EES
ENVIRONMENTAL CONSULTING, INC.
240 N. Broadway, Suite 203, Portland OR 97227
(503) 847-2740
www.ees-environmental.com

Technical Memorandum

To: Mark Conan, Jonathan Polonsky, & Brent Chadwick, Plaid Pantries, Inc.
From: Paul Ecker LHG, and Chris Rhea, LG
Date: March 31, 2016

Subject: **Development of Site-Specific MTCA Method B Soil Cleanup Level for Gasoline**
Plaid Pantry Store #112
1002 West Fourth Plain Boulevard
Vancouver, Washington
Ecology VCP Project SW1314
EES Project 1179-01/03

This memorandum documents the methodology for and results of calculating the proposed soil cleanup level for gasoline at the Plaid Pantries, Inc. (Plaid) subject Site. The Site includes Plaid's active convenience market and retail fueling station known as Store #112, with gasoline-contaminated soil extending south of the Property boundary beneath the Fourth Plain Boulevard right-of-way.

EES Environmental Consulting, Inc. (EES) developed this Site-specific Method B soil cleanup level in accordance with MTCA regulations (WAC 173-340) and published Ecology guidance (2007 and 2011). Supporting information is provided below and attached in various data tables and site maps.

Figures 1 and 2 illustrate the Site location, layout, and soil sampling locations. Analytical testing results for Site soils are presented on Tables 1 and 2. Method B cleanup level calculations and model outputs are provided in Tables 3 and 3A-3E.

BACKGROUND

As discussed with Plaid and Washington Department of Ecology (Ecology) representatives, Remedial Investigation (RI) activities at the Site are nearly complete. RI data reports, planning documentation, and status updates are provided to Ecology as part of Plaid's participation in the Department's Voluntary Cleanup Program.

Based on Site characterization and the well-defined Conceptual Site Model (CSM) as discussed with Ecology in 2015-2016, we believe that the development and use of a site-specific Method B soil cleanup level for gasoline is appropriate and will be protective of human health and the environment (WAC 173-340-740). Basic elements of the CSM demonstrate the following:

- Gasoline impacts at the Site are well-defined. These impacts are limited to a localized pocket of shallow soil extending up to 13 feet in depth, within the area illustrated on Figure 2. Subsurface gasoline vapors associated with the historical release(s) are also present and are generally centered on the zone of soil contamination. As discussed with Ecology in December 2015 and early 2016, additional soil vapor assessment planning is underway in an effort to resolve potential RI vapor intrusion data gaps for the Property building.
- The local water table is anticipated at depths exceeding 80 feet and is not expected to be affected by historic gasoline release(s) originating at the Property. Recent evaluation of seasonally perched groundwater indicates no gasoline impacts to this media (EES, 3/30/2016).
- Current and reasonably likely future land use at the Property is commercial. No residential use of the Site is anticipated. Affected portions of the adjacent Fourth Plain Boulevard right-of-way will remain in use as a major local thoroughfare. Potential human receptors at the Site include store workers and customers, and potential future construction and excavation workers (including road and utility workers). Note that Method B calculations provided in this report are protective of unrestricted land use scenarios in accordance with Ecology's criteria.
- Terrestrial ecological exposure is unlikely. No adjustment to cleanup values to protect terrestrial ecological receptors is necessary.
- Plaid's operating soil vapor extraction (SVE) system provides source-area vapor control and mitigation. Gasoline concentrations in soil within the treatment zone are effectively reduced by SVE activity.

SITE-SPECIFIC MTCA METHOD B SOIL CLEANUP LEVELS (GASOLINE)

EES calculated a gasoline cleanup level in soil for unrestricted land use at the Site, using Ecology's default model inputs for the protection of human health (WAC 173-340-740). In accordance with published Ecology guidance (September 2011), EES collected and analyzed multiple soil samples from the high-concentration core of residual gasoline contamination, and these analytical findings were used to calculate a median soil cleanup level that is representative of what we believe to be "worst-case" Site conditions. Analytical data used in these calculations were obtained from soil samples collected in September 2015, including samples B-16(6), B-17(9), B-18(3), and B-18(9). Tables 1 and 2 summarize analytical testing results, and laboratory analytical reports are provided in Attachment A.

Soil cleanup level calculations were performed using Ecology's *Workbook for Calculating Soil and Groundwater Cleanup Levels* (2007), and included a combination of Site-specific chemical analytical data and default Ecology input parameters. The calculation results are summarized on Table 3, with detailed worksheets generated using Ecology's model provided as Tables 3A through 3E.

- The representative median Site-specific Method B soil cleanup level for gasoline was calculated at a concentration of 2,619 mg/kg.

EES proposes to use this Method B gasoline soil cleanup level of 2,619 mg/kg for unrestricted land use and future compliance evaluation purposes. As discussed with Ecology, soil vapor conditions must meet separate protective criteria, to be determined.

We request that Ecology provide a written opinion regarding the proposed soil cleanup level.

ATTACHMENTS

Tables
Table 1: Soil Analytical Results – Gasoline, Diesel, and Related Constituents
Table 2: Soil Analytical Results – Volatile Petroleum Hydrocarbons
Table 3: Summary of Site-Specific MTCA Method B Calculations

Figures
Figure 1: Vicinity Map
Figure 2: Maximum Gasoline Concentrations in Soil (September 2015)

Attachment A: Laboratory Analytical Data Reports

TABLES

TABLE 1
Soil Analytical Results - Gasoline, Diesel, and Related Constituents (mg/kg)
Plaid Pantry No. 112
Vancouver, Washington

Location	Date	Sample Depth (feet bgs)	Gasoline	Diesel	Heavy Oil/Lube	Benzene	Toluene	Ethylbenzene	Xylenes	EDB	EDC	MTBE	Naphthalene	Lead	PCE	TCE	2-Butanone	Carbon Tetrachloride	1,1,1-Trichloroethane
Soil Screening Levels																			
MTCA Method A[1] Unrestricted Use			100/30[2]	2,000	2,000	0.03	7	6	9	0.005	NA	0.10	5	250	0.05	0.03	NA	NA	2
MTCA Method B[3]			2,619[4]	NC	NC	18.2	6,400[5]	8,000[5]	16,000[5]	0.5	11	556	1,600[5]	NC	476	12	NC	14.3	160,000[5]
September 2011 Initial Soil Sampling																			
B1-3	09/08/2011	3	24 U	59 U	118 U	0.011 U	0.044 U	0.022 U	0.065 U	*0.022 U*	0.022 U	0.044 U	0.087 U	-	0.022 U	0.022 U	0.44 U	0.022 U	0.022 U
B1-9	09/08/2011	9	22 U	54 U	108 U	0.013 U	0.051 U	0.026 U	0.077 U	*0.026 U*	0.026 U	0.051 U	0.10 U	8.3	0.026 U	0.026 U	0.51 U	0.026 U	0.026 U
B1-15	09/08/2011	15	21 U	52 U	103 U	0.013 U	0.052 U	0.026 U	0.078 U	*0.026 U*	0.026 U	0.052 U	0.10 U	-	0.026 U	0.026 U	0.52 U	0.026 U	0.026 U
B2-3	09/07/2011	3	21 U	53 U	107 U	0.011 U	0.043 U	0.022 U	0.065 U	*0.022 U*	0.022 U	0.043 U	0.087 U	-	0.022 U	0.022 U	0.43 U	0.022 U	0.022 U
B2-9	09/07/2011	9	25 U	25 U[b1]	54 [b1]	0.0088 U	0.035 U	0.018 U	0.053 U	*0.018 U*	0.018 U	0.035 U	0.010 U[d]	-	0.018 U	0.018 U	0.35 U	0.018 U	0.018 U
B2-15	09/09/2011	15	21 U	53 U	105 U	0.0068 U	0.027 U	0.014 U	0.041 U	*0.014 U*	0.014 U	0.027 U	0.054 U	-	0.014 U	0.014 U	0.27 U	0.014 U	0.014 U
B3-3	09/07/2011	3	23 U	57 U	113 U	0.012 U	0.047 U	0.024 U	0.071 U	*0.024 U*	0.024 U	0.047 U	0.094 U	-	0.024 U	0.024 U	0.47 U	0.024 U	0.024 U
B3-9	09/07/2011	9	26 U	64 U	128 U	0.014 U	0.055 U	0.028 U	0.083 U	*0.028 U*	0.028 U	0.055 U	0.11 U	12	0.028 U	0.028 U	0.55 U	0.028 U	0.028 U
B4-3	09/07/2011	3	23 U	57 U	114 U	0.013 U	0.051 U	0.026 U	0.076 U	*0.026 U*	0.026 U	0.051 U	0.10 U	-	0.026 U	0.026 U	0.51 U	0.026 U	0.026 U
B4-9	09/07/2011	9	21 U	53 U	106 U	0.012 U	0.049 U	0.024 U	0.073 U	*0.024 U*	0.024 U	0.049 U	0.097 U	-	0.024 U	0.024 U	0.49 U	0.024 U	0.024 U
B5-3	09/08/2011	3	22 U	56 U	112 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B5-6	09/08/2011	6	**2,900** [a]	>57 [c]	114 U	*0.28 U*	1.1 U	**12**	**74**	*0.56 U*	0.56 U	*1.1 U*	**14**	21	*0.56 U*	*0.56 U*	11 U	0.56 U	0.56 U
B5-9	09/08/2011	9	**4,070** [a]	>54 [c]	108 U	*0.24 U*	0.95 U	**29**	**121**	*0.48 U*	0.48 U	*0.95 U*	**8.8**	11	*0.48 U*	*0.48 U*	9.5 U	0.48 U	0.48 U
B5-12.5	09/08/2011	12.5	**444** [a]	638 [b,c]	50 U[b]	**2.1**	0.13 U	5.3	**21**	*0.063 U*	0.063 U	*0.13 U*	1.1	13	*0.063 U*	*0.063 U*	1.3 U	0.063 U	0.13 U
B5-20	09/08/2011	20	2.9 U[a]	-	-	0.0073 U	0.029 U	0.015 U	0.044 U	*0.015 U*	0.015 U	0.029 U	0.058 U	-	0.015 U	0.015 U	0.29 U	0.015 U	0.015 U
B6-3	09/08/2011	3	22 U	54 U	107 U	0.0096 U	0.038 U	0.019 U	0.057 U	*0.019 U*	0.019 U	0.038 U	0.077 U	-	0.019 U	0.019 U	0.38 U	0.019 U	0.019 U
B6-9	09/08/2011	9	23 U	58 U	116 U	0.0093 U	0.037 U	0.019 U	0.056 U	*0.019 U*	0.019 U	0.037 U	0.074 U	-	0.019 U	0.019 U	0.37 U	0.019 U	0.019 U
B6-12	09/09/2011	12	26 U	64 U	128 U	0.011 U	0.044 U	0.022 U	0.065 U	*0.022 U*	0.022 U	0.044 U	0.087 U	-	0.022 U	0.022 U	0.44 U	0.022 U	0.022 U
February 2012 Abandoned Tank Decommissioning																			
SVE-1/5.0	02/03/2012	5	22 U	55 U	110 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SVE-1/10.0	02/03/2012	10	**2,750** [a]	>56.1 [c]	112 U	**0.39**	**48**	**40**	**301**	*0.19 U*	0.16 U	*0.62 U*	**13**	7.6	*0.31 U*	*0.31 U*	6.2 U	0.31 U	0.31 U
PIT S/1.5	02/14/2012	1.5	23 U	25 U[b]	116 [b]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tank Sludge	02/14/2012	NA	**2,410** [a]	172 U[c]	345 U	**0.040** J	1.9	2.7	**19**	*0.090 U*	0.090 U	*0.19 U*	**7.1** [e]	-	*0.094 U*	*0.094 U*	2.8 U	0.094 U	0.094 U
PIT N/2	02/14/2012	2	21 U	52 U	104 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PIT N/6	02/14/2012	6	8.7 U[a]	57 [c]	113 U	0.020 U	0.090 U	0.040 U	0.14	*0.040 U*	0.040 U	0.090 U	0.17 U	-	0.043 U	*0.043 U*	0.87 U	0.043 U	0.043 U
PIT S/2	02/14/2012	2	**1,320** [a]	54 [c]	109 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PIT S/6	02/14/2012	6	**5,800** [a]	62 [c]	124 U	**3.4**	**23**	**78**	**411**	*0.81 U*	0.81 U	*1.6 U*	**34**	-	*0.81 U*	*0.81 U*	16 U	0.81 U	0.81 U
PIT E/2	02/14/2012	2	24 U	60 U	120 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PIT E/6	02/14/2012	6	**64,200** [a]	62 [c]	123 U	**93**	**3,570**	**1,350**	**9,090**	*6.5 U*	6.5 U	*13 U*	**241**	-	*6.5 U*	*6.5 U*	182 U	6.5 U	*6.5 U*
PIT W/2	02/14/2012	2	**1,210** [a]	59 [c]	118 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PIT W/6	02/14/2012	6	**18,700** [a]	61 [c]	122 U	**26**	**572**	**296**	**1,693**	*1.6 U*	1.6 U	*3.2 U*	**67**	-	*1.6 U*	*1.6 U*	48 U	1.6 U	1.6 U
PIT Floor/6	02/14/2012	6	**34,900** [a]	**2,660** [b]	81 U[b]	**56**	**1,460**	**609**	**3,605**	*0.81 U*	0.81 U	*1.6 U*	**27** [e]	-	*0.81 U*	*0.81 U*	105 U	0.81 U	0.81 U
August 2012 Soil Sampling																			
B-7/6	08/16/2012	6	**473** [a]	-	-	*0.18 J*	0.86 U	2.1	**12**	*0.011 U*[e]	0.43 U	*0.51 U*[g]	1.7 U	-	*0.21 U*[g]	*0.31 U*[g]	8.6 U	0.43 U	0.43 U
B-7/9	08/16/2012	9	**1,730** [a]	-	-	**0.80**	0.82 U	0.89	1.2 U	*0.25 U*[g]	0.41 U	*0.49 U*[g]	1.6 U	-	*0.21 U*[g]	*0.30 U*[g]	8.2 U	0.41 U	0.41 U
B-7/13	08/16/2012	13	**303** [a]	-	-	**0.15**	0.089 U	0.17	0.25	*0.0089 U*[e]	0.045 U	0.089 U	0.30	-	0.045 U	*0.032 U*[g]	0.89 U	0.045 U	0.045 U
B-7/14	08/16/2012	14	5.8 U[a]	-	-	0.015 U	0.058 U	0.029 U	0.087 U	0.0029 U[e,g]	0.029 U	0.058 U	0.12 U	-	0.029 U	0.029 U	0.58 U	0.029 U	0.029 U
B-8/6	08/16/2012	6	8.4 U[a]	-	-	0.026	0.084 U	0.072	0.30	0.0042 U[e,g]	0.042 U	0.084 U	0.17 U	-	0.042 U	*0.031 U*[g]	0.84 U	0.042 U	0.042 U
B-8/9	08/16/2012	9	7.4 U[a]	-	-	**0.042**	0.074 U	0.037 U	0.25	*0.023 U*[g]	0.037 U	0.074 U	0.15 U	-	0.037 U	0.027 U[g]	0.74 U	0.037 U	0.037 U
B-8/13	08/16/2012	13	8.9 U[a]	-	-	0.022 U	0.089 U	0.044 U	0.13 U	0.0044 U[e,g]	0.044 U	0.089 U	0.18 U	-	0.044 U	*0.032 U*[g]	0.88 U	0.044 U	0.044 U
B-9/3	08/13/2012	3	5.7 U[a]	59 U	117 U	0.0143 U	0.057 U	0.029 U	0.086 U	*0.017 U*[g]	0.029 U	0.057 U	0.11 U	-	0.029 U	0.029 U	0.57 U	0.029 U	0.029 U
B-9/6	08/13/2012	6	5.2 U[a]	-	-	0.013 U	0.052 U	0.026 U	0.078 U	*0.016 U*[g]	0.026 U	0.052 U	0.10 U	-	0.026 U	0.026 U	0.52 U	0.026 U	0.026 U
B-9/9	08/13/2012	9	8.2 U[a]	-	-	0.020 U	0.082 U	0.041 U	0.12 U	*0.025 U*[g]	0.041 U	0.082 U	0.16 U	-	0.041 U	0.030 U[g]	0.82 U	0.041 U	0.041 U
B-9/13	08/13/2012	13	5.9 U[a]	-	-	0.015 U	0.059 U	0.029 U	0.088 U	*0.018 U*[g]	0.029 U	0.059 U	0.12 U	-	0.029 U	0.029 U	0.59 U	0.029 U	0.029 U
B-10/3	08/13/2012	3	5.4 U[a]	55 U	109 U	0.013 U	0.054 U	0.027 U	0.080 U	*0.016 U*[g]	0.027 U	0.054 U	0.11 U	-	0.027 U	0.027 U	0.54 U	0.027 U	0.027 U
B-10/6	08/13/2012	6	9.2 U[a]	-	-	0.023 U	0.092 U	0.046 U	0.14 U	*0.028 U*[g]	0.046 U	0.092 U	0.18 U	-	0.046 U	*0.033 U*[g]	0.92 U	0.046 U	0.046 U
B-10/9	08/13/2012	9	11 U[a]	-	-	0.028 U	0.11 U	0.056 U	0.17 U	*0.034 U*[g]	0.056 U	0.067 U[g]	0.22 U	-	0.028 U[g]	*0.041 U*[g]	1.1 U	0.056 U	0.056 U
B-10/13	08/13/2012	13	4.7 U[a]	-	-	0.012 U	0.047 U	0.024 U	0.071 U	*0.014 U*[g]	0.024 U	0.047 U	0.095 U	-	0.024 U	0.024 U	0.47 U	0.024 U	0.024 U
B-10/18	08/13/2012	18	20 U	51 U	102 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 1
Soil Analytical Results - Gasoline, Diesel, and Related Constituents (mg/kg)
Plaid Pantry No. 112
Vancouver, Washington

Location	Date	Sample Depth (feet bgs)	Gasoline	Diesel	Heavy Oil/Lube	Benzene	Toluene	Ethylbenzene	Xylenes	EDB	EDC	MTBE	Naphthalene	Lead	PCE	TCE	2-Butanone	Carbon Tetrachloride	1,1,1-Trichloroethane
Soil Screening Levels																			
MTCA Method A[1] Unrestricted Use			100/30[2]	2,000	2,000	0.03	7	6	9	0.005	NA	0.10	5	250	0.05	0.03	NA	NA	2
MTCA Method B[3]			2,619[4]	NC	NC	18.2	6,400[5]	8,000[5]	16,000[5]	0.5	11	556	1,600[5]	NC	476	12	NC	14.3	160,000[5]
August 2012 Soil Sampling (continued)																			
B-11/3	08/14/2012	3	13 [a]	56 U	113 U	0.017 U	0.068 U	0.034 U	0.10 U	*0.021 U*[g]	0.034 U	0.068 U	0.14 U	-	0.034 U	0.025 U[g]	0.68 U	0.034 U	0.034 U
B-11/6	08/14/2012	6	**20,400** [a]	62 X	123 U	**3.7**	0.81 U	3.9	1.6 U	*0.25 U*[g]	0.41 U	*0.49 U*[g]	**57**	24	*0.20 U*[g]	*0.30 U*[g]	8.1 U	0.41 U	0.41 U
B-11/9	08/14/2012	9	**1,560** [a]	-	-	**0.47**	0.095 U	0.62	0.14 U	*0.029 U*[g]	0.048 U	0.095 U	1.9	-	0.048 U	*0.035 U*[g]	2.7 U	0.048 U	0.048 U
B-11/11	08/14/2012	11	5.7 U[a]	-	-	0.014 U	0.057 U	0.029 U	0.086 U	0.0029 U[e,g]	0.029 U	0.057 U	0.11 U	3.3	0.029 U	0.029 U	0.57 U	0.029 U	0.029 U
B-11/17	08/14/2012	17	5.6 U[a]	-	-	0.014 U	0.056 U	0.028 U	0.084 U	*0.017 U*[g]	0.028 U	0.056 U	0.11 U	-	0.028 U	0.028 U	0.56 U	0.028 U	0.028 U
B-11/23	08/14/2012	23	20 U	51 U	102 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B-11/29	08/14/2012	29	20 U	51 U	102 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B-12/3	08/14/2012	3	5.2 U[a]	58 U	116 U	0.013 U	0.052 U	0.026 U	0.078 U	*0.016 U*[g]	0.026 U	0.052 U	0.10 U	-	0.026 U	0.026 U	0.52 U	0.026 U	0.026 U
B-12/6	08/14/2012	6	8.1 U[a]	-	-	0.020 U	0.081 U	0.040 U	0.12 U	*0.024 U*[g]	0.040 U	0.081 U	0.16 U	-	0.040 U	0.029 U[g]	0.81 U	0.040 U	0.040 U
B-12/9	08/14/2012	9	9.6 U[a]	-	-	0.024 U	0.096 U	0.048 U	0.14 U	*0.029 U*[g]	0.048 U	0.096 U	0.19 U	-	0.048 U	*0.035 U*[g]	0.96 U	0.048 U	0.048 U
B-12/13	08/14/2012	13	8.1 U[a]	-	-	0.020 U	0.081 U	0.040 U	0.12 U	*0.025 U*[g]	0.040 U	0.081 U	0.16 U	-	0.040 U	0.029 U[g]	0.81 U	0.040 U	0.040 U
B-12/18	08/14/2012	18	20 U	50 U	100 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B-13/3	08/15/2012	3	7.8 U[a]	-	-	0.019 U	0.078 U	0.039 U	0.12 U	*0.024 U*[g]	0.039 U	0.078 U	0.16 U	-	0.039 U	0.028 U[g]	0.78 U	0.039 U	0.039 U
B-13/6	08/15/2012	6	6.5 U[a]	-	-	0.016 U	0.065 U	0.032 U	0.097 U	*0.020 U*[g]	0.032 U	0.065 U	0.13 U	-	0.032 U	0.023 U[g]	0.65 U	0.032 U	0.032 U
B-13/9	08/15/2012	9	6.9 U[a]	-	-	0.017 U	0.069 U	0.034 U	0.10 U	*0.021 U*[g]	0.034 U	0.069 U	0.14 U	-	0.034 U	0.025 U[g]	0.69 U	0.034 U	0.034 U
B-13/13	08/15/2012	13	8.0 U[a]	-	-	0.020 U	0.080 U	0.040 U	0.12 U	*0.024 U*[g]	0.040 U	0.080 U	0.16 U	-	0.040 U	0.029 U[g]	0.80 U	0.040 U	0.040 U
B-14/3	08/15/2012	3	6.6 U[a]	-	-	0.017 U	0.066 U	0.033 U	0.099 U	*0.020 U*[g]	0.033 U	0.066 U	0.13 U	-	0.033 U	0.024 U[g]	0.66 U	0.033 U	0.033 U
B-14/6	08/15/2012	6	7.0 U[a]	-	-	0.018 U	0.070 U	0.035 U	0.11 U	*0.021 U*[g]	0.035 U	0.070 U	0.14 U	-	0.035 U	0.025 U[g]	0.70 U	0.035 U	0.035 U
B-14/9	08/15/2012	9	7.6 U[a]	-	-	0.019 U	0.076 U	0.038 U	0.11 U	*0.023 U*[g]	0.038 U	0.076 U	0.15 U	-	0.038 U	0.027 U[g]	0.76 U	0.038 U	0.038 U
B-14/13	08/15/2012	13	6.2 U[a]	-	-	0.016 U	0.062 U	0.031 U	0.094 U	*0.019 U*[g]	0.031 U	0.062 U	0.13 U	-	0.031 U	0.023 U[g]	0.62 U	0.031 U	0.031 U
B-15/3	08/15/2012	3	6.6 U[a]	-	-	0.017 U	0.066 U	0.033 U	0.099 U	*0.020 U*[g]	0.033 U	0.066 U	0.13 U	-	0.033 U	0.024 U[g]	0.66 U	0.033 U	0.033 U
B-15/6	08/15/2012	6	7.9 U[a]	-	-	0.020 U	0.079 U	0.040 U	0.12 U	*0.024 U*[g]	0.040 U	0.079 U	0.16 U	-	0.040 U	0.029 U[g]	0.79 U	0.040 U	0.040 U
B-15/9	08/15/2012	9	7.6 U[a]	-	-	0.019 U	0.076 U	0.038 U	0.11 U	*0.023 U*[g]	0.038 U	0.076 U	0.15 U	-	0.038 U	0.027 U[g]	0.76 U	0.038 U	0.038 U
B-15/13	08/15/2012	13	6.2 U[a]	-	-	0.016 U	0.062 U	0.031 U	0.093 U	*0.019 U*[g]	0.031 U	0.062 U	0.12 U	-	0.031 U	0.023 U[g]	0.62 U	0.031 U	0.031 U
B-16/6	08/16/2012	6	5.8 U[a]	-	-	0.015 U	0.058 U	0.029 U	0.087 U	0.0030 U[e,g]	0.029 U	0.058 U	0.17 U	11	0.029 U	0.029 U	0.58 U	0.029 U	0.029 U
B-16/9	08/16/2012	9	8.0 U[a]	-	-	0.020 U	0.080 U	0.040 U	1.2 U	*0.024 U*[g]	0.040 U	0.080 U	0.16 U	12	0.040 U	0.029 U[g]	0.80 U	0.040 U	0.040 U
B-16/13	08/16/2012	13	5.9 U[a]	-	-	0.015 U	0.059 U	0.030 U	0.089 U	0.0030 U[e,g]	0.030 U	0.059 U	0.12 U	-	0.030 U	0.030 U	0.59 U	0.030 U	0.030 U
SVE-2/8	08/16/2012	8	**6,800** [a]	-	-	**14**	**48**	**96**	**436**	*0.27 U*[g]	0.45 U	*0.54 U*[g]	**27**	11	*0.22 U*[g]	*0.32 U*[g]	9.0 U	0.45 U	0.45 U
SVE-2/12	08/16/2012	12	5.7 U[a]	-	-	0.014 U	0.057 U	0.029 U	0.086 U	0.0029 U[e,g]	0.029 U	0.057 U	0.11 U	2.8	0.029 U	0.029 U	0.57 U	0.029 U	0.029 U
SVE-2/16	08/16/2012	16	7.0 U[a]	-	-	0.018 U	0.070 U	0.035 U	0.11 U	0.0035 U[e,g]	0.035 U	0.070 U	0.14 U	-	0.035 U	0.025 U[g]	0.70 U	0.035 U	0.035 U
SVE-2/20	08/16/2012	20	5.9 U[a]	-	-	0.014 U	0.059 U	0.030 U	0.089 U	*0.018 U*[g]	0.030 U	0.059 U	0.12 U	-	0.030 U	0.030 U	0.59 U	0.030 U	0.030 U
SVE-3/5	08/16/2012	5	-	-	-	-	-	-	-	-	-	-	-	13	-	-	-	-	-
SVE-3/8	08/16/2012	8	**3,820** [a]	-	-	**6.5**	**117**	**70**	**389**	*0.36 U*[g]	0.60 U	*0.72 U*[g]	**16**	10	*0.30 U*[g]	*0.43 U*[g]	12 U	0.60 U	0.60 U
SVE-3/12.5	08/16/2012	12.5	**216** [a]	-	-	**1.5**	4.8	3.9	**21**	0.0036 U[e,g]	0.36 U	*0.43 U*[g]	1.4 U	-	*0.18 U*[g]	*0.26 U*[g]	7.2 U	0.36 U	0.36 U
SVE-3/14	08/16/2012	14	6.3 U[a]	-	-	0.016 U	0.063 U	0.031 U	0.094 U	0.0031 U[e,g]	0.031 U	0.063 U	0.13 U	-	0.031 U	0.023 U[g]	0.63 U	0.031 U	0.031 U
SVE-3/20	08/16/2012	20	6.0 U[a]	-	-	0.015 U	0.060 U	0.030 U	0.089 U	*0.018 U*[g]	0.030 U	0.060 U	0.12 U	-	0.030 U	0.030 U	0.60 U	0.030 U	0.030 U
SVE-4/6	08/16/2012	6	8.1 U[a]	-	-	0.020 U	0.081 U	0.040 U	0.12 U	0.0040 U[e,g]	0.040 U	0.081 U	0.16 U	-	0.040 U	0.029 U[g]	0.81 U	0.040 U	0.040 U
SVE-4/9	08/16/2012	9	**97** [a]	-	-	0.018	0.072 U	0.30	0.58	*0.022 U*[g]	0.036 U	0.072 U	1.4	-	0.036 U	0.026 U[g]	0.72 U	0.036 U	0.036 U
SVE-4/11	08/16/2012	11	**54** [a]	-	-	**0.034**	0.15	0.82	1.5	0.0038 U[e,g]	0.038 U	0.076 U	1.4	-	0.038 U	0.028 U[g]	0.76 U	0.038 U	0.038 U
SVE-4/14	08/16/2012	14	6.0 U[a]	-	-	0.015 U	0.060 U	0.030 U	0.090 U	0.0030 U[e,g]	0.030 U	0.060 U	0.12 U	-	0.030 U	0.030 U	0.60 U	0.030 U	0.030 U
SVE-5/5	08/16/2012	5	6.1 U[a]	-	-	0.015 U	0.061 U	0.031 U	0.092 U	0.0031 U[e,g]	0.031 U	0.061 U	0.12 U	7.5	0.031 U	0.022 U[g]	0.61 U	0.031 U	0.031 U
SVE-5/7.5	08/16/2012	7.5	**793** [a]	-	-	**0.15**	**9.0**	**7.4**	**57**	*0.098 U*[g]	0.16 U	*0.19 U*[g]	**21**	11	*0.081 U*[g]	*0.12 U*[g]	3.2 U	0.16 U	0.16 U
September 2015 Soil Sampling																			
B-16(3)	09/02/2015	3	3.6 U[a]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B-16(6)	09/02/2015	6	**1,080** J[1,a]	-	-	*0.18 U*	0.73 U	0.37 U	1.1 U	-	-	-	-	-	-	-	-	-	-
B-16(9)	09/02/2015	9	**928** J[1,a]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B-16(12)	09/02/2015	12	5.8 U[a]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B-17(3)	09/02/2015	3	7.0 U[a]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B-17(6)	09/02/2015	6	15 [a]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B-17(9)	09/02/2015	9	**9,180** [a]	-	-	*0.19 U*	0.77 U	0.63	1.2 U	-	-	-	-	-	-	-	-	-	-
B-17(12)	09/03/2015	12	5.8 U[a]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 1
Soil Analytical Results - Gasoline, Diesel, and Related Constituents (mg/kg)
Plaid Pantry No. 112
Vancouver, Washington

Location	Date	Sample Depth (feet bgs)	Gasoline	Diesel	Heavy Oil/Lube	Benzene	Toluene	Ethylbenzene	Xylenes	EDB	EDC	MTBE	Naphthalene	Lead	PCE	TCE	2-Butanone	Carbon Tetrachloride	1,1,1-Trichloroethane
Soil Screening Levels																			
MTCA Method A[1] Unrestricted Use			100/30[2]	2,000	2,000	0.03	7	6	9	0.005	NA	0.10	5	250	0.05	0.03	NA	NA	2
MTCA Method B[3]			2,619[4]	NC	NC	18.2	6,400[5]	8,000[5]	16,000[5]	0.5	11	556	1,600[5]	NC	476	12	NC	14.3	160,000[5]
September 2015 Soil Sampling (continued)																			
B-18(3)	09/03/2015	3	**4,770** [a]	-	-	*0.66 U*	2.6 U	2.6	3.9 U	-	-	-	-	-	-	-	-	-	-
B-18(6)	09/03/2015	6	**543** [a]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B-18(9)	09/03/2015	9	**7,820** [a]	-	-	*0.19 U*	0.74 U	0.37 U	1.1 U	-	-	-	-	-	-	-	-	-	-
B-18(12)	09/04/2015	12	5.8 U[a]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B-19(3)	09/03/2015	3	5.8 U[a]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B-19(6)	09/03/2015	6	8.4 [a]	-	-	0.019 U	0.077 U	0.039 U	0.12 U	-	-	-	-	-	-	-	-	-	-
B-19(9)	09/03/2015	9	7.9 U[a]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B-19(12)	09/03/2015	12	5.7 U[a]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B-20(6)	09/03/2015	6	5.9 U[a]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B-20(9)	09/03/2015	9	**475** J[1,a,f]	-	-	0.018 U	0.073 U	0.036 U	0.11 U	-	-	-	-	-	-	-	-	-	-
B-20(12)	09/03/2015	12	5.7 U[a]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

Gasoline, Diesel, and Heavy Oil/Lube by Method by NWTPH-HCID unless otherwise noted.

Volatiles by EPA Method 8260B

[1] Model Toxics Control Act (MTCA) Cleanup Amendments, Method A Soil Cleanup Levels for Unrestricted Land Use (WDOE, CLARC Database, August 2015)

[2] Per MTCA, the cleanup value for gasoline is 30 mg/kg if benzene is detected and/or if the sum of the toluene, ethylbenzene, and xylenes is greater than one percent of the gasoline concentration, and 100 mg/kg for all other gasoline mixtures.

[3] Model Toxics Control Act (MTCA) Cleanup Amendments, Method B Soil Cleanup Levels (cancer endpoint) (WDOE, CLARC Database, August 2015)

[4] MTCA modified Method B cleanup value calculated using Ecology's Workbook Tool for Calculating Soil and Groundwater Cleanup Levels (revised December 2007). The median soil concentration shown is based on site-specific analytical data combined with generic default assumptions.

[5] Stated cleanup level is a non-cancer value. No cancer value available.

[a] Gasoline by Method NWTPH-Gx/EPA 8260B

[b] Diesel and Heavy Oil/Lube by Method NWTPH-Dx

[b1] Diesel and Heavy Oil/Lube by Method NWTPH-Dx with silica-gel cleanup

[c] Results in the diesel organics range are due to overlap from a gasoline range product.

[d] Naphthalene analyzed by EPA Method 8270D SIM. No detections were reported for any of the PAH compounds.

[e] 1,2-Dibromoethane (EDB) analyzed by EPA 8260B SIM.

[f] The chromatographic pattern does not resemble the fuel pattern used for quantitation.

[g] The analyte is reported down to the method detection limit. Result is an estimated concentration.

MTBE = Methyl tert-butyl ether

EDB = 1,2-Dibromoethane

EDC = 1,2-Dichloroethane

PCE = Tetrachloroethene

TCE = Trichloroethene

mg/kg = milligrams per kilogram

Bold values indicate concentrations exceed the Method A cleanup level shown.

Highlighted values exceed Method B cleanup level shown.

Italics indicate analytical reporting limit exceeds lowest cleanup level shown.

U = Undetected at method limit shown

J = Estimated value. Result was below the method reporting limit, but above the method detection limit.

J[1] = Data Validation Qualifier. The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

X = The detection in the diesel range is due to overlap from a gasoline range product.

NA = Not Applicable/Not Available

NC = Not Calculated

- = Not analyzed for this parameter

TABLE 2

Soil Analytical Results - Volatile Petroleum Hydrocarbons (mg/Kg)

Plaid Pantry No. 112

Vancouver, Washington

Sample Identification	B-16(6)	B-17(9)	B-18(3)	B-18(9)
Sample Depth (feet bgs)	6	9	3	9
Collection Date	09/02/2015	09/02/2015	09/03/2015	09/03/2015
Aliphatic Hydrocarbon (C5-C6)	6.5	2.4	24	1.8 U
Aliphatic Hydrocarbon (C6-C8)	1.4 UJ	186 J	87 J	41 J
Aliphatic Hydrocarbon (C8-C10)	8.1 J	567 J	277 J	212 J
Aliphatic Hydrocarbon (C10-C12)	175	556	574	409
Aromatic Hydrocarbon (C8-C10)	36	945	548	387
Aromatic Hydrocarbon (C10-C12)	205 J	564 J	513 J	178 J
Aromatic Hydrocarbon (C12-C13)	155 J	180 J	114 J	44 J

Notes:

VPH = Volatile Petroleum Hydrocarbons by NWVPH Method

mg/Kg = Milligrams per kilogram (parts per million) wet weight

bgs = Below ground surface

U = Not detected at method reporting limit shown

J = Data Validation Qualifier. The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

UJ = Data Validation Qualifier. The analyte was analyzed for, but not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

TABLE 3
SUMMARY OF SITE-SPECIFIC MTCA METHOD B CALCULATIONS
PLAID PANTRY NO. 112
VANCOUVER, WASHINGTON

Parameter	B-16(6)	B-17(9)	B-18(3)	B-18 (9)
Test Current Conditions				
Measured TPH	587.490	3002.110	2143.180	1273.300
HI	0.2824	1.083	0.8487	0.4694
ECR	4.956E-09	5.231E-09	1.817E-08	5.231E-09
Pass/Fail?	PASS	FAIL	PASS	PASS
Protective Conditions				
Set Criteria	HI = 1	NA	HI=1	HI=1
TPH Concentration	2080.25	NA	2525.20	2714.96
HI	1	NA	1	1
ECR	1.75E-08	NA	2.14E-08	1.12E-08
Pass/Fail	PASS	NA	PASS	PASS
Test Conditions				
Test TPH	NA	2760	NA	NA
HI	NA	0.995	NA	NA
ECR	NA	4.81E-09	NA	NA
Pass/Fail?	NA	PASS	NA	NA

- Arithmetic Average Concentration (based on protective and test conditions) = 2519.26 mg/Kg
- Calculated TPH using arithmetic average concentrations of constituents

Parameter	Average
Test Current Conditions	
Measured TPH	1751.250
HI	0.6708
ECR	8.397E-09
Pass/Fail?	PASS
Protective Conditions	
Set Criteria	HI = 1
TPH Concentration	2610.66
HI	1
ECR	1.25E-08
Pass/Fail	PASS
Test Conditions	
Test TPH	NA
HI	NA
ECR	NA
Pass/Fail?	NA

Median Concentration (as per guidance) = 2618.51 mg/Kg

TABLE 3A

Washington State Department of Ecology, Toxics Cleanup Program: Soil Cleanup Level for TPH Sites - Soil Direct Contact: Method B - Unrestricted Land Use

A2. 1B Worksheet for Calculating Soil Cleanup Levels for Protection of Human Health: (Soil Direct Contact Pathway)

Method B: Unrestricted Land Use (WAC 173-340-740)

Date: 12/3/2015
Site Name: Plaid Pantry 112
Sample Name: B-16-6

Chemical of Concern or EC group	Current Condition				Adjusted Condition			
	Measured Soil Conc @dry basis	HQ	RISK	Pass or Fail?	Soil Conc being tested	HQ	RISK	Pass or Fail?
	mg/kg	unitless	unitless		mg/kg	unitless	unitless	
Petroleum EC Fraction								
AL_EC >5-6	6.5	5.17E-05			6.50E+00	5.17E-05		
AL_EC >6-8	0.7	5.57E-06			7.00E-01	5.57E-06		
AL_EC >8-10	8.1	3.65E-03			8.10E+00	3.65E-03		
AL_EC >10-12	175	7.89E-02			1.75E+02	7.89E-02		
AL_EC >12-16	0				0.00E+00			
AL_EC >16-21	0				0.00E+00			
AL_EC >21-34	0				0.00E+00			
AR_EC >8-10	36	4.87E-03			3.60E+01	4.87E-03		
AR_EC >10-12	205	1.39E-01			2.05E+02	1.39E-01		
AR_EC >12-16	155	5.58E-02			1.55E+02	5.58E-02		
AR_EC >16-21	0				0.00E+00			
AR_EC >21-34	0				0.00E+00			
Benzene	0.09	2.82E-04	4.96E-09		9.00E-02	2.82E-04	4.95E-09	
Toluene	0.365	6.08E-05			3.65E-01	6.08E-05		
Ethylbenzene	0.185	2.48E-05			1.85E-01	2.48E-05		
Total Xylenes	0.55	3.69E-05			5.50E-01	3.69E-05		
Naphthalene	0				0.00E+00	0.00E+00		
1-Methyl Naphthalene	0				0.00E+00	0.00E+00		
2-Methyl Naphthalene	0				0.00E+00	0.00E+00		
n-Hexane	0				0.00E+00	0.00E+00		
MTBE	0				0.00E+00			
Ethylene Dibromide (EDB)	0		0.00E+00		0.00E+00	0.00E+00	0.00E+00	
1,2 Dichloroethane (EDC)	0		0.00E+00		0.00E+00	0.00E+00	0.00E+00	
Benzo(a)anthracene	0		0.00E+00	*For*	0.00E+00		0.00E+00	*For*
Benzo(b)fluoranthene	0		0.00E+00	*all*	0.00E+00		0.00E+00	*all*
Benzo(k)fluoranthene	0		0.00E+00	*cPAHs*	0.00E+00		0.00E+00	*cPAHs*
Benzo(a)pyrene	0		0.00E+00		0.00E+00		0.00E+00	
Chrysene	0		0.00E+00		0.00E+00		0.00E+00	
Dibenz(a,h)anthracene	0		0.00E+00	Σ Risk=	0.00E+00		0.00E+00	Σ Risk=
Indeno(1,2,3-cd)pyrene	0		0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00
Sum	**587.49**	2.82E-01	4.96E-09		5.87E+02	2.82E-01	4.95E-09	

TEST CURRENT CONDITION

Measured TPH Soil Conc, mg/kg= 587.490
HI= 2.824E-01
RISK= 4.956E-09
Pass or Fail? Pass

CALCULATE PROTECTIVE CONDITION

This tool allows the user to calculate protective TPH soil concentration based on various soil quality criteria. The Workbook uses the same composition ratio as for the measured data.

Calculate Protective TPH Soil Conc

Selected Criterion: @HI=1
Most Stringent? YES
Protctive TPH Soil Conc, mg/kg = 2080.25
HI = 1.00E+00
RISK = 1.75E-08

TEST ADJUSTED CONDITION

This tool allows the user to test whether a particular TPH soil concentration is protective of human health. The Workbook uses the same composition ratio as for the measured data.

Test Adjusted TPH Soil

Tested TPH Soil Conc, mg/kg = 587.4
HI = 2.82E-01
RISK = 4.95E-09
Pass or Fail? Pass

TABLE 3B

Washington State Department of Ecology, Toxics Cleanup Program: Soil Cleanup Level for TPH Sites - Soil Direct Contact: Method B - Unrestricted Land Use

A2. 1B Worksheet for Calculating Soil Cleanup Levels for Protection of Human Health: (Soil Direct Contact Pathway)

Method B: Unrestricted Land Use (WAC 173-340-740)

Date: 12/3/2015
Site Name: Plaid Pantry 112
Sample Name: B-17(9)

Chemical of Concern or EC group	Current Condition				Adjusted Condition			
	Measured Soil Conc @dry basis	HQ	RISK	Pass or Fail?	Soil Conc being tested	HQ	RISK	Pass or Fail?
	mg/kg	unitless	unitless		mg/kg	unitless	unitless	
Petroleum EC Fraction								
AL_EC >5-6	2.4	1.91E-05			2.21E+00	1.76E-05		
AL_EC >6-8	186	1.48E-03			1.71E+02	1.36E-03		
AL_EC >8-10	567	2.56E-01			5.21E+02	2.35E-01		
AL_EC >10-12	556	2.51E-01			5.11E+02	2.31E-01		
AL_EC >12-16	0				0.00E+00			
AL_EC >16-21	0				0.00E+00			
AL_EC >21-34	0				0.00E+00			
AR_EC >8-10	945	1.28E-01			8.69E+02	1.18E-01		
AR_EC >10-12	564	3.82E-01			5.19E+02	3.51E-01		
AR_EC >12-16	180	6.48E-02			1.65E+02	5.96E-02		
AR_EC >16-21	0				0.00E+00			
AR_EC >21-34	0				0.00E+00			
Benzene	0.095	2.97E-04	5.23E-09		8.73E-02	2.73E-04	4.81E-09	
Toluene	0.385	6.41E-05			3.54E-01	5.90E-05		
Ethylbenzene	0.63	8.44E-05			5.79E-01	7.76E-05		
Total Xylenes	0.6	4.03E-05			5.52E-01	3.70E-05		
Naphthalene	0				0.00E+00	0.00E+00		
1-Methyl Naphthalene	0				0.00E+00	0.00E+00		
2-Methyl Naphthalene	0				0.00E+00	0.00E+00		
n-Hexane	0				0.00E+00	0.00E+00		
MTBE	0				0.00E+00			
Ethylene Dibromide (EDB)	0		0.00E+00		0.00E+00	0.00E+00	0.00E+00	
1,2 Dichloroethane (EDC)	0		0.00E+00		0.00E+00	0.00E+00	0.00E+00	
Benzo(a)anthracene	0		0.00E+00	*For*	0.00E+00		0.00E+00	*For*
Benzo(b)fluoranthene	0		0.00E+00	*all*	0.00E+00		0.00E+00	*all*
Benzo(k)fluoranthene	0		0.00E+00	*cPAHs*	0.00E+00		0.00E+00	*cPAHs*
Benzo(a)pyrene	0		0.00E+00		0.00E+00		0.00E+00	
Chrysene	0		0.00E+00		0.00E+00		0.00E+00	
Dibenz(a,h)anthracene	0		0.00E+00	Σ Risk=	0.00E+00		0.00E+00	Σ Risk=
Indeno(1,2,3-cd)pyrene	0		0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00
Sum	**3002.11**	1.08E+00	5.23E-09	Fail	2.76E+03	9.95E-01	4.81E-09	

TEST CURRENT CONDITION

Measured TPH Soil Conc, mg/kg= 3002.110
HI= 1.083E+00
RISK= 5.231E-09
Pass or Fail? ***Fail***

CALCULATE PROTECTIVE CONDITION

This tool allows the user to calculate protective TPH soil concentration based on various soil quality criteria. The Workbook uses the same composition ratio as for the measured data.

Calculate Protective TPH Soil Conc

Selected Criterion:
Most Stringent?
Protctive TPH Soil Conc, mg/kg =
HI =
RISK =

TEST ADJUSTED CONDITION

This tool allows the user to test whether a particular TPH soil concentration is protective of human health. The Workbook uses the same composition ratio as for the measured data.

Test Adjusted TPH Soil

Tested TPH Soil Conc, mg/kg = 2760
HI = 9.95E-01
RISK = 4.81E-09
Pass or Fail? Pass
Check Residual Saturation (WAC340-747(10))

TABLE 3C

Washington State Department of Ecology, Toxics Cleanup Program: Soil Cleanup Level for TPH Sites - Soil Direct Contact: Method B - Unrestricted Land Use

A2. 1B Worksheet for Calculating Soil Cleanup Levels for Protection of Human Health: (Soil Direct Contact Pathway)
Method B: Unrestricted Land Use (WAC 173-340-740)

Date: 12/3/2015
Site Name: Plaid Pantry 112
Sample Name: B-18(3)

Chemical of Concern or EC group	Current Condition				Adjusted Condition			
	Measured Soil Conc @dry basis	HQ	RISK	Pass or Fail?	Soil Conc being tested	HQ	RISK	Pass or Fail?
	mg/kg	unitless	unitless		mg/kg	unitless	unitless	
Petroleum EC Fraction								
AL_EC >5-6	24	1.91E-04			2.83E+01	2.25E-04		
AL_EC >6-8	87	6.92E-04			1.02E+02	8.16E-04		
AL_EC >8-10	277	1.25E-01			3.26E+02	1.47E-01		
AL_EC >10-12	574	2.59E-01			6.76E+02	3.05E-01		
AL_EC >12-16	0				0.00E+00			
AL_EC >16-21	0				0.00E+00			
AL_EC >21-34	0				0.00E+00			
AR_EC >8-10	548	7.42E-02			6.46E+02	8.73E-02		
AR_EC >10-12	513	3.47E-01			6.04E+02	4.09E-01		
AR_EC >12-16	114	4.10E-02			1.34E+02	4.83E-02		
AR_EC >16-21	0				0.00E+00			
AR_EC >21-34	0				0.00E+00			
Benzene	0.33	1.03E-03	1.82E-08		3.89E-01	1.22E-03	2.14E-08	
Toluene	1.3	2.17E-04			1.53E+00	2.55E-04		
Ethylbenzene	2.6	3.48E-04			3.06E+00	4.10E-04		
Total Xylenes	1.95	1.31E-04			2.30E+00	1.54E-04		
Naphthalene	0				0.00E+00	0.00E+00		
1-Methyl Naphthalene	0				0.00E+00	0.00E+00		
2-Methyl Naphthalene	0				0.00E+00	0.00E+00		
n-Hexane	0				0.00E+00	0.00E+00		
MTBE	0				0.00E+00			
Ethylene Dibromide (EDB)	0		0.00E+00		0.00E+00	0.00E+00	0.00E+00	
1,2 Dichloroethane (EDC)	0		0.00E+00		0.00E+00	0.00E+00	0.00E+00	
Benzo(a)anthracene	0		0.00E+00	*For*	0.00E+00		0.00E+00	*For*
Benzo(b)fluoranthene	0		0.00E+00	*all*	0.00E+00		0.00E+00	*all*
Benzo(k)fluoranthene	0		0.00E+00	*cPAHs*	0.00E+00		0.00E+00	*cPAHs*
Benzo(a)pyrene	0		0.00E+00		0.00E+00		0.00E+00	
Chrysene	0		0.00E+00		0.00E+00		0.00E+00	
Dibenz(a,h)anthracene	0		0.00E+00	Σ Risk=	0.00E+00		0.00E+00	Σ Risk=
Indeno(1,2,3-cd)pyrene	0		0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00
Sum	**2143.18**	8.49E-01	1.82E-08		2.52E+03	1.00E+00	2.14E-08	

TEST CURRENT CONDITION

Measured TPH Soil Conc, mg/kg= 2143.180
HI= 8.487E-01
RISK= 1.817E-08
Pass or Fail? Pass
Check Residual Saturation (WAC340-747(10))

CALCULATE PROTECTIVE CONDITION

This tool allows the user to calculate protective TPH soil concentration based on various soil quality criteria. The Workbook uses the same composition ratio as for the measured data.

Calculate Protective TPH Soil Conc

Selected Criterion: @HI=1
Most Stringent? YES
Protctive TPH Soil Conc, mg/kg = 2525.20
HI = 1.00E+00
RISK = 2.14E-08

TEST ADJUSTED CONDITION

This tool allows the user to test whether a particular TPH soil concentration is protective of human health. The Workbook uses the same composition ratio as for the measured data.

Test Adjusted TPH Soil

Tested TPH Soil Conc, mg/kg = 2524.51
HI = 1.00E+00
RISK = 2.14E-08
Pass or Fail? Pass
Check Residual Saturation (WAC340-747(10))

TABLE 3D

Washington State Department of Ecology, Toxics Cleanup Program: Soil Cleanup Level for TPH Sites - Soil Direct Contact: Method B - Unrestricted Land Use

A2. 1B Worksheet for Calculating Soil Cleanup Levels for Protection of Human Health: (Soil Direct Contact Pathway)

Method B: Unrestricted Land Use (WAC 173-340-740)

Date: 12/3/2015
Site Name: Plaid Pantry 112
Sample Name: B-18(9)

Chemical of Concern or EC group	Current Condition				Adjusted Condition			
	Measured Soil Conc @dry basis	HQ	RISK	Pass or Fail?	Soil Conc being tested	HQ	RISK	Pass or Fail?
	mg/kg	unitless	unitless		mg/kg	unitless	unitless	
Petroleum EC Fraction								
AL_EC >5-6	0.9	7.16E-06			1.92E+00	1.53E-05		
AL_EC >6-8	41.4	3.30E-04			8.82E+01	7.02E-04		
AL_EC >8-10	212	9.56E-02			4.52E+02	2.04E-01		
AL_EC >10-12	409	1.84E-01			8.71E+02	3.93E-01		
AL_EC >12-16	0				0.00E+00			
AL_EC >16-21	0				0.00E+00			
AL_EC >21-34	0				0.00E+00			
AR_EC >8-10	387	5.24E-02			8.24E+02	1.12E-01		
AR_EC >10-12	178	1.20E-01			3.79E+02	2.57E-01		
AR_EC >12-16	43.8	1.58E-02			9.33E+01	3.36E-02		
AR_EC >16-21	0				0.00E+00			
AR_EC >21-34	0				0.00E+00			
Benzene	0.095	2.97E-04	5.23E-09		2.02E-01	6.33E-04	1.11E-08	
Toluene	0.37	6.16E-05			7.88E-01	1.31E-04		
Ethylbenzene	0.185	2.48E-05			3.94E-01	5.28E-05		
Total Xylenes	0.55	3.69E-05			1.17E+00	7.86E-05		
Naphthalene	0				0.00E+00	0.00E+00		
1-Methyl Naphthalene	0				0.00E+00	0.00E+00		
2-Methyl Naphthalene	0				0.00E+00	0.00E+00		
n-Hexane	0				0.00E+00	0.00E+00		
MTBE	0				0.00E+00			
Ethylene Dibromide (EDB)	0		0.00E+00		0.00E+00	0.00E+00	0.00E+00	
1,2 Dichloroethane (EDC)	0		0.00E+00		0.00E+00	0.00E+00	0.00E+00	
Benzo(a)anthracene	0		0.00E+00	*For*	0.00E+00		0.00E+00	*For*
Benzo(b)fluoranthene	0		0.00E+00	*all*	0.00E+00		0.00E+00	*all*
Benzo(k)fluoranthene	0		0.00E+00	*cPAHs*	0.00E+00		0.00E+00	*cPAHs*
Benzo(a)pyrene	0		0.00E+00		0.00E+00		0.00E+00	
Chrysene	0		0.00E+00		0.00E+00		0.00E+00	
Dibenz(a,h)anthracene	0		0.00E+00	Σ Risk=	0.00E+00		0.00E+00	Σ Risk=
Indeno(1,2,3-cd)pyrene	0		0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00
Sum	**1273.3**	4.69E-01	5.23E-09		2.71E+03	1.00E+00	1.11E-08	

TEST CURRENT CONDITION

Measured TPH Soil Conc, mg/kg= 1273.300
HI= 4.694E-01
RISK= 5.231E-09
Pass or Fail? Pass
Check Residual Saturation (WAC340-747(10))

CALCULATE PROTECTIVE CONDITION

This tool allows the user to calculate protective TPH soil concentration based on various soil quality criteria. The Workbook uses the same composition ratio as for the measured data.

Calculate Protective TPH Soil Conc

Selected Criterion: @HI=1
Most Stringent? YES
Protctive TPH Soil Conc, mg/kg = 2714.96
HI = 1.00E+00
RISK = 1.12E-08

TEST ADJUSTED CONDITION

This tool allows the user to test whether a particular TPH soil concentration is protective of human health. The Workbook uses the same composition ratio as for the measured data.

Test Adjusted TPH Soil

Tested TPH Soil Conc, mg/kg = 2712.52
HI = 1.00E+00
RISK = 1.11E-08
Pass or Fail? Pass
Check Residual Saturation (WAC340-747(10))

TABLE 3E

Washington State Department of Ecology, Toxics Cleanup Program: Soil Cleanup Level for TPH Sites - Soil Direct Contact: Method B - Unrestricted Land Use

A2. 1B Worksheet for Calculating Soil Cleanup Levels for Protection of Human Health: (Soil Direct Contact Pathway)
Method B: Unrestricted Land Use (WAC 173-340-740)

Date: 12/3/2015
Site Name: Plaid Pantry 112
Sample Name: Average

Chemical of Concern or EC group	Current Condition				Adjusted Condition			
	Measured Soil Conc @dry basis	HQ	RISK	Pass or Fail?	Soil Conc being tested	HQ	RISK	Pass or Fail?
	mg/kg	unitless	unitless		mg/kg	unitless	unitless	
Petroleum EC Fraction								
AL_EC >5-6	8.41	6.69E-05			1.25E+01	9.98E-05		
AL_EC >6-8	78.65	6.26E-04			1.17E+02	9.33E-04		
AL_EC >8-10	266.02	1.20E-01			3.96E+02	1.79E-01		
AL_EC >10-12	428.5	1.93E-01			6.39E+02	2.88E-01		
AL_EC >12-16	0				0.00E+00			
AL_EC >16-21	0				0.00E+00			
AL_EC >21-34	0				0.00E+00			
AR_EC >8-10	478.9	6.48E-02			7.14E+02	9.66E-02		
AR_EC >10-12	365	2.47E-01			5.44E+02	3.68E-01		
AR_EC >12-16	123.2	4.44E-02			1.84E+02	6.61E-02		
AR_EC >16-21	0				0.00E+00			
AR_EC >21-34	0				0.00E+00			
Benzene	0.1525	4.77E-04	8.40E-09		2.27E-01	7.11E-04	1.25E-08	
Toluene	0.605	1.01E-04			9.02E-01	1.50E-04		
Ethylbenzene	0.9	1.21E-04			1.34E+00	1.80E-04		
Total Xylenes	0.9125	6.12E-05			1.36E+00	9.12E-05		
Naphthalene	0				0.00E+00	0.00E+00		
1-Methyl Naphthalene	0				0.00E+00	0.00E+00		
2-Methyl Naphthalene	0				0.00E+00	0.00E+00		
n-Hexane	0				0.00E+00	0.00E+00		
MTBE	0				0.00E+00			
Ethylene Dibromide (EDB)	0		0.00E+00		0.00E+00	0.00E+00	0.00E+00	
1,2 Dichloroethane (EDC)	0		0.00E+00		0.00E+00	0.00E+00	0.00E+00	
Benzo(a)anthracene	0		0.00E+00	*For*	0.00E+00		0.00E+00	*For*
Benzo(b)fluoranthene	0		0.00E+00	*all*	0.00E+00		0.00E+00	*all*
Benzo(k)fluoranthene	0		0.00E+00	*cPAHs*	0.00E+00		0.00E+00	*cPAHs*
Benzo(a)pyrene	0		0.00E+00		0.00E+00		0.00E+00	
Chrysene	0		0.00E+00		0.00E+00		0.00E+00	
Dibenz(a,h)anthracene	0		0.00E+00	Σ Risk=	0.00E+00		0.00E+00	Σ Risk=
Indeno(1,2,3-cd)pyrene	0		0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00
Sum	**1751.25**	6.71E-01	8.40E-09		2.61E+03	1.00E+00	1.25E-08	

TEST CURRENT CONDITION

Measured TPH Soil Conc, mg/kg= 1751.250
HI= 6.708E-01
RISK= 8.397E-09
Pass or Fail? Pass
Check Residual Saturation (WAC340-747(10))

CALCULATE PROTECTIVE CONDITION

This tool allows the user to calculate protective TPH soil concentration based on various soil quality criteria. The Workbook uses the same composition ratio as for the measured data.

Calculate Protective TPH Soil Conc

Selected Criterion: @HI=1
Most Stringent? YES
Protctive TPH Soil Conc, mg/kg = 2610.66
HI = 1.00E+00
RISK = 1.25E-08

TEST ADJUSTED CONDITION

This tool allows the user to test whether a particular TPH soil concentration is protective of human health. The Workbook uses the same composition ratio as for the measured data.

Test Adjusted TPH Soil

Tested TPH Soil Conc, mg/kg = 2610
HI = 1.00E+00
RISK = 1.25E-08
Pass or Fail? Pass
Check Residual Saturation (WAC340-747(10))

FIGURES

SOURCE:
USGS, VANCOUVER QUADRANGLE
WASHINGTON–OREGON
7.5 MINUTE SERIES (TOPOGRAPHIC)

N

APPROXIMATE SCALE IN FEET

0 1000 2000 4000

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(503) 847-2740
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VICINITY MAP

PLAID PANTRY #112
1002 W. FOURTH PLAIN BLVD.
VANCOUVER, WA.

DATE:	12–18–13	PROJECT NO.	
FILE:	1179–01		1179–01
DRAWN:	JJT	FIGURE NO.	
APPROVED:	CR		1

LEGEND

- Property Boundary
- Direct-Push Boring (Sept 2011)
- Direct-Push Boring (Aug 2012)
- Catch Basin
- Dry Well
- Bollards
- Soil Boring and Shallow Vapor Monitoring Well (Sept 2015)
- Soil Boring and Deep Vapor Monitoring Well (Sept 2015)
- Soil Boring (Sept 2015)
- Vault
- SVE Piping
- SVE-1 — Shallow SVE Well (screened 5-10' bgs)
- SVE-2 — Deep SVE Well (screened 15-20' bgs)
- G = 1,080 (See Figure 4)
- 10 — Approximate Gasoline Isoconcentration Contour (mg/kg, Sept 2015)

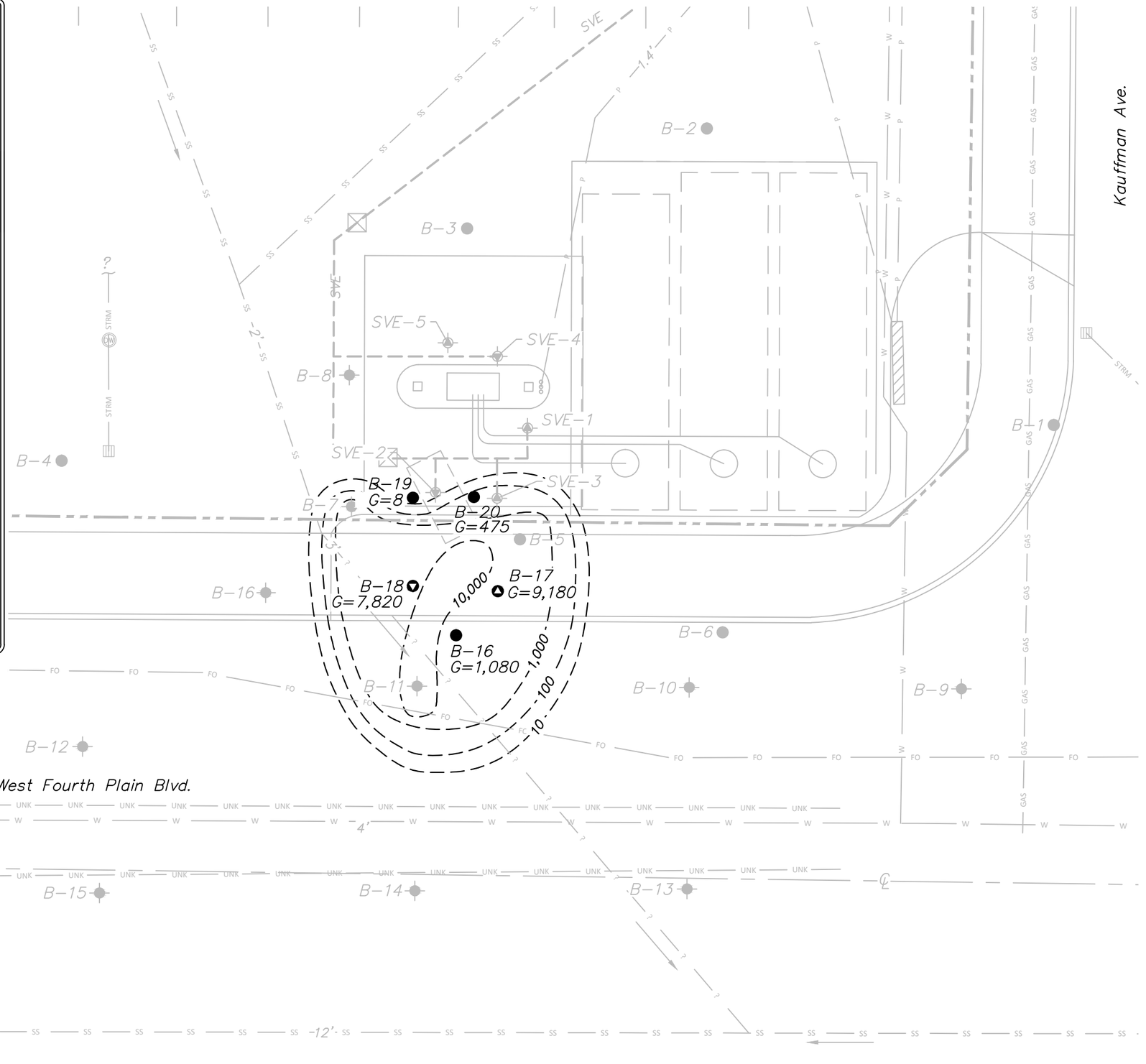
Results Reported in Milligrams per Kilogram (mg/kg)

SITE FEATURES ARE APPROXIMATE.

APPROXIMATE SCALE IN FEET

0 5 10 20

N



MAXIMUM GASOLINE CONCENTRATIONS IN SOIL (SEPTEMBER 2015)

PLAID PANTRY #112
1002 W. FOURTH PLAIN BLVD.
VANCOUVER, WA.

DATE:	3-28-16
FILE:	1179-01
DRAWN:	JJT
APPROVED:	CR
PROJECT NO.	1179-01
FIGURE NO.	2

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ATTACHMENT A

Apex Labs

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

Monday, September 28, 2015

Chris Rhea
EES Environmental Inc
240 N Broadway Ste 203
Portland, OR 97227

RE: PP112 / 1179-03

Enclosed are the results of analyses for work order A5I0103, which was received by the laboratory on 9/3/2015 at 12:25:00PM.

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: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories

Philip Nerenberg, Lab Director

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.

Apex Labs

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

EES Environmental Inc	Project: **PP112**	
240 N Broadway Ste 203	Project Number: 1179-03	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 13:59

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B-16(3)	A5I0103-03	Soil	09/02/15 12:10	09/03/15 12:25
B-16(6)	A5I0103-04	Soil	09/02/15 12:28	09/03/15 12:25
B-16(9)	A5I0103-05	Soil	09/02/15 12:40	09/03/15 12:25
B-16(12)	A5I0103-07	Soil	09/02/15 14:40	09/03/15 12:25
B-17(3)	A5I0103-10	Soil	09/02/15 15:05	09/03/15 12:25
B-17(6)	A5I0103-11	Soil	09/02/15 15:10	09/03/15 12:25
B-17(9)	A5I0103-12	Soil	09/02/15 15:15	09/03/15 12:25

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323 Phone
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EES Environmental Inc	Project: **PP112**	
240 N Broadway Ste 203	Project Number: 1179-03	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 13:59

ANALYTICAL SAMPLE RESULTS

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

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B-16(3) (A5I0103-03)			**Matrix: Soil**		**Batch: 5090392**			
Gasoline Range Organics	ND	---	3.64	mg/kg dry	50	09/16/15 17:14	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 78 %*	*Limits: 50-150 %*	1	"	"	
1,4-Difluorobenzene (Sur)			*82 %*	*Limits: 50-150 %*	"	"	"	
B-16(6) (A5I0103-04)			**Matrix: Soil**		**Batch: 5090184**			
Gasoline Range Organics	**1080**	---	73.2	mg/kg dry	500	09/08/15 18:59	NWTPH-Gx (MS)	Q-42
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 111 %*	*Limits: 50-150 %*	1	"	"	
1,4-Difluorobenzene (Sur)			*92 %*	*Limits: 50-150 %*	"	"	"	
B-16(9) (A5I0103-05)			**Matrix: Soil**		**Batch: 5090184**			
Gasoline Range Organics	**928**	---	83.1	mg/kg dry	500	09/08/15 19:53	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 109 %*	*Limits: 50-150 %*	1	"	"	
1,4-Difluorobenzene (Sur)			*93 %*	*Limits: 50-150 %*	"	"	"	
B-16(12) (A5I0103-07RE1)			**Matrix: Soil**		**Batch: 5090205**			
Gasoline Range Organics	ND	---	5.80	mg/kg dry	50	09/09/15 10:55	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 101 %*	*Limits: 50-150 %*	1	"	"	
1,4-Difluorobenzene (Sur)			*100 %*	*Limits: 50-150 %*	"	"	"	
B-17(3) (A5I0103-10)			**Matrix: Soil**		**Batch: 5090392**			
Gasoline Range Organics	ND	---	7.04	mg/kg dry	50	09/16/15 17:38	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 84 %*	*Limits: 50-150 %*	1	"	"	
1,4-Difluorobenzene (Sur)			*83 %*	*Limits: 50-150 %*	"	"	"	
B-17(6) (A5I0103-11RE1)			**Matrix: Soil**		**Batch: 5090205**			
Gasoline Range Organics	**14.8**	---	8.67	mg/kg dry	50	09/09/15 11:20	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 113 %*	*Limits: 50-150 %*	1	"	"	
1,4-Difluorobenzene (Sur)			*102 %*	*Limits: 50-150 %*	"	"	"	
B-17(9) (A5I0103-12RE1)			**Matrix: Soil**		**Batch: 5090205**			
Gasoline Range Organics	**9180**	---	1530	mg/kg dry	10000	09/09/15 11:44	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 119 %*	*Limits: 50-150 %*	1	"	"	
1,4-Difluorobenzene (Sur)			*104 %*	*Limits: 50-150 %*	"	"	"	

Apex Laboratories

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

Philip Nerenberg, Lab Director

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
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EES Environmental Inc	Project: **PP112**	
240 N Broadway Ste 203	Project Number: 1179-03	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 13:59

ANALYTICAL SAMPLE RESULTS

BTEX Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B-16(6) (A5I0103-04)			**Matrix: Soil**		**Batch: 5090184**			
Benzene	ND	---	183	ug/kg dry	500	09/08/15 18:59	5035/8260B	
Toluene	ND	---	732	"	"	"	"	
Ethylbenzene	ND	---	366	"	"	"	"	
Xylenes, total	ND	---	1100	"	"	"	"	
Surrogate: Dibromofluoromethane (Surr)			*Recovery: 96 %*	*Limits: 70-130 %*	1	"	"	
1,4-Difluorobenzene (Surr)			*99 %*	*Limits: 70-130 %*	"	"	"	
Toluene-d8 (Surr)			*99 %*	*Limits: 70-130 %*	"	"	"	
4-Bromofluorobenzene (Surr)			*103 %*	*Limits: 70-130 %*	"	"	"	
B-17(9) (A5I0103-12)			**Matrix: Soil**		**Batch: 5090184**			
Benzene	ND	---	192	ug/kg dry	500	09/08/15 21:14	5035/8260B	
Toluene	ND	---	767	"	"	"	"	
Ethylbenzene	**629**	---	383	"	"	"	"	
Xylenes, total	ND	---	1230	"	"	"	"	R-02
Surrogate: Dibromofluoromethane (Surr)			*Recovery: 97 %*	*Limits: 70-130 %*	1	"	"	
1,4-Difluorobenzene (Surr)			*100 %*	*Limits: 70-130 %*	"	"	"	
Toluene-d8 (Surr)			*98 %*	*Limits: 70-130 %*	"	"	"	
4-Bromofluorobenzene (Surr)			*101 %*	*Limits: 70-130 %*	"	"	"	

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

EES Environmental Inc	Project: **PP112**	
240 N Broadway Ste 203	Project Number: 1179-03	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 13:59

ANALYTICAL SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B-16(6) (A5I0103-04)			**Matrix: Soil**					
Batch: 5090318								
Total Organic Carbon	**1400**	---	200	mg/kg	1	09/16/15 14:35	SM 5310B MOD	
B-17(9) (A5I0103-12)			**Matrix: Soil**					
Batch: 5090318								
Total Organic Carbon	**1100**	---	200	mg/kg	1	09/16/15 14:35	SM 5310B MOD	

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

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240 N Broadway Ste 203	Project Number: 1179-03	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 13:59

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B-16(3) (A5I0103-03)			**Matrix: Soil**		**Batch: 5090337**			
% Solids	**82.8**	---	1.00	% by Weight	1	09/15/15 09:07	EPA 8000C	
B-16(6) (A5I0103-04)			**Matrix: Soil**		**Batch: 5090259**			
% Solids	**77.6**	---	1.00	% by Weight	1	09/11/15 08:18	EPA 8000C	Q-38
B-16(9) (A5I0103-05)			**Matrix: Soil**		**Batch: 5090259**			
% Solids	**76.4**	---	1.00	% by Weight	1	09/11/15 08:18	EPA 8000C	Q-38
B-16(12) (A5I0103-07)			**Matrix: Soil**		**Batch: 5090259**			
% Solids	**95.3**	---	1.00	% by Weight	1	09/11/15 08:18	EPA 8000C	Q-38
B-17(3) (A5I0103-10)			**Matrix: Soil**		**Batch: 5090337**			
% Solids	**87.2**	---	1.00	% by Weight	1	09/15/15 09:07	EPA 8000C	
B-17(6) (A5I0103-11)			**Matrix: Soil**		**Batch: 5090259**			
% Solids	**78.2**	---	1.00	% by Weight	1	09/11/15 08:18	EPA 8000C	Q-38
B-17(9) (A5I0103-12)			**Matrix: Soil**		**Batch: 5090259**			
% Solids	**82.0**	---	1.00	% by Weight	1	09/11/15 08:18	EPA 8000C	Q-38

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

EES Environmental Inc	Project: **PP112**	
240 N Broadway Ste 203	Project Number: 1179-03	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 13:59

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 5090184 - EPA 5035A							Soil					
Blank (5090184-BLK1)					Prepared: 09/08/15 08:28		Analyzed: 09/08/15 14:51					
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	3.33	mg/kg wet	50	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 102 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*96 %*	*50-150 %*			*"*					
LCS (5090184-BS2)					Prepared: 09/08/15 08:28		Analyzed: 09/08/15 13:28					
NWTPH-Gx (MS)												
Gasoline Range Organics	25.7	---	5.00	mg/kg wet	50	25.0	---	103	70-130%	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 102 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*98 %*	*50-150 %*			*"*					
Duplicate (5090184-DUP1)					Prepared: 09/02/15 12:28		Analyzed: 09/08/15 19:26					
QC Source Sample: B-16(6) (A5I0103-04)												
NWTPH-Gx (MS)												
Gasoline Range Organics	**517**	---	57.4	mg/kg dry	500	---	1080	---	---	70	30%	Q-04
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 107 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*92 %*	*50-150 %*			*"*					
Batch 5090205 - EPA 5035A							Soil					
Blank (5090205-BLK1)					Prepared: 09/09/15 08:00		Analyzed: 09/09/15 10:31					
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	3.33	mg/kg wet	50	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 105 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*99 %*	*50-150 %*			*"*					
LCS (5090205-BS2)					Prepared: 09/09/15 08:00		Analyzed: 09/09/15 10:07					
NWTPH-Gx (MS)												
Gasoline Range Organics	23.5	---	5.00	mg/kg wet	50	25.0	---	94	70-130%	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 100 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*97 %*	*50-150 %*			*"*					
Duplicate (5090205-DUP1)					Prepared: 09/03/15 08:25		Analyzed: 09/09/15 12:33					
QC Source Sample: Other (A5I0181-01)												
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	5.19	mg/kg dry	50	---	ND	---	---	---	30%	

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

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240 N Broadway Ste 203	Project Number: 1179-03	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 13:59

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 5090205 - EPA 5035A							**Soil**					
Duplicate (5090205-DUP1)					Prepared: 09/03/15 08:25 Analyzed: 09/09/15 12:33							
QC Source Sample: Other (A5I0181-01)												
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 104 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*102 %*	*50-150 %*			*"*					
Duplicate (5090205-DUP2)					Prepared: 09/09/15 14:26 Analyzed: 09/09/15 17:57							V-15
QC Source Sample: Other (A5I0226-01)												
NWTPH-Gx (MS)												
Gasoline Range Organics	**1460**	---	229	mg/kg dry	2000	---	2820	---	---	63	30%	Q-04
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 118 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*97 %*	*50-150 %*			*"*					

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

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240 N Broadway Ste 203	Project Number: 1179-03	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 13:59

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 5090392 - EPA 5035A									Soil			
Blank (5090392-BLK1)					Prepared: 09/16/15 08:32 Analyzed: 09/16/15 11:01							
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	3.33	mg/kg wet	50	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 95 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*97 %*	*50-150 %*			*"*					
LCS (5090392-BS2)					Prepared: 09/16/15 08:32 Analyzed: 09/16/15 10:37							
NWTPH-Gx (MS)												
Gasoline Range Organics	22.7	---	5.00	mg/kg wet	50	25.0	---	91	70-130%	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 92 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*98 %*	*50-150 %*			*"*					
Duplicate (5090392-DUP1)					Prepared: 09/11/15 19:15 Analyzed: 09/16/15 18:52							V-15
QC Source Sample: Other (A5I0331-02)												
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	6.04	mg/kg dry	50	---	ND	---	---	---	30%	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 78 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*85 %*	*50-150 %*			*"*					

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503-718-0333 Fax

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240 N Broadway Ste 203	Project Number: 1179-03	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 13:59

QUALITY CONTROL (QC) SAMPLE RESULTS

BTEX Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5090184 - EPA 5035A							**Soil**					
Blank (5090184-BLK1)					Prepared: 09/08/15 08:28		Analyzed: 09/08/15 14:51					
5035/8260B												
Benzene	ND	---	8.33	ug/kg wet	50	---	---	---	---	---	---	
Toluene	ND	---	33.3	"	"	---	---	---	---	---	---	
Ethylbenzene	ND	---	16.7	"	"	---	---	---	---	---	---	
Xylenes, total	ND	---	50.0	"	"	---	---	---	---	---	---	
Surr: Dibromofluoromethane (Surr)			*Recovery: 99 %*		*Limits: 70-130 %*		*Dilution: 1x*					
1,4-Difluorobenzene (Surr)			*100 %*		*70-130 %*		*"*					
Toluene-d8 (Surr)			*100 %*		*70-130 %*		*"*					
4-Bromofluorobenzene (Surr)			*103 %*		*70-130 %*		*"*					
LCS (5090184-BS3)					Prepared: 09/08/15 12:28		Analyzed: 09/08/15 13:55					
5035/8260B												
Benzene	1010	---	12.5	ug/kg wet	50	1000	---	101	65-135%	---	---	
Toluene	1000	---	50.0	"	"	"	---	100	"	---	---	
Ethylbenzene	1010	---	25.0	"	"	"	---	101	"	---	---	
Xylenes, total	3080	---	75.0	"	"	3000	---	103	"	---	---	
Surr: Dibromofluoromethane (Surr)			*Recovery: 105 %*		*Limits: 70-130 %*		*Dilution: 1x*					
1,4-Difluorobenzene (Surr)			*100 %*		*70-130 %*		*"*					
Toluene-d8 (Surr)			*99 %*		*70-130 %*		*"*					
4-Bromofluorobenzene (Surr)			*101 %*		*70-130 %*		*"*					
Duplicate (5090184-DUP1)					Prepared: 09/02/15 12:28		Analyzed: 09/08/15 19:26					
QC Source Sample: B-16(6) (A5I0103-04)												
5035/8260B												
Benzene	ND	---	143	ug/kg dry	500	---	ND	---	---	---	30%	
Toluene	ND	---	574	"	"	---	ND	---	---	---	30%	
Ethylbenzene	ND	---	287	"	"	---	ND	---	---	---	30%	
Xylenes, total	ND	---	861	"	"	---	ND	---	---	---	30%	
Surr: Dibromofluoromethane (Surr)			*Recovery: 96 %*		*Limits: 70-130 %*		*Dilution: 1x*					
1,4-Difluorobenzene (Surr)			*99 %*		*70-130 %*		*"*					
Toluene-d8 (Surr)			*99 %*		*70-130 %*		*"*					
4-Bromofluorobenzene (Surr)			*101 %*		*70-130 %*		*"*					
Matrix Spike (5090184-MS1)					Prepared: 09/08/15 14:06		Analyzed: 09/08/15 23:55					V-15
QC Source Sample: Other (A5I0185-08)												
5035/8260B												

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

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240 N Broadway Ste 203	Project Number: 1179-03	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 13:59

QUALITY CONTROL (QC) SAMPLE RESULTS

BTEX Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5090184 - EPA 5035A							**Soil**					
Matrix Spike (5090184-MS1)					Prepared: 09/08/15 14:06 Analyzed: 09/08/15 23:55							V-15
QC Source Sample: Other (A5I0185-08)												
Benzene	1650	---	18.7	ug/kg dry	50	1490	ND	110	65-135%	---	---	
Toluene	1610	---	74.6	"	"	"	ND	108	"	---	---	
Ethylbenzene	1620	---	37.3	"	"	"	ND	108	"	---	---	
Xylenes, total	4900	---	112	"	"	4480	ND	109	"	---	---	
Surr: Dibromofluoromethane (Surr)			*Recovery: 105 %*		*Limits: 70-130 %*			*Dilution: 1x*				
1,4-Difluorobenzene (Surr)			*101 %*		*70-130 %*			*"*				
Toluene-d8 (Surr)			*97 %*		*70-130 %*			*"*				
4-Bromofluorobenzene (Surr)			*102 %*		*70-130 %*			*"*				

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Tigard, OR 97223
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240 N Broadway Ste 203	Project Number: 1179-03	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 13:59

QUALITY CONTROL (QC) SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5090318 - PSEP TOC												**Soil**
Blank (5090318-BLK1)					Prepared: 09/14/15 07:17		Analyzed: 09/16/15 14:35					
SM 5310B MOD												
Total Organic Carbon	ND	---	200	mg/kg	1	---	---	---	---	---	---	
LCS (5090318-BS1)					Prepared: 09/14/15 07:17		Analyzed: 09/16/15 14:35					
SM 5310B MOD												
Total Organic Carbon	10000	---		mg/kg	1	10000	---	101	85-115%	---	---	
Duplicate (5090318-DUP1)					Prepared: 09/14/15 07:17		Analyzed: 09/16/15 14:35					
QC Source Sample: B-16(6) (A5I0103-04)												
SM 5310B MOD												
Total Organic Carbon	**1400**	---	200	mg/kg	1	---	1400	---	---	0.4	20%	

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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 5090259 - Total Solids (Dry Weight)							Soil					
Duplicate (5090259-DUP1)					Prepared: 09/10/15 12:05		Analyzed: 09/11/15 08:18					
QC Source Sample: Other (A5I0181-05)												
EPA 8000C												
% Solids	**83.6**	---	1.00	% by Weight	1	---	83.5	---	---	0.1	10%	Q-38
Duplicate (5090259-DUP2)					Prepared: 09/10/15 12:05		Analyzed: 09/11/15 08:18					
QC Source Sample: Other (A5I0231-02)												
EPA 8000C												
% Solids	**84.6**	---	1.00	% by Weight	1	---	84.8	---	---	0.2	10%	Q-38
Duplicate (5090259-DUP3)					Prepared: 09/10/15 12:05		Analyzed: 09/11/15 08:18					
QC Source Sample: Other (A5I0238-10)												
EPA 8000C												
% Solids	**87.5**	---	1.00	% by Weight	1	---	88.2	---	---	0.7	10%	Q-38
Duplicate (5090259-DUP4)					Prepared: 09/10/15 12:05		Analyzed: 09/11/15 08:18					
QC Source Sample: Other (A5I0249-06)												
EPA 8000C												
% Solids	**90.6**	---	1.00	% by Weight	1	---	91.1	---	---	0.5	10%	Q-38
Duplicate (5090259-DUP5)					Prepared: 09/10/15 14:43		Analyzed: 09/11/15 08:18					
QC Source Sample: Other (A5I0244-02)												
EPA 8000C												
% Solids	**90.8**	---	1.00	% by Weight	1	---	90.5	---	---	0.3	10%	Q-38
Duplicate (5090259-DUP6)					Prepared: 09/10/15 19:44		Analyzed: 09/11/15 08:18					
QC Source Sample: Other (A5I0286-01)												
EPA 8000C												
% Solids	**86.6**	---	1.00	% by Weight	1	---	86.7	---	---	0.2	10%	Q-38
Duplicate (5090259-DUP7)					Prepared: 09/10/15 19:44		Analyzed: 09/11/15 08:18					
QC Source Sample: Other (A5I0293-01)												
EPA 8000C												
% Solids	**87.0**	---	1.00	% by Weight	1	---	87.4	---	---	0.5	10%	Q-38

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

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240 N Broadway Ste 203	Project Number: 1179-03	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 13:59

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 5090337 - Total Solids (Dry Weight)							**Soil**					
Duplicate (5090337-DUP1)					Prepared: 09/14/15 13:12		Analyzed: 09/15/15 09:07					
QC Source Sample: Other (A5I0346-03)												
EPA 8000C												
% Solids	**99.9**	---	1.00	% by Weight	1	---	99.9	---	---	0.01	10%	
Duplicate (5090337-DUP2)					Prepared: 09/14/15 14:11		Analyzed: 09/15/15 09:07					
QC Source Sample: Other (A5I0188-10)												
EPA 8000C												
% Solids	**92.3**	---	1.00	% by Weight	1	---	92.2	---	---	0.09	10%	
Duplicate (5090337-DUP3)					Prepared: 09/14/15 14:11		Analyzed: 09/15/15 09:07					
QC Source Sample: Other (A5I0330-04)												
EPA 8000C												
% Solids	**87.5**	---	1.00	% by Weight	1	---	87.2	---	---	0.3	10%	
Duplicate (5090337-DUP4)					Prepared: 09/14/15 14:11		Analyzed: 09/15/15 09:07					
QC Source Sample: Other (A5I0343-08)												
EPA 8000C												
% Solids	**82.4**	---	1.00	% by Weight	1	---	82.7	---	---	0.3	10%	
Duplicate (5090337-DUP5)					Prepared: 09/14/15 17:20		Analyzed: 09/15/15 09:07					
QC Source Sample: Other (A5I0363-02)												
EPA 8000C												
% Solids	**85.6**	---	1.00	% by Weight	1	---	88.1	---	---	3	10%	
Duplicate (5090337-DUP6)					Prepared: 09/14/15 19:21		Analyzed: 09/15/15 09:07					
QC Source Sample: Other (A5I0373-02)												
EPA 8000C												
% Solids	**85.5**	---	1.00	% by Weight	1	---	85.8	---	---	0.3	10%	
Duplicate (5090337-DUP7)					Prepared: 09/14/15 19:21		Analyzed: 09/15/15 09:07					
QC Source Sample: Other (A5I0379-02)												
EPA 8000C												
% Solids	**82.0**	---	1.00	% by Weight	1	---	86.5	---	---	5	10%	
Duplicate (5090337-DUP8)					Prepared: 09/14/15 19:21		Analyzed: 09/15/15 09:07					
QC Source Sample: Other (A5I0383-02)												

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.

Philip Nerenberg, Lab Director

Apex Labs

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

EES Environmental Inc	Project: **PP112**	
240 N Broadway Ste 203	Project Number: 1179-03	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 13:59

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 5090337 - Total Solids (Dry Weight)												**Soil**
Duplicate (5090337-DUP8)						Prepared: 09/14/15 19:21		Analyzed: 09/15/15 09:07				
QC Source Sample: Other (A5I0383-02)												
EPA 8000C												
% Solids	**94.3**	---	1.00	% by Weight	1	---	94.6	---	---	0.3	10%	

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EES Environmental Inc	Project: **PP112**	
240 N Broadway Ste 203	Project Number: 1179-03	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 13:59

SAMPLE PREPARATION INFORMATION

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: 5090184							
A5I0103-04	Soil	NWTPH-Gx (MS)	09/02/15 12:28	09/02/15 12:28	5.49g/5mL	10g/10mL	0.91
A5I0103-05	Soil	NWTPH-Gx (MS)	09/02/15 12:40	09/02/15 12:40	4.84g/5mL	10g/10mL	1.03
Batch: 5090205							
A5I0103-07RE1	Soil	NWTPH-Gx (MS)	09/02/15 14:40	09/02/15 14:40	4.72g/5mL	10g/10mL	1.06
A5I0103-11RE1	Soil	NWTPH-Gx (MS)	09/02/15 15:10	09/02/15 15:10	4.4g/5mL	10g/10mL	1.14
A5I0103-12RE1	Soil	NWTPH-Gx (MS)	09/02/15 15:15	09/02/15 15:15	4.64g/5mL	10g/10mL	1.08
Batch: 5090392							
A5I0103-03	Soil	NWTPH-Gx (MS)	09/02/15 12:10	09/02/15 12:10	11.64g/5mL	10g/10mL	0.43
A5I0103-10	Soil	NWTPH-Gx (MS)	09/02/15 15:05	09/02/15 15:05	4.54g/5mL	10g/10mL	1.10

BTEX Compounds by EPA 8260B

Prep: EPA 5035A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 5090184							
A5I0103-04	Soil	5035/8260B	09/02/15 12:28	09/02/15 12:28	5.49g/5mL	10g/10mL	0.91
A5I0103-12	Soil	5035/8260B	09/02/15 15:15	09/02/15 15:15	4.64g/5mL	10g/10mL	1.08

Conventional Chemistry Parameters

Prep: PSEP TOC

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 5090318							
A5I0103-04	Soil	SM 5310B MOD	09/02/15 12:28	09/14/15 07:17	5g/5g	5g/5g	NA
A5I0103-12	Soil	SM 5310B MOD	09/02/15 15:15	09/14/15 07:17	5g/5g	5g/5g	NA

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 5090259							
A5I0103-04	Soil	EPA 8000C	09/02/15 12:28	09/10/15 12:05	1N/A/1N/A	1N/A/1N/A	NA
A5I0103-05	Soil	EPA 8000C	09/02/15 12:40	09/10/15 12:05	1N/A/1N/A	1N/A/1N/A	NA
A5I0103-07	Soil	EPA 8000C	09/02/15 14:40	09/10/15 12:05	1N/A/1N/A	1N/A/1N/A	NA

Apex Laboratories

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503-718-2323 Phone
503-718-0333 Fax

EES Environmental Inc	Project: **PP112**	
240 N Broadway Ste 203	Project Number: 1179-03	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 13:59

SAMPLE PREPARATION INFORMATION

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A5I0103-11	Soil	EPA 8000C	09/02/15 15:10	09/10/15 12:05	1N/A/1N/A	1N/A/1N/A	NA
A5I0103-12	Soil	EPA 8000C	09/02/15 15:15	09/10/15 12:05	1N/A/1N/A	1N/A/1N/A	NA
Batch: 5090337							
A5I0103-03	Soil	EPA 8000C	09/02/15 12:10	09/14/15 14:11	1N/A/1N/A	1N/A/1N/A	NA
A5I0103-10	Soil	EPA 8000C	09/02/15 15:05	09/14/15 14:11	1N/A/1N/A	1N/A/1N/A	NA

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EES Environmental Inc	Project: **PP112**	
240 N Broadway Ste 203	Project Number: 1179-03	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 13:59

Notes and Definitions

Qualifiers:

Q-04	Spike recovery and/or RPD is outside control limits due to a non-homogeneous sample matrix.
Q-38	Oven outside of control limits during drying step.
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-02	The Reporting Limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.
V-15	Sample aliquot was subsampled from the sample container. The subsampled aliquot was preserved in the laboratory within 48 hours of sampling.

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	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

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503-718-2323 Phone
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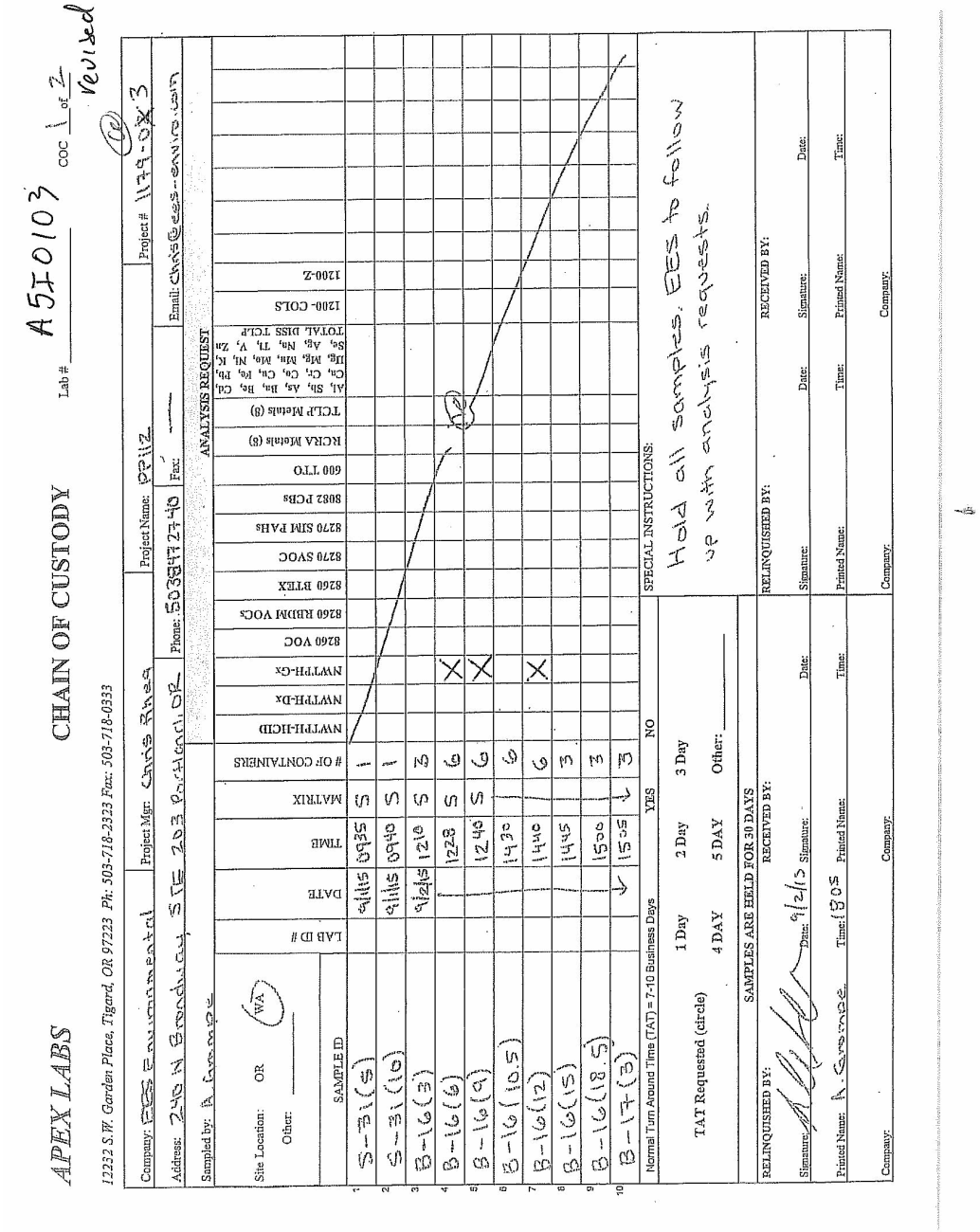
EES Environmental Inc	Project: **PP112**	
240 N Broadway Ste 203	Project Number: 1179-03	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 13:59



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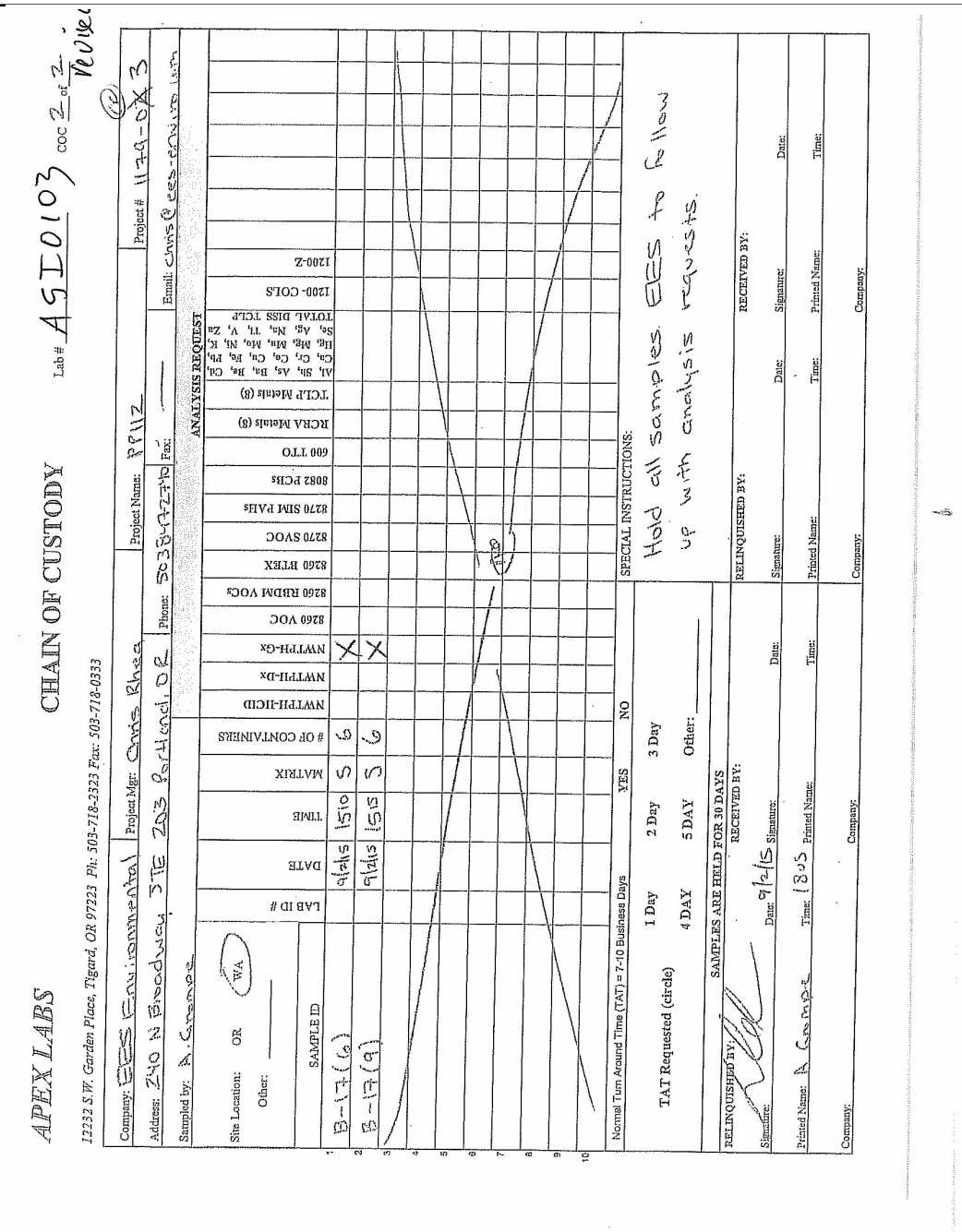

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Philip Nerenberg

Philip Nerenberg, Lab Director

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Apex Laboratories
Philip Nerenberg
12232 S.W. Garden Place
Tigard, OR 97223

RE: A5I0103
Lab ID: 1509193

September 22, 2015

Attention Philip Nerenberg:

Fremont Analytical, Inc. received 2 sample(s) on 9/15/2015 for the analyses presented in the following report.

Volatile Petroleum Hydrocarbons by NWVPH

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
President

Date: *09/22/2015*

CLIENT: Apex Laboratories
Project: A5I0103
Lab Order: 1509193

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1509193-001	B-16(6)	09/02/2015 12:28 PM	09/15/2015 3:10 PM
1509193-002	B-17(9)	09/02/2015 3:15 PM	09/15/2015 3:10 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **1509193**
Date: **9/22/2015**

CLIENT: Apex Laboratories
Project: A5I0103

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below LOQ
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

WO#: **1509193**

Date Reported: **9/22/2015**

Client: Apex Laboratories

Collection Date: 9/2/2015 12:28:00 PM

Project: A5I0103

Lab ID: 1509193-001

Matrix: Soil

Client Sample ID: B-16(6)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 11845		Analyst: BC
Aliphatic Hydrocarbon (C5-C6)	6.50	1.39		mg/Kg	1	9/16/2015 5:41:00 AM
Aliphatic Hydrocarbon (C6-C8)	ND	1.39		mg/Kg	1	9/16/2015 5:41:00 AM
Aliphatic Hydrocarbon (C8-C10)	8.07	1.39		mg/Kg	1	9/16/2015 5:41:00 AM
Aliphatic Hydrocarbon (C10-C12)	175	27.8	D	mg/Kg	20	9/16/2015 12:16:00 PM
Aromatic Hydrocarbon (C8-C10)	35.6	1.39	Q	mg/Kg	1	9/16/2015 5:41:00 AM
Aromatic Hydrocarbon (C10-C12)	205	27.8	D	mg/Kg	20	9/16/2015 12:16:00 PM
Aromatic Hydrocarbon (C12-C13)	155	27.8	D	mg/Kg	20	9/16/2015 12:16:00 PM
Surr: 1,4-Difluorobenzene	100	65-140		%REC	1	9/16/2015 5:41:00 AM
Surr: Bromofluorobenzene	111	65-140		%REC	1	9/16/2015 5:41:00 AM

NOTES:

Q - Indicates an analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Analytical Report

WO#: **1509193**

Date Reported: **9/22/2015**

Client: Apex Laboratories
Collection Date: 9/2/2015 3:15:00 PM
Project: A5I0103
Lab ID: 1509193-002
Matrix: Soil
Client Sample ID: **B-17(9)**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 11845		Analyst: BC
Aliphatic Hydrocarbon (C5-C6)	2.35	2.24		mg/Kg	1	9/16/2015 12:51:00 PM
Aliphatic Hydrocarbon (C6-C8)	186	22.4	D	mg/Kg	10	9/16/2015 6:17:00 AM
Aliphatic Hydrocarbon (C8-C10)	567	22.4	D	mg/Kg	10	9/16/2015 6:17:00 AM
Aliphatic Hydrocarbon (C10-C12)	556	22.4	D	mg/Kg	10	9/16/2015 6:17:00 AM
Aromatic Hydrocarbon (C8-C10)	945	22.4	DQ	mg/Kg	10	9/16/2015 6:17:00 AM
Aromatic Hydrocarbon (C10-C12)	564	22.4	D	mg/Kg	10	9/16/2015 6:17:00 AM
Aromatic Hydrocarbon (C12-C13)	180	22.4	D	mg/Kg	10	9/16/2015 6:17:00 AM
Surr: 1,4-Difluorobenzene	109	65-140		%REC	1	9/16/2015 12:51:00 PM
Surr: Bromofluorobenzene	129	65-140	D	%REC	10	9/16/2015 6:17:00 AM

NOTES:
Q - Indicates an analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Work Order: 1509193
CLIENT: Apex Laboratories
Project: A5I0103

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: **LCS-11845**	SampType: **LCS**			Units: **mg/Kg**		Prep Date: **9/15/2015**		RunNo: **24895**			
Client ID: **LCSS**	Batch ID: **11845**					Analysis Date: **9/16/2015**		SeqNo: **468958**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	30.4	2.00	30.00	0	101	70	130				
Aliphatic Hydrocarbon (C6-C8)	11.0	2.00	10.00	0	110	70	130				
Aliphatic Hydrocarbon (C8-C10)	9.96	2.00	10.00	0	99.6	70	130				
Aliphatic Hydrocarbon (C10-C12)	9.10	2.00	10.00	0	91.0	70	130				
Aromatic Hydrocarbon (C8-C10)	52.0	2.00	40.00	0	130	70	130				
Aromatic Hydrocarbon (C10-C12)	11.4	2.00	10.00	0	114	70	130				
Aromatic Hydrocarbon (C12-C13)	11.3	2.00	10.00	0	113	70	130				
Surr: 1,4-Difluorobenzene	3.16		2.500		126	65	140				
Surr: Bromofluorobenzene	2.88		2.500		115	65	140				

Sample ID: **MB-11845**	SampType: **MBLK**			Units: **mg/Kg**		Prep Date: **9/15/2015**		RunNo: **24895**			
Client ID: **MBLKS**	Batch ID: **11845**					Analysis Date: **9/16/2015**		SeqNo: **468959**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	ND	2.00		0	0						
Aliphatic Hydrocarbon (C6-C8)	ND	2.00		0	0						
Aliphatic Hydrocarbon (C8-C10)	ND	2.00		0	0						
Aliphatic Hydrocarbon (C10-C12)	ND	2.00		0	0						
Aromatic Hydrocarbon (C8-C10)	ND	2.00		0	0						
Aromatic Hydrocarbon (C10-C12)	ND	2.00		0	0						
Aromatic Hydrocarbon (C12-C13)	ND	2.00		0	0						
Surr: 1,4-Difluorobenzene	2.71		2.500		108	65	140				
Surr: Bromofluorobenzene	2.71		2.500		108	65	140				

Sample ID: **1509194-001ADUP**	SampType: **DUP**			Units: **mg/Kg**		Prep Date: **9/15/2015**		RunNo: **24895**			
Client ID: **BATCH**	Batch ID: **11845**					Analysis Date: **9/16/2015**		SeqNo: **468955**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	19.3	1.92		0	0			23.89	21.3	25	
Aliphatic Hydrocarbon (C6-C8)	58.2	1.92		0	0			65.70	12.1	25	E

Work Order: 1509193
CLIENT: Apex Laboratories
Project: A5I0103

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: **1509194-001ADUP** SampType: **DUP** Units: **mg/Kg** Prep Date: **9/15/2015** RunNo: **24895**
Client ID: **BATCH** Batch ID: **11845** Analysis Date: **9/16/2015** SeqNo: **468955**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	557	1.92		0	0			389.4	35.5	25	RE
Aliphatic Hydrocarbon (C10-C12)	474	1.92		0	0			474.9	0.182	25	E
Aromatic Hydrocarbon (C8-C10)	431	1.92		0	0			413.2	4.22	25	EQ
Aromatic Hydrocarbon (C10-C12)	355	1.92		0	0			362.1	2.03	25	E
Aromatic Hydrocarbon (C12-C13)	110	1.92		0	0			140.2	23.9	25	E
Surr: 1,4-Difluorobenzene	2.69		2.395		112	65	140		0		
Surr: Bromofluorobenzene	7.15		2.395		299	65	140		0	0	S

NOTES:
R - High RPD observed. The method is in control as indicated by the LCS.
S - High surrogate recovery attributed to TPH interference. The method is in control as indicated by the Method Blank (MB) & Laboratory Control Sample (LCS).
Q - Indicates an analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID: **1509194-002AMS** SampType: **MS** Units: **mg/Kg** Prep Date: **9/15/2015** RunNo: **24895**
Client ID: **BATCH** Batch ID: **11845** Analysis Date: **9/16/2015** SeqNo: **468956**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	38.4	1.78	53.29	0	72.1	70	130				
Aliphatic Hydrocarbon (C6-C8)	48.3	1.78	17.76	41.44	38.6	70	130				SE
Aliphatic Hydrocarbon (C8-C10)	237	1.78	17.76	177.6	336	70	130				SE
Aliphatic Hydrocarbon (C10-C12)	224	1.78	17.76	210.6	76.2	70	130				E
Aromatic Hydrocarbon (C8-C10)	295	1.78	71.05	264.4	43.3	70	130				SE
Aromatic Hydrocarbon (C10-C12)	156	1.78	17.76	154.8	8.92	70	130				SE
Aromatic Hydrocarbon (C12-C13)	46.9	1.78	17.76	43.79	17.5	70	130				S
Surr: 1,4-Difluorobenzene	2.44		2.220		110	65	140				
Surr: Bromofluorobenzene	5.27		2.220		237	65	140				S

NOTES:
S - Analyte concentration was too high for accurate spike recoveries.
S - High surrogate recovery attributed to TPH interference. The method is in control as indicated by the Method Blank (MB) & Laboratory Control Sample (LCS).

Sample Log-In Check List

Client Name:	**APEX**	Work Order Number:	**1509193**
Logged by:	**Mike Ridgeway**	Date Received:	**9/15/2015 3:10:00 PM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes	☑	No ☐	Not Present	☐
2.	How was the sample delivered?	UPS				

Log In

3.	Coolers are present?	Yes	☑	No ☐	NA	☐
4.	Shipping container/cooler in good condition?	Yes	☑	No ☐		
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes	☐	No ☐	Not Required	☑
6.	Was an attempt made to cool the samples?	Yes	☑	No ☐	NA	☐
7.	Were all items received at a temperature of >0°C to 10.0°C *	Yes	☑	No ☐	NA	☐
8.	Sample(s) in proper container(s)?	Yes	☑	No ☐		
9.	Sufficient sample volume for indicated test(s)?	Yes	☑	No ☐		
10.	Are samples properly preserved?	Yes	☑	No ☐		
11.	Was preservative added to bottles?	Yes	☐	No ☑	NA	☐
12.	Is there headspace in the VOA vials?	Yes	☐	No ☐	NA	☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes	☑	No ☐		
14.	Does paperwork match bottle labels?	Yes	☑	No ☐		
15.	Are matrices correctly identified on Chain of Custody?	Yes	☑	No ☐		
16.	Is it clear what analyses were requested?	Yes	☑	No ☐		
17.	Were all holding times able to be met?	Yes	☑	No ☐		

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes	☐	No ☐	NA	☑

Person Notified:		Date:	
By Whom:		Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:			
Client Instructions:			

19. Additional remarks:

Sample jars not provided to conduct sample moisture check

Item Information

Item #	Temp ºC
Cooler	2.3
Sample	7.5
Temp Blank	8.5

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

SUBCONTRACT ORDER

Apex Laboratories

A5I0103

CR 9/14/15.

1509193

SENDING LABORATORY:

Apex Laboratories
12232 S.W. Garden Place
Tigard, OR 97223
Phone: (503) 718-2323
Fax: (503) 718-0333
Project Manager: Philip Nerenberg

RECEIVING LABORATORY:

Fremont Analytical
3600 Fremont Avenue N.
Seattle, WA 98103
Phone :(206) 352-3790
Fax: (206) 352-7178

Sample Name: B-16(6) **Soil** **Sampled: 09/02/15 12:28** (A5I0103-04)

Analysis	Due	Expires	Comments
NWTPH-VPH (Sub)	09/25/15 17:00	09/16/15 12:28	
Containers Supplied:			
(E)40 mL VOA - 5035 (MeOH)			

Sample Name: B-17(9) **Soil** **Sampled: 09/02/15 15:15** (A5I0103-12)

Analysis	Due	Expires	Comments
NWTPH-VPH (Sub)	09/25/15 17:00	09/16/15 15:15	
Containers Supplied:			
(E)40 mL VOA - 5035 (MeOH)			

Be sure weights are on VOA.
STANDARD TAT
Watch Expiration
DA

Released By Date — UPS (Shipper) — Received By Date

Released By Date — UPS (Shipper) — Received By 09/15/15 3:10PM Date

Page 1 of 1

Apex Labs

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

Monday, September 28, 2015

Chris Rhea
EES Environmental Inc
240 N Broadway Ste 203
Portland, OR 97227

RE: PP112 / 1179-03

Enclosed are the results of analyses for work order A5I0181, which was received by the laboratory on 9/4/2015 at 11:40:00AM.

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

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

Apex Laboratories

Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

EES Environmental Inc	Project: **PP112**	
240 N Broadway Ste 203	Project Number: 1179-03	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 14:06

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B-17(12)	A5I0181-01	Soil	09/03/15 08:25	09/04/15 11:40
B-18(3)	A5I0181-04	Soil	09/03/15 11:00	09/04/15 11:40
B-18(6)	A5I0181-05	Soil	09/03/15 11:25	09/04/15 11:40
B-18(9)	A5I0181-06	Soil	09/03/15 11:35	09/04/15 11:40
B-18(12)	A5I0181-07	Soil	09/04/15 10:05	09/04/15 11:40

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EES Environmental Inc	Project: **PP112**	
240 N Broadway Ste 203	Project Number: 1179-03	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 14:06

ANALYTICAL SAMPLE RESULTS

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

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B-17(12) (A5I0181-01)			**Matrix: Soil**		**Batch: 5090205**			
Gasoline Range Organics	ND	---	5.76	mg/kg dry	50	09/09/15 12:09	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 101 %*	*Limits: 50-150 %*	1	"	"	
1,4-Difluorobenzene (Sur)			*100 %*	*Limits: 50-150 %*	"	"	"	
B-18(3) (A5I0181-04)			**Matrix: Soil**		**Batch: 5090205**			
Gasoline Range Organics	**4770**	---	263	mg/kg dry	2000	09/09/15 12:58	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 137 %*	*Limits: 50-150 %*	1	"	"	
1,4-Difluorobenzene (Sur)			*107 %*	*Limits: 50-150 %*	"	"	"	
B-18(6) (A5I0181-05)			**Matrix: Soil**		**Batch: 5090205**			
Gasoline Range Organics	**543**	---	59.1	mg/kg dry	500	09/09/15 13:22	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 125 %*	*Limits: 50-150 %*	1	"	"	
1,4-Difluorobenzene (Sur)			*100 %*	*Limits: 50-150 %*	"	"	"	
B-18(9) (A5I0181-06RE1)			**Matrix: Soil**		**Batch: 5090205**			V-15
Gasoline Range Organics	**7820**	---	744	mg/kg dry	5000	09/09/15 17:07	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 142 %*	*Limits: 50-150 %*	1	"	"	
1,4-Difluorobenzene (Sur)			*105 %*	*Limits: 50-150 %*	"	"	"	
B-18(12) (A5I0181-07)			**Matrix: Soil**		**Batch: 5090205**			
Gasoline Range Organics	ND	---	5.77	mg/kg dry	50	09/09/15 14:11	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 106 %*	*Limits: 50-150 %*	1	"	"	
1,4-Difluorobenzene (Sur)			*99 %*	*Limits: 50-150 %*	"	"	"	

Apex Laboratories

Philip Nerenberg, Lab Director

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

EES Environmental Inc	Project: **PP112**	
240 N Broadway Ste 203	Project Number: 1179-03	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 14:06

ANALYTICAL SAMPLE RESULTS

BTEX Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B-18(3) (A5I0181-04)			**Matrix: Soil**		**Batch: 5090205**			
Benzene	ND	---	657	ug/kg dry	2000	09/09/15 12:58	5035/8260B	
Toluene	ND	---	2630	"	"	"	"	
Ethylbenzene	**2600**	---	1310	"	"	"	"	
Xylenes, total	ND	---	3940	"	"	"	"	
Surrogate: Dibromofluoromethane (Surr)			*Recovery: 114 %*	*Limits: 70-130 %*	1	"	"	
1,4-Difluorobenzene (Surr)			*107 %*	*Limits: 70-130 %*	"	"	"	
Toluene-d8 (Surr)			*97 %*	*Limits: 70-130 %*	"	"	"	
4-Bromofluorobenzene (Surr)			*102 %*	*Limits: 70-130 %*	"	"	"	
B-18(9) (A5I0181-06)			**Matrix: Soil**		**Batch: 5090205**			
Benzene	ND	---	186	ug/kg dry	500	09/09/15 13:47	5035/8260B	
Toluene	ND	---	744	"	"	"	"	
Ethylbenzene	ND	---	372	"	"	"	"	
Xylenes, total	ND	---	1120	"	"	"	"	
Surrogate: Dibromofluoromethane (Surr)			*Recovery: 105 %*	*Limits: 70-130 %*	1	"	"	
1,4-Difluorobenzene (Surr)			*105 %*	*Limits: 70-130 %*	"	"	"	
Toluene-d8 (Surr)			*101 %*	*Limits: 70-130 %*	"	"	"	
4-Bromofluorobenzene (Surr)			*98 %*	*Limits: 70-130 %*	"	"	"	

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503-718-0333 Fax

EES Environmental Inc	Project: **PP112**	
240 N Broadway Ste 203	Project Number: 1179-03	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 14:06

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B-17(12) (A5I0181-01)			**Matrix: Soil**		**Batch: 5090259**			
% Solids	**93.6**	---	1.00	% by Weight	1	09/11/15 08:18	EPA 8000C	Q-38
B-18(3) (A5I0181-04)			**Matrix: Soil**		**Batch: 5090259**			
% Solids	**84.3**	---	1.00	% by Weight	1	09/11/15 08:18	EPA 8000C	Q-38
B-18(6) (A5I0181-05)			**Matrix: Soil**		**Batch: 5090259**			
% Solids	**83.5**	---	1.00	% by Weight	1	09/11/15 08:18	EPA 8000C	Q-38
B-18(9) (A5I0181-06)			**Matrix: Soil**		**Batch: 5090259**			
% Solids	**76.5**	---	1.00	% by Weight	1	09/11/15 08:18	EPA 8000C	Q-38
B-18(12) (A5I0181-07)			**Matrix: Soil**		**Batch: 5090259**			
% Solids	**95.5**	---	1.00	% by Weight	1	09/11/15 08:18	EPA 8000C	Q-38

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EES Environmental Inc	Project: **PP112**	
240 N Broadway Ste 203	Project Number: 1179-03	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 14:06

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 5090205 - EPA 5035A												**Soil**
Blank (5090205-BLK1)					Prepared: 09/09/15 08:00		Analyzed: 09/09/15 10:31					
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	3.33	mg/kg wet	50	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 105 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*99 %*	*50-150 %*			*"*					
LCS (5090205-BS2)					Prepared: 09/09/15 08:00		Analyzed: 09/09/15 10:07					
NWTPH-Gx (MS)												
Gasoline Range Organics	23.5	---	5.00	mg/kg wet	50	25.0	---	94	70-130%	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 100 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*97 %*	*50-150 %*			*"*					
Duplicate (5090205-DUP1)					Prepared: 09/03/15 08:25		Analyzed: 09/09/15 12:33					
QC Source Sample: B-17(12) (A5I0181-01)												
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	5.19	mg/kg dry	50	---	ND	---	---	---	30%	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 104 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*102 %*	*50-150 %*			*"*					
Duplicate (5090205-DUP2)					Prepared: 09/09/15 14:26		Analyzed: 09/09/15 17:57					V-15
QC Source Sample: Other (A5I0226-01)												
NWTPH-Gx (MS)												
Gasoline Range Organics	**1460**	---	229	mg/kg dry	2000	---	2820	---	---	63	30%	Q-04
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 118 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*97 %*	*50-150 %*			*"*					

Apex Laboratories

Philip Nerenberg, Lab Director

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503-718-2323 Phone
503-718-0333 Fax

EES Environmental Inc	Project: **PP112**	
240 N Broadway Ste 203	Project Number: 1179-03	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 14:06

QUALITY CONTROL (QC) SAMPLE RESULTS

BTEX Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5090205 - EPA 5035A							**Soil**					
Blank (5090205-BLK1)					Prepared: 09/09/15 08:00 Analyzed: 09/09/15 10:31							
5035/8260B												
Benzene	ND	---	8.33	ug/kg wet	50	---	---	---	---	---	---	
Toluene	ND	---	33.3	"	"	---	---	---	---	---	---	
Ethylbenzene	ND	---	16.7	"	"	---	---	---	---	---	---	
Xylenes, total	ND	---	50.0	"	"	---	---	---	---	---	---	
Surr: Dibromofluoromethane (Surr)			*Recovery: 108 %*		*Limits: 70-130 %*			*Dilution: 1x*				
1,4-Difluorobenzene (Surr)			*104 %*		*70-130 %*			*"*				
Toluene-d8 (Surr)			*101 %*		*70-130 %*			*"*				
4-Bromofluorobenzene (Surr)			*103 %*		*70-130 %*			*"*				
LCS (5090205-BS1)					Prepared: 09/09/15 08:00 Analyzed: 09/09/15 09:43							
5035/8260B												
Benzene	1010	---	12.5	ug/kg wet	50	1000	---	101	65-135%	---	---	
Toluene	988	---	50.0	"	"	"	---	99	"	---	---	
Ethylbenzene	995	---	25.0	"	"	"	---	100	"	---	---	
Xylenes, total	3120	---	75.0	"	"	3000	---	104	"	---	---	
Surr: Dibromofluoromethane (Surr)			*Recovery: 104 %*		*Limits: 70-130 %*			*Dilution: 1x*				
1,4-Difluorobenzene (Surr)			*100 %*		*70-130 %*			*"*				
Toluene-d8 (Surr)			*98 %*		*70-130 %*			*"*				
4-Bromofluorobenzene (Surr)			*98 %*		*70-130 %*			*"*				
Duplicate (5090205-DUP1)					Prepared: 09/03/15 08:25 Analyzed: 09/09/15 12:33							
QC Source Sample: B-17(12) (A5I0181-01)												
5035/8260B												
Benzene	ND	---	13.0	ug/kg dry	50	---	ND	---	---	---	30%	
Toluene	ND	---	51.9	"	"	---	ND	---	---	---	30%	
Ethylbenzene	ND	---	25.9	"	"	---	ND	---	---	---	30%	
Xylenes, total	ND	---	77.8	"	"	---	ND	---	---	---	30%	
Surr: Dibromofluoromethane (Surr)			*Recovery: 111 %*		*Limits: 70-130 %*			*Dilution: 1x*				
1,4-Difluorobenzene (Surr)			*105 %*		*70-130 %*			*"*				
Toluene-d8 (Surr)			*103 %*		*70-130 %*			*"*				
4-Bromofluorobenzene (Surr)			*102 %*		*70-130 %*			*"*				
Matrix Spike (5090205-MS1)					Prepared: 09/09/15 14:26 Analyzed: 09/09/15 20:02							V-15
QC Source Sample: Other (A5I0226-05)												
5035/8260B												

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EES Environmental Inc	Project: **PP112**	
240 N Broadway Ste 203	Project Number: 1179-03	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 14:06

QUALITY CONTROL (QC) SAMPLE RESULTS

BTEX Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5090205 - EPA 5035A							**Soil**					
Matrix Spike (5090205-MS1)					Prepared: 09/09/15 14:26		Analyzed: 09/09/15 20:02					V-15
QC Source Sample: Other (A5I0226-05)												
Benzene	980	---	13.0	ug/kg dry	50	1040	ND	94	65-135%	---	---	
Toluene	980	---	51.9	"	"	"	ND	94	"	---	---	
Ethylbenzene	975	---	25.9	"	"	"	ND	94	"	---	---	
Xylenes, total	3030	---	77.8	"	"	3120	ND	97	"	---	---	
Surr: Dibromofluoromethane (Surr)			*Recovery: 105 %*		*Limits: 70-130 %*			*Dilution: 1x*				
1,4-Difluorobenzene (Surr)			*101 %*		*70-130 %*			*"*				
Toluene-d8 (Surr)			*101 %*		*70-130 %*			*"*				
4-Bromofluorobenzene (Surr)			*97 %*		*70-130 %*			*"*				

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EES Environmental Inc	Project: **PP112**	
240 N Broadway Ste 203	Project Number: 1179-03	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 14:06

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 5090259 - Total Solids (Dry Weight)							Soil					
Duplicate (5090259-DUP1)					Prepared: 09/10/15 12:05		Analyzed: 09/11/15 08:18					
QC Source Sample: B-18(6) (A5I0181-05)												
EPA 8000C												
% Solids	**83.6**	---	1.00	% by Weight	1	---	83.5	---	---	0.1	10%	Q-38
Duplicate (5090259-DUP2)					Prepared: 09/10/15 12:05		Analyzed: 09/11/15 08:18					
QC Source Sample: Other (A5I0231-02)												
EPA 8000C												
% Solids	**84.6**	---	1.00	% by Weight	1	---	84.8	---	---	0.2	10%	Q-38
Duplicate (5090259-DUP3)					Prepared: 09/10/15 12:05		Analyzed: 09/11/15 08:18					
QC Source Sample: Other (A5I0238-10)												
EPA 8000C												
% Solids	**87.5**	---	1.00	% by Weight	1	---	88.2	---	---	0.7	10%	Q-38
Duplicate (5090259-DUP4)					Prepared: 09/10/15 12:05		Analyzed: 09/11/15 08:18					
QC Source Sample: Other (A5I0249-06)												
EPA 8000C												
% Solids	**90.6**	---	1.00	% by Weight	1	---	91.1	---	---	0.5	10%	Q-38
Duplicate (5090259-DUP5)					Prepared: 09/10/15 14:43		Analyzed: 09/11/15 08:18					
QC Source Sample: Other (A5I0244-02)												
EPA 8000C												
% Solids	**90.8**	---	1.00	% by Weight	1	---	90.5	---	---	0.3	10%	Q-38
Duplicate (5090259-DUP6)					Prepared: 09/10/15 19:44		Analyzed: 09/11/15 08:18					
QC Source Sample: Other (A5I0286-01)												
EPA 8000C												
% Solids	**86.6**	---	1.00	% by Weight	1	---	86.7	---	---	0.2	10%	Q-38
Duplicate (5090259-DUP7)					Prepared: 09/10/15 19:44		Analyzed: 09/11/15 08:18					
QC Source Sample: Other (A5I0293-01)												
EPA 8000C												
% Solids	**87.0**	---	1.00	% by Weight	1	---	87.4	---	---	0.5	10%	Q-38

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EES Environmental Inc	Project: **PP112**	
240 N Broadway Ste 203	Project Number: 1179-03	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 14:06

SAMPLE PREPARATION INFORMATION

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: 5090205							
A5I0181-01	Soil	NWTPH-Gx (MS)	09/03/15 08:25	09/03/15 08:25	4.93g/5mL	10g/10mL	1.01
A5I0181-04	Soil	NWTPH-Gx (MS)	09/03/15 11:00	09/03/15 11:00	5.25g/5mL	10g/10mL	0.95
A5I0181-05	Soil	NWTPH-Gx (MS)	09/03/15 11:25	09/03/15 11:25	6.09g/5mL	10g/10mL	0.82
A5I0181-06RE1	Soil	NWTPH-Gx (MS)	09/03/15 11:35	09/03/15 11:35	5.53g/5mL	10g/10mL	0.90
A5I0181-07	Soil	NWTPH-Gx (MS)	09/04/15 10:05	09/04/15 10:05	4.73g/5mL	10g/10mL	1.06

BTEX Compounds by EPA 8260B

Prep: EPA 5035A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 5090205							
A5I0181-04	Soil	5035/8260B	09/03/15 11:00	09/03/15 11:00	5.25g/5mL	10g/10mL	0.95
A5I0181-06	Soil	5035/8260B	09/03/15 11:35	09/03/15 11:35	5.53g/5mL	10g/10mL	0.90

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 5090259							
A5I0181-01	Soil	EPA 8000C	09/03/15 08:25	09/10/15 12:05	1N/A/1N/A	1N/A/1N/A	NA
A5I0181-04	Soil	EPA 8000C	09/03/15 11:00	09/10/15 12:05	1N/A/1N/A	1N/A/1N/A	NA
A5I0181-05	Soil	EPA 8000C	09/03/15 11:25	09/10/15 12:05	1N/A/1N/A	1N/A/1N/A	NA
A5I0181-06	Soil	EPA 8000C	09/03/15 11:35	09/10/15 12:05	1N/A/1N/A	1N/A/1N/A	NA
A5I0181-07	Soil	EPA 8000C	09/04/15 10:05	09/10/15 12:05	1N/A/1N/A	1N/A/1N/A	NA

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.

Philip Nerenberg, Lab Director

Apex Labs

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

EES Environmental Inc	Project: **PP112**	
240 N Broadway Ste 203	Project Number: 1179-03	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 14:06

Notes and Definitions

Qualifiers:

Q-04	Spike recovery and/or RPD is outside control limits due to a non-homogeneous sample matrix.
Q-38	Oven outside of control limits during drying step.
V-15	Sample aliquot was subsampled from the sample container. The subsampled aliquot was preserved in the laboratory within 48 hours of sampling.

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	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

Philip Nerenberg, Lab Director

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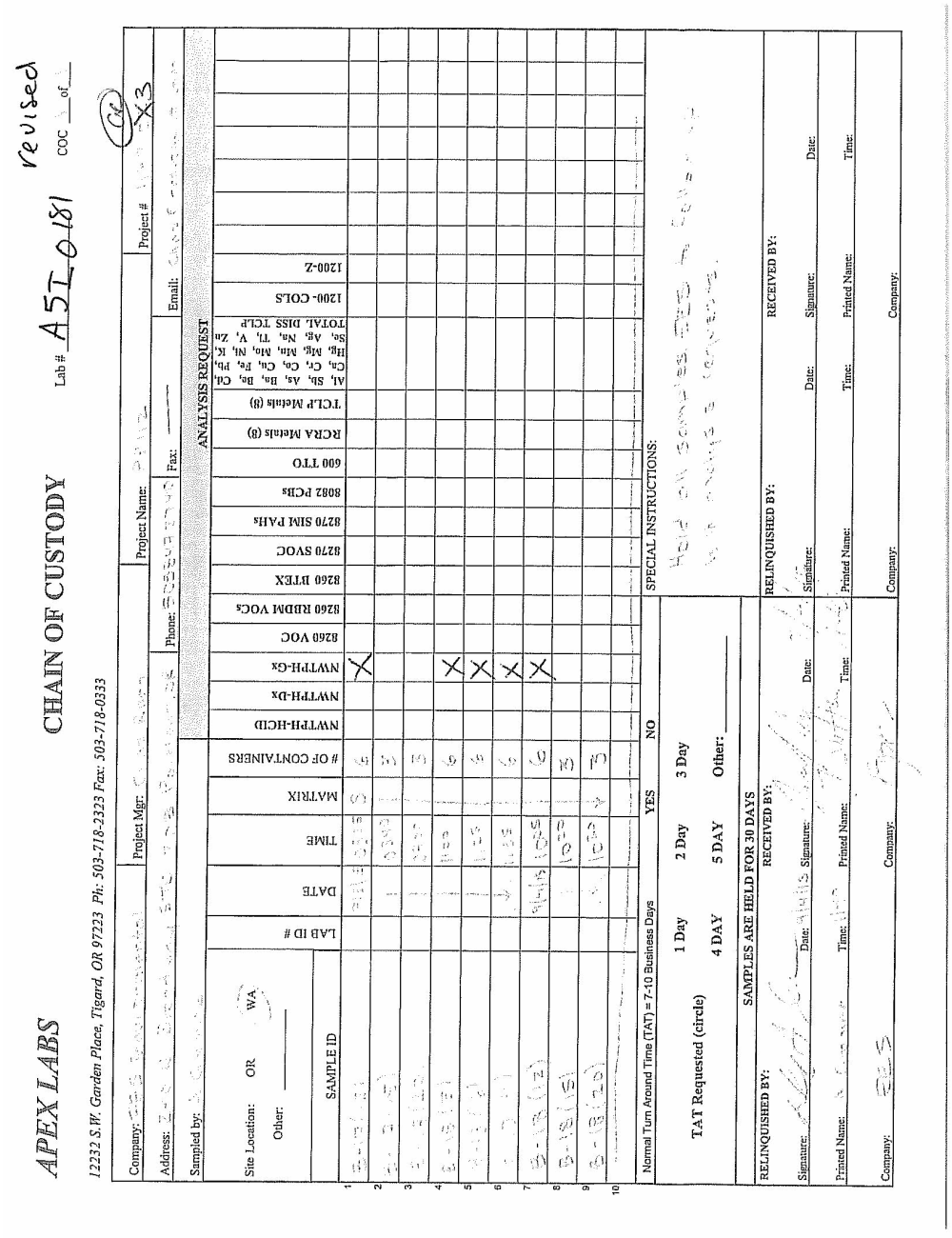
Apex Labs

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

EES Environmental Inc	Project: **PP112**	
240 N Broadway Ste 203	Project Number: 1179-03	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 14:06



Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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.

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Apex Laboratories
Philip Nerenberg
12232 S.W. Garden Place
Tigard, OR 97223

RE: A5I0181
Lab ID: 1509194

September 22, 2015

Attention Philip Nerenberg:

Fremont Analytical, Inc. received 2 sample(s) on 9/15/2015 for the analyses presented in the following report.

Volatile Petroleum Hydrocarbons by NWVPH

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
President

Date: *09/22/2015*

CLIENT: Apex Laboratories
Project: A5I0181
Lab Order: 1509194

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1509194-001	B-18(3)	09/03/2015 11:00 AM	09/15/2015 3:10 PM
1509194-002	B-18(9)	09/03/2015 11:35 AM	09/15/2015 3:10 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **1509194**
Date: **9/22/2015**

CLIENT: Apex Laboratories
Project: A5I0181

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below LOQ
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

WO#: **1509194**

Date Reported: **9/22/2015**

Client: Apex Laboratories

Collection Date: 9/3/2015 11:00:00 AM

Project: A5I0181

Lab ID: 1509194-001

Matrix: Soil

Client Sample ID: B-18(3)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 11845		Analyst: BC
Aliphatic Hydrocarbon (C5-C6)	23.9	1.92		mg/Kg	1	9/16/2015 6:53:00 AM
Aliphatic Hydrocarbon (C6-C8)	86.5	38.3	D	mg/Kg	20	9/16/2015 4:45:00 PM
Aliphatic Hydrocarbon (C8-C10)	277	38.3	DQ	mg/Kg	20	9/16/2015 4:45:00 PM
Aliphatic Hydrocarbon (C10-C12)	574	38.3	DQ	mg/Kg	20	9/16/2015 4:45:00 PM
Aromatic Hydrocarbon (C8-C10)	548	38.3	DQ	mg/Kg	20	9/16/2015 4:45:00 PM
Aromatic Hydrocarbon (C10-C12)	513	38.3	D	mg/Kg	20	9/16/2015 4:45:00 PM
Aromatic Hydrocarbon (C12-C13)	114	38.3	D	mg/Kg	20	9/16/2015 4:45:00 PM
Surr: 1,4-Difluorobenzene	112	65-140		%REC	1	9/16/2015 6:53:00 AM
Surr: Bromofluorobenzene	114	65-140	D	%REC	20	9/16/2015 4:45:00 PM

NOTES:

Q - Indicates an analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Analytical Report

WO#: **1509194**

Date Reported: **9/22/2015**

Client: Apex Laboratories
Collection Date: 9/3/2015 11:35:00 AM
Project: A5I0181
Lab ID: 1509194-002
Matrix: Soil
Client Sample ID: **B-18(9)**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 11845		Analyst: BC
Aliphatic Hydrocarbon (C5-C6)	ND	1.78		mg/Kg	1	9/16/2015 8:05:00 AM
Aliphatic Hydrocarbon (C6-C8)	41.4	1.78		mg/Kg	1	9/16/2015 8:05:00 AM
Aliphatic Hydrocarbon (C8-C10)	212	35.5	DQ	mg/Kg	20	9/16/2015 5:20:00 PM
Aliphatic Hydrocarbon (C10-C12)	409	35.5	DQ	mg/Kg	20	9/16/2015 5:20:00 PM
Aromatic Hydrocarbon (C8-C10)	387	35.5	DQ	mg/Kg	20	9/16/2015 5:20:00 PM
Aromatic Hydrocarbon (C10-C12)	178	35.5	D	mg/Kg	20	9/16/2015 5:20:00 PM
Aromatic Hydrocarbon (C12-C13)	43.8	1.78		mg/Kg	1	9/16/2015 8:05:00 AM
Surr: 1,4-Difluorobenzene	120	65-140		%REC	1	9/16/2015 8:05:00 AM
Surr: Bromofluorobenzene	116	65-140	D	%REC	20	9/16/2015 5:20:00 PM

NOTES:

S - High surrogate recovery attributed to TPH interference. The method is in control as indicated by the Method Blank (MB) & Laboratory Control Sample (LCS).

Q - Indicates an analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Work Order: 1509194
CLIENT: Apex Laboratories
Project: A5I0181

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: **LCS-11845**	SampType: **LCS**			Units: **mg/Kg**		Prep Date: **9/15/2015**		RunNo: **24895**			
Client ID: **LCSS**	Batch ID: **11845**					Analysis Date: **9/16/2015**		SeqNo: **468958**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	30.4	2.00	30.00	0	101	70	130				
Aliphatic Hydrocarbon (C6-C8)	11.0	2.00	10.00	0	110	70	130				
Aliphatic Hydrocarbon (C8-C10)	9.96	2.00	10.00	0	99.6	70	130				
Aliphatic Hydrocarbon (C10-C12)	9.10	2.00	10.00	0	91.0	70	130				
Aromatic Hydrocarbon (C8-C10)	52.0	2.00	40.00	0	130	70	130				
Aromatic Hydrocarbon (C10-C12)	11.4	2.00	10.00	0	114	70	130				
Aromatic Hydrocarbon (C12-C13)	11.3	2.00	10.00	0	113	70	130				
Surr: 1,4-Difluorobenzene	3.16		2.500		126	65	140				
Surr: Bromofluorobenzene	2.88		2.500		115	65	140				

Sample ID: **MB-11845**	SampType: **MBLK**			Units: **mg/Kg**		Prep Date: **9/15/2015**		RunNo: **24895**			
Client ID: **MBLKS**	Batch ID: **11845**					Analysis Date: **9/16/2015**		SeqNo: **468959**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	ND	2.00		0	0						
Aliphatic Hydrocarbon (C6-C8)	ND	2.00		0	0						
Aliphatic Hydrocarbon (C8-C10)	ND	2.00		0	0						
Aliphatic Hydrocarbon (C10-C12)	ND	2.00		0	0						
Aromatic Hydrocarbon (C8-C10)	ND	2.00		0	0						
Aromatic Hydrocarbon (C10-C12)	ND	2.00		0	0						
Aromatic Hydrocarbon (C12-C13)	ND	2.00		0	0						
Surr: 1,4-Difluorobenzene	2.71		2.500		108	65	140				
Surr: Bromofluorobenzene	2.71		2.500		108	65	140				

Sample ID: **1509194-001ADUP**	SampType: **DUP**			Units: **mg/Kg**		Prep Date: **9/15/2015**		RunNo: **24895**			
Client ID: **B-18(3)**	Batch ID: **11845**					Analysis Date: **9/16/2015**		SeqNo: **468955**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	19.3	1.92		0	0			23.89	21.3	25	
Aliphatic Hydrocarbon (C6-C8)	58.2	1.92		0	0			65.70	12.1	25	E

Work Order: 1509194
CLIENT: Apex Laboratories
Project: A5I0181

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: **1509194-001ADUP** SampType: **DUP** Units: **mg/Kg** Prep Date: **9/15/2015** RunNo: **24895**
Client ID: **B-18(3)** Batch ID: **11845** Analysis Date: **9/16/2015** SeqNo: **468955**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	557	1.92		0	0			389.4	35.5	25	RE
Aliphatic Hydrocarbon (C10-C12)	474	1.92		0	0			474.9	0.182	25	E
Aromatic Hydrocarbon (C8-C10)	431	1.92		0	0			413.2	4.22	25	EQ
Aromatic Hydrocarbon (C10-C12)	355	1.92		0	0			362.1	2.03	25	E
Aromatic Hydrocarbon (C12-C13)	110	1.92		0	0			140.2	23.9	25	E
Surr: 1,4-Difluorobenzene	2.69		2.395		112	65	140		0		
Surr: Bromofluorobenzene	7.15		2.395		299	65	140		0	0	S

NOTES:
R - High RPD observed. The method is in control as indicated by the LCS.
S - High surrogate recovery attributed to TPH interference. The method is in control as indicated by the Method Blank (MB) & Laboratory Control Sample (LCS).
Q - Indicates an analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID: **1509194-002AMS** SampType: **MS** Units: **mg/Kg** Prep Date: **9/15/2015** RunNo: **24895**
Client ID: **B-18(9)** Batch ID: **11845** Analysis Date: **9/16/2015** SeqNo: **468956**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	38.4	1.78	53.29	0	72.1	70	130				
Aliphatic Hydrocarbon (C6-C8)	48.3	1.78	17.76	41.44	38.6	70	130				SE
Aliphatic Hydrocarbon (C8-C10)	237	1.78	17.76	177.6	336	70	130				SE
Aliphatic Hydrocarbon (C10-C12)	224	1.78	17.76	210.6	76.2	70	130				E
Aromatic Hydrocarbon (C8-C10)	295	1.78	71.05	264.4	43.3	70	130				SE
Aromatic Hydrocarbon (C10-C12)	156	1.78	17.76	154.8	8.92	70	130				SE
Aromatic Hydrocarbon (C12-C13)	46.9	1.78	17.76	43.79	17.5	70	130				S
Surr: 1,4-Difluorobenzene	2.44		2.220		110	65	140				
Surr: Bromofluorobenzene	5.27		2.220		237	65	140				S

NOTES:
S - Analyte concentration was too high for accurate spike recoveries.
S - High surrogate recovery attributed to TPH interference. The method is in control as indicated by the Method Blank (MB) & Laboratory Control Sample (LCS).

Sample Log-In Check List

Client Name:	**APEX**	Work Order Number:	**1509194**
Logged by:	**Clare Griggs**	Date Received:	**9/15/2015 3:10:00 PM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	UPS		

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all items received at a temperature of >0°C to 10.0°C *	Yes ☑	No ☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified:		Date:	
By Whom:		Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:			
Client Instructions:			

19. Additional remarks:

Sample jars not provided to conduct sample moisture check

Item Information

Item #	Temp ºC
Cooler	2.3
Sample	7.5
Temp Blank	8.5

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

SUBCONTRACT ORDER

Apex Laboratories

A5I0181

1509194

SENDING LABORATORY:

Apex Laboratories
12232 S.W. Garden Place
Tigard, OR 97223
Phone: (503) 718-2323
Fax: (503) 718-0333
Project Manager: Philip Nerenberg

RECEIVING LABORATORY:

Fremont Analytical
3600 Fremont Avenue N.
Seattle, WA 98103
Phone :(206) 352-3790
Fax: (206) 352-7178

Sample Name: B-18(3) **Soil** **Sampled: 09/03/15 11:00** (A5I0181-04)

Analysis	Due	Expires	Comments
NWTPH-VPH (Sub)	09/25/15 17:00	09/17/15 11:00	
Containers Supplied:			
(F)40 mL VOA - 5035 (MeOH)			

Sample Name: B-18(9) **Soil** **Sampled: 09/03/15 11:35** (A5I0181-06)

Analysis	Due	Expires	Comments
NWTPH-VPH (Sub)	09/25/15 17:00	09/17/15 11:35	
Containers Supplied:			
(F)40 mL VOA - 5035 (MeOH)			

Be sure weights are on VOAs.

STANDARD TAT

WATCH Expiration

Released By — Date — UPS (Shipper) — Received By — Date

Released By — Date — UPS (Shipper) — Received By — Date 09/15/15 3:10pm

Page 1 of 1

Apex Labs

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

Monday, September 28, 2015

Chris Rhea
EES Environmental Inc
240 N Broadway Ste 203
Portland, OR 97227

RE: PP112 / 1179-01

Enclosed are the results of analyses for work order A5I0188, which was received by the laboratory on 9/4/2015 at 11:40:00AM.

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

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

Apex Labs

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

EES Environmental Inc	Project: **PP112**	
240 N Broadway Ste 203	Project Number: 1179-01	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 14:46

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B-19 (3)	A5I0188-01	Soil	09/03/15 14:10	09/04/15 11:40
B-19 (6)	A5I0188-02	Soil	09/03/15 14:20	09/04/15 11:40
B-19 (9)	A5I0188-03	Soil	09/03/15 14:30	09/04/15 11:40
B-19 (12)	A5I0188-04	Soil	09/03/15 16:20	09/04/15 11:40
B-20 (6)	A5I0188-07	Soil	09/03/15 15:45	09/04/15 11:40
B-20 (9)	A5I0188-08	Soil	09/03/15 16:00	09/04/15 11:40
B-20 (12)	A5I0188-10	Soil	09/03/15 17:10	09/04/15 11:40

Apex Laboratories

Philip Nerenberg, Lab Director

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.

Apex Labs

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

EES Environmental Inc	Project: **PP112**	
240 N Broadway Ste 203	Project Number: 1179-01	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 14:46

ANALYTICAL SAMPLE RESULTS

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

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B-19 (3) (A5I0188-01)			**Matrix: Soil**		**Batch: 5090392**			
Gasoline Range Organics	ND	---	5.75	mg/kg dry	50	09/16/15 18:03	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 79 %*	*Limits: 50-150 %*	1	"	"	
1,4-Difluorobenzene (Sur)			*83 %*	*Limits: 50-150 %*	"	"	"	
B-19 (6) (A5I0188-02)			**Matrix: Soil**		**Batch: 5090205**			
Gasoline Range Organics	**8.40**	---	7.71	mg/kg dry	50	09/09/15 14:36	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 109 %*	*Limits: 50-150 %*	1	"	"	
1,4-Difluorobenzene (Sur)			*98 %*	*Limits: 50-150 %*	"	"	"	
B-19 (9) (A5I0188-03)			**Matrix: Soil**		**Batch: 5090205**			
Gasoline Range Organics	ND	---	7.91	mg/kg dry	50	09/09/15 15:01	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 108 %*	*Limits: 50-150 %*	1	"	"	
1,4-Difluorobenzene (Sur)			*97 %*	*Limits: 50-150 %*	"	"	"	
B-19 (12) (A5I0188-04)			**Matrix: Soil**		**Batch: 5090205**			
Gasoline Range Organics	ND	---	5.73	mg/kg dry	50	09/09/15 15:26	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 106 %*	*Limits: 50-150 %*	1	"	"	
1,4-Difluorobenzene (Sur)			*99 %*	*Limits: 50-150 %*	"	"	"	
B-20 (6) (A5I0188-07)			**Matrix: Soil**		**Batch: 5090205**			
Gasoline Range Organics	ND	---	5.90	mg/kg dry	50	09/09/15 15:51	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 108 %*	*Limits: 50-150 %*	1	"	"	
1,4-Difluorobenzene (Sur)			*99 %*	*Limits: 50-150 %*	"	"	"	
B-20 (9) (A5I0188-08RE1)			**Matrix: Soil**		**Batch: 5090244**			
Gasoline Range Organics	**475**	---	145	mg/kg dry	1000	09/10/15 12:17	NWTPH-Gx (MS)	F-13
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 127 %*	*Limits: 50-150 %*	1	"	"	
1,4-Difluorobenzene (Sur)			*104 %*	*Limits: 50-150 %*	"	"	"	
B-20 (12) (A5I0188-10RE1)			**Matrix: Soil**		**Batch: 5090244**			
Gasoline Range Organics	ND	---	5.67	mg/kg dry	50	09/10/15 11:53	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 108 %*	*Limits: 50-150 %*	1	"	"	
1,4-Difluorobenzene (Sur)			*103 %*	*Limits: 50-150 %*	"	"	"	

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

EES Environmental Inc	Project: **PP112**	
240 N Broadway Ste 203	Project Number: 1179-01	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 14:46

ANALYTICAL SAMPLE RESULTS

BTEX Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B-19 (6) (A5I0188-02)			**Matrix: Soil**		**Batch: 5090205**			
Benzene	ND	---	19.3	ug/kg dry	50	09/09/15 14:36	5035/8260B	
Toluene	ND	---	77.1	"	"	"	"	
Ethylbenzene	ND	---	38.6	"	"	"	"	
Xylenes, total	ND	---	116	"	"	"	"	
Surrogate: Dibromofluoromethane (Surr)			*Recovery: 105 %*	*Limits: 70-130 %*	1	"	"	
1,4-Difluorobenzene (Surr)			*104 %*	*Limits: 70-130 %*	"	"	"	
Toluene-d8 (Surr)			*102 %*	*Limits: 70-130 %*	"	"	"	
4-Bromofluorobenzene (Surr)			*100 %*	*Limits: 70-130 %*	"	"	"	
B-20 (9) (A5I0188-08)			**Matrix: Soil**		**Batch: 5090205**			
Benzene	ND	---	18.1	ug/kg dry	50	09/09/15 16:16	5035/8260B	
Toluene	ND	---	72.5	"	"	"	"	
Ethylbenzene	ND	---	36.2	"	"	"	"	
Xylenes, total	ND	---	109	"	"	"	"	
Surrogate: Dibromofluoromethane (Surr)			*Recovery: 106 %*	*Limits: 70-130 %*	1	"	"	
1,4-Difluorobenzene (Surr)			*103 %*	*Limits: 70-130 %*	"	"	"	
Toluene-d8 (Surr)			*95 %*	*Limits: 70-130 %*	"	"	"	
4-Bromofluorobenzene (Surr)			*96 %*	*Limits: 70-130 %*	"	"	"	

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503-718-2323 Phone
503-718-0333 Fax

EES Environmental Inc	Project: **PP112**	
240 N Broadway Ste 203	Project Number: 1179-01	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 14:46

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B-19 (3) (A5I0188-01)			**Matrix: Soil**		**Batch: 5090337**			
% Solids	**86.0**	---	1.00	% by Weight	1	09/15/15 09:07	EPA 8000C	
B-19 (6) (A5I0188-02)			**Matrix: Soil**		**Batch: 5090337**			
% Solids	**80.9**	---	1.00	% by Weight	1	09/15/15 09:07	EPA 8000C	
B-19 (9) (A5I0188-03)			**Matrix: Soil**		**Batch: 5090337**			
% Solids	**75.6**	---	1.00	% by Weight	1	09/15/15 09:07	EPA 8000C	
B-19 (12) (A5I0188-04)			**Matrix: Soil**		**Batch: 5090337**			
% Solids	**91.6**	---	1.00	% by Weight	1	09/15/15 09:07	EPA 8000C	
B-20 (6) (A5I0188-07)			**Matrix: Soil**		**Batch: 5090337**			
% Solids	**86.5**	---	1.00	% by Weight	1	09/15/15 09:07	EPA 8000C	
B-20 (9) (A5I0188-08)			**Matrix: Soil**		**Batch: 5090337**			
% Solids	**82.0**	---	1.00	% by Weight	1	09/15/15 09:07	EPA 8000C	
B-20 (12) (A5I0188-10)			**Matrix: Soil**		**Batch: 5090337**			
% Solids	**92.2**	---	1.00	% by Weight	1	09/15/15 09:07	EPA 8000C	

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

EES Environmental Inc	Project: **PP112**	
240 N Broadway Ste 203	Project Number: 1179-01	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 14:46

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 5090205 - EPA 5035A							Soil					
Blank (5090205-BLK1)					Prepared: 09/09/15 08:00		Analyzed: 09/09/15 10:31					
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	3.33	mg/kg wet	50	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 105 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*99 %*	*50-150 %*			*"*					
LCS (5090205-BS2)					Prepared: 09/09/15 08:00		Analyzed: 09/09/15 10:07					
NWTPH-Gx (MS)												
Gasoline Range Organics	23.5	---	5.00	mg/kg wet	50	25.0	---	94	70-130%	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 100 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*97 %*	*50-150 %*			*"*					
Duplicate (5090205-DUP1)					Prepared: 09/03/15 08:25		Analyzed: 09/09/15 12:33					
QC Source Sample: Other (A5I0181-01)												
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	5.19	mg/kg dry	50	---	ND	---	---	---	30%	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 104 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*102 %*	*50-150 %*			*"*					
Duplicate (5090205-DUP2)					Prepared: 09/09/15 14:26		Analyzed: 09/09/15 17:57					V-15
QC Source Sample: Other (A5I0226-01)												
NWTPH-Gx (MS)												
Gasoline Range Organics	**1460**	---	229	mg/kg dry	2000	---	2820	---	---	63	30%	Q-04
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 118 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*97 %*	*50-150 %*			*"*					
Batch 5090244 - EPA 5035A							Soil					
Blank (5090244-BLK1)					Prepared: 09/10/15 08:00		Analyzed: 09/10/15 11:04					
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	3.33	mg/kg wet	50	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 107 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*104 %*	*50-150 %*			*"*					
LCS (5090244-BS2)					Prepared: 09/10/15 08:00		Analyzed: 09/10/15 10:39					
NWTPH-Gx (MS)												
Gasoline Range Organics	21.6	---	5.00	mg/kg wet	50	25.0	---	86	70-130%	---	---	

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

EES Environmental Inc	Project: **PP112**	
240 N Broadway Ste 203	Project Number: 1179-01	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 14:46

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 5090244 - EPA 5035A												**Soil**
LCS (5090244-BS2)					Prepared: 09/10/15 08:00		Analyzed: 09/10/15 10:39					
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 97 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*102 %*	*50-150 %*			*"*					
Duplicate (5090244-DUP1)					Prepared: 09/08/15 14:06		Analyzed: 09/10/15 15:11					V-15
QC Source Sample: Other (A5I0185-12)												
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	5.99	mg/kg dry	50	---	ND	---	---	---	30%	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 122 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*106 %*	*50-150 %*			*"*					
Duplicate (5090244-DUP2)					Prepared: 09/08/15 14:06		Analyzed: 09/10/15 17:19					V-15
QC Source Sample: Other (A5I0185-16)												
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	6.65	mg/kg dry	50	---	ND	---	---	---	30%	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 124 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*111 %*	*50-150 %*			*"*					

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

EES Environmental Inc	Project: **PP112**	
240 N Broadway Ste 203	Project Number: 1179-01	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 14:46

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 5090392 - EPA 5035A									Soil			
Blank (5090392-BLK1)					Prepared: 09/16/15 08:32 Analyzed: 09/16/15 11:01							
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	3.33	mg/kg wet	50	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 95 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*97 %*	*50-150 %*			*"*					
LCS (5090392-BS2)					Prepared: 09/16/15 08:32 Analyzed: 09/16/15 10:37							
NWTPH-Gx (MS)												
Gasoline Range Organics	22.7	---	5.00	mg/kg wet	50	25.0	---	91	70-130%	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 92 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*98 %*	*50-150 %*			*"*					
Duplicate (5090392-DUP1)					Prepared: 09/11/15 19:15 Analyzed: 09/16/15 18:52							V-15
QC Source Sample: Other (A5I0331-02)												
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	6.04	mg/kg dry	50	---	ND	---	---	---	30%	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 78 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*85 %*	*50-150 %*			*"*					

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

EES Environmental Inc	Project: **PP112**	
240 N Broadway Ste 203	Project Number: 1179-01	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 14:46

QUALITY CONTROL (QC) SAMPLE RESULTS

BTEX Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5090205 - EPA 5035A							**Soil**					
Blank (5090205-BLK1)					Prepared: 09/09/15 08:00		Analyzed: 09/09/15 10:31					
5035/8260B												
Benzene	ND	---	8.33	ug/kg wet	50	---	---	---	---	---	---	
Toluene	ND	---	33.3	"	"	---	---	---	---	---	---	
Ethylbenzene	ND	---	16.7	"	"	---	---	---	---	---	---	
Xylenes, total	ND	---	50.0	"	"	---	---	---	---	---	---	
Surr: Dibromofluoromethane (Surr)			*Recovery: 108 %*		*Limits: 70-130 %*		*Dilution: 1x*					
1,4-Difluorobenzene (Surr)			*104 %*		*70-130 %*		*"*					
Toluene-d8 (Surr)			*101 %*		*70-130 %*		*"*					
4-Bromofluorobenzene (Surr)			*103 %*		*70-130 %*		*"*					
LCS (5090205-BS1)					Prepared: 09/09/15 08:00		Analyzed: 09/09/15 09:43					
5035/8260B												
Benzene	1010	---	12.5	ug/kg wet	50	1000	---	101	65-135%	---	---	
Toluene	988	---	50.0	"	"	"	---	99	"	---	---	
Ethylbenzene	995	---	25.0	"	"	"	---	100	"	---	---	
Xylenes, total	3120	---	75.0	"	"	3000	---	104	"	---	---	
Surr: Dibromofluoromethane (Surr)			*Recovery: 104 %*		*Limits: 70-130 %*		*Dilution: 1x*					
1,4-Difluorobenzene (Surr)			*100 %*		*70-130 %*		*"*					
Toluene-d8 (Surr)			*98 %*		*70-130 %*		*"*					
4-Bromofluorobenzene (Surr)			*98 %*		*70-130 %*		*"*					
Duplicate (5090205-DUP1)					Prepared: 09/03/15 08:25		Analyzed: 09/09/15 12:33					
QC Source Sample: Other (A5I0181-01)												
5035/8260B												
Benzene	ND	---	13.0	ug/kg dry	50	---	ND	---	---	---	30%	
Toluene	ND	---	51.9	"	"	---	ND	---	---	---	30%	
Ethylbenzene	ND	---	25.9	"	"	---	ND	---	---	---	30%	
Xylenes, total	ND	---	77.8	"	"	---	ND	---	---	---	30%	
Surr: Dibromofluoromethane (Surr)			*Recovery: 111 %*		*Limits: 70-130 %*		*Dilution: 1x*					
1,4-Difluorobenzene (Surr)			*105 %*		*70-130 %*		*"*					
Toluene-d8 (Surr)			*103 %*		*70-130 %*		*"*					
4-Bromofluorobenzene (Surr)			*102 %*		*70-130 %*		*"*					
Matrix Spike (5090205-MS1)					Prepared: 09/09/15 14:26		Analyzed: 09/09/15 20:02					V-15
QC Source Sample: Other (A5I0226-05)												
5035/8260B												

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

EES Environmental Inc	Project: **PP112**	
240 N Broadway Ste 203	Project Number: 1179-01	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 14:46

QUALITY CONTROL (QC) SAMPLE RESULTS

BTEX Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5090205 - EPA 5035A							**Soil**					
Matrix Spike (5090205-MS1)					Prepared: 09/09/15 14:26		Analyzed: 09/09/15 20:02					V-15
QC Source Sample: Other (A5I0226-05)												
Benzene	980	---	13.0	ug/kg dry	50	1040	ND	94	65-135%	---	---	
Toluene	980	---	51.9	"	"	"	ND	94	"	---	---	
Ethylbenzene	975	---	25.9	"	"	"	ND	94	"	---	---	
Xylenes, total	3030	---	77.8	"	"	3120	ND	97	"	---	---	
Surr: Dibromofluoromethane (Surr)			*Recovery: 105 %*		*Limits: 70-130 %*			*Dilution: 1x*				
1,4-Difluorobenzene (Surr)			*101 %*		*70-130 %*			*"*				
Toluene-d8 (Surr)			*101 %*		*70-130 %*			*"*				
4-Bromofluorobenzene (Surr)			*97 %*		*70-130 %*			*"*				

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503-718-0333 Fax

EES Environmental Inc	Project: **PP112**	
240 N Broadway Ste 203	Project Number: 1179-01	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 14:46

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 5090337 - Total Solids (Dry Weight)							**Soil**					
Duplicate (5090337-DUP1)					Prepared: 09/14/15 13:12		Analyzed: 09/15/15 09:07					
QC Source Sample: Other (A5I0346-03)												
EPA 8000C												
% Solids	**99.9**	---	1.00	% by Weight	1	---	99.9	---	---	0.01	10%	
Duplicate (5090337-DUP2)					Prepared: 09/14/15 14:11		Analyzed: 09/15/15 09:07					
QC Source Sample: B-20 (12) (A5I0188-10)												
EPA 8000C												
% Solids	**92.3**	---	1.00	% by Weight	1	---	92.2	---	---	0.09	10%	
Duplicate (5090337-DUP3)					Prepared: 09/14/15 14:11		Analyzed: 09/15/15 09:07					
QC Source Sample: Other (A5I0330-04)												
EPA 8000C												
% Solids	**87.5**	---	1.00	% by Weight	1	---	87.2	---	---	0.3	10%	
Duplicate (5090337-DUP4)					Prepared: 09/14/15 14:11		Analyzed: 09/15/15 09:07					
QC Source Sample: Other (A5I0343-08)												
EPA 8000C												
% Solids	**82.4**	---	1.00	% by Weight	1	---	82.7	---	---	0.3	10%	
Duplicate (5090337-DUP5)					Prepared: 09/14/15 17:20		Analyzed: 09/15/15 09:07					
QC Source Sample: Other (A5I0363-02)												
EPA 8000C												
% Solids	**85.6**	---	1.00	% by Weight	1	---	88.1	---	---	3	10%	
Duplicate (5090337-DUP6)					Prepared: 09/14/15 19:21		Analyzed: 09/15/15 09:07					
QC Source Sample: Other (A5I0373-02)												
EPA 8000C												
% Solids	**85.5**	---	1.00	% by Weight	1	---	85.8	---	---	0.3	10%	
Duplicate (5090337-DUP7)					Prepared: 09/14/15 19:21		Analyzed: 09/15/15 09:07					
QC Source Sample: Other (A5I0379-02)												
EPA 8000C												
% Solids	**82.0**	---	1.00	% by Weight	1	---	86.5	---	---	5	10%	
Duplicate (5090337-DUP8)					Prepared: 09/14/15 19:21		Analyzed: 09/15/15 09:07					

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Philip Nerenberg, Lab Director

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

EES Environmental Inc	Project: **PP112**	
240 N Broadway Ste 203	Project Number: 1179-01	**Reported:**
Portland, OR 97227	Project Manager: Chris Rhea	09/28/15 14:46

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 5090337 - Total Solids (Dry Weight)												**Soil**
Duplicate (5090337-DUP8)						Prepared: 09/14/15 19:21		Analyzed: 09/15/15 09:07				
QC Source Sample: Other (A5I0383-02)												
EPA 8000C												
% Solids	**94.3**	---	1.00	% by Weight	1	---	94.6	---	---	0.3	10%	

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SAMPLE PREPARATION INFORMATION

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: 5090205							
A5I0188-02	Soil	NWTPH-Gx (MS)	09/03/15 14:20	09/03/15 14:20	4.73g/5mL	10g/10mL	1.06
A5I0188-03	Soil	NWTPH-Gx (MS)	09/03/15 14:30	09/03/15 14:30	5.25g/5mL	10g/10mL	0.95
A5I0188-04	Soil	NWTPH-Gx (MS)	09/03/15 16:20	09/03/15 16:20	5.17g/5mL	10g/10mL	0.97
A5I0188-07	Soil	NWTPH-Gx (MS)	09/03/15 15:45	09/03/15 15:45	5.65g/5mL	10g/10mL	0.89
Batch: 5090244							
A5I0188-08RE1	Soil	NWTPH-Gx (MS)	09/03/15 16:00	09/03/15 16:00	4.96g/5mL	10g/10mL	1.01
A5I0188-10RE1	Soil	NWTPH-Gx (MS)	09/03/15 17:10	09/03/15 17:10	5.17g/5mL	10g/10mL	0.97
Batch: 5090392							
A5I0188-01	Soil	NWTPH-Gx (MS)	09/03/15 14:10	09/03/15 14:10	5.9g/5mL	10g/10mL	0.85

BTEX Compounds by EPA 8260B

Prep: EPA 5035A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 5090205							
A5I0188-02	Soil	5035/8260B	09/03/15 14:20	09/03/15 14:20	4.73g/5mL	10g/10mL	1.06
A5I0188-08	Soil	5035/8260B	09/03/15 16:00	09/03/15 16:00	4.96g/5mL	10g/10mL	1.01

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 5090337							
A5I0188-01	Soil	EPA 8000C	09/03/15 14:10	09/14/15 14:11	1N/A/1N/A	1N/A/1N/A	NA
A5I0188-02	Soil	EPA 8000C	09/03/15 14:20	09/14/15 14:11	1N/A/1N/A	1N/A/1N/A	NA
A5I0188-03	Soil	EPA 8000C	09/03/15 14:30	09/14/15 14:11	1N/A/1N/A	1N/A/1N/A	NA
A5I0188-04	Soil	EPA 8000C	09/03/15 16:20	09/14/15 14:11	1N/A/1N/A	1N/A/1N/A	NA
A5I0188-07	Soil	EPA 8000C	09/03/15 15:45	09/14/15 14:11	1N/A/1N/A	1N/A/1N/A	NA
A5I0188-08	Soil	EPA 8000C	09/03/15 16:00	09/14/15 14:11	1N/A/1N/A	1N/A/1N/A	NA
A5I0188-10	Soil	EPA 8000C	09/03/15 17:10	09/14/15 14:11	1N/A/1N/A	1N/A/1N/A	NA

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Notes and Definitions

Qualifiers:

F-13	The chromatographic pattern does not resemble the fuel standard used for quantitation
Q-04	Spike recovery and/or RPD is outside control limits due to a non-homogeneous sample matrix.
V-15	Sample aliquot was subsampled from the sample container. The subsampled aliquot was preserved in the laboratory within 48 hours of sampling.

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	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).

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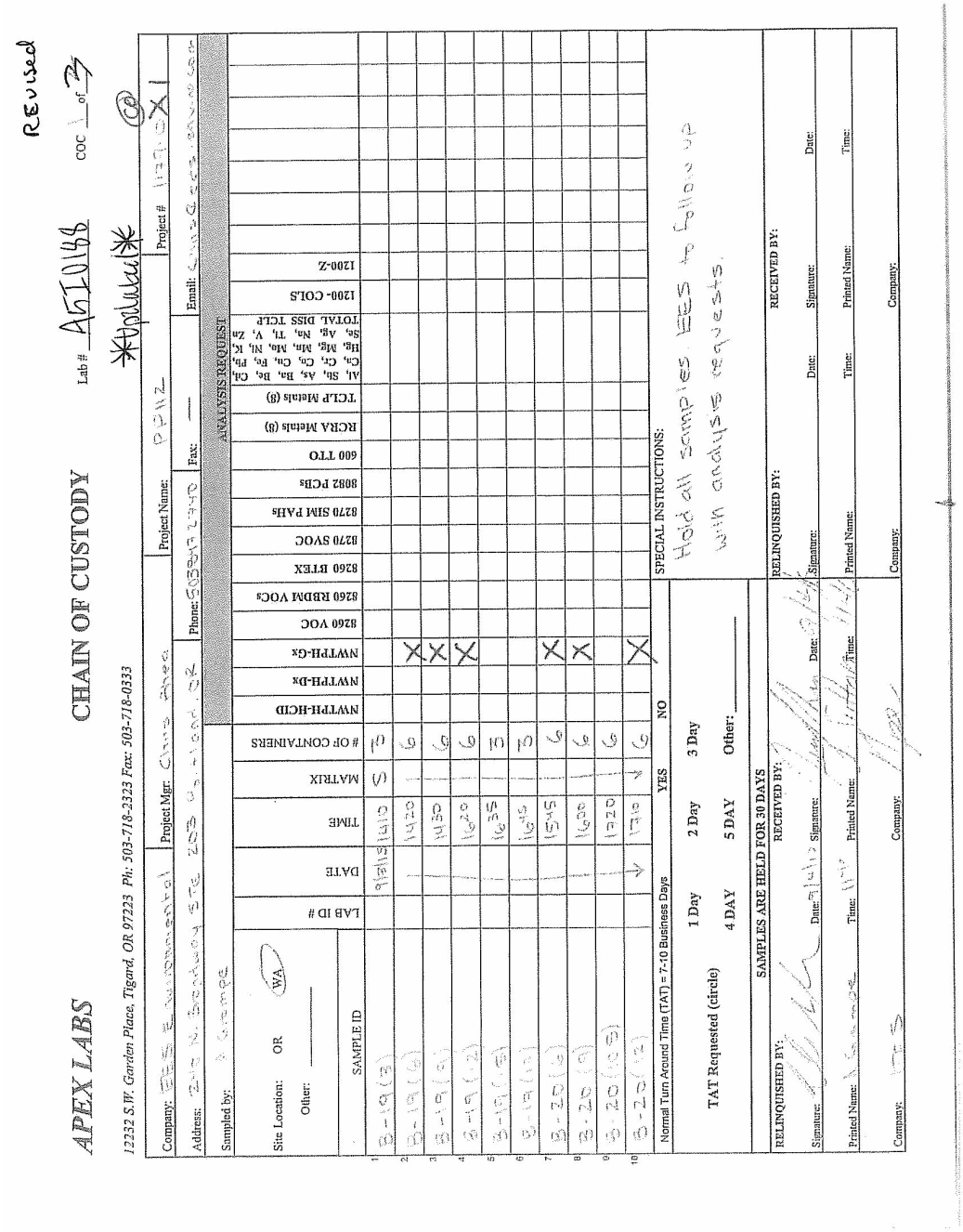

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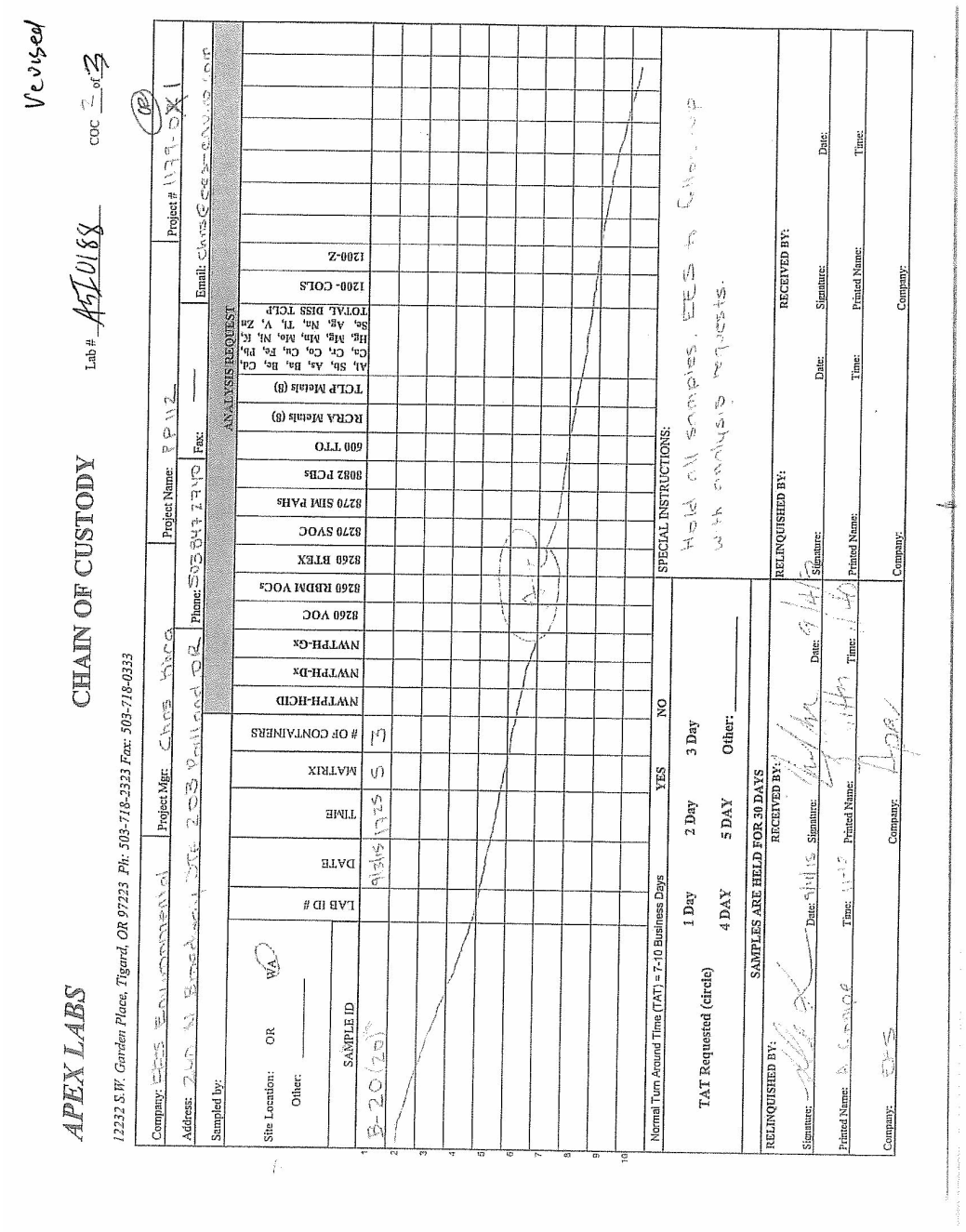

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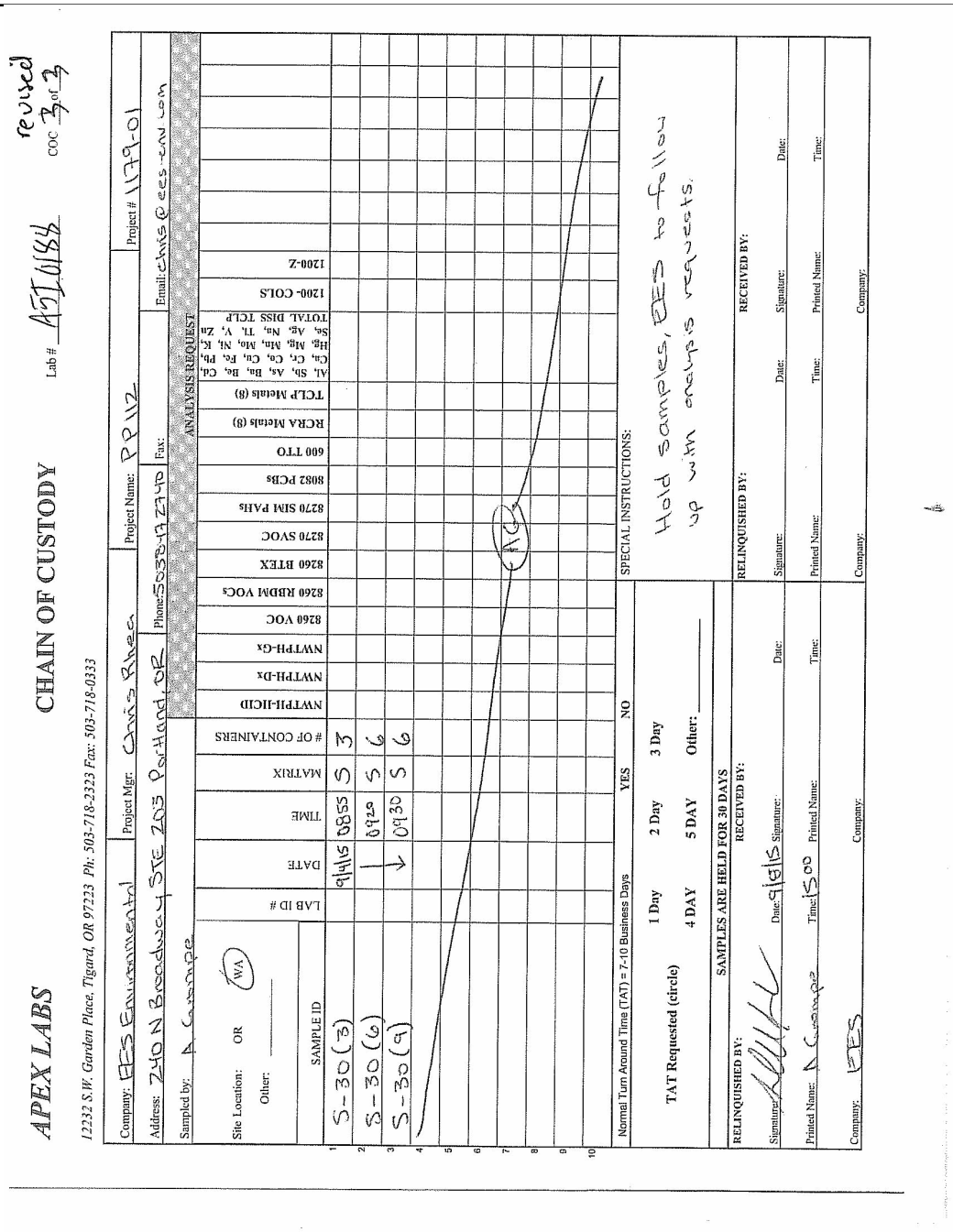

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