration of analyte present in the sample.
- Q-04 Spike recovery and/or RPD is outside control limits due to a non-homogeneous sample matrix.
- Q-05 Analyses are not controlled on RPD values from sample and duplicate concentrations that are below 5 times the reporting level.
- Q-16 Reanalysis of an original Batch QC sample.
- Q-42 Matrix Spike and/or Duplicate analysis was performed on this sample. % Recovery or RPD for this analyte is outside laboratory control limits. (Refer to the QC Section of Analytical Report.)
- R-04 Reporting levels elevated due to dilution necessary for analysis.
- TCLP This batch QC sample was prepared with TCLP or SPLP fluid from preparation batch 7020757.
- TCLPa This batch QC sample was prepared with TCLP or SPLP fluid from preparation batch 7030204.

Notes and Conventions:

- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry' designation are not dry weight corrected.
- RPD Relative Percent Difference
- MDL If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
- WMSC Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
- Batch QC Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
- Blank Policy Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses.

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

Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
- QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

Apex Laboratories

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



Lisa Domenighini, Client Services Manager

PBS Engineering and Environmental

4412 SW Corbett Ave
Portland, OR 97239

Project: **17745.000**

Project Number: [none]

Project Manager: Heidi Yantz

Reported:

03/03/17 12:55

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

Apex Laboratories



Lisa Domenighini, Client Services Manager

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

Reported:
03/03/17 12:55

[illegible]

PBS Engineering and Environmental
4412 SW Corbett Ave
Portland, OR 97239

Project: **17745.000**
Project Number: [none]
Project Manager: Heidi Yantz

Reported:
03/03/17 12:55

APEX LABS
12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333
CHAIN OF CUSTODY
Lab # **A780534** COC **2 of 2**

Company: PBS		Project Mgr: Heidi Yantz		Project Name:		Project # 17745.000	
Address: 4412 SW Corbett Ave, Portland OR		Phone: 503-993-5515		Fax:		Email: heidi.yantz@carbasusa.com	
Sampled by: Lizbeth Saldivar		Date: 2/16/17		Time: 1405		Matrix: 3	
Site Location: WA		LAB ID #		DATE		TIME	
Other:		SAMPLE ID		DATE		TIME	
1 021617-SS11		2 021617-SS12		3 021617-SS13		4	
5		6		7		8	
9		10		11		12	
13		14		15		16	
17		18		19		20	
21		22		23		24	
25		26		27		28	
29		30		31		32	
33		34		35		36	
37		38		39		40	
41		42		43		44	
45		46		47		48	
49		50		51		52	
53		54		55		56	
57		58		59		60	
61		62		63		64	
65		66		67		68	
69		70		71		72	
73		74		75		76	
77		78		79		80	
81		82		83		84	
85		86		87		88	
89		90		91		92	
93		94		95		96	
97		98		99		100	
101		102		103		104	
105		106		107		108	
109		110		111		112	
113		114		115		116	
117		118		119		120	
121		122		123		124	
125		126		127		128	
129		130		131		132	
133		134		135		136	
137		138		139		140	
141		142		143		144	
145		146		147		148	
149		150		151		152	
153		154		155		156	
157		158		159		160	
161		162		163		164	
165		166		167		168	
169		170		171		172	
173		174		175		176	
177		178		179		180	
181		182		183		184	
185		186		187		188	
189		190		191		192	
193		194		195		196	
197		198		199		200	
201		202		203		204	
205		206		207		208	
209		210		211		212	
213		214		215		216	
217		218		219		220	
221		222		223		224	
225		226		227		228	
229		230		231		232	
233		234		235		236	
237		238		239		240	
241		242		243		244	
245		246		247		248	
249		250		251		252	
253		254		255		256	
257		258		259		260	
261		262		263		264	
265		266		267		268	
269		270		271		272	
273		274		275		276	
277		278		279		280	
281		282		283		284	
285		286		287		288	
289		290		291		292	
293		294		295		296	
297		298		299		300	
301		302		303		304	
305		306		307		308	
309		310		311		312	
313		314		315		316	
317		318		319		320	
321		322		323		324	
325		326		327		328	
329		330		331		332	
333		334		335		336	
337		338		339		340	
341		342		343		344	
345		346		347		348	
349		350		351		352	
353		354		355		356	
357		358		359		360	
361		362		363		364	
365		366		367		368	
369		370		371		372	
373		374		375		376	
377		378		379		380	
381		382		383		384	
385		386		387		388	
389		390		391		392	
393		394		395		396	
397		398		399		400	
401		402		403		404	
405		406		407		408	
409		410		411		412	
413		414		415		416	
417		418		419		420	
421		422		423		424	
425		426		427		428	
429		430		431		432	
433		434		435		436	
437		438		439		440	
441		442		443		444	
445		446		447		448	
449		450		451		452	
453		454		455		456	
457		458		459		460	
461		462		463		464	
465		466		467		468	
469		470		471		472	
473		474		475		476	
477		478		479		480	
481		482		483		484	
485		486		487		488	
489		490		491		492	
493		494		495		496	
497		498		499		500	
501		502		503		504	
505		506		507		508	
509		510		511		512	
513		514		515		516	
517		518		519		520	
521		522		523		524	
525		526		527		528	
529		530		531		532	
533		534		535		536	
537		538		539		540	
541		542		543		544	
545		546		547		548	
549		550		551		552	
553		554		555		556	
557		558		559		560	
561		562		563		564	
565		566		567		568	
569		570		571		572	
573		574		575		576	
577		578		579		580	
581		582		583		584	
585		586		587		588	
589		590		591		592	
593		594		595		596	
597		598		599		600	
601		602		603		604	
605		606		607		608	
609		610		611		612	
613		614		615		616	
617		618		619		620	
621		622		623		624	
625		626		627		628	
629		630		631		632	
633		634		635		636	
637		638		639		640	
641		642		643		644	
645		646		647		648	
649		650		651		652	
653		654		655		656	
657		658		659		660	
661		662		663		664	
665		666		667		668	
669		670		671		672	
673		674		675		676	
677		678		679		680	
681		682		683		684	
685		686		687		688	
689		690		691		692	
693		694		695		696	
697		698		699		700	
701		702		703		704	
705		706		707		708	
709		710		711		712	
713		714		715		716	
717		718		719		720	
721		722		723		724	
725		726		727		728	
729		730		731		732	
733		734		735		736	
737		738		739		740	
741		742		743		744	
745		746		747		748	
749		750		751		752	
753		754		755		756	
757		758		759		760	
761		762		763		764	
765		766		767		768	
769		770		771		772	
773		774		775		776	
777		778		779		780	
781		782		783		784	
785		786		787		788	
789		790		791		792	
793		794		795		796	
797		798		799		800	
801		802		803		804	
805		806		807		808	
809		810		811		812	
813		814		815		816	
817		818		819		820	
821		822		823		824	
825		826		827		828	
829		830		831		832	
833		834		835		836	
837		838		839			

PBS Engineering and Environmental

4412 SW Corbett Ave
Portland, OR 97239

Project: 17745.000

Project Number: [none]

Project Manager: Heidi Yantz

Reported:

03/03/17 12:55

APEX LABS COOLER RECEIPT FORM

Client: PBS-PDX Element WO#: A7 B0534Project/Project #: 17745.000

Delivery info:

Date/Time Received: 2/16/17 @ 1745 By: AKKDelivered by: Apex ☒ Client ☐ ESS ☐ FedEx ☐ UPS ☐ Swift ☐ Senvoy ☐ SDS ☐ Other ☐Cooler Inspection Inspected by: AKK : 2/16/17 @ 1830Chain of Custody Included? Yes ☒ No ☐ Custody Seals? Yes ☐ No ☒Signed/Dated by Client? Yes ☒ No ☐Signed/Dated by Apex? Yes ☒ No ☐

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	<u>2.5</u>						
Received on Ice? (Y/N)	☒						
Temp. Blanks? (Y/N)	☒						
Ice Type: (Gel/Real/Other)	<u>good</u>						
Condition:	<u>good</u>						

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

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA ☒Samples Inspection: Inspected by: AKK : 2/16/17 @ 1830All Samples Intact? Yes ☒ No ☐ Comments:Bottle Labels/COCs agree? Yes ☒ No ☐ Comments:Containers/Volumes Received Appropriate for Analysis? Yes ☒ No ☐ Comments:Do VOA Vials have Visible Headspace? Yes ☐ No ☐ NA ☒

Comments:

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

Comments:

Additional Information:

Labeled by: AKK Witness: Cooler Inspected by: AKK See Project Contact Form: Y

Apex Labs

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

Friday, March 3, 2017

Heidi Yantz
PBS Engineering and Environmental
4412 SW Corbett Ave
Portland, OR 97239

RE: 17745.000 / [none]

Enclosed are the results of analyses for work order A7C0024, which was received by the laboratory on 3/1/2017 at 2:07:00PM.

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

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

Apex Laboratories



Lisa Domenighini, Client Services Manager

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

PBS Engineering and Environmental

4412 SW Corbett Ave
Portland, OR 97239

Project: **17745.000**

Project Number: [none]

Project Manager: Heidi Yantz

Reported:

03/03/17 13:57

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
030117-GW02	A7C0024-02	Water	03/01/17 11:30	03/01/17 14:07

Apex Laboratories



Lisa Domenighini, Client Services Manager

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

PBS Engineering and Environmental

4412 SW Corbett Ave
Portland, OR 97239

Project: **17745.000**

Project Number: [none]

Project Manager: Heidi Yantz

Reported:

03/03/17 13:57

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 200.8 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
030117-GW02 (A7C0024-02RE1)			Matrix: Water					
Batch: 7030265								
Mercury	2.39	---	0.160	mg/L	2000	03/02/17 21:55	EPA 200.8	

Apex Laboratories



Lisa Domenighini, Client Services Manager

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

PBS Engineering and Environmental

4412 SW Corbett Ave
Portland, OR 97239

Project: 17745.000

Project Number: [none]

Project Manager: Heidi Yantz

Reported:

03/03/17 13:57

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 200.8 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030265 - EPA 3015A							Water					
Blank (7030265-BLK1)					Prepared: 03/02/17 15:36		Analyzed: 03/02/17 20:55					
EPA 200.8												
Mercury	ND	---	0.0000800	mg/L	1	---	---	---	---	---	---	
LCS (7030265-BS1)					Prepared: 03/02/17 15:36		Analyzed: 03/02/17 20:58					
EPA 200.8												
Mercury	0.00120	---	0.0000800	mg/L	1	0.00111	---	108	85-115%	---	---	

Apex Laboratories



Lisa Domenighini, Client Services Manager

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

PBS Engineering and Environmental

4412 SW Corbett Ave
Portland, OR 97239

Project: **17745.000**

Project Number: [none]

Project Manager: Heidi Yantz

Reported:

03/03/17 13:57

SAMPLE PREPARATION INFORMATION

Total Metals by EPA 200.8 (ICPMS)

Prep: EPA 3015A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7030265							
A7C0024-02RE1	Water	EPA 200.8	03/01/17 11:30	03/02/17 17:01	45mL/50mL	45mL/50mL	1.00

Apex Laboratories



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

Lisa Domenighini, Client Services Manager

PBS Engineering and Environmental

4412 SW Corbett Ave
Portland, OR 97239

Project: **17745.000**

Project Number: [none]

Project Manager: Heidi Yantz

Reported:

03/03/17 13:57

Notes and Definitions

Qualifiers:

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry' designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses. For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor. Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
---	QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
***	Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Apex Laboratories



Lisa Domenighini, Client Services Manager

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

Reported:
03/03/17 13:57

Page 7 of 8

PBS Engineering and Environmental

4412 SW Corbett Ave
Portland, OR 97239

Project: 17745.000

Project Number: [none]

Project Manager: Heidi Yantz

Reported:

03/03/17 13:57

APEX LABS COOLER RECEIPT FORM

Client: PBS-PDX Element WO#: A7 00024

Project/Project #: 17745.000

Delivery info:

Date/Time Received: 3/1/17 @ 1409 By: CFH

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

Cooler Inspection Inspected by: AKK : 3/1/17 @ 1604

Chain of Custody Included? Yes ☒ No ☐ Custody Seals? Yes ☐ No ☒

Signed/Dated by Client? Yes ☒ No ☐

Signed/Dated by Apex? Yes ☒ No ☐

Cooler #1 Cooler #2 Cooler #3 Cooler #4 Cooler #5 Cooler #6 Cooler #7

Temperature (deg. C) 3.9

Received on Ice? ☒ (Y/N)

Temp. Blanks? ☒ (Y/N)

Ice Type: (Gel/Real/Other)

Condition: good

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

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

Samples Inspection Inspected by: AKK : 3/1/17 @ 1625

All Samples Intact? Yes ☒ No ☐ Comments:

Bottle Labels/COCs agree? Yes ☒ No ☐ Comments:

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

Do VOA Vials have Visible Headspace? Yes ☐ No ☐ NA ☒

Comments:

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

Comments: 030117-GW02 pH ~7

Additional Information:

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

AKK W AKK

Lisa A. Domenighini