MEMORANDUM

Project No.: 150074

March 19, 2019

To: Andrew Smith, PE, LHG
UST/Technical Services Unit Supervisor, Toxic Cleanup Program
Washington State Department of Ecology, Southwest Regional Office

cc: Craig Gregory
Director of Public Works
City of Shelton

From:

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Re: **Shelton C Street Landfill -** Initial Remedial Investigation Data Submittal
Agreed Order No. DE12929

Aspect Consulting, LLC (Aspect) is submitting the attached documents to the Washington State Department of Ecology (Ecology) on behalf of the City of Shelton for the Shelton C Street Landfill. Work has been conducted at the Shelton C Street Landfill in accordance with Agreed Order No. DE 12929, the Final Remedial Investigation Work Plan, prepared by Aspect and dated April 21, 2017 (Work Plan) and the Work Plan Addendum dated November 9, 2018 (Addendum). The work conducted for the remedial investigation (RI) since the prior data submittal in January 2018 consists of the following:

1. Collecting and analyzing groundwater samples (Q2 sampling event) from the four monitoring wells installed in December 2017, and validation of all groundwater data obtained to date, including the full Level 4 data validation of dioxin/furan data. Tables 1 through 3 provide a summary of all validated groundwater data obtained to date. The laboratory analytical reports for the Q2 sampling event are provided as Attachment A.

   Non-detected dioxin/furan analytes from the January 2018 groundwater sampling shown in the attached Table 3 differs from those included in our prior RI data transmittal from January 2018. The January 2018 data transmittal presented pre-validated groundwater data. Over the course of the data validation, we determined that the values assigned to the non-detects by EQuIS for

export into our pre-validated summary data table were those of the reporting limits, rather than the detection limits. The January 2018 data was re-exported for preparation of the attached Table 3, to include non-detected dioxin/furan analytes represented by the detection limit. Calculated TEQ totals for the January 2018 dataset have similarly been updated accordingly and are correctly shown in the attached Table 3.

2. Gauging of groundwater monitoring wells and evaluation of the groundwater flow direction for December 2018, as shown on Figure 1, *Groundwater Potentiometric Map, December 20th*. The depicted groundwater flow direction is consistent with our conceptual site model.

3. Performing an initial soil gas survey, consisting of the collection and analysis of soil gas samples from five temporary vapor probes installed in December 2018, to investigate the potential presence of volatile organic compounds (VOCs) and landfill gas, and to evaluate the need for installation of permanent landfill gas monitoring wells. A summary of the analytical and field monitoring results are presented in Table 4. Laboratory analytical reports are provided in Attachment A. Soil vapor probe locations are shown in Figure 2, *Temporary Soil Gas Probe Locations* .

The next phase of work for the RI field activities include the Q3 groundwater sampling event, tentatively scheduled for April 1, 2019. Aspect is also in the process of drafting a memorandum that provides an updated Conceptual Site Model (CSM) based on the RI data obtained to date and presents the preliminary Remedial Action Alternatives proposed for evaluation in the Feasibility Study (FS). The memorandum will be submitted to Ecology for review and comment in late March 2019.

Please feel free to contact me at cbrock@aspectconsulting.com or (206) 838-6598 if you have any questions.

List of Attachments:

Table 1—Groundwater Data – Geochemistry, Total Petroleum Hydrocarbons, and Metals
Table 2—Groundwater Data – PAHs, SVOCs, and VOCs
Table 3—Groundwater Data – Dioxins/Furans, Pesticides/Herbicides, and PCBs
Table 4—Summary of Soil Gas Data
Figure 1—Groundwater Potentiometric Map, December 20th, 2018
Figure 2—Temporary Soil Gas Probe Locations
Attachment A—Laboratory Reports

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TABLES

Table 1. Groundwater Data - Geochemistry, Total Petroleum Hydrocarbons, and Metals

Project No. 150074, C-Street Landfill, Shelton, Washington

		Sample Location	AMW-1	AMW-1	AMW-2	AMW-2	AMW-3	AMW-3	AMW-4	AMW-4
		Date	01/12/2018	12/20/2018	01/12/2018	12/20/2018	01/12/2018	12/20/2018	01/12/2018	12/20/2018
		Sample Name	AMW-1-011218	AMW-1-122018	AMW-2-011218	AMW-2-122018	AMW-3-011218	AMW-3-122018	AMW-4-011218	AMW-4-122018
		DTW (feet BTOC)	83.07	89.13	83.3	88.52	100.1	104.97	81.22	86.56
		Water Level Elevation (feet NAVD88)	72.83	66.77	72.24	67.02	72.84	67.97	72.46	67.12
Analyte (by group)	**Units**	**Site-Specific Screening Level**								
Field Parameters										
Temperature	deg C	ne	**10.1**	**10.1**	**10.1**	**9.9**	**10.3**	**9.8**	**10.3**	**10.1**
Specific Conductance	uS/cm	ne	**219.8**	**271.1**	**232.6**	**245.5**	**252.2**	**465.4**	**730**	**504.4**
Dissolved Oxygen	mg/L	ne	**2.67**	**5.22**	**0.26**	**0.23**	**6.25**	**2.71**	**2.52**	**0.42**
pH	pH units	ne	**6.81**	**6.45**	**6.91**	**6.83**	**7.07**	**7.52**	**6.87**	**6.07**
Oxidation Reduction Potential	mV	ne	**106.6**	**78.6**	**41.2**	**57.6**	**146.7**	**68.7**	**191.4**	**116.7**
Turbidity	NTU	ne	**2.73**	**4.68**	**1.47**	**0.93**	**3.89**	**4.31**	**130**	**2.66**
Geochecmical Indicator Parameters										
Alkalinity, Total	mg/L	ne	**112**	**129**	**114**	**124**	**138**	**258**	**375**	**258**
Ammonia as Nitrogen	mg/L	ne	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Chloride	mg/L	250	**2.28**	**1.54**	**2.1**	**2.78**	**1.91**	**2.24**	**5.46**	**3.92**
Cyanide (total)	mg/L	0.0096	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U
Dissolved Organic Carbon	mg/L	ne	**18.1**	**2.11**	**21.6**	**12**	**15.3**	**3.83**	**54.4**	**3.9**
Nitrate as Nitrogen	mg/L	10	0.200 UJ	**2.64 E**	0.500 UJ	0.100 U	**0.858 J**	**1.47**	**1.39 J**	**0.406**
Nitrite as Nitrogen	mg/L	1	0.200 UJ	0.100 U	0.500 UJ	0.100 U	0.100 UJ	0.200 U	1.00 UJ	0.200 U
Sulfate	mg/L	250	**17.4**	**25.6**	**14.9**	**18.2**	**14**	**29.3**	**55.7**	**44.9**
Sulfide	mg/L	ne	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Total Petroleum Hydrocarbons										
Gasoline Range Organics	ug/L	1000	100 U	--	100 U	--	100 U	--	100 U	--
Diesel Range Organics	ug/L	500	50 U	50 U	50 U	50 U	50 U	50 U	**60 X**	50 U
Motor Oil Range Organics	ug/L	500	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U
Dissolved Metals										
Arsenic	ug/L	0.2	0.2 U	0.2 U	**0.291**	**0.236**	0.2 U	0.2 U	**0.24**	**0.23**
Barium	ug/L	2000	**3.98**	**5.06**	**4.65**	**2.35**	**2.4**	**4.58**	**25.3**	**18.6**
Cadmium	ug/L	5	0.1 U	1 U	0.1 U	1 U	0.1 U	1 U	0.1 U	1 U
Calcium	ug/L	ne	**30300**	**27100**	**31700**	**35200**	**30500**	**64500**	**67400**	**57800**
Chromium	ug/L	100	**0.699**	1 U	**0.909**	**1.4**	**0.86**	1 U	**1.72**	**1.02**
Copper	ug/L	640	**0.67**	5 U	**1.72**	5 U	**0.883**	5 U	**2.98**	5 U
Iron	ug/L	300	**114**	**114**	**463**	**231**	**128**	**189**	**235**	**275**
Lead	ug/L	15	0.1 U	1 U	0.1 U	1 U	0.1 U	1 U	0.1 U	1 U
Magnesium	ug/L	ne	**12400**	**9780**	**13900**	**14900**	**17700**	**37200**	**22000**	**17900**
Manganese	ug/L	50	**58.1**	**14.2**	**1140**	**1880**	**132**	**404**	**307**	**64.9**
Mercury	ug/L	2	0.1 U	1 U	0.1 U	1 U	0.1 U	1 U	0.1 U	1 U
Nickel	ug/L	100	**1.63**	**1.11**	**1.73**	**1.49**	**1.06**	**1.61**	**3.45**	**2.14**
Selenium	ug/L	50	0.5 U	1 U	0.5 U	1 U	0.5 U	1 U	**0.728**	1 U
Silver	ug/L	80	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U
Sodium	ug/L	ne	**4940**	**36900**	**5330**	**4870**	**3870**	**6190**	**76000**	**45200**
Zinc	ug/L	4800	4 U	5 U	4 U	5 U	4 U	5 U	4 U	5 U

Table 1. Groundwater Data - Geochemistry, Total Petroleum Hydrocarbons, and Metals

Project No. 150074, C-Street Landfill, Shelton, Washington

		Sample Location	AMW-1	AMW-1	AMW-2	AMW-2	AMW-3	AMW-3	AMW-4	AMW-4
		Date	01/12/2018	12/20/2018	01/12/2018	12/20/2018	01/12/2018	12/20/2018	01/12/2018	12/20/2018
		Sample Name	AMW-1-011218	AMW-1-122018	AMW-2-011218	AMW-2-122018	AMW-3-011218	AMW-3-122018	AMW-4-011218	AMW-4-122018
		DTW (feet BTOC)	83.07	89.13	83.3	88.52	100.1	104.97	81.22	86.56
		Water Level Elevation (feet NAVD88)	72.83	66.77	72.24	67.02	72.84	67.97	72.46	67.12
Analyte (by group)	**Units**	**Site-Specific Screening Level**								
Total Metals										
Arsenic	ug/L	0.2	0.2 U	0.2 U	**0.31**	**0.248**	0.2 U	0.2 U	**0.665**	**0.225**
Barium	ug/L	2000	**4.69**	**5.22**	**5.05**	**2.52**	**2.86**	**6.91**	**42.7**	**19.6**
Cadmium	ug/L	5	0.1 U	1 U	0.1 U	1 U	0.1 U	1 U	0.1 U	1 U
Calcium	ug/L	ne	**30600**	**25100**	**30900**	**35600**	**29800**	**66000**	**75000**	**61000**
Chromium	ug/L	100	**0.933**	**1.09**	**1.17**	**1.48**	**1.06**	**1.12**	**7.35**	**2.79**
Copper	ug/L	640	**1.08**	5 U	**2.26**	5 U	**1.08**	5 U	**9.27**	5 U
Iron	ug/L	300	**233**	**274**	**566**	**279**	**241**	**574**	**3250**	**1390**
Lead	ug/L	15	0.1 U	1 U	0.1 U	1 U	0.1 U	1 U	**0.334**	1 U
Magnesium	ug/L	ne	**12100**	**9080**	**13300**	**15400**	**16900**	**38700**	**23300**	**19200**
Manganese	ug/L	50	**71.4**	**15.9**	**1250**	**1970**	**130**	**2560**	**402**	**84**
Mercury	ug/L	2	0.1 U	1 U	0.1 U	1 U	0.1 U	1 U	0.1 U	1 U
Nickel	ug/L	100	**1.86**	**1.19**	**1.82**	**1.56**	**1.17**	**2.64**	**7.61**	**3.51**
Selenium	ug/L	50	0.5 U	1 U	0.5 U	1 U	0.5 U	1 U	**0.916**	1 U
Silver	ug/L	80	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U
Sodium	ug/L	ne	**4820**	**38600**	**4600**	**5020**	**3730**	**6770**	**73300**	**47600**
Zinc	ug/L	4800	4 U	5 U	4 U	5 U	4 U	5 U	**5.46**	5 U

Notes:

Bold indicates a detected concentration

Gray shading indicates a concentration that exceeds the Site-Specific Screening Level

ne = indicates not established or not applicable

-- = not analyzed.

U = the analyte was analyzed for, but was considered not detected at the reporting limit or reported value.

J = the analyte was detected above the reported quantitation limit, and the reported concentration was an estimated value.

UJ = the analyte was analyzed for, and the associated quantitation limit was an estimated value.

X = the sample chromatographic pattern does not resemble the fuel standard used for quantitation.

mg/L = miligrams per liter

ug/L = micrograms per liter

deg C = degrees Celsius

uS/cm = microSiemens per centimeter

mV = millivolts

NTU = Nephelometric Turbidity Units

DTW = depth to water

BTOC = below top of casing

Table 2. Groundwater Data - PAHs, SVOCs, and VOCs

Project No. 150074, C-Street Landfill, Shelton, Washington

		Sample Location	AMW-1	AMW-1	AMW-2	AMW-2	AMW-3	AMW-3	AMW-4	AMW-4
		Date	01/12/2018	12/20/2018	01/12/2018	12/20/2018	01/12/2018	12/20/2018	01/12/2018	12/20/2018
		Sample Name	AMW-1-011218	AMW-1-122018	AMW-2-011218	AMW-2-122018	AMW-3-011218	AMW-3-122018	AMW-4-011218	AMW-4-122018
		DTW (feet BTOC)	83.07	89.13	83.3	88.52	100.1	104.97	81.22	86.56
		Water Level Elevation (feet NAVD88)	72.83	66.77	72.24	67.02	72.84	67.97	72.46	67.12
Analyte (by group)	**Units**	**Site-Specific Screening Level**								
Polycyclic Aromatic Hydrocarbons										
1-Methylnaphthalene	ug/L	1.51	0.01 U	--	0.01 U	--	0.01 U	--	0.01 U	--
2-Methylnaphthalene	ug/L	32	0.01 U	--	0.01 U	--	0.01 U	--	0.01 U	--
Acenaphthene	ug/L	960	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Acenaphthylene	ug/L	ne	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Anthracene	ug/L	4800	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Benz(a)anthracene	ug/L	0.12	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Benzo(a)pyrene	ug/L	0.012	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Benzo(b)fluoranthene	ug/L	0.12	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Benzo(g,h,i)perylene	ug/L	ne	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Benzo(k)fluoranthene	ug/L	1.2	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Chrysene	ug/L	12	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Dibenzo(a,h)anthracene	ug/L	0.012	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Fluoranthene	ug/L	640	0.01 U	0.01 U	**0.014**	0.01 U	0.01 U	0.01 U	**0.01**	0.01 U
Fluorene	ug/L	640	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Indeno(1,2,3-cd)pyrene	ug/L	0.12	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Naphthalene	ug/L	160	**0.036**	0.1 U	**0.037**	0.1 U	**0.093**	0.1 U	**0.053**	0.1 U
Phenanthrene	ug/L	ne	0.01 U	0.01 U	**0.021**	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Pyrene	ug/L	480	0.01 U	0.01 U	**0.018**	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Total cPAHs TEQ (ND = 1/2 RDL)	ug/L	0.012	nd	nd	nd	nd	nd	nd	nd	nd
Semivolatile Organic Compounds										
4-Nitrophenol	ug/L	ne	0.748 UJ	--	0.749 UJ	--	0.749 UJ	--	0.749 UJ	--
2,4,5-Trichlorophenol	ug/L	800	0.5 U	--	0.5 U	--	0.5 U	--	0.5 U	--
2,4-Dichlorophenol	ug/L	24	0.5 U	--	0.5 U	--	0.5 U	--	0.5 U	--
2,4-Dimethylphenol	ug/L	160	0.5 U	--	0.5 U	--	0.5 U	--	0.5 U	--
2,4-Dinitrophenol	ug/L	32	1.5 U	--	1.5 U	--	1.5 U	--	1.5 U	--
2,4-Dinitrotoluene	ug/L	1	0.25 U	--	0.25 U	--	0.25 U	--	0.25 U	--
2,6-Dinitrotoluene	ug/L	1	0.25 U	--	0.25 U	--	0.25 U	--	0.25 U	--
2-Chloronaphthalene	ug/L	ne	0.05 U	--	0.05 U	--	0.05 U	--	0.05 U	--
2-Chlorophenol	ug/L	40	0.5 U	--	0.5 U	--	0.5 U	--	0.5 U	--
2-Methylphenol	ug/L	400	0.5 U	--	0.5 U	--	0.5 U	--	0.5 U	--
2-Nitroaniline	ug/L	160	0.25 U	--	0.25 U	--	0.25 U	--	0.25 U	--
2-Nitrophenol	ug/L	ne	0.5 U	--	0.5 U	--	0.5 U	--	0.5 U	--
3 & 4 Methylphenol	ug/L	ne	1 U	--	1 U	--	1 U	--	1 U	--
3-Nitroaniline	ug/L	ne	5 U	--	5 U	--	5 U	--	5 U	--
4,6-Dinitro-2-methylphenol	ug/L	ne	1.5 U	--	1.5 U	--	1.5 U	--	1.5 U	--
4-Bromophenyl phenyl ether	ug/L	ne	0.05 U	--	0.05 U	--	0.05 U	--	0.05 U	--
4-Chloro-3-methylphenol	ug/L	ne	0.5 U	--	0.5 U	--	0.5 U	--	0.5 U	--
4-Chloroaniline	ug/L	ne	5 U	--	5 U	--	5 U	--	5 U	--
4-Chlorophenyl phenyl ether	ug/L	ne	0.05 U	--	0.05 U	--	0.05 U	--	0.05 U	--
4-Nitroaniline	ug/L	ne	5 U	--	5 U	--	5 U	--	5 U	--
Benzoic acid	ug/L	64000	2.5 U	--	2.5 U	--	2.5 U	--	2.5 U	--
Benzyl alcohol	ug/L	800	0.5 U	--	0.5 U	--	0.5 U	--	0.5 U	--
Benzyl butyl phthalate	ug/L	46	0.5 U	--	0.5 U	--	0.5 U	--	0.5 U	--
Bis(2-chloro-1-methylethyl) ether	ug/L	ne	**0.05 J**	--	**0.061 J**	--	**0.053 J**	--	0.05 U	--
Bis(2-chloroethoxy)methane	ug/L	ne	0.05 U	--	0.05 U	--	0.05 U	--	0.05 U	--
Bis(2-chloroethyl) ether	ug/L	1	0.05 U	--	0.05 U	--	0.05 U	--	0.05 U	--

Table 2. Groundwater Data - PAHs, SVOCs, and VOCs

Project No. 150074, C-Street Landfill, Shelton, Washington

		Sample Location	AMW-1	AMW-1	AMW-2	AMW-2	AMW-3	AMW-3	AMW-4	AMW-4
		Date	01/12/2018	12/20/2018	01/12/2018	12/20/2018	01/12/2018	12/20/2018	01/12/2018	12/20/2018
		Sample Name	AMW-1-011218	AMW-1-122018	AMW-2-011218	AMW-2-122018	AMW-3-011218	AMW-3-122018	AMW-4-011218	AMW-4-122018
		DTW (feet BTOC)	83.07	89.13	83.3	88.52	100.1	104.97	81.22	86.56
		Water Level Elevation (feet NAVD88)	72.83	66.77	72.24	67.02	72.84	67.97	72.46	67.12
Analyte (by group)	**Units**	**Site-Specific Screening Level**								
Bis(2-ethylhexyl) phthalate	ug/L	6	0.8 U	--	0.8 U	--	0.8 U	--	0.8 U	--
Carbazole	ug/L	ne	0.5 U	--	0.5 U	--	0.5 U	--	0.5 U	--
Dibenzofuran	ug/L	16	0.05 U	--	0.05 U	--	0.05 U	--	0.05 U	--
Diethyl phthalate	ug/L	12800	0.5 U	--	0.5 U	--	0.5 U	--	0.5 U	--
Dimethyl phthalate	ug/L	ne	0.5 U	--	0.5 U	--	0.5 U	--	0.5 U	--
Di-n-butyl phthalate	ug/L	1600	0.5 U	--	0.5 U	--	0.5 U	--	0.5 U	--
Di-n-octyl phthalate	ug/L	160	0.5 U	--	0.5 U	--	0.5 U	--	0.5 U	--
Hexachlorobenzene	ug/L	0.0547	0.05 U	--	0.05 U	--	0.05 U	--	0.05 U	--
Hexachlorobutadiene	ug/L	0.56	0.05 U	0.2 U	0.05 U	0.2 U	0.05 U	0.2 U	0.05 U	0.2 U
Hexachlorocyclopentadiene	ug/L	48	0.15 U	--	0.15 U	--	0.15 U	--	0.15 U	--
Hexachloroethane	ug/L	1.1	0.05 U	--	0.05 U	--	0.05 U	--	0.05 U	--
Isophorone	ug/L	46	0.05 U	--	0.05 U	--	0.05 U	--	0.05 U	--
Nitrobenzene	ug/L	16	0.05 U	--	0.05 U	--	0.05 U	--	0.05 U	--
N-Nitroso-di-n-propylamine	ug/L	1	0.05 U	--	0.05 U	--	0.05 U	--	0.05 U	--
N-Nitrosodiphenylamine	ug/L	17.9	0.05 U	--	0.05 U	--	0.05 U	--	0.05 U	--
Pentachlorophenol	ug/L	10	0.5 U	--	0.5 U	--	0.5 U	--	0.5 U	--
Phenol	ug/L	2400	0.5 U	--	0.5 U	--	0.5 U	--	0.5 U	--
Volatile Organic Compounds										
1,1,1,2-Tetrachloroethane	ug/L	1.7	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U
1,1,1-Trichloroethane	ug/L	200	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U
1,1,2,2-Tetrachloroethane	ug/L	0.22	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,2-Trichloroethane	ug/L	0.77	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1-Dichloroethane	ug/L	7.68	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U
1,1-Dichloroethene	ug/L	7	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U
1,1-Dichloropropene	ug/L	ne	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U
1,2,3-Trichlorobenzene	ug/L	ne	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U
1,2,3-Trichloropropane	ug/L	0.5	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.2 U
1,2,4-Trichlorobenzene	ug/L	1.5	0.05 U	1 U	0.05 U	1 U	0.05 U	1 U	0.05 U	1 U
1,2,4-Trimethylbenzene	ug/L	ne	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U
1,2-Dibromo-3-chloropropane	ug/L	0.5	0.5 U	2 U	0.5 U	2 U	0.5 U	2 U	0.5 U	2 U
1,2-Dibromoethane (EDB)	ug/L	0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2-Dichlorobenzene	ug/L	600	0.05 U	1 U	0.05 U	1 U	0.05 U	1 U	0.05 U	1 U
1,2-Dichloroethane (EDC)	ug/L	0.48	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.2 U
1,2-Dichloropropane	ug/L	1.2	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U
1,3,5-Trimethylbenzene	ug/L	80	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U
1,3-Dichlorobenzene	ug/L	ne	0.05 U	1 U	0.05 U	1 U	0.05 U	1 U	0.05 U	1 U
1,3-Dichloropropane	ug/L	ne	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U
1,4-Dichlorobenzene	ug/L	8.1	0.05 U	1 U	0.05 U	1 U	0.05 U	1 U	0.05 U	1 U
2,2-Dichloropropane	ug/L	ne	0.5 U	1 U	0.5 U	1 U	0.5 U	1 U	0.5 U	1 U
2-Butanone	ug/L	4800	2 U	10 U	2 U	10 U	2 U	10 U	2 U	10 U
2-Chlorotoluene	ug/L	ne	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U

Table 2. Groundwater Data - PAHs, SVOCs, and VOCs

Project No. 150074, C-Street Landfill, Shelton, Washington

		Sample Location	AMW-1	AMW-1	AMW-2	AMW-2	AMW-3	AMW-3	AMW-4	AMW-4
		Date	01/12/2018	12/20/2018	01/12/2018	12/20/2018	01/12/2018	12/20/2018	01/12/2018	12/20/2018
		Sample Name	AMW-1-011218	AMW-1-122018	AMW-2-011218	AMW-2-122018	AMW-3-011218	AMW-3-122018	AMW-4-011218	AMW-4-122018
		DTW (feet BTOC)	83.07	89.13	83.3	88.52	100.1	104.97	81.22	86.56
		Water Level Elevation (feet NAVD88)	72.83	66.77	72.24	67.02	72.84	67.97	72.46	67.12
Analyte (by group)	**Units**	**Site-Specific Screening Level**								
2-Hexanone	ug/L	ne	2 U	10 U	2 U	10 U	2 U	10 U	2 U	10 U
4-Chlorotoluene	ug/L	ne	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U
4-Methyl-2-pentanone	ug/L	640	2 U	10 U	2 U	10 U	2 U	10 U	2 U	10 U
Acetone	ug/L	7200	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Benzene	ug/L	0.8	0.2 U	0.35 U	0.2 U	0.35 U	0.2 U	0.35 U	0.2 U	0.35 U
Bromobenzene	ug/L	ne	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U
Bromodichloromethane	ug/L	0.71	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Bromoform	ug/L	5.5	0.5 U	1 U	0.5 U	1 U	0.5 U	1 U	0.5 U	1 U
Bromomethane	ug/L	11.2	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	ug/L	0.63	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chlorobenzene	ug/L	100	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U
Chloroethane	ug/L	ne	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	ug/L	1.4	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U
Chloromethane	ug/L	ne	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U	0.5 U	10 U
cis-1,2-Dichloroethene (DCE)	ug/L	16	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U
cis-1,3-Dichloropropene	ug/L	ne	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Dibromochloromethane	ug/L	0.52	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Dibromomethane	ug/L	ne	0.5 U	1 U	0.5 U	1 U	0.5 U	1 U	0.5 U	1 U
Dichlorodifluoromethane	ug/L	ne	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	ug/L	700	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U
Isopropylbenzene	ug/L	800	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U
m,p-Xylenes	ug/L	1600	0.4 U	2 U	0.4 U	2 U	0.4 U	2 U	0.4 U	2 U
Methyl tert-butyl ether (MTBE)	ug/L	24.3	0.5 U	1 U	0.5 U	1 U	0.5 U	1 U	0.5 U	1 U
Methylene Chloride	ug/L	ne	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U
n-Hexane	ug/L	ne	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
n-Propylbenzene	ug/L	800	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U
o-Xylene	ug/L	1600	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U
p-Isopropyltoluene	ug/L	ne	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U
sec-Butylbenzene	ug/L	800	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U
Styrene	ug/L	100	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U
tert-Butylbenzene	ug/L	800	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U
Tetrachloroethene (PCE)	ug/L	5	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U
Toluene	ug/L	640	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U
Total Xylenes	ug/L	1600	0.4 U	2 U	0.4 U	2 U	0.4 U	2 U	0.4 U	2 U
trans-1,2-Dichloroethene	ug/L	100	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U
trans-1,3-Dichloropropene	ug/L	ne	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Trichloroethene (TCE)	ug/L	0.54	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Trichlorofluoromethane	ug/L	2400	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U
Vinyl Chloride	ug/L	0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U

Notes:

Bold indicates a detected concentration

Gray shading indicates a concentration that exceeds the Site-Specific Screening Level

ne = indicates not established or not applicable

-- = not analyzed.

U = the analyte was analyzed for, but was considered not detected at the reporting limit or reported value.

J = the analyte was detected above the reported quantitation limit, and the reported concentration was an estimated va

UJ = the analyte was analyzed for, and the associated quantitation limit was an estimated value.

X = the sample chromatographic pattern does not resemble the fuel standard used for quantitation.

DTW = depth to water

BTOC = below top of casing

nd = not detected

ug/L = micrograms per liter

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Table 3. Groundwater Data - Dioxins/Furans, Pesticides/Herbicides, and PCBs

Project No. 150074, C-Street Landfill, Shelton, Washington

		Sample Location	AMW-1	AMW-1	AMW-2	AMW-2	AMW-3	AMW-3	AMW-4	AMW-4
		Date	01/12/2018	12/20/2018	01/12/2018	12/20/2018	01/12/2018	12/20/2018	01/12/2018	12/20/2018
		Sample Name	AMW-1-011218	AMW-1-122018	AMW-2-011218	AMW-2-122018	AMW-3-011218	AMW-3-122018	AMW-4-011218	AMW-4-122018
		DTW (feet BTOC)	83.07	89.13	83.3	88.52	100.1	104.97	81.22	86.56
		Water Level Elevation (feet NAVD88)	72.83	66.77	72.24	67.02	72.84	67.97	72.46	67.12
Analyte (by group)	**Units**	**Site-Specific Screening Level**								
Dioxins/Furans										
Chlorinated di-benzi-p-dioxins (CDDs)										
2,3,7,8-TCDD	pg/L	30	0.510 U	1.13 U	0.692 U	1.06 U	0.665 U	0.952 U	0.585 U	0.914 U
1,2,3,7,8-PeCDD	pg/L	ne	1.02 U	1.74 U	1.64 U	1.98 U	0.959 U	1.82 U	1.07 U	1.46 U
1,2,3,4,7,8-HxCDD	pg/L	ne	1.36 U	2.05 U	1.87 U	2.92 U	2.06 U	2.49 U	2.03 U	1.83 U
1,2,3,6,7,8-HxCDD	pg/L	ne	1.45 U	1.89 U	1.88 U	3.13 U	2.00 U	2.61 U	1.92 U	2.02 U
1,2,3,7,8,9-HxCDD	pg/L	ne	1.36 U	1.84 U	1.82 U	2.83 U	1.97 U	2.39 U	1.91 U	1.80 U
1,2,3,4,6,7,8-HpCDD	pg/L	ne	2.29 U	3.62 U	3.18 U	3.60 U	2.62 U	3.27 U	**2.08 J**	3.29 U
OCDD	pg/L	ne	5.81 U	4.66 U	**22.2 J**	**11.4 J**	4.61 U	**5.61 J**	**15.5 J**	**10.6 J**
Total CDD TEQ (ND = 1/2 RDL)	pg/L	30	nd	nd	**1.46706 J**	**1.98542 J**	nd	**1.77853 J**	**1.14595 J**	**1.48913 J**
Chlorinated dibenzofurans (CDFs)										
2,3,7,8-TCDF	pg/L	ne	0.499 U	0.797 U	0.856 U	0.988 U	0.704 U	0.702 U	0.643 U	0.893 U
1,2,3,7,8-PeCDF	pg/L	ne	0.656 U	1.75 U	0.781 U	2.17 U	0.899 U	1.50 U	1.21 U	1.32 U
2,3,4,7,8-PeCDF	pg/L	ne	0.688 U	1.82 U	0.842 U	2.33 U	0.903 U	1.49 U	1.23 U	1.42 U
1,2,3,4,7,8-HxCDF	pg/L	ne	0.819 U	1.99 U	1.23 U	1.92 U	0.810 U	1.76 U	0.989 U	1.30 U
1,2,3,6,7,8-HxCDF	pg/L	ne	0.845 U	2.11 U	1.24 U	1.95 U	0.825 U	1.85 U	1.04 U	1.29 U
1,2,3,7,8,9-HxCDF	pg/L	ne	1.14 U	2.31 U	1.71 U	2.18 U	1.20 U	1.95 U	1.44 U	1.32 U
2,3,4,6,7,8-HxCDF	pg/L	ne	0.873 U	2.62 U	1.41 U	2.91 U	0.901 U	2.28 U	1.10 U	1.82 U
1,2,3,4,6,7,8-HpCDF	pg/L	ne	0.929 U	2.65 U	1.52 U	2.74 U	1.26 U	1.88 U	0.860 U	1.93 U
1,2,3,4,7,8,9-HpCDF	pg/L	ne	1.23 U	2.36 U	2.16 U	3.42 U	1.78 U	2.60 U	1.18 U	2.48 U
OCDF	pg/L	ne	1.48 U	3.30 U	3.22 U	4.86 U	2.14 U	3.59 U	2.63 U	3.46 U
Total CDF TEQ (ND = 1/2 RDL)	pg/L	30	nd	nd	nd	nd	nd	nd	nd	nd
Organochlorine Pesticides										
4,4'-DDD	ug/L	0.365	0.005 U	--	0.005 U	--	0.005 U	--	0.005 U	--
4,4'-DDE	ug/L	0.257	0.025 U	--	0.025 U	--	0.025 U	--	0.025 U	--
4,4'-DDT	ug/L	0.257	0.005 U	--	0.005 U	--	0.005 U	--	0.005 U	--
Aldrin	ug/L	0.005	0.005 U	--	0.005 U	--	0.005 U	--	0.005 U	--
Alpha-BHC	ug/L	ne	0.005 U	--	0.005 U	--	0.005 U	--	0.005 U	--
Beta-BHC	ug/L	ne	0.005 U	--	0.005 U	--	0.005 U	--	0.005 U	--
cis-Chlordane	ug/L	ne	0.005 U	--	0.005 U	--	0.005 U	--	0.005 U	--
Delta-BHC	ug/L	ne	0.005 U	--	0.005 U	--	0.005 U	--	0.005 U	--
Dieldrin	ug/L	0.0055	0.005 U	--	0.005 U	--	0.005 U	--	0.005 U	--
Endosulfan I	ug/L	96	0.005 U	--	0.005 U	--	0.005 U	--	0.005 U	--
Endosulfan II	ug/L	96	0.025 U	--	0.025 U	--	0.025 U	--	0.025 U	--
Endosulfan Sulfate	ug/L	ne	0.005 U	--	0.005 U	--	0.005 U	--	0.005 U	--
Endrin	ug/L	2	0.005 U	--	0.005 U	--	0.005 U	--	0.005 U	--
Endrin Aldehyde	ug/L	ne	0.025 U	--	0.025 U	--	0.025 U	--	0.025 U	--
Endrin ketone	ug/L	ne	0.005 U	--	0.005 U	--	0.005 U	--	0.005 U	--
Heptachlor	ug/L	0.0194	0.005 U	--	0.005 U	--	0.005 U	--	0.005 U	--
Heptachlor Epoxide	ug/L	0.005	0.005 U	--	0.005 U	--	0.005 U	--	0.005 U	--
Lindane	ug/L	0.0795	0.005 U	--	0.005 U	--	0.005 U	--	0.005 U	--
Methoxychlor	ug/L	40	0.005 U	--	0.005 U	--	0.005 U	--	0.005 U	--
Toxaphene	ug/L	0.0795	0.25 U	--	0.25 U	--	0.25 U	--	0.25 U	--
trans-Chlordane	ug/L	0.25	0.005 U	--	0.005 U	--	0.005 U	--	0.005 U	--

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Table 3. Groundwater Data - Dioxins/Furans, Pesticides/Herbicides, and PCBs

Project No. 150074, C-Street Landfill, Shelton, Washington

		Sample Location	AMW-1	AMW-1	AMW-2	AMW-2	AMW-3	AMW-3	AMW-4	AMW-4
		Date	01/12/2018	12/20/2018	01/12/2018	12/20/2018	01/12/2018	12/20/2018	01/12/2018	12/20/2018
		Sample Name	AMW-1-011218	AMW-1-122018	AMW-2-011218	AMW-2-122018	AMW-3-011218	AMW-3-122018	AMW-4-011218	AMW-4-122018
		DTW (feet BTOC)	83.07	89.13	83.3	88.52	100.1	104.97	81.22	86.56
		Water Level Elevation (feet NAVD88)	72.83	66.77	72.24	67.02	72.84	67.97	72.46	67.12
Analyte (by group)	**Units**	**Site-Specific Screening Level**								
Chlorinated Herbicides										
3,5-Dichlorobenzoic acid	ug/L	ne	4.99 U	--	4.99 U	--	4.99 U	--	5.00 U	--
Acifluorfen	ug/L	ne	4.24 U	--	4.24 U	--	4.25 U	--	4.25 U	--
Bentazone	ug/L	ne	2.69 U	--	2.70 U	--	2.70 U	--	2.70 U	--
Chloramben	ug/L	ne	1.20 U	--	1.20 U	--	1.20 U	--	1.20 U	--
Chlorthal-dimethyl	ug/L	ne	0.848 U	--	0.849 U	--	0.849 U	--	0.849 U	--
Picloram	ug/L	ne	0.499 U	--	0.499 U	--	0.499 U	--	0.500 U	--
2,4,5-T	ug/L	ne	0.997 U	--	0.998 U	--	0.999 U	--	0.999 U	--
2,4-D	ug/L	ne	1.99 U	--	2.00 U	--	2.00 U	--	2.00 U	--
2,4-DB	ug/L	128	2.99 U	--	2.99 U	--	3.00 U	--	3.00 U	--
Dalapon	ug/L	200	3.99 UJ	--	3.99 UJ	--	4.00 UJ	--	4.00 UJ	--
Dicamba	ug/L	480	4.49 U	--	4.49 U	--	4.49 U	--	4.50 U	--
Dichloroprop	ug/L	ne	0.997 U	--	0.998 U	--	0.999 U	--	0.999 U	--
Dinoseb	ug/L	7	3.74 U	--	3.74 U	--	3.75 U	--	3.75 U	--
MCPA	ug/L	ne	9.97 U	--	9.98 U	--	9.99 U	--	9.99 U	--
MCPP	ug/L	ne	9.97 U	--	9.98 U	--	9.99 U	--	9.99 U	--
Silvex	ug/L	50	0.598 U	--	0.599 U	--	0.599 U	--	0.599 U	--
Polychlorinated Biphenols										
Aroclor 1016	ug/L	1.1	0.025 U	--	0.025 U	--	0.025 U	--	0.025 U	--
Aroclor 1221	ug/L	ne	0.025 U	--	0.025 U	--	0.025 U	--	0.025 U	--
Aroclor 1232	ug/L	ne	0.025 U	--	0.025 U	--	0.025 U	--	0.025 U	--
Aroclor 1242	ug/L	ne	0.025 U	--	0.025 U	--	0.025 U	--	0.025 U	--
Aroclor 1248	ug/L	ne	0.025 U	--	0.025 U	--	0.025 U	--	0.025 U	--
Aroclor 1254	ug/L	0.044	0.025 U	--	0.025 U	--	0.025 U	--	0.025 U	--
Aroclor 1260	ug/L	0.044	0.025 U	--	0.025 U	--	0.025 U	--	0.025 U	--
Aroclor 1262	ug/L	ne	0.025 U	--	0.025 U	--	0.025 U	--	0.025 U	--
Aroclor 1268	ug/L	ne	0.025 U	--	0.025 U	--	0.025 U	--	0.025 U	--
Total PCBs (Sum of Aroclors)	ug/L	0.044	0.025 U	--	0.025 U	--	0.025 U	--	0.025 U	--

Notes:

Bold indicates a detected concentration.

Gray shading indicates a concentration that exceeds the Site-Specific Screening Level.

ne = indicates not established or not applicable.

U = the analyte was analyzed for, but was considered not detected at the reporting limit or reported value.

J = the analyte was detected above the reported quantitation limit, and the reported concentration was an estimated value.

UJ = the analyte was analyzed for, and the associated quantitation limit was an estimated value.

X = the sample chromatographic pattern does not resemble the fuel standard used for quantitation.

-- = not analyzed.

TEQ = Toxicity equivalent quotient. TEQs for total cPAHs and total dioxins/furans were calculated using the methodology and the toxicity equivalency factors (TEFs) prescribed in Washington State Model Toxics Control Act (MTCA) and WAC 173-340-708(8)(e).

TCDD = tetrachloro dibenzo-p-dioxin
PeCDD = entachloro dibenzo-p-dioxin
HxCDD = hexachloro dibenzo-p-dioxin
HpCDD = heptachloro dibenzo-p-dioxin
OCDD = octachloro dibenzo-p-dioxin
TCDF = tetrachloro dibenzofuran
PeCDF = pentachloro dibenzofuran
HxCDF = hexachlorodibenzofuran
HpCDF = heptachloro dibenzofuran
OCDF = octachlorodibenzofuran
DTW = depth to water
BTOC = below top of casing
pg/L = picograms per liter
ug/L = micrograms per liter

Table 4. Summary of Soil Gas Data

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Project No. 150074, C-Street Landfill, Shelton, Washington

Compound	Units	MTCA Method B Deep Soil Gas Screening Levels	Sample Location / Sample Date / Sample Name: SG-1 12/19/2018 SG-1-121918	SG-2 12/19/2018 SG-2-121918	SG-3 12/19/2018 SG-3-121918	SG-4 12/19/2018 SG-4-121918	SG-5 12/19/2018 SG-5-121918
FIELD DATA							
Methane	%	N/A	0.1	0	0	1.3	0.1
Carbon Dioxide	%	N/A	10.9	3.2	3.7	3.2	7.4
Oxygen	%	N/A	10.3	20.2	16	7.6	9.8
Hydrogen Sulfide	%	N/A	0	0	0	0	0
LABORATORY ANALYTICAL DATA							
Methane							
Methane	%	N/A	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Petroleum Hydrocarbons							
C5 - C8 Aliphatic Hydrocarbons	ug/m3	270000	**6300**	**410**	**910**	**23000 E**	**540**
C9 - C10 Aromatic Hydrocarbons	ug/m3	18000	190 U	40 U	37 U	360 U	37 U
C9 - C12 Aliphatic Hydrocarbons	ug/m3	14000	**330**	**110**	**550**	**1200**	**250**
Volatile Organic Compounds							
1,1,1-Trichloroethane	ug/m3	229000	4.1 U	0.87 U	0.82 U	8 U	0.82 U
1,1,2,2-Tetrachloroethane	ug/m3	4.31	1 U	0.22 U	0.21 U	2 U	0.21 U
1,1,2-Trichloroethane	ug/m3	15.6	0.82 U	0.17 U	0.16 U	1.6 U	0.16 U
1,1,2-Trichlorotrifluoroethane	ug/m3	1370000	5.7 U	1.2 U	1.1 U	11 U	1.1 U
1,1-Dichloroethane	ug/m3	156	3 U	0.65 U	0.61 U	5.9 U	**0.87**
1,1-Dichloroethene	ug/m3	9140	3 U	0.63 U	0.59 U	5.8 U	**1.3**
1,2,4-Trichlorobenzene	ug/m3	91.4	5.6 U	1.2 U	1.1 U	11 U	1.1 U
1,2,4-Trimethylbenzene	ug/m3	320	18 U	3.9 U	3.7 U	36 U	3.7 U
1,2-Dibromoethane (EDB)	ug/m3	0.417	0.58 U	0.12 U	0.12 U	1.1 U	0.12 U
1,2-Dichlorobenzene	ug/m3	9140	4.5 U	0.96 U	0.9 U	8.8 U	0.9 U
1,2-Dichloroethane (EDC)	ug/m3	9.62	0.3 U	0.065 U	**0.27**	0.59 U	0.061 U
1,2-Dichloropropane	ug/m3	25	1.7 U	0.37 U	0.35 U	3.4 U	0.35 U
1,3,5-Trimethylbenzene	ug/m3	ne	18 U	3.9 U	3.7 U	36 U	3.7 U
1,3-Butadiene	ug/m3	8.33	0.17 U	0.035 U	0.033 U	0.32 U	0.033 U
1,3-Dichlorobenzene	ug/m3	ne	4.5 U	0.96 U	0.9 U	8.8 U	0.9 U
1,4-Dichlorobenzene	ug/m3	22.7	1.8 U	0.38 U	0.36 U	3.5 U	0.36 U
1,4-Dioxane	ug/m3	ne	2.7 U	0.58 U	0.54 U	5.3 U	0.54 U
1-Propene	ug/m3	ne	**560 E**	**76 E**	**230 E**	**5500 E**	**380 E**
2,2,4-Trimethylpentane	ug/m3	ne	35 U	7.5 U	7 U	68 U	7 U
2-Butanone	ug/m3	229000	22 U	**23**	**37**	**180**	4.4 U
2-Chlorotoluene	ug/m3	ne	39 U	8.3 U	7.8 U	76 U	7.8 U
2-Hexanone	ug/m3	ne	31 U	6.6 U	6.1 U	60 U	6.1 U
4-Ethyltoluene	ug/m3	ne	18 U	3.9 U	3.7 U	36 U	3.7 U
4-Methyl-2-pentanone	ug/m3	137000	31 U	6.6 U	6.1 U	60 U	6.1 U
Acetone	ug/m3	ne	36 U	**140 E**	**200 E**	**410**	7.1 U
Acrolein	ug/m3	0.914	6.9 U	**4.5**	**9.8**	13 U	1.4 U
Allyl Chloride	ug/m3	ne	9.4 U	2 U	1.9 U	18 U	1.9 U
alpha-Chlorotoluene	ug/m3	5.1	0.39 U	0.083 U	0.078 U	0.76 U	**0.085**
Benzene	ug/m3	32.1	**62**	**7.3**	**26**	**220**	**38**
Bromodichloromethane	ug/m3	6.76	0.5 U	0.11 U	0.1 U	0.98 U	0.1 U
Bromoform	ug/m3	227	16 U	3.3 U	3.1 U	30 U	3.1 U
Bromomethane	ug/m3	229	12 U	2.5 U	2.3 U	23 U	2.3 U
Butane	ug/m3	ne	**2100 E**	**81**	**150 E**	**4200 E**	**300 E**
Carbon Disulfide	ug/m3	32000	47 U	10 U	9.3 U	**230**	9.3 U
Carbon Tetrachloride	ug/m3	41.7	4.7 U	1 U	**1.8**	9.2 U	0.94 U
Chlorobenzene	ug/m3	2290	3.5 U	0.74 U	0.69 U	6.7 U	**0.7**
Chloroethane	ug/m3	457000	20 U	4.2 U	4 U	39 U	4 U
Chloroform	ug/m3	10.9	0.37 U	**0.17**	**0.94**	0.71 U	0.073 U
Chloromethane	ug/m3	4110	15 U	3.3 U	3.1 U	30 U	3.1 U
cis-1,2-Dichloroethene (DCE)	ug/m3	ne	3 U	0.63 U	0.59 U	5.8 U	**3.5**
cis-1,3-Dichloropropene	ug/m3	ne	3.4 U	0.73 U	0.68 U	6.6 U	0.68 U
Cyclohexane	ug/m3	ne	52 U	**17**	**26**	**170**	10 U
Dibromochloromethane	ug/m3	9.26	0.64 U	0.14 U	0.13 U	1.2 U	0.13 U
Dichlorodifluoromethane	ug/m3	4570	**7.8**	**3.8**	**30**	**13**	**31**
Ethanol	ug/m3	ne	**760 E**	12 U	11 U	110 U	11 U
Ethyl acetate	ug/m3	ne	54 U	12 U	11 U	110 U	11 U
Ethylbenzene	ug/m3	45700	**4.9**	**5**	**4.9**	**15**	**8**
Freon 114	ug/m3	ne	**15**	**1.2**	**33**	**17**	**180**
Heptane	ug/m3	ne	**230**	**16**	**30**	**1100**	**8.2**
Hexachlorobutadiene	ug/m3	11.4	1.6 U	0.34 U	0.32 U	3.1 U	0.32 U
Isopropyl Alcohol	ug/m3	ne	65 UJ	14 UJ	13 UJ	130 UJ	13 UJ
Isopropylbenzene	ug/m3	18300	18 U	3.9 U	3.7 U	36 U	3.7 U
m,p-Xylenes	ug/m3	ne	**8.8**	**24**	**9.1**	**32**	**12**
Methyl Methacrylate	ug/m3	32000	31 U	6.6 U	6.1 U	60 U	6.1 U
Methyl tert-butyl ether (MTBE)	ug/m3	962	14 U	2.9 U	2.7 U	26 U	2.7 U
Methylene Chloride	ug/m3	25000	650 U	140 U	130 U	1300 U	130 U
Naphthalene	ug/m3	7.35	3.9 U	0.84 U	0.79 U	7.7 U	0.79 U
n-Hexane	ug/m3	32000	**790 E**	**27**	**51**	**1900 E**	**20**
Nonane	ug/m3	ne	39 U	8.4 U	**16**	**170**	7.9 U
n-Propylbenzene	ug/m3	ne	18 U	3.9 U	3.7 U	36 U	3.7 U
o-Xylene	ug/m3	4570	3.3 U	**8.8**	**2.9**	**12**	**4**
Pentane	ug/m3	ne	**1800 E**	**44**	**77**	**3100 E**	**61**
Styrene	ug/m3	45700	6.4 U	1.4 U	1.3 U	12 U	1.3 U
t-Butyl alcohol (TBA)	ug/m3	ne	91 U	19 U	18 U	180 U	18 U

Table 4. Summary of Soil Gas Data

DRAFT

Project No. 150074, C-Street Landfill, Shelton, Washington

		Sample Location	**SG-1**	**SG-2**	**SG-3**	**SG-4**	**SG-5**
		Sample Date	**12/19/2018**	**12/19/2018**	**12/19/2018**	**12/19/2018**	**12/19/2018**
		Sample Name	**SG-1-121918**	**SG-2-121918**	**SG-3-121918**	**SG-4-121918**	**SG-5-121918**
Compound	**Units**	**MTCA Method B Deep Soil Gas Screening Levels**					
Tetrachloroethene (PCE)	ug/m3	962	**120**	**100**	**67**	99 U	**14**
Tetrahydrofuran	ug/m3	ne	2.2 U	0.47 U	0.44 U	4.3 U	0.44 U
Toluene	ug/m3	229000	**19**	**9.9**	**26**	**160**	**34**
trans-1,2-Dichloroethene	ug/m3	ne	3 U	0.63 U	0.59 U	5.8 U	0.59 U
trans-1,3-Dichloropropene	ug/m3	ne	3.4 U	0.73 U	0.68 U	6.6 U	0.68 U
Trichloroethene (TCE)	ug/m3	37	**8.4**	0.43 U	0.4 U	**5.7**	**4.3**
Trichlorofluoromethane	ug/m3	32000	17 U	3.6 U	**5.3**	33 U	3.4 U
Vinyl Acetate	ug/m3	9140	53 U	11 U	11 U	100 U	11 U
Vinyl Bromide	ug/m3	ne	3.3 U	0.7 U	0.66 U	6.4 U	0.66 U
Vinyl Chloride	ug/m3	28	1.9 U	0.41 U	0.38 U	**20**	**2.2**

Notes:

Bold indicates detected concentrations of compounds

Gray shading indicates concentrations of compounds that exceed the Screening Level

E = reported concentration exceeds the calibration range

N/A = not applicable

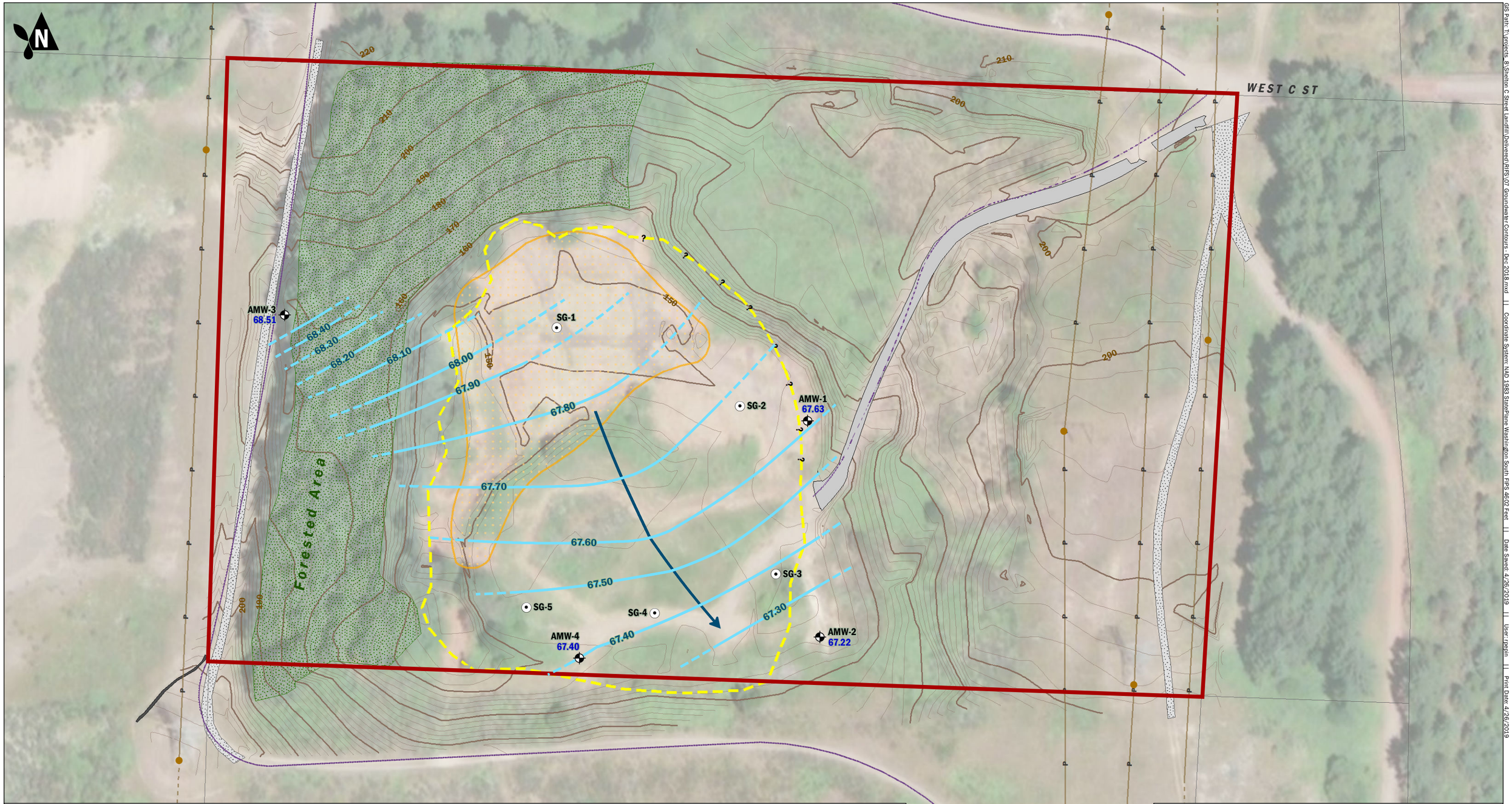
ne = not established

U = concentrations of the compound not detected above the stated laboratory reporting limit

UJ = concentrations of the compound not detcted above the standard reporting limit, the concentration is an estimate

ug/m3 = micrograms per cubic meter

FIGURES



Well Name AMW-1
Groundwater Elevation (ft NAVD88) 67.63

- Monitoring Well
- Temporary Soil Gas Probe
- Groundwater Elevation Contour (ft NAVD88)
- Inferred Groundwater Flow Direction
- Estimated Extent of Landfill Waste
- 1986 Sludge Disposal Area
- Landfill Parcel
- Forested Area
- Transmission Tower
- Transmission Line
- Access Road
- Asphalt Road
- Concrete Block Wall
- Gravel Road
- Tax Parcel

Note: All site feature locations are approximate. Topographic contours from PLS Survey October 2017. Aerial imagery from June 2017 Digital Globe Imagery.

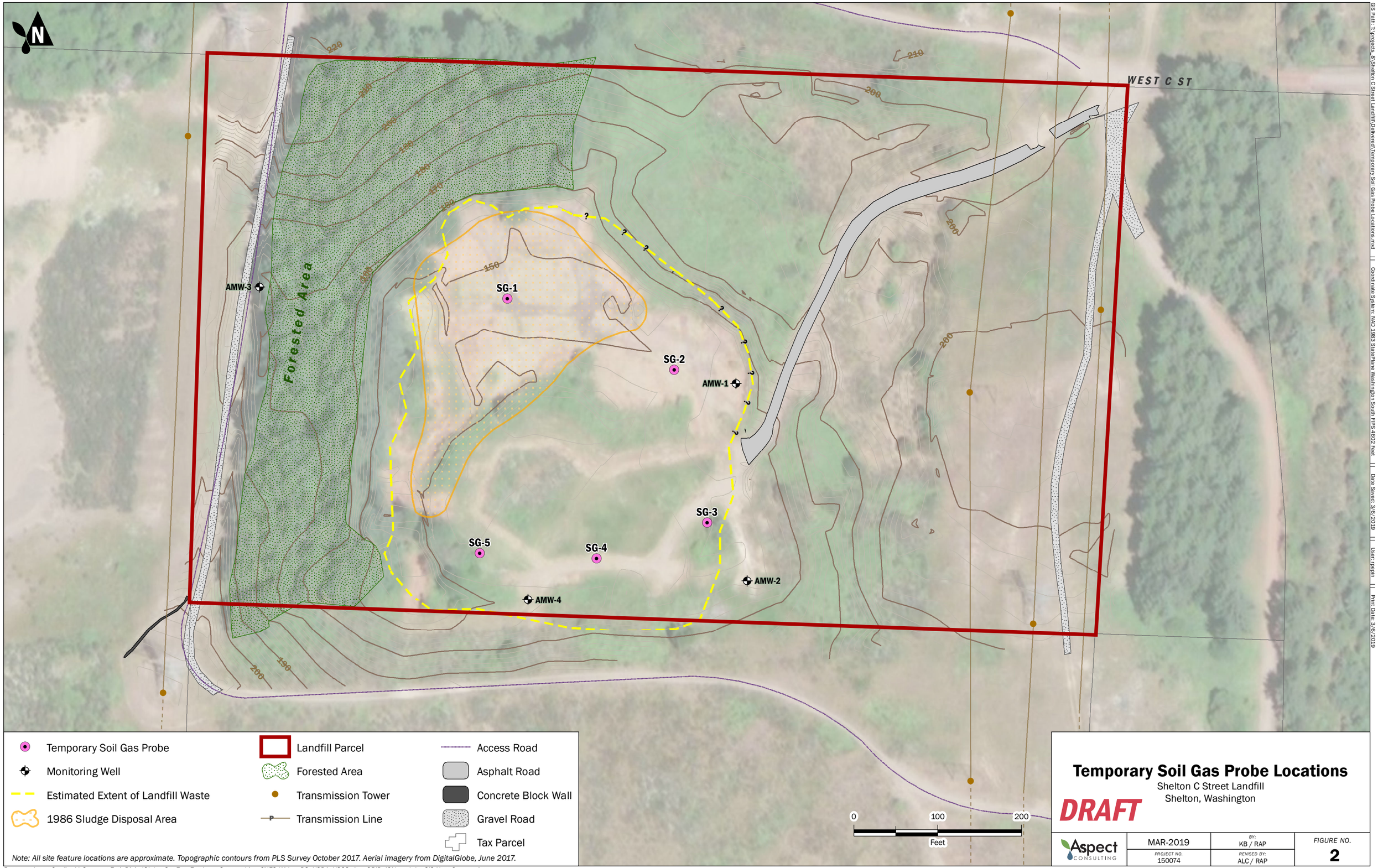
Basemap Layer Credits || Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Groundwater Potentiometric Map December 20th, 2018

DRAFT

Shelton C Street Landfill
Shelton, Washington

Aspect Consulting	APR-2019	BY: ALC / RAP	FIGURE NO. 1
	PROJECT NO. 150074	REVISED BY: ---	



Temporary Soil Gas Probe
Monitoring Well
Estimated Extent of Landfill Waste
1986 Sludge Disposal Area
Landfill Parcel
Forested Area
Transmission Tower
Transmission Line
Access Road
Asphalt Road
Concrete Block Wall
Gravel Road
Tax Parcel

Note: All site feature locations are approximate. Topographic contours from PLS Survey October 2017. Aerial imagery from DigitalGlobe, June 2017.

Temporary Soil Gas Probe Locations

Shelton C Street Landfill
Shelton, Washington

DRAFT

Aspect Consulting	MAR-2019	BY: KB / RAP	FIGURE NO. 2
	PROJECT NO. 150074	REVISED BY: ALC / RAP	

Basemap Layer Credits || Sources: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

GIS Path: T:\projects_8\Shelton C Street Landfill\Delivered\Temporary Soil Gas Probe Locations.mxd || Coordinate System: NAD 1983 StatePlane Washington South FIPS 4602 Feet || Date Saved: 3/6/2019 || User: rpipin || Print Date: 3/6/2019

ATTACHMENT A

Laboratory Reports

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

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January 4, 2019

Carla Brock, Project Manager
Aspect Consulting, LLC
401 2nd Ave S, Suite 201
Seattle, WA 98104

Dear Ms Brock:

Included are the results from the testing of material submitted on December 21, 2018 from the Shelton C St-Landfill 150074, F&BI 812310 project. There are 47 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Data Aspect, Kristin Beck
ASP0104R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on December 21, 2018 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC Shelton C St-Landfill 150074, F&BI 812310 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Aspect Consulting, LLC
812310 -01	AMW-1-122018
812310 -02	AMW-2-122018
812310 -03	AMW-3-122018
812310 -04	AMW-4-122018
812310 -05	AMW-5-122018
812310 -06	Trip Blank

The samples were sent to Fremont Analytical for nitrate, nitrite, sulfate, sulfide, alkalinity, chloride, dissolved organic carbon, ammonia, and cyanide analyses. The report is enclosed. In addition, the samples were sent to Frontier Analytical for dioxin and furan analysis. The report will be forwarded upon receipt.

The 8260C compound dibromochloromethane was reported between the method detection limit and the method reporting limit. The data were flagged accordingly.

All quality control requirements were acceptable.

Date of Report: 01/04/19
Date Received: 12/21/18
Project: Shelton C St-Landfill 150074, F&BI 812310
Date Extracted: 12/24/18
Date Analyzed: 12/24/18

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
AMW-1-122018 812310-01	<50	<250	118
AMW-2-122018 812310-02	<50	<250	92
AMW-3-122018 812310-03	<50	<250	115
AMW-4-122018 812310-04	<50	<250	122
AMW-5-122018 812310-05	<50	<250	98
Method Blank 08-2901 MB	<50	<250	101

Analysis For Total Metals By EPA Method 200.8

Client ID:	AMW-1-122018	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St-Landfill 150074
Date Extracted:	12/26/18	Lab ID:	812310-01 x100
Date Analyzed:	12/28/18	Data File:	812310-01 x100.065
Matrix:	Water	Instrument:	ICPMS2
Units:	mg/L (ppm)	Operator:	SP

Analyte:	Concentration mg/L (ppm)
Calcium	25.1
Magnesium	9.08

Analysis For Total Metals By EPA Method 200.8

Client ID:	AMW-2-122018	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St-Landfill 150074
Date Extracted:	12/26/18	Lab ID:	812310-02 x100
Date Analyzed:	12/28/18	Data File:	812310-02 x100.066
Matrix:	Water	Instrument:	ICPMS2
Units:	mg/L (ppm)	Operator:	SP

Analyte:	Concentration mg/L (ppm)
Calcium	35.6
Magnesium	15.4

Analysis For Total Metals By EPA Method 200.8

Client ID:	AMW-3-122018	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St-Landfill 150074
Date Extracted:	12/26/18	Lab ID:	812310-03 x100
Date Analyzed:	12/28/18	Data File:	812310-03 x100.067
Matrix:	Water	Instrument:	ICPMS2
Units:	mg/L (ppm)	Operator:	SP

Analyte:	Concentration mg/L (ppm)
Calcium	66.0
Magnesium	38.7

Analysis For Total Metals By EPA Method 200.8

Client ID:	AMW-4-122018	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St-Landfill 150074
Date Extracted:	12/26/18	Lab ID:	812310-04 x100
Date Analyzed:	12/28/18	Data File:	812310-04 x100.068
Matrix:	Water	Instrument:	ICPMS2
Units:	mg/L (ppm)	Operator:	SP

Analyte:	Concentration mg/L (ppm)
Calcium	61.0
Magnesium	19.2

Analysis For Total Metals By EPA Method 200.8

Client ID:	AMW-5-122018	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St-Landfill 150074
Date Extracted:	12/26/18	Lab ID:	812310-05 x100
Date Analyzed:	12/28/18	Data File:	812310-05 x100.069
Matrix:	Water	Instrument:	ICPMS2
Units:	mg/L (ppm)	Operator:	SP

Analyte:	Concentration mg/L (ppm)
Calcium	37.6
Magnesium	16.4

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	NA	Project:	Shelton C St-Landfill 150074
Date Extracted:	12/26/18	Lab ID:	I8-886 mb
Date Analyzed:	12/28/18	Data File:	I8-886 mb.054
Matrix:	Water	Instrument:	ICPMS2
Units:	mg/L (ppm)	Operator:	SP

Analyte:	Concentration mg/L (ppm)
Calcium	<0.05
Magnesium	<0.05

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	AMW-1-122018	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St-Landfill 150074
Date Extracted:	12/26/18	Lab ID:	812310-01 x10
Date Analyzed:	12/28/18	Data File:	812310-01 x10.057
Matrix:	Water	Instrument:	ICPMS2
Units:	mg/L (ppm)	Operator:	SP

Analyte:	Concentration mg/L (ppm)
Calcium	27.1
Magnesium	9.78

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	AMW-2-122018	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St-Landfill 150074
Date Extracted:	12/26/18	Lab ID:	812310-02 x100
Date Analyzed:	12/28/18	Data File:	812310-02 x100.060
Matrix:	Water	Instrument:	ICPMS2
Units:	mg/L (ppm)	Operator:	SP

Analyte:	Concentration mg/L (ppm)
Calcium	35.2
Magnesium	14.9

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	AMW-3-122018	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St-Landfill 150074
Date Extracted:	12/26/18	Lab ID:	812310-03 x100
Date Analyzed:	12/28/18	Data File:	812310-03 x100.061
Matrix:	Water	Instrument:	ICPMS2
Units:	mg/L (ppm)	Operator:	SP

Analyte:	Concentration mg/L (ppm)
Calcium	64.5
Magnesium	37.2

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	AMW-4-122018	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St-Landfill 150074
Date Extracted:	12/26/18	Lab ID:	812310-04 x100
Date Analyzed:	12/28/18	Data File:	812310-04 x100.062
Matrix:	Water	Instrument:	ICPMS2
Units:	mg/L (ppm)	Operator:	SP

Analyte:	Concentration mg/L (ppm)
Calcium	57.8
Magnesium	17.9

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	AMW-5-122018	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St-Landfill 150074
Date Extracted:	12/26/18	Lab ID:	812310-05 x100
Date Analyzed:	12/28/18	Data File:	812310-05 x100.063
Matrix:	Water	Instrument:	ICPMS2
Units:	mg/L (ppm)	Operator:	SP

Analyte:	Concentration mg/L (ppm)
Calcium	35.5
Magnesium	15.5

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	NA	Project:	Shelton C St-Landfill 150074
Date Extracted:	12/26/18	Lab ID:	I8-885 mb
Date Analyzed:	12/28/18	Data File:	I8-885 mb.043
Matrix:	Water	Instrument:	ICPMS2
Units:	mg/L (ppm)	Operator:	SP

Analyte:	Concentration mg/L (ppm)
Calcium	<0.05
Magnesium	<0.05

Analysis For Total Metals By EPA Method 6020B

Client ID:	AMW-1-122018	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St-Landfill 150074
Date Extracted:	12/26/18	Lab ID:	812310-01
Date Analyzed:	12/27/18	Data File:	812310-01.061
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<0.2
Barium	5.22
Cadmium	<1
Chromium	1.09
Copper	<5
Iron	274
Lead	<1
Manganese	15.9
Mercury	<1
Nickel	1.19
Selenium	<1
Silver	<1
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	AMW-2-122018	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St-Landfill 150074
Date Extracted:	12/26/18	Lab ID:	812310-02
Date Analyzed:	12/27/18	Data File:	812310-02.064
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	0.248
Barium	2.52
Cadmium	<1
Chromium	1.48
Copper	<5
Iron	279
Lead	<1
Manganese	1,970
Mercury	<1
Nickel	1.56
Selenium	<1
Silver	<1
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	AMW-3-122018	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St-Landfill 150074
Date Extracted:	12/26/18	Lab ID:	812310-03
Date Analyzed:	12/27/18	Data File:	812310-03.065
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<0.2
Barium	6.91
Cadmium	<1
Chromium	1.12
Copper	<5
Iron	574
Lead	<1
Manganese	2,560
Mercury	<1
Nickel	2.64
Selenium	<1
Silver	<1
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	AMW-4-122018	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St-Landfill 150074
Date Extracted:	12/26/18	Lab ID:	812310-04
Date Analyzed:	12/27/18	Data File:	812310-04.066
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	0.225
Barium	19.6
Cadmium	<1
Chromium	2.79
Copper	<5
Iron	1,390
Lead	<1
Manganese	84.0
Mercury	<1
Nickel	3.51
Selenium	<1
Silver	<1
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	AMW-5-122018	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St-Landfill 150074
Date Extracted:	12/26/18	Lab ID:	812310-05
Date Analyzed:	12/27/18	Data File:	812310-05.067
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<0.2
Barium	2.37
Cadmium	<1
Chromium	1.55
Copper	<5
Iron	317
Lead	<1
Manganese	1,910
Mercury	<1
Nickel	1.61
Selenium	<1
Silver	<1
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	NA	Project:	Shelton C St-Landfill 150074
Date Extracted:	12/26/18	Lab ID:	I8-888 mb
Date Analyzed:	12/27/18	Data File:	I8-888 mb.043
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<0.2
Barium	<1
Cadmium	<1
Chromium	<1
Copper	<5
Iron	<50
Lead	<1
Manganese	<1
Mercury	<1
Nickel	<1
Selenium	<1
Silver	<1
Zinc	<5

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	AMW-1-122018	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St-Landfill 150074
Date Extracted:	12/26/18	Lab ID:	812310-01
Date Analyzed:	12/27/18	Data File:	812310-01.054
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<0.2
Barium	5.06
Cadmium	<1
Chromium	<1
Copper	<5
Iron	114
Lead	<1
Manganese	14.2
Mercury	<1
Nickel	1.11
Selenium	<1
Silver	<1
Zinc	<5

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	AMW-2-122018	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St-Landfill 150074
Date Extracted:	12/26/18	Lab ID:	812310-02
Date Analyzed:	12/27/18	Data File:	812310-02.055
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	0.236
Barium	2.35
Cadmium	<1
Chromium	1.40
Copper	<5
Iron	231
Lead	<1
Manganese	1,880
Mercury	<1
Nickel	1.49
Selenium	<1
Silver	<1
Zinc	<5

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	AMW-3-122018	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St-Landfill 150074
Date Extracted:	12/26/18	Lab ID:	812310-03
Date Analyzed:	12/27/18	Data File:	812310-03.056
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<0.2
Barium	4.58
Cadmium	<1
Chromium	<1
Copper	<5
Iron	189
Lead	<1
Manganese	404
Mercury	<1
Nickel	1.61
Selenium	<1
Silver	<1
Zinc	<5

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	AMW-4-122018	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St-Landfill 150074
Date Extracted:	12/26/18	Lab ID:	812310-04
Date Analyzed:	12/27/18	Data File:	812310-04.059
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	0.230
Barium	18.6
Cadmium	<1
Chromium	1.02
Copper	<5
Iron	275
Lead	<1
Manganese	64.9
Mercury	<1
Nickel	2.14
Selenium	<1
Silver	<1
Zinc	<5

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	AMW-5-122018	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St-Landfill 150074
Date Extracted:	12/26/18	Lab ID:	812310-05
Date Analyzed:	12/27/18	Data File:	812310-05.060
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	0.220
Barium	2.33
Cadmium	<1
Chromium	1.34
Copper	<5
Iron	226
Lead	<1
Manganese	1,900
Mercury	<1
Nickel	1.51
Selenium	<1
Silver	<1
Zinc	<5

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	NA	Project:	Shelton C St-Landfill 150074
Date Extracted:	12/26/18	Lab ID:	I8-887 mb
Date Analyzed:	12/27/18	Data File:	I8-887 mb.052
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<0.2
Barium	<1
Cadmium	<1
Chromium	<1
Copper	<5
Iron	<50
Lead	<1
Manganese	<1
Mercury	<1
Nickel	<1
Selenium	<1
Silver	<1
Zinc	<5

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	AMW-1-122018	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St-Landfill 150074
Date Extracted:	12/24/18	Lab ID:	812310-01
Date Analyzed:	12/24/18	Data File:	122412.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	57	121
Toluene-d8	102	63	127
4-Bromofluorobenzene	101	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<0.2 j
Bromomethane	<1	1,2-Dibromoethane (EDB)	<0.2
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<0.2
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.2	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.2	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.2	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<2
cis-1,3-Dichloropropene	<0.2	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.2
trans-1,3-Dichloropropene	<0.2	Naphthalene	<1
1,1,2-Trichloroethane	<0.2	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	AMW-2-122018	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St-Landfill 150074
Date Extracted:	12/24/18	Lab ID:	812310-02
Date Analyzed:	12/24/18	Data File:	122413.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	57	121
Toluene-d8	102	63	127
4-Bromofluorobenzene	102	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<0.2 j
Bromomethane	<1	1,2-Dibromoethane (EDB)	<0.2
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<0.2
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.2	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.2	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.2	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<2
cis-1,3-Dichloropropene	<0.2	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.2
trans-1,3-Dichloropropene	<0.2	Naphthalene	<1
1,1,2-Trichloroethane	<0.2	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	AMW-3-122018	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St-Landfill 150074
Date Extracted:	12/24/18	Lab ID:	812310-03
Date Analyzed:	12/24/18	Data File:	122414.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	102	63	127
4-Bromofluorobenzene	100	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<0.2 j
Bromomethane	<1	1,2-Dibromoethane (EDB)	<0.2
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<0.2
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.2	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.2	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.2	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<2
cis-1,3-Dichloropropene	<0.2	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.2
trans-1,3-Dichloropropene	<0.2	Naphthalene	<1
1,1,2-Trichloroethane	<0.2	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	AMW-4-122018	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St-Landfill 150074
Date Extracted:	12/24/18	Lab ID:	812310-04
Date Analyzed:	12/24/18	Data File:	122415.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	57	121
Toluene-d8	103	63	127
4-Bromofluorobenzene	101	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<0.2 j
Bromomethane	<1	1,2-Dibromoethane (EDB)	<0.2
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<0.2
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.2	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.2	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.2	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<2
cis-1,3-Dichloropropene	<0.2	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.2
trans-1,3-Dichloropropene	<0.2	Naphthalene	<1
1,1,2-Trichloroethane	<0.2	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	AMW-5-122018	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St-Landfill 150074
Date Extracted:	12/24/18	Lab ID:	812310-05
Date Analyzed:	12/24/18	Data File:	122416.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	57	121
Toluene-d8	103	63	127
4-Bromofluorobenzene	100	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<0.2 j
Bromomethane	<1	1,2-Dibromoethane (EDB)	<0.2
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<0.2
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.2	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.2	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.2	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<2
cis-1,3-Dichloropropene	<0.2	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.2
trans-1,3-Dichloropropene	<0.2	Naphthalene	<1
1,1,2-Trichloroethane	<0.2	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Shelton C St-Landfill 150074
Date Extracted:	12/24/18	Lab ID:	08-2856 mb
Date Analyzed:	12/24/18	Data File:	122409A.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	57	121
Toluene-d8	93	63	127
4-Bromofluorobenzene	93	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<0.2 j
Bromomethane	<1	1,2-Dibromoethane (EDB)	<0.2
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<0.2
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.2	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.2	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.2	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<2
cis-1,3-Dichloropropene	<0.2	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.2
trans-1,3-Dichloropropene	<0.2	Naphthalene	<1
1,1,2-Trichloroethane	<0.2	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	AMW-1-122018	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St-Landfill 150074
Date Extracted:	12/26/18	Lab ID:	812310-01 1/0.5
Date Analyzed:	12/28/18	Data File:	122735.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	87	31	160
Benzo(a)anthracene-d12	89	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	AMW-2-122018	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St-Landfill 150074
Date Extracted:	12/26/18	Lab ID:	812310-02 1/0.5
Date Analyzed:	12/28/18	Data File:	122736.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	87	31	160
Benzo(a)anthracene-d12	90	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	AMW-3-122018	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St-Landfill 150074
Date Extracted:	12/26/18	Lab ID:	812310-03 1/0.5
Date Analyzed:	12/28/18	Data File:	122737.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	91	31	160
Benzo(a)anthracene-d12	70	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	AMW-4-122018	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St-Landfill 150074
Date Extracted:	12/26/18	Lab ID:	812310-04 1/0.5
Date Analyzed:	12/28/18	Data File:	122738.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	94	31	160
Benzo(a)anthracene-d12	86	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	AMW-5-122018	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St-Landfill 150074
Date Extracted:	12/26/18	Lab ID:	812310-05 1/0.5
Date Analyzed:	12/28/18	Data File:	122739.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	81	31	160
Benzo(a)anthracene-d12	75	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	0.14
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Shelton C St-Landfill 150074
Date Extracted:	12/26/18	Lab ID:	08-2898 mb2 1/0.5
Date Analyzed:	12/27/18	Data File:	122707.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	90	31	160
Benzo(a)anthracene-d12	96	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Date of Report: 01/04/19
Date Received: 12/21/18
Project: Shelton C St-Landfill 150074, F&BI 812310

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	96	112	63-142	15

Date of Report: 01/04/19
Date Received: 12/21/18
Project: Shelton C St-Landfill 150074, F&BI 812310

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Calcium	mg/L (ppm)	1.0	107	108	85-115	1
Magnesium	mg/L (ppm)	1.0	110	112	85-115	2

Date of Report: 01/04/19
Date Received: 12/21/18
Project: Shelton C St-Landfill 150074, F&BI 812310

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR DISSOLVED METALS USING EPA METHOD 200.8

Laboratory Code: 812310-01 x10 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Calcium	mg/L (ppm)	1.0	27.1	96	100	70-130	4
Magnesium	mg/L (ppm)	1.0	9.78	96	94	70-130	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Calcium	mg/L (ppm)	1.0	102	85-115
Magnesium	mg/L (ppm)	1.0	104	85-115

Date of Report: 01/04/19
Date Received: 12/21/18
Project: Shelton C St-Landfill 150074, F&BI 812310

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 6020B

Laboratory Code: 812348-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	0.827	111	115	75-125	4
Barium	ug/L (ppb)	50	5.57	108	111	75-125	3
Cadmium	ug/L (ppb)	5	<1	106	109	75-125	3
Chromium	ug/L (ppb)	20	<1	111	114	75-125	3
Copper	ug/L (ppb)	20	<5	104	106	75-125	2
Iron	ug/L (ppb)	100	80.3	98	99	75-125	1
Lead	ug/L (ppb)	10	<1	109	112	75-125	3
Manganese	ug/L (ppb)	20	3.92	110	112	75-125	2
Mercury	ug/L (ppb)	5	<1	103	104	75-125	1
Nickel	ug/L (ppb)	20	<1	105	107	75-125	2
Selenium	ug/L (ppb)	5	<1	115	118	75-125	3
Silver	ug/L (ppb)	5	<1	105	108	75-125	3
Zinc	ug/L (ppb)	50	6.10	104	107	75-125	3

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	103	80-120
Barium	ug/L (ppb)	50	102	80-120
Cadmium	ug/L (ppb)	5	102	80-120
Chromium	ug/L (ppb)	20	106	80-120
Copper	ug/L (ppb)	20	101	80-120
Iron	ug/L (ppb)	100	108	80-120
Lead	ug/L (ppb)	10	110	80-120
Manganese	ug/L (ppb)	20	106	80-120
Mercury	ug/L (ppb)	5	102	80-120
Nickel	ug/L (ppb)	20	101	80-120
Selenium	ug/L (ppb)	5	110	80-120
Silver	ug/L (ppb)	5	99	80-120
Zinc	ug/L (ppb)	50	101	80-120

Date of Report: 01/04/19
Date Received: 12/21/18
Project: Shelton C St-Landfill 150074, F&BI 812310

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR DISSOLVED METALS USING EPA METHOD 6020B

Laboratory Code: 812310-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	<0.2	108	113	75-125	5
Barium	ug/L (ppb)	50	4.58	101	108	75-125	7
Cadmium	ug/L (ppb)	5	<1	97	102	75-125	5
Chromium	ug/L (ppb)	20	<1	109	114	75-125	4
Copper	ug/L (ppb)	20	<5	93	97	75-125	4
Iron	ug/L (ppb)	100	189	118 b	140 b	75-125	17 b
Lead	ug/L (ppb)	10	<1	96	102	75-125	6
Manganese	ug/L (ppb)	20	404	203 b	319 b	75-125	44 b
Mercury	ug/L (ppb)	5	<1	93	99	75-125	6
Nickel	ug/L (ppb)	20	1.61	98	102	75-125	4
Selenium	ug/L (ppb)	5	<1	112	118	75-125	5
Silver	ug/L (ppb)	5	<1	84	90	75-125	7
Zinc	ug/L (ppb)	50	<5	95	99	75-125	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	106	80-120
Barium	ug/L (ppb)	50	106	80-120
Cadmium	ug/L (ppb)	5	107	80-120
Chromium	ug/L (ppb)	20	111	80-120
Copper	ug/L (ppb)	20	106	80-120
Iron	ug/L (ppb)	100	114	80-120
Lead	ug/L (ppb)	10	115	80-120
Manganese	ug/L (ppb)	20	110	80-120
Mercury	ug/L (ppb)	5	106	80-120
Nickel	ug/L (ppb)	20	106	80-120
Selenium	ug/L (ppb)	5	109	80-120
Silver	ug/L (ppb)	5	100	80-120
Zinc	ug/L (ppb)	50	106	80-120

Date of Report: 01/04/19
Date Received: 12/21/18
Project: Shelton C St-Landfill 150074, F&BI 812310

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 812310-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	50	<1	129	10-172
Chloromethane	ug/L (ppb)	50	<10	108	25-166
Vinyl chloride	ug/L (ppb)	50	<0.2	110	36-166
Bromomethane	ug/L (ppb)	50	<1	105	47-169
Chloroethane	ug/L (ppb)	50	<1	106	46-160
Trichlorofluoromethane	ug/L (ppb)	50	<1	104	44-165
Acetone	ug/L (ppb)	250	<50	85	10-182
1,1-Dichloroethene	ug/L (ppb)	50	<1	95	60-136
Hexane	ug/L (ppb)	50	<1	91	52-150
Methylene chloride	ug/L (ppb)	50	<5	90	67-132
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	93	74-127
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	93	72-129
1,1-Dichloroethane	ug/L (ppb)	50	<1	90	70-128
2,2-Dichloropropane	ug/L (ppb)	50	<1	80	36-154
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	93	71-127
Chloroform	ug/L (ppb)	50	<1	93	65-132
2-Butanone (MEK)	ug/L (ppb)	250	<10	91	10-129
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<0.2	92	69-133
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	97	60-146
1,1-Dichloropropene	ug/L (ppb)	50	<1	93	69-133
Carbon tetrachloride	ug/L (ppb)	50	<0.2	108	56-152
Benzene	ug/L (ppb)	50	<0.35	91	76-125
Trichloroethene	ug/L (ppb)	50	<0.2	90	66-135
1,2-Dichloropropane	ug/L (ppb)	50	<1	96	78-125
Bromodichloromethane	ug/L (ppb)	50	<0.2	99	61-150
Dibromomethane	ug/L (ppb)	50	<1	93	66-141
4-Methyl-2-pentanone	ug/L (ppb)	250	<10	103	10-185
cis-1,3-Dichloropropene	ug/L (ppb)	50	<0.2	95	72-132
Toluene	ug/L (ppb)	50	<1	88	76-122
trans-1,3-Dichloropropene	ug/L (ppb)	50	<0.2	90	76-130
1,1,2-Trichloroethane	ug/L (ppb)	50	<0.2	92	68-131
2-Hexanone	ug/L (ppb)	250	<10	89	10-185
1,3-Dichloropropane	ug/L (ppb)	50	<1	94	71-128
Tetrachloroethene	ug/L (ppb)	50	<1	93	10-226
Dibromochloromethane	ug/L (ppb)	50	<0.2 j	109	70-139
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<0.2	94	69-134
Chlorobenzene	ug/L (ppb)	50	<1	91	77-122
Ethylbenzene	ug/L (ppb)	50	<1	89	69-135
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	101	73-137
m,p-Xylene	ug/L (ppb)	100	<2	88	69-135
o-Xylene	ug/L (ppb)	50	<1	89	60-140
Styrene	ug/L (ppb)	50	<1	91	71-133
Isopropylbenzene	ug/L (ppb)	50	<1	89	65-142
Bromoform	ug/L (ppb)	50	<1	119	65-142
n-Propylbenzene	ug/L (ppb)	50	<1	89	58-144
Bromobenzene	ug/L (ppb)	50	<1	95	75-124
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<1	90	66-137
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<0.2	93	51-154
1,2,3-Trichloropropane	ug/L (ppb)	50	<0.2	91	53-150
2-Chlorotoluene	ug/L (ppb)	50	<1	88	66-127
4-Chlorotoluene	ug/L (ppb)	50	<1	88	65-130
tert-Butylbenzene	ug/L (ppb)	50	<1	88	65-137
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	91	59-146
sec-Butylbenzene	ug/L (ppb)	50	<1	87	64-140
p-Isopropyltoluene	ug/L (ppb)	50	<1	89	65-141
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	91	72-123
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	91	69-126
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	93	69-128
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<2	93	32-164
1,2,4-Trichlorobenzene	ug/L (ppb)	50	<1	90	66-136
Hexachlorobutadiene	ug/L (ppb)	50	<0.2	91	60-143
Naphthalene	ug/L (ppb)	50	<1	90	44-164
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	88	69-148

Date of Report: 01/04/19
Date Received: 12/21/18
Project: Shelton C St-Landfill 150074, F&BI 812310

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	131	133	25-158	2
Chloromethane	ug/L (ppb)	50	106	108	45-156	2
Vinyl chloride	ug/L (ppb)	50	108	113	50-154	5
Bromomethane	ug/L (ppb)	50	104	105	55-143	1
Chloroethane	ug/L (ppb)	50	109	108	58-146	1
Trichlorofluoromethane	ug/L (ppb)	250	108	108	50-150	0
Acetone	ug/L (ppb)	250	88	92	53-131	4
1,1-Dichloroethene	ug/L (ppb)	50	99	103	67-136	4
Hexane	ug/L (ppb)	50	95	97	57-137	2
Methylene chloride	ug/L (ppb)	50	93	95	39-148	2
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	92	93	64-147	1
trans-1,2-Dichloroethene	ug/L (ppb)	50	98	98	68-128	0
1,1-Dichloroethane	ug/L (ppb)	50	95	96	79-121	1
2,2-Dichloropropane	ug/L (ppb)	50	92	91	55-143	1
cis-1,2-Dichloroethene	ug/L (ppb)	50	98	97	80-123	1
Chloroform	ug/L (ppb)	50	99	98	80-121	1
2-Butanone (MEK)	ug/L (ppb)	250	91	95	57-149	4
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	93	96	73-132	3
1,1,1-Trichloroethane	ug/L (ppb)	50	98	100	83-130	2
1,1-Dichloropropene	ug/L (ppb)	50	99	98	77-129	1
Carbon tetrachloride	ug/L (ppb)	50	111	112	75-158	1
Benzene	ug/L (ppb)	50	93	93	69-134	0
Trichloroethene	ug/L (ppb)	50	92	92	80-120	0
1,2-Dichloropropane	ug/L (ppb)	50	96	98	77-123	2
Bromodichloromethane	ug/L (ppb)	50	102	102	81-133	0
Dibromomethane	ug/L (ppb)	50	93	95	82-125	2
4-Methyl-2-pentanone	ug/L (ppb)	250	98	103	65-138	5
cis-1,3-Dichloropropene	ug/L (ppb)	50	96	97	82-132	1
Toluene	ug/L (ppb)	50	92	91	72-122	1
trans-1,3-Dichloropropene	ug/L (ppb)	50	92	94	80-136	2
1,1,2-Trichloroethane	ug/L (ppb)	50	90	94	75-124	4
2-Hexanone	ug/L (ppb)	250	84	93	60-136	10
1,3-Dichloropropane	ug/L (ppb)	50	92	96	76-126	4
Tetrachloroethene	ug/L (ppb)	50	95	94	76-121	1
Dibromochloromethane	ug/L (ppb)	50	110	111	84-133	1
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	91	96	82-125	5
Chlorobenzene	ug/L (ppb)	50	93	93	83-114	0
Ethylbenzene	ug/L (ppb)	50	91	91	77-124	0
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	105	104	84-127	1
m,p-Xylene	ug/L (ppb)	100	90	91	83-125	1
o-Xylene	ug/L (ppb)	50	92	92	81-121	0
Styrene	ug/L (ppb)	50	91	93	84-119	2
Isopropylbenzene	ug/L (ppb)	50	92	92	85-117	0
Bromoform	ug/L (ppb)	50	119	120	74-136	1
n-Propylbenzene	ug/L (ppb)	50	93	92	74-126	1
Bromobenzene	ug/L (ppb)	50	95	95	80-121	0
1,3,5-Trimethylbenzene	ug/L (ppb)	50	93	92	78-123	1
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	96	98	66-126	2
1,2,3-Trichloropropane	ug/L (ppb)	50	91	95	67-124	4
2-Chlorotoluene	ug/L (ppb)	50	91	90	77-127	1
4-Chlorotoluene	ug/L (ppb)	50	91	92	78-128	1
tert-Butylbenzene	ug/L (ppb)	50	93	90	80-123	3
1,2,4-Trimethylbenzene	ug/L (ppb)	50	92	90	79-122	2
sec-Butylbenzene	ug/L (ppb)	50	92	90	80-125	2
p-Isopropyltoluene	ug/L (ppb)	50	92	91	81-123	1
1,3-Dichlorobenzene	ug/L (ppb)	50	93	93	85-116	0
1,4-Dichlorobenzene	ug/L (ppb)	50	92	92	84-121	0
1,2-Dichlorobenzene	ug/L (ppb)	50	94	93	85-116	1
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	98	96	57-141	2
1,2,4-Trichlorobenzene	ug/L (ppb)	50	86	88	72-130	2
Hexachlorobutadiene	ug/L (ppb)	50	90	90	53-141	0
Naphthalene	ug/L (ppb)	50	85	86	64-133	1
1,2,3-Trichlorobenzene	ug/L (ppb)	50	83	86	65-136	4

Date of Report: 01/04/19
Date Received: 12/21/18
Project: Shelton C St-Landfill 150074, F&BI 812310

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR PAHS BY EPA METHOD 8270D SIM

Laboratory Code: Laboratory Control Sample 1/0.5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	0.5	90	91	67-116	1
Acenaphthylene	ug/L (ppb)	0.5	104	103	65-119	1
Acenaphthene	ug/L (ppb)	0.5	98	98	66-118	0
Fluorene	ug/L (ppb)	0.5	109	108	64-125	1
Phenanthrene	ug/L (ppb)	0.5	91	91	67-120	0
Anthracene	ug/L (ppb)	0.5	96	95	65-122	1
Fluoranthene	ug/L (ppb)	0.5	97	98	65-127	1
Pyrene	ug/L (ppb)	0.5	100	100	62-130	0
Benz(a)anthracene	ug/L (ppb)	0.5	96	95	60-118	1
Chrysene	ug/L (ppb)	0.5	93	92	66-125	1
Benzo(b)fluoranthene	ug/L (ppb)	0.5	105	99	55-135	6
Benzo(k)fluoranthene	ug/L (ppb)	0.5	91	95	62-125	4
Benzo(a)pyrene	ug/L (ppb)	0.5	102	98	58-127	4
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	0.5	109	104	36-142	5
Dibenz(a,h)anthracene	ug/L (ppb)	0.5	99	87	37-133	13
Benzo(g,h,i)perylene	ug/L (ppb)	0.5	99	92	34-135	7

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

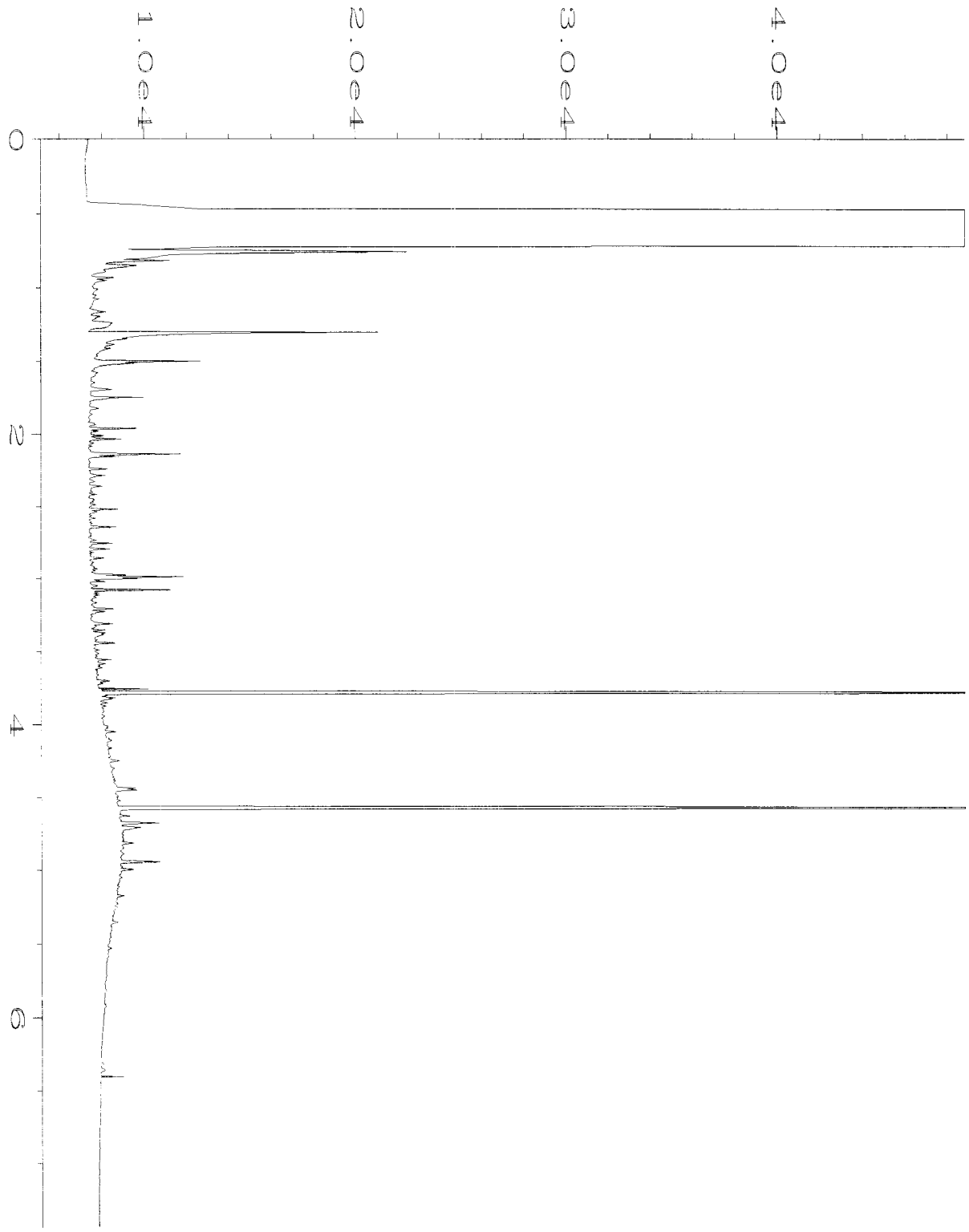
nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

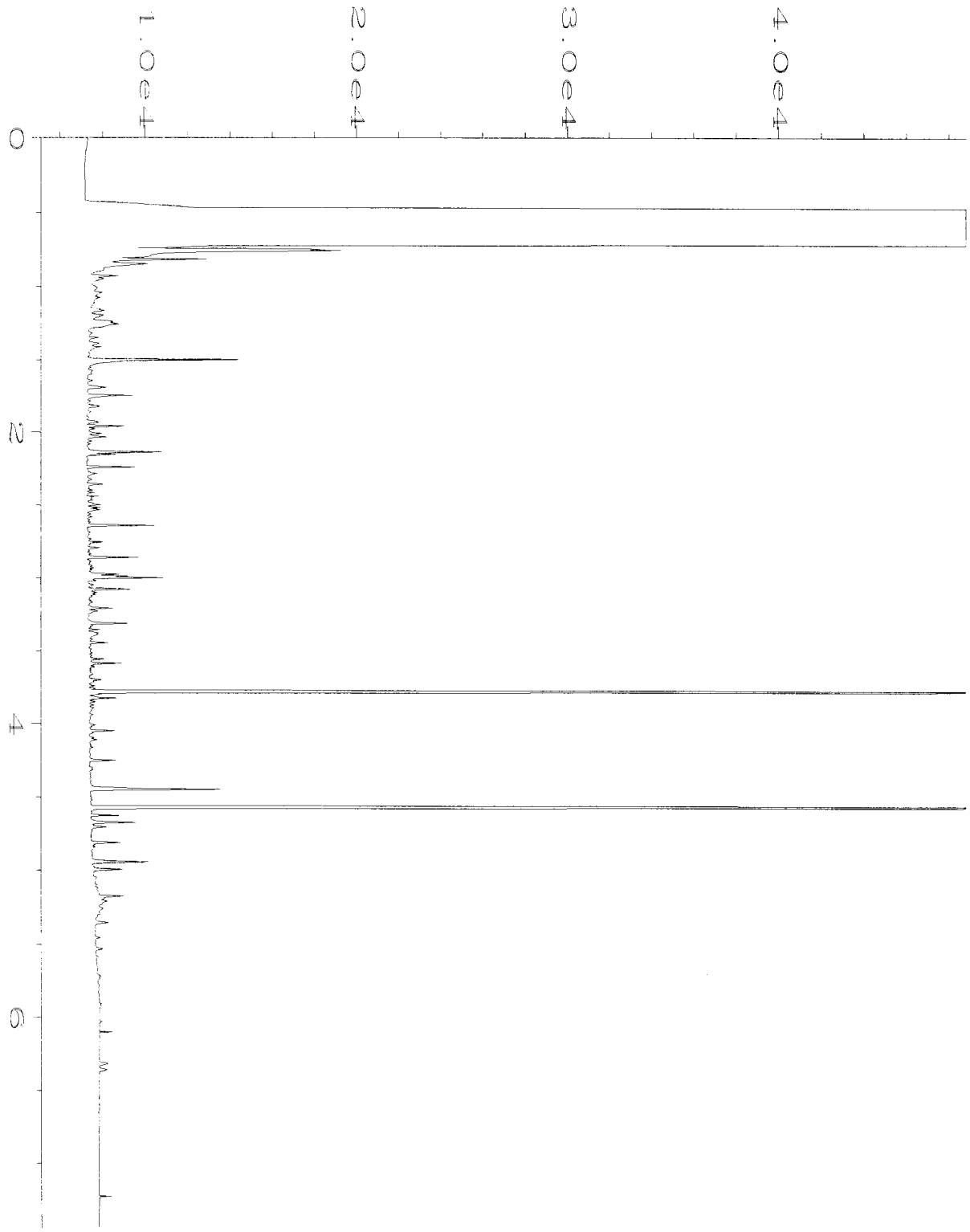
ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.



Data File Name	: C:\HPCHEM\1\DATA\12-24-18\012F0501.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 12
Sample Name	: 812310-01	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 5
Acquired on	: 24 Dec 18 11:53 AM	Instrument Method	: DX.MTH
Report Created on	: 26 Dec 18 08:40 AM	Analysis Method	: DX.MTH



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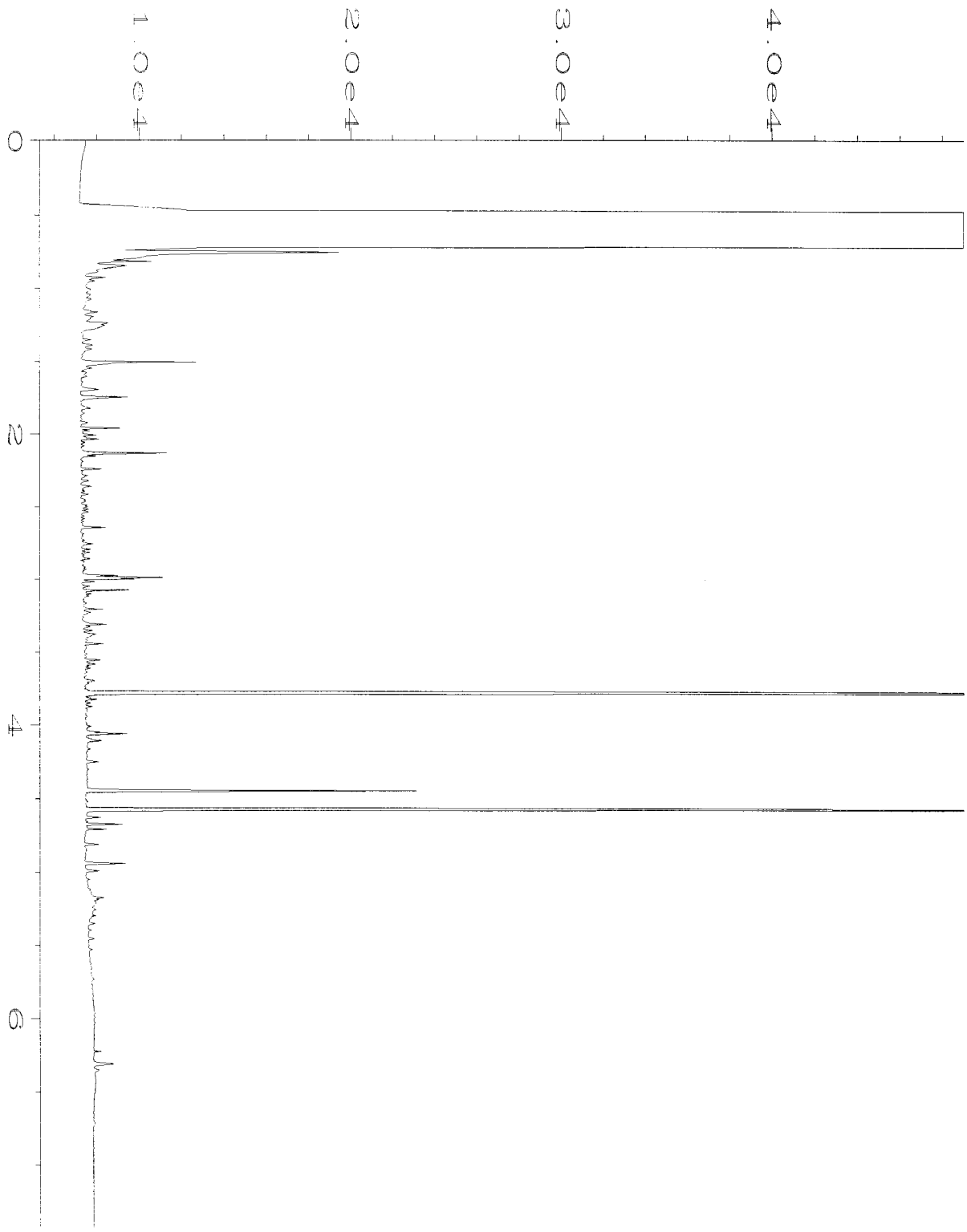
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 13
Sample Name	: 812310-02	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 5
Acquired on	: 24 Dec 18 12:05 PM	Instrument Method	: DX.MTH
Report Created on	: 26 Dec 18 08:40 AM	Analysis Method	: DX.MTH



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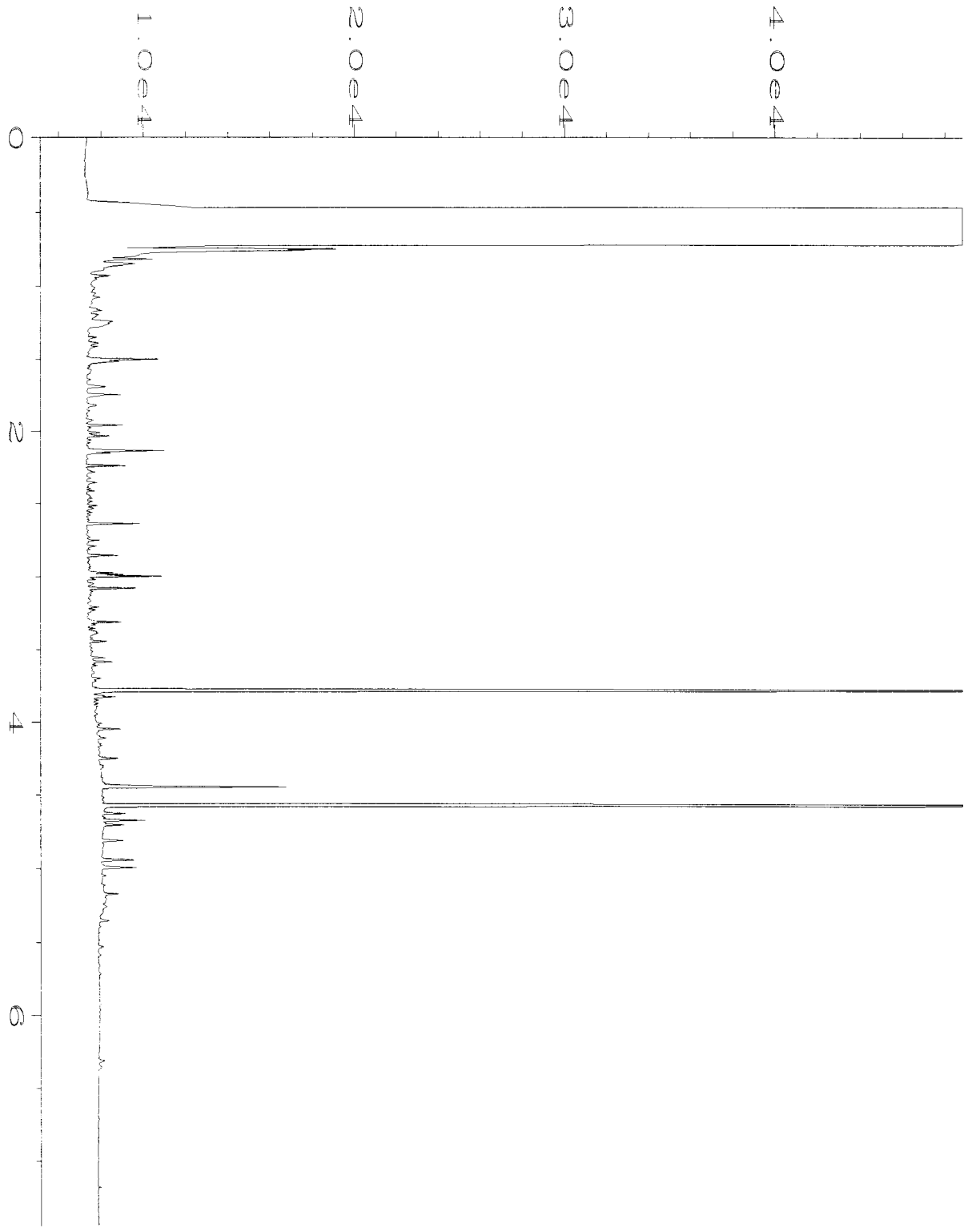
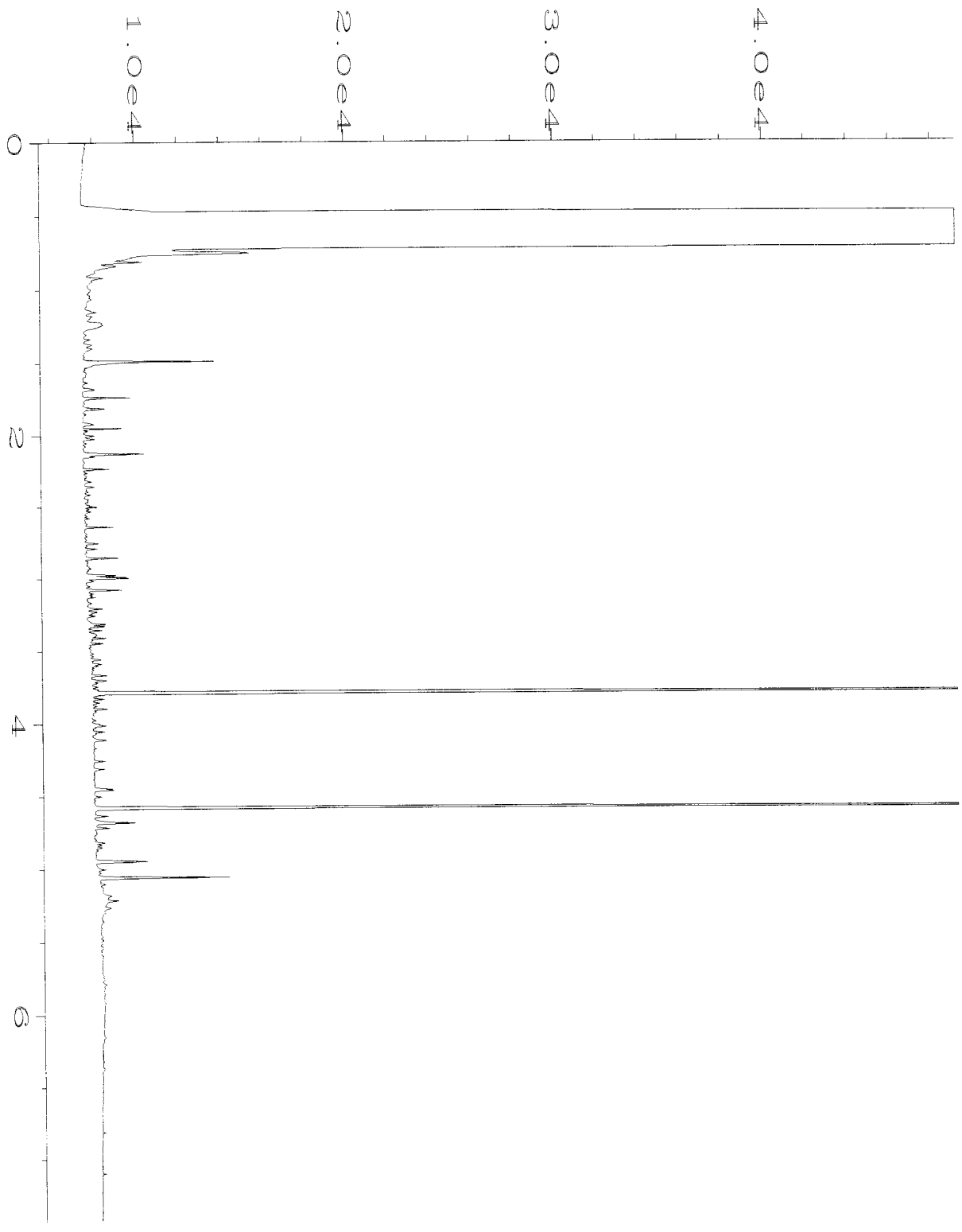
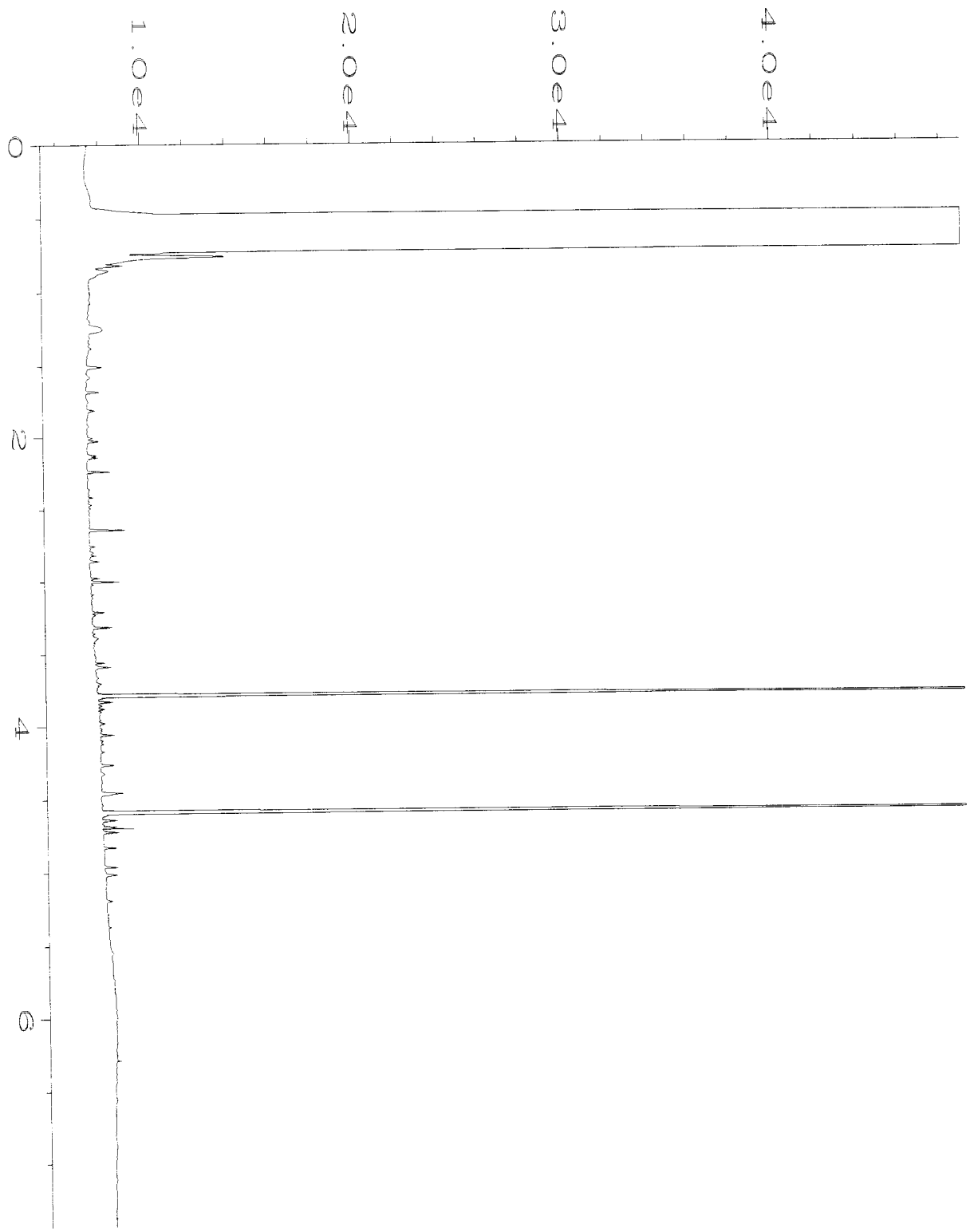
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 14
Sample Name	: 812310-03	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 5
Acquired on	: 24 Dec 18 12:16 PM	Instrument Method	: DX.MTH
Report Created on	: 26 Dec 18 08:40 AM	Analysis Method	: DX.MTH



Data File Name	: C:\HPCHEM\1\DATA\12-24-18\015F0501.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 15
Sample Name	: 812310-04	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 5
Acquired on	: 24 Dec 18 12:27 PM	Instrument Method	: DX.MTH
Report Created on	: 26 Dec 18 08:40 AM	Analysis Method	: DX.MTH

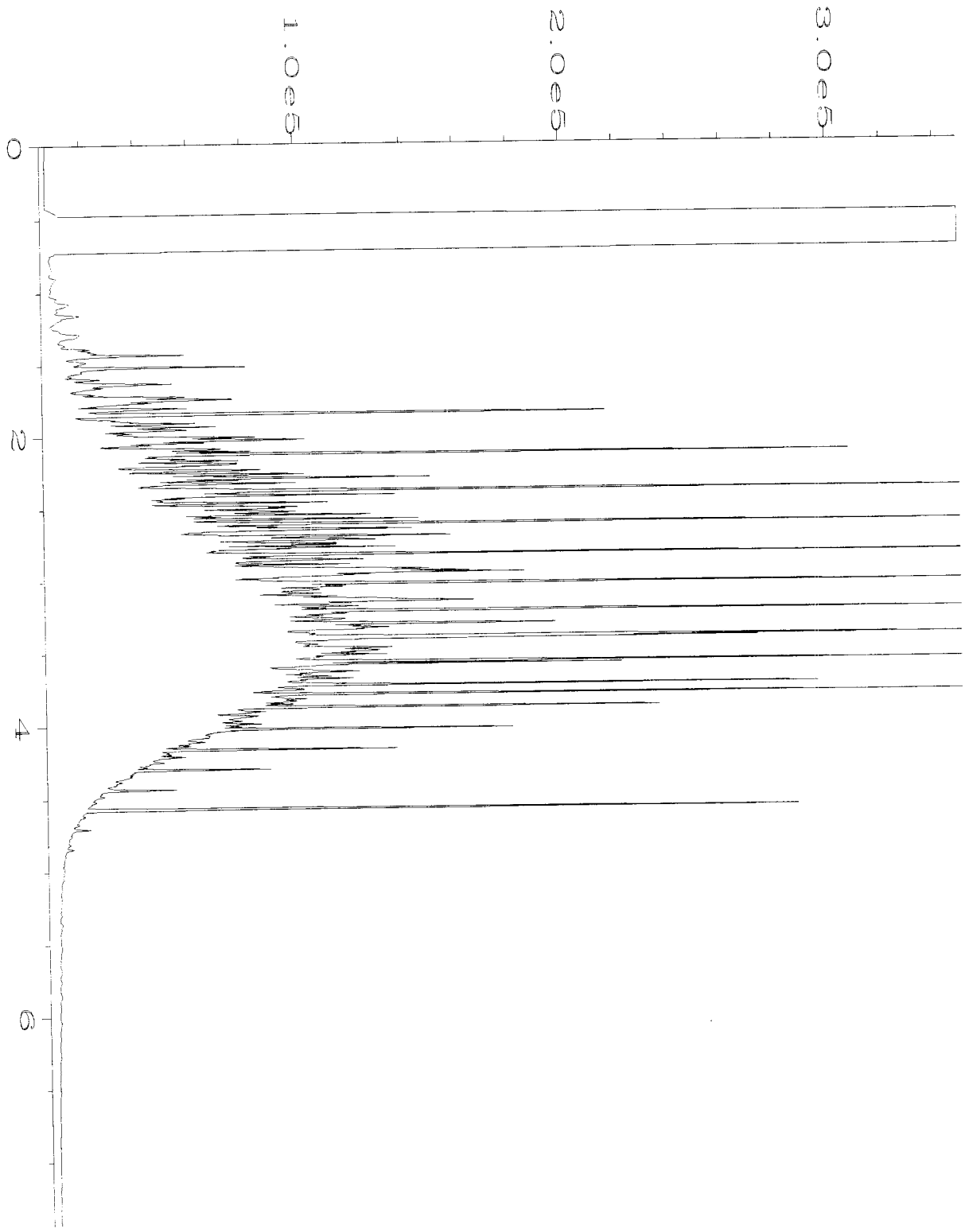


Data File Name	: C:\HPCHEM\1\DATA\12-24-18\016F0501.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 16
Sample Name	: 812310-05	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 5
Acquired on	: 24 Dec 18 12:39 PM	Instrument Method	: DX.MTH
Report Created on	: 26 Dec 18 08:40 AM	Analysis Method	: DX.MTH



Data File Name : C:\HPCHEM\1\DATA\12-24-18\006F0501.D
Operator : TL
Instrument : GC1
Sample Name : 08-2901 mb
Run Time Bar Code:
Acquired on : 24 Dec 18 10:48 AM
Report Created on: 26 Dec 18 08:37 AM

Page Number : 1
Vial Number : 6
Injection Number : 1
Sequence Line : 5
Instrument Method: DX.MTH
Analysis Method : DX.MTH



Data File Name	: C:\HPCHEM\1\DATA\12-24-18\005F0601.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 5
Sample Name	: 1000 Dx 55-96F	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 6
Acquired on	: 24 Dec 18 01:39 PM	Instrument Method	: DX.MTH
Report Created on:	26 Dec 18 08:37 AM	Analysis Method	: DX.MTH

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Friedman & Bruya
Michael Erdahl
3012 16th Ave. W.
Seattle, WA 98119

RE: 812310
Work Order Number: 1812337

January 02, 2019

Attention Michael Erdahl:

Fremont Analytical, Inc. received 5 sample(s) on 12/21/2018 for the analyses presented in the following report.

Ammonia by SM 4500 NH3G
Cyanide by SM 4500-CN C, E
Dissolved Metals by EPA Method 200.8
Dissolved Organic Carbon by SM 5310C
Ion Chromatography by EPA Method 300.0
Sulfide by SM 4500-S2-F
Total Metals by EPA Method 200.8
Total Alkalinity by SM 2320B

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
Laboratory Director

DoD/ELAP Certification #L17-135, ISO/IEC 17025:2005
ORELAP Certification: WA 100009-007 (NELAP Recognized)

Date: *01/02/2019*

CLIENT: Friedman & Bruya
Project: 812310
Work Order: 1812337

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1812337-001	AMW-1-122018	12/20/2018 9:20 AM	12/21/2018 1:30 PM
1812337-002	AMW-2-122018	12/20/2018 10:31 AM	12/21/2018 1:30 PM
1812337-003	AMW-3-122018	12/20/2018 1:00 PM	12/21/2018 1:30 PM
1812337-004	AMW-4-122018	12/20/2018 11:55 AM	12/21/2018 1:30 PM
1812337-005	AMW-5-122018	12/20/2018 11:10 AM	12/21/2018 1:30 PM

Case Narrative

WO#: **1812337**
Date: **1/2/2019**

CLIENT: Friedman & Bruya
Project: 812310

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 Reporting Limit
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
R - High relative percent difference observed

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

Work Order: **1812337**
Date Reported: **1/2/2019**

Client: Friedman & Bruya
Collection Date: 12/20/2018 9:20:00 AM
Project: 812310
Lab ID: 1812337-001
Matrix: Water
Client Sample ID: **AMW-1-122018**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Ion Chromatography by EPA Method 300.0				Batch ID: 23037		Analyst: TN
Chloride	1.54	0.100		mg/L	1	12/21/2018 7:11:00 PM
Nitrogen, Nitrite	ND	0.100		mg/L	1	12/21/2018 7:11:00 PM
Nitrogen, Nitrate	2.53	0.200	DH	mg/L	2	12/24/2018 11:57:00 PM
Nitrogen, Nitrate	2.64	0.100	E	mg/L	1	12/21/2018 7:11:00 PM
Sulfate	25.6	0.600	D	mg/L	2	12/24/2018 11:57:00 PM
NOTES:						
E - Estimated value. The amount exceeds the linear working range of the instrument.						
Dissolved Metals by EPA Method 200.8				Batch ID: 23079		Analyst: WC
Sodium	36,900	100		µg/L	1	12/27/2018 1:41:01 PM
Total Metals by EPA Method 200.8				Batch ID: 23061		Analyst: TN
Sodium	38,600	1,000	D	µg/L	10	12/27/2018 10:59:51 AM
Dissolved Organic Carbon by SM 5310C				Batch ID: R48642		Analyst: GM
Organic Carbon, Dissolved	2.11	0.500		mg/L	1	12/28/2018 3:23:00 PM
Total Alkalinity by SM 2320B				Batch ID: R48601		Analyst: ME
Alkalinity, Total (As CaCO3)	129	2.50		mg/L	1	12/27/2018 11:07:00 AM
Ammonia by SM 4500 NH3G				Batch ID: 23117		Analyst: GM
Nitrogen, Ammonia	ND	0.100		mg/L	1	12/31/2018 3:47:00 PM
Cyanide by SM 4500-CN C, E				Batch ID: 23100		Analyst: WF
Cyanide, Total	ND	0.0500		mg/L	1	12/28/2018 12:45:00 PM
Sulfide by SM 4500-S2-F				Batch ID: R48643		Analyst: GM
Sulfide	ND	0.500		mg/L	1	12/27/2018 8:22:00 PM

Analytical Report

Work Order: **1812337**
Date Reported: **1/2/2019**

Client: Friedman & Bruya
Collection Date: 12/20/2018 10:31:00 AM
Project: 812310
Lab ID: 1812337-002
Matrix: Water
Client Sample ID: **AMW-2-122018**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Ion Chromatography by EPA Method 300.0				Batch ID: 23037		Analyst: TN
Chloride	2.78	0.100		mg/L	1	12/21/2018 7:34:00 PM
Nitrogen, Nitrite	ND	0.100		mg/L	1	12/21/2018 7:34:00 PM
Nitrogen, Nitrate	ND	0.100		mg/L	1	12/21/2018 7:34:00 PM
Sulfate	18.2	0.600	D	mg/L	2	12/25/2018 12:20:00 AM
Dissolved Metals by EPA Method 200.8				Batch ID: 23079		Analyst: WC
Sodium	4,870	100		µg/L	1	12/27/2018 1:45:02 PM
Total Metals by EPA Method 200.8				Batch ID: 23061		Analyst: TN
Sodium	5,020	100		µg/L	1	12/26/2018 1:27:31 PM
Dissolved Organic Carbon by SM 5310C				Batch ID: R48642		Analyst: GM
Organic Carbon, Dissolved	12.0	0.500		mg/L	1	12/28/2018 3:51:00 PM
Total Alkalinity by SM 2320B				Batch ID: R48601		Analyst: ME
Alkalinity, Total (As CaCO3)	124	2.50		mg/L	1	12/27/2018 11:07:00 AM
Ammonia by SM 4500 NH3G				Batch ID: 23117		Analyst: GM
Nitrogen, Ammonia	ND	0.100		mg/L	1	12/27/2018 4:38:00 PM
Cyanide by SM 4500-CN C, E				Batch ID: 23100		Analyst: WF
Cyanide, Total	ND	0.0500		mg/L	1	12/28/2018 12:48:00 PM
Sulfide by SM 4500-S2-F				Batch ID: R48643		Analyst: GM
Sulfide	ND	0.500		mg/L	1	12/27/2018 8:22:00 PM

Analytical Report

Work Order: **1812337**
Date Reported: **1/2/2019**

Client: Friedman & Bruya
Collection Date: 12/20/2018 1:00:00 PM
Project: 812310
Lab ID: 1812337-003
Matrix: Water
Client Sample ID: **AMW-3-122018**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Ion Chromatography by EPA Method 300.0				Batch ID: 23037		Analyst: TN
Chloride	2.24	0.200	D	mg/L	2	12/21/2018 7:57:00 PM
Nitrogen, Nitrite	ND	0.200	D	mg/L	2	12/21/2018 7:57:00 PM
Nitrogen, Nitrate	1.47	0.200	D	mg/L	2	12/21/2018 7:57:00 PM
Sulfate	29.3	0.600	D	mg/L	2	12/21/2018 7:57:00 PM
NOTES: Diluted due to matrix.						
Dissolved Metals by EPA Method 200.8				Batch ID: 23079		Analyst: WC
Sodium	6,190	100		µg/L	1	12/28/2018 6:54:17 PM
Total Metals by EPA Method 200.8				Batch ID: 23061		Analyst: TN
Sodium	6,770	100		µg/L	1	12/26/2018 1:31:32 PM
Dissolved Organic Carbon by SM 5310C				Batch ID: R48642		Analyst: GM
Organic Carbon, Dissolved	3.83	0.500		mg/L	1	12/28/2018 5:13:00 PM
Total Alkalinity by SM 2320B				Batch ID: R48601		Analyst: ME
Alkalinity, Total (As CaCO3)	258	2.50		mg/L	1	12/27/2018 11:07:00 AM
Ammonia by SM 4500 NH3G				Batch ID: 23117		Analyst: GM
Nitrogen, Ammonia	ND	0.100		mg/L	1	12/27/2018 4:43:00 PM
Cyanide by SM 4500-CN C, E				Batch ID: 23100		Analyst: WF
Cyanide, Total	ND	0.0500		mg/L	1	12/28/2018 12:51:00 PM
Sulfide by SM 4500-S2-F				Batch ID: R48643		Analyst: GM
Sulfide	ND	0.500		mg/L	1	12/27/2018 8:22:00 PM

Analytical Report

Work Order: **1812337**
Date Reported: **1/2/2019**

Client: Friedman & Bruya
Collection Date: 12/20/2018 11:55:00 AM
Project: 812310
Lab ID: 1812337-004
Matrix: Water
Client Sample ID: **AMW-4-122018**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Ion Chromatography by EPA Method 300.0				Batch ID: 23037		Analyst: TN
Chloride	3.92	0.200	D	mg/L	2	12/21/2018 8:20:00 PM
Nitrogen, Nitrite	ND	0.200	D	mg/L	2	12/21/2018 8:20:00 PM
Nitrogen, Nitrate	0.406	0.200	D	mg/L	2	12/21/2018 8:20:00 PM
Sulfate	44.9	1.50	D	mg/L	5	12/25/2018 12:43:00 AM
NOTES: Diluted due to matrix.						
Dissolved Metals by EPA Method 200.8				Batch ID: 23079		Analyst: WC
Sodium	45,200	100		µg/L	1	12/28/2018 6:58:18 PM
Total Metals by EPA Method 200.8				Batch ID: 23061		Analyst: TN
Sodium	47,600	1,000	D	µg/L	10	12/27/2018 11:03:53 AM
Dissolved Organic Carbon by SM 5310C				Batch ID: R48642		Analyst: GM
Organic Carbon, Dissolved	3.90	0.500		mg/L	1	12/28/2018 5:33:00 PM
Total Alkalinity by SM 2320B				Batch ID: R48601		Analyst: ME
Alkalinity, Total (As CaCO3)	258	2.50		mg/L	1	12/27/2018 11:07:00 AM
Ammonia by SM 4500 NH3G				Batch ID: 23117		Analyst: GM
Nitrogen, Ammonia	ND	0.100		mg/L	1	12/31/2018 4:07:00 PM
Cyanide by SM 4500-CN C, E				Batch ID: 23100		Analyst: WF
Cyanide, Total	ND	0.0500		mg/L	1	12/28/2018 12:54:00 PM
Sulfide by SM 4500-S2-F				Batch ID: R48643		Analyst: GM
Sulfide	ND	0.500		mg/L	1	12/27/2018 8:22:00 PM

Analytical Report

Work Order: **1812337**
Date Reported: **1/2/2019**

Client: Friedman & Bruya
Collection Date: 12/20/2018 11:10:00 AM
Project: 812310
Lab ID: 1812337-005
Matrix: Water
Client Sample ID: **AMW-5-122018**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Ion Chromatography by EPA Method 300.0				Batch ID: 23037		Analyst: TN
Chloride	2.78	0.100		mg/L	1	12/21/2018 8:43:00 PM
Nitrogen, Nitrite	ND	0.100		mg/L	1	12/21/2018 8:43:00 PM
Nitrogen, Nitrate	ND	0.100		mg/L	1	12/21/2018 8:43:00 PM
Sulfate	18.2	0.600	D	mg/L	2	12/25/2018 1:06:00 AM
Dissolved Metals by EPA Method 200.8				Batch ID: 23079		Analyst: WC
Sodium	4,590	100		µg/L	1	12/28/2018 7:02:19 PM
Total Metals by EPA Method 200.8				Batch ID: 23061		Analyst: TN
Sodium	5,140	100		µg/L	1	12/26/2018 1:47:39 PM
Dissolved Organic Carbon by SM 5310C				Batch ID: R48642		Analyst: GM
Organic Carbon, Dissolved	12.0	0.500		mg/L	1	12/28/2018 5:53:00 PM
Total Alkalinity by SM 2320B				Batch ID: R48601		Analyst: ME
Alkalinity, Total (As CaCO3)	121	2.50		mg/L	1	12/27/2018 11:07:00 AM
Ammonia by SM 4500 NH3G				Batch ID: 23117		Analyst: GM
Nitrogen, Ammonia	ND	0.100		mg/L	1	12/27/2018 5:41:00 PM
Cyanide by SM 4500-CN C, E				Batch ID: 23100		Analyst: WF
Cyanide, Total	ND	0.0500		mg/L	1	12/28/2018 12:57:00 PM
Sulfide by SM 4500-S2-F				Batch ID: R48643		Analyst: GM
Sulfide	ND	0.500		mg/L	1	12/27/2018 8:22:00 PM

Work Order: 1812337
CLIENT: Friedman & Bruya
Project: 812310

QC SUMMARY REPORT

Total Alkalinity by SM 2320B

Sample ID	**MB-R48601**	SampType:	**MBLK**	Units:	**mg/L**	Prep Date:	**12/27/2018**	RunNo:	**48601**
Client ID:	**MBLKW**	Batch ID:	**R48601**			Analysis Date:	**12/27/2018**	SeqNo:	**952710**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	2.50									

Sample ID	**LCS-R48601**	SampType:	**LCS**	Units:	**mg/L**	Prep Date:	**12/27/2018**	RunNo:	**48601**
Client ID:	**LCSW**	Batch ID:	**R48601**			Analysis Date:	**12/27/2018**	SeqNo:	**952711**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	100	2.50	100.0	0	100	80	120				

Sample ID	**1812337-001ADUP**	SampType:	**DUP**	Units:	**mg/L**	Prep Date:	**12/27/2018**	RunNo:	**48601**
Client ID:	**AMW-1-122018**	Batch ID:	**R48601**			Analysis Date:	**12/27/2018**	SeqNo:	**952713**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	129	2.50						129.0	0	20	

Work Order: 1812337
CLIENT: Friedman & Bruya
Project: 812310

QC SUMMARY REPORT

Ammonia by SM 4500 NH3G

Sample ID	LCS-23117	SampType:	LCS			Units:	mg/L	Prep Date:	12/27/2018	RunNo:	48622	
Client ID:	LCSW	Batch ID:	23117					Analysis Date:	12/27/2018	SeqNo:	953196	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Ammonia	0.560	0.100	0.5000	0	112	80	120				B	

Sample ID	MB-23117	SampType:	MBLK			Units:	mg/L	Prep Date:	12/27/2018	RunNo:	48622	
Client ID:	MBLKW	Batch ID:	23117					Analysis Date:	12/27/2018	SeqNo:	953197	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Ammonia	0.112	0.100										

Sample ID	1812372-001BDUP	SampType:	DUP			Units:	mg/L	Prep Date:	12/27/2018	RunNo:	48622	
Client ID:	BATCH	Batch ID:	23117					Analysis Date:	12/27/2018	SeqNo:	953199	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Ammonia	ND	0.100						0		30		

Sample ID	1812372-001BMS	SampType:	MS			Units:	mg/L	Prep Date:	12/27/2018	RunNo:	48622	
Client ID:	BATCH	Batch ID:	23117					Analysis Date:	12/27/2018	SeqNo:	953200	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Ammonia	0.488	0.100	0.5000	0	97.6	70	130				B	

Sample ID	1812372-001BMSD	SampType:	MSD			Units:	mg/L	Prep Date:	12/27/2018	RunNo:	48622	
Client ID:	BATCH	Batch ID:	23117					Analysis Date:	12/27/2018	SeqNo:	953201	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Ammonia	0.455	0.100	0.5000	0	91.0	70	130	0.4880	7.00	30	B	

Work Order: 1812337
CLIENT: Friedman & Bruya
Project: 812310

QC SUMMARY REPORT

Ammonia by SM 4500 NH3G

Sample ID	1812345-004EDUP	SampType:	DUP			Units:	mg/L	Prep Date:	12/27/2018	RunNo:	48622	
Client ID:	BATCH	Batch ID:	23117					Analysis Date:	12/27/2018	SeqNo:	953222	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Ammonia	ND	0.100						0		30		

Sample ID	1812345-004EMS	SampType:	MS			Units:	mg/L	Prep Date:	12/27/2018	RunNo:	48622	
Client ID:	BATCH	Batch ID:	23117					Analysis Date:	12/27/2018	SeqNo:	953223	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Ammonia	0.498	0.100	0.5000	0.04700	90.2	70	130				B	

Work Order: 1812337
CLIENT: Friedman & Bruya
Project: 812310

QC SUMMARY REPORT

Cyanide by SM 4500-CN C, E

Sample ID **MB-23100** SampType: **MBLK** Units: **mg/L** Prep Date: **12/27/2018** RunNo: **48621**
Client ID: **MBLKW** Batch ID: **23100** Analysis Date: **12/28/2018** SeqNo: **953133**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cyanide, Total	ND	0.0500									

Sample ID **LCS-23100** SampType: **LCS** Units: **mg/L** Prep Date: **12/27/2018** RunNo: **48621**
Client ID: **LCSW** Batch ID: **23100** Analysis Date: **12/28/2018** SeqNo: **953134**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cyanide, Total	0.290	0.0500	0.2500	0	116	80	120				

Sample ID **1812373-001BDUP** SampType: **DUP** Units: **mg/L** Prep Date: **12/27/2018** RunNo: **48621**
Client ID: **BATCH** Batch ID: **23100** Analysis Date: **12/28/2018** SeqNo: **953136**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cyanide, Total	ND	0.0500						0		20	

Sample ID **1812373-001BMS** SampType: **MS** Units: **mg/L** Prep Date: **12/27/2018** RunNo: **48621**
Client ID: **BATCH** Batch ID: **23100** Analysis Date: **12/28/2018** SeqNo: **953137**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cyanide, Total	0.307	0.0500	0.2500	0	123	80	120				S

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Sample ID **1812373-001BMSD** SampType: **MSD** Units: **mg/L** Prep Date: **12/27/2018** RunNo: **48621**
Client ID: **BATCH** Batch ID: **23100** Analysis Date: **12/28/2018** SeqNo: **953138**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cyanide, Total	0.316	0.0500	0.2500	0	126	80	120	0.3072	2.79	30	S

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Work Order: 1812337
CLIENT: Friedman & Bruya
Project: 812310

QC SUMMARY REPORT

Dissolved Organic Carbon by SM 5310C

Sample ID	**MB-48642**	SampType:	**MBLK**	Units:	**mg/L**	Prep Date:	**12/28/2018**	RunNo:	**48642**
Client ID:	**MBLKW**	Batch ID:	**R48642**			Analysis Date:	**12/28/2018**	SeqNo:	**953657**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Dissolved	ND	0.500									

NOTES:
Filter blank

Sample ID	**LCS-48642**	SampType:	**LCS**	Units:	**mg/L**	Prep Date:	**12/28/2018**	RunNo:	**48642**
Client ID:	**LCSW**	Batch ID:	**R48642**			Analysis Date:	**12/28/2018**	SeqNo:	**953658**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Dissolved	5.15	0.500	5.000	0	103	80	120				

Sample ID	**1812357-001ADUP**	SampType:	**DUP**	Units:	**mg/L**	Prep Date:	**12/28/2018**	RunNo:	**48642**
Client ID:	**BATCH**	Batch ID:	**R48642**			Analysis Date:	**12/28/2018**	SeqNo:	**953660**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Dissolved	3.71	0.500						3.631	2.15	20	

Sample ID	**1812357-001AMS**	SampType:	**MS**	Units:	**mg/L**	Prep Date:	**12/28/2018**	RunNo:	**48642**
Client ID:	**BATCH**	Batch ID:	**R48642**			Analysis Date:	**12/28/2018**	SeqNo:	**953661**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Dissolved	8.26	0.500	5.000	3.631	92.6	70	130				

Sample ID	**1812357-001AMSD**	SampType:	**MSD**	Units:	**mg/L**	Prep Date:	**12/28/2018**	RunNo:	**48642**
Client ID:	**BATCH**	Batch ID:	**R48642**			Analysis Date:	**12/28/2018**	SeqNo:	**953662**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Dissolved	8.46	0.500	5.000	3.631	96.5	70	130	8.262	2.31	30	

Work Order: 1812337
CLIENT: Friedman & Bruya
Project: 812310

QC SUMMARY REPORT

Dissolved Organic Carbon by SM 5310C

Sample ID	**1812345-001DUP**	SampType: **DUP**			Units: **mg/L**		Prep Date: **12/28/2018**		RunNo: **48642**	
Client ID:	**BATCH**	Batch ID: **R48642**					Analysis Date: **12/28/2018**		SeqNo: **953673**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Dissolved	0.546	0.500						0.5720	4.65	20	

Sample ID	**1812345-001DMS**	SampType: **MS**			Units: **mg/L**		Prep Date: **12/28/2018**		RunNo: **48642**	
Client ID:	**BATCH**	Batch ID: **R48642**					Analysis Date: **12/28/2018**		SeqNo: **953674**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Dissolved	5.49	0.500	5.000	0.5720	98.3	70	130				

Work Order: 1812337
CLIENT: Friedman & Bruya
Project: 812310

QC SUMMARY REPORT

Ion Chromatography by EPA Method 300.0

Sample ID **MB-23037** SampType: **MBLK** Units: **mg/L** Prep Date: **12/21/2018** RunNo: **48495**
Client ID: **MBLKW** Batch ID: **23037** Analysis Date: **12/21/2018** SeqNo: **950113**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.100									
Nitrogen, Nitrite	ND	0.100									
Nitrogen, Nitrate	ND	0.100									
Sulfate	ND	0.300									

Sample ID **LCS-23037** SampType: **LCS** Units: **mg/L** Prep Date: **12/21/2018** RunNo: **48495**
Client ID: **LCSW** Batch ID: **23037** Analysis Date: **12/21/2018** SeqNo: **950114**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.694	0.100	0.7500	0	92.5	90	110				
Nitrogen, Nitrite	0.725	0.100	0.7500	0	96.7	90	110				
Nitrogen, Nitrate	0.704	0.100	0.7500	0	93.9	90	110				
Sulfate	3.47	0.300	3.750	0	92.5	90	110				

Sample ID **1812319-001BDUP** SampType: **DUP** Units: **mg/L** Prep Date: **12/21/2018** RunNo: **48495**
Client ID: **BATCH** Batch ID: **23037** Analysis Date: **12/21/2018** SeqNo: **950099**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	5.92	0.100						5.921	0.0676	20	E
Nitrogen, Nitrite	ND	0.100						0		20	
Nitrogen, Nitrate	0.836	0.100						0.8370	0.120	20	
Sulfate	14.5	0.300						14.54	0.0551	20	

NOTES:
E - Estimated value. The amount exceeds the linear working range of the instrument.

Sample ID **1812319-001BMS** SampType: **MS** Units: **mg/L** Prep Date: **12/21/2018** RunNo: **48495**
Client ID: **BATCH** Batch ID: **23037** Analysis Date: **12/21/2018** SeqNo: **950100**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	6.76	0.100	0.7500	5.921	111	80	120				E

Work Order: 1812337
CLIENT: Friedman & Bruya
Project: 812310

QC SUMMARY REPORT

Ion Chromatography by EPA Method 300.0

Sample ID **1812319-001BMS** SampType: **MS** Units: **mg/L** Prep Date: **12/21/2018** RunNo: **48495**
Client ID: **BATCH** Batch ID: **23037** Analysis Date: **12/21/2018** SeqNo: **950100**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrite	0.743	0.100	0.7500	0	99.1	80	120				
Nitrogen, Nitrate	1.63	0.100	0.7500	0.8370	105	80	120				
Sulfate	18.7	0.300	3.750	14.54	111	80	120				E

NOTES:
E - Estimated value. The amount exceeds the linear working range of the instrument.

Sample ID **1812319-001BMSD** SampType: **MSD** Units: **mg/L** Prep Date: **12/21/2018** RunNo: **48495**
Client ID: **BATCH** Batch ID: **23037** Analysis Date: **12/21/2018** SeqNo: **950101**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	6.76	0.100	0.7500	5.921	111	80	120	6.756	0.0148	20	E
Nitrogen, Nitrite	0.736	0.100	0.7500	0	98.1	80	120	0.7430	0.947	20	
Nitrogen, Nitrate	1.62	0.100	0.7500	0.8370	105	80	120	1.626	0.308	20	
Sulfate	18.7	0.300	3.750	14.54	111	80	120	18.68	0.0963	20	E

NOTES:
E - Estimated value. The amount exceeds the linear working range of the instrument.

Sample ID **1812320-006DDUP** SampType: **DUP** Units: **mg/L** Prep Date: **12/21/2018** RunNo: **48495**
Client ID: **BATCH** Batch ID: **23037** Analysis Date: **12/21/2018** SeqNo: **950110**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	5.71	0.100						5.706	0.140	20	E
Nitrogen, Nitrite	ND	0.100						0		20	
Nitrogen, Nitrate	1.80	0.100						1.794	0.278	20	
Sulfate	9.47	0.300						9.348	1.32	20	

NOTES:
E - Estimated value. The amount exceeds the linear working range of the instrument.

Work Order: 1812337
CLIENT: Friedman & Bruya
Project: 812310

QC SUMMARY REPORT

Ion Chromatography by EPA Method 300.0

Sample ID **1812320-006DMS** SampType: **MS** Units: **mg/L** Prep Date: **12/21/2018** RunNo: **48495**
Client ID: **BATCH** Batch ID: **23037** Analysis Date: **12/21/2018** SeqNo: **950111**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	6.22	0.100	0.7500	5.706	68.5	80	120				ES
Nitrogen, Nitrite	0.464	0.100	0.7500	0	61.9	80	120				S
Nitrogen, Nitrate	2.28	0.100	0.7500	1.794	65.3	80	120				S
Sulfate	11.6	0.300	3.750	9.348	59.7	80	120				S

NOTES:
S - Spike recovery indicates a possible matrix effect. The method is in control as indicated by the Laboratory Control Sample (LCS).
E - Estimated value. The amount exceeds the linear working range of the instrument.

Sample ID **LCS-23032** SampType: **LCS** Units: **mg/L** Prep Date: **12/24/2018** RunNo: **48556**
Client ID: **LCSW** Batch ID: **23032** Analysis Date: **12/24/2018** SeqNo: **951699**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate	0.704	0.100	0.7500	0	93.9	90	110				
Sulfate	3.51	0.300	3.750	0	93.7	90	110				

Sample ID **MB-23032** SampType: **MBLK** Units: **mg/L** Prep Date: **12/24/2018** RunNo: **48556**
Client ID: **MBLKW** Batch ID: **23032** Analysis Date: **12/24/2018** SeqNo: **951700**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate	ND	0.100									
Sulfate	ND	0.300									

Sample ID **1812146-002BDUP** SampType: **DUP** Units: **mg/L** Prep Date: **12/24/2018** RunNo: **48556**
Client ID: **BATCH** Batch ID: **23032** Analysis Date: **12/24/2018** SeqNo: **951705**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate	ND	0.100						0		20	
Sulfate	0.969	0.300						0.9760	0.720	20	

Work Order: 1812337
CLIENT: Friedman & Bruya
Project: 812310

QC SUMMARY REPORT

Ion Chromatography by EPA Method 300.0

Sample ID **1812146-002BMS** SampType: **MS** Units: **mg/L** Prep Date: **12/24/2018** RunNo: **48556**
Client ID: **BATCH** Batch ID: **23032** Analysis Date: **12/24/2018** SeqNo: **951706**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate	0.662	0.100	0.7500	0	88.3	80	120				
Sulfate	3.95	0.300	3.750	0.9760	79.3	80	120				S

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Sample ID **1812146-002BMSD** SampType: **MSD** Units: **mg/L** Prep Date: **12/24/2018** RunNo: **48556**
Client ID: **BATCH** Batch ID: **23032** Analysis Date: **12/24/2018** SeqNo: **951707**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate	0.638	0.100	0.7500	0	85.1	80	120	0.6620	3.69	20	
Sulfate	3.84	0.300	3.750	0.9760	76.4	80	120	3.949	2.80	20	S

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Sample ID **1812146-016BDUP** SampType: **DUP** Units: **mg/L** Prep Date: **12/24/2018** RunNo: **48556**
Client ID: **BATCH** Batch ID: **23032** Analysis Date: **12/24/2018** SeqNo: **951722**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate	ND	0.100						0		20	
Sulfate	0.313	0.300						0.3150	0.637	20	

Sample ID **1812146-016BMS** SampType: **MS** Units: **mg/L** Prep Date: **12/24/2018** RunNo: **48556**
Client ID: **BATCH** Batch ID: **23032** Analysis Date: **12/24/2018** SeqNo: **951723**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate	0.674	0.100	0.7500	0	89.9	80	120				
Sulfate	3.10	0.300	3.750	0.3150	74.2	80	120				S

NOTES:
S - Spike recovery indicates a possible matrix effect. The method is in control as indicated by the Laboratory Control Sample (LCS).

Work Order: 1812337
CLIENT: Friedman & Bruya
Project: 812310

QC SUMMARY REPORT

Sulfide by SM 4500-S2-F

Sample ID	**MB-R48643**	SampType:	**MBLK**	Units:	**mg/L**	Prep Date:	**12/27/2018**	RunNo:	**48643**
Client ID:	**MBLKW**	Batch ID:	**R48643**			Analysis Date:	**12/27/2018**	SeqNo:	**953702**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfide	ND	0.500									

Sample ID	**LCS-R48643**	SampType:	**LCS**	Units:	**mg/L**	Prep Date:	**12/27/2018**	RunNo:	**48643**
Client ID:	**LCSW**	Batch ID:	**R48643**			Analysis Date:	**12/27/2018**	SeqNo:	**953703**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfide	2.00	0.500	2.000	0	100	65	135				

Sample ID	**LCSD-R48643**	SampType:	**LCSD**	Units:	**mg/L**	Prep Date:	**12/27/2018**	RunNo:	**48643**
Client ID:	**LCSW02**	Batch ID:	**R48643**			Analysis Date:	**12/27/2018**	SeqNo:	**953709**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfide	1.80	0.500	2.000	0	90.0	65	135	2.000	10.5	20	

Work Order: 1812337
CLIENT: Friedman & Bruya
Project: 812310

QC SUMMARY REPORT

Dissolved Metals by EPA Method 200.8

Sample ID	**MB-23079**	SampType:	**MBLK**			Units:	**µg/L**	Prep Date:	**12/27/2018**	RunNo:	**48598**
Client ID:	**MBLKW**	Batch ID:	**23079**					Analysis Date:	**12/27/2018**	SeqNo:	**952526**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	ND	100									

Sample ID	**LCS-23079**	SampType:	**LCS**			Units:	**µg/L**	Prep Date:	**12/27/2018**	RunNo:	**48598**
Client ID:	**LCSW**	Batch ID:	**23079**					Analysis Date:	**12/27/2018**	SeqNo:	**952528**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1,010	100	1,000	0	101	50	150				

Sample ID	**1812259-001DDUP**	SampType:	**DUP**			Units:	**µg/L**	Prep Date:	**12/27/2018**	RunNo:	**48598**
Client ID:	**BATCH**	Batch ID:	**23079**					Analysis Date:	**12/27/2018**	SeqNo:	**952530**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	5,210	100						5,641	8.01	30	

Sample ID	**1812259-001DMS**	SampType:	**MS**			Units:	**µg/L**	Prep Date:	**12/27/2018**	RunNo:	**48598**
Client ID:	**BATCH**	Batch ID:	**23079**					Analysis Date:	**12/27/2018**	SeqNo:	**952531**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10,600	100	5,000	5,641	99.8	50	150				

Sample ID	**1812259-001DMSD**	SampType:	**MSD**			Units:	**µg/L**	Prep Date:	**12/27/2018**	RunNo:	**48598**
Client ID:	**BATCH**	Batch ID:	**23079**					Analysis Date:	**12/27/2018**	SeqNo:	**952532**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10,900	100	5,000	5,641	105	50	150	10,630	2.49	30	

Work Order: 1812337
CLIENT: Friedman & Bruya
Project: 812310

QC SUMMARY REPORT

Dissolved Metals by EPA Method 200.8

Sample ID	MB1-23023FB	SampType:	MBLK	Units:	µg/L	Prep Date:	12/27/2018	RunNo:	48598
Client ID:	MBLKW	Batch ID:	23079			Analysis Date:	12/27/2018	SeqNo:	952615

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	ND	100									

NOTES:
Filter Blank

Sample ID	MB2-23023FB	SampType:	MBLK	Units:	µg/L	Prep Date:	12/27/2018	RunNo:	48598
Client ID:	MBLKW	Batch ID:	23079			Analysis Date:	12/27/2018	SeqNo:	952616

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	ND	100									

NOTES:
Filter Blank

Work Order: 1812337
CLIENT: Friedman & Bruya
Project: 812310

QC SUMMARY REPORT

Total Metals by EPA Method 200.8

Sample ID	**MB-23061**	SampType:	**MBLK**			Units:	**µg/L**	Prep Date:	**12/26/2018**	RunNo:	**48564**	
Client ID:	**MBLKW**	Batch ID:	**23061**					Analysis Date:	**12/26/2018**	SeqNo:	**952027**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium		ND	100									

Sample ID	**LCS-23061**	SampType:	**LCS**			Units:	**µg/L**	Prep Date:	**12/26/2018**	RunNo:	**48564**	
Client ID:	**LCSW**	Batch ID:	**23061**					Analysis Date:	**12/26/2018**	SeqNo:	**952028**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium		1,020	100	1,000	0	102	50	150				

Sample ID	**1812341-001ADUP**	SampType:	**DUP**			Units:	**µg/L**	Prep Date:	**12/26/2018**	RunNo:	**48564**	
Client ID:	**BATCH**	Batch ID:	**23061**					Analysis Date:	**12/26/2018**	SeqNo:	**952030**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium		24,400	100						24,750	1.62	30	

Sample ID	**1812341-001AMS**	SampType:	**MS**			Units:	**µg/L**	Prep Date:	**12/26/2018**	RunNo:	**48564**	
Client ID:	**BATCH**	Batch ID:	**23061**					Analysis Date:	**12/26/2018**	SeqNo:	**952031**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium		28,500	100	5,000	24,750	74.5	50	150				E

Sample ID	**1812341-001AMSD**	SampType:	**MSD**			Units:	**µg/L**	Prep Date:	**12/26/2018**	RunNo:	**48564**	
Client ID:	**BATCH**	Batch ID:	**23061**					Analysis Date:	**12/26/2018**	SeqNo:	**952032**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium		28,600	100	5,000	24,750	76.2	50	150	28,470	0.310	30	E

Sample Log-In Check List

Client Name:	**FB**	Work Order Number:	**1812337**
Logged by:	**Clare Griggs**	Date Received:	**12/21/2018 1:30:00 PM**

Chain of Custody

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

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:

Item Information

Item #	Temp ºC
Cooler	5.4
Sample	4.4

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

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

1812337

Page # 1 of 1

Send Report To Michael Erdahl

Company Friedman and Bruya, Inc.

Address 3012 16th Ave W

City, State, ZIP Seattle, WA 98119

Phone # (206) 285-8282 Fax # (206) 283-5044

SUBCONTRACTER Fremont

PROJECT NAME/NO.	PO #
812310	A-671

REMARKS Limited Volume - See Email

Please Email Results

TURNAROUND TIME

☒ Standard (2 Weeks)

☐ RUSH

Rush charges authorized by:

SAMPLE DISPOSAL

☐ Dispose after 30 days

☐ Return samples

☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	ANALYSES REQUESTED: Total Organic Carbon	Alkalinity COD	Chloride BOD	Na Total Dissolved Chloride	Sulfate	Sulfide	Nitrate Nitrite	Dissolved Organic Carbon	Ammonia	Cyanide	Notes
AMW-1-122018		12/20/16	0920	water	1		X	X	X	X	X	X	X	X	X	
AMW-2-122018			1031		1		X	X	X	X	X	X	X	X	X	
AMW-3-122018			1300		1		X	X	X	X	X	X	X	X	X	
AMW-4-122018			1155		1		X	X	X	X	X	X	X	X	X	
AMW-5-122018			1110		1		X	X	X	X	X	X	X	X	X	

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Michael Erdahl	Friedman & Bruya	12/21/18	12:02
Received by:				12/21/18	1330
Relinquished by:					
Received by:					

812310

SAMPLE CHAIN OF CUSTODY

ME 12-21-18

Page 1 of 1

E04/A16/VN3

Report To Carla Brock & Kristin Beck

Company Aspect Consulting

Address 710 2nd Ave, Suite 550

City, State, ZIP Seattle, WA 98104

Phone _____ Email _____

SAMPLERS (*signature*) K. A. Beck

PROJECT NAME: Shelton C St. Landfill

PO #: 150074

REMARKS: Metals: Ag, As, Ba, Cd, Ca, Cr, Cu, Fe, Hg, Pb, Mg, Mn, Na, Ni, Se, Zn

INVOICE TO: Accts payable

TURNAROUND TIME
- [X] Standard Turnaround
- [ ] RUSH _____
- Rush charges authorized by: _____

SAMPLE DISPOSAL
- [X] Dispose after 30 days
- [ ] Archive Samples
- [ ] Other _____

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM	Dioxin/Furani	TOT/Diss metals	Geochem Parameters		Notes
AMW-1-122018	01 A-K	12/20/18	0920	water	11		X			X		X	X	X	⊗		⊗ - Nitrate/Nitrite
AMW-2-122018	02		1031				X			X		X	X	X	⊗		Sulfate/Sulfide
AMW-3-122018	03		1300				X			X		X	X	X	⊗		Alkalinity/Chloride
AMW-4-122018	04		1155				X			X		X	X	X	⊗		Dissolved Organic Carbon
AMW-5-122018	05	↓	1110	↓	↓		X			X		X	X	X	⊗		Ammonia/Cyanide
Trip Blank 12/13/18	06 A-B				2												

ANALYSES REQUESTED

Samples received at 2 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: K. A. Beck	Kristin Beck	Aspect	12/21/18	0600
Received by: S. Obam	S. Obam	F+B, Inc.		
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

January 15, 2019

FAL Project: 12096

Mr. Michael Erdahl
Friedman and Bruya, Inc.
3012 16th Ave. W
Seattle, WA 98119

Dear Mr. Erdahl,

The following results are associated with Frontier Analytical Laboratory project **12096**. This corresponds to your project number **812310** and purchase order number **A-673**. Five aqueous samples were received on 12/27/2018 in good condition. These samples were extracted and analyzed by EPA Method 8290 for tetra through octa chlorinated dibenzo dioxins and furans. The Toxic Equivalency (TEQ) for your samples has been calculated using the 2005 World Health Organization's (WHO's) toxic equivalency factors (TEFs). Freidman and Bruya, Inc. requested a turnaround time of fifteen business days for project **12096**.

The following report consists of an Analytical Data section and a Sample Receipt section. The Analytical Data section contains our sample tracking log and the analytical results. The Sample Receipt section contains your chain of custody, our sample login form and the sample photos. The enclosed results and electronic data deliverable (EDD) are specifically for the samples referenced in this report only. These results meet all NELAP requirements and shall not be reproduced except in full. Frontier Analytical Laboratory's State of Oregon NELAP certificate number is **4041**, our State of California ELAP certificate number is **2934** and our State of Washington certificate number is **C844**. This report along with the associated EDD has been emailed to you. A hardcopy of this report will not be sent to you unless specifically requested.

If you have any questions regarding project **12096**, please feel free to contact me at (916) 934-0900. Thank you for choosing Frontier Analytical Laboratory for your analytical testing needs.

Sincerely,

Bradley B. Silverbush
Director of Operations

Frontier Analytical Laboratory

Sample Tracking Log

FAL Project ID: **12096**

Received on: **12/27/2018** Project Due: **01/21/2019** Storage: **R-4**

FAL Sample ID	Dup	Client Project ID	Client Sample ID	Requested Method	Matrix	Sampling Date	Sampling Time	Hold Time Due Date
12096-001-SA	0	812310	AMW-1-122018	EPA 8290 D/F	Aqueous	12/20/2018	09:20 am	01/19/2019
12096-002-SA	0	812310	AMW-2-122018	EPA 8290 D/F	Aqueous	12/20/2018	10:31 am	01/19/2019
12096-003-SA	0	812310	AMW-3-122018	EPA 8290 D/F	Aqueous	12/20/2018	01:00 pm	01/19/2019
12096-004-SA	0	812310	AMW-4-122018	EPA 8290 D/F	Aqueous	12/20/2018	11:55 am	01/19/2019
12096-005-SA	0	812310	AMW-5-122018	EPA 8290 D/F	Aqueous	12/20/2018	11:10 am	01/19/2019

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EPA Method 8290
PCDD/F

FAL ID: 12096-001-MB
Client ID: Method Blank
Matrix: Aqueous
Batch No: X4766

Date Extracted: 01-11-2019
Date Received: NA
Amount: 1.000 L

ICal: PCDDFAL4-1-7-19
GC Column: DB5MS
Units: pg/L

Acquired: 01-14-2019
2005 WHO TEQ: 0.0

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	ND	0.770		-	0.178				
1,2,3,7,8-PeCDD	ND	0.921		-	0.289				
1,2,3,4,7,8-HxCDD	ND	1.08		-	0.311				
1,2,3,6,7,8-HxCDD	ND	1.08		-	0.370	Total TCDD	ND	0.770	
1,2,3,7,8,9-HxCDD	ND	1.01		-	0.324	Total PeCDD	ND	0.921	
1,2,3,4,6,7,8-HpCDD	ND	1.38		-	0.393	Total HxCDD	ND	1.08	
OCDD	ND	2.47		-	1.10	Total HpCDD	ND	1.38	
2,3,7,8-TCDF	ND	0.527		-	0.174				
1,2,3,7,8-PeCDF	ND	0.732		-	0.300				
2,3,4,7,8-PeCDF	ND	0.718		-	0.311				
1,2,3,4,7,8-HxCDF	ND	0.651		-	0.290				
1,2,3,6,7,8-HxCDF	ND	0.733		-	0.264				
2,3,4,6,7,8-HxCDF	ND	0.780		-	0.318				
1,2,3,7,8,9-HxCDF	ND	0.808		-	0.359	Total TCDF	ND	0.527	
1,2,3,4,6,7,8-HpCDF	ND	1.10		-	0.346	Total PeCDF	ND	0.732	
1,2,3,4,7,8,9-HpCDF	ND	1.37		-	0.484	Total HxCDF	ND	0.808	
OCDF	ND	2.36		-	0.858	Total HpCDF	ND	1.37	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	92.5	40.0 - 135	
13C-1,2,3,7,8-PeCDD	93.9	40.0 - 135	
13C-1,2,3,4,7,8-HxCDD	92.8	40.0 - 135	
13C-1,2,3,6,7,8-HxCDD	93.8	40.0 - 135	
13C-1,2,3,4,6,7,8-HpCDD	88.8	40.0 - 135	
13C-OCDD	86.8	40.0 - 135	
13C-2,3,7,8-TCDF	96.8	40.0 - 135	
13C-1,2,3,7,8-PeCDF	89.6	40.0 - 135	
13C-2,3,4,7,8-PeCDF	92.4	40.0 - 135	
13C-1,2,3,4,7,8-HxCDF	87.9	40.0 - 135	
13C-1,2,3,6,7,8-HxCDF	93.9	40.0 - 135	
13C-2,3,4,6,7,8-HxCDF	91.9	40.0 - 135	
13C-1,2,3,7,8,9-HxCDF	92.6	40.0 - 135	
13C-1,2,3,4,6,7,8-HpCDF	86.6	40.0 - 135	
13C-1,2,3,4,7,8,9-HpCDF	91.1	40.0 - 135	
13C-OCDF	87.6	40.0 - 135	
Cleanup Surrogate			
37Cl-2,3,7,8-TCDD	85.2	50.0 - 150	

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
DNQ	Analyte concentration is below calibration range
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected at Detection Limit Level
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 1/15/2019

Reviewed By: _____
Date: 1/15/2019

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EPA Method 8290
PCDD/F

FAL ID: 12096-001-OPR
Client ID: OPR
Matrix: Aqueous
Batch No: X4766

Date Extracted: 01-11-2019
Date Received: NA
Amount: 1.000 L

ICal: PCDDFAL4-1-7-19
GC Column: DB5MS
Units: ng/ml

Acquired: 01-14-2019
2005 WHO TEQ: NA

Compound	Conc	QC Limits	Qual
2,3,7,8-TCDD	9.64	7.00 - 13.0	
1,2,3,7,8-PeCDD	46.8	35.0 - 65.0	
1,2,3,4,7,8-HxCDD	45.3	35.0 - 65.0	
1,2,3,6,7,8-HxCDD	45.3	35.0 - 65.0	
1,2,3,7,8,9-HxCDD	45.2	35.0 - 65.0	
1,2,3,4,6,7,8-HpCDD	46.4	35.0 - 65.0	
OCDD	89.9	70.0 - 130	
2,3,7,8-TCDF	9.09	7.00 - 13.0	
1,2,3,7,8-PeCDF	46.5	35.0 - 65.0	
2,3,4,7,8-PeCDF	45.6	35.0 - 65.0	
1,2,3,4,7,8-HxCDF	46.2	35.0 - 65.0	
1,2,3,6,7,8-HxCDF	45.8	35.0 - 65.0	
2,3,4,6,7,8-HxCDF	45.3	35.0 - 65.0	
1,2,3,7,8,9-HxCDF	45.7	35.0 - 65.0	
1,2,3,4,6,7,8-HpCDF	46.6	35.0 - 65.0	
1,2,3,4,7,8,9-HpCDF	46.4	35.0 - 65.0	
OCDF	91.0	70.0 - 130	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	87.7	40.0 - 135	
13C-1,2,3,7,8-PeCDD	78.9	40.0 - 135	
13C-1,2,3,4,7,8-HxCDD	77.9	40.0 - 135	
13C-1,2,3,6,7,8-HxCDD	77.8	40.0 - 135	
13C-1,2,3,4,6,7,8-HpCDD	72.8	40.0 - 135	
13C-OCDD	75.1	40.0 - 135	
13C-2,3,7,8-TCDF	94.0	40.0 - 135	
13C-1,2,3,7,8-PeCDF	75.8	40.0 - 135	
13C-2,3,4,7,8-PeCDF	79.6	40.0 - 135	
13C-1,2,3,4,7,8-HxCDF	73.6	40.0 - 135	
13C-1,2,3,6,7,8-HxCDF	76.4	40.0 - 135	
13C-2,3,4,6,7,8-HxCDF	76.9	40.0 - 135	
13C-1,2,3,7,8,9-HxCDF	76.7	40.0 - 135	
13C-1,2,3,4,6,7,8-HpCDF	70.8	40.0 - 135	
13C-1,2,3,4,7,8,9-HpCDF	75.7	40.0 - 135	
13C-OCDF	76.3	40.0 - 135	

Cleanup Surrogate			
37Cl-2,3,7,8-TCDD	88.9	50.0 - 150	

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
DNQ	Analyte concentration is below calibration range
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected at Detection Limit Level
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 1/15/2019

Reviewed By: _____
Date: 1/15/2019

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EPA Method 8290
PCDD/F

FAL ID: 12096-001-SA
Client ID: AMW-1-122018
Matrix: Aqueous
Batch No: X4766

Date Extracted: 01-11-2019
Date Received: 12-27-2018
Amount: 0.475 L

ICal: PCDDFAL4-1-7-19
GC Column: DB5MS
Units: pg/L

Acquired: 01-14-2019
2005 WHO TEQ: 0.0

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	ND	1.13		-	0.178				
1,2,3,7,8-PeCDD	ND	1.74		-	0.289				
1,2,3,4,7,8-HxCDD	ND	2.05		-	0.311				
1,2,3,6,7,8-HxCDD	ND	1.89		-	0.370	Total TCDD	ND	1.13	
1,2,3,7,8,9-HxCDD	ND	1.84		-	0.324	Total PeCDD	ND	1.74	
1,2,3,4,6,7,8-HpCDD	ND	3.62		-	0.393	Total HxCDD	ND	2.05	
OCDD	ND	4.66		-	1.10	Total HpCDD	ND	3.62	
2,3,7,8-TCDF	ND	0.797		-	0.174				
1,2,3,7,8-PeCDF	ND	1.75		-	0.300				
2,3,4,7,8-PeCDF	ND	1.82		-	0.311				
1,2,3,4,7,8-HxCDF	ND	1.99		-	0.290				
1,2,3,6,7,8-HxCDF	ND	2.11		-	0.264				
2,3,4,6,7,8-HxCDF	ND	2.31		-	0.318				
1,2,3,7,8,9-HxCDF	ND	2.62		-	0.359	Total TCDF	ND	0.797	
1,2,3,4,6,7,8-HpCDF	ND	2.65		-	0.346	Total PeCDF	ND	1.82	
1,2,3,4,7,8,9-HpCDF	ND	2.36		-	0.484	Total HxCDF	ND	2.62	
OCDF	ND	3.30		-	0.858	Total HpCDF	ND	2.65	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	76.6	40.0 - 135	
13C-1,2,3,7,8-PeCDD	71.6	40.0 - 135	
13C-1,2,3,4,7,8-HxCDD	74.3	40.0 - 135	
13C-1,2,3,6,7,8-HxCDD	77.1	40.0 - 135	
13C-1,2,3,4,6,7,8-HpCDD	74.1	40.0 - 135	
13C-OCDD	78.6	40.0 - 135	
13C-2,3,7,8-TCDF	78.5	40.0 - 135	
13C-1,2,3,7,8-PeCDF	71.1	40.0 - 135	
13C-2,3,4,7,8-PeCDF	71.6	40.0 - 135	
13C-1,2,3,4,7,8-HxCDF	68.9	40.0 - 135	
13C-1,2,3,6,7,8-HxCDF	74.2	40.0 - 135	
13C-2,3,4,6,7,8-HxCDF	72.4	40.0 - 135	
13C-1,2,3,7,8,9-HxCDF	74.0	40.0 - 135	
13C-1,2,3,4,6,7,8-HpCDF	71.4	40.0 - 135	
13C-1,2,3,4,7,8,9-HpCDF	74.0	40.0 - 135	
13C-OCDF	78.1	40.0 - 135	

Cleanup Surrogate			
37Cl-2,3,7,8-TCDD	75.0	50.0 - 150	

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
DNQ	Analyte concentration is below calibration range
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected at Detection Limit Level
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____

Date: 1/15/2019

Reviewed By: _____

Date: 1/15/2019

5172 Hillsdale Circle * El Dorado Hills, CA 95762 * Tel (916) 934-0900 * Fax (916) 934-0999 * www.frontieranalytical.com

EPA Method 8290
PCDD/F

FAL ID: 12096-002-SA
Client ID: AMW-2-122018
Matrix: Aqueous
Batch No: X4766

Date Extracted: 01-11-2019
Date Received: 12-27-2018
Amount: 0.479 L

ICal: PCDDFAL4-1-7-19
GC Column: DB5MS
Units: pg/L

Acquired: 01-14-2019
2005 WHO TEQ: 0.00342

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	ND	1.06		-	0.178				
1,2,3,7,8-PeCDD	ND	1.98		-	0.289				
1,2,3,4,7,8-HxCDD	ND	2.92		-	0.311				
1,2,3,6,7,8-HxCDD	ND	3.13		-	0.370	Total TCDD	ND	1.06	
1,2,3,7,8,9-HxCDD	ND	2.83		-	0.324	Total PeCDD	ND	1.98	
1,2,3,4,6,7,8-HpCDD	ND	3.60		-	0.393	Total HxCDD	ND	3.13	
OCDD	11.4	-	J	0.00342	1.10	Total HpCDD	ND	3.60	
2,3,7,8-TCDF	ND	0.988		-	0.174				
1,2,3,7,8-PeCDF	ND	2.17		-	0.300				
2,3,4,7,8-PeCDF	ND	2.33		-	0.311				
1,2,3,4,7,8-HxCDF	ND	1.92		-	0.290				
1,2,3,6,7,8-HxCDF	ND	1.95		-	0.264				
2,3,4,6,7,8-HxCDF	ND	2.18		-	0.318				
1,2,3,7,8,9-HxCDF	ND	2.91		-	0.359	Total TCDF	ND	0.988	
1,2,3,4,6,7,8-HpCDF	ND	2.74		-	0.346	Total PeCDF	ND	2.33	
1,2,3,4,7,8,9-HpCDF	ND	3.42		-	0.484	Total HxCDF	ND	2.91	
OCDF	ND	4.86		-	0.858	Total HpCDF	ND	3.42	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	69.6	40.0 - 135	
13C-1,2,3,7,8-PeCDD	67.7	40.0 - 135	
13C-1,2,3,4,7,8-HxCDD	72.1	40.0 - 135	
13C-1,2,3,6,7,8-HxCDD	73.1	40.0 - 135	
13C-1,2,3,4,6,7,8-HpCDD	73.2	40.0 - 135	
13C-OCDD	80.5	40.0 - 135	
13C-2,3,7,8-TCDF	68.8	40.0 - 135	
13C-1,2,3,7,8-PeCDF	66.4	40.0 - 135	
13C-2,3,4,7,8-PeCDF	65.2	40.0 - 135	
13C-1,2,3,4,7,8-HxCDF	66.3	40.0 - 135	
13C-1,2,3,6,7,8-HxCDF	69.2	40.0 - 135	
13C-2,3,4,6,7,8-HxCDF	64.7	40.0 - 135	
13C-1,2,3,7,8,9-HxCDF	67.6	40.0 - 135	
13C-1,2,3,4,6,7,8-HpCDF	71.5	40.0 - 135	
13C-1,2,3,4,7,8,9-HpCDF	72.4	40.0 - 135	
13C-OCDF	79.3	40.0 - 135	
Cleanup Surrogate			
37Cl-2,3,7,8-TCDD	76.9	50.0 - 150	

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
DNQ	Analyte concentration is below calibration range
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected at Detection Limit Level
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 1/15/2019

Reviewed By: _____
Date: 1/15/2019

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EPA Method 8290
PCDD/F

FAL ID: 12096-003-SA
Client ID: AMW-3-122018
Matrix: Aqueous
Batch No: X4766

Date Extracted: 01-11-2019
Date Received: 12-27-2018
Amount: 0.481 L

ICal: PCDDFAL4-1-7-19
GC Column: DB5MS
Units: pg/L

Acquired: 01-14-2019
2005 WHO TEQ: 0.00168

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	ND	0.952		-	0.178				
1,2,3,7,8-PeCDD	ND	1.82		-	0.289				
1,2,3,4,7,8-HxCDD	ND	2.49		-	0.311				
1,2,3,6,7,8-HxCDD	ND	2.61		-	0.370	Total TCDD	ND	0.952	
1,2,3,7,8,9-HxCDD	ND	2.39		-	0.324	Total PeCDD	ND	1.82	
1,2,3,4,6,7,8-HpCDD	ND	3.27		-	0.393	Total HxCDD	ND	2.61	
OCDD	5.61	-	J	0.00168	1.10	Total HpCDD	ND	3.27	
2,3,7,8-TCDF	ND	0.702		-	0.174				
1,2,3,7,8-PeCDF	ND	1.50		-	0.300				
2,3,4,7,8-PeCDF	ND	1.49		-	0.311				
1,2,3,4,7,8-HxCDF	ND	1.76		-	0.290				
1,2,3,6,7,8-HxCDF	ND	1.85		-	0.264				
2,3,4,6,7,8-HxCDF	ND	1.95		-	0.318				
1,2,3,7,8,9-HxCDF	ND	2.28		-	0.359	Total TCDF	ND	0.702	
1,2,3,4,6,7,8-HpCDF	ND	1.88		-	0.346	Total PeCDF	ND	1.50	
1,2,3,4,7,8,9-HpCDF	ND	2.60		-	0.484	Total HxCDF	ND	2.28	
OCDF	ND	3.59		-	0.858	Total HpCDF	ND	2.60	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	88.9	40.0 - 135	
13C-1,2,3,7,8-PeCDD	85.5	40.0 - 135	
13C-1,2,3,4,7,8-HxCDD	86.9	40.0 - 135	
13C-1,2,3,6,7,8-HxCDD	89.6	40.0 - 135	
13C-1,2,3,4,6,7,8-HpCDD	89.3	40.0 - 135	
13C-OCDD	99.5	40.0 - 135	
13C-2,3,7,8-TCDF	94.4	40.0 - 135	
13C-1,2,3,7,8-PeCDF	87.5	40.0 - 135	
13C-2,3,4,7,8-PeCDF	87.5	40.0 - 135	
13C-1,2,3,4,7,8-HxCDF	80.8	40.0 - 135	
13C-1,2,3,6,7,8-HxCDF	84.9	40.0 - 135	
13C-2,3,4,6,7,8-HxCDF	85.5	40.0 - 135	
13C-1,2,3,7,8,9-HxCDF	87.2	40.0 - 135	
13C-1,2,3,4,6,7,8-HpCDF	85.8	40.0 - 135	
13C-1,2,3,4,7,8,9-HpCDF	87.5	40.0 - 135	
13C-OCDF	93.2	40.0 - 135	
Cleanup Surrogate			
37Cl-2,3,7,8-TCDD	88.5	50.0 - 150	

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
DNQ	Analyte concentration is below calibration range
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected at Detection Limit Level
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 1/15/2019

Reviewed By: _____
Date: 1/15/2019

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EPA Method 8290
PCDD/F

FAL ID: 12096-004-SA
Client ID: AMW-4-122018
Matrix: Aqueous
Batch No: X4766

Date Extracted: 01-11-2019
Date Received: 12-27-2018
Amount: 0.480 L

ICal: PCDDFAL4-1-7-19
GC Column: DB5MS
Units: pg/L

Acquired: 01-14-2019
2005 WHO TEQ: 0.00318

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	ND	0.914		-	0.178				
1,2,3,7,8-PeCDD	ND	1.46		-	0.289				
1,2,3,4,7,8-HxCDD	ND	1.83		-	0.311				
1,2,3,6,7,8-HxCDD	ND	2.02		-	0.370	Total TCDD	ND	0.914	
1,2,3,7,8,9-HxCDD	ND	1.80		-	0.324	Total PeCDD	ND	1.46	
1,2,3,4,6,7,8-HpCDD	ND	3.29		-	0.393	Total HxCDD	ND	2.02	
OCDD	10.6	-	J	0.00318	1.10	Total HpCDD	ND	3.29	
2,3,7,8-TCDF	ND	0.893		-	0.174				
1,2,3,7,8-PeCDF	ND	1.32		-	0.300				
2,3,4,7,8-PeCDF	ND	1.42		-	0.311				
1,2,3,4,7,8-HxCDF	ND	1.30		-	0.290				
1,2,3,6,7,8-HxCDF	ND	1.29		-	0.264				
2,3,4,6,7,8-HxCDF	ND	1.32		-	0.318				
1,2,3,7,8,9-HxCDF	ND	1.82		-	0.359	Total TCDF	ND	0.893	
1,2,3,4,6,7,8-HpCDF	ND	1.93		-	0.346	Total PeCDF	ND	1.42	
1,2,3,4,7,8,9-HpCDF	ND	2.48		-	0.484	Total HxCDF	ND	1.82	
OCDF	ND	3.46		-	0.858	Total HpCDF	ND	2.48	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	90.4	40.0 - 135	
13C-1,2,3,7,8-PeCDD	88.0	40.0 - 135	
13C-1,2,3,4,7,8-HxCDD	89.5	40.0 - 135	
13C-1,2,3,6,7,8-HxCDD	92.7	40.0 - 135	
13C-1,2,3,4,6,7,8-HpCDD	90.6	40.0 - 135	
13C-OCDD	97.0	40.0 - 135	
13C-2,3,7,8-TCDF	96.9	40.0 - 135	
13C-1,2,3,7,8-PeCDF	91.5	40.0 - 135	
13C-2,3,4,7,8-PeCDF	92.2	40.0 - 135	
13C-1,2,3,4,7,8-HxCDF	84.1	40.0 - 135	
13C-1,2,3,6,7,8-HxCDF	87.6	40.0 - 135	
13C-2,3,4,6,7,8-HxCDF	87.0	40.0 - 135	
13C-1,2,3,7,8,9-HxCDF	87.9	40.0 - 135	
13C-1,2,3,4,6,7,8-HpCDF	89.2	40.0 - 135	
13C-1,2,3,4,7,8,9-HpCDF	91.7	40.0 - 135	
13C-OCDF	94.2	40.0 - 135	
Cleanup Surrogate			
37Cl-2,3,7,8-TCDD	90.2	50.0 - 150	

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
DNQ	Analyte concentration is below calibration range
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected at Detection Limit Level
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 1/15/2019

Reviewed By: _____
Date: 1/15/2019

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EPA Method 8290
PCDD/F

FAL ID: 12096-005-SA
Client ID: AMW-5-122018
Matrix: Aqueous
Batch No: X4766

Date Extracted: 01-11-2019
Date Received: 12-27-2018
Amount: 0.483 L

ICal: PCDDFAL4-1-7-19
GC Column: DB5MS
Units: pg/L

Acquired: 01-15-2019
2005 WHO TEQ: 0.00318

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	ND	0.790		-	0.178				
1,2,3,7,8-PeCDD	ND	1.71		-	0.289				
1,2,3,4,7,8-HxCDD	ND	2.34		-	0.311				
1,2,3,6,7,8-HxCDD	ND	2.63		-	0.370	Total TCDD	ND	0.790	
1,2,3,7,8,9-HxCDD	ND	2.32		-	0.324	Total PeCDD	ND	1.71	
1,2,3,4,6,7,8-HpCDD	ND	3.98		-	0.393	Total HxCDD	ND	2.63	
OCDD	10.6	-	J	0.00318	1.10	Total HpCDD	ND	3.98	
2,3,7,8-TCDF	ND	0.965		-	0.174				
1,2,3,7,8-PeCDF	ND	1.51		-	0.300				
2,3,4,7,8-PeCDF	ND	1.58		-	0.311				
1,2,3,4,7,8-HxCDF	ND	1.56		-	0.290				
1,2,3,6,7,8-HxCDF	ND	1.63		-	0.264				
2,3,4,6,7,8-HxCDF	ND	1.65		-	0.318				
1,2,3,7,8,9-HxCDF	ND	2.26		-	0.359	Total TCDF	ND	0.965	
1,2,3,4,6,7,8-HpCDF	ND	2.15		-	0.346	Total PeCDF	ND	1.28	
1,2,3,4,7,8,9-HpCDF	ND	2.68		-	0.484	Total HxCDF	ND	2.26	
OCDF	ND	4.33		-	0.858	Total HpCDF	ND	2.68	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	87.2	40.0 - 135	
13C-1,2,3,7,8-PeCDD	88.8	40.0 - 135	
13C-1,2,3,4,7,8-HxCDD	88.9	40.0 - 135	
13C-1,2,3,6,7,8-HxCDD	92.6	40.0 - 135	
13C-1,2,3,4,6,7,8-HpCDD	89.6	40.0 - 135	
13C-OCDD	101	40.0 - 135	
13C-2,3,7,8-TCDF	88.3	40.0 - 135	
13C-1,2,3,7,8-PeCDF	89.7	40.0 - 135	
13C-2,3,4,7,8-PeCDF	88.6	40.0 - 135	
13C-1,2,3,4,7,8-HxCDF	83.5	40.0 - 135	
13C-1,2,3,6,7,8-HxCDF	88.2	40.0 - 135	
13C-2,3,4,6,7,8-HxCDF	83.4	40.0 - 135	
13C-1,2,3,7,8,9-HxCDF	85.5	40.0 - 135	
13C-1,2,3,4,6,7,8-HpCDF	85.5	40.0 - 135	
13C-1,2,3,4,7,8,9-HpCDF	90.0	40.0 - 135	
13C-OCDF	94.4	40.0 - 135	
Cleanup Surrogate			
37Cl-2,3,7,8-TCDD	89.2	50.0 - 150	

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
DNQ	Analyte concentration is below calibration range
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected at Detection Limit Level
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 1/15/2019

Reviewed By: _____
Date: 1/15/2019

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SUBCONTRACT SAMPLE CHAIN OF CUSTODY

Page # 1 of 1

Send Report To Michael Erdahl

Company Friedman and Bruya, Inc.

Address 3012 16th Ave W

City, State, ZIP Seattle, WA 98119

Phone # (206) 285-8282 Fax # (206) 283-5044

SUBCONTRACTER Frontier

PROJECT NAME/NO.	PO #
812310	A-673

REMARKS

Please Email Results

12096
20f

TURNAROUND TIME
☑ Standard (3 Weeks)
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	ANALYSES REQUESTED: Total Organic Carbon	COD	BOD	Chloride	Sulfate	Sulfide	Dioxins/Furans 8290				Notes
AMW-1-122018		12/20/18	0920	water								X				
AMW-2-122018			1031									X				
AMW-3-122018			1300									X				
AMW-4-122018			1155									X				
AMW-5-122018			1110									X				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Michael Erdahl	Friedman & Bruya	12/21/18	
Received by:	308	Kathy Zipp	Frontier	12/27/18	945
Relinquished by:					
Received by:					

Frontier Analytical Laboratory

Sample Login Form

FAL Project ID: **12096**

Client:	Friedman & Bruya, Inc.
Client Project ID:	812310
Date Received:	12/27/2018
Time Received:	09:45 am
Received By:	KZ
Logged In By:	KZ
# of Samples Received:	5
Duplicates:	0
Storage Location:	R-4

Method of Delivery:	Fed-Ex
Tracking Number:	813795597913
Shipping Container Received Intact	Yes
Custody seals(s) present?	No
Custody seals(s) intact?	No
Sample Arrival Temperature (C)	2
Cooling Method	Blue Ice
Chain Of Custody Present?	Yes
Return Shipping Container To Client	Yes
Test aqueous sample for residual Chlorine	Yes
Sodium Thiosulfate Added	No
Adequate Sample Volume	Yes
Appropriate Sample Container	Yes
pH Range of Aqueous Sample	Between 4 and 9
Anomalies or additional comments:	

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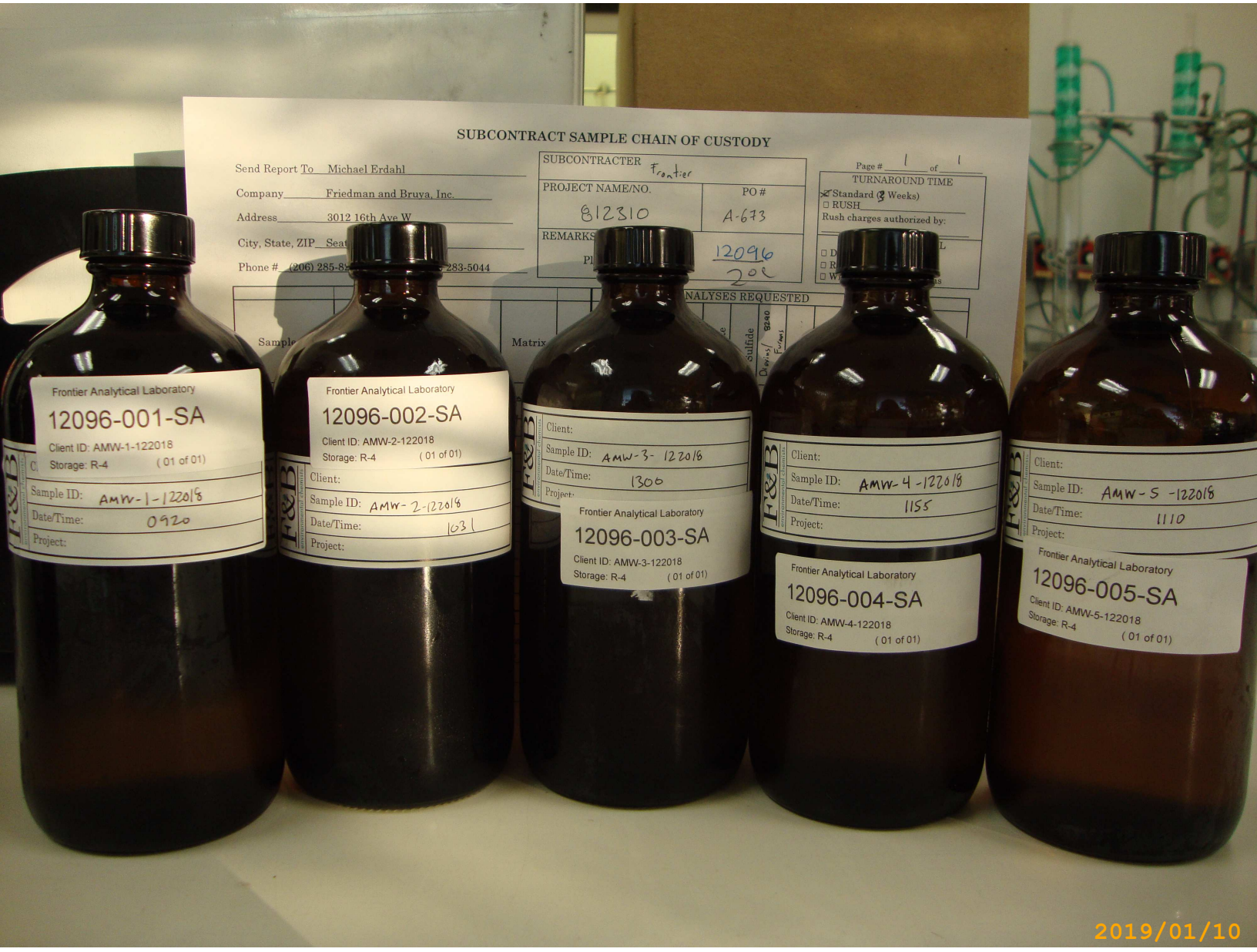

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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
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January 8, 2019

Carla Brock, Project Manager
Aspect Consulting, LLC
401 2nd Ave S, Suite 201
Seattle, WA 98104

Dear Ms Brock:

Included are the results from the testing of material submitted on December 21, 2018 from the Shelton C St. Landfill 150074, F&BI 812315 project. There are 17 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Data Aspect, Kristin Beck
ASP0108R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on December 21, 2018 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC Shelton C St. Landfill 150074, F&BI 812315 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Aspect Consulting, LLC
812315 -01	SG-1-121918
812315 -02	SG-2-121918
812315 -03	SG-3-121918
812315 -04	SG-4-121918
812315 -05	SG-5-121918
812315 -06	Ambient-121918

Samples SG-1-121918, SG-2-121918, SG-3-121918, SG-4-121918, and SG-5-121918 were sent to Fremont Analytical for methane analysis. The report is enclosed.

Several analytes exceeded the calibration range. The data were flagged accordingly.

2-Propanol the TO-15 laboratory control sample failed the acceptance criteria. The data were flagged accordingly.

All other quality control requirements were acceptable.

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	SG-1-121918	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St. Landfill 150074, F&BI 812315
Date Collected:	12/19/18	Lab ID:	812315-01 1/7.5
Date Analyzed:	01/03/19	Data File:	010228.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	MS/BAT

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	79	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	6,300
APH EC9-12 aliphatics	330
APH EC9-10 aromatics	<190

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	SG-2-121918	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St. Landfill 150074, F&BI 812315
Date Collected:	12/19/18	Lab ID:	812315-02 1/1.6
Date Analyzed:	01/03/19	Data File:	010225.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	MS/BAT

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	90	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	410
APH EC9-12 aliphatics	110
APH EC9-10 aromatics	<40

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	SG-3-121918	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St. Landfill 150074, F&BI 812315
Date Collected:	12/19/18	Lab ID:	812315-03 1/1.5
Date Analyzed:	01/03/19	Data File:	010226.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	MS/BAT

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	84	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	910
APH EC9-12 aliphatics	550
APH EC9-10 aromatics	<37

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	SG-4-121918	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St. Landfill 150074, F&BI 812315
Date Collected:	12/19/18	Lab ID:	812315-04 1/14.6
Date Analyzed:	01/03/19	Data File:	010229.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	MS/BAT

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	83	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	23,000 ve
APH EC9-12 aliphatics	1,200
APH EC9-10 aromatics	<360

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	SG-5-121918	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St. Landfill 150074, F&BI 812315
Date Collected:	12/19/18	Lab ID:	812315-05 1/1.5
Date Analyzed:	01/03/19	Data File:	010227.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	MS/BAT

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	94	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	540
APH EC9-12 aliphatics	250
APH EC9-10 aromatics	<37

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Shelton C St. Landfill 150074, F&BI 812315
Date Collected:	Not Applicable	Lab ID:	09-004 mb
Date Analyzed:	01/02/19	Data File:	010208.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	MS/BAT

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	81	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	<46
APH EC9-12 aliphatics	<35
APH EC9-10 aromatics	<25

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-1-121918	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St. Landfill 150074, F&BI 812315
Date Collected:	12/19/18	Lab ID:	812315-01 1/7.5
Date Analyzed:	01/03/19	Data File:	010228.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	MS/BAT

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	86	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	ug/m3	ppbv
Propene	560 ve	330 ve	1,2-Dichloropropane	<1.7	<0.37
Dichlorodifluoromethane	7.8	1.6	1,4-Dioxane	<2.7	<0.75
Chloromethane	<15	<7.5	2,2,4-Trimethylpentane	<35	<7.5
F-114	15	2.2	Methyl methacrylate	<31	<7.5
Vinyl chloride	<1.9	<0.75	Heptane	230	57
1,3-Butadiene	<0.17	<0.075	Bromodichloromethane	<0.5	<0.075
Butane	2,100 ve	870 ve	Trichloroethene	8.4	1.6
Bromomethane	<12	<3	cis-1,3-Dichloropropene	<3.4	<0.75
Chloroethane	<20	<7.5	4-Methyl-2-pentanone	<31	<7.5
Vinyl bromide	<3.3	<0.75	trans-1,3-Dichloropropene	<3.4	<0.75
Ethanol	760 ve	400 ve	Toluene	19	5.2
Acrolein	<6.9	<3	1,1,2-Trichloroethane	<0.82	<0.15
Pentane	1,800 ve	620 ve	2-Hexanone	<31	<7.5
Trichlorofluoromethane	<17	<3	Tetrachloroethene	120	17
Acetone	<36	<15	Dibromochloromethane	<0.64	<0.075
2-Propanol	<65 jl	<26 jl	1,2-Dibromoethane (EDB)	<0.58	<0.075
1,1-Dichloroethene	<3	<0.75	Chlorobenzene	<3.5	<0.75
trans-1,2-Dichloroethene	<3	<0.75	Ethylbenzene	4.9	1.1
Methylene chloride	<650	<190	1,1,2,2-Tetrachloroethane	<1	<0.15
t-Butyl alcohol (TBA)	<91	<30	Nonane	<39	<7.5
3-Chloropropene	<9.4	<3	Isopropylbenzene	<18	<3.7
CFC-113	<5.7	<0.75	2-Chlorotoluene	<39	<7.5
Carbon disulfide	<47	<15	Propylbenzene	<18	<3.7
Methyl t-butyl ether (MTBE)	<14	<3.7	4-Ethyltoluene	<18	<3.7
Vinyl acetate	<53	<15	m,p-Xylene	8.8	2.0
1,1-Dichloroethane	<3	<0.75	o-Xylene	<3.3	<0.75
cis-1,2-Dichloroethene	<3	<0.75	Styrene	<6.4	<1.5
Hexane	790 ve	220 ve	Bromoform	<16	<1.5
Chloroform	<0.37	<0.075	Benzyl chloride	<0.39	<0.075
Ethyl acetate	<54	<15	1,3,5-Trimethylbenzene	<18	<3.7
Tetrahydrofuran	<2.2	<0.75	1,2,4-Trimethylbenzene	<18	<3.7
2-Butanone (MEK)	<22	<7.5	1,3-Dichlorobenzene	<4.5	<0.75
1,2-Dichloroethane (EDC)	<0.3	<0.075	1,4-Dichlorobenzene	<1.8	<0.3
1,1,1-Trichloroethane	<4.1	<0.75	1,2-Dichlorobenzene	<4.5	<0.75
Carbon tetrachloride	<4.7	<0.75	1,2,4-Trichlorobenzene	<5.6	<0.75
Benzene	62	19	Naphthalene	<3.9	<0.75
Cyclohexane	<52	<15	Hexachlorobutadiene	<1.6	<0.15

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-2-121918	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St. Landfill 150074, F&BI 812315
Date Collected:	12/19/18	Lab ID:	812315-02 1/1.6
Date Analyzed:	01/03/19	Data File:	010225.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	MS/BAT

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	97	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	ug/m3	ppbv
Propene	76 ve	44 ve	1,2-Dichloropropane	<0.37	<0.08
Dichlorodifluoromethane	3.8	0.76	1,4-Dioxane	<0.58	<0.16
Chloromethane	<3.3	<1.6	2,2,4-Trimethylpentane	<7.5	<1.6
F-114	1.2	0.17	Methyl methacrylate	<6.6	<1.6
Vinyl chloride	<0.41	<0.16	Heptane	16	3.9
1,3-Butadiene	<0.035	<0.016	Bromodichloromethane	<0.11	<0.016
Butane	81	34	Trichloroethene	<0.43	<0.08
Bromomethane	<2.5	<0.64	cis-1,3-Dichloropropene	<0.73	<0.16
Chloroethane	<4.2	<1.6	4-Methyl-2-pentanone	<6.6	<1.6
Vinyl bromide	<0.7	<0.16	trans-1,3-Dichloropropene	<0.73	<0.16
Ethanol	<12	<6.4	Toluene	9.9	2.6
Acrolein	4.5	2.0	1,1,2-Trichloroethane	<0.17	<0.032
Pentane	44	15	2-Hexanone	<6.6	<1.6
Trichlorofluoromethane	<3.6	<0.64	Tetrachloroethene	100	15
Acetone	140 ve	58 ve	Dibromochloromethane	<0.14	<0.016
2-Propanol	<14 jl	<5.6 jl	1,2-Dibromoethane (EDB)	<0.12	<0.016
1,1-Dichloroethene	<0.63	<0.16	Chlorobenzene	<0.74	<0.16
trans-1,2-Dichloroethene	<0.63	<0.16	Ethylbenzene	5.0	1.1
Methylene chloride	<140	<40	1,1,2,2-Tetrachloroethane	<0.22	<0.032
t-Butyl alcohol (TBA)	<19	<6.4	Nonane	<8.4	<1.6
3-Chloropropene	<2	<0.64	Isopropylbenzene	<3.9	<0.8
CFC-113	<1.2	<0.16	2-Chlorotoluene	<8.3	<1.6
Carbon disulfide	<10	<3.2	Propylbenzene	<3.9	<0.8
Methyl t-butyl ether (MTBE)	<2.9	<0.8	4-Ethyltoluene	<3.9	<0.8
Vinyl acetate	<11	<3.2	m,p-Xylene	24	5.4
1,1-Dichloroethane	<0.65	<0.16	o-Xylene	8.8	2.0
cis-1,2-Dichloroethene	<0.63	<0.16	Styrene	<1.4	<0.32
Hexane	27	7.7	Bromoform	<3.3	<0.32
Chloroform	0.17	0.035	Benzyl chloride	<0.083	<0.016
Ethyl acetate	<12	<3.2	1,3,5-Trimethylbenzene	<3.9	<0.8
Tetrahydrofuran	<0.47	<0.16	1,2,4-Trimethylbenzene	<3.9	<0.8
2-Butanone (MEK)	23	7.8	1,3-Dichlorobenzene	<0.96	<0.16
1,2-Dichloroethane (EDC)	<0.065	<0.016	1,4-Dichlorobenzene	<0.38	<0.064
1,1,1-Trichloroethane	<0.87	<0.16	1,2-Dichlorobenzene	<0.96	<0.16
Carbon tetrachloride	<1	<0.16	1,2,4-Trichlorobenzene	<1.2	<0.16
Benzene	7.3	2.3	Naphthalene	<0.84	<0.16
Cyclohexane	17	4.8	Hexachlorobutadiene	<0.34	<0.032

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-3-121918	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St. Landfill 150074, F&BI 812315
Date Collected:	12/19/18	Lab ID:	812315-03 1/1.5
Date Analyzed:	01/03/19	Data File:	010226.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	MS/BAT

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	92	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	ug/m3	ppbv
Propene	230 ve	130 ve	1,2-Dichloropropane	<0.35	<0.075
Dichlorodifluoromethane	30	6.1	1,4-Dioxane	<0.54	<0.15
Chloromethane	<3.1	<1.5	2,2,4-Trimethylpentane	<7	<1.5
F-114	33	4.7	Methyl methacrylate	<6.1	<1.5
Vinyl chloride	<0.38	<0.15	Heptane	30	7.2
1,3-Butadiene	<0.033	<0.015	Bromodichloromethane	<0.1	<0.015
Butane	150 ve	65 ve	Trichloroethene	<0.4	<0.075
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.68	<0.15
Chloroethane	<4	<1.5	4-Methyl-2-pentanone	<6.1	<1.5
Vinyl bromide	<0.66	<0.15	trans-1,3-Dichloropropene	<0.68	<0.15
Ethanol	<11	<6	Toluene	26	6.9
Acrolein	9.8	4.3	1,1,2-Trichloroethane	<0.16	<0.03
Pentane	77	26	2-Hexanone	<6.1	<1.5
Trichlorofluoromethane	5.3	0.94	Tetrachloroethene	67	9.9
Acetone	200 ve	84 ve	Dibromochloromethane	<0.13	<0.015
2-Propanol	<13 jl	<5.2 jl	1,2-Dibromoethane (EDB)	<0.12	<0.015
1,1-Dichloroethene	<0.59	<0.15	Chlorobenzene	<0.69	<0.15
trans-1,2-Dichloroethene	<0.59	<0.15	Ethylbenzene	4.9	1.1
Methylene chloride	<130	<37	1,1,2,2-Tetrachloroethane	<0.21	<0.03
t-Butyl alcohol (TBA)	<18	<6	Nonane	16	3.0
3-Chloropropene	<1.9	<0.6	Isopropylbenzene	<3.7	<0.75
CFC-113	<1.1	<0.15	2-Chlorotoluene	<7.8	<1.5
Carbon disulfide	<9.3	<3	Propylbenzene	<3.7	<0.75
Methyl t-butyl ether (MTBE)	<2.7	<0.75	4-Ethyltoluene	<3.7	<0.75
Vinyl acetate	<11	<3	m,p-Xylene	9.1	2.1
1,1-Dichloroethane	<0.61	<0.15	o-Xylene	2.9	0.67
cis-1,2-Dichloroethene	<0.59	<0.15	Styrene	<1.3	<0.3
Hexane	51	15	Bromoform	<3.1	<0.3
Chloroform	0.94	0.19	Benzyl chloride	<0.078	<0.015
Ethyl acetate	<11	<3	1,3,5-Trimethylbenzene	<3.7	<0.75
Tetrahydrofuran	<0.44	<0.15	1,2,4-Trimethylbenzene	<3.7	<0.75
2-Butanone (MEK)	37	13	1,3-Dichlorobenzene	<0.9	<0.15
1,2-Dichloroethane (EDC)	0.27	0.067	1,4-Dichlorobenzene	<0.36	<0.06
1,1,1-Trichloroethane	<0.82	<0.15	1,2-Dichlorobenzene	<0.9	<0.15
Carbon tetrachloride	1.8	0.28	1,2,4-Trichlorobenzene	<1.1	<0.15
Benzene	26	8.1	Naphthalene	<0.79	<0.15
Cyclohexane	26	7.7	Hexachlorobutadiene	<0.32	<0.03

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-4-121918	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St. Landfill 150074, F&BI 812315
Date Collected:	12/19/18	Lab ID:	812315-04 1/14.6
Date Analyzed:	01/03/19	Data File:	010229.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	MS/BAT

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	90	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	ug/m3	ppbv
Propene	5,500 ve	3,200 ve	1,2-Dichloropropane	<3.4	<0.73
Dichlorodifluoromethane	13	2.7	1,4-Dioxane	<5.3	<1.5
Chloromethane	<30	<15	2,2,4-Trimethylpentane	<68	<15
F-114	17	2.5	Methyl methacrylate	<60	<15
Vinyl chloride	20	8.0	Heptane	1,100	270
1,3-Butadiene	<0.32	<0.15	Bromodichloromethane	<0.98	<0.15
Butane	4,200 ve	1,800 ve	Trichloroethene	5.7	1.1
Bromomethane	<23	<5.8	cis-1,3-Dichloropropene	<6.6	<1.5
Chloroethane	<39	<15	4-Methyl-2-pentanone	<60	<15
Vinyl bromide	<6.4	<1.5	trans-1,3-Dichloropropene	<6.6	<1.5
Ethanol	<110	<58	Toluene	160	44
Acrolein	<13	<5.8	1,1,2-Trichloroethane	<1.6	<0.29
Pentane	3,100 ve	1,100 ve	2-Hexanone	<60	<15
Trichlorofluoromethane	<33	<5.8	Tetrachloroethene	<99	<15
Acetone	410	170	Dibromochloromethane	<1.2	<0.15
2-Propanol	<130 jl	<51 jl	1,2-Dibromoethane (EDB)	<1.1	<0.15
1,1-Dichloroethene	<5.8	<1.5	Chlorobenzene	<6.7	<1.5
trans-1,2-Dichloroethene	<5.8	<1.5	Ethylbenzene	15	3.5
Methylene chloride	<1,300	<360	1,1,2,2-Tetrachloroethane	<2	<0.29
t-Butyl alcohol (TBA)	<180	<58	Nonane	170	32
3-Chloropropene	<18	<5.8	Isopropylbenzene	<36	<7.3
CFC-113	<11	<1.5	2-Chlorotoluene	<76	<15
Carbon disulfide	230	73	Propylbenzene	<36	<7.3
Methyl t-butyl ether (MTBE)	<26	<7.3	4-Ethyltoluene	<36	<7.3
Vinyl acetate	<100	<29	m,p-Xylene	32	7.4
1,1-Dichloroethane	<5.9	<1.5	o-Xylene	12	2.7
cis-1,2-Dichloroethene	<5.8	<1.5	Styrene	<12	<2.9
Hexane	1,900 ve	540 ve	Bromoform	<30	<2.9
Chloroform	<0.71	<0.15	Benzyl chloride	<0.76	<0.15
Ethyl acetate	<110	<29	1,3,5-Trimethylbenzene	<36	<7.3
Tetrahydrofuran	<4.3	<1.5	1,2,4-Trimethylbenzene	<36	<7.3
2-Butanone (MEK)	180	60	1,3-Dichlorobenzene	<8.8	<1.5
1,2-Dichloroethane (EDC)	<0.59	<0.15	1,4-Dichlorobenzene	<3.5	<0.58
1,1,1-Trichloroethane	<8	<1.5	1,2-Dichlorobenzene	<8.8	<1.5
Carbon tetrachloride	<9.2	<1.5	1,2,4-Trichlorobenzene	<11	<1.5
Benzene	220	69	Naphthalene	<7.7	<1.5
Cyclohexane	170	50	Hexachlorobutadiene	<3.1	<0.29

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-5-121918	Client:	Aspect Consulting, LLC
Date Received:	12/21/18	Project:	Shelton C St. Landfill 150074, F&BI 812315
Date Collected:	12/19/18	Lab ID:	812315-05 1/1.5
Date Analyzed:	01/03/19	Data File:	010227.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	MS/BAT

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	102	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	ug/m3	ppbv
Propene	380 ve	220 ve	1,2-Dichloropropane	<0.35	<0.075
Dichlorodifluoromethane	31	6.3	1,4-Dioxane	<0.54	<0.15
Chloromethane	<3.1	<1.5	2,2,4-Trimethylpentane	<7	<1.5
F-114	180	26	Methyl methacrylate	<6.1	<1.5
Vinyl chloride	2.2	0.85	Heptane	8.2	2.0
1,3-Butadiene	<0.033	<0.015	Bromodichloromethane	<0.1	<0.015
Butane	300 ve	130 ve	Trichloroethene	4.3	0.79
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.68	<0.15
Chloroethane	<4	<1.5	4-Methyl-2-pentanone	<6.1	<1.5
Vinyl bromide	<0.66	<0.15	trans-1,3-Dichloropropene	<0.68	<0.15
Ethanol	<11	<6	Toluene	34	9.1
Acrolein	<1.4	<0.6	1,1,2-Trichloroethane	<0.16	<0.03
Pentane	61	21	2-Hexanone	<6.1	<1.5
Trichlorofluoromethane	<3.4	<0.6	Tetrachloroethene	14	2.0
Acetone	<7.1	<3	Dibromochloromethane	<0.13	<0.015
2-Propanol	<13 jl	<5.2 jl	1,2-Dibromoethane (EDB)	<0.12	<0.015
1,1-Dichloroethene	1.3	0.34	Chlorobenzene	0.70	0.15
trans-1,2-Dichloroethene	<0.59	<0.15	Ethylbenzene	8.0	1.8
Methylene chloride	<130	<37	1,1,2,2-Tetrachloroethane	<0.21	<0.03
t-Butyl alcohol (TBA)	<18	<6	Nonane	<7.9	<1.5
3-Chloropropene	<1.9	<0.6	Isopropylbenzene	<3.7	<0.75
CFC-113	<1.1	<0.15	2-Chlorotoluene	<7.8	<1.5
Carbon disulfide	<9.3	<3	Propylbenzene	<3.7	<0.75
Methyl t-butyl ether (MTBE)	<2.7	<0.75	4-Ethyltoluene	<3.7	<0.75
Vinyl acetate	<11	<3	m,p-Xylene	12	2.7
1,1-Dichloroethane	0.87	0.21	o-Xylene	4.0	0.93
cis-1,2-Dichloroethene	3.5	0.88	Styrene	<1.3	<0.3
Hexane	20	5.6	Bromoform	<3.1	<0.3
Chloroform	<0.073	<0.015	Benzyl chloride	0.085 fb	0.016 fb
Ethyl acetate	<11	<3	1,3,5-Trimethylbenzene	<3.7	<0.75
Tetrahydrofuran	<0.44	<0.15	1,2,4-Trimethylbenzene	<3.7	<0.75
2-Butanone (MEK)	<4.4	<1.5	1,3-Dichlorobenzene	<0.9	<0.15
1,2-Dichloroethane (EDC)	<0.061	<0.015	1,4-Dichlorobenzene	<0.36	<0.06
1,1,1-Trichloroethane	<0.82	<0.15	1,2-Dichlorobenzene	<0.9	<0.15
Carbon tetrachloride	<0.94	<0.15	1,2,4-Trichlorobenzene	<1.1	<0.15
Benzene	38	12	Naphthalene	<0.79	<0.15
Cyclohexane	<10	<3	Hexachlorobutadiene	<0.32	<0.03

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Shelton C St. Landfill 150074, F&BI 812315
Date Collected:	Not Applicable	Lab ID:	09-004 mb
Date Analyzed:	01/02/19	Data File:	010208.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	MS/BAT

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	88	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<0.69	<0.4	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	<0.49	<0.1	1,4-Dioxane	<0.36	<0.1
Chloromethane	<2.1	<1	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.022	<0.01	Bromodichloromethane	<0.067	<0.01
Butane	<2.4	<1	Trichloroethene	<0.27	<0.05
Bromomethane	<1.6	<0.4	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<0.38	<0.1
Acrolein	<0.92	<0.4	1,1,2-Trichloroethane	<0.11	<0.02
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	<4.8	<2	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6 jl	<3.5 jl	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<87	<25	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.3	<0.4	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	<0.87	<0.2
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	<0.43	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	<0.049	<0.01	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	<0.04	<0.01	1,4-Dichlorobenzene	<0.24	<0.04
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	<0.63	<0.1	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	<0.32	<0.1	Naphthalene	<0.52	<0.1
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Date of Report: 01/08/19
Date Received: 12/21/18
Project: Shelton C St. Landfill 150074, F&BI 812315

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD MA-APH

Laboratory Code: 812391-03 1/1.6 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
APH EC5-8 aliphatics	ug/m3	430	420	2
APH EC9-12 aliphatics	ug/m3	140	150	7
APH EC9-10 aromatics	ug/m3	<40	<40	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
APH EC5-8 aliphatics	ug/m3	45	73	70-130
APH EC9-12 aliphatics	ug/m3	45	92	70-130
APH EC9-10 aromatics	ug/m3	45	86	70-130

Date of Report: 01/08/19
Date Received: 12/21/18
Project: Shelton C St. Landfill 150074, F&BI 812315

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Propene	ppbv	5	83	70-130
Dichlorodifluoromethane	ppbv	5	95	70-130
Chloromethane	ppbv	5	85	70-130
F-114	ppbv	5	111	70-130
Vinyl chloride	ppbv	5	94	70-130
1,3-Butadiene	ppbv	5	94	70-130
Butane	ppbv	5	90	70-130
Bromomethane	ppbv	5	113	70-130
Chloroethane	ppbv	5	99	70-130
Vinyl Bromide	ppbv	5	108	70-130
Ethanol	ppbv	5	81	70-130
Acrolein	ppbv	5	97	70-130
Pentane	ppbv	5	82	70-130
Trichlorofluoromethane	ppbv	5	101	70-130
Acetone	ppbv	5	94	70-130
2-Propanol	ppbv	5	35 vo	70-130
1,1-Dichloroethene	ppbv	5	105	70-130
trans-1,2-Dichloroethene	ppbv	5	108	70-130
Methylene chloride	ppbv	5	121	70-130
t-Butyl alcohol (TBA)	ppbv	5	101	70-130
3-Chloropropene	ppbv	5	89	70-130
CFC-113	ppbv	5	108	70-130
Carbon disulfide	ppbv	5	95	70-130
Methyl t-butyl ether (MTBE)	ppbv	5	108	70-130
Vinyl acetate	ppbv	5	97	70-130
1,1-Dichloroethane	ppbv	5	102	70-130
cis-1,2-Dichloroethene	ppbv	5	108	70-130
Hexane	ppbv	5	112	70-130
Chloroform	ppbv	5	108	70-130
Ethyl acetate	ppbv	5	94	70-130
Tetrahydrofuran	ppbv	5	91	70-130
2-Butanone (MEK)	ppbv	5	104	70-130
1,2-Dichloroethane (EDC)	ppbv	5	101	70-130
1,1,1-Trichloroethane	ppbv	5	114	70-130
Carbon tetrachloride	ppbv	5	113	70-130
Benzene	ppbv	5	107	70-130
Cyclohexane	ppbv	5	110	70-130
1,2-Dichloropropane	ppbv	5	80	70-130
1,4-Dioxane	ppbv	5	89	70-130
2,2,4-Trimethylpentane	ppbv	5	87	70-130
Methyl methacrylate	ppbv	5	79	70-130

Date of Report: 01/08/19
Date Received: 12/21/18
Project: Shelton C St. Landfill 150074, F&BI 812315

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Heptane	ppbv	5	79	70-130
Bromodichloromethane	ppbv	5	88	70-130
Trichloroethene	ppbv	5	91	70-130
cis-1,3-Dichloropropene	ppbv	5	88	70-130
4-Methyl-2-pentanone	ppbv	5	98	70-130
trans-1,3-Dichloropropene	ppbv	5	86	70-130
Toluene	ppbv	5	95	70-130
1,1,2-Trichloroethane	ppbv	5	87	70-130
2-Hexanone	ppbv	5	84	70-130
Tetrachloroethene	ppbv	5	101	70-130
Dibromochloromethane	ppbv	5	100	70-130
1,2-Dibromoethane (EDB)	ppbv	5	95	70-130
Chlorobenzene	ppbv	5	89	70-130
Ethylbenzene	ppbv	5	94	70-130
1,1,2,2-Tetrachloroethane	ppbv	5	92	70-130
Nonane	ppbv	5	88	70-130
Isopropylbenzene	ppbv	5	97	70-130
2-Chlorotoluene	ppbv	5	102	70-130
Propylbenzene	ppbv	5	96	70-130
4-Ethyltoluene	ppbv	5	99	70-130
m,p-Xylene	ppbv	10	98	70-130
o-Xylene	ppbv	5	97	70-130
Styrene	ppbv	5	101	70-130
Bromoform	ppbv	5	112	70-130
Benzyl chloride	ppbv	5	96	70-130
1,3,5-Trimethylbenzene	ppbv	5	99	70-130
1,2,4-Trimethylbenzene	ppbv	5	98	70-130
1,3-Dichlorobenzene	ppbv	5	102	70-130
1,4-Dichlorobenzene	ppbv	5	100	70-130
1,2-Dichlorobenzene	ppbv	5	103	70-130
1,2,4-Trichlorobenzene	ppbv	5	99	70-130
Naphthalene	ppbv	5	101	70-130
Hexachlorobutadiene	ppbv	5	106	70-130

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

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

Friedman & Bruya
Michael Erdahl
3012 16th Ave. W.
Seattle, WA 98119

RE: 812315
Work Order Number: 1812326

December 27, 2018

Attention Michael Erdahl:

Fremont Analytical, Inc. received 5 sample(s) on 12/21/2018 for the analyses presented in the following report.

Major Gases by EPA Method 3C

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
Laboratory Director

Date: *12/27/2018*

CLIENT: Friedman & Bruya
Project: 812315
Work Order: 1812326

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1812326-001	SG-1-121918	12/19/2018 11:32 AM	12/21/2018 9:36 AM
1812326-002	SG-2-121918	12/19/2018 10:41 AM	12/21/2018 9:36 AM
1812326-003	SG-3-121918	12/19/2018 2:50 PM	12/21/2018 9:36 AM
1812326-004	SG-4-121918	12/19/2018 1:24 PM	12/21/2018 9:36 AM
1812326-005	SG-5-121918	12/19/2018 12:32 PM	12/21/2018 9:36 AM

Case Narrative

WO#: **1812326**
Date: **12/27/2018**

CLIENT: Friedman & Bruya
Project: 812315

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

II. GENERAL REPORTING COMMENTS:
Samples are reported as a %.

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 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 Reporting Limit
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
R - High relative percent difference observed

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

Work Order: **1812326**
Date Reported: **12/27/2018**

CLIENT: Friedman & Bruya
Project: 812315

Lab ID: 1812326-001 **Collection Date:** 12/19/2018 11:32:00 AM
Client Sample ID: **SG-1-121918** **Matrix:** Air

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Major Gases by EPA Method 3C				Batch ID: R48577		Analyst: AD
Methane	ND	0.0500		%	1	12/21/2018 12:40:00 PM

Lab ID: 1812326-002 **Collection Date:** 12/19/2018 10:41:00 AM
Client Sample ID: **SG-2-121918** **Matrix:** Air

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Major Gases by EPA Method 3C				Batch ID: R48577		Analyst: AD
Methane	ND	0.0500		%	1	12/21/2018 12:55:00 PM

Lab ID: 1812326-003 **Collection Date:** 12/19/2018 2:50:00 PM
Client Sample ID: **SG-3-121918** **Matrix:** Air

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Major Gases by EPA Method 3C				Batch ID: R48577		Analyst: AD
Methane	ND	0.0500		%	1	12/21/2018 1:18:00 PM

CLIENT: Friedman & Bruya
Project: 812315

Lab ID: 1812326-004 **Collection Date:** 12/19/2018 1:24:00 PM
Client Sample ID: **SG-4-121918** **Matrix:** Air

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Major Gases by EPA Method 3C				Batch ID: R48577		Analyst: AD
Methane	ND	0.0500		%	1	12/21/2018 2:26:00 PM

Lab ID: 1812326-005 **Collection Date:** 12/19/2018 12:32:00 PM
Client Sample ID: **SG-5-121918** **Matrix:** Air

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Major Gases by EPA Method 3C				Batch ID: R48577		Analyst: AD
Methane	ND	0.0500		%	1	12/21/2018 2:55:00 PM

Work Order: 1812326
CLIENT: Friedman & Bruya
Project: 812315

QC SUMMARY REPORT

Major Gases by EPA Method 3C

Sample ID	**LCS-R48577**	SampType:	**LCS**		Units:	**%**		Prep Date:	**12/21/2018**		RunNo:	**48577**	
Client ID:	**LCSW**	Batch ID:	**R48577**					Analysis Date:	**12/21/2018**		SeqNo:	**952155**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Methane		100	0.0500	100.0	0	100	70	130					

Sample ID	**1812276-001BREP**	SampType:	**REP**		Units:	**%**		Prep Date:	**12/21/2018**		RunNo:	**48577**	
Client ID:	**BATCH**	Batch ID:	**R48577**					Analysis Date:	**12/21/2018**		SeqNo:	**952149**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Methane		98.1	0.0500						98.11	0.0339	30		

Sample Log-In Check List

Client Name:	**FB**	Work Order Number:	**1812326**
Logged by:	**Brianna Barnes**	Date Received:	**12/21/2018 9:36:00 AM**

Chain of Custody

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

Log In

3.	Coolers are present?	Yes	☐	No	☑	NA ☐
		Air samples.				
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:

Item Information

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

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

1812326

Page # 1 of 1

Send Report To Michael Erdahl

Company Friedman and Bruya, Inc.

Address 3012 16th Ave W

City, State, ZIP Seattle, WA 98119

Phone # (206) 285-8282 Fax # (206) 283-5044

SUBCONTRACTER: FREMONT

PROJECT NAME/NO.	PO #
812315	A-671

REMARKS: Please Email Results

TURNAROUND TIME
- ☑ Standard (2 Weeks)
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Return samples
- ☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	ANALYSES REQUESTED: Total Organic Carbon	COD	BOD	Chloride	Sulfate	Sulfide	Methane				Notes
SG-1-121918		12/19/18	1132	A	1							✓				
SG-2-121918		"	1041	A	1							✓				
SG-3-121918		"	1450	A	1							✓				
SG-4-121918		"	324	A	1							✓				
SG-5-121918		"	1232	A	1							✓				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Michael Erdahl	Friedman & Bruya	12/21/18	0843
Received by:		Nicole Greene	FAI	12/21/18	~~0843~~ NG 12/21 0936
Relinquished by:					
Received by:					

812315

SAMPLE CHAIN OF CUSTODY

ME 12-21-18

Page # 1 of 1

Report To Carla Brock & Kristin Beck
Company Aspect Consulting
Address 710 2nd Ave, Site 550
City, State, ZIP Seattle, WA 98104
Phone _____ Email _____

SAMPLERS (*signature*) Kristin Beck

PROJECT NAME: Shelton C St. Landfill
PO #: 150074

REPORTING LEVEL
☐ Indoor Air ☐ Deep Soil Gas
☐ Sub Slab/Soil Gas ☐ SVE/Grab

INVOICE TO: Accts payable

TURNAROUND TIME
☒ Standard
☐ RUSH _____
Rush charges authorized by: _____

SAMPLE DISPOSAL
☒ Dispose after 30 days
☐ Archive Samples
☐ Other _____

ANALYSIS REQUESTED

Sample Name	Lab ID	Canister ID	Flow Contr. ID	Date Sampled	Field Initial Press. (Hg)	Field Initial Time	Field Final Press. (Hg)	Field Final Time	TO-15 Full Scan	APH ~~TO-15 BTEXN~~	TO-15 cVOCs	Methane	Notes
SG-1-121918	01A-B	3677	02	12/19/18	30	1132	5	1145	X	(X)		X	PID= 0.0 ppm
SG-2-121918	02	3669	17		30	1041	5	1047	X	(X)		X	PID= 6.3 ppm
SG-3-121918	03	3260	108		30	1450	5	1455	X	(X)		X	PID= 11.6 ppm
SG-4-121918	04	3254	101		30	1324	5	1328	X	(X)		X	PID= 0.0 ppm
SG-5-121918	05	3378	111		30	1232	5	1240	X	(X)		X	PID= 4.5 ppm
Ambient-121918	06	3476	07	↓	30	1500	5	1505					Please hold

(X) - per KB 12/21/18 ME

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Kristin Beck	Kristin Beck	Aspect	12/21/18	0640
Received by: S. Olsen	S. Olsen	FSB, Inc	"	
Relinquished by:				
Received by:		Samples received at 18 °C		

Friedman & Bruya, Inc.
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