

# SUPPLEMENTAL GROUNDWATER INVESTIGATION REPORT

South Recycling and Disposal Station,  
South Park Landfill Site,  
Seattle, Washington

Prepared for: HDR Inc.

Project No. 190257-001-04 • March 27, 2020 ECOLOGY REVIEW DRAFT







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# 1 Investigation Background and Goal

Aspect Consulting LLC (Aspect) has prepared this report presenting the findings from a Supplemental Groundwater Investigation for the City of Seattle's (City) South Recycling and Disposal Station (SRDS) parcel portion of the South Park Landfill Site (Site) located in the South Park neighborhood of Seattle, Washington (Figure 1).

Seattle Public Utilities (SPU) will redevelop the SRDS parcel to include, in addition to an existing household hazardous waste facility, a new recycling and reuse center termed the South Transfer Station Phase II Project (STSII). SPU is currently completing design and permitting for the STSII project, which is anticipated to begin in 2020.

A Remedial Investigation and Feasibility Study (RI/FS) is being completed for the Site under an Agreed Order (No. 6706) between Washington State Department of Ecology (Ecology), the City, and South Park Property Development, LLC (SPPD), which owns the property within the landfill footprint immediately south of the SRDS parcel. An amendment to the Agreed Order was executed in February 2016, directing the City to conduct an interim action on the SRDS portion of the Site, which will be performed in conjunction with construction of the STSII redevelopment project. The amendment included an Interim Action Plan (HDR et al, 2015) that describes the interim action components including the installation of asphalt, concrete, or membrane caps with provisions for landfill gas (LFG) and surface water controls; implementation of institutional controls; and compliance monitoring.

In March 2018, following consideration of public comments received during a public comment period, Ecology issued the final Cleanup Action Plan (CAP; Ecology, 2018) for the portion of the Site referred to as the "Settlement Area" which includes the SRDS and SPPD parcels within the edge of landfill refuse. The approximate edge of refuse east and north of the SRDS parcel is shown on Figure 1.

As described in the Ecology-approved Work Plan for Supplemental Groundwater Investigation (Work Plan; Aspect, 2019), the goal of this Supplemental Groundwater Investigation was to complete additional groundwater investigation at the SRDS property within the landfill interior, to assess risks associated with adult worker exposure to groundwater during STSII construction (temporary excavation and dewatering for utilities installation) and in the unlikely event that groundwater would daylight in the future redeveloped condition of the STSII.

## 2 Groundwater Investigation Completed

Installation of new six monitoring wells (on October 17<sup>th</sup> and 18<sup>th</sup>, 2019) and two rounds of groundwater sampling were completed in accordance with the Work Plan (Aspect 2019). Well installation and sampling took place from October 2019 through January 2020.

### 2.1 Installation and Development of Six New Monitoring Wells

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Six new monitoring wells were installed on the Site to provide spatial coverage for groundwater quality monitoring in areas where deep excavation with dewatering will occur for deep utility installation (LFG collection system, sewer lines; Figure 1). Wells were screened to intercept the shallowest groundwater interval, which is considered to be the most representative for assessing exposure risks to workers and for dewatering treatment and disposal.

The locations of the new monitoring wells are as follows (Figure 1):

- **MW-101** is located on the western STSII boundary near the northwest corner of the current Compactor Shed. Trench dewatering is expected here for installation of new storm and sanitary sewer connections to existing sewer mains in 2<sup>nd</sup> Avenue South.
- **MW-102** is located on the northern boundary of the STSII where trench dewatering is expected for installation of storm main manholes and piping.
- **MW-103** is located central to the STSII, on the east edge of the Compactor Shed building near the location of the observed groundwater seep. Localized dewatering may occur here for demolition of the foundation for the lower level of the existing transfer station building including cutting off pilings.
- **MW-104** is located in the southeastern corner of the STSII property to provide good site coverage in identifying potential risks from groundwater surfacing or accumulation within underground structures.
- **MW-105** is located in the south-central portion of the STSII where a utility line will be installed potentially in contact with groundwater.
- **MW-106** is located in the north-central portion of the STSII where utility lines will be installed potentially in contact with groundwater.

Well installation was completed on October 17 and 18, 2019. Borings were advanced using a Geoprobe 7822 DT direct push drill rig. Continuous soil cores were recovered for geologic logging and field screening. Soil was screened for LFG with a GEM 5000 gas analyzer and for volatile organic compounds (VOCs) with a photoionization detector (PID). Appendix A provides the boring logs with PID and LFG (methane) field screening data.

No elevated readings for LFG were observed during drilling. Two wells had elevated PID readings and visual and olfactory indications of petroleum contamination as described below:

- Mild petroleum impacts were observed during the MW-102 drilling from 8 to 13 feet below ground surface (bgs). The highest PID reading was 1,496 parts per million (ppm) at 11 feet bgs. A slight sheen was observed on purge water from MW-102 during development or sampling.
- During drilling of MW-104, moderate petroleum sheen and odor was observed between depths of 8 and 15 feet, roughly corresponding to the level of the water table fluctuation over the wet and dry seasons (Table 1). The highest PID reading was 1,620 ppm at 11 feet bgs. Slight impacts were observed from 15 to 20 feet bgs, and no impacts were observed from 20 to 25 feet bgs.

During development of well MW-104 on October 22, 2019, measurements taken with an oil-water interface probe indicated less than 0.1 foot of apparent light non-aqueous phase liquid (LNAPL). No LNAPL was indicated during the October 29, 2019 sampling event, but a moderate sheen was present on purge water. During the January 24, 2020 sampling event, 0.16 feet of apparent LNAPL was measured using an interface probe. Measured depth to LNAPL and water was slightly above the top of the well screen during this event (Table 1). Purge water from MW-104 was containerized separately for disposal at an off-Site facility.

Each monitoring well was completed with 10 feet of 2-inch-diameter, prepacked schedule 40 PVC well screen. With the exception of well MW-101, the water table depth observed during drilling was comparable to that predicted in the Work Plan (Aspect 2019), and well screens were installed at the depth intervals outlined in the Work Plan (Table 1). Well construction diagrams are available in Appendix A.

Due to its repositioning to the east, MW-101 had a higher ground surface elevation than assumed in the Work Plan. Water was observed at a depth approximately 2 feet deeper than expected. The well's screened interval was adjusted accordingly to intercept the shallowest groundwater present during drilling (Table 1).

Except for well MW-104, the new wells were developed using a submersible pump and surge block. The five wells were surged along the length of the screen and purged at 2 gallons per minute to improve hydraulic connectivity between the well and formation and to remove fine-grained material. During development, specific conductance, pH, and turbidity were monitored to assess well development progress. Development was considered complete when turbidity either fell below 30 nephelometric turbidity units (NTU) or more than 10 casing volumes were removed. Turbidity did not fall below 30 NTU for any of the wells during development, so all were purged to 10 casing volumes.

Due to the LNAPL observed in MW-104, development was completed using a disposable bailer. Turbidity was monitored during the duration of development, and never fell below 1,000 NTU. Ten casing volumes were removed. During the October 29, 2019 sampling event, turbidity had declined to 14 NTU. By the January 24, 2020 event, turbidity fell to 3 NTU. Purge water from MW-104 was drummed separately for off-Site disposal.

As per the Work Plan, the six monitoring wells installed for this investigation will be properly decommissioned in accordance with the requirements of Chapter 173-160 WAC prior to start of the STSII project.

## 2.2 Two Rounds of Groundwater Sampling and Analysis

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Groundwater samples were collected from the new wells on the Site to coincide with seasonally low water levels on October 29, 2019 and seasonally high water levels on January 24, 2020. Prior to collecting the groundwater sample, each well was purged at a rate less than 0.5 liter per minute using a peristaltic pump and dedicated tubing. Groundwater field parameters (temperature, pH, dissolved oxygen, specific electrical conductance, oxidation-reduction potential, and turbidity) were monitored for stability during purging using a flow-through cell. Samples were collected after all parameters had stabilized in accordance with the Work Plan. Table 2 includes the stabilized field parameter values for each sample.

Groundwater samples were submitted to Analytical Resources, Inc. (ARI) of Tukwila, WA, an Ecology-accredited laboratory, for analysis of the following analytes:

- Gasoline-range petroleum hydrocarbons (NWTPH-Gx) and diesel- and oil-range petroleum hydrocarbons (NWTPH-Dx)
- Total and dissolved metals (arsenic, cadmium, chromium, copper, iron, lead, manganese, nickel, zinc, and mercury; EPA Method 6020A, EPA Method 7470A for mercury)
- Full suite of VOCs (EPA Method 8260C)
- Full suite of semivolatile organic compounds (SVOCs) including low-level carcinogenic polycyclic aromatic hydrocarbons (cPAHs; EPA Method 8270D, with EPA Method 8270D-SIM for low-level cPAHs)
- 1, 4 Dioxane (EPA Method 8270D-SIM)
- Polychlorinated biphenyls (PCBs; EPA Method 8082A)

Appendix B contains the laboratory data reports from ARI for both sampling events.

## 2.3 Management of Investigation-Derived Waste

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The investigation-derived soil cuttings and purge water were stored in labeled drums in a secure location on Site. In total, two 55-gallon drums containing soil cuttings, three 55-gallon drums containing purge water from wells other than MW-104, and one 16-gallon drum containing purge water from MW-104 were generated during well installation and sampling. All soil cuttings from well installation will be profiled and transported to a permitted Subtitle D landfill for disposal. All of the purge water from the new wells will be transported to a permitted off-Site facility for treatment and disposition.



## 3 Groundwater Quality Results

This section includes a description of the data quality validation and evaluation of the new groundwater quality data relative to Site groundwater cleanup levels (CULs) defined in the CAP (Ecology, 2018).

### 3.1 Data Quality Validation

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In accordance with the Work Plan, Aspect conducted independent quality assurance validation of analytical data from the two rounds of groundwater monitoring. Based on the validation, all analytical data as qualified are of acceptable quality for their intended purposes. No data were rejected based on data quality.

The data qualifiers resulting from the validation are included in Table 2 in this report and are included in the data to be uploaded to Ecology's Environmental Information Management (EIM) database. Appendix B includes Aspect's data validation reports and ARI's raw data reports for both rounds of monitoring analytical data.

### 3.2 Groundwater Cleanup Levels and Point of Compliance

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Ecology's CAP for the Site determined that the maximum beneficial use of groundwater beneath and immediately downgradient of the Site is drinking water. Therefore, the Site groundwater CULs are based on potable groundwater and are the most stringent of MTCA Methods A, B, or C, or maximum contaminant level (MCL) CULs were developed for all contaminants detected in groundwater. The CAP's groundwater CULs for iron, manganese, and arsenic are based on background conditions, consistent with procedures in Section 709 of the MTCA regulation. The Site groundwater CULs, against which the current investigation data are compared in this report, are conservative with respect to levels protective of worker direct contact exposure.

In MTCA, the point of compliance is the location where a CUL applies. The Site CAP defines a groundwater conditional point of compliance for the Settlement Area portion of the Site at the downgradient edge of the landfill refuse, which is defined operationally by monitoring wells located on the west and east sides of SR 99 (West Marginal Way South) (Ecology, 2018). The monitoring wells installed for this supplemental investigation are located within the landfill refuse, upgradient of the groundwater conditional point of compliance.

### 3.3 Evaluation of Groundwater Quality Data

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Table 2 presents the validated analytical data from the two rounds of groundwater monitoring with corresponding Site groundwater CULs. In Table 2, the individual detected concentrations exceeding groundwater CULs are highlighted in blue.

The monitoring data collected during this supplemental investigation document CUL exceedances in one or more samples of groundwater within the landfill refuse for the following compounds:

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- Total petroleum hydrocarbons (TPH) in the gasoline, diesel, and oil ranges<sup>1</sup>
- Polycyclic aromatic hydrocarbons (PAHs) 1-methylnaphthalene and total carcinogenic PAHs<sup>2</sup>
- Semivolatile organic compound (SVOC) 1,4-dioxane
- Volatile organic compounds (VOCs) benzene, 1,4-dichlorobenzene, trichloroethene (TCE), and vinyl chloride (VC)

Notably, there were no detected exceedances for metals (total or dissolved) in the groundwater samples (Table 2).

Below is a listing of constituents detected in groundwater at concentrations exceeding CULs by well (refer to Table 2):

- **MW-101.** TCE was detected at concentrations up to 10 µg/L in both sampling rounds. Concentrations of the TCE degradation products cis-1,2-dichloroethene (DCE) and VC were below CULs.
- **MW-102:** Diesel + oil-range TPH was detected in both rounds of sampling at concentrations up to 1,314 µg/L, consistent with observations of minor sheen on purge water. In addition, VC was detected up to 5.76 µg/L in both rounds of sampling; TCE was detected at a concentration of 4.67 µg/L only during the wet season sampling event. No exceedances of cis-1,2-DCE were recorded during either sampling event.
- **MW-103:** Marginal exceedances of 1,4-dioxane and VC (0.5 and 0.3 µg/L respectively) were detected during the dry season sampling event. No exceedances were detected during the wet season sampling event.
- **MW-104:** Exceedances of gasoline-range TPH, diesel + oil-range TPH (up to 10,900 µg/L), 1-methylnaphthalene (up to 6.54 µg/L), and total cPAH (up to 0.071 µg/L) were detected during both sampling rounds. Benzene exceeded the CUL at 6.25 µg/L during the wet season monitoring event. These detections are consistent with the LNAPL observations on groundwater in this well, as described above. In addition, exceedances of 1,4-dichlorobenzene (up to 9.81 µg/L), VC (up to 1.04 µg/L), and total PCBs (up to 5.00 µg/L) were recorded during both sampling events.
- **MW-105:** No exceedances were detected during either sampling event.

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<sup>1</sup> For evaluation of diesel-range and oil-range TPH data relative to MTCA Method A cleanup levels, Ecology (2004) policy requires summing the diesel-range and oil-range results to represent a single petroleum product. That policy is applied for these data and, because both fractions are present in Site groundwater, non-detected values are assumed present at ½ the reporting limit for the summation (see Table 2).

<sup>2</sup> Reported as the total toxic equivalent concentration of benzo(a) pyrene (Total cPAH TEQ), calculated in accordance with MTCA (WAC 173-340-708[8][e]).

- **MW-106:** A TCE exceedance (2.16 µg/L) was detected during the wet season sampling event. No exceedance of TCE degradation products cis-1,2-DCE and VC were recorded during either sampling event.

Although groundwater at five of the six new wells exceed one or more CULs, the wells are located upgradient of the groundwater conditional point of compliance as described in Section 3.

## 4 Conclusion

Consistent with the Work Plan, the data collected in this Supplemental Groundwater Investigation provide a more complete characterization of the quality of the shallowest groundwater present within the landfill interior, which allows refined assessment of potential risks associated with exposure to groundwater during STSII construction activities and during the longer-term redeveloped condition.

The supplemental data confirm that groundwater within portions of the landfill interior is contaminated with a variety of organic compounds.

Accordingly, the groundwater quality data and water level data collected in this Investigation will be provided in the STSII project bid package (construction plans and specifications) to assist SPU's selected construction contractor for determining the contract-required site-specific health and safety plan (HASP) for workers conducting the project earthwork, and for determining the requirements for treatment of dewatering water prior to its discharge to sanitary sewer or surface water under applicable permits.

Site construction workers conducting the earthwork components of the STSII project will implement safety measures to prevent exposure to contaminants in Site refuse, soils, and groundwater in accordance with their HASP. Once constructed, the STSII project's landfill cap and associated engineering controls (e.g., impermeable sealing of underground utility infrastructure) will greatly limit direct exposure to Site groundwater. The results from this Investigation do not supplant any requirements in the CAP for the Settlement Area portion of the Site (Ecology, 2018).

## 5 References

- Aspect, 2019, Work Plan for Supplemental Groundwater Investigation, South Recycling and Disposal Station, South Park Landfill Site, October 1, 2019.
- HDR, Herrera Environmental Consultants, and Aspect Consulting, 2015, Interim Action Work Plan, South Transfer Station Phase II, July 24, 2015.
- Washington State Department of Ecology (Ecology), 2004, Determining Compliance with Method A Cleanup Levels for Diesel and Heavy Oil, Ecology Implementation Memorandum No. 4, June 17, 2004.
- Washington State Department of Ecology (Ecology), 2018, South Park Landfill Final Cleanup Action Plan, March 2018.

## 6 Limitations

Work for this project was performed for HDR Inc. (Client), and this report was prepared in accordance with generally accepted professional practices for the nature and conditions of work completed in the same or similar localities, at the time the work was performed. This report does not represent a legal opinion. No other warranty, expressed or implied, is made.

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# TABLES

## Table 1. As-Built Well Screen Depths and Depth to Water Measurements

Project No. 190257, South Park Landfill, Seattle, Washington

Well ID	Depth to Top of Screen (feet bgs)	Depth to Bottom of Screen (feet bgs)	Depth to Groundwater (feet bgs)	
			10/29/2019	1/24/2020
MW-101	15	25	16.38	14.82
MW-102	10	20	11.67	10.05
MW-103	5	15	4.43	4.62
MW-104	12	22	14.06	11.59
MW-105	19	29	21.29	19.07
MW-106	12	22	11.17	9.37

**Notes:**

bgs: Below existing ground surface

### Table 1

**Table 2. Validated Groundwater Quality Data from Supplemental Investigation**

Project No. 190257, South Park Landfill, Seattle, Washington

Analyte	Unit	Cleanup Level	MW-101		MW-102		MW-103		MW-104		MW-105		MW-106	
			10/29/2019	01/24/2020	10/29/2019	01/24/2020	10/29/2019	01/24/2020	10/29/2019	01/24/2020	10/29/2019	01/24/2020	10/29/2019	01/24/2020
<b>Total Petroleum Hydrocarbons (TPH)</b>														
Gasoline Range Organics	ug/L	800	100 U	100 U	100 U	129	100 U	100 U	1340	1580	100 U	100 U	100 U	100 U
Diesel-Range Organics	ug/L		100 U	100 U	1100	618	221	232	6120	8920	115	124	141	100 U
Oil-Range Organics	ug/L		200 U	200 U	214	256	200 U	200 U	1310	1980	200 U	200 U	200 U	200 U
Diesel- + Oil-Range Organics	ug/L	500	300 U	300 U	1314	874	321	332	7430	10900	215	224	241	300 U
<b>Dissolved Metals</b>														
Arsenic	ug/L	5	4.83	2.72	0.311	0.775	3.37	3.06	0.858	0.405	1.83	2.38	1.50	1.14
Cadmium	ug/L	5	0.073 J	0.524	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.036 J	0.1 U	0.1 U	0.1 U	0.194
Chromium	ug/L	50	0.175 J	0.5 U	0.519	0.561	2.89	0.285 J	0.516	0.421 J	0.311 J	0.192 J	1.82	0.313 J
Copper	ug/L	640	0.854	4.88	0.5 U	0.5 U	0.978	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.34
Iron	ug/L	27000	3430	842	2080	3500	6290	933	409	323	19900	17100	11800	680
Lead	ug/L	15	0.689	0.101	0.1 U	0.1 U	0.1 U	0.1 U	0.111	0.1 U	0.1 U	0.1 U	0.103	0.1 U
Manganese	ug/L	2200	57.6	34.9	447	180	667	226	418	199	1000	1110	1550	209
Mercury	ug/L	2	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Nickel	ug/L	100	3.72	9.32	0.914	0.847	11.3	6.38	1.58	1.6	2.22	1.89	10.3	4.57
Zinc	ug/L	4800	4.98	97	4 U	10.4	4.18	4 U	5.21	4.77	4 U	4 U	105	288
<b>Total Metals</b>														
Arsenic	ug/L	5	4.40	3.72	0.277	0.691	3.01	2.76	0.812	0.481	1.81	2.26	1.59	1.19
Cadmium	ug/L	5	0.1 U	0.511	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.036 J	0.228
Chromium	ug/L	50	0.19 J	0.5 U	0.584 J	0.599	3.19	0.246 J	0.652 J	0.357 J	0.275 J	0.143 J	2.14 J	0.299 J
Copper	ug/L	640	1.1	5.31	0.5 U	0.5 U	0.383 J	0.545	1.27	0.934	0.5 U	0.5 U	2.03	2.37
Iron	ug/L	27000	3430	1790	1930	3280	6310	928	547	389	17600	14400	12400	676
Lead	ug/L	15	0.776	0.48	0.2 U	0.082 J	0.2 U	0.1 U	1.18	0.237	0.1 U	0.124	2.19	0.302
Manganese	ug/L	2200	61.4	34.2	419	173	687	216	436	197	1000	1150	1690	197
Mercury	ug/L	2	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Nickel	ug/L	100	4.06	9.29	0.985	0.87	13.4	6.63	1.88	1.65	2.53	1.92	12	4.59
Zinc	ug/L	4800	5.02	95.4	4 U	10.1	4.35	4 U	21.5	27.9	4.18	4 U	129	286
<b>PAHs</b>														
1-Methylnaphthalene	ug/L	1.5	0.01 U	0.002 J	0.01 U	0.009 J	0.01 U	0.003 J	6.54	6.02 E	0.01 U	0.003 J	0.01 U	0.01 U
2-Methylnaphthalene	ug/L	32	0.002 J	0.003 J	0.005 J	0.005 J	0.004 J	0.001 J	0.888	0.419	0.002 J	0.002 J	0.002 J	0.01 U
Acenaphthene	ug/L	960	0.01 U	0.01 U	0.158	0.218	1.05	0.01 J	0.985	0.645	0.01 U	0.01 U	0.01 U	0.01 U
Acenaphthylene	ug/L		0.01 U	0.01 U	0.003 J	0.008 J	0.003 J	0.01 U	0.341	0.345	0.01 U	0.01 U	0.01 U	0.01 U
Anthracene	ug/L	4800	0.01 U	0.01 U	0.003 J	0.01 U	0.003 J	0.01 U	0.005 J	0.004 J	0.01 U	0.01 U	0.01 U	0.01 U
Benz(a)anthracene	ug/L		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.081	0.085	0.01 U	0.01 U	0.01 U	0.01 U
Benzo(a)pyrene	ug/L		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.043	0.053	0.01 U	0.01 U	0.01 U	0.01 U
Benzo(b)fluoranthene	ug/L		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.031	0.041	0.01 U	0.01 U	0.01 U	0.01 U
Benzo(g,h,i)perylene	ug/L		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.034	0.036	0.01 U	0.01 U	0.01 U	0.01 U
Benzo(j)fluoranthene	ug/L		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.012	0.015	0.01 U	0.01 U	0.01 U	0.01 U
Benzo(k)fluoranthene	ug/L		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.012	0.018	0.01 U	0.01 U	0.01 U	0.01 U
Chrysene	ug/L		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.103	0.101	0.01 U	0.01 U	0.01 U	0.01 U
Dibenzo(a,h)anthracene	ug/L		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.007 J	0.01 J	0.01 U	0.01 U	0.01 U	0.01 U
Fluoranthene	ug/L	640	0.01 U	0.01 U	0.01 U	0.014	0.01 U	0.01 U	0.053	0.032	0.01 U	0.01 U	0.01 U	0.01 U
Fluorene	ug/L	640	0.01 U	0.01 U	0.012	0.381	0.003 J	0.01 U	0.816	0.903	0.01 U	0.01 U	0.01 U	0.01 U
Indeno(1,2,3-cd)pyrene	ug/L		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.016	0.02	0.01 U	0.01 U	0.01 U	0.01 U
Naphthalene	ug/L	160	0.01 U	0.01 U	0.01 U	0.01 U	0.011	0.01 U	0.5	0.042	0.01 U	0.01 U	0.01 U	0.01 U
Phenanthrene	ug/L		0.01 U	0.01 U	0.003 J	0.006 J	0.007 J	0.01 U	0.071	0.055	0.01 U	0.002 J	0.01 U	0.01 U
Pyrene	ug/L	480	0.01 U	0.01 U	0.005 J	0.023	0.003 J	0.01 U	0.125	0.088	0.01 U	0.01 U	0.01 U	0.01 U
Total cPAHs TEQ	ug/L	0.023	0.0076 U	0.0076 U	0.0076 U	0.0076 U	0.0076 U	0.0076 U	0.059 J	0.071 J	0.0076 U	0.0076 U	0.0076 U	0.0076 U



**Table 2. Validated Groundwater Quality Data from Supplemental Investigation**

Project No. 190257, South Park Landfill, Seattle, Washington

Analyte	Unit	Cleanup Level	MW-101		MW-102		MW-103		MW-104		MW-105		MW-106	
			10/29/2019	01/24/2020	10/29/2019	01/24/2020	10/29/2019	01/24/2020	10/29/2019	01/24/2020	10/29/2019	01/24/2020	10/29/2019	01/24/2020
Other SVOCs														
1,4-Dioxane	ug/L	0.44	0.2 U	<b>0.05 J</b>	0.2 U	0.2 U	<b>0.5</b>	<b>0.07 J</b>	<b>0.3</b>	<b>0.1 J</b>	0.2 U	<b>0.08 J</b>	0.2 U	0.2 U
2,4,5-Trichlorophenol	ug/L	800	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2,4,6-Trichlorophenol	ug/L	4	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2,4-Dichlorophenol	ug/L	24	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2,4-Dimethylphenol	ug/L	160	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2,4-Dinitrophenol	ug/L	32	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
2,4-Dinitrotoluene	ug/L		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2,6-Dinitrotoluene	ug/L		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Chloronaphthalene	ug/L	640	0.01 U	0.01 U	0.01 U	<b>0.028</b>	0.01 U	<b>0.002 J</b>	0.01 U	<b>0.21</b>	0.01 U	0.01 U	0.01 U	0.01 U
2-Chlorophenol	ug/L	40	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
2-Methylphenol	ug/L	400	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
2-Nitroaniline	ug/L	160	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Nitrophenol	ug/L		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
3,3'-Dichlorobenzidine	ug/L	0.19	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
3-Nitroaniline	ug/L		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
4,6-Dinitro-2-methylphenol	ug/L	1.3	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
4-Bromophenyl phenyl ether	ug/L		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
4-Chloro-3-methylphenol	ug/L	1600	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
4-Chloroaniline	ug/L	0.22	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
4-Chlorophenyl phenyl ether	ug/L		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
4-Methylphenol	ug/L	800	0.2 U	0.2 U	0.2 U	0.2 U	<b>0.08 J</b>	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	<b>0.05 J</b>	0.2 U
4-Nitroaniline	ug/L	64	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
4-Nitrophenol	ug/L		1 U	1 UJ	1 U	1 UJ	1 U	1 UJ	1 U	1 UJ	1 U	1 UJ	1 U	1 UJ
Benzoic acid	ug/L	64000	2 UJ	2 UJ	<b>0.3 J</b>	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ
Benzyl alcohol	ug/L	800	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Benzyl butyl phthalate	ug/L	46	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	<b>0.6</b>	0.2 U	0.2 U	0.2 U	0.2 U
Bis(2-chloro-1-methylethyl) ether	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	0.2 U	0.2 U	0.2 U	0.2 U
Bis(2-chloroethoxy)methane	ug/L		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Bis(2-chloroethyl) ether	ug/L	0.04	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Bis(2-ethylhexyl) phthalate	ug/L	6	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	<b>2.3</b>	<b>6</b>	<b>0.2</b>	0.2 U	0.2 U	0.2 U
Carbazole	ug/L		0.01 U	<b>0.018</b>	0.01 U	0.01 U	<b>0.002 J</b>	0.01 U	<b>0.291</b>	<b>0.289</b>	0.01 U	0.01 U	0.01 U	0.01 U
Dibenzofuran	ug/L	16	0.01 U	0.01 U	<b>0.002 J</b>	<b>0.003 J</b>	<b>0.009 J</b>	0.01 U	<b>0.222</b>	<b>0.223</b>	0.01 U	0.01 U	0.01 U	0.01 U
Diethyl phthalate	ug/L	13000	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	<b>2.2</b>	<b>3.6</b>	0.2 U	0.2 U	0.2 U	0.2 U
Dimethyl phthalate	ug/L		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Di-n-butyl phthalate	ug/L	1600	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	<b>1.8</b>	<b>2.9</b>	0.2 U	0.2 U	0.2 U	0.2 U
Di-n-octyl phthalate	ug/L	160	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Hexachlorobenzene	ug/L		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Hexachlorobutadiene	ug/L	0.56	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Hexachlorocyclopentadiene	ug/L		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Hexachloroethane	ug/L	1.1	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Isophorone	ug/L	46	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nitrobenzene	ug/L		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
N-Nitroso-di-n-propylamine	ug/L	0.013	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
N-Nitrosodiphenylamine	ug/L	18	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Pentachlorophenol	ug/L	0.22	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Perylene	ug/L		0.01 U	0.01 U	0.01 U	0.01 U	<b>0.006 J</b>	0.01 U	<b>0.007 J</b>	<b>0.015</b>	0.01 U	0.01 U	0.01 U	0.01 U
Phenol	ug/L	2400	<b>0.02 J</b>	0.2 U	0.2 U	0.2 U	<b>0.06 J</b>	0.2 U	<b>1.0</b>	<b>1.1</b>	<b>0.03 J</b>	0.2 U	<b>0.03 J</b>	0.2 U

**Table 2. Validated Groundwater Quality Data from Supplemental Investigation**

Project No. 190257, South Park Landfill, Seattle, Washington

Analyte	Unit	Cleanup Level	MW-101		MW-102		MW-103		MW-104		MW-105		MW-106	
			10/29/2019	01/24/2020	10/29/2019	01/24/2020	10/29/2019	01/24/2020	10/29/2019	01/24/2020	10/29/2019	01/24/2020	10/29/2019	01/24/2020
VOCs														
1,1,1,2-Tetrachloroethane	ug/L	1.7	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,1-Trichloroethane	ug/L	200	0.2 U	0.2 U	0.2 U	0.2 U	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 - Trichlorotrifluoroethane	ug/L	240000	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,2,2-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	0.21	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	0.2 U	0.2 U	0.2 U	0.2 U
1,1-Dichloroethane	ug/L	7.7	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.53	0.38	0.2 U	0.2 U	0.2 U	0.2 U
1,1-Dichloroethene	ug/L	7	0.2 U	0.2 U	0.05 J	0.2 U	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-Dichloropropene	ug/L		0.2 U	0.2 U	0.15 J	0.21	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2,3-Trichlorobenzene	ug/L		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	ug/L	0.0015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	ug/L	1.5	0.2 U	0.2 U	0.07 J	0.4	0.2 U	0.11 J	0.03 J	0.15 J	0.2 U	0.2 U	0.2 U	0.2 U
1,2,4-Trimethylbenzene	ug/L	80	0.2 U	0.2 U	0.2 U	0.05 J	0.2 U	0.03 J	0.53	0.13 J	0.2 U	0.2 U	0.2 U	0.2 U
1,2-Dibromo-3-chloropropane	ug/L		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromoethane (EDB)	ug/L	0.01	0.2 U	0.2 U	0.2 U	0.2 U	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	0.2 U	0.2 U	0.05 J	0.06 J	0.2 U	0.2 U	18	19.1	0.08 J	0.18 J	0.04 J	0.04 J
1,2-Dichloroethane (EDC)	ug/L	0.48	0.2 U	0.2 U	0.2 U	0.2 U	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-Dichloropropane	ug/L	1.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,3,5-Trimethylbenzene	ug/L	80	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,3-Dichlorobenzene	ug/L		0.2 U	0.2 U	0.06 J	0.12 J	0.2 U	0.05 J	1.57	1.66	0.2 U	0.04 J	0.2 U	0.2 U
1,3-Dichloropropane	ug/L		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,4-Dichloro-2-Butene	ug/L		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	ug/L	8.1	0.2 U	0.2 U	0.2 U	0.07 J	0.2 U	0.05 J	9.46	9.81	0.14 J	0.19 J	0.2 U	0.04 J
2,2-Dichloropropane	ug/L		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
2-Butanone	ug/L	4800	5 U	1.83 J	5 U	0.84 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Chloroethyl Vinyl Ether	ug/L		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Chlorotoluene	ug/L	160	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
2-Hexanone	ug/L	40	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Pentanone	ug/L		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Chlorotoluene	ug/L		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
4-Methyl-2-pentanone	ug/L	640	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetone	ug/L	7200	5 U	5 U	5 U	5 U	5 U	5.07 U	5 U	5 U	5 U	5 U	5 U	5 U
Acrolein	ug/L	4	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acrylonitrile	ug/L	0.081	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Benzene	ug/L	5	0.03 J	0.03 J	0.19 J	0.03 J	0.17 J	0.07 J	4.96	6.25	0.03 J	0.2 U	2.86	0.38
Bromobenzene	ug/L	64	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.08 J	0.09 J	0.2 U	0.2 U	0.2 U	0.2 U
Bromochloromethane	ug/L		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 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	0.2 U	0.2 U	0.2 U	0.2 U
Bromoethane	ug/L		0.2 U	0.2 U	0.2 U	0.2 U	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	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Bromomethane	ug/L	11	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Disulfide	ug/L	800	0.2 U	0.04 J	0.2 U	0.12 J	1.98	0.66	0.2 U	0.47	0.2 U	0.12 J	0.24	0.2 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	0.2 U	0.2 U	0.2 U	0.2 U
Chlorobenzene	ug/L	100	0.2 U	0.2 U	2.87	0.3	0.11 J	0.2 U	4.16	4.54	0.2 U	0.03 J	3.06	0.44
Chloroethane	ug/L		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chloroform	ug/L	1.4	0.2 U	0.2 U	0.2 U	0.04 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chloromethane	ug/L		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,2-Dichloroethene (DCE)	ug/L	16	6.19	6.81	1.3	1.17	4.4	3.62	0.43	0.41	0.13 J	0.09 J	0.4	0.26
cis-1,3-Dichloropropene	ug/L		0.2 U	0.2 U	0.2 U	0.2 U	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	0.2 U	0.2 U	0.2 U	0.2 U
Dibromomethane	ug/L	80	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Dichlorodifluoromethane	ug/L	1600	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Ethylbenzene	ug/L	700	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	3.44	1.55	0.2 U	0.2 U	0.2 U	0.2 U

**Table 2. Validated Groundwater Quality Data from Supplemental Investigation**

Project No. 190257, South Park Landfill, Seattle, Washington

Analyte	Unit	Cleanup Level	MW-101		MW-102		MW-103		MW-104		MW-105		MW-106	
			10/29/2019	01/24/2020	10/29/2019	01/24/2020	10/29/2019	01/24/2020	10/29/2019	01/24/2020	10/29/2019	01/24/2020	10/29/2019	01/24/2020
Isopropylbenzene	ug/L	800	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	25.6	34.6	0.2 U	0.09 J	0.2 U	0.2 U
m,p-Xylenes	ug/L	1600	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.75	0.83	0.4 U	0.4 U	0.4 U	0.4 U
Methyl tert-butyl ether (MTBE)	ug/L	20	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methylene Chloride	ug/L	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methyliodide	ug/L		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
n-Butylbenzene	ug/L	400	0.2 U	0.2 U	0.2 U	0.06 J	0.2 U	0.2 U	3.41	4.86	0.2 U	0.06 J	0.2 U	0.2 U
n-Propylbenzene	ug/L	800	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	36.3	47.6	0.05 J	0.2 U	0.2 U	0.03 J
o-Xylene	ug/L	1600	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.23	0.25	0.2 U	0.2 U	0.2 U	0.2 U
p-Isopropyltoluene	ug/L		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.18 J	0.17 J	0.2 U	0.2 U	0.2 U	0.2 U
sec-Butylbenzene	ug/L	800	0.2 U	0.2 U	0.16 J	0.56	0.2 U	0.2 U	5.45	8.17	0.2 U	0.05 J	0.2 U	0.2 U
Styrene	ug/L	100	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
tert-Butylbenzene	ug/L	800	0.2 U	0.2 U	0.11 J	0.34	0.2 U	0.2 U	1.02	1.23	0.2 U	0.2 U	0.2 U	0.2 U
Tetrachloroethene (PCE)	ug/L	5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.05 J	0.2 U	0.2 U	0.2 U	0.14 J
Toluene	ug/L	640	0.2 U	0.2 U	0.08 J	0.08 J	0.04 J	0.2 U	0.76	0.47	0.2 U	0.2 U	0.04 J	0.2 U
trans-1,2-Dichloroethene	ug/L	100	0.3	0.21	0.33	0.1 J	0.21	0.32	0.36	0.33	0.2 U	0.2 U	0.2 U	0.2 U
trans-1,3-Dichloropropene	ug/L		0.2 U	0.2 U	0.2 U	0.2 U	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	7.1	10.1	0.32	4.67	0.2 U	0.21	0.51	0.34	0.2 U	0.2 U	0.17 J	2.16
Trichlorofluoromethane	ug/L	2400	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Vinyl Acetate	ug/L	8000	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Vinyl Chloride	ug/L	0.29	0.2 U	0.21	5.76	1.02	0.3	0.14 J	1.04	0.79 J	0.2 U	0.2 U	0.2 U	0.2 U
Total Xylenes	ug/L	1000	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.99	1.09	0.6 U	0.6 U	0.6 U	0.6 U
PCBs														
Aroclor 1016	ug/L		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.1 U	0.01 U	0.01 U	0.01 U	0.01 U
Aroclor 1221	ug/L		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.1 U	0.01 U	0.01 U	0.01 U	0.01 U
Aroclor 1232	ug/L		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.1 U	0.01 U	0.01 U	0.01 U	0.01 U
Aroclor 1242	ug/L		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.1 U	0.01 U	0.01 U	0.01 U	0.01 U
Aroclor 1248	ug/L		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	1.39 J	1.13	0.01 U	0.01 U	0.01 U	0.01 U
Aroclor 1254	ug/L		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	2.44	2.78	0.01 U	0.01 U	0.01 U	0.01 U
Aroclor 1260	ug/L		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.742	1.09	0.01 U	0.01 U	0.01 U	0.01 U
Aroclor 1262	ug/L		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.1 U	0.01 U	0.01 U	0.01 U	0.01 U
Aroclor 1268	ug/L		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.1 U	0.01 U	0.01 U	0.01 U	0.01 U
Total PCBs	ug/L	0.044	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	4.57 J	5.00	0.01 U	0.01 U	0.01 U	0.01 U
Field Parameters														
Temperature	deg C		14.4	13.5	16.7	12.3	16.3	13.2	16.9	14.8	15.1	15.6	15.7	14.9
Specific Conductance	uS/cm		1019	871	1691	322.4	1216	837	2543	1971	1733	1737	1385	941
Dissolved Oxygen	mg/L		0.42	0.51	0.11	0.17	0.12	0.2	0.12	0.14	0.14	0.17	0.15	0.21
pH	pH units		6.74	6.61	6.78	6.25	6.75	6.85	7.11	7.07	7.03	6.94	6.82	6.76
Oxidation Reduction Potential	mV		55.1	43.2	18.3	17.8	59.5	64.4	39.2	54	30	42.9	27.5	37.1
Turbidity	NTU		0.46	1.32	0.8	0.89	13.7	3.41	12.6	3.35	2.52	2.19	13.3	1.01

**Notes:**






Bold - detected value. Blue Shaded - Detected result exceeds cleanup level.

U - Analyte not detected at or above Reporting Limit (RL) shown. J - Estimated concentration. UJ - Analyte not detected and the RL is an estimate. E - The analyte was detected, and the result exceeded the instrument's linear calibration range so is an estimate.

TEQ: Total toxic equivalent concentration of benzo(a)pyrene calculated per MTCA, and assuming 1/2 the RL for non-detected values. Total PCBs is the sum of detected aroclors.


# FIGURES



-  Monitoring Wells Installed for Supplemental Groundwater Investigation
-  Existing Monitoring Well Locations
-  Edge of Refuse
-  South Recycling & Disposal Station (SRDS), equivalent to South Transfer Station II (STSII)
-  King County Tax Parcel

## Monitoring Well Locations

Work Plan for Supplemental Groundwater Investigation  
South Recycling & Disposal Station, Seattle, WA

	NOV-2019	BY: SJG / EAC	FIGURE NO. <b>1</b>
	PROJECT NO. 190257-001-01	REVISED BY: DU	

## **APPENDIX A**

### **Monitoring Well Construction Logs**

Coarse-Grained Soils - More than 50% <sup>1</sup> Retained on No. 200 Sieve	Gravels - More than 50% <sup>1</sup> of Coarse Fraction Retained on No. 4 Sieve	≤5% Fines	GW	Well-graded GRAVEL Well-graded GRAVEL WITH SAND
		≥15% Fines	GP	Poorly-graded GRAVEL Poorly-graded GRAVEL WITH SAND
	Sands - 50% <sup>1</sup> or More of Coarse Fraction Passes No. 4 Sieve	≤5% Fines	GM	SILTY GRAVEL SILTY GRAVEL WITH SAND
		≥15% Fines	GC	CLAYEY GRAVEL CLAYEY GRAVEL WITH SAND
Fine-Grained Soils - 50% <sup>1</sup> or More Passes No. 200 Sieve	Sands - 50% <sup>1</sup> or More of Coarse Fraction Passes No. 4 Sieve	≤5% Fines	SW	Well-graded SAND Well-graded SAND WITH GRAVEL
		≥15% Fines	SP	Poorly-graded SAND Poorly-graded SAND WITH GRAVEL
	Silt and Clays Liquid Limit Less than 50%	≤5% Fines	SM	SILTY SAND SILTY SAND WITH GRAVEL
		≥15% Fines	SC	CLAYEY SAND CLAYEY SAND WITH GRAVEL
Highly Organic Soils	Silt and Clays Liquid Limit 50% or More	ML	SILT SANDY or GRAVELLY SILT SILT WITH SAND SILT WITH GRAVEL	
		CL	LEAN CLAY SANDY or GRAVELLY LEAN CLAY LEAN CLAY WITH SAND LEAN CLAY WITH GRAVEL	
	Silt and Clays Liquid Limit 50% or More	OL	ORGANIC SILT SANDY or GRAVELLY ORGANIC SILT ORGANIC SILT WITH SAND ORGANIC SILT WITH GRAVEL	
		MH	ELASTIC SILT SANDY or GRAVELLY ELASTIC SILT ELASTIC SILT WITH SAND ELASTIC SILT WITH GRAVEL	
Silt and Clays Liquid Limit 50% or More	CH	FAT CLAY SANDY or GRAVELLY FAT CLAY FAT CLAY WITH SAND FAT CLAY WITH GRAVEL		
	OH	ORGANIC CLAY SANDY or GRAVELLY ORGANIC CLAY ORGANIC CLAY WITH SAND ORGANIC CLAY WITH GRAVEL		
Highly Organic Soils		PT	PEAT and other mostly organic soils	

"WITH SILT" or "WITH CLAY" means 5 to 15% silt and clay, denoted by a "-" in the group name; e.g., SP-SM • "SILTY" or "CLAYEY" means >15% silt and clay • "WITH SAND" or "WITH GRAVEL" means 15 to 30% sand and gravel. • "SANDY" or "GRAVELLY" means >30% sand and gravel. • "Well-graded" means approximately equal amounts of fine to coarse grain sizes • "Poorly graded" means unequal amounts of grain sizes • Group names separated by "/" means soil contains layers of the two soil types; e.g., SM/ML.

Soils were described and identified in the field in general accordance with the methods described in ASTM D2488. Where indicated in the log, soils were classified using ASTM D2487 or other laboratory tests as appropriate. Refer to the report accompanying these exploration logs for details.

1. Estimated or measured percentage by dry weight
2. (SPT) Standard Penetration Test (ASTM D1586)
3. Determined by SPT, DCPT (ASTM STP399) or other field methods. See report text for details.

MC	=	Natural Moisture Content	<b>GEOTECHNICAL LAB TESTS</b>
PS	=	Particle Size Distribution	
FC	=	Fines Content (% < 0.075 mm)	
GH	=	Hydrometer Test	
AL	=	Atterberg Limits	
C	=	Consolidation Test	
Str	=	Strength Test	
OC	=	Organic Content (% Loss by Ignition)	
Comp	=	Proctor Test	
K	=	Hydraulic Conductivity Test	
SG	=	Specific Gravity Test	

<b>Organic Chemicals</b>			<b>CHEMICAL LAB TESTS</b>
BTEX	=	Benzene, Toluene, Ethylbenzene, Xylenes	
TPH-Dx	=	Diesel and Oil-Range Petroleum Hydrocarbons	
TPH-G	=	Gasoline-Range Petroleum Hydrocarbons	
VOCs	=	Volatile Organic Compounds	
SVOCs	=	Semi-Volatile Organic Compounds	
PAHs	=	Polycyclic Aromatic Hydrocarbon Compounds	
PCBs	=	Polychlorinated Biphenyls	
<b>Metals</b>			
RCRA8	=	As, Ba, Cd, Cr, Pb, Hg, Se, Ag, (d = dissolved, t = total)	
MTCA5	=	As, Cd, Cr, Hg, Pb (d = dissolved, t = total)	
PP-13	=	Ag, As, Be, Cd, Cr, Cu, Hg, Ni, Pb, Sb, Se, Tl, Zn (d=dissolved, t=total)	

PID	=	Photoionization Detector	<b>FIELD TESTS</b>
Sheen	=	Oil Sheen Test	
SPT <sup>2</sup>	=	Standard Penetration Test	
NSPT	=	Non-Standard Penetration Test	
DCPT	=	Dynamic Cone Penetration Test	

<b>Descriptive Term</b>	<b>Size Range and Sieve Number</b>	<b>COMPONENT DEFINITIONS</b>
Boulders	= Larger than 12 inches	
Cobbles	= 3 inches to 12 inches	
Coarse Gravel	= 3 inches to 3/4 inches	
Fine Gravel	= 3/4 inches to No. 4 (4.75 mm)	
Coarse Sand	= No. 4 (4.75 mm) to No. 10 (2.00 mm)	
Medium Sand	= No. 10 (2.00 mm) to No. 40 (0.425 mm)	
Fine Sand	= No. 40 (0.425 mm) to No. 200 (0.075 mm)	
Silt and Clay	= Smaller than No. 200 (0.075 mm)	

<b>% by Weight</b>	<b>Modifier</b>	<b>% by Weight</b>	<b>Modifier</b>	<b>ESTIMATED<sup>1</sup> PERCENTAGE</b>
<1	=	Subtrace	15 to 25 = Little	
1 to <5	=	Trace	30 to 45 = Some	
5 to 10	=	Few	>50 = Mostly	

Dry	=	Absence of moisture, dusty, dry to the touch	<b>MOISTURE CONTENT</b>
Slightly Moist	=	Perceptible moisture	
Moist	=	Damp but no visible water	
Very Moist	=	Water visible but not free draining	
Wet	=	Visible free water, usually from below water table	

<b>Non-Cohesive or Coarse-Grained Soils</b>		<b>RELATIVE DENSITY</b>
<b>Density<sup>3</sup></b>	<b>SPT<sup>2</sup> Blows/Foot</b>	
Very Loose	= 0 to 4	≥ 2'
Loose	= 5 to 10	1' to 2'
Medium Dense	= 11 to 30	3" to 1'
Dense	= 31 to 50	1" to 3"
Very Dense	= > 50	< 1"

<b>Cohesive or Fine-Grained Soils</b>		<b>CONSISTENCY</b>
<b>Consistency<sup>3</sup></b>	<b>SPT<sup>2</sup> Blows/Foot</b>	
Very Soft	= 0 to 1	Penetrated >1" easily by thumb. Extrudes between thumb & fingers.
Soft	= 2 to 4	Penetrated 1/4" to 1" easily by thumb. Easily molded.
Medium Stiff	= 5 to 8	Penetrated >1/4" with effort by thumb. Molded with strong pressure.
Stiff	= 9 to 15	Indented ~1/4" with effort by thumb.
Very Stiff	= 16 to 30	Indented easily by thumbnail.
Hard	= > 30	Indented with difficulty by thumbnail.

<b>GEOLOGIC CONTACTS</b>		
Observed and Distinct	Observed and Gradual	Inferred

	<b>Exploration Log Key</b>
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### South Park LF - 190257

### Monitoring Well Log

Project Address & Site Specific Location  
 8100 2nd Ave S., Seattle, WA, 98108, 75' W of NW corner of former  
 sorting building

Coordinates (Lat, Lon WGS84)  
 47.53070, -122.33121 (est)  
 Ground Surface (GS) Elev. (NAVD88)  
 20' (est)

Exploration Number  
**MW-101**  
 Ecology Well Tag No.  
 BLK 434

Contractor  
 Cascade  
 Equipment  
 Geoprobe 7822DT

Sampling Method  
 Percussion hammer

Work Start/Completion Dates  
 10/17/2019

Top of Casing Elev. (NAVD88)  
 NA

Depth to Water (Below GS)  
 No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
		8" Flush mount, traffic-rated monument in concrete			PID (ppm)=2.4 Methane (%)=0.0		ASPHALT; road surface	
5	15	2" schedule 40 PVC in 3/8" hydrated bentonite chips			PID (ppm)=5.8 Methane (%)=0.0		SAND WITH GRAVEL (SW); loose, slightly moist, light to red-brown; fine to coarse, subangular sand; fine to medium, subangular gravel; some glass, brick, and fiberglass fragments; no odor	5
					PID (ppm)=5.3 Methane (%)=0.0			
10	10				PID (ppm)=4.7 Methane (%)=0.0		GRAVEL (GP); loose, dry, light grey; fine, subrounded gravel, very poorly graded; no odor	10
					PID (ppm)=4.2 Methane (%)=0.0		SAND WITH GRAVEL (SW); loose, slightly moist, light to red brown; fine to coarse, subangular to angular sand; fine, subangular gravel; some glass, metal, and fiber fragments; no odor	
15	5				PID (ppm)=5.3 Methane (%)=0.0			15
		prepacked 0.010" (10-slot) screen, 2" schedule 40 PVC			PID (ppm)=5.0 Methane (%)=0.0		SAND (SP); loose, wet, dark grey; medium, subangular sand; no odor	
20	0				PID (ppm)=3.7 Methane (%)=0.0		CLAY (CL); soft, wet, dark grey; medium to high plasticity fines; no odor	20
					PID (ppm)=6.2 Methane (%)=0.0		SAND (SP); loose, wet, dark grey; medium, subangular sand; no odor	
25	-5						Bottom of exploration at 25 ft. bgs.	25

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINT\PROJECTS\190257\_SOUTH\_PARK\_LF.GPJ November 22, 2019

**Legend**

- No Soil Sample Recovery
- Continuous core 1.85" ID

Water Level

No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: DWU  
 Approved by:

**Exploration Log**  
**MW-101**

Sheet 1 of 1

Review Stage: DRAFT Rev.0





### South Park LF - 190257

### Monitoring Well Log

Project Address & Site Specific Location

Coordinates (Lat, Lon WGS84)

Exploration Number

8100 2nd Ave S., Seattle, WA, 98108, NW property corner

47.53188, -122.33109 (est)

**MW-102**

Contractor

Equipment

Sampling Method

Ground Surface (GS) Elev. (NAVD88)

Cascade

Geoprobe 7822DT

Percussion hammer

20' (est)

Ecology Well Tag No. BLK 437

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev. (NAVD88)

Depth to Water (Below GS)

Tim

Direct push

10/18/2019

NA

No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
							ASPHALT; road surface	
		8" Flush mount, traffic-rated monument in concrete			PID (ppm)=12.5 Methane (%)=0.0		SAND (SW); loose, moist, medium brown; fine to coarse, subangular to angular sand; some brick, charcoal, and glass fragments; no odor	
					PID (ppm)=2.4 Methane (%)=0.0		SILT (ML); stiff, slightly moist, light brown; low to medium plasticity fines; some sandy silt layers <3"; no odor	
5	15	2" schedule 40 PVC in 3/8" hydrated bentonite chips			PID (ppm)=2.2 Methane (%)=0.0		SAND WITH GRAVEL (SW); loose, moist, light brown; fine to coarse, subangular sand; fine, subrounded gravel; no odor	5
					PID (ppm)=2.7 Methane (%)=0.0		SILT (ML); stiff, slightly moist, light brown; low plasticity fines; no odor	
					PID (ppm)=2.7 Methane (%)=0.0		SAND WITH GRAVEL (SW); loose, moist, light brown; fine to coarse, subangular sand; fine, subrounded gravel; no odor	
					PID (ppm)=396.7 Methane (%)=0.0		SILT (ML); stiff, slightly moist, light brown; low plasticity fines; no odor	
10	10				PID (ppm)=1427 Methane (%)=0.0		SAND (SP); loose, wet, black; medium, subangular sand; slight petroleum-like odor	10
							moderate petroleum-like odor	
					PID (ppm)=5.8 Methane (%)=0.0		CLAY (CL); medium stiff, wet, dark grey; medium to high plasticity fines; some black organic fragments 0.1-0.3 in; very slight petroleum-like odor	
15	5	prepacked 0.010" (10-slot) screen, 2" schedule 40 PVC			PID (ppm)=6.1 Methane (%)=0.0			15
					PID (ppm)=4.7 Methane (%)=0.0			
					PID (ppm)=3.2 Methane (%)=0.0		SAND WITH SILT (SP-SM); medium dense, wet, dark grey; low to medium plasticity fines; fine, subangular sand; laminated layers of sand (SP) and silt (ML) 0.1-0.5 in thickness; very slight petroleum-like odor	
20	0						Bottom of exploration at 20 ft. bgs.	20
25	-5							25

**Legend**

- No Soil Sample Recovery
- Continuous core 1.85" ID

Water Level

No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: DWU  
Approved by:

**Exploration Log**  
**MW-102**

Sheet 1 of 1

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINT\PROJECTS\190257\_SOUTH\_PARK\_LF.GPJ November 22, 2019

Review Stage: DRAFT Rev.0



### South Park LF - 190257

### Monitoring Well Log

Project Address & Site Specific Location  
8100 2nd Ave S., Seattle, WA, 98108, E of former sorting building

Coordinates (Lat, Lon WGS84)

Exploration Number

47.53050, -122.33049 (est)

**MW-103**

Contractor

Equipment

Sampling Method

Ground Surface (GS) Elev. (NAVD88)

Cascade

Geoprobe 7822DT

Percussion hammer

15' (est)

Ecology Well Tag No.  
BLK 435

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev. (NAVD88)

Depth to Water (Below GS)

Tim

Direct push

10/18/2019

NA

No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
		8" Flush mount, traffic-rated monument in concrete			PID (ppm)=0.8 Methane (%)=0.0	ASPHALT	ASPHALT; road surface	
		2" schedule 40 PVC in 3/8" hydrated bentonite chips			PID (ppm)=2.5 Methane (%)=0.0	SAND WITH GRAVEL (SW)	SAND WITH GRAVEL (SW); loose, dry, light brown; fine to coarse, subangular sand; fine, subangular to subrounded gravel; little brick fragments; no odor	
5	10				PID (ppm)=2.0 Methane (%)=0.0	SAND (SP)	SAND (SP); loose, moist, brown grey; medium, subangular sand; no odor	5
					PID (ppm)=3.8 Methane (%)=0.0	SANDY CLAY (CL)	SANDY CLAY (CL); soft, wet, medium grey; medium to high plasticity fines; fine, subangular sand; no odor	
					PID (ppm)=3.1 Methane (%)=0.0	CLAY (CL)	CLAY (CL); soft, moist, medium grey; medium to high plasticity fines; some black organic particles 0.1 in; slight fermentation-like odor	
10	5				PID (ppm)=3.0 Methane (%)=0.0	SAND (SP)	SAND (SP); loose, wet, dark grey; fine to medium, subangular sand; no odor	10
		prepacked 0.010" (10-slot) screen, 2" schedule 40 PVC			PID (ppm)=3.7 Methane (%)=0.0			
15	0						Bottom of exploration at 15 ft. bgs.	15
20	-5							20
25	-10							25

**Legend**

- No Soil Sample Recovery
- Continuous core 1.85" ID

Water Level

No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: DWU  
Approved by:

**Exploration Log**  
**MW-103**

Sheet 1 of 1



### South Park LF - 190257

Project Address & Site Specific Location

8100 2nd Ave S., Seattle, WA, 98108, SE property corner

### Monitoring Well Log

Coordinates (Lat, Lon WGS84)

47.52971, -122.32895 (est)

Exploration Number

**MW-104**

Ecology Well Tag No. BLK 432

Contractor

Cascade

Equipment

Geoprobe 7822DT

Sampling Method

Percussion hammer

Ground Surface (GS) Elev. (NAVD88)

20' (est)

Operator

Tim

Exploration Method(s)

Direct push

Work Start/Completion Dates

10/17/2019

Top of Casing Elev. (NAVD88)

NA

Depth to Water (Below GS)

14.06' (Static)

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
		8" Flush mount, traffic-rated monument in concrete			PID (ppm)=1.7 Methane (%)=0.0		ASPHALT; Road surface	
		2" schedule 40 PVC in 3/8" hydrated bentonite chips			PID (ppm)=0.0 Methane (%)=0.0		SAND WITH GRAVEL (SW); loose, dry, medium brown; fine to coarse, subangular sand; fine, subrounded gravel; some glass fragments; no odor	
5	15				PID (ppm)=0.0 Methane (%)=0.0		SAND WITH SILT AND GRAVEL (SP-SM); loose, dry, medium brown; coarse, subangular sand; fine, subangular to subrounded gravel; ~30% glass and masonry fragments; slight fermentation-like odor	5
10	10				PID (ppm)=249.2 Methane (%)=0.0		SILTY SAND (SM); loose, wet, black; low plasticity fines; fine, subangular sand; little organic fragments; moderate petroleum-like odor, sheen visible on core	10
15	5	▼ 10/29/2019 ▽ 10/17/2019			PID (ppm)=1620 Methane (%)=0.0		SAND (SP); loose, moist, black; fine to medium, subangular sand; slight petroleum-like odor	
15	5	prepacked 0.010" (10-slot) screen, 2" schedule 40 PVC			PID (ppm)=13.1 Methane (%)=0.0		becomes wet CLAY (CL); medium stiff, moist, medium brown; medium plasticity fines; some organic fragments; very slight fermentation-like odor	15
20	0				PID (ppm)=167.4 Methane (%)=0.0		SILTY SAND (SM); loose, wet, dark grey; medium plasticity fines; fine, subangular sand; slight petroleum-like odor	20
20	0				PID (ppm)=9.4 Methane (%)=0.0			
20	0				PID (ppm)=90.3 Methane (%)=0.0			
25	-5				PID (ppm)=5.7 Methane (%)=0.0		SAND (SP); loose, wet, dark grey; fine to medium, subangular sand; slight petroleum-like odor	25
25	-5				PID (ppm)=3.7 Methane (%)=0.0		Bottom of exploration at 25 ft. bgs.	25

**Legend**

- No Soil Sample Recovery
- ▣ Continuous core 1.85" ID

Water Level

- ▼ Static Water Level
- ▽ Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: DWU  
Approved by:

**Exploration Log**  
**MW-104**  
Sheet 1 of 1

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINT\PROJECTS\190257\_SOUTH\_PARK\_LF.GPJ November 22, 2019

Review Stage: DRAFT Rev.0



### South Park LF - 190257

### Monitoring Well Log

Project Address & Site Specific Location  
8100 2nd Ave S., Seattle, WA, 98108, S of former sorting building

Coordinates (Lat, Lon WGS84)  
47.52980, -122.33069 (est)

Exploration Number

**MW-105**

Contractor

Cascade

Equipment

Geoprobe 7822DT

Sampling Method

Percussion hammer

Ground Surface (GS) Elev. (NAVD88)

20' (est)

Operator

Tim

Exploration Method(s)

Direct push

Work Start/Completion Dates

10/17/2019

Top of Casing Elev. (NAVD88)

NA

Depth to Water (Below GS)

21.29' (Static)

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
		8" Flush mount, traffic-rated monument in concrete			PID (ppm)=1.2 Methane (%)=0.0		ASPHALT; Road surface	
5	15	2", schedule 40 PVC in 3/8" hydrated bentonite chips			PID (ppm)=4.3 Methane (%)=0.0		SAND WITH GRAVEL (SW); medium dense, moist, light brown; fine to coarse, subangular sand; fine to medium, subangular gravel; no odor	
					PID (ppm)=3.1 Methane (%)=0.0			5
					PID (ppm)=4.1 Methane (%)=0.0			10
10	10				PID (ppm)=3.5 Methane (%)=0.0			
					PID (ppm)=2.5 Methane (%)=0.0			15
15	5				PID (ppm)=6.2 Methane (%)=0.0		SAND (SP); loose, moist, black; fine, subangular sand; slight asphalt-like odor	
					PID (ppm)=4.0 Methane (%)=0.0			20
20	0	10/17/2019 10/29/2019			PID (ppm)=4.8 Methane (%)=0.0		becomes wet	
		prepacked 0.010" (10-slot) screen, 2" schedule 40 PVC			PID (ppm)=4.7 Methane (%)=0.0		CLAY (CL); medium stiff, moist, light grey; medium to high plasticity fines; some organic fragments; moderate fermentation-like odor	
					PID (ppm)=4.1 Methane (%)=0.0		black textile	25
25	-5						SAND (SP); loose, wet, medium grey; fine, subangular sand; no odor	
							no recovery; sample core wet w/ fine sand grains	30
30	-10						Bottom of exploration at 30 ft. bgs.	

**Legend**

- No Soil Sample Recovery
- Continuous core 1.85" ID

Water Level

- Static Water Level
- Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: DWU  
Approved by:

**Exploration Log**  
**MW-105**

Sheet 1 of 1

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINT\PROJECTS\190257\_SOUTH\_PARK\_LF.GPJ November 22, 2019

Review Stage: DRAFT Rev.0



### South Park LF - 190257

Project Address & Site Specific Location

8100 2nd Ave S., Seattle, WA, 98108, S of HHW office

### Monitoring Well Log

Coordinates (Lat, Lon WGS84)

47.53109, -122.33061 (est)

Exploration Number

**MW-106**

Ecology Well Tag No. BLK 436

Contractor

Cascade

Equipment

Geoprobe 7822DT

Sampling Method

Percussion hammer

Ground Surface (GS) Elev. (NAVD88)

20' (est)

Operator

Tim

Exploration Method(s)

Direct push

Work Start/Completion Dates

10/18/2019

Top of Casing Elev. (NAVD88)

NA

Depth to Water (Below GS)

11.17' (Static)

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
		8" Flush mount, traffic-rated monument in concrete			PID (ppm)=0.2 Methane (%)=0.0		ASPHALT; Road surface	
		2" schedule 40 PVC in 3/8" hydrated bentonite chips			PID (ppm)=2.2 Methane (%)=0.0		SAND (SP); loose, slightly moist, light brown; fine to medium, subangular sand; trace fine, subrounded gravel; no odor	
5	15				PID (ppm)=1.1 Methane (%)=0.0		SAND WITH GRAVEL (SW); loose, dry, red brown; fine to coarse, subangular sand; fine, subangular gravel; some glass fragments; no odor	5
							SAND WITH GRAVEL (SW); loose, dry, red brown; dominantly glass, concrete, and corroded metal fragments, fine sand to medium gravel size; some fine to coarse, subangular sand; trace fine, subrounded gravel; slight fermentation-like odor	
							SAND (SP); loose, moist, medium brown; fine to medium, subangular sand; no odor	
10	10	10/18/2019					becomes wet	10
		10/29/2019						
		prepacked 0.010" (10-slot) screen, 2" schedule 40 PVC			PID (ppm)=1.0 Methane (%)=0.0		CLAY (CL); medium stiff, moist, medium grey; medium to high plasticity fines; some black organic fragments 0.1 to 0.5 in; slight fermentation-like odor	
					PID (ppm)=3.8 Methane (%)=0.0			
15	5				PID (ppm)=1.8 Methane (%)=0.0		SAND (SP); loose, wet, medium grey; fine, subangular sand; no odor	15
					PID (ppm)=1.6 Methane (%)=0.0			
20	0							20
					PID (ppm)=2.6 Methane (%)=0.0			
25	-5				PID (ppm)=2.2 Methane (%)=0.0			25
							Bottom of exploration at 25 ft. bgs.	

**Legend**

- No Soil Sample Recovery
- ▣ Continuous core 1.85" ID

Water Level

- ▼ Static Water Level
- ▽ Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: DWU  
Approved by:

**Exploration Log**  
**MW-106**

Sheet 1 of 1

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINT\PROJECTS\190257\_SOUTH\_PARK\_LF.GPJ November 22, 2019

Review Stage: DRAFT Rev.0

## **APPENDIX B**

### **Data Validation Reports and ARI Inc. Analytical Data Reports**

# DATA VALIDATION REPORT

SPU South Park Landfill  
Groundwater Sampling  
October 2019  
SDG 19J0475

*Prepared by:*

Aspect Consulting, LLC  
710 Second Ave, Suite 550  
Seattle, WA 98104

Project No. 190257 • December 2019

S:\Aspect\InfoServices\Database\EQulS\Data Projects\SPU South Park Landfill\2019-10 GW DV Report 2019-10  
GW.docx

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# 1 Introduction

This report summarizes the findings of the United States Environmental Protection Agency (USEPA) Stage 2A data validation performed on analytical data for the groundwater samples collected on October 29, 2019 for SPU South Park Landfill. A complete list of samples for the sample delivery group (SDG) is provided in Section 2.

Samples were sent to Analytical Resources, Inc. (ARI) for analysis of various parameters. The analytical methods are summarized in Table 1 below:

**Table 1. Analytical Methods**

<b>Analysis</b>	<b>Method</b>	<b>Lab</b>
Gasoline	NWTPH-GX	ARI
Diesel	NWTPH-DX	ARI
Total/Dissolved Metals	SW6020	ARI
Total/Dissolved Mercury	SW7470A	ARI
VOCs	SW8260C	ARI
SVOCs	SW8270D	ARI
cPAHs and 1,4-Dioxane	SW8270DSIM	ARI
PCBs	SW8082A	ARI

The validation followed the procedures documented in the analytical methods, the *National Functional Guidelines for Inorganic Data Review* (USEPA, 2017a), the *National Functional Guidelines for Organic Data Review* (USEPA, 2017b), and *Contract Laboratory Program SOW* (USEPA, 2016). Data assigned a J/UJ qualifier (estimated) may be used for site evaluation purposes but the reasons for qualification should be considered when interpreting sample concentrations. Values without qualification meet all data measurement quality objectives and are suitable for use.

Data qualifier definitions and a summary table of the qualified data are included in the Qualified Data Summary at the end of this report. Data qualifiers have been incorporated into the project chemistry database to reflect the validation in this report.

## 2 Data Validation Findings for SDG 19J0475

Groundwater samples in this SDG are tabulated below. Each analysis listed above in Table 1 was performed on each sample. The sections below describe the results of the data quality review for this SDG by analyte group (analysis).

**Table 2. Sample Index**

<b>Sample Name</b>	<b>Sample Date</b>
MW-101-102919	10/29/2019
MW-102-102919	10/29/2019
MW-103-102919	10/29/2019
MW-104-102919	10/29/2019
MW-105-102919	10/29/2019
MW-106-102919	10/29/2019

## **2.1 Sample Receipt and Preservation**

---

Sample receipt and preservation (2-6 degrees C) were acceptable.

## **2.2 TPHs (NWTPH-GX and NWTPH-DX)**

---

### ***2.2.1 Holding Times***

Samples were analyzed within the requisite holding time limit.

### ***2.2.2 Method Blanks***

Target analytes were not detected at or above the reporting levels in the method blanks. No qualification or action was needed.

### ***2.2.3 Trip Blank***

Target analytes were not detected at or above the reporting levels in the trip blank. No qualification or action was needed.

### ***2.2.4 Surrogates***

All surrogate %R were within the laboratory specified control limits, with the following exception(s):

o-Terphenyl – No recovery reported from initial NWTPH-DX analysis of sample MW-104-102919 due to high analyte concentration. Surrogate was recovered and reported successfully in subsequent dilution analysis. No qualification or action was needed.

### ***2.2.5 Dilutions and Reanalyses***

Some results exceeded the calibration range for the analysis and had to be reanalyzed at a dilution. The results that exceeded the linear range were qualified as estimated due to calibration range exceedance (E) and are not reported. Instead, the associated results are reported from the dilution analysis. All other results are reported from the initial analysis.

### ***2.2.6 Laboratory Control Samples/Laboratory Control Sample Duplicates (LCS/LCSD)***

All LCS and LCSD %R and RPD were within the laboratory specified control limits. No qualification or action was needed.

### **2.2.7 Case Narrative/Laboratory Qualification**

The laboratory noted in the case narrative that MW-104-102919 appears to be an aged gasoline mixture. A note of this was made in the database. No qualification was needed.

### **2.2.8 Overall Assessment**

Accuracy was acceptable based on the LCS/LCSD %R, except as noted above. Precision was acceptable based on the LCS/LCSD RPD values, except as noted above. The data are of known quality and are acceptable for use as qualified.

## **2.3 VOCs (SW8260C)**

---

### **2.3.1 Holding Times**

Samples were analyzed within the requisite holding time limit.

### **2.3.2 Method Blanks**

Target analytes were not detected at or above the reporting levels in the method blank, with the following exception(s):

Carbon Disulfide – Detected at 0.06 J ug/L in BHJ0885-BLK2. Associated detections that are less than or at the RL and flagged by the lab with a “J” are qualified as non-detect (U). Associated non-detections or detections greater than the RL do not require qualification.

Hexachlorobutadiene – Detected at 0.27 J ug/L in BHJ0885-BLK2. Associated non-detections or detections greater than the RL do not require qualification.

n-Butylbenzene – Detected at 0.03 J ug/L in BHJ0885-BLK2. Associated non-detections or detections greater than the RL do not require qualification.

### **2.3.3 Trip Blank**

Target analytes were not detected at or above the reporting levels in the trip blank. No qualification or action was needed.

### **2.3.4 Surrogates**

All surrogate %R were within the laboratory specified control limits. No qualification or action was needed.

### **2.3.5 Laboratory Control Samples/Laboratory Control Sample Duplicates (LCS/LCSD)**

All LCS and LCSD %R and RPD were within the laboratory specified control limits. No qualification or action was needed.

### **2.3.6 Case Narrative/Laboratory Qualification**

The laboratory noted in the case narrative that %D values for the continuing calibration standards were outside control parameters for some parts of this analysis. The lab qualified some of the LCS and LCSD results using lab flag “Q” to indicate this. Evaluation of initial calibration standards is outside of the scope of a Level 2A validation. No further action was needed.

Certain results that are below the RL were qualified as estimated (J).

### **2.3.7 Overall Assessment**

Accuracy was acceptable based on the LCS/LCSD %R, except as noted above. Precision was acceptable based on the LCS/LCSD RPD values, except as noted above. The data are of known quality and are acceptable for use as qualified.

## **2.4 SVOCs (SW8270D and SW8270DSIM)**

---

### **2.4.1 Holding Times**

Samples were analyzed within the requisite holding time limit.

### **2.4.2 Method Blanks**

Target analytes were not detected at or above the reporting levels in the method blank, with the following exception(s):

1,4-Dioxane – Detected at 0.06 J ug/L in BHK0014-BLK1. Associated detections that are less than or equal to the RL and flagged by the lab with a “J” are qualified as non-detect (U). Associated non-detections or detections greater than the RL do not require qualification.

1-Methylnaphthalene – Detected at 0.001 J ug/L in BHK0015-BLK1. Associated detections that are less than or equal to the RL and flagged by the lab with a “J” are qualified as non-detect (U). Associated non-detections or detections greater than the RL do not require qualification.

Naphthalene – Detected at 0.004 J ug/L in BHK0015-BLK1. Associated detections that are less than or equal to the RL and flagged by the lab with a “J” are qualified as non-detect (U). Associated non-detections or detections greater than the RL do not require qualification.

### **2.4.3 Surrogates**

All surrogate %R were within the laboratory specified control limits, with the following exception(s):

Fluoranthene-d10 – Low recovery reported from 8270DSIM initial and dilution analyses of sample MW-104-102919. The two other surrogates in both analyses had acceptable recovery. No qualification or action was needed.

Phenol-d5 – Low recovery reported from 8270D analysis of sample MW-106-102919. The three other surrogates from the acid-extractable had acceptable recovery. No qualification or action was needed.

### **2.4.4 Dilutions and Reanalyses**

Some results exceeded the calibration range for the analysis and had to be reanalyzed at a dilution. The results that exceeded the linear range were qualified as estimated due to calibration range exceedance (E) and are not reported. Instead, the associated results are reported from the dilution analysis. All other results are reported from the initial analysis.

### **2.4.5 Laboratory Control Samples (LCS)**

All LCS %R were within the laboratory specified control limits, with the following exception(s):

4-Chloroaniline – BHK0013-BS1 LCS %R below lower control limit. Associated results are qualified as estimated (J/UJ).

Benzoic Acid – BHK0013-BS1 LCS %R below lower control limit. Associated results are qualified as estimated (J/UJ).

#### ***2.4.6 Case Narrative/Laboratory Qualification***

The laboratory noted in the case narrative that %D values for the continuing calibration standards were outside control parameters for some parts of this analysis. The lab qualified some of the LCS and LCSD results using lab flag “Q” to indicate this. Evaluation of initial calibration standards is outside of the scope of a Level 2A validation. No further action was needed.

The laboratory noted in the case narrative that certain internal standard recoveries were outside control parameters. Evaluation of internal standards is outside of the scope of a Level 2A validation. No further action was needed.

Certain results that are below the RL were qualified as estimated (J).

#### ***2.4.7 Overall Assessment***

Accuracy was acceptable based on the LCS %R, except as noted above. The data are of known quality and are acceptable for use as qualified.

### **2.5 PCBs (SW8082A)**

---

#### ***2.5.1 Holding Times***

Samples were analyzed within the requisite holding time limit.

#### ***2.5.2 Method Blanks***

Target analytes were not detected at or above the reporting levels in the method blank. No qualification or action was needed.

#### ***2.5.3 Surrogates***

All surrogate %R were within the laboratory specified control limits, with the following exception(s):

Decachlorobiphenyl – No recovery reported from initial analysis of sample MW-104-102919 due to high analyte concentration. Surrogate was recovered and reported successfully in subsequent dilution analysis. No qualification or action was needed.

#### ***2.5.4 Dilutions and Reanalyses***

Some results exceeded the calibration range for the analysis and had to be reanalyzed at a dilution. The results that exceeded the linear range were qualified as estimated due to calibration range exceedance (E) and are not reported. Instead, the associated results are reported from the dilution analysis. All other results are reported from the initial analysis

#### ***2.5.5 Laboratory Control Samples (LCS)***

All LCS %R were within the laboratory specified control limits. No qualification or action was needed.

### **2.5.6 Case Narrative/Laboratory Qualification**

The laboratory noted in the case narrative that certain internal standard recoveries were outside control parameters. Evaluation of internal standards is outside of the scope of a Level 2A validation. No further action was needed.

The laboratory notes in the case narrative that the %D between the two columns was high for Aroclor 1248 in sample MW-104-102919. The result was qualified as estimated (J).

### **2.5.7 Overall Assessment**

Accuracy was acceptable based on the LCS %R, except as noted above. The data are of known quality and are acceptable for use as qualified.

## **2.6 Metals (SW6020 and SW7470A)**

---

### **2.6.1 Holding Times**

Samples were analyzed within the requisite holding time limit.

### **2.6.2 Method Blanks**

Target analytes were not detected at or above the reporting levels in the method blank, with the following exception(s):

Zinc, Total – Detected at 3.17 J ug/L in BHK0116-BLK1. Associated detections that are less than or equal to the RL and flagged by the lab with a “J” are qualified as non-detect (U). Associated non-detections or detections greater than the RL do not require qualification.

Zinc, Dissolved – Detected at 2.08 J ug/L in BHK0157-BLK1. Associated detections that are less than the RL are qualified as non-detect (U). Associated non-detections or detections greater than the RL do not require qualification.

### **2.6.3 Laboratory Control Samples (LCS)**

All LCS %R were within the laboratory specified control limits, with the following exception(s):

Mercury, Total – LCS %R above upper control limit. Associated non-detections do not require qualification.

### **2.6.4 Matrix Spikes (MS)**

All MS %R were within the laboratory specified control limits, with the following exception(s):

Manganese, Total – MS %R above upper control limit in sample MW-105-102919. The sample result was greater than 4x the spike amount, which prevents meaningful spike recovery. No qualification or action was needed.

### **2.6.5 Laboratory Duplicates (LD)**

All LD RPD were within the laboratory specified control limits. No qualification or action was needed.

### **2.6.6 Case Narrative/Laboratory Qualification**

Certain results that are below the RL were qualified as estimated (J).

### 2.6.7 Overall Assessment

Accuracy was acceptable based on the LCS and MS %R, except as noted above.  
Precision was acceptable based on the LD RPD values, except as noted above. The data are of known quality and are acceptable for use as qualified.

## 3 Qualified Data Summary

Qualified and reportable sample results are listed below. Results just flagged non-detect (U) by lab with no further qualification necessary are not listed. Results flagged estimated (J) by the lab because they are below the RL are not listed.

**Table 3. Qualified Data Summary**

Sample ID	Method	Analyte	Qualifier	Reason
MW-101-102919	SW8270D	4-Chloroaniline	UJ	LCS %R low
MW-101-102919	SW8270D	Benzoic acid	UJ	LCS %R low
MW-101-102919	SW8270DSIM	1,4-Dioxane	U	Method blank contamination (0.06 J)
MW-101-102919	SW8270DSIM	Naphthalene	U	Method blank contamination (0.004 J)
MW-102-102919	SW6020	Zinc, Dissolved	U	Method blank contamination (2.08 J)
MW-102-102919	SW6020	Zinc, Total	U	Method blank contamination (3.17 J)
MW-102-102919	SW8260C	Carbon Disulfide	U	Method blank contamination (0.06 J)
MW-102-102919	SW8270D	4-Chloroaniline	UJ	LCS %R low
MW-102-102919	SW8270D	Benzoic acid	J	LCS %R low, result below RL
MW-102-102919	SW8270DSIM	1,4-Dioxane	U	Method blank contamination (0.06 J)
MW-102-102919	SW8270DSIM	1-Methylnaphthalene	U	Method blank contamination (0.001 J)
MW-102-102919	SW8270DSIM	Naphthalene	U	Method blank contamination (0.004 J)
MW-103-102919	SW8270D	4-Chloroaniline	UJ	LCS %R low
MW-103-102919	SW8270D	Benzoic acid	UJ	LCS %R low
MW-103-102919	SW8270DSIM	1-Methylnaphthalene	U	Method blank contamination (0.001 J)
MW-104-102919	SW8082A	Aroclor 1248	J	Two column %D high
MW-104-102919	SW8260C	Carbon Disulfide	U	Method blank contamination (0.06 J)
MW-104-102919	SW8270D	4-Chloroaniline	UJ	LCS %R low
MW-104-102919	SW8270D	Benzoic acid	UJ	LCS %R low
MW-105-102919	SW6020	Zinc, Dissolved	U	Method blank contamination (2.08 J)
MW-105-102919	SW8260C	Carbon Disulfide	U	Method blank contamination (0.06 J)
MW-105-102919	SW8270D	4-Chloroaniline	UJ	LCS %R low
MW-105-102919	SW8270D	Benzoic acid	UJ	LCS %R low
MW-105-102919	SW8270DSIM	1,4-Dioxane	U	Method blank contamination (0.06 J)
MW-105-102919	SW8270DSIM	1-Methylnaphthalene	U	Method blank contamination (0.001 J)
MW-105-102919	SW8270DSIM	Naphthalene	U	Method blank contamination (0.004 J)



MW-106-102919	SW8270D	4-Chloroaniline	UJ	LCS %R low
MW-106-102919	SW8270D	Benzoic acid	UJ	LCS %R low
MW-106-102919	SW8270DSIM	1,4-Dioxane	U	Method blank contamination (0.06 J)
MW-106-102919	SW8270DSIM	1-Methylnaphthalene	U	Method blank contamination (0.001 J)
MW-106-102919	SW8270DSIM	Naphthalene	U	Method blank contamination (0.004 J)

**Table 4. Data Qualifier Definitions**

<b>Data Qualifier</b>	<b>Definition</b>
J	The analyte was detected above the reported quantitation limit, and the reported concentration was an estimated value.
R	The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
U	The analyte was analyzed for but was considered not detected at the reporting limit or reported value.
UJ	The analyte was analyzed for, and the associated quantitation limit was an estimated value.
E	The analyte was detected, and the result exceeded the instrument's linear calibration range and should be considered an estimate.

## 4 References

U.S. Environmental Protection Agency (USEPA), 2017a National Functional Guidelines for Inorganic Superfund Methods Data Review, Office of Superfund Remediation and Technology Innovation (OSRTI), USEPA Publication No. 540-R-2017-001, January.

USEPA, 2017b National Functional Guidelines for Organic Superfund Methods Data Review, Office of Superfund Remediation and Technology Innovation (OSRTI), USEPA Publication No. 540-R-2017-002, January.

USEPA, Contract Laboratory Program (CLP) Statement of Work (SOW) for Organic Superfund Methods, Multi-Media, Multi-Concentration, SOM02.4, October 2016.



14 November 2019

Jeff Neuner  
Seattle Public Utilities  
700-5th Ave, Ste 4900, Box 34018  
Seattle, WA 98124-4018

RE: South Park Landfill

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

<u>Associated Work Order(s)</u>	<u>Associated SDG ID(s)</u>
19J0475	N/A

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I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

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



# Chain of Custody Record & Laboratory Analysis Request



**Analytical Resources, Incorporated**  
 Analytical Chemists and Consultants  
 4611 South 134th Place, Suite 100  
 Tukwila, WA 98168  
 206-695-6200 206-695-6201 (fax)  
 www.arilabs.com

ARI Assigned Number: <b>19J0475</b>		Turn-around Requested: <b>STD</b>		Page: <b>1</b> of <b>1</b>										
ARI Client Company: <b>Aspect Consulting</b>		Phone: <b>(206) 838-5830</b>		Date: <b>10/29/14</b>	Ice Present? <input type="checkbox"/>									
Client Contact: <b>Steve Gerriat / Jeff Newner</b>		No. of Coolers: <b>4</b>		Cooler Temps: <b>0.8 0.6 0.1 0.7</b>										
Client Project Name: <b>South Park LF</b>		Analysis Requested				Notes/Comments								
Client Project #: <b>140257</b>	Samplers: <b>DWU</b>	NWTPH-6x1	NWTPH-Dx	Total Metals EPA 6020A	EPA 7470-914									
Sample ID	Date	Time	Matrix	No. Containers	Dissolved Metals EPA 6020A/*	EPA 7470-914	VOCs EPA 8260C	SUDCS EPA 8270D	low level cPAs	EPA 8270D-SIM	1,4 Dioxane	EPA 8270D-SIM	PCBS EPA 8082A	* Field Filtered
MW-101-102914	10/29/14	0925	W	15	X	X	X	X	X	X	X	X		
MW-102-102914		1435												
MW-103-102914		1155												
MW-104-102914		1545											Moderate sheen	
MW-105-102914		1040												
MW-106-102914	↓	1325	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓		
Trip Blank	-	-	W	2				X						
Comments/Special Instructions		Relinquished by: <b>David Unruh</b>		Received by: <b>Erin Sallee</b>		Relinquished by:		Received by:						
		(Signature)		(Signature)		(Signature)		(Signature)						
		Printed Name: <b>David Unruh</b>		Printed Name: <b>Erin Sallee</b>		Printed Name:		Printed Name:						
		Company: <b>Aspect Consulting</b>		Company: <b>ARI</b>		Company:		Company:						
Date & Time: <b>10/29/14 1654</b>		Date & Time: <b>10/29/14 1654</b>		Date & Time:		Date & Time:								

**Limits of Liability:** ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

**Sample Retention Policy:** All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.



Seattle Public Utilities  
700-5th Ave, Ste 4900, Box 34018  
Seattle WA, 98124-4018

Project: South Park Landfill  
Project Number: South Park Landfill  
Project Manager: Jeff Neuner

**Reported:**  
14-Nov-2019 16:02

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-101-102919	19J0475-01	Water	29-Oct-2019 09:25	29-Oct-2019 16:54
MW-101-102919	19J0475-02	Water	29-Oct-2019 09:25	29-Oct-2019 16:54
MW-102-102919	19J0475-03	Water	29-Oct-2019 14:35	29-Oct-2019 16:54
MW-102-102919	19J0475-04	Water	29-Oct-2019 14:35	29-Oct-2019 16:54
MW-103-102919	19J0475-05	Water	29-Oct-2019 11:55	29-Oct-2019 16:54
MW-103-102919	19J0475-06	Water	29-Oct-2019 11:55	29-Oct-2019 16:54
MW-104-102919	19J0475-07	Water	29-Oct-2019 15:45	29-Oct-2019 16:54
MW-104-102919	19J0475-08	Water	29-Oct-2019 15:45	29-Oct-2019 16:54
MW-105-102919	19J0475-09	Water	29-Oct-2019 10:40	29-Oct-2019 16:54
MW-105-102919	19J0475-10	Water	29-Oct-2019 10:40	29-Oct-2019 16:54
MW-106-102919	19J0475-11	Water	29-Oct-2019 13:25	29-Oct-2019 16:54
MW-106-102919	19J0475-12	Water	29-Oct-2019 13:25	29-Oct-2019 16:54
Trip Blank	19J0475-13	Water	29-Oct-2019 09:25	29-Oct-2019 16:54



Seattle Public Utilities  
700-5th Ave, Ste 4900, Box 34018  
Seattle WA, 98124-4018

Project: South Park Landfill  
Project Number: South Park Landfill  
Project Manager: Jeff Neuner

Reported:  
14-Nov-2019 16:02

## Work Order Case Narrative

**Client:** Seattle Public Utilities  
**Project:** South Park Landfill  
**Work Order:** 19J0475

### Sample receipt

Samples as listed on the preceding page were received October 29, 2019 under ARI work order 19J0475. For details regarding sample receipt, please refer to the Cooler Receipt Form.

### PCB Aroclors - EPA Method SW8082A

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits except Hexabromobiphenyl which was out of control low for sample MW-104-102919 (ARI 19J0475-07) on column zb5. Data reported from passing column.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.

### Gasoline by NWTPH-g (GC/MS)

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The LCS/LCSD percent recoveries and RPD were within control limits.

Sample MW-104-102919 (ARI 19J0475-07) appears to be an aged gasoline mixture.

### Volatiles - EPA Method SW8260C



Seattle Public Utilities  
700-5th Ave, Ste 4900, Box 34018  
Seattle WA, 98124-4018

Project: South Park Landfill  
Project Number: South Park Landfill  
Project Manager: Jeff Neuner

Reported:  
14-Nov-2019 16:02

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements except Chloroethane, 1,1,2-Trichloro-1,2,2-Trifluoroethane and Bromoethane which were out of control high. All samples which contain analyte have been flagged with a "Q" qualifier.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The LCS/LCSD percent recoveries and RPD were within control limits.

Manual integrations were performed for targets because automatic integration did not pick up the peaks for the following. Method blank for Chloromethane, n-Butylbenzene and Naphthalene. Sample MW-101-102919 (ARI 19J0475-01) for Chloromethane, Vinyl Chloride, Acetone and Benzene. Sample MW-102-102919 (ARI 19J0475-03) for Chloromethane and Acetone. Sample MW-103-102919 (ARI 19J0475-05) for Acetone. Sample MW-104-102919 (ARI 19J0475-07) for Chloromethane, o-Xylene and 4-Isopropyltoluene. Sample MW-105-102919 (ARI 19J0475-09) for 1,1-Dichloroethane, Benzene, n-Propylbenzene and Naphthalene. Sample MW-106-102919 (ARI 19J0475-11) for Acetone and n-Propylbenzene. Trip Blank sample (ARI 19J0475-13) for Chloromethane, Methylene Chloride and Acetone. Continuing Calibration Verification (CCV) for trans-1,4-Dichloro-2-Butene.

#### **Semivolatiles - EPA Method SW8270D**

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements except 2-Nitroaniline and 4-Nitrophenol which were out of control high. All samples which contain analyte have been flagged with a "Q" qualifier.

Internal standard areas were within limits except d12-Chrysene which was out of control low in sample MW-104-102919 (ARI 19J0475-07). The sample was reanalyzed at a dilution with similar internal standard recovery. Reported affected analytes bis(2-ethylhexyl)phthalate and di-n-octylphthalate from reanalysis.

The surrogate percent recoveries were within control limits except Phenol-d5 which was out of control low in sample MW-106-102919 (ARI 19J0475-11). This surrogate is flagged.

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits except Benzoic Acid and 4-Chloroaniline which were out of control low and are flagged within the QC section of this report.

#### **1,4-Dioxane - EPA Method SW8270D-SIM**

The sample(s) were extracted and analyzed within the recommended holding times.



Seattle Public Utilities  
700-5th Ave, Ste 4900, Box 34018  
Seattle WA, 98124-4018

Project: South Park Landfill  
Project Number: South Park Landfill  
Project Manager: Jeff Neuner

Reported:  
14-Nov-2019 16:02

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.

#### **Polynuclear Aromatic Hydrocarbons (PAH) - EPA Method SW8270D-SIM**

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits except Fluoranthene-d10 which was out of control low in sample MW-104-102919 (ARI 19J0475-07). This analyte is flagged.

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.

#### **Total Metals - EPA Method 6020A**

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.

Sample specific QC was performed in association with sample MW-105-102919 (ARI 19J0475-09) in analytical batch BHK0116. The duplicate RPD and matrix spike percent recoveries were within control limits.

#### **Dissolved Metals - EPA Method 6020A**

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.



Seattle Public Utilities  
700-5th Ave, Ste 4900, Box 34018  
Seattle WA, 98124-4018

Project: South Park Landfill  
Project Number: South Park Landfill  
Project Manager: Jeff Neuner

Reported:  
14-Nov-2019 16:02

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.

**Total Mercury - EPA Method 7470/7471**

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The LCS percent recovery was outside control limits high and is flagged within the QC section of this report.

Sample specific QC was performed in association with sample MW-101-102919 (ARI 19J0475-01) in analytical batch BHK0033. The duplicate RPD and matrix spike percent recoveries were within control limits.

**Dissolved Mercury - EPA Method 7470/7471**

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.

**Diesel/Heavy Oil Range Organics - WA-Ecology Method NW-TPHDx**

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.





WORK ORDER

19J0475

<b>Client:</b> Seattle Public Utilities	<b>Project Manager:</b> Shelly Fishel
<b>Project:</b> South Park Landfill	<b>Project Number:</b> South Park Landfill

Preservation Confirmation

Container ID	Container Type	pH	
19J0475-01 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
19J0475-01 B	Glass NM, Amber, 1000 mL		
19J0475-01 C	Glass NM, Amber, 1000 mL		
19J0475-01 D	Glass NM, Amber, 500 mL		
19J0475-01 E	Glass NM, Amber, 500 mL		
19J0475-01 F	Glass NM, Amber, 500 mL		
19J0475-01 G	Glass NM, Amber, 500 mL		
19J0475-01 H	Glass NM, Amber, 500 mL		
19J0475-01 I	Glass NM, Amber, 500 mL		
19J0475-01 J	Glass NM, Amber, 500 mL		
19J0475-01 K	Glass NM, Amber, 500 mL		
19J0475-01 L	VOA Vial, Clear, 40 mL, HCL		
19J0475-01 M	VOA Vial, Clear, 40 mL, HCL		
19J0475-01 N	VOA Vial, Clear, 40 mL, HCL		
19J0475-02 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	Pass
19J0475-03 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
19J0475-03 B	Glass NM, Amber, 1000 mL		
19J0475-03 C	Glass NM, Amber, 1000 mL		
19J0475-03 D	Glass NM, Amber, 500 mL		
19J0475-03 E	Glass NM, Amber, 500 mL		
19J0475-03 F	Glass NM, Amber, 500 mL		
19J0475-03 G	Glass NM, Amber, 500 mL		
19J0475-03 H	Glass NM, Amber, 500 mL		
19J0475-03 I	Glass NM, Amber, 500 mL		
19J0475-03 J	Glass NM, Amber, 500 mL		
19J0475-03 K	Glass NM, Amber, 500 mL		
19J0475-03 L	VOA Vial, Clear, 40 mL, HCL		
19J0475-03 M	VOA Vial, Clear, 40 mL, HCL		
19J0475-03 N	VOA Vial, Clear, 40 mL, HCL		
19J0475-04 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	Pass
19J0475-05 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
19J0475-05 B	Glass NM, Amber, 1000 mL		
19J0475-05 C	Glass NM, Amber, 1000 mL		
19J0475-05 D	Glass NM, Amber, 500 mL		
19J0475-05 E	Glass NM, Amber, 500 mL		



WORK ORDER

19J0475

<b>Client:</b> Seattle Public Utilities	<b>Project Manager:</b> Shelly Fishel
<b>Project:</b> South Park Landfill	<b>Project Number:</b> South Park Landfill

19J0475-05 F	Glass NM, Amber, 500 mL		
19J0475-05 G	Glass NM, Amber, 500 mL		
19J0475-05 H	Glass NM, Amber, 500 mL		
19J0475-05 I	Glass NM, Amber, 500 mL		
19J0475-05 J	Glass NM, Amber, 500 mL		
19J0475-05 K	Glass NM, Amber, 500 mL		
19J0475-05 L	VOA Vial, Clear, 40 mL, HCL		
19J0475-05 M	VOA Vial, Clear, 40 mL, HCL		
19J0475-05 N	VOA Vial, Clear, 40 mL, HCL		
19J0475-06 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	Pass
19J0475-07 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
19J0475-07 B	Glass NM, Amber, 1000 mL		
19J0475-07 C	Glass NM, Amber, 1000 mL		
19J0475-07 D	Glass NM, Amber, 500 mL		
19J0475-07 E	Glass NM, Amber, 500 mL		
19J0475-07 F	Glass NM, Amber, 500 mL		
19J0475-07 G	Glass NM, Amber, 500 mL		
19J0475-07 H	Glass NM, Amber, 500 mL		
19J0475-07 I	Glass NM, Amber, 500 mL		
19J0475-07 J	Glass NM, Amber, 500 mL		
19J0475-07 K	Glass NM, Amber, 500 mL		
19J0475-07 L	VOA Vial, Clear, 40 mL, HCL		
19J0475-07 M	VOA Vial, Clear, 40 mL, HCL		
19J0475-07 N	VOA Vial, Clear, 40 mL, HCL		
19J0475-08 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	Pass
19J0475-09 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
19J0475-09 B	Glass NM, Amber, 1000 mL		
19J0475-09 C	Glass NM, Amber, 1000 mL		
19J0475-09 D	Glass NM, Amber, 500 mL		
19J0475-09 E	Glass NM, Amber, 500 mL		
19J0475-09 F	Glass NM, Amber, 500 mL		
19J0475-09 G	Glass NM, Amber, 500 mL		
19J0475-09 H	Glass NM, Amber, 500 mL		
19J0475-09 I	Glass NM, Amber, 500 mL		
19J0475-09 J	Glass NM, Amber, 500 mL		
19J0475-09 K	Glass NM, Amber, 500 mL		
19J0475-09 L	VOA Vial, Clear, 40 mL, HCL		



WORK ORDER

19J0475

<b>Client:</b> Seattle Public Utilities	<b>Project Manager:</b> Shelly Fishel
<b>Project:</b> South Park Landfill	<b>Project Number:</b> South Park Landfill

19J0475-09 M	VOA Vial, Clear, 40 mL, HCL		
19J0475-09 N	VOA Vial, Clear, 40 mL, HCL		
19J0475-10 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	Pass
19J0475-11 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
19J0475-11 B	Glass NM, Amber, 1000 mL		
19J0475-11 C	Glass NM, Amber, 1000 mL		
19J0475-11 D	Glass NM, Amber, 500 mL		
19J0475-11 E	Glass NM, Amber, 500 mL		
19J0475-11 F	Glass NM, Amber, 500 mL		
19J0475-11 G	Glass NM, Amber, 500 mL		
19J0475-11 H	Glass NM, Amber, 500 mL		
19J0475-11 I	Glass NM, Amber, 500 mL		
19J0475-11 J	Glass NM, Amber, 500 mL		
19J0475-11 K	Glass NM, Amber, 500 mL		
19J0475-11 L	VOA Vial, Clear, 40 mL, HCL		
19J0475-11 M	VOA Vial, Clear, 40 mL, HCL		
19J0475-11 N	VOA Vial, Clear, 40 mL, HCL		
19J0475-12 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	Pass
19J0475-13 A	VOA Vial, Clear, 40 mL, HCL		
19J0475-13 B	VOA Vial, Clear, 40 mL, HCL		

J.Bw  
Preservation Confirmed By

10/30/19  
Date



# Cooler Receipt Form

ARI Client: SPH/Aspect

Project Name: South Park LF

COC No(s): \_\_\_\_\_ NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: \_\_\_\_\_

Assigned ARI Job No: 19J0475

Tracking No: \_\_\_\_\_ NA

**Preliminary Examination Phase:**

Were intact, properly signed and dated custody seals attached to the outside of the cooler? YES NO

Were custody papers included with the cooler? YES NO

Were custody papers properly filled out (ink, signed, etc.) YES NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1654 0.8 0.6 0.1 0.7

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: DOO2565

Cooler Accepted by: [Signature] Date: 10/29/19 Time: 1654

**Complete custody forms and attach all shipping documents**

**Log-In Phase:**

Was a temperature blank included in the cooler? YES NO

What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: \_\_\_\_\_

Was sufficient ice used (if appropriate)? NA YES NO

How were bottles sealed in plastic bags? Individually Grouped Not

Did all bottles arrive in good condition (unbroken)? YES NO

Were all bottle labels complete and legible? YES NO

Did the number of containers listed on COC match with the number of containers received? YES NO

Did all bottle labels and tags agree with custody papers? YES NO

Were all bottles used correct for the requested analyses? YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) ... NA YES NO

Were all VOC vials free of air bubbles? NA YES NO

Was sufficient amount of sample sent in each bottle? YES NO

Date VOC Trip Blank was made at ARI: \_\_\_\_\_ NA 10/24/19

Were the sample(s) split by ARI? NA YES Date/Time: \_\_\_\_\_ Equipment: \_\_\_\_\_ Split by: \_\_\_\_\_

Samples Logged by: JJW Date: 10/30/19 Time: 0858 Labels checked by: JJW

**\*\* Notify Project Manager of discrepancies or concerns \*\***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

**Additional Notes, Discrepancies, & Resolutions:**

By: \_\_\_\_\_ Date: \_\_\_\_\_



Seattle Public Utilities  
700-5th Ave, Ste 4900, Box 34018  
Seattle WA, 98124-4018

Project: South Park Landfill  
Project Number: South Park Landfill  
Project Manager: Jeff Neuner

Reported:  
14-Nov-2019 16:02

**MW-101-102919**  
**19J0475-01 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 10/29/2019 09:25

Instrument: NT2 Analyst: LH

Analyzed: 10/30/2019 11:26

Sample Preparation:

Preparation Method: EPA 5030 (Purge and Trap)

Extract ID: 19J0475-01 L

Preparation Batch: BHJ0885

Sample Size: 10 mL

Prepared: 30-Oct-2019

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.09	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.06	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	0.25	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.09	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.04	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.48	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.04	0.20	ND	ug/L	U
Acetone	67-64-1	1	2.06	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.05	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.04	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.23	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.49	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.60	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.04	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.05	0.20	<b>0.30</b>	ug/L	
Vinyl Acetate	108-05-4	1	0.07	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.05	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	0.81	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.05	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.04	0.20	<b>6.19</b>	ug/L	
Chloroform	67-66-3	1	0.03	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.06	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.04	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.03	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.04	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.07	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.03	0.20	<b>0.03</b>	ug/L	J
Trichloroethene	79-01-6	1	0.05	0.20	<b>7.10</b>	ug/L	
1,2-Dichloropropane	78-87-5	1	0.04	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.05	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.15	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.25	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	0.97	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.06	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.08	0.20	ND	ug/L	U



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Project: South Park Landfill  
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Project Manager: Jeff Neuner

Reported:  
14-Nov-2019 16:02

**MW-101-102919**  
**19J0475-01 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 10/29/2019 09:25

Instrument: NT2 Analyst: LH

Analyzed: 10/30/2019 11:26

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	0.90	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.13	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.06	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.05	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.05	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.07	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.02	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.09	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.05	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.06	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.06	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.13	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.32	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.02	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.06	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.02	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.02	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.02	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.03	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.02	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.02	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.02	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.03	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.04	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.04	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.02	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.04	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.37	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.11	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.07	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.12	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.11	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.05	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.07	0.50	ND	ug/L	U
2-Pentanone	107-87-9	1	5.00	5.00	ND	ug/L	U



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Reported:  
14-Nov-2019 16:02

**MW-101-102919**  
**19J0475-01 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 10/29/2019 09:25

Instrument: NT2 Analyst: LH

Analyzed: 10/30/2019 11:26

Analyte	CAS Number	Recovery		Units	Notes
		Limits	Recovery		
Surrogate: 1,2-Dichloroethane-d4		80-120 %	110	%	
Surrogate: Toluene-d8		80-120 %	95.8	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	94.8	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	99.1	%	



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14-Nov-2019 16:02

**MW-101-102919**  
**19J0475-01 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 10/29/2019 09:25  
Instrument: NT2 Analyst: LH Analyzed: 10/30/2019 11:26  
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) Extract ID: 19J0475-01 L  
Preparation Batch: BHJ0885 Sample Size: 10 mL  
Prepared: 30-Oct-2019 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	95.8	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	94.8	%	





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Reported:  
14-Nov-2019 16:02

**MW-101-102919**  
**19J0475-01 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D Sampled: 10/29/2019 09:25  
Instrument: NT10 Analyst: VTS Analyzed: 11/08/2019 18:07

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 19J0475-01 C 01  
Preparation Batch: BHK0013 Sample Size: 1000 mL  
Prepared: 05-Nov-2019 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	0.01	0.2	<b>0.02</b>	ug/L	J
bis(2-chloroethyl) ether	111-44-4	1	0.03	0.2	ND	ug/L	U
2-Chlorophenol	95-57-8	1	0.03	0.2	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.03	0.2	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.03	0.2	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.03	0.2	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	0.02	0.2	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	0.03	0.2	ND	ug/L	U
2-Methylphenol	95-48-7	1	0.03	0.2	ND	ug/L	U
Hexachloroethane	67-72-1	1	0.04	0.2	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	0.04	0.2	ND	ug/L	U
4-Methylphenol	106-44-5	1	0.03	0.2	ND	ug/L	U
Nitrobenzene	98-95-3	1	0.03	0.2	ND	ug/L	U
Isophorone	78-59-1	1	0.03	0.2	ND	ug/L	U
2-Nitrophenol	88-75-5	1	0.04	1.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	0.3	1.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	0.03	0.2	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	0.1	1.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.03	0.2	ND	ug/L	U
Benzoic acid	65-85-0	1	0.1	2.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	0.04	1.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	0.04	0.2	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	0.1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	0.1	1.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	0.2	1.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	0.1	1.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	0.03	0.2	ND	ug/L	U
2-Nitroaniline	88-74-4	1	0.2	1.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	0.04	0.2	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	0.2	1.0	ND	ug/L	U
3-Nitroaniline	99-09-2	1	0.2	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	0.2	2.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	0.06	1.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	0.1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	0.02	0.2	ND	ug/L	U
Diethyl phthalate	84-66-2	1	0.06	0.2	ND	ug/L	U



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Reported:  
14-Nov-2019 16:02

**MW-101-102919**  
**19J0475-01 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 10/29/2019 09:25

Instrument: NT10 Analyst: VTS

Analyzed: 11/08/2019 18:07

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
4-Nitroaniline	100-01-6	1	0.2	1.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	0.4	2.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	0.03	0.2	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	0.02	0.2	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	0.04	0.2	ND	ug/L	U
Pentachlorophenol	87-86-5	1	0.1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.04	0.2	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	0.05	0.2	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	0.07	0.2	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	0.3	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	0.2	0.2	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	0.05	0.2	ND	ug/L	U
<i>Surrogate: 2-Fluorophenol</i>					30-160 %	48.1	%
<i>Surrogate: Phenol-d5</i>					30-160 %	32.6	%
<i>Surrogate: 2-Chlorophenol-d4</i>					30-160 %	83.9	%
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>					30-160 %	79.3	%
<i>Surrogate: Nitrobenzene-d5</i>					30-160 %	97.9	%
<i>Surrogate: 2-Fluorobiphenyl</i>					30-160 %	92.5	%
<i>Surrogate: 2,4,6-Tribromophenol</i>					30-160 %	91.4	%
<i>Surrogate: p-Terphenyl-d14</i>					30-160 %	112	%



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14-Nov-2019 16:02

**MW-101-102919**  
**19J0475-01 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM Sampled: 10/29/2019 09:25  
Instrument: NT11 Analyst: VTS Analyzed: 11/09/2019 10:22

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 19J0475-01 J 01  
Preparation Batch: BHK0015 Sample Size: 500 mL  
Prepared: 05-Nov-2019 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel Extract ID: 19J0475-01 J 01  
Cleanup Batch: CHK0096 Initial Volume: 0.5 mL  
Cleaned: 08-Nov-2019 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.010	0.004	ug/L	J
2-Methylnaphthalene	91-57-6	1	0.001	0.010	0.002	ug/L	J
1-Methylnaphthalene	90-12-0	1	0.0009	0.010	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	0.001	0.010	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.002	0.010	ND	ug/L	U
Acenaphthene	83-32-9	1	0.003	0.010	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.002	0.010	ND	ug/L	U
Fluorene	86-73-7	1	0.002	0.010	ND	ug/L	U
Phenanthrene	85-01-8	1	0.001	0.010	ND	ug/L	U
Anthracene	120-12-7	1	0.001	0.010	ND	ug/L	U
Carbazole	86-74-8	1	0.001	0.010	ND	ug/L	U
Fluoranthene	206-44-0	1	0.002	0.010	ND	ug/L	U
Pyrene	129-00-0	1	0.001	0.010	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.0008	0.010	ND	ug/L	U
Chrysene	218-01-9	1	0.0009	0.010	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	1	0.0005	0.010	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.003	0.010	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	1	0.002	0.010	ND	ug/L	U
Benzofluoranthenes, Total		1	0.004	0.010	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.002	0.010	ND	ug/L	U
Perylene	1985-5-0	1	0.006	0.010	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.001	0.010	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.001	0.010	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.001	0.010	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>					42-120 %	72.2 %	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>					29-120 %	78.5 %	
<i>Surrogate: Fluoranthene-d10</i>					57-120 %	84.2 %	

Instrument: NT12 Analyst: JZ Analyzed: 11/08/2019 13:42

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 19J0475-01 I 01  
Preparation Batch: BHK0014 Sample Size: 500 mL  
Prepared: 04-Nov-2019 Final Volume: 1 mL



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**Reported:**  
14-Nov-2019 16:02

**MW-101-102919**  
**19J0475-01 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM

Sampled: 10/29/2019 09:25

Instrument: NT12 Analyst: JZ

Analyzed: 11/08/2019 13:42

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.04	0.2	<b>0.09</b>	ug/L	J
<i>Surrogate: 1,4-Dioxane-d8</i>				33.6-120 %	67.4	%	



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14-Nov-2019 16:02

**MW-101-102919**  
**19J0475-01 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4 Analyst: CTO

Sampled: 10/29/2019 09:25  
Analyzed: 11/04/2019 16:45

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BHJ0953  
Prepared: 01-Nov-2019

Sample Size: 500 mL  
Final Volume: 1 mL

Extract ID: 19J0475-01 G 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	83.1	%	



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14-Nov-2019 16:02

**MW-101-102919**  
**19J0475-01 (Water)**

**Aroclor PCB**

Method: EPA 8082A		Sampled: 10/29/2019 09:25
Instrument: ECD7 Analyst: JGR		Analyzed: 11/11/2019 16:36
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BHK0011 Prepared: 05-Nov-2019	Sample Size: 1000 mL Final Volume: 0.5 mL Extract ID: 19J0475-01 B 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CHK0101 Cleaned: 11-Nov-2019	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 19J0475-01 B 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CHK0099 Cleaned: 11-Nov-2019	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 19J0475-01 B 01
Sample Cleanup:	Cleanup Method: Sulfur Cleanup Batch: CHK0100 Cleaned: 11-Nov-2019	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 19J0475-01 B 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.002	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.002	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.002	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.002	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1262	37324-23-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1268	11100-14-4	1	0.003	0.010	ND	ug/L	U
<i>Surrogate: Decachlorobiphenyl</i>					29-120 %	63.6	%
<i>Surrogate: Tetrachlorometaxylene</i>					32-120 %	55.7	%
<i>Surrogate: Decachlorobiphenyl [2C]</i>					29-120 %	59.5	%
<i>Surrogate: Tetrachlorometaxylene [2C]</i>					32-120 %	48.4	%



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**MW-101-102919**  
**19J0475-01 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6020A

Sampled: 10/29/2019 09:25

Instrument: ICPMS1 Analyst: MCB

Analyzed: 11/07/2019 18:20

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 19J0475-01 A 01

Preparation Batch: BHK0116

Sample Size: 25 mL

Prepared: 06-Nov-2019

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	1	0.130	0.500	<b>0.190</b>	ug/L	J
Iron	7439-89-6	10	62.7	200	<b>3430</b>	ug/L	D
Lead	7439-92-1	1	0.0680	0.100	<b>0.776</b>	ug/L	
Manganese	7439-96-5	1	0.0850	0.500	<b>61.4</b>	ug/L	



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**Reported:**  
14-Nov-2019 16:02

**MW-101-102919**  
**19J0475-01 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6020A UCT-KED

Sampled: 10/29/2019 09:25

Instrument: ICPMS2 Analyst: MCB

Analyzed: 11/07/2019 04:17

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 19J0475-01 A 01

Preparation Batch: BHK0116

Sample Size: 25 mL

Prepared: 06-Nov-2019

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	<b>4.40</b>	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper	7440-50-8	1	0.340	0.500	<b>1.10</b>	ug/L	
Nickel	7440-02-0	1	0.0500	0.500	<b>4.06</b>	ug/L	
Zinc	7440-66-6	1	0.820	4.00	<b>5.02</b>	ug/L	





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Project: South Park Landfill  
Project Number: South Park Landfill  
Project Manager: Jeff Neuner

**Reported:**  
14-Nov-2019 16:02

**MW-101-102919**  
**19J0475-01 (Water)**

**Metals and Metallic Compounds**

Method: EPA 7470A

Sampled: 10/29/2019 09:25

Instrument: CVAA Analyst: SKM

Analyzed: 11/06/2019 14:13

Sample Preparation:

Preparation Method: TLM EPA 7470A low level

Extract ID: 19J0475-01 A

Preparation Batch: BHK0033

Sample Size: 20 mL

Prepared: 04-Nov-2019

Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000010	0.000020	ND	mg/L	U



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14-Nov-2019 16:02

**MW-101-102919**  
**19J0475-02 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6020A Sampled: 10/29/2019 09:25  
Instrument: ICPMS1 Analyst: MCB Analyzed: 11/12/2019 19:40

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 19J0475-02 A 01  
Preparation Batch: BHK0157 Sample Size: 25 mL  
Prepared: 07-Nov-2019 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	6.27	20.0	<b>3430</b>	ug/L	
Lead, Dissolved	7439-92-1	1	0.0680	0.100	<b>0.689</b>	ug/L	

Instrument: ICPMS2 Analyst: MCB Analyzed: 11/08/2019 20:23

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 19J0475-02 A 01  
Preparation Batch: BHK0157 Sample Size: 25 mL  
Prepared: 07-Nov-2019 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium, Dissolved	7440-47-3	1	0.130	0.500	<b>0.175</b>	ug/L	J
Manganese, Dissolved	7439-96-5	1	0.0850	0.500	<b>57.6</b>	ug/L	



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Reported:  
14-Nov-2019 16:02

**MW-101-102919**  
**19J0475-02 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6020A UCT-KED Sampled: 10/29/2019 09:25  
Instrument: ICPMS2 Analyst: MCB Analyzed: 11/08/2019 20:23  
Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 19J0475-02 A 01  
Preparation Batch: BHK0157 Sample Size: 25 mL  
Prepared: 07-Nov-2019 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	<b>4.83</b>	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	<b>0.0730</b>	ug/L	J
Copper, Dissolved	7440-50-8	1	0.340	0.500	<b>0.854</b>	ug/L	
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	<b>3.72</b>	ug/L	
Zinc, Dissolved	7440-66-6	1	0.820	4.00	<b>4.98</b>	ug/L	



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**Reported:**  
14-Nov-2019 16:02

**MW-101-102919**  
**19J0475-02 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 7470A Sampled: 10/29/2019 09:25  
Instrument: CVAA Analyst: SKM Analyzed: 11/06/2019 15:37  
Sample Preparation: Preparation Method: TLM EPA 7470A low level Extract ID: 19J0475-02 A  
Preparation Batch: BHK0035 Sample Size: 20 mL  
Prepared: 04-Nov-2019 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000010	0.000020	ND	mg/L	U



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Reported:  
14-Nov-2019 16:02

**MW-102-102919**  
**19J0475-03 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 10/29/2019 14:35

Instrument: NT2 Analyst: LH

Analyzed: 10/30/2019 11:46

Sample Preparation:

Preparation Method: EPA 5030 (Purge and Trap)

Extract ID: 19J0475-03 L

Preparation Batch: BHJ0885

Sample Size: 10 mL

Prepared: 30-Oct-2019

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.09	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.06	0.20	<b>5.76</b>	ug/L	
Bromomethane	74-83-9	1	0.25	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.09	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.04	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.48	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.04	0.20	ND	ug/L	U
Acetone	67-64-1	1	2.06	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.05	0.20	<b>0.05</b>	ug/L	J
Bromoethane	74-96-4	1	0.04	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.23	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.49	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.60	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.04	0.20	<b>0.09</b>	ug/L	J
trans-1,2-Dichloroethene	156-60-5	1	0.05	0.20	<b>0.33</b>	ug/L	
Vinyl Acetate	108-05-4	1	0.07	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.05	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	0.81	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.05	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.04	0.20	<b>1.30</b>	ug/L	
Chloroform	67-66-3	1	0.03	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.06	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.04	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.03	0.20	<b>0.15</b>	ug/L	J
Carbon tetrachloride	56-23-5	1	0.04	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.07	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.03	0.20	<b>0.19</b>	ug/L	J
Trichloroethene	79-01-6	1	0.05	0.20	<b>0.32</b>	ug/L	
1,2-Dichloropropane	78-87-5	1	0.04	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.05	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.15	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.25	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	0.97	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.06	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	<b>0.08</b>	ug/L	J
trans-1,3-Dichloropropene	10061-02-6	1	0.08	0.20	ND	ug/L	U



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Reported:  
14-Nov-2019 16:02

**MW-102-102919**  
**19J0475-03 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 10/29/2019 14:35

Instrument: NT2 Analyst: LH

Analyzed: 10/30/2019 11:46

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	0.90	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.13	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.06	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.05	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.05	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.07	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.02	0.20	<b>2.87</b>	ug/L	
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.09	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.05	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.06	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.06	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.13	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.32	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.02	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.06	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.02	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.02	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.02	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.03	0.20	<b>0.11</b>	ug/L	J
1,3,5-Trimethylbenzene	108-67-8	1	0.02	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.02	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.02	0.20	<b>0.16</b>	ug/L	J
4-Isopropyl Toluene	99-87-6	1	0.03	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.04	0.20	<b>0.06</b>	ug/L	J
1,4-Dichlorobenzene	106-46-7	1	0.04	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.02	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.04	0.20	<b>0.05</b>	ug/L	J
1,2-Dibromo-3-chloropropane	96-12-8	1	0.37	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.11	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.07	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.12	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.11	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.05	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.07	0.50	ND	ug/L	U
2-Pentanone	107-87-9	1	5.00	5.00	ND	ug/L	U



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**Reported:**  
14-Nov-2019 16:02

**MW-102-102919**  
**19J0475-03 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 10/29/2019 14:35

Instrument: NT2 Analyst: LH

Analyzed: 10/30/2019 11:46

Analyte	CAS Number	Recovery		Units	Notes
		Limits	Recovery		
Surrogate: 1,2-Dichloroethane-d4		80-120 %	115	%	
Surrogate: Toluene-d8		80-120 %	98.3	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	96.5	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	102	%	



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14-Nov-2019 16:02

**MW-102-102919**  
**19J0475-03 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 10/29/2019 14:35  
Instrument: NT2 Analyst: LH Analyzed: 10/30/2019 11:46  
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) Extract ID: 19J0475-03 L  
Preparation Batch: BHJ0885 Sample Size: 10 mL  
Prepared: 30-Oct-2019 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	98.3	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	96.5	%	





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Reported:  
14-Nov-2019 16:02

**MW-102-102919**  
**19J0475-03 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D Sampled: 10/29/2019 14:35  
Instrument: NT10 Analyst: VTS Analyzed: 11/08/2019 18:43

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 19J0475-03 C 01  
Preparation Batch: BHK0013 Sample Size: 1000 mL  
Prepared: 05-Nov-2019 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	0.01	0.2	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	0.03	0.2	ND	ug/L	U
2-Chlorophenol	95-57-8	1	0.03	0.2	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.03	0.2	0.05	ug/L	J
1,4-Dichlorobenzene	106-46-7	1	0.03	0.2	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.03	0.2	0.04	ug/L	J
Benzyl Alcohol	100-51-6	1	0.02	0.2	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	0.03	0.2	ND	ug/L	U
2-Methylphenol	95-48-7	1	0.03	0.2	ND	ug/L	U
Hexachloroethane	67-72-1	1	0.04	0.2	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	0.04	0.2	ND	ug/L	U
4-Methylphenol	106-44-5	1	0.03	0.2	ND	ug/L	U
Nitrobenzene	98-95-3	1	0.03	0.2	ND	ug/L	U
Isophorone	78-59-1	1	0.03	0.2	ND	ug/L	U
2-Nitrophenol	88-75-5	1	0.04	1.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	0.3	1.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	0.03	0.2	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	0.1	1.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.03	0.2	0.07	ug/L	J
Benzoic acid	65-85-0	1	0.1	2.0	0.3	ug/L	J
4-Chloroaniline	106-47-8	1	0.04	1.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	0.04	0.2	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	0.1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	0.1	1.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	0.2	1.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	0.1	1.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	0.03	0.2	ND	ug/L	U
2-Nitroaniline	88-74-4	1	0.2	1.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	0.04	0.2	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	0.2	1.0	ND	ug/L	U
3-Nitroaniline	99-09-2	1	0.2	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	0.2	2.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	0.06	1.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	0.1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	0.02	0.2	ND	ug/L	U
Diethyl phthalate	84-66-2	1	0.06	0.2	ND	ug/L	U



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Reported:  
14-Nov-2019 16:02

**MW-102-102919**  
**19J0475-03 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 10/29/2019 14:35

Instrument: NT10 Analyst: VTS

Analyzed: 11/08/2019 18:43

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
4-Nitroaniline	100-01-6	1	0.2	1.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	0.4	2.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	0.03	0.2	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	0.02	0.2	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	0.04	0.2	ND	ug/L	U
Pentachlorophenol	87-86-5	1	0.1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.04	0.2	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	0.05	0.2	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	0.07	0.2	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	0.3	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	0.2	0.2	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	0.05	0.2	ND	ug/L	U
<i>Surrogate: 2-Fluorophenol</i>					30-160 %	47.9	%
<i>Surrogate: Phenol-d5</i>					30-160 %	30.9	%
<i>Surrogate: 2-Chlorophenol-d4</i>					30-160 %	85.8	%
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>					30-160 %	79.7	%
<i>Surrogate: Nitrobenzene-d5</i>					30-160 %	106	%
<i>Surrogate: 2-Fluorobiphenyl</i>					30-160 %	92.3	%
<i>Surrogate: 2,4,6-Tribromophenol</i>					30-160 %	95.8	%
<i>Surrogate: p-Terphenyl-d14</i>					30-160 %	107	%



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Reported:  
14-Nov-2019 16:02

**MW-102-102919**  
**19J0475-03 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM Sampled: 10/29/2019 14:35  
Instrument: NT11 Analyst: VTS Analyzed: 11/09/2019 10:51

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 19J0475-03 H 01  
Preparation Batch: BHK0015 Sample Size: 500 mL  
Prepared: 05-Nov-2019 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel Extract ID: 19J0475-03 H 01  
Cleanup Batch: CHK0096 Initial Volume: 0.5 mL  
Cleaned: 08-Nov-2019 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.010	0.006	ug/L	J
2-Methylnaphthalene	91-57-6	1	0.001	0.010	0.005	ug/L	J
1-Methylnaphthalene	90-12-0	1	0.0009	0.010	0.003	ug/L	J
2-Chloronaphthalene	91-58-7	1	0.001	0.010	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.002	0.010	0.003	ug/L	J
Acenaphthene	83-32-9	1	0.003	0.010	0.158	ug/L	
Dibenzofuran	132-64-9	1	0.002	0.010	0.002	ug/L	J
Fluorene	86-73-7	1	0.002	0.010	0.012	ug/L	
Phenanthrene	85-01-8	1	0.001	0.010	0.003	ug/L	J
Anthracene	120-12-7	1	0.001	0.010	0.003	ug/L	J
Carbazole	86-74-8	1	0.001	0.010	ND	ug/L	U
Fluoranthene	206-44-0	1	0.002	0.010	ND	ug/L	U
Pyrene	129-00-0	1	0.001	0.010	0.005	ug/L	J
Benzo(a)anthracene	56-55-3	1	0.0008	0.010	ND	ug/L	U
Chrysene	218-01-9	1	0.0009	0.010	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	1	0.0005	0.010	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.003	0.010	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	1	0.002	0.010	ND	ug/L	U
Benzofluoranthenes, Total		1	0.004	0.010	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.002	0.010	ND	ug/L	U
Perylene	1985-5-0	1	0.006	0.010	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.001	0.010	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.001	0.010	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.001	0.010	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>					42-120 %	82.4 %	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>					29-120 %	85.6 %	
<i>Surrogate: Fluoranthene-d10</i>					57-120 %	88.2 %	

Instrument: NT12 Analyst: JZ Analyzed: 11/08/2019 14:07

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 19J0475-03 G 01  
Preparation Batch: BHK0014 Sample Size: 500 mL  
Prepared: 04-Nov-2019 Final Volume: 1 mL



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Project Manager: Jeff Neuner

**Reported:**  
14-Nov-2019 16:02

**MW-102-102919**  
**19J0475-03 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM

Sampled: 10/29/2019 14:35

Instrument: NT12 Analyst: JZ

Analyzed: 11/08/2019 14:07

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.04	0.2	<b>0.07</b>	ug/L	J
<i>Surrogate: 1,4-Dioxane-d8</i>				33.6-120 %	63.2	%	



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Reported:  
14-Nov-2019 16:02

**MW-102-102919**  
**19J0475-03 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx

Sampled: 10/29/2019 14:35

Instrument: FID4 Analyst: CTO

Analyzed: 11/04/2019 17:05

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 19J0475-03 D 01

Preparation Batch: BHJ0953

Sample Size: 500 mL

Prepared: 01-Nov-2019

Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24) HC ID: DRO	DRO	1	0.100	<b>1.10</b>	mg/L	
Motor Oil Range Organics (C24-C38) HC ID: MOTOR OIL	RRO	1	0.200	<b>0.214</b>	mg/L	
Surrogate: <i>o</i> -Terphenyl			50-150 %	83.4	%	



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Reported:  
14-Nov-2019 16:02

**MW-102-102919**  
**19J0475-03 (Water)**

**Aroclor PCB**

Method: EPA 8082A		Sampled: 10/29/2019 14:35
Instrument: ECD7 Analyst: JGR		Analyzed: 11/11/2019 16:57
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BHK0011 Prepared: 05-Nov-2019	Sample Size: 1000 mL Final Volume: 0.5 mL Extract ID: 19J0475-03 B 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CHK0101 Cleaned: 11-Nov-2019	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 19J0475-03 B 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CHK0099 Cleaned: 11-Nov-2019	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 19J0475-03 B 01
Sample Cleanup:	Cleanup Method: Sulfur Cleanup Batch: CHK0100 Cleaned: 11-Nov-2019	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 19J0475-03 B 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.002	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.002	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.002	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.002	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1262	37324-23-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1268	11100-14-4	1	0.003	0.010	ND	ug/L	U
<i>Surrogate: Decachlorobiphenyl</i>					29-120 %	64.5	%
<i>Surrogate: Tetrachlorometaxylene</i>					32-120 %	56.8	%
<i>Surrogate: Decachlorobiphenyl [2C]</i>					29-120 %	60.0	%
<i>Surrogate: Tetrachlorometaxylene [2C]</i>					32-120 %	55.5	%



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**Reported:**  
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**MW-102-102919**  
**19J0475-03 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6020A

Sampled: 10/29/2019 14:35

Instrument: ICPMS1 Analyst: MCB

Analyzed: 11/07/2019 20:34

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 19J0475-03 A 01

Preparation Batch: BHK0116

Sample Size: 25 mL

Prepared: 06-Nov-2019

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	2	0.260	1.00	<b>0.584</b>	ug/L	J, D
Iron	7439-89-6	10	62.7	200	<b>1930</b>	ug/L	D
Lead	7439-92-1	2	0.136	0.200	ND	ug/L	U
Manganese	7439-96-5	10	0.850	5.00	<b>419</b>	ug/L	D



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14-Nov-2019 16:02

**MW-102-102919**  
**19J0475-03 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6020A UCT-KED

Sampled: 10/29/2019 14:35

Instrument: ICPMS2 Analyst: MCB

Analyzed: 11/07/2019 04:22

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 19J0475-03 A 01

Preparation Batch: BHK0116

Sample Size: 25 mL

Prepared: 06-Nov-2019

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	<b>0.277</b>	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper	7440-50-8	1	0.340	0.500	ND	ug/L	U
Nickel	7440-02-0	1	0.0500	0.500	<b>0.985</b>	ug/L	
Zinc	7440-66-6	1	0.820	4.00	<b>3.32</b>	ug/L	J





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**MW-102-102919**  
**19J0475-03 (Water)**

**Metals and Metallic Compounds**

Method: EPA 7470A

Sampled: 10/29/2019 14:35

Instrument: CVAA Analyst: SKM

Analyzed: 11/06/2019 14:43

Sample Preparation:

Preparation Method: TLM EPA 7470A low level

Extract ID: 19J0475-03 A

Preparation Batch: BHK0033

Sample Size: 20 mL

Prepared: 04-Nov-2019

Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000010	0.000020	ND	mg/L	U



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**MW-102-102919**  
**19J0475-04 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6020A Sampled: 10/29/2019 14:35  
Instrument: ICPMS1 Analyst: MCB Analyzed: 11/12/2019 18:19

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 19J0475-04 A 01  
Preparation Batch: BHK0157 Sample Size: 25 mL  
Prepared: 07-Nov-2019 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	5	31.4	100	<b>2080</b>	ug/L	D
Manganese, Dissolved	7439-96-5	5	0.425	2.50	<b>447</b>	ug/L	D

Instrument: ICPMS2 Analyst: MCB Analyzed: 11/08/2019 20:28

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 19J0475-04 A 01  
Preparation Batch: BHK0157 Sample Size: 25 mL  
Prepared: 07-Nov-2019 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium, Dissolved	7440-47-3	1	0.130	0.500	<b>0.519</b>	ug/L	



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**MW-102-102919**  
**19J0475-04 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6020A UCT-KED Sampled: 10/29/2019 14:35  
Instrument: ICPMS2 Analyst: MCB Analyzed: 11/08/2019 20:28  
Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 19J0475-04 A 01  
Preparation Batch: BHK0157 Sample Size: 25 mL  
Prepared: 07-Nov-2019 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	<b>0.311</b>	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper, Dissolved	7440-50-8	1	0.340	0.500	ND	ug/L	U
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	<b>0.914</b>	ug/L	
Zinc, Dissolved	7440-66-6	1	0.820	4.00	<b>3.72</b>	ug/L	J



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**MW-102-102919**  
**19J0475-04 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 7470A	Preparation Method: TLM EPA 7470A low level	Sampled: 10/29/2019 14:35
Instrument: CVAA Analyst: SKM	Preparation Batch: BHK0035	Analyzed: 11/06/2019 15:46
Sample Preparation:	Prepared: 04-Nov-2019	Extract ID: 19J0475-04 A
	Sample Size: 20 mL	
	Final Volume: 20 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000010	0.000020	ND	mg/L	U



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**MW-102-102919**  
**19J0475-04RE1 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6020A	Sampled: 10/29/2019 14:35
Instrument: ICPMS1 Analyst: MCB	Analyzed: 11/12/2019 19:46
Sample Preparation:	Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
	Preparation Batch: BHK0157
	Prepared: 07-Nov-2019
	Sample Size: 25 mL
	Final Volume: 25 mL
	Extract ID: 19J0475-04RE1 A 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead, Dissolved	7439-92-1	1	0.0680	0.100	ND	ug/L	U



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Reported:  
14-Nov-2019 16:02

**MW-103-102919**  
**19J0475-05 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 10/29/2019 11:55

Instrument: NT2 Analyst: LH

Analyzed: 10/30/2019 12:06

Sample Preparation:

Preparation Method: EPA 5030 (Purge and Trap)

Extract ID: 19J0475-05 L

Preparation Batch: BHJ0885

Sample Size: 10 mL

Prepared: 30-Oct-2019

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.09	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.06	0.20	<b>0.30</b>	ug/L	
Bromomethane	74-83-9	1	0.25	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.09	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.04	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.48	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.04	0.20	ND	ug/L	U
Acetone	67-64-1	1	2.06	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.05	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.04	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.23	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.49	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.60	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.04	0.20	<b>1.98</b>	ug/L	
trans-1,2-Dichloroethene	156-60-5	1	0.05	0.20	<b>0.21</b>	ug/L	
Vinyl Acetate	108-05-4	1	0.07	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.05	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	0.81	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.05	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.04	0.20	<b>4.40</b>	ug/L	
Chloroform	67-66-3	1	0.03	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.06	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.04	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.03	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.04	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.07	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.03	0.20	<b>0.17</b>	ug/L	J
Trichloroethene	79-01-6	1	0.05	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.04	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.05	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.15	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.25	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	0.97	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.06	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	<b>0.04</b>	ug/L	J
trans-1,3-Dichloropropene	10061-02-6	1	0.08	0.20	ND	ug/L	U



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Reported:  
14-Nov-2019 16:02

**MW-103-102919**  
**19J0475-05 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 10/29/2019 11:55

Instrument: NT2 Analyst: LH

Analyzed: 10/30/2019 12:06

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	0.90	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.13	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.06	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.05	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.05	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.07	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.02	0.20	<b>0.11</b>	ug/L	J
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.09	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.05	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.06	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.06	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.13	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.32	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.02	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.06	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.02	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.02	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.02	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.03	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.02	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.02	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.02	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.03	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.04	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.04	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.02	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.04	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.37	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.11	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.07	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.12	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.11	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.05	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.07	0.50	ND	ug/L	U
2-Pentanone	107-87-9	1	5.00	5.00	ND	ug/L	U



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Reported:  
14-Nov-2019 16:02

**MW-103-102919**  
**19J0475-05 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 10/29/2019 11:55

Instrument: NT2 Analyst: LH

Analyzed: 10/30/2019 12:06

Analyte	CAS Number	Recovery		Units	Notes
		Limits	Recovery		
Surrogate: 1,2-Dichloroethane-d4		80-129 %	115	%	
Surrogate: Toluene-d8		80-120 %	97.5	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	94.3	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	101	%	





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Project: South Park Landfill  
Project Number: South Park Landfill  
Project Manager: Jeff Neuner

Reported:  
14-Nov-2019 16:02

**MW-103-102919**  
**19J0475-05 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 10/29/2019 11:55  
Instrument: NT2 Analyst: LH Analyzed: 10/30/2019 12:06  
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) Extract ID: 19J0475-05 L  
Preparation Batch: BHJ0885 Sample Size: 10 mL  
Prepared: 30-Oct-2019 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	97.5	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	94.3	%	



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**MW-103-102919**  
**19J0475-05 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 10/29/2019 11:55

Instrument: NT10 Analyst: VTS

Analyzed: 11/08/2019 19:20

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BHK0013  
Prepared: 05-Nov-2019

Sample Size: 1000 mL  
Final Volume: 1 mL

Extract ID: 19J0475-05 C 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	0.01	0.2	<b>0.06</b>	ug/L	J
bis(2-chloroethyl) ether	111-44-4	1	0.03	0.2	ND	ug/L	U
2-Chlorophenol	95-57-8	1	0.03	0.2	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.03	0.2	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.03	0.2	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.03	0.2	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	0.02	0.2	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	0.03	0.2	ND	ug/L	U
2-Methylphenol	95-48-7	1	0.03	0.2	ND	ug/L	U
Hexachloroethane	67-72-1	1	0.04	0.2	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	0.04	0.2	ND	ug/L	U
4-Methylphenol	106-44-5	1	0.03	0.2	<b>0.08</b>	ug/L	J
Nitrobenzene	98-95-3	1	0.03	0.2	ND	ug/L	U
Isophorone	78-59-1	1	0.03	0.2	ND	ug/L	U
2-Nitrophenol	88-75-5	1	0.04	1.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	0.3	1.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	0.03	0.2	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	0.1	1.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.03	0.2	ND	ug/L	U
Benzoic acid	65-85-0	1	0.1	2.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	0.04	1.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	0.04	0.2	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	0.1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	0.1	1.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	0.2	1.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	0.1	1.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	0.03	0.2	ND	ug/L	U
2-Nitroaniline	88-74-4	1	0.2	1.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	0.04	0.2	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	0.2	1.0	ND	ug/L	U
3-Nitroaniline	99-09-2	1	0.2	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	0.2	2.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	0.06	1.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	0.1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	0.02	0.2	ND	ug/L	U
Diethyl phthalate	84-66-2	1	0.06	0.2	ND	ug/L	U



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14-Nov-2019 16:02

**MW-103-102919**  
**19J0475-05 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 10/29/2019 11:55

Instrument: NT10 Analyst: VTS

Analyzed: 11/08/2019 19:20

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
4-Nitroaniline	100-01-6	1	0.2	1.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	0.4	2.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	0.03	0.2	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	0.02	0.2	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	0.04	0.2	ND	ug/L	U
Pentachlorophenol	87-86-5	1	0.1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.04	0.2	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	0.05	0.2	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	0.07	0.2	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	0.3	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	0.2	0.2	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	0.05	0.2	ND	ug/L	U
<i>Surrogate: 2-Fluorophenol</i>				30-160 %	44.8	%	
<i>Surrogate: Phenol-d5</i>				30-160 %	30.2	%	
<i>Surrogate: 2-Chlorophenol-d4</i>				30-160 %	76.7	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>				30-160 %	72.1	%	
<i>Surrogate: Nitrobenzene-d5</i>				30-160 %	95.7	%	
<i>Surrogate: 2-Fluorobiphenyl</i>				30-160 %	84.4	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>				30-160 %	87.7	%	
<i>Surrogate: p-Terphenyl-d14</i>				30-160 %	109	%	



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**MW-103-102919**  
**19J0475-05 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM Sampled: 10/29/2019 11:55  
Instrument: NT11 Analyst: VTS Analyzed: 11/09/2019 11:20

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 19J0475-05 H 01  
Preparation Batch: BHK0015 Sample Size: 500 mL  
Prepared: 05-Nov-2019 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel Extract ID: 19J0475-05 H 01  
Cleanup Batch: CHK0096 Initial Volume: 0.5 mL  
Cleaned: 08-Nov-2019 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.010	0.011	ug/L	
2-Methylnaphthalene	91-57-6	1	0.001	0.010	0.004	ug/L	J
1-Methylnaphthalene	90-12-0	1	0.0009	0.010	0.009	ug/L	J
2-Chloronaphthalene	91-58-7	1	0.001	0.010	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.002	0.010	0.003	ug/L	J
Acenaphthene	83-32-9	1	0.003	0.010	1.05	ug/L	E
Dibenzofuran	132-64-9	1	0.002	0.010	0.009	ug/L	J
Fluorene	86-73-7	1	0.002	0.010	0.003	ug/L	J
Phenanthrene	85-01-8	1	0.001	0.010	0.007	ug/L	J
Anthracene	120-12-7	1	0.001	0.010	0.003	ug/L	J
Carbazole	86-74-8	1	0.001	0.010	0.002	ug/L	J
Fluoranthene	206-44-0	1	0.002	0.010	ND	ug/L	U
Pyrene	129-00-0	1	0.001	0.010	0.003	ug/L	J
Benzo(a)anthracene	56-55-3	1	0.0008	0.010	ND	ug/L	U
Chrysene	218-01-9	1	0.0009	0.010	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	1	0.0005	0.010	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.003	0.010	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	1	0.002	0.010	ND	ug/L	U
Benzofluoranthenes, Total		1	0.004	0.010	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.002	0.010	ND	ug/L	U
Perylene	1985-5-0	1	0.006	0.010	0.006	ug/L	J
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.001	0.010	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.001	0.010	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.001	0.010	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>					42-120 %	82.9 %	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>					29-120 %	85.8 %	
<i>Surrogate: Fluoranthene-d10</i>					57-120 %	86.0 %	

Instrument: NT12 Analyst: JZ Analyzed: 11/08/2019 14:33

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 19J0475-05 G 01  
Preparation Batch: BHK0014 Sample Size: 500 mL  
Prepared: 04-Nov-2019 Final Volume: 1 mL



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**Reported:**  
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**MW-103-102919**  
**19J0475-05 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM

Sampled: 10/29/2019 11:55

Instrument: NT12 Analyst: JZ

Analyzed: 11/08/2019 14:33

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.04	0.2	<b>0.5</b>	ug/L	
<i>Surrogate: 1,4-Dioxane-d8</i>				<i>33.6-120 %</i>	<i>56.5</i>	<i>%</i>	



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**Reported:**  
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**MW-103-102919**  
**19J0475-05 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx

Sampled: 10/29/2019 11:55

Instrument: FID4 Analyst: CTO

Analyzed: 11/04/2019 17:25

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 19J0475-05 D 01

Preparation Batch: BHJ0953

Sample Size: 500 mL

Prepared: 01-Nov-2019

Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	<b>0.221</b>	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	83.9	%	



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**MW-103-102919**  
**19J0475-05 (Water)**

**Aroclor PCB**

Method: EPA 8082A		Sampled: 10/29/2019 11:55
Instrument: ECD7 Analyst: JGR		Analyzed: 11/11/2019 17:18
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BHK0011 Prepared: 05-Nov-2019	Sample Size: 1000 mL Final Volume: 0.5 mL Extract ID: 19J0475-05 B 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CHK0101 Cleaned: 11-Nov-2019	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 19J0475-05 B 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CHK0099 Cleaned: 11-Nov-2019	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 19J0475-05 B 01
Sample Cleanup:	Cleanup Method: Sulfur Cleanup Batch: CHK0100 Cleaned: 11-Nov-2019	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 19J0475-05 B 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.002	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.002	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.002	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.002	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1262	37324-23-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1268	11100-14-4	1	0.003	0.010	ND	ug/L	U
<i>Surrogate: Decachlorobiphenyl</i>					29-120 %	63.2	%
<i>Surrogate: Tetrachlorometaxylene</i>					32-120 %	55.3	%
<i>Surrogate: Decachlorobiphenyl [2C]</i>					29-120 %	57.8	%
<i>Surrogate: Tetrachlorometaxylene [2C]</i>					32-120 %	51.0	%



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**Reported:**  
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**MW-103-102919**  
**19J0475-05 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6020A

Sampled: 10/29/2019 11:55

Instrument: ICPMS1 Analyst: MCB

Analyzed: 11/07/2019 20:41

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 19J0475-05 A 01

Preparation Batch: BHK0116

Sample Size: 25 mL

Prepared: 06-Nov-2019

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	2	0.260	1.00	<b>3.19</b>	ug/L	D
Iron	7439-89-6	10	62.7	200	<b>6310</b>	ug/L	D
Lead	7439-92-1	2	0.136	0.200	ND	ug/L	U
Manganese	7439-96-5	10	0.850	5.00	<b>687</b>	ug/L	D





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**Reported:**  
14-Nov-2019 16:02

**MW-103-102919**  
**19J0475-05 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6020A UCT-KED

Sampled: 10/29/2019 11:55

Instrument: ICPMS2 Analyst: MCB

Analyzed: 11/07/2019 04:26

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 19J0475-05 A 01

Preparation Batch: BHK0116

Sample Size: 25 mL

Prepared: 06-Nov-2019

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	<b>3.01</b>	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper	7440-50-8	1	0.340	0.500	<b>0.383</b>	ug/L	J
Nickel	7440-02-0	1	0.0500	0.500	<b>13.4</b>	ug/L	
Zinc	7440-66-6	1	0.820	4.00	<b>4.35</b>	ug/L	



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**Reported:**  
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**MW-103-102919**  
**19J0475-05 (Water)**

**Metals and Metallic Compounds**

Method: EPA 7470A	Preparation Method: TLM EPA 7470A low level	Sampled: 10/29/2019 11:55
Instrument: CVAA Analyst: SKM	Preparation Batch: BHK0033	Analyzed: 11/06/2019 14:46
Sample Preparation:	Prepared: 04-Nov-2019	Extract ID: 19J0475-05 A
	Sample Size: 20 mL	
	Final Volume: 20 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000010	0.000020	ND	mg/L	U



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Reported:  
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**MW-103-102919**  
**19J0475-05RE1 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM Sampled: 10/29/2019 11:55  
Instrument: NT11 Analyst: VTS Analyzed: 11/09/2019 13:18

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 19J0475-05RE1 H 01  
Preparation Batch: BHK0015 Sample Size: 500 mL  
Prepared: 05-Nov-2019 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel Extract ID: 19J0475-05RE1 H 01  
Cleanup Batch: CHK0096 Initial Volume: 0.5 mL  
Cleaned: 08-Nov-2019 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	2	0.003	0.020	<b>0.011</b>	ug/L	J, D
2-Methylnaphthalene	91-57-6	2	0.002	0.020	<b>0.004</b>	ug/L	J, D
1-Methylnaphthalene	90-12-0	2	0.002	0.020	<b>0.009</b>	ug/L	J, D
2-Chloronaphthalene	91-58-7	2	0.002	0.020	<b>0.009</b>	ug/L	J, D
Acenaphthylene	208-96-8	2	0.004	0.020	ND	ug/L	U
Acenaphthene	83-32-9	2	0.006	0.020	<b>1.05</b>	ug/L	D
Dibenzofuran	132-64-9	2	0.003	0.020	<b>0.008</b>	ug/L	J, D
Fluorene	86-73-7	2	0.003	0.020	ND	ug/L	U
Phenanthrene	85-01-8	2	0.003	0.020	<b>0.006</b>	ug/L	J, D
Anthracene	120-12-7	2	0.002	0.020	<b>0.003</b>	ug/L	J, D
Carbazole	86-74-8	2	0.002	0.020	ND	ug/L	U
Fluoranthene	206-44-0	2	0.003	0.020	ND	ug/L	U
Pyrene	129-00-0	2	0.002	0.020	<b>0.004</b>	ug/L	J, D
Benzo(a)anthracene	56-55-3	2	0.002	0.020	ND	ug/L	U
Chrysene	218-01-9	2	0.002	0.020	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	2	0.0009	0.020	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	2	0.006	0.020	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	2	0.004	0.020	ND	ug/L	U
Benzofluoranthenes, Total		2	0.007	0.020	ND	ug/L	U
Benzo(a)pyrene	50-32-8	2	0.005	0.020	ND	ug/L	U
Perylene	1985-5-0	2	0.012	0.020	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	2	0.002	0.020	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	2	0.003	0.020	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	2	0.003	0.020	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>					42-120 %	79.3 %	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>					29-120 %	86.2 %	
<i>Surrogate: Fluoranthene-d10</i>					57-120 %	84.0 %	



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Reported:  
14-Nov-2019 16:02

**MW-103-102919**  
**19J0475-06 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6020A Sampled: 10/29/2019 11:55  
Instrument: ICPMS1 Analyst: MCB Analyzed: 11/12/2019 18:26

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 19J0475-06 A 01  
Preparation Batch: BHK0157 Sample Size: 25 mL  
Prepared: 07-Nov-2019 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	5	31.4	100	<b>6290</b>	ug/L	D
Manganese, Dissolved	7439-96-5	5	0.425	2.50	<b>667</b>	ug/L	D

Instrument: ICPMS2 Analyst: MCB Analyzed: 11/08/2019 20:33

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 19J0475-06 A 01  
Preparation Batch: BHK0157 Sample Size: 25 mL  
Prepared: 07-Nov-2019 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium, Dissolved	7440-47-3	1	0.130	0.500	<b>2.89</b>	ug/L	



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14-Nov-2019 16:02

**MW-103-102919**  
**19J0475-06 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6020A UCT-KED

Sampled: 10/29/2019 11:55

Instrument: ICPMS2 Analyst: MCB

Analyzed: 11/08/2019 20:33

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 19J0475-06 A 01

Preparation Batch: BHK0157

Sample Size: 25 mL

Prepared: 07-Nov-2019

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	<b>3.37</b>	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper, Dissolved	7440-50-8	1	0.340	0.500	<b>0.978</b>	ug/L	
Nickel, Dissolved	7440-02-0	1	0.220	0.500	<b>11.3</b>	ug/L	
Zinc, Dissolved	7440-66-6	1	0.820	4.00	<b>4.18</b>	ug/L	



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14-Nov-2019 16:02

**MW-103-102919**  
**19J0475-06 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 7470A	Sampled: 10/29/2019 11:55
Instrument: CVAA Analyst: SKM	Analyzed: 11/06/2019 15:49
Sample Preparation:	Preparation Method: TLM EPA 7470A low level
	Preparation Batch: BHK0035
	Prepared: 04-Nov-2019
	Sample Size: 20 mL
	Final Volume: 20 mL
	Extract ID: 19J0475-06 A

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000010	0.000020	ND	mg/L	U



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**Reported:**  
14-Nov-2019 16:02

**MW-103-102919**  
**19J0475-06RE1 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6020A	Sampled: 10/29/2019 11:55
Instrument: ICPMS1 Analyst: MCB	Analyzed: 11/12/2019 19:59
Sample Preparation:	Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
	Preparation Batch: BHK0157
	Prepared: 07-Nov-2019
	Sample Size: 25 mL
	Final Volume: 25 mL
	Extract ID: 19J0475-06RE1 A 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead, Dissolved	7439-92-1	1	0.0680	0.100	ND	ug/L	U



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Reported:  
14-Nov-2019 16:02

**MW-104-102919**  
**19J0475-07 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 10/29/2019 15:45

Instrument: NT2 Analyst: LH

Analyzed: 10/30/2019 12:27

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)  
Preparation Batch: BHJ0885  
Prepared: 30-Oct-2019

Sample Size: 10 mL  
Final Volume: 10 mL

Extract ID: 19J0475-07 L

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.09	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.06	0.20	<b>1.04</b>	ug/L	
Bromomethane	74-83-9	1	0.25	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.09	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.04	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.48	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.04	0.20	ND	ug/L	U
Acetone	67-64-1	1	2.06	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.05	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.04	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.23	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.49	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.60	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.04	0.20	<b>0.17</b>	ug/L	J
trans-1,2-Dichloroethene	156-60-5	1	0.05	0.20	<b>0.36</b>	ug/L	
Vinyl Acetate	108-05-4	1	0.07	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.05	0.20	<b>0.53</b>	ug/L	
2-Butanone	78-93-3	1	0.81	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.05	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.04	0.20	<b>0.43</b>	ug/L	
Chloroform	67-66-3	1	0.03	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.06	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.04	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.03	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.04	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.07	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.03	0.20	<b>4.96</b>	ug/L	
Trichloroethene	79-01-6	1	0.05	0.20	<b>0.51</b>	ug/L	
1,2-Dichloropropane	78-87-5	1	0.04	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.05	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.15	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.25	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	0.97	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.06	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	<b>0.76</b>	ug/L	
trans-1,3-Dichloropropene	10061-02-6	1	0.08	0.20	ND	ug/L	U





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14-Nov-2019 16:02

**MW-104-102919**  
**19J0475-07 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 10/29/2019 15:45

Instrument: NT2 Analyst: LH

Analyzed: 10/30/2019 12:27

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	0.90	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.13	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.06	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.05	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.05	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.07	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.02	0.20	<b>4.16</b>	ug/L	
Ethylbenzene	100-41-4	1	0.04	0.20	<b>3.44</b>	ug/L	
1,1,1,2-Tetrachloroethane	630-20-6	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	<b>0.75</b>	ug/L	
o-Xylene	95-47-6	1	0.03	0.20	<b>0.23</b>	ug/L	
Xylenes, total	1330-20-7	1	0.09	0.60	<b>0.99</b>	ug/L	
Styrene	100-42-5	1	0.05	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.06	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.06	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.13	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.32	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.02	0.20	<b>36.3</b>	ug/L	
Bromobenzene	108-86-1	1	0.06	0.20	<b>0.08</b>	ug/L	J
Isopropyl Benzene	98-82-8	1	0.02	0.20	<b>25.6</b>	ug/L	
2-Chlorotoluene	95-49-8	1	0.02	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.02	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.03	0.20	<b>1.02</b>	ug/L	
1,3,5-Trimethylbenzene	108-67-8	1	0.02	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.02	0.20	<b>0.53</b>	ug/L	
s-Butylbenzene	135-98-8	1	0.02	0.20	<b>5.45</b>	ug/L	
4-Isopropyl Toluene	99-87-6	1	0.03	0.20	<b>0.18</b>	ug/L	J
1,3-Dichlorobenzene	541-73-1	1	0.04	0.20	<b>1.57</b>	ug/L	
1,4-Dichlorobenzene	106-46-7	1	0.04	0.20	<b>9.46</b>	ug/L	
n-Butylbenzene	104-51-8	1	0.02	0.20	<b>3.41</b>	ug/L	
1,2-Dichlorobenzene	95-50-1	1	0.04	0.20	<b>18.0</b>	ug/L	
1,2-Dibromo-3-chloropropane	96-12-8	1	0.37	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.11	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.07	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.12	0.50	<b>0.50</b>	ug/L	
1,2,3-Trichlorobenzene	87-61-6	1	0.11	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.05	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.07	0.50	ND	ug/L	U
2-Pentanone	107-87-9	1	5.00	5.00	ND	ug/L	U



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14-Nov-2019 16:02

**MW-104-102919**  
**19J0475-07 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 10/29/2019 15:45

Instrument: NT2 Analyst: LH

Analyzed: 10/30/2019 12:27

Analyte	CAS Number	Recovery		Units	Notes
		Limits	Recovery		
Surrogate: 1,2-Dichloroethane-d4		80-129 %	113	%	
Surrogate: Toluene-d8		80-120 %	99.8	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	100	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	103	%	



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14-Nov-2019 16:02

**MW-104-102919**  
**19J0475-07 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 10/29/2019 15:45  
Instrument: NT2 Analyst: LH Analyzed: 10/30/2019 12:27  
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) Extract ID: 19J0475-07 L  
Preparation Batch: BHJ0885 Sample Size: 10 mL  
Prepared: 30-Oct-2019 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	<b>1340</b>	ug/L	
HC ID: GAS						
Surrogate: Toluene-d8			80-120 %	99.8	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	100	%	



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**MW-104-102919**  
**19J0475-07 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D Sampled: 10/29/2019 15:45  
Instrument: NT10 Analyst: VTS Analyzed: 11/08/2019 19:56

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 19J0475-07 C 01  
Preparation Batch: BHK0013 Sample Size: 1000 mL  
Prepared: 05-Nov-2019 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	0.01	0.2	1.0	ug/L	
bis(2-chloroethyl) ether	111-44-4	1	0.03	0.2	ND	ug/L	U
2-Chlorophenol	95-57-8	1	0.03	0.2	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.03	0.2	1.2	ug/L	
1,4-Dichlorobenzene	106-46-7	1	0.03	0.2	6.7	ug/L	
1,2-Dichlorobenzene	95-50-1	1	0.03	0.2	13.3	ug/L	
Benzyl Alcohol	100-51-6	1	0.02	0.2	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	0.03	0.2	ND	ug/L	U
2-Methylphenol	95-48-7	1	0.03	0.2	ND	ug/L	U
Hexachloroethane	67-72-1	1	0.04	0.2	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	0.04	0.2	ND	ug/L	U
4-Methylphenol	106-44-5	1	0.03	0.2	ND	ug/L	U
Nitrobenzene	98-95-3	1	0.03	0.2	ND	ug/L	U
Isophorone	78-59-1	1	0.03	0.2	ND	ug/L	U
2-Nitrophenol	88-75-5	1	0.04	1.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	0.3	1.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	0.03	0.2	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	0.1	1.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.03	0.2	0.03	ug/L	J
Benzoic acid	65-85-0	1	0.1	2.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	0.04	1.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	0.04	0.2	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	0.1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	0.1	1.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	0.2	1.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	0.1	1.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	0.03	0.2	ND	ug/L	U
2-Nitroaniline	88-74-4	1	0.2	1.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	0.04	0.2	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	0.2	1.0	ND	ug/L	U
3-Nitroaniline	99-09-2	1	0.2	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	0.2	2.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	0.06	1.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	0.1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	0.02	0.2	ND	ug/L	U
Diethyl phthalate	84-66-2	1	0.06	0.2	2.2	ug/L	



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14-Nov-2019 16:02

**MW-104-102919**  
**19J0475-07 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 10/29/2019 15:45

Instrument: NT10 Analyst: VTS

Analyzed: 11/08/2019 19:56

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
4-Nitroaniline	100-01-6	1	0.2	1.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	0.4	2.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	0.03	0.2	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	0.02	0.2	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	0.04	0.2	ND	ug/L	U
Pentachlorophenol	87-86-5	1	0.1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.04	0.2	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	0.05	0.2	1.8	ug/L	
Butylbenzylphthalate	85-68-7	1	0.07	0.2	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	0.3	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	0.2	0.2	2.3	ug/L	
Di-n-Octylphthalate	117-84-0	1	0.05	0.2	ND	ug/L	U
<i>Surrogate: 2-Fluorophenol</i>					30-160 %	51.3	%
<i>Surrogate: Phenol-d5</i>					30-160 %	32.1	%
<i>Surrogate: 2-Chlorophenol-d4</i>					30-160 %	79.7	%
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>					30-160 %	70.0	%
<i>Surrogate: Nitrobenzene-d5</i>					30-160 %	99.4	%
<i>Surrogate: 2-Fluorobiphenyl</i>					30-160 %	59.1	%
<i>Surrogate: 2,4,6-Tribromophenol</i>					30-160 %	58.9	%
<i>Surrogate: p-Terphenyl-d14</i>					30-160 %	104	%



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Reported:  
14-Nov-2019 16:02

**MW-104-102919**  
**19J0475-07 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM Sampled: 10/29/2019 15:45  
Instrument: NT11 Analyst: VTS Analyzed: 11/09/2019 11:50

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 19J0475-07 H 01  
Preparation Batch: BHK0015 Sample Size: 500 mL  
Prepared: 05-Nov-2019 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel Extract ID: 19J0475-07 H 01  
Cleanup Batch: CHK0096 Initial Volume: 0.5 mL  
Cleaned: 08-Nov-2019 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.010	0.135	ug/L	
2-Methylnaphthalene	91-57-6	1	0.001	0.010	0.888	ug/L	
1-Methylnaphthalene	90-12-0	1	0.0009	0.010	3.48	ug/L	E
2-Chloronaphthalene	91-58-7	1	0.001	0.010	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.002	0.010	0.341	ug/L	
Acenaphthene	83-32-9	1	0.003	0.010	0.985	ug/L	
Dibenzofuran	132-64-9	1	0.002	0.010	0.222	ug/L	
Fluorene	86-73-7	1	0.002	0.010	0.816	ug/L	
Phenanthrene	85-01-8	1	0.001	0.010	0.071	ug/L	
Anthracene	120-12-7	1	0.001	0.010	0.005	ug/L	J
Carbazole	86-74-8	1	0.001	0.010	0.291	ug/L	
Fluoranthene	206-44-0	1	0.002	0.010	0.053	ug/L	
Pyrene	129-00-0	1	0.001	0.010	0.125	ug/L	
Benzo(a)anthracene	56-55-3	1	0.0008	0.010	0.081	ug/L	
Chrysene	218-01-9	1	0.0009	0.010	0.103	ug/L	
Benzo(b)fluoranthene	205-99-2	1	0.0005	0.010	0.031	ug/L	
Benzo(k)fluoranthene	207-08-9	1	0.003	0.010	0.012	ug/L	
Benzo(j)fluoranthene	205-82-3	1	0.002	0.010	0.012	ug/L	
Benzofluoranthenes, Total		1	0.004	0.010	0.055	ug/L	
Benzo(a)pyrene	50-32-8	1	0.002	0.010	0.043	ug/L	
Perylene	1985-5-0	1	0.006	0.010	0.007	ug/L	J
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.001	0.010	0.016	ug/L	
Dibenzo(a,h)anthracene	53-70-3	1	0.001	0.010	0.007	ug/L	J
Benzo(g,h,i)perylene	191-24-2	1	0.001	0.010	0.034	ug/L	
<i>Surrogate: 2-Methylnaphthalene-d10</i>					42-120 %	82.7 %	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>					29-120 %	102 %	
<i>Surrogate: Fluoranthene-d10</i>					57-120 %	29.1 %	*

Instrument: NT12 Analyst: JZ Analyzed: 11/08/2019 14:58

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 19J0475-07 G 01  
Preparation Batch: BHK0014 Sample Size: 500 mL  
Prepared: 04-Nov-2019 Final Volume: 1 mL



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**Reported:**  
14-Nov-2019 16:02

**MW-104-102919**  
**19J0475-07 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM

Sampled: 10/29/2019 15:45

Instrument: NT12 Analyst: JZ

Analyzed: 11/08/2019 14:58

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.04	0.2	<b>0.3</b>	ug/L	
<i>Surrogate: 1,4-Dioxane-d8</i>				33.6-120 %	59.4	%	



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**Reported:**  
14-Nov-2019 16:02

**MW-104-102919**  
**19J0475-07 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx

Sampled: 10/29/2019 15:45

Instrument: FID4 Analyst: CTO

Analyzed: 11/04/2019 17:45

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 19J0475-07 D 01

Preparation Batch: BHJ0953

Sample Size: 500 mL

Prepared: 01-Nov-2019

Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24) HC ID: DRO	DRO	1	0.100	5.73	mg/L	E
Motor Oil Range Organics (C24-C38) HC ID: MOTOR OIL	RRO	1	0.200	1.31	mg/L	
Surrogate: <i>o</i> -Terphenyl			50-150 %		NRS	NRS





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Reported:  
14-Nov-2019 16:02

**MW-104-102919**  
**19J0475-07 (Water)**

**Aroclor PCB**

Method: EPA 8082A		Sampled: 10/29/2019 15:45
Instrument: ECD7 Analyst: JGR		Analyzed: 11/11/2019 17:39
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BHK0011 Prepared: 05-Nov-2019	Sample Size: 1000 mL Final Volume: 0.5 mL Extract ID: 19J0475-07 B 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CHK0101 Cleaned: 11-Nov-2019	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 19J0475-07 B 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CHK0099 Cleaned: 11-Nov-2019	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 19J0475-07 B 01
Sample Cleanup:	Cleanup Method: Sulfur Cleanup Batch: CHK0100 Cleaned: 11-Nov-2019	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 19J0475-07 B 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.002	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.002	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.002	0.010	<b>1.06</b>	ug/L	P1, E
Aroclor 1254	11097-69-1	1	0.002	0.010	<b>2.10</b>	ug/L	E
Aroclor 1260	11096-82-5	1	0.003	0.010	<b>0.683</b>	ug/L	E
Aroclor 1262	37324-23-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1268	11100-14-4	1	0.003	0.010	ND	ug/L	U
<i>Surrogate: Decachlorobiphenyl</i>					29-120 %	NRS	NRS
<i>Surrogate: Tetrachlorometaxylene</i>					32-120 %	46.2 %	
<i>Surrogate: Decachlorobiphenyl [2C]</i>					29-120 %	50.5 %	
<i>Surrogate: Tetrachlorometaxylene [2C]</i>					32-120 %	47.4 %	



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**Reported:**  
14-Nov-2019 16:02

**MW-104-102919**  
**19J0475-07 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6020A

Sampled: 10/29/2019 15:45

Instrument: ICPMS1 Analyst: MCB

Analyzed: 11/07/2019 20:48

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 19J0475-07 A 01

Preparation Batch: BHK0116

Sample Size: 25 mL

Prepared: 06-Nov-2019

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	2	0.260	1.00	<b>0.652</b>	ug/L	J, D
Iron	7439-89-6	10	62.7	200	<b>547</b>	ug/L	D
Lead	7439-92-1	2	0.136	0.200	<b>1.18</b>	ug/L	D
Manganese	7439-96-5	10	0.850	5.00	<b>436</b>	ug/L	D



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Reported:  
14-Nov-2019 16:02

**MW-104-102919**  
**19J0475-07 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6020A UCT-KED

Sampled: 10/29/2019 15:45

Instrument: ICPMS2 Analyst: MCB

Analyzed: 11/07/2019 04:31

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 19J0475-07 A 01

Preparation Batch: BHK0116

Sample Size: 25 mL

Prepared: 06-Nov-2019

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	<b>0.812</b>	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper	7440-50-8	1	0.340	0.500	<b>1.27</b>	ug/L	
Nickel	7440-02-0	1	0.0500	0.500	<b>1.88</b>	ug/L	
Zinc	7440-66-6	1	0.820	4.00	<b>21.5</b>	ug/L	



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**Reported:**  
14-Nov-2019 16:02

**MW-104-102919**  
**19J0475-07 (Water)**

**Metals and Metallic Compounds**

Method: EPA 7470A	Preparation Method: TLM EPA 7470A low level	Sampled: 10/29/2019 15:45
Instrument: CVAA Analyst: SKM	Preparation Batch: BHK0033	Analyzed: 11/06/2019 14:52
Sample Preparation:	Prepared: 04-Nov-2019	Extract ID: 19J0475-07 A
	Sample Size: 20 mL	
	Final Volume: 20 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000010	0.000020	ND	mg/L	U



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Reported:  
14-Nov-2019 16:02

**MW-104-102919**  
**19J0475-07RE1 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D Sampled: 10/29/2019 15:45  
Instrument: NT14 Analyst: VTS Analyzed: 11/12/2019 19:37

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 19J0475-07RE1 C 01  
Preparation Batch: BHK0013 Sample Size: 1000 mL  
Prepared: 05-Nov-2019 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
bis(2-Ethylhexyl)phthalate	117-81-7	3	0.5	0.6	2.0	ug/L	D
Di-n-Octylphthalate	117-84-0	3	0.1	0.6	ND	ug/L	U
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>					30-160 %	74.7	%
<i>Surrogate: Nitrobenzene-d5</i>					30-160 %	56.6	%
<i>Surrogate: 2-Fluorobiphenyl</i>					30-160 %	64.4	%
<i>Surrogate: p-Terphenyl-d14</i>					30-160 %	101	%



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Reported:  
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**MW-104-102919**  
**19J0475-07RE1 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM Sampled: 10/29/2019 15:45  
Instrument: NT11 Analyst: VTS Analyzed: 11/09/2019 13:47

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 19J0475-07RE1 H 01  
Preparation Batch: BHK0015 Sample Size: 500 mL  
Prepared: 05-Nov-2019 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel Extract ID: 19J0475-07RE1 H 01  
Cleanup Batch: CHK0096 Initial Volume: 0.5 mL  
Cleaned: 08-Nov-2019 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	10	0.013	0.100	<b>0.203</b>	ug/L	D
2-Methylnaphthalene	91-57-6	10	0.010	0.100	<b>1.50</b>	ug/L	D
1-Methylnaphthalene	90-12-0	10	0.009	0.100	<b>6.54</b>	ug/L	D
2-Chloronaphthalene	91-58-7	10	0.011	0.100	ND	ug/L	U
Acenaphthylene	208-96-8	10	0.019	0.100	ND	ug/L	U
Acenaphthene	83-32-9	10	0.029	0.100	<b>0.766</b>	ug/L	D
Dibenzofuran	132-64-9	10	0.015	0.100	<b>0.213</b>	ug/L	D
Fluorene	86-73-7	10	0.015	0.100	<b>0.867</b>	ug/L	D
Phenanthrene	85-01-8	10	0.013	0.100	<b>0.317</b>	ug/L	D
Anthracene	120-12-7	10	0.012	0.100	<b>0.039</b>	ug/L	J, D
Carbazole	86-74-8	10	0.012	0.100	<b>0.246</b>	ug/L	D
Fluoranthene	206-44-0	10	0.017	0.100	<b>0.046</b>	ug/L	J, D
Pyrene	129-00-0	10	0.012	0.100	<b>0.103</b>	ug/L	D
Benzo(a)anthracene	56-55-3	10	0.008	0.100	<b>0.070</b>	ug/L	J, D
Chrysene	218-01-9	10	0.009	0.100	<b>0.104</b>	ug/L	D
Benzo(b)fluoranthene	205-99-2	10	0.005	0.100	<b>0.026</b>	ug/L	J, D
Benzo(k)fluoranthene	207-08-9	10	0.032	0.100	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	10	0.019	0.100	ND	ug/L	U
Benzofluoranthenes, Total		10	0.036	0.100	<b>0.050</b>	ug/L	J, D
Benzo(a)pyrene	50-32-8	10	0.025	0.100	<b>0.035</b>	ug/L	J, D
Perylene	1985-5-0	10	0.059	0.100	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	10	0.010	0.100	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	10	0.013	0.100	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	10	0.014	0.100	<b>0.029</b>	ug/L	J, D
<i>Surrogate: 2-Methylnaphthalene-d10</i>					42-120 %	118 %	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>					29-120 %	87.7 %	
<i>Surrogate: Fluoranthene-d10</i>					57-120 %	32.5 %	*



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14-Nov-2019 16:02

**MW-104-102919**  
**19J0475-07RE1 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx

Sampled: 10/29/2019 15:45

Instrument: FID4 Analyst: SH/JGR

Analyzed: 11/05/2019 13:52

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 19J0475-07RE1 D 01

Preparation Batch: BHJ0953

Sample Size: 500 mL

Prepared: 01-Nov-2019

Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24) HC ID: DRO	DRO	5	0.500	6.12	mg/L	D
Motor Oil Range Organics (C24-C38) HC ID: MOTOR OIL	RRO	5	1.00	1.05	mg/L	D
Surrogate: <i>o</i> -Terphenyl			50-150 %	69.3	%	



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**MW-104-102919**  
**19J0475-07RE1 (Water)**

**Aroclor PCB**

Method: EPA 8082A		Sampled: 10/29/2019 15:45
Instrument: ECD7 Analyst: JGR		Analyzed: 11/12/2019 11:10
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BHK0011 Prepared: 05-Nov-2019	Sample Size: 1000 mL Final Volume: 0.5 mL Extract ID: 19J0475-07RE1 B 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CHK0101 Cleaned: 11-Nov-2019	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 19J0475-07RE1 B 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CHK0099 Cleaned: 11-Nov-2019	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 19J0475-07RE1 B 01
Sample Cleanup:	Cleanup Method: Sulfur Cleanup Batch: CHK0100 Cleaned: 11-Nov-2019	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 19J0475-07RE1 B 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	10	0.025	0.100	ND	ug/L	U
Aroclor 1221	11104-28-2	10	0.025	0.100	ND	ug/L	U
Aroclor 1232	11141-16-5	10	0.025	0.100	ND	ug/L	U
Aroclor 1242	53469-21-9	10	0.025	0.100	ND	ug/L	U
Aroclor 1248	12672-29-6	10	0.025	0.100	1.39	ug/L	P1, D
Aroclor 1254	11097-69-1	10	0.025	0.100	2.44	ug/L	D
Aroclor 1260	11096-82-5	10	0.028	0.100	0.742	ug/L	D
Aroclor 1262	37324-23-5	10	0.028	0.100	ND	ug/L	U
Aroclor 1268	11100-14-4	10	0.028	0.100	ND	ug/L	U
<i>Surrogate: Decachlorobiphenyl</i>					29-120 %	78.8	%
<i>Surrogate: Tetrachlorometaxylene</i>					32-120 %	58.7	%
<i>Surrogate: Decachlorobiphenyl [2C]</i>					29-120 %	61.6	%
<i>Surrogate: Tetrachlorometaxylene [2C]</i>					32-120 %	64.1	%





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Reported:  
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**MW-104-102919**  
**19J0475-08 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6020A Sampled: 10/29/2019 15:45  
Instrument: ICPMS1 Analyst: MCB Analyzed: 11/12/2019 18:34

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 19J0475-08 A 01  
Preparation Batch: BHK0157 Sample Size: 25 mL  
Prepared: 07-Nov-2019 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	5	31.4	100	<b>409</b>	ug/L	D
Manganese, Dissolved	7439-96-5	5	0.425	2.50	<b>418</b>	ug/L	D

Instrument: ICPMS2 Analyst: MCB Analyzed: 11/08/2019 20:38

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 19J0475-08 A 01  
Preparation Batch: BHK0157 Sample Size: 25 mL  
Prepared: 07-Nov-2019 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium, Dissolved	7440-47-3	1	0.130	0.500	<b>0.516</b>	ug/L	



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**MW-104-102919**  
**19J0475-08 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6020A UCT-KED

Sampled: 10/29/2019 15:45

Instrument: ICPMS2 Analyst: MCB

Analyzed: 11/08/2019 20:38

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 19J0475-08 A 01

Preparation Batch: BHK0157

Sample Size: 25 mL

Prepared: 07-Nov-2019

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	<b>0.858</b>	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper, Dissolved	7440-50-8	1	0.340	0.500	ND	ug/L	U
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	<b>1.58</b>	ug/L	
Zinc, Dissolved	7440-66-6	1	0.820	4.00	<b>5.21</b>	ug/L	



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Reported:  
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**MW-104-102919**  
**19J0475-08 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 7470A Sampled: 10/29/2019 15:45  
Instrument: CVAA Analyst: SKM Analyzed: 11/06/2019 15:52  
Sample Preparation: Preparation Method: TLM EPA 7470A low level Extract ID: 19J0475-08 A  
Preparation Batch: BHK0035 Sample Size: 20 mL  
Prepared: 04-Nov-2019 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000010	0.000020	ND	mg/L	U



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**Reported:**  
14-Nov-2019 16:02

**MW-104-102919**  
**19J0475-08RE1 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6020A

Sampled: 10/29/2019 15:45

Instrument: ICPMS1 Analyst: MCB

Analyzed: 11/12/2019 20:05

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 19J0475-08RE1 A 01

Preparation Batch: BHK0157

Sample Size: 25 mL

Prepared: 07-Nov-2019

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead, Dissolved	7439-92-1	1	0.0680	0.100	<b>0.111</b>	ug/L	



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14-Nov-2019 16:02

**MW-105-102919**  
**19J0475-09 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 10/29/2019 10:40

Instrument: NT2 Analyst: LH

Analyzed: 10/30/2019 12:47

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)  
Preparation Batch: BHJ0885  
Prepared: 30-Oct-2019

Sample Size: 10 mL  
Final Volume: 10 mL

Extract ID: 19J0475-09 L

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.09	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.06	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	0.25	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.09	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.04	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.48	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.04	0.20	ND	ug/L	U
Acetone	67-64-1	1	2.06	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.05	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.04	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.23	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.49	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.60	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.04	0.20	<b>0.07</b>	ug/L	J
trans-1,2-Dichloroethene	156-60-5	1	0.05	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.07	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.05	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	0.81	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.05	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.04	0.20	<b>0.13</b>	ug/L	J
Chloroform	67-66-3	1	0.03	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.06	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.04	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.03	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.04	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.07	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.03	0.20	<b>0.03</b>	ug/L	J
Trichloroethene	79-01-6	1	0.05	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.04	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.05	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.15	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.25	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	0.97	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.06	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.08	0.20	ND	ug/L	U



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Project: South Park Landfill  
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Project Manager: Jeff Neuner

Reported:  
14-Nov-2019 16:02

**MW-105-102919**  
**19J0475-09 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 10/29/2019 10:40

Instrument: NT2 Analyst: LH

Analyzed: 10/30/2019 12:47

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	0.90	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.13	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.06	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.05	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.05	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.07	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.02	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.09	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.05	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.06	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.06	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.13	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.32	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.02	0.20	<b>0.05</b>	ug/L	J
Bromobenzene	108-86-1	1	0.06	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.02	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.02	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.02	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.03	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.02	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.02	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.02	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.03	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.04	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.04	0.20	<b>0.14</b>	ug/L	J
n-Butylbenzene	104-51-8	1	0.02	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.04	0.20	<b>0.08</b>	ug/L	J
1,2-Dibromo-3-chloropropane	96-12-8	1	0.37	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.11	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.07	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.12	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.11	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.05	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.07	0.50	ND	ug/L	U
2-Pentanone	107-87-9	1	5.00	5.00	ND	ug/L	U



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Reported:  
14-Nov-2019 16:02

**MW-105-102919**  
**19J0475-09 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 10/29/2019 10:40

Instrument: NT2 Analyst: LH

Analyzed: 10/30/2019 12:47

Analyte	CAS Number	Recovery		Units	Notes
		Limits	Recovery		
Surrogate: 1,2-Dichloroethane-d4		80-129 %	113	%	
Surrogate: Toluene-d8		80-120 %	98.6	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	96.1	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	102	%	



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**Reported:**  
14-Nov-2019 16:02

**MW-105-102919**  
**19J0475-09 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 10/29/2019 10:40  
Instrument: NT2 Analyst: LH Analyzed: 10/30/2019 12:47  
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) Extract ID: 19J0475-09 L  
Preparation Batch: BHJ0885 Sample Size: 10 mL  
Prepared: 30-Oct-2019 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	98.6	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	96.1	%	





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Reported:  
14-Nov-2019 16:02

**MW-105-102919**  
**19J0475-09 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D Sampled: 10/29/2019 10:40  
Instrument: NT10 Analyst: VTS Analyzed: 11/08/2019 20:33

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 19J0475-09 C 01  
Preparation Batch: BHK0013 Sample Size: 1000 mL  
Prepared: 05-Nov-2019 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	0.01	0.2	0.03	ug/L	J
bis(2-chloroethyl) ether	111-44-4	1	0.03	0.2	ND	ug/L	U
2-Chlorophenol	95-57-8	1	0.03	0.2	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.03	0.2	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.03	0.2	0.08	ug/L	J
1,2-Dichlorobenzene	95-50-1	1	0.03	0.2	0.06	ug/L	J
Benzyl Alcohol	100-51-6	1	0.02	0.2	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	0.03	0.2	ND	ug/L	U
2-Methylphenol	95-48-7	1	0.03	0.2	ND	ug/L	U
Hexachloroethane	67-72-1	1	0.04	0.2	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	0.04	0.2	ND	ug/L	U
4-Methylphenol	106-44-5	1	0.03	0.2	ND	ug/L	U
Nitrobenzene	98-95-3	1	0.03	0.2	ND	ug/L	U
Isophorone	78-59-1	1	0.03	0.2	ND	ug/L	U
2-Nitrophenol	88-75-5	1	0.04	1.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	0.3	1.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	0.03	0.2	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	0.1	1.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.03	0.2	ND	ug/L	U
Benzoic acid	65-85-0	1	0.1	2.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	0.04	1.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	0.04	0.2	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	0.1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	0.1	1.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	0.2	1.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	0.1	1.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	0.03	0.2	ND	ug/L	U
2-Nitroaniline	88-74-4	1	0.2	1.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	0.04	0.2	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	0.2	1.0	ND	ug/L	U
3-Nitroaniline	99-09-2	1	0.2	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	0.2	2.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	0.06	1.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	0.1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	0.02	0.2	ND	ug/L	U
Diethyl phthalate	84-66-2	1	0.06	0.2	ND	ug/L	U



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Reported:  
14-Nov-2019 16:02

**MW-105-102919**  
**19J0475-09 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 10/29/2019 10:40

Instrument: NT10 Analyst: VTS

Analyzed: 11/08/2019 20:33

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
4-Nitroaniline	100-01-6	1	0.2	1.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	0.4	2.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	0.03	0.2	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	0.02	0.2	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	0.04	0.2	ND	ug/L	U
Pentachlorophenol	87-86-5	1	0.1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.04	0.2	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	0.05	0.2	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	0.07	0.2	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	0.3	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	0.2	0.2	<b>0.2</b>	ug/L	
Di-n-Octylphthalate	117-84-0	1	0.05	0.2	ND	ug/L	U
<i>Surrogate: 2-Fluorophenol</i>					30-160 %	49.1	%
<i>Surrogate: Phenol-d5</i>					30-160 %	32.7	%
<i>Surrogate: 2-Chlorophenol-d4</i>					30-160 %	85.3	%
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>					30-160 %	77.6	%
<i>Surrogate: Nitrobenzene-d5</i>					30-160 %	105	%
<i>Surrogate: 2-Fluorobiphenyl</i>					30-160 %	93.3	%
<i>Surrogate: 2,4,6-Tribromophenol</i>					30-160 %	91.6	%
<i>Surrogate: p-Terphenyl-d14</i>					30-160 %	119	%



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14-Nov-2019 16:02

**MW-105-102919**  
**19J0475-09 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM Sampled: 10/29/2019 10:40  
Instrument: NT11 Analyst: VTS Analyzed: 11/09/2019 12:19

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 19J0475-09 H 01  
Preparation Batch: BHK0015 Sample Size: 500 mL  
Prepared: 05-Nov-2019 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel Extract ID: 19J0475-09 H 01  
Cleanup Batch: CHK0096 Initial Volume: 0.5 mL  
Cleaned: 08-Nov-2019 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.010	0.004	ug/L	J
2-Methylnaphthalene	91-57-6	1	0.001	0.010	0.002	ug/L	J
1-Methylnaphthalene	90-12-0	1	0.0009	0.010	0.004	ug/L	J
2-Chloronaphthalene	91-58-7	1	0.001	0.010	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.002	0.010	ND	ug/L	U
Acenaphthene	83-32-9	1	0.003	0.010	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.002	0.010	ND	ug/L	U
Fluorene	86-73-7	1	0.002	0.010	ND	ug/L	U
Phenanthrene	85-01-8	1	0.001	0.010	ND	ug/L	U
Anthracene	120-12-7	1	0.001	0.010	ND	ug/L	U
Carbazole	86-74-8	1	0.001	0.010	ND	ug/L	U
Fluoranthene	206-44-0	1	0.002	0.010	ND	ug/L	U
Pyrene	129-00-0	1	0.001	0.010	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.0008	0.010	ND	ug/L	U
Chrysene	218-01-9	1	0.0009	0.010	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	1	0.0005	0.010	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.003	0.010	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	1	0.002	0.010	ND	ug/L	U
Benzofluoranthenes, Total		1	0.004	0.010	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.002	0.010	ND	ug/L	U
Perylene	1985-5-0	1	0.006	0.010	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.001	0.010	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.001	0.010	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.001	0.010	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>					42-120 %	74.5 %	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>					29-120 %	90.9 %	
<i>Surrogate: Fluoranthene-d10</i>					57-120 %	81.5 %	

Instrument: NT12 Analyst: JZ Analyzed: 11/08/2019 15:23

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 19J0475-09 G 01  
Preparation Batch: BHK0014 Sample Size: 500 mL  
Prepared: 04-Nov-2019 Final Volume: 1 mL



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**Reported:**  
14-Nov-2019 16:02

**MW-105-102919**  
**19J0475-09 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM

Sampled: 10/29/2019 10:40

Instrument: NT12 Analyst: JZ

Analyzed: 11/08/2019 15:23

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.04	0.2	<b>0.2</b>	ug/L	J
<i>Surrogate: 1,4-Dioxane-d8</i>				33.6-120 %	63.3	%	



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**Reported:**  
14-Nov-2019 16:02

**MW-105-102919**  
**19J0475-09 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx Sampled: 10/29/2019 10:40  
Instrument: FID4 Analyst: CTO Analyzed: 11/04/2019 18:05

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 19J0475-09 D 01  
Preparation Batch: BHJ0953 Sample Size: 500 mL  
Prepared: 01-Nov-2019 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	<b>0.115</b>	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	82.8	%	



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14-Nov-2019 16:02

**MW-105-102919**  
**19J0475-09 (Water)**

**Aroclor PCB**

Method: EPA 8082A		Sampled: 10/29/2019 10:40
Instrument: ECD7 Analyst: JGR		Analyzed: 11/11/2019 18:00
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BHK0011 Prepared: 05-Nov-2019	Sample Size: 1000 mL Final Volume: 0.5 mL Extract ID: 19J0475-09 B 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CHK0101 Cleaned: 11-Nov-2019	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 19J0475-09 B 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CHK0099 Cleaned: 11-Nov-2019	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 19J0475-09 B 01
Sample Cleanup:	Cleanup Method: Sulfur Cleanup Batch: CHK0100 Cleaned: 11-Nov-2019	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 19J0475-09 B 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.002	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.002	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.002	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.002	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1262	37324-23-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1268	11100-14-4	1	0.003	0.010	ND	ug/L	U
<i>Surrogate: Decachlorobiphenyl</i>					29-120 %	70.1	%
<i>Surrogate: Tetrachlorometaxylene</i>					32-120 %	51.7	%
<i>Surrogate: Decachlorobiphenyl [2C]</i>					29-120 %	51.6	%
<i>Surrogate: Tetrachlorometaxylene [2C]</i>					32-120 %	44.9	%



Seattle Public Utilities  
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Project: South Park Landfill  
Project Number: South Park Landfill  
Project Manager: Jeff Neuner

**Reported:**  
14-Nov-2019 16:02

**MW-105-102919**  
**19J0475-09 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6020A Sampled: 10/29/2019 10:40  
Instrument: ICPMS1 Analyst: MCB Analyzed: 11/07/2019 18:53  
Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 19J0475-09 A 01  
Preparation Batch: BHK0116 Sample Size: 25 mL  
Prepared: 06-Nov-2019 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	1	0.130	0.500	<b>0.275</b>	ug/L	J
Iron	7439-89-6	10	62.7	200	<b>17600</b>	ug/L	D
Lead	7439-92-1	1	0.0680	0.100	ND	ug/L	U



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Project Manager: Jeff Neuner

**Reported:**  
14-Nov-2019 16:02

**MW-105-102919**  
**19J0475-09 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6020A UCT-KED

Sampled: 10/29/2019 10:40

Instrument: ICPMS2 Analyst: MCB

Analyzed: 11/07/2019 04:41

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 19J0475-09 A 01

Preparation Batch: BHK0116

Sample Size: 25 mL

Prepared: 06-Nov-2019

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	<b>1.81</b>	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper	7440-50-8	1	0.340	0.500	ND	ug/L	U
Nickel	7440-02-0	1	0.0500	0.500	<b>2.53</b>	ug/L	
Zinc	7440-66-6	1	0.820	4.00	<b>4.18</b>	ug/L	





Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill Project Number: South Park Landfill Project Manager: Jeff Neuner	<b>Reported:</b> 14-Nov-2019 16:02
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**MW-105-102919**  
**19J0475-09 (Water)**

**Metals and Metallic Compounds**

Method: EPA 7470A	Preparation Method: TLM EPA 7470A low level	Sampled: 10/29/2019 10:40
Instrument: CVAA Analyst: SKM	Preparation Batch: BHK0033	Analyzed: 11/06/2019 14:55
Sample Preparation:	Prepared: 04-Nov-2019	Extract ID: 19J0475-09 A
	Sample Size: 20 mL	
	Final Volume: 20 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000010	0.000020	ND	mg/L	U



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**Reported:**  
14-Nov-2019 16:02

**MW-105-102919**  
**19J0475-09RE1 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6020A	Sampled: 10/29/2019 10:40
Instrument: ICPMS1 Analyst: MCB	Analyzed: 11/07/2019 20:08
Sample Preparation:	Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
	Preparation Batch: BHK0116
	Prepared: 06-Nov-2019
	Sample Size: 25 mL
	Final Volume: 25 mL
	Extract ID: 19J0475-09RE1 A 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	5	0.425	2.50	<b>1000</b>	ug/L	D



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Reported:  
14-Nov-2019 16:02

**MW-105-102919**  
**19J0475-10 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6020A Sampled: 10/29/2019 10:40  
Instrument: ICPMS1 Analyst: MCB Analyzed: 11/12/2019 17:36

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 19J0475-10 A 01  
Preparation Batch: BHK0157 Sample Size: 25 mL  
Prepared: 07-Nov-2019 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	10	62.7	200	<b>19900</b>	ug/L	D
Manganese, Dissolved	7439-96-5	10	0.850	5.00	<b>1000</b>	ug/L	D

Instrument: ICPMS2 Analyst: MCB Analyzed: 11/08/2019 20:42

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 19J0475-10 A 01  
Preparation Batch: BHK0157 Sample Size: 25 mL  
Prepared: 07-Nov-2019 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium, Dissolved	7440-47-3	1	0.130	0.500	<b>0.311</b>	ug/L	J



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Reported:  
14-Nov-2019 16:02

**MW-105-102919**  
**19J0475-10 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6020A UCT-KED Sampled: 10/29/2019 10:40  
Instrument: ICPMS2 Analyst: MCB Analyzed: 11/08/2019 20:42  
Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 19J0475-10 A 01  
Preparation Batch: BHK0157 Sample Size: 25 mL  
Prepared: 07-Nov-2019 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	<b>1.83</b>	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper, Dissolved	7440-50-8	1	0.340	0.500	ND	ug/L	U
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	<b>2.22</b>	ug/L	
Zinc, Dissolved	7440-66-6	1	0.820	4.00	<b>2.99</b>	ug/L	J



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**Reported:**  
14-Nov-2019 16:02

**MW-105-102919**  
**19J0475-10 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 7470A Sampled: 10/29/2019 10:40  
Instrument: CVAA Analyst: SKM Analyzed: 11/06/2019 15:55  
Sample Preparation: Preparation Method: TLM EPA 7470A low level Extract ID: 19J0475-10 A  
Preparation Batch: BHK0035 Sample Size: 20 mL  
Prepared: 04-Nov-2019 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000010	0.000020	ND	mg/L	U



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**Reported:**  
14-Nov-2019 16:02

**MW-105-102919**  
**19J0475-10RE1 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6020A

Sampled: 10/29/2019 10:40

Instrument: ICPMS1 Analyst: MCB

Analyzed: 11/12/2019 20:17

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 19J0475-10RE1 A 01

Preparation Batch: BHK0157

Sample Size: 25 mL

Prepared: 07-Nov-2019

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead, Dissolved	7439-92-1	1	0.0680	0.100	ND	ug/L	U



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Reported:  
14-Nov-2019 16:02

**MW-106-102919**  
**19J0475-11 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 10/29/2019 13:25

Instrument: NT2 Analyst: LH

Analyzed: 10/30/2019 13:07

Sample Preparation:

Preparation Method: EPA 5030 (Purge and Trap)

Extract ID: 19J0475-11 L

Preparation Batch: BHJ0885

Sample Size: 10 mL

Prepared: 30-Oct-2019

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.09	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.06	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	0.25	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.09	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.04	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.48	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.04	0.20	ND	ug/L	U
Acetone	67-64-1	1	2.06	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.05	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.04	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.23	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.49	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.60	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.04	0.20	<b>0.24</b>	ug/L	
trans-1,2-Dichloroethene	156-60-5	1	0.05	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.07	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.05	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	0.81	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.05	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.04	0.20	<b>0.40</b>	ug/L	
Chloroform	67-66-3	1	0.03	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.06	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.04	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.03	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.04	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.07	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.03	0.20	<b>2.86</b>	ug/L	
Trichloroethene	79-01-6	1	0.05	0.20	<b>0.17</b>	ug/L	J
1,2-Dichloropropane	78-87-5	1	0.04	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.05	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.15	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.25	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	0.97	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.06	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	<b>0.04</b>	ug/L	J
trans-1,3-Dichloropropene	10061-02-6	1	0.08	0.20	ND	ug/L	U



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Project: South Park Landfill  
Project Number: South Park Landfill  
Project Manager: Jeff Neuner

Reported:  
14-Nov-2019 16:02

**MW-106-102919**  
**19J0475-11 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 10/29/2019 13:25

Instrument: NT2 Analyst: LH

Analyzed: 10/30/2019 13:07

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	0.90	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.13	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.06	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.05	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.05	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.07	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.02	0.20	<b>3.06</b>	ug/L	
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.09	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.05	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.06	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.06	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.13	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.32	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.02	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.06	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.02	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.02	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.02	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.03	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.02	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.02	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.02	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.03	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.04	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.04	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.02	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.04	0.20	<b>0.04</b>	ug/L	J
1,2-Dibromo-3-chloropropane	96-12-8	1	0.37	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.11	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.07	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.12	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.11	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.05	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.07	0.50	ND	ug/L	U
2-Pentanone	107-87-9	1	5.00	5.00	ND	ug/L	U





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Project: South Park Landfill  
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Project Manager: Jeff Neuner

Reported:  
14-Nov-2019 16:02

**MW-106-102919**  
**19J0475-11 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 10/29/2019 13:25

Instrument: NT2 Analyst: LH

Analyzed: 10/30/2019 13:07

Analyte	CAS Number	Recovery		Units	Notes
		Limits	Recovery		
Surrogate: 1,2-Dichloroethane-d4		80-120 %	112	%	
Surrogate: Toluene-d8		80-120 %	97.7	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	94.4	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	102	%	



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Reported:  
14-Nov-2019 16:02

**MW-106-102919**  
**19J0475-11 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 10/29/2019 13:25  
Instrument: NT2 Analyst: LH Analyzed: 10/30/2019 13:07  
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) Extract ID: 19J0475-11 L  
Preparation Batch: BHJ0885 Sample Size: 10 mL  
Prepared: 30-Oct-2019 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	97.7	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	94.4	%	



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Reported:  
14-Nov-2019 16:02

**MW-106-102919**  
**19J0475-11 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 10/29/2019 13:25

Instrument: NT10 Analyst: VTS

Analyzed: 11/08/2019 21:10

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BHK0013  
Prepared: 05-Nov-2019

Sample Size: 1000 mL  
Final Volume: 1 mL

Extract ID: 19J0475-11 C 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	0.01	0.2	<b>0.03</b>	ug/L	J
bis(2-chloroethyl) ether	111-44-4	1	0.03	0.2	ND	ug/L	U
2-Chlorophenol	95-57-8	1	0.03	0.2	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.03	0.2	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.03	0.2	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.03	0.2	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	0.02	0.2	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	0.03	0.2	ND	ug/L	U
2-Methylphenol	95-48-7	1	0.03	0.2	ND	ug/L	U
Hexachloroethane	67-72-1	1	0.04	0.2	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	0.04	0.2	ND	ug/L	U
4-Methylphenol	106-44-5	1	0.03	0.2	<b>0.05</b>	ug/L	J
Nitrobenzene	98-95-3	1	0.03	0.2	ND	ug/L	U
Isophorone	78-59-1	1	0.03	0.2	ND	ug/L	U
2-Nitrophenol	88-75-5	1	0.04	1.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	0.3	1.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	0.03	0.2	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	0.1	1.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.03	0.2	ND	ug/L	U
Benzoic acid	65-85-0	1	0.1	2.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	0.04	1.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	0.04	0.2	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	0.1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	0.1	1.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	0.2	1.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	0.1	1.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	0.03	0.2	ND	ug/L	U
2-Nitroaniline	88-74-4	1	0.2	1.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	0.04	0.2	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	0.2	1.0	ND	ug/L	U
3-Nitroaniline	99-09-2	1	0.2	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	0.2	2.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	0.06	1.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	0.1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	0.02	0.2	ND	ug/L	U
Diethyl phthalate	84-66-2	1	0.06	0.2	ND	ug/L	U



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Project Manager: Jeff Neuner

Reported:  
14-Nov-2019 16:02

**MW-106-102919**  
**19J0475-11 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 10/29/2019 13:25

Instrument: NT10 Analyst: VTS

Analyzed: 11/08/2019 21:10

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
4-Nitroaniline	100-01-6	1	0.2	1.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	0.4	2.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	0.03	0.2	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	0.02	0.2	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	0.04	0.2	ND	ug/L	U
Pentachlorophenol	87-86-5	1	0.1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.04	0.2	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	0.05	0.2	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	0.07	0.2	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	0.3	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	0.2	0.2	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	0.05	0.2	ND	ug/L	U
<i>Surrogate: 2-Fluorophenol</i>					30-160 %	40.7 %	
<i>Surrogate: Phenol-d5</i>					30-160 %	27.0 %	*
<i>Surrogate: 2-Chlorophenol-d4</i>					30-160 %	71.7 %	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>					30-160 %	66.1 %	
<i>Surrogate: Nitrobenzene-d5</i>					30-160 %	90.1 %	
<i>Surrogate: 2-Fluorobiphenyl</i>					30-160 %	81.3 %	
<i>Surrogate: 2,4,6-Tribromophenol</i>					30-160 %	79.5 %	
<i>Surrogate: p-Terphenyl-d14</i>					30-160 %	117 %	



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**MW-106-102919**  
**19J0475-11 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM Sampled: 10/29/2019 13:25  
Instrument: NT11 Analyst: VTS Analyzed: 11/09/2019 12:49

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 19J0475-11 H 01  
Preparation Batch: BHK0015 Sample Size: 500 mL  
Prepared: 05-Nov-2019 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel Extract ID: 19J0475-11 H 01  
Cleanup Batch: CHK0096 Initial Volume: 0.5 mL  
Cleaned: 08-Nov-2019 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.010	0.007	ug/L	J
2-Methylnaphthalene	91-57-6	1	0.001	0.010	0.002	ug/L	J
1-Methylnaphthalene	90-12-0	1	0.0009	0.010	0.002	ug/L	J
2-Chloronaphthalene	91-58-7	1	0.001	0.010	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.002	0.010	ND	ug/L	U
Acenaphthene	83-32-9	1	0.003	0.010	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.002	0.010	ND	ug/L	U
Fluorene	86-73-7	1	0.002	0.010	ND	ug/L	U
Phenanthrene	85-01-8	1	0.001	0.010	ND	ug/L	U
Anthracene	120-12-7	1	0.001	0.010	ND	ug/L	U
Carbazole	86-74-8	1	0.001	0.010	ND	ug/L	U
Fluoranthene	206-44-0	1	0.002	0.010	ND	ug/L	U
Pyrene	129-00-0	1	0.001	0.010	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.0008	0.010	ND	ug/L	U
Chrysene	218-01-9	1	0.0009	0.010	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	1	0.0005	0.010	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.003	0.010	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	1	0.002	0.010	ND	ug/L	U
Benzofluoranthenes, Total		1	0.004	0.010	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.002	0.010	ND	ug/L	U
Perylene	1985-5-0	1	0.006	0.010	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.001	0.010	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.001	0.010	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.001	0.010	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>					42-120 %	78.6 %	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>					29-120 %	95.9 %	
<i>Surrogate: Fluoranthene-d10</i>					57-120 %	90.2 %	

Instrument: NT12 Analyst: JZ Analyzed: 11/08/2019 15:49

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 19J0475-11 G 01  
Preparation Batch: BHK0014 Sample Size: 500 mL  
Prepared: 04-Nov-2019 Final Volume: 1 mL



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**MW-106-102919**  
**19J0475-11 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM

Sampled: 10/29/2019 13:25

Instrument: NT12 Analyst: JZ

Analyzed: 11/08/2019 15:49

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.04	0.2	<b>0.09</b>	ug/L	J
<i>Surrogate: 1,4-Dioxane-d8</i>				33.6-120 %	61.5	%	



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**MW-106-102919**  
**19J0475-11 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4 Analyst: CTO

Sampled: 10/29/2019 13:25  
Analyzed: 11/04/2019 18:24

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BHJ0953  
Prepared: 01-Nov-2019

Extract ID: 19J0475-11 D 01

Sample Size: 500 mL  
Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	<b>0.141</b>	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	82.1	%	



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**MW-106-102919**  
**19J0475-11 (Water)**

**Aroclor PCB**

Method: EPA 8082A		Sampled: 10/29/2019 13:25
Instrument: ECD7 Analyst: JGR		Analyzed: 11/11/2019 18:21
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BHK0011 Prepared: 05-Nov-2019	Sample Size: 1000 mL Final Volume: 0.5 mL Extract ID: 19J0475-11 B 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CHK0101 Cleaned: 11-Nov-2019	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 19J0475-11 B 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CHK0099 Cleaned: 11-Nov-2019	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 19J0475-11 B 01
Sample Cleanup:	Cleanup Method: Sulfur Cleanup Batch: CHK0100 Cleaned: 11-Nov-2019	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 19J0475-11 B 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.002	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.002	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.002	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.002	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1262	37324-23-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1268	11100-14-4	1	0.003	0.010	ND	ug/L	U
<i>Surrogate: Decachlorobiphenyl</i>					29-120 %	54.7 %	
<i>Surrogate: Tetrachlorometaxylene</i>					32-120 %	47.7 %	
<i>Surrogate: Decachlorobiphenyl [2C]</i>					29-120 %	51.5 %	
<i>Surrogate: Tetrachlorometaxylene [2C]</i>					32-120 %	41.4 %	





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**MW-106-102919**  
**19J0475-11 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6020A

Sampled: 10/29/2019 13:25

Instrument: ICPMS1 Analyst: MCB

Analyzed: 11/07/2019 20:54

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 19J0475-11 A 01

Preparation Batch: BHK0116

Sample Size: 25 mL

Prepared: 06-Nov-2019

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	5	0.650	2.50	<b>2.14</b>	ug/L	J, D
Iron	7439-89-6	20	125	400	<b>12400</b>	ug/L	D
Lead	7439-92-1	5	0.340	0.500	<b>2.19</b>	ug/L	D
Manganese	7439-96-5	20	1.70	10.0	<b>1690</b>	ug/L	D



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**MW-106-102919**  
**19J0475-11 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6020A UCT-KED

Sampled: 10/29/2019 13:25

Instrument: ICPMS2 Analyst: MCB

Analyzed: 11/07/2019 04:36

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 19J0475-11 A 01

Preparation Batch: BHK0116

Sample Size: 25 mL

Prepared: 06-Nov-2019

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	<b>1.59</b>	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	<b>0.0360</b>	ug/L	J
Copper	7440-50-8	1	0.340	0.500	<b>2.03</b>	ug/L	
Nickel	7440-02-0	1	0.0500	0.500	<b>12.0</b>	ug/L	
Zinc	7440-66-6	1	0.940	4.00	<b>129</b>	ug/L	



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**MW-106-102919**  
**19J0475-11 (Water)**

**Metals and Metallic Compounds**

Method: EPA 7470A	Preparation Method: TLM EPA 7470A low level	Sampled: 10/29/2019 13:25
Instrument: CVAA Analyst: SKM	Preparation Batch: BHK0033	Analyzed: 11/06/2019 14:58
Sample Preparation:	Prepared: 04-Nov-2019	Extract ID: 19J0475-11 A
	Sample Size: 20 mL	
	Final Volume: 20 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000010	0.000020	ND	mg/L	U



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**MW-106-102919**  
**19J0475-12 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6020A Sampled: 10/29/2019 13:25  
Instrument: ICPMS1 Analyst: MCB Analyzed: 11/12/2019 18:53

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 19J0475-12 A 01  
Preparation Batch: BHK0157 Sample Size: 25 mL  
Prepared: 07-Nov-2019 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	10	62.7	200	<b>11800</b>	ug/L	D
Manganese, Dissolved	7439-96-5	10	0.850	5.00	<b>1550</b>	ug/L	D

Instrument: ICPMS2 Analyst: MCB Analyzed: 11/08/2019 20:47

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 19J0475-12 A 01  
Preparation Batch: BHK0157 Sample Size: 25 mL  
Prepared: 07-Nov-2019 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium, Dissolved	7440-47-3	1	0.130	0.500	<b>1.82</b>	ug/L	



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**MW-106-102919**  
**19J0475-12 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6020A UCT-KED

Sampled: 10/29/2019 13:25

Instrument: ICPMS2 Analyst: MCB

Analyzed: 11/08/2019 20:47

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 19J0475-12 A 01

Preparation Batch: BHK0157

Sample Size: 25 mL

Prepared: 07-Nov-2019

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	<b>1.50</b>	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper, Dissolved	7440-50-8	1	0.340	0.500	ND	ug/L	U
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	<b>10.3</b>	ug/L	
Zinc, Dissolved	7440-66-6	1	0.820	4.00	<b>105</b>	ug/L	



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**MW-106-102919**  
**19J0475-12 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 7470A	Preparation Method: TLM EPA 7470A low level	Sampled: 10/29/2019 13:25
Instrument: CVAA Analyst: SKM	Preparation Batch: BHK0035	Analyzed: 11/06/2019 15:58
Sample Preparation:	Prepared: 04-Nov-2019	Extract ID: 19J0475-12 A
	Sample Size: 20 mL	
	Final Volume: 20 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000010	0.000020	ND	mg/L	U



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**MW-106-102919**  
**19J0475-12RE1 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6020A

Sampled: 10/29/2019 13:25

Instrument: ICPMS1 Analyst: MCB

Analyzed: 11/12/2019 20:23

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 19J0475-12RE1 A 01

Preparation Batch: BHK0157

Sample Size: 25 mL

Prepared: 07-Nov-2019

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead, Dissolved	7439-92-1	1	0.0680	0.100	<b>0.103</b>	ug/L	



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**Trip Blank**  
**19J0475-13 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C Sampled: 10/29/2019 09:25  
Instrument: NT2 Analyst: LH Analyzed: 10/30/2019 11:05

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) Extract ID: 19J0475-13 A  
Preparation Batch: BHJ0885 Sample Size: 10 mL  
Prepared: 30-Oct-2019 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.09	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.06	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	0.25	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.09	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.04	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.48	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.04	0.20	ND	ug/L	U
Acetone	67-64-1	1	2.06	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.05	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.04	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.23	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.49	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.60	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.04	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.05	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.07	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.05	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	0.81	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.05	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.04	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.03	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.06	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.04	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.03	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.04	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.07	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.03	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.05	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.04	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.05	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.15	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.25	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	0.97	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.06	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.08	0.20	ND	ug/L	U





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14-Nov-2019 16:02

**Trip Blank**  
**19J0475-13 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 10/29/2019 09:25

Instrument: NT2 Analyst: LH

Analyzed: 10/30/2019 11:05

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	0.90	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.13	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.06	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.05	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.05	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.07	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.02	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.09	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.05	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.06	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.06	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.13	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.32	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.02	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.06	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.02	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.02	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.02	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.03	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.02	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.02	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.02	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.03	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.04	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.04	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.02	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.04	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.37	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.11	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.07	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.12	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.11	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.05	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.07	0.50	ND	ug/L	U
2-Pentanone	107-87-9	1	5.00	5.00	ND	ug/L	U



Seattle Public Utilities  
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Seattle WA, 98124-4018

Project: South Park Landfill  
Project Number: South Park Landfill  
Project Manager: Jeff Neuner

Reported:  
14-Nov-2019 16:02

**Trip Blank**  
**19J0475-13 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 10/29/2019 09:25

Instrument: NT2 Analyst: LH

Analyzed: 10/30/2019 11:05

Analyte	CAS Number	Recovery		Units	Notes
		Limits	Recovery		
Surrogate: 1,2-Dichloroethane-d4		80-129 %	106	%	
Surrogate: Toluene-d8		80-120 %	96.3	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	93.0	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	98.6	%	



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14-Nov-2019 16:02

**Trip Blank**  
**19J0475-13 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 10/29/2019 09:25  
Instrument: NT2 Analyst: LH Analyzed: 10/30/2019 11:05  
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) Extract ID: 19J0475-13 A  
Preparation Batch: BHJ0885 Sample Size: 10 mL  
Prepared: 30-Oct-2019 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	96.3	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	93.0	%	



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Reported:  
14-Nov-2019 16:02

### Volatile Organic Compounds - Quality Control

#### Batch BHJ0885 - EPA 5030 (Purge and Trap)

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BHJ0885-BLK1)</b>										
Prepared: 30-Oct-2019 Analyzed: 30-Oct-2019 09:27										
Gasoline Range Organics (Tol-Nap)	ND	100	ug/L							U
Surrogate: Toluene-d8	4.92		ug/L	5.00	98.4		80-120			
Surrogate: 4-Bromofluorobenzene	4.64		ug/L	5.00	92.9		80-120			

<b>Blank (BHJ0885-BLK2)</b>										
Prepared: 30-Oct-2019 Analyzed: 30-Oct-2019 09:27										
Chloromethane	ND	0.09	0.50	ug/L						U
Vinyl Chloride	ND	0.06	0.20	ug/L						U
Bromomethane	ND	0.25	1.00	ug/L						U
Chloroethane	ND	0.09	0.20	ug/L						U
Trichlorofluoromethane	ND	0.04	0.20	ug/L						U
Acrolein	ND	2.48	5.00	ug/L						U
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.04	0.20	ug/L						U
Acetone	ND	2.06	5.00	ug/L						U
1,1-Dichloroethene	ND	0.05	0.20	ug/L						U
Bromoethane	ND	0.04	0.20	ug/L						U
Iodomethane	ND	0.23	1.00	ug/L						U
Methylene Chloride	ND	0.49	1.00	ug/L						U
Acrylonitrile	ND	0.60	1.00	ug/L						U
Carbon Disulfide	0.06	0.04	0.20	ug/L						J
trans-1,2-Dichloroethene	ND	0.05	0.20	ug/L						U
Vinyl Acetate	ND	0.07	0.20	ug/L						U
1,1-Dichloroethane	ND	0.05	0.20	ug/L						U
2-Butanone	ND	0.81	5.00	ug/L						U
2,2-Dichloropropane	ND	0.05	0.20	ug/L						U
cis-1,2-Dichloroethene	ND	0.04	0.20	ug/L						U
Chloroform	ND	0.03	0.20	ug/L						U
Bromochloromethane	ND	0.06	0.20	ug/L						U
1,1,1-Trichloroethane	ND	0.04	0.20	ug/L						U
1,1-Dichloropropene	ND	0.03	0.20	ug/L						U
Carbon tetrachloride	ND	0.04	0.20	ug/L						U
1,2-Dichloroethane	ND	0.07	0.20	ug/L						U
Benzene	ND	0.03	0.20	ug/L						U
Trichloroethene	ND	0.05	0.20	ug/L						U
1,2-Dichloropropane	ND	0.04	0.20	ug/L						U
Bromodichloromethane	ND	0.05	0.20	ug/L						U



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14-Nov-2019 16:02

### Volatile Organic Compounds - Quality Control

#### Batch BHJ0885 - EPA 5030 (Purge and Trap)

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BHJ0885-BLK2)</b>											
						Prepared: 30-Oct-2019 Analyzed: 30-Oct-2019 09:27					
Dibromomethane	ND	0.15	0.20	ug/L							U
2-Chloroethyl vinyl ether	ND	0.25	1.00	ug/L							U
4-Methyl-2-Pentanone	ND	0.97	5.00	ug/L							U
cis-1,3-Dichloropropene	ND	0.06	0.20	ug/L							U
Toluene	ND	0.04	0.20	ug/L							U
trans-1,3-Dichloropropene	ND	0.08	0.20	ug/L							U
2-Hexanone	ND	0.90	5.00	ug/L							U
1,1,2-Trichloroethane	ND	0.13	0.20	ug/L							U
1,3-Dichloropropane	ND	0.06	0.20	ug/L							U
Tetrachloroethene	ND	0.05	0.20	ug/L							U
Dibromochloromethane	ND	0.05	0.20	ug/L							U
1,2-Dibromoethane	ND	0.07	0.20	ug/L							U
Chlorobenzene	ND	0.02	0.20	ug/L							U
Ethylbenzene	ND	0.04	0.20	ug/L							U
1,1,1,2-Tetrachloroethane	ND	0.04	0.20	ug/L							U
m,p-Xylene	ND	0.05	0.40	ug/L							U
o-Xylene	ND	0.03	0.20	ug/L							U
Xylenes, total	ND	0.09	0.60	ug/L							U
Styrene	ND	0.05	0.20	ug/L							U
Bromoform	ND	0.06	0.20	ug/L							U
1,1,2,2-Tetrachloroethane	ND	0.06	0.20	ug/L							U
1,2,3-Trichloropropane	ND	0.13	0.50	ug/L							U
trans-1,4-Dichloro 2-Butene	ND	0.32	1.00	ug/L							U
n-Propylbenzene	ND	0.02	0.20	ug/L							U
Bromobenzene	ND	0.06	0.20	ug/L							U
Isopropyl Benzene	ND	0.02	0.20	ug/L							U
2-Chlorotoluene	ND	0.02	0.20	ug/L							U
4-Chlorotoluene	ND	0.02	0.20	ug/L							U
t-Butylbenzene	ND	0.03	0.20	ug/L							U
1,3,5-Trimethylbenzene	ND	0.02	0.20	ug/L							U
1,2,4-Trimethylbenzene	ND	0.02	0.20	ug/L							U
s-Butylbenzene	ND	0.02	0.20	ug/L							U
4-Isopropyl Toluene	ND	0.03	0.20	ug/L							U
1,3-Dichlorobenzene	ND	0.04	0.20	ug/L							U
1,4-Dichlorobenzene	ND	0.04	0.20	ug/L							U



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14-Nov-2019 16:02

### Volatile Organic Compounds - Quality Control

#### Batch BHJ0885 - EPA 5030 (Purge and Trap)

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BHJ0885-BLK2)</b>											
						Prepared: 30-Oct-2019 Analyzed: 30-Oct-2019 09:27					
n-Butylbenzene	0.03	0.02	0.20	ug/L							J
1,2-Dichlorobenzene	ND	0.04	0.20	ug/L							U
1,2-Dibromo-3-chloropropane	ND	0.37	0.50	ug/L							U
1,2,4-Trichlorobenzene	ND	0.11	0.50	ug/L							U
Hexachloro-1,3-Butadiene	0.27	0.07	0.50	ug/L							J
Naphthalene	ND	0.12	0.50	ug/L							U
1,2,3-Trichlorobenzene	ND	0.11	0.50	ug/L							U
Dichlorodifluoromethane	ND	0.05	0.20	ug/L							U
Methyl tert-butyl Ether	ND	0.07	0.50	ug/L							U
2-Pentanone	ND	5.00	5.00	ug/L							U
<hr/>											
Surrogate: 1,2-Dichloroethane-d4	5.52			ug/L	5.00		110	80-129			
Surrogate: Toluene-d8	4.92			ug/L	5.00		98.4	80-120			
Surrogate: 4-Bromofluorobenzene	4.64			ug/L	5.00		92.9	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	5.09			ug/L	5.00		102	80-120			
<hr/>											
<b>LCS (BHJ0885-BS1)</b>											
						Prepared: 30-Oct-2019 Analyzed: 30-Oct-2019 07:46					
Gasoline Range Organics (Tol-Nap)	971		100	ug/L	1000		97.1	80-120			
Surrogate: Toluene-d8	5.04			ug/L	5.00		101	80-120			
Surrogate: 4-Bromofluorobenzene	4.89			ug/L	5.00		97.8	80-120			
<hr/>											
<b>LCS (BHJ0885-BS2)</b>											
						Prepared: 30-Oct-2019 Analyzed: 30-Oct-2019 08:06					
Chloromethane	9.12	0.09	0.50	ug/L	10.0		91.2	60-138			
Vinyl Chloride	11.0	0.06	0.20	ug/L	10.0		110	66-133			
Bromomethane	11.5	0.25	1.00	ug/L	10.0		115	72-131			
Chloroethane	13.4	0.09	0.20	ug/L	10.0		134	60-155			Q
Trichlorofluoromethane	11.3	0.04	0.20	ug/L	10.0		113	80-129			
Acrolein	54.6	2.48	5.00	ug/L	50.0		109	52-144			
1,1,2-Trichloro-1,2,2-Trifluoroethane	12.6	0.04	0.20	ug/L	10.0		126	76-129			Q
Acetone	57.6	2.06	5.00	ug/L	50.0		115	58-142			
1,1-Dichloroethene	11.6	0.05	0.20	ug/L	10.0		116	69-135			
Bromoethane	12.2	0.04	0.20	ug/L	10.0		122	78-128			Q
Iodomethane	11.6	0.23	1.00	ug/L	10.0		116	56-147			
Methylene Chloride	11.1	0.49	1.00	ug/L	10.0		111	65-135			
Acrylonitrile	9.73	0.60	1.00	ug/L	10.0		97.3	64-134			
Carbon Disulfide	10.9	0.04	0.20	ug/L	10.0		109	78-125			



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14-Nov-2019 16:02

**Volatile Organic Compounds - Quality Control**

**Batch BHJ0885 - EPA 5030 (Purge and Trap)**

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BHJ0885-BS2)</b>											
						Prepared: 30-Oct-2019 Analyzed: 30-Oct-2019 08:06					
trans-1,2-Dichloroethene	11.1	0.05	0.20	ug/L	10.0		111	78-128			
Vinyl Acetate	9.01	0.07	0.20	ug/L	10.0		90.1	55-138			
1,1-Dichloroethane	10.3	0.05	0.20	ug/L	10.0		103	76-124			
2-Butanone	51.8	0.81	5.00	ug/L	50.0		104	61-140			
2,2-Dichloropropane	8.43	0.05	0.20	ug/L	10.0		84.3	78-125			
cis-1,2-Dichloroethene	10.0	0.04	0.20	ug/L	10.0		100	80-121			
Chloroform	10.5	0.03	0.20	ug/L	10.0		105	80-122			
Bromochloromethane	10.3	0.06	0.20	ug/L	10.0		103	80-121			
1,1,1-Trichloroethane	11.0	0.04	0.20	ug/L	10.0		110	79-123			
1,1-Dichloropropene	10.2	0.03	0.20	ug/L	10.0		102	80-120			
Carbon tetrachloride	10.9	0.04	0.20	ug/L	10.0		109	53-137			
1,2-Dichloroethane	11.2	0.07	0.20	ug/L	10.0		112	75-123			
Benzene	10.0	0.03	0.20	ug/L	10.0		100	80-120			
Trichloroethene	10.3	0.05	0.20	ug/L	10.0		103	80-120			
1,2-Dichloropropane	9.85	0.04	0.20	ug/L	10.0		98.5	80-120			
Bromodichloromethane	11.1	0.05	0.20	ug/L	10.0		111	80-121			
Dibromomethane	10.9	0.15	0.20	ug/L	10.0		109	80-120			
2-Chloroethyl vinyl ether	9.61	0.25	1.00	ug/L	10.0		96.1	74-127			
4-Methyl-2-Pentanone	52.7	0.97	5.00	ug/L	50.0		105	67-133			
cis-1,3-Dichloropropene	10.3	0.06	0.20	ug/L	10.0		103	80-124			
Toluene	10.1	0.04	0.20	ug/L	10.0		101	80-120			
trans-1,3-Dichloropropene	10.4	0.08	0.20	ug/L	10.0		104	71-127			
2-Hexanone	50.8	0.90	5.00	ug/L	50.0		102	69-133			
1,1,2-Trichloroethane	10.4	0.13	0.20	ug/L	10.0		104	80-121			
1,3-Dichloropropane	9.85	0.06	0.20	ug/L	10.0		98.5	80-120			
Tetrachloroethene	9.89	0.05	0.20	ug/L	10.0		98.9	80-120			
Dibromochloromethane	11.1	0.05	0.20	ug/L	10.0		111	65-135			
1,2-Dibromoethane	11.0	0.07	0.20	ug/L	10.0		110	80-121			
Chlorobenzene	9.97	0.02	0.20	ug/L	10.0		99.7	80-120			
Ethylbenzene	9.78	0.04	0.20	ug/L	10.0		97.8	80-120			
1,1,1,2-Tetrachloroethane	10.5	0.04	0.20	ug/L	10.0		105	80-120			
m,p-Xylene	20.3	0.05	0.40	ug/L	20.0		101	80-121			
o-Xylene	9.83	0.03	0.20	ug/L	10.0		98.3	80-121			
Xylenes, total	30.1	0.09	0.60	ug/L	30.0		100	76-127			
Styrene	10.4	0.05	0.20	ug/L	10.0		104	80-124			



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Reported:  
14-Nov-2019 16:02

### Volatile Organic Compounds - Quality Control

#### Batch BHJ0885 - EPA 5030 (Purge and Trap)

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BHJ0885-BS2)</b>						Prepared: 30-Oct-2019 Analyzed: 30-Oct-2019 08:06					
Bromoform	9.01	0.06	0.20	ug/L	10.0		90.1	51-134			
1,1,2,2-Tetrachloroethane	9.70	0.06	0.20	ug/L	10.0		97.0	77-123			
1,2,3-Trichloropropane	10.0	0.13	0.50	ug/L	10.0		100	76-125			
trans-1,4-Dichloro 2-Butene	9.21	0.32	1.00	ug/L	10.0		92.1	55-129			
n-Propylbenzene	10.1	0.02	0.20	ug/L	10.0		101	78-130			
Bromobenzene	9.71	0.06	0.20	ug/L	10.0		97.1	80-120			
Isopropyl Benzene	10.0	0.02	0.20	ug/L	10.0		100	80-128			
2-Chlorotoluene	9.70	0.02	0.20	ug/L	10.0		97.0	78-122			
4-Chlorotoluene	9.85	0.02	0.20	ug/L	10.0		98.5	80-121			
t-Butylbenzene	9.77	0.03	0.20	ug/L	10.0		97.7	78-125			
1,3,5-Trimethylbenzene	10.2	0.02	0.20	ug/L	10.0		102	80-129			
1,2,4-Trimethylbenzene	10.1	0.02	0.20	ug/L	10.0		101	80-127			
s-Butylbenzene	10.2	0.02	0.20	ug/L	10.0		102	78-129			
4-Isopropyl Toluene	10.4	0.03	0.20	ug/L	10.0		104	79-130			
1,3-Dichlorobenzene	9.85	0.04	0.20	ug/L	10.0		98.5	80-120			
1,4-Dichlorobenzene	9.93	0.04	0.20	ug/L	10.0		99.3	80-120			
n-Butylbenzene	10.6	0.02	0.20	ug/L	10.0		106	74-129			
1,2-Dichlorobenzene	9.82	0.04	0.20	ug/L	10.0		98.2	80-120			
1,2-Dibromo-3-chloropropane	9.12	0.37	0.50	ug/L	10.0		91.2	62-123			
1,2,4-Trichlorobenzene	10.3	0.11	0.50	ug/L	10.0		103	64-124			
Hexachloro-1,3-Butadiene	10.1	0.07	0.50	ug/L	10.0		101	58-123			
Naphthalene	10.0	0.12	0.50	ug/L	10.0		100	50-134			
1,2,3-Trichlorobenzene	10.3	0.11	0.50	ug/L	10.0		103	49-133			
Dichlorodifluoromethane	10.4	0.05	0.20	ug/L	10.0		104	48-147			
Methyl tert-butyl Ether	11.0	0.07	0.50	ug/L	10.0		110	71-132			
2-Pentanone	51.2	5.00	5.00	ug/L	50.0		102	69-134			
Surrogate: 1,2-Dichloroethane-d4	5.38			ug/L	5.00		108	80-129			
Surrogate: Toluene-d8	5.06			ug/L	5.00		101	80-120			
Surrogate: 4-Bromofluorobenzene	5.01			ug/L	5.00		100	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	4.95			ug/L	5.00		98.9	80-120			
<b>LCS Dup (BHJ0885-BSD1)</b>						Prepared: 30-Oct-2019 Analyzed: 30-Oct-2019 08:26					
Gasoline Range Organics (Tol-Nap)	1030		100	ug/L	1000		103	80-120	5.48	30	
Surrogate: Toluene-d8	5.05			ug/L	5.00		101	80-120			





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Seattle WA, 98124-4018

Project: South Park Landfill  
Project Number: South Park Landfill  
Project Manager: Jeff Neuner

Reported:  
14-Nov-2019 16:02

### Volatile Organic Compounds - Quality Control

#### Batch BHJ0885 - EPA 5030 (Purge and Trap)

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BHJ0885-BSD1)</b>						Prepared: 30-Oct-2019 Analyzed: 30-Oct-2019 08:26				
Surrogate: 4-Bromofluorobenzene	4.93		ug/L	5.00		98.6	80-120			
<b>LCS Dup (BHJ0885-BSD2)</b>						Prepared: 30-Oct-2019 Analyzed: 30-Oct-2019 09:07				
Chloromethane	9.52	0.09	0.50	ug/L	10.0	95.2	60-138	4.26	30	
Vinyl Chloride	11.0	0.06	0.20	ug/L	10.0	110	66-133	0.13	30	
Bromomethane	11.8	0.25	1.00	ug/L	10.0	118	72-131	2.85	30	
Chloroethane	13.7	0.09	0.20	ug/L	10.0	137	60-155	2.67	30	Q
Trichlorofluoromethane	11.6	0.04	0.20	ug/L	10.0	116	80-129	2.11	30	
Acrolein	56.8	2.48	5.00	ug/L	50.0	114	52-144	3.90	30	
1,1,2-Trichloro-1,2,2-Trifluoroethane	12.5	0.04	0.20	ug/L	10.0	125	76-129	0.80	30	Q
Acetone	58.6	2.06	5.00	ug/L	50.0	117	58-142	1.73	30	
1,1-Dichloroethene	11.6	0.05	0.20	ug/L	10.0	116	69-135	0.36	30	
Bromoethane	12.6	0.04	0.20	ug/L	10.0	126	78-128	3.40	30	Q
Iodomethane	11.8	0.23	1.00	ug/L	10.0	118	56-147	1.00	30	
Methylene Chloride	11.3	0.49	1.00	ug/L	10.0	113	65-135	1.74	30	
Acrylonitrile	9.80	0.60	1.00	ug/L	10.0	98.0	64-134	0.69	30	
Carbon Disulfide	10.9	0.04	0.20	ug/L	10.0	109	78-125	0.34	30	
trans-1,2-Dichloroethene	11.2	0.05	0.20	ug/L	10.0	112	78-128	1.16	30	
Vinyl Acetate	9.28	0.07	0.20	ug/L	10.0	92.8	55-138	2.99	30	
1,1-Dichloroethane	10.5	0.05	0.20	ug/L	10.0	105	76-124	1.12	30	
2-Butanone	53.1	0.81	5.00	ug/L	50.0	106	61-140	2.58	30	
2,2-Dichloropropane	8.19	0.05	0.20	ug/L	10.0	81.9	78-125	2.87	30	
cis-1,2-Dichloroethene	10.2	0.04	0.20	ug/L	10.0	102	80-121	1.51	30	
Chloroform	10.8	0.03	0.20	ug/L	10.0	108	80-122	2.62	30	
Bromochloromethane	10.5	0.06	0.20	ug/L	10.0	105	80-121	2.50	30	
1,1,1-Trichloroethane	11.2	0.04	0.20	ug/L	10.0	112	79-123	1.67	30	
1,1-Dichloropropene	10.2	0.03	0.20	ug/L	10.0	102	80-120	0.72	30	
Carbon tetrachloride	10.6	0.04	0.20	ug/L	10.0	106	53-137	2.59	30	
1,2-Dichloroethane	11.4	0.07	0.20	ug/L	10.0	114	75-123	1.50	30	
Benzene	10.1	0.03	0.20	ug/L	10.0	101	80-120	1.03	30	
Trichloroethene	10.4	0.05	0.20	ug/L	10.0	104	80-120	0.60	30	
1,2-Dichloropropane	9.94	0.04	0.20	ug/L	10.0	99.4	80-120	0.91	30	
Bromodichloromethane	10.9	0.05	0.20	ug/L	10.0	109	80-121	2.07	30	
Dibromomethane	11.1	0.15	0.20	ug/L	10.0	111	80-120	1.76	30	
2-Chloroethyl vinyl ether	9.74	0.25	1.00	ug/L	10.0	97.4	74-127	1.30	30	



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Project: South Park Landfill  
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Project Manager: Jeff Neuner

Reported:  
14-Nov-2019 16:02

**Volatile Organic Compounds - Quality Control**

**Batch BHJ0885 - EPA 5030 (Purge and Trap)**

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BHJ0885-BSD2)</b>											
						Prepared: 30-Oct-2019 Analyzed: 30-Oct-2019 09:07					
4-Methyl-2-Pentanone	52.7	0.97	5.00	ug/L	50.0		105	67-133	0.01	30	
cis-1,3-Dichloropropene	10.1	0.06	0.20	ug/L	10.0		101	80-124	1.73	30	
Toluene	10.2	0.04	0.20	ug/L	10.0		102	80-120	1.09	30	
trans-1,3-Dichloropropene	10.1	0.08	0.20	ug/L	10.0		101	71-127	3.18	30	
2-Hexanone	52.7	0.90	5.00	ug/L	50.0		105	69-133	3.80	30	
1,1,2-Trichloroethane	10.5	0.13	0.20	ug/L	10.0		105	80-121	0.86	30	
1,3-Dichloropropane	10.2	0.06	0.20	ug/L	10.0		102	80-120	3.37	30	
Tetrachloroethene	10.2	0.05	0.20	ug/L	10.0		102	80-120	2.57	30	
Dibromochloromethane	11.2	0.05	0.20	ug/L	10.0		112	65-135	0.07	30	
1,2-Dibromoethane	10.7	0.07	0.20	ug/L	10.0		107	80-121	2.07	30	
Chlorobenzene	10.2	0.02	0.20	ug/L	10.0		102	80-120	2.72	30	
Ethylbenzene	10.0	0.04	0.20	ug/L	10.0		100	80-120	2.59	30	
1,1,1,2-Tetrachloroethane	10.4	0.04	0.20	ug/L	10.0		104	80-120	0.72	30	
m,p-Xylene	20.6	0.05	0.40	ug/L	20.0		103	80-121	1.84	30	
o-Xylene	9.97	0.03	0.20	ug/L	10.0		99.7	80-121	1.45	30	
Xylenes, total	30.6	0.09	0.60	ug/L	30.0		102	76-127	1.71	30	
Styrene	10.6	0.05	0.20	ug/L	10.0		106	80-124	2.64	30	
Bromoform	8.77	0.06	0.20	ug/L	10.0		87.7	51-134	2.76	30	
1,1,2,2-Tetrachloroethane	9.72	0.06	0.20	ug/L	10.0		97.2	77-123	0.15	30	
1,2,3-Trichloropropane	10.4	0.13	0.50	ug/L	10.0		104	76-125	3.32	30	
trans-1,4-Dichloro 2-Butene	8.80	0.32	1.00	ug/L	10.0		88.0	55-129	4.60	30	
n-Propylbenzene	10.2	0.02	0.20	ug/L	10.0		102	78-130	1.55	30	
Bromobenzene	9.94	0.06	0.20	ug/L	10.0		99.4	80-120	2.37	30	
Isopropyl Benzene	10.2	0.02	0.20	ug/L	10.0		102	80-128	1.41	30	
2-Chlorotoluene	10.9	0.02	0.20	ug/L	10.0		109	78-122	12.00	30	
4-Chlorotoluene	9.95	0.02	0.20	ug/L	10.0		99.5	80-121	1.01	30	
t-Butylbenzene	10.0	0.03	0.20	ug/L	10.0		100	78-125	2.48	30	
1,3,5-Trimethylbenzene	10.2	0.02	0.20	ug/L	10.0		102	80-129	0.40	30	
1,2,4-Trimethylbenzene	10.3	0.02	0.20	ug/L	10.0		103	80-127	1.51	30	
s-Butylbenzene	10.3	0.02	0.20	ug/L	10.0		103	78-129	1.28	30	
4-Isopropyl Toluene	10.4	0.03	0.20	ug/L	10.0		104	79-130	0.87	30	
1,3-Dichlorobenzene	10.1	0.04	0.20	ug/L	10.0		101	80-120	2.53	30	
1,4-Dichlorobenzene	10.1	0.04	0.20	ug/L	10.0		101	80-120	1.93	30	
n-Butylbenzene	10.6	0.02	0.20	ug/L	10.0		106	74-129	0.46	30	
1,2-Dichlorobenzene	10.1	0.04	0.20	ug/L	10.0		101	80-120	3.26	30	



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Project Manager: Jeff Neuner

Reported:  
14-Nov-2019 16:02

**Volatile Organic Compounds - Quality Control**

**Batch BHJ0885 - EPA 5030 (Purge and Trap)**

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BHJ0885-BSD2)</b>					Prepared: 30-Oct-2019 Analyzed: 30-Oct-2019 09:07						
1,2-Dibromo-3-chloropropane	8.82	0.37	0.50	ug/L	10.0		88.2	62-123	3.31	30	
1,2,4-Trichlorobenzene	10.5	0.11	0.50	ug/L	10.0		105	64-124	1.61	30	
Hexachloro-1,3-Butadiene	10.1	0.07	0.50	ug/L	10.0		101	58-123	0.01	30	
Naphthalene	10.5	0.12	0.50	ug/L	10.0		105	50-134	4.43	30	
1,2,3-Trichlorobenzene	10.6	0.11	0.50	ug/L	10.0		106	49-133	3.46	30	
Dichlorodifluoromethane	10.8	0.05	0.20	ug/L	10.0		108	48-147	3.52	30	
Methyl tert-butyl Ether	11.2	0.07	0.50	ug/L	10.0		112	71-132	1.79	30	
2-Pentanone	52.6	5.00	5.00	ug/L	50.0		105	69-134	2.80	30	
Surrogate: 1,2-Dichloroethane-d4	5.49			ug/L	5.00		110	80-129			
Surrogate: Toluene-d8	5.05			ug/L	5.00		101	80-120			
Surrogate: 4-Bromofluorobenzene	4.99			ug/L	5.00		99.9	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	5.03			ug/L	5.00		101	80-120			



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Project: South Park Landfill  
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Project Manager: Jeff Neuner

Reported:  
14-Nov-2019 16:02

### Semivolatile Organic Compounds - Quality Control

#### Batch BHK0013 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BHK0013-BLK1)</b>											
						Prepared: 05-Nov-2019 Analyzed: 08-Nov-2019 16:54					
Phenol	ND	0.01	0.2	ug/L							U
bis(2-chloroethyl) ether	ND	0.03	0.2	ug/L							U
2-Chlorophenol	ND	0.03	0.2	ug/L							U
1,3-Dichlorobenzene	ND	0.03	0.2	ug/L							U
1,4-Dichlorobenzene	ND	0.03	0.2	ug/L							U
1,2-Dichlorobenzene	ND	0.03	0.2	ug/L							U
Benzyl Alcohol	ND	0.02	0.2	ug/L							U
2,2'-Oxybis(1-chloropropane)	ND	0.03	0.2	ug/L							U
2-Methylphenol	ND	0.03	0.2	ug/L							U
Hexachloroethane	ND	0.04	0.2	ug/L							U
N-Nitroso-di-n-Propylamine	ND	0.04	0.2	ug/L							U
4-Methylphenol	ND	0.03	0.2	ug/L							U
Nitrobenzene	ND	0.03	0.2	ug/L							U
Isophorone	ND	0.03	0.2	ug/L							U
2-Nitrophenol	ND	0.04	1.0	ug/L							U
2,4-Dimethylphenol	ND	0.3	1.0	ug/L							U
Bis(2-Chloroethoxy)methane	ND	0.03	0.2	ug/L							U
2,4-Dichlorophenol	ND	0.1	1.0	ug/L							U
1,2,4-Trichlorobenzene	ND	0.03	0.2	ug/L							U
Benzoic acid	ND	0.1	2.0	ug/L							U
4-Chloroaniline	ND	0.04	1.0	ug/L							U
Hexachlorobutadiene	ND	0.04	0.2	ug/L							U
4-Chloro-3-Methylphenol	ND	0.1	1.0	ug/L							U
Hexachlorocyclopentadiene	ND	0.1	1.0	ug/L							U
2,4,6-Trichlorophenol	ND	0.2	1.0	ug/L							U
2,4,5-Trichlorophenol	ND	0.1	1.0	ug/L							U
2-Chloronaphthalene	ND	0.03	0.2	ug/L							U
2-Nitroaniline	ND	0.2	1.0	ug/L							U
Dimethylphthalate	ND	0.04	0.2	ug/L							U
2,6-Dinitrotoluene	ND	0.2	1.0	ug/L							U
3-Nitroaniline	ND	0.2	1.0	ug/L							U
2,4-Dinitrophenol	ND	0.2	2.0	ug/L							U
4-Nitrophenol	ND	0.06	1.0	ug/L							U
2,4-Dinitrotoluene	ND	0.1	1.0	ug/L							U
4-Chlorophenylphenyl ether	ND	0.02	0.2	ug/L							U



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Semivolatile Organic Compounds - Quality Control

Batch BHK0013 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BHK0013-BLK1)</b>											
						Prepared: 05-Nov-2019 Analyzed: 08-Nov-2019 16:54					
Diethyl phthalate	ND	0.06	0.2	ug/L							U
4-Nitroaniline	ND	0.2	1.0	ug/L							U
4,6-Dinitro-2-methylphenol	ND	0.4	2.0	ug/L							U
N-Nitrosodiphenylamine	ND	0.03	0.2	ug/L							U
4-Bromophenyl phenyl ether	ND	0.02	0.2	ug/L							U
Hexachlorobenzene	ND	0.04	0.2	ug/L							U
Pentachlorophenol	ND	0.1	1.0	ug/L							U
Carbazole	ND	0.04	0.2	ug/L							U
Di-n-Butylphthalate	ND	0.05	0.2	ug/L							U
Butylbenzylphthalate	ND	0.07	0.2	ug/L							U
3,3'-Dichlorobenzidine	ND	0.3	1.0	ug/L							U
bis(2-Ethylhexyl)phthalate	ND	0.2	0.2	ug/L							U
Di-n-Octylphthalate	ND	0.05	0.2	ug/L							U
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Surrogate: 2-Fluorophenol	3.69			ug/L	7.50		49.2	30-160			
Surrogate: Phenol-d5	2.55			ug/L	7.50		34.0	30-160			
Surrogate: 2-Chlorophenol-d4	6.28			ug/L	7.50		83.7	30-160			
Surrogate: 1,2-Dichlorobenzene-d4	3.93			ug/L	5.00		78.5	30-160			
Surrogate: Nitrobenzene-d5	4.99			ug/L	5.00		99.8	30-160			
Surrogate: 2-Fluorobiphenyl	4.45			ug/L	5.00		89.1	30-160			
Surrogate: 2,4,6-Tribromophenol	6.23			ug/L	7.50		83.1	30-160			
Surrogate: p-Terphenyl-d14	5.23			ug/L	5.00		105	30-160			

LCS (BHK0013-BS1)

Prepared: 05-Nov-2019 Analyzed: 08-Nov-2019 17:30

Phenol	1.8	0.01	0.2	ug/L	5.00		35.9	30-160			
bis(2-chloroethyl) ether	4.2	0.03	0.2	ug/L	5.00		83.1	30-160			
2-Chlorophenol	4.0	0.03	0.2	ug/L	5.00		79.9	30-160			
1,3-Dichlorobenzene	3.3	0.03	0.2	ug/L	5.00		65.5	30-160			
1,4-Dichlorobenzene	3.2	0.03	0.2	ug/L	5.00		64.4	30-160			
1,2-Dichlorobenzene	3.5	0.03	0.2	ug/L	5.00		69.5	30-160			
Benzyl Alcohol	3.0	0.02	0.2	ug/L	5.00		59.3	30-160			
2,2'-Oxybis(1-chloropropane)	3.9	0.03	0.2	ug/L	5.00		77.6	30-160			
2-Methylphenol	3.7	0.03	0.2	ug/L	5.00		73.9	30-160			
Hexachloroethane	3.7	0.04	0.2	ug/L	5.00		73.5	30-160			
N-Nitroso-di-n-Propylamine	4.4	0.04	0.2	ug/L	5.00		88.8	30-160			
4-Methylphenol	3.3	0.03	0.2	ug/L	5.00		65.7	30-160			



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14-Nov-2019 16:02

Semivolatile Organic Compounds - Quality Control

Batch BHK0013 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BHK0013-BS1)</b>						Prepared: 05-Nov-2019 Analyzed: 08-Nov-2019 17:30					
Nitrobenzene	4.3	0.03	0.2	ug/L	5.00		85.9	30-160			
Isophorone	4.3	0.03	0.2	ug/L	5.00		85.9	30-160			
2-Nitrophenol	3.8	0.04	1.0	ug/L	5.00		75.9	30-160			
2,4-Dimethylphenol	11.0	0.3	1.0	ug/L	15.0		73.1	30-160			
Bis(2-Chloroethoxy)methane	3.4	0.03	0.2	ug/L	5.00		68.9	30-160			
2,4-Dichlorophenol	11.4	0.1	1.0	ug/L	15.0		76.0	30-160			
1,2,4-Trichlorobenzene	3.0	0.03	0.2	ug/L	5.00		59.7	30-160			
Benzoic acid	7.5	0.1	2.0	ug/L	27.5		27.2	30-160			*
4-Chloroaniline	2.7	0.04	1.0	ug/L	15.0		18.2	30-160			*
Hexachlorobutadiene	3.1	0.04	0.2	ug/L	5.00		61.1	30-160			
4-Chloro-3-Methylphenol	13.6	0.1	1.0	ug/L	15.0		90.9	30-160			
Hexachlorocyclopentadiene	9.4	0.1	1.0	ug/L	15.0		63.0	30-160			
2,4,6-Trichlorophenol	13.2	0.2	1.0	ug/L	15.0		88.0	30-160			
2,4,5-Trichlorophenol	12.9	0.1	1.0	ug/L	15.0		86.3	30-160			
2-Chloronaphthalene	4.1	0.03	0.2	ug/L	5.00		82.6	30-160			
2-Nitroaniline	19.3	0.2	1.0	ug/L	15.0		129	30-160			Q
Dimethylphthalate	4.6	0.04	0.2	ug/L	5.00		91.4	30-160			
2,6-Dinitrotoluene	14.9	0.2	1.0	ug/L	15.0		99.2	30-160			
3-Nitroaniline	12.4	0.2	1.0	ug/L	15.0		82.5	30-160			
2,4-Dinitrophenol	20.3	0.2	2.0	ug/L	27.5		73.8	30-160			
4-Nitrophenol	8.8	0.06	1.0	ug/L	15.0		58.5	30-160			Q
2,4-Dinitrotoluene	15.2	0.1	1.0	ug/L	15.0		101	30-160			
4-Chlorophenylphenyl ether	4.1	0.02	0.2	ug/L	5.00		82.8	30-160			
Diethyl phthalate	5.0	0.06	0.2	ug/L	5.00		99.9	30-160			
4-Nitroaniline	12.6	0.2	1.0	ug/L	15.0		83.8	30-160			
4,6-Dinitro-2-methylphenol	23.8	0.4	2.0	ug/L	27.5		86.4	30-160			
N-Nitrosodiphenylamine	5.9	0.03	0.2	ug/L	5.00		118	30-160			
4-Bromophenyl phenyl ether	4.4	0.02	0.2	ug/L	5.00		88.2	30-160			
Hexachlorobenzene	4.2	0.04	0.2	ug/L	5.00		83.7	30-160			
Pentachlorophenol	9.7	0.1	1.0	ug/L	15.0		64.8	30-160			
Carbazole	4.7	0.04	0.2	ug/L	5.00		93.1	30-160			
Di-n-Butylphthalate	5.3	0.05	0.2	ug/L	5.00		107	30-160			
Butylbenzylphthalate	5.7	0.07	0.2	ug/L	5.00		115	30-160			
3,3'-Dichlorobenzidine	14.9	0.3	1.0	ug/L	15.0		99.2	30-160			
bis(2-Ethylhexyl)phthalate	5.5	0.2	0.2	ug/L	5.00		110	30-160			



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Project: South Park Landfill  
Project Number: South Park Landfill  
Project Manager: Jeff Neuner

Reported:  
14-Nov-2019 16:02

Semivolatile Organic Compounds - Quality Control

Batch BHK0013 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BHK0013-BS1)</b>						Prepared: 05-Nov-2019 Analyzed: 08-Nov-2019 17:30					
Di-n-Octylphthalate	4.2	0.05	0.2	ug/L	5.00		84.4	30-160			
Surrogate: 2-Fluorophenol	4.13			ug/L	7.50		55.0	30-160			
Surrogate: Phenol-d5	2.81			ug/L	7.50		37.5	30-160			
Surrogate: 2-Chlorophenol-d4	6.59			ug/L	7.50		87.9	30-160			
Surrogate: 1,2-Dichlorobenzene-d4	3.87			ug/L	5.00		77.4	30-160			
Surrogate: Nitrobenzene-d5	4.82			ug/L	5.00		96.4	30-160			
Surrogate: 2-Fluorobiphenyl	4.50			ug/L	5.00		89.9	30-160			
Surrogate: 2,4,6-Tribromophenol	6.40			ug/L	7.50		85.4	30-160			
Surrogate: p-Terphenyl-d14	5.88			ug/L	5.00		118	30-160			



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Reported:  
14-Nov-2019 16:02

**Semivolatile Organic Compounds - SIM - Quality Control**

**Batch BHK0014 - EPA 3520C (Liq Liq)**

Instrument: NT12 Analyst: JZ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BHK0014-BLK1)</b>					Prepared: 04-Nov-2019 Analyzed: 08-Nov-2019 12:50						
1,4-Dioxane	0.06	0.04	0.2	ug/L							J
Surrogate: 1,4-Dioxane-d8	7.26			ug/L	10.0		72.6	33.6-120			
<b>LCS (BHK0014-BS1)</b>					Prepared: 04-Nov-2019 Analyzed: 08-Nov-2019 13:16						
1,4-Dioxane	7.8	0.04	0.2	ug/L	10.0		77.7	39.9-120			
Surrogate: 1,4-Dioxane-d8	7.11			ug/L	10.0		71.1	33.6-120			





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Reported:  
14-Nov-2019 16:02

Semivolatile Organic Compounds - SIM - Quality Control

Batch BHK0015 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BHK0015-BLK1)</b>											
						Prepared: 05-Nov-2019 Analyzed: 09-Nov-2019 09:23					
Naphthalene	0.004	0.001	0.010	ug/L							J
2-Methylnaphthalene	ND	0.001	0.010	ug/L							U
1-Methylnaphthalene	0.001	0.0009	0.010	ug/L							J
2-Chloronaphthalene	ND	0.001	0.010	ug/L							U
Acenaphthylene	ND	0.002	0.010	ug/L							U
Acenaphthene	ND	0.003	0.010	ug/L							U
Dibenzofuran	ND	0.002	0.010	ug/L							U
Fluorene	ND	0.002	0.010	ug/L							U
Phenanthrene	ND	0.001	0.010	ug/L							U
Anthracene	ND	0.001	0.010	ug/L							U
Carbazole	ND	0.001	0.010	ug/L							U
Fluoranthene	ND	0.002	0.010	ug/L							U
Pyrene	ND	0.001	0.010	ug/L							U
Benzo(a)anthracene	ND	0.0008	0.010	ug/L							U
Chrysene	ND	0.0009	0.010	ug/L							U
Benzo(b)fluoranthene	ND	0.0005	0.010	ug/L							U
Benzo(k)fluoranthene	ND	0.003	0.010	ug/L							U
Benzo(j)fluoranthene	ND	0.002	0.010	ug/L							U
Benzofluoranthenes, Total	ND	0.004	0.010	ug/L							U
Benzo(a)pyrene	ND	0.002	0.010	ug/L							U
Perylene	ND	0.006	0.010	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	0.001	0.010	ug/L							U
Dibenzo(a,h)anthracene	ND	0.001	0.010	ug/L							U
Benzo(g,h,i)perylene	ND	0.001	0.010	ug/L							U
Surrogate: 2-Methylnaphthalene-d10	0.205			ug/L	0.300		68.2	42-120			
Surrogate: Dibenzo[a,h]anthracene-d14	0.209			ug/L	0.300		69.6	29-120			
Surrogate: Fluoranthene-d10	0.230			ug/L	0.300		76.7	57-120			

LCS (BHK0015-BS1)

Prepared: 05-Nov-2019 Analyzed: 09-Nov-2019 09:52

Naphthalene	0.220	0.001	0.010	ug/L	0.300		73.4	37-120			
2-Methylnaphthalene	0.218	0.001	0.010	ug/L	0.300		72.8	37-120			
1-Methylnaphthalene	0.217	0.0009	0.010	ug/L	0.300		72.4	29-120			
2-Chloronaphthalene	0.216	0.001	0.010	ug/L	0.300		72.0	30-160			
Acenaphthylene	0.206	0.002	0.010	ug/L	0.300		68.8	41-120			
Acenaphthene	0.223	0.003	0.010	ug/L	0.300		74.5	41-120			



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Semivolatile Organic Compounds - SIM - Quality Control

Batch BHK0015 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BHK0015-BS1)</b>						Prepared: 05-Nov-2019 Analyzed: 09-Nov-2019 09:52					
Dibenzofuran	0.227	0.002	0.010	ug/L	0.300		75.6	38-120			
Fluorene	0.223	0.002	0.010	ug/L	0.300		74.3	43-120			
Phenanthrene	0.250	0.001	0.010	ug/L	0.300		83.5	41-120			
Anthracene	0.205	0.001	0.010	ug/L	0.300		68.4	40-120			
Carbazole	0.236	0.001	0.010	ug/L	0.300		78.5	30-160			
Fluoranthene	0.246	0.002	0.010	ug/L	0.300		81.9	45-120			
Pyrene	0.236	0.001	0.010	ug/L	0.300		78.6	41-120			
Benzo(a)anthracene	0.223	0.0008	0.010	ug/L	0.300		74.4	42-120			
Chrysene	0.247	0.0009	0.010	ug/L	0.300		82.2	44-120			
Benzo(b)fluoranthene	0.238	0.0005	0.010	ug/L	0.300		79.2	44-120			
Benzo(k)fluoranthene	0.249	0.003	0.010	ug/L	0.300		83.0	50-120			
Benzo(j)fluoranthene	0.264	0.002	0.010	ug/L	0.300		88.1	39-160			
Benzofluoranthenes, Total	0.751	0.004	0.010	ug/L	0.900		83.4	46-120			
Benzo(a)pyrene	0.236	0.002	0.010	ug/L	0.300		78.5	35-120			
Perylene	0.237	0.006	0.010	ug/L	0.300		79.1	30-160			
Indeno(1,2,3-cd)pyrene	0.255	0.001	0.010	ug/L	0.300		85.0	37-120			
Dibenzo(a,h)anthracene	0.252	0.001	0.010	ug/L	0.300		84.0	34-120			
Benzo(g,h,i)perylene	0.260	0.001	0.010	ug/L	0.300		86.6	38-120			
Surrogate: 2-Methylnaphthalene-d10	0.230			ug/L	0.300		76.8	42-120			
Surrogate: Dibenzo[a,h]anthracene-d14	0.260			ug/L	0.300		86.6	29-120			
Surrogate: Fluoranthene-d10	0.249			ug/L	0.300		82.9	57-120			



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Reported:  
14-Nov-2019 16:02

**Petroleum Hydrocarbons - Quality Control**

**Batch BHJ0953 - EPA 3510C SepF**

Instrument: FID4 Analyst: CTO

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BHJ0953-BLK1)</b>		Prepared: 01-Nov-2019 Analyzed: 04-Nov-2019 16:04								
Diesel Range Organics (C12-C24)	ND	0.100	mg/L							U
Motor Oil Range Organics (C24-C38)	ND	0.200	mg/L							U
Surrogate: <i>o</i> -Terphenyl	0.189		mg/L	0.225	84.1		50-150			
<b>LCS (BHJ0953-BS1)</b>		Prepared: 01-Nov-2019 Analyzed: 04-Nov-2019 16:24								
Diesel Range Organics (C12-C24)	2.37	0.100	mg/L	3.00		79.1	56-120			
Surrogate: <i>o</i> -Terphenyl	0.198		mg/L	0.225	88.1		50-150			



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Reported:  
14-Nov-2019 16:02

**Aroclor PCB - Quality Control**

**Batch BHK0011 - EPA 3510C SepF**

Instrument: ECD7 Analyst: JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BHK0011-BLK1)</b>											
						Prepared: 05-Nov-2019 Analyzed: 11-Nov-2019 15:54					
Aroclor 1016	ND	0.002	0.010	ug/L							U
Aroclor 1221	ND	0.002	0.010	ug/L							U
Aroclor 1232	ND	0.002	0.010	ug/L							U
Aroclor 1242	ND	0.002	0.010	ug/L							U
Aroclor 1248	ND	0.002	0.010	ug/L							U
Aroclor 1254	ND	0.002	0.010	ug/L							U
Aroclor 1260	ND	0.003	0.010	ug/L							U
Aroclor 1262	ND	0.003	0.010	ug/L							U
Aroclor 1268	ND	0.003	0.010	ug/L							U
Surrogate: Decachlorobiphenyl	0.0113			ug/L	0.0200		56.6	29-120			
Surrogate: Tetrachlorometaxylene	0.0123			ug/L	0.0200		61.6	32-120			
Surrogate: Decachlorobiphenyl [2C]	0.0104			ug/L	0.0200		52.0	29-120			
Surrogate: Tetrachlorometaxylene [2C]	0.0108			ug/L	0.0200		53.9	32-120			
<b>LCS (BHK0011-BS1)</b>											
						Prepared: 05-Nov-2019 Analyzed: 11-Nov-2019 16:15					
Aroclor 1016	0.042	0.002	0.010	ug/L	0.0500		83.8	54-120			
Aroclor 1260	0.040	0.003	0.010	ug/L	0.0500		80.3	51-128			
Surrogate: Decachlorobiphenyl	0.0120			ug/L	0.0200		59.9	29-120			
Surrogate: Tetrachlorometaxylene	0.0126			ug/L	0.0200		63.1	32-120			
Surrogate: Decachlorobiphenyl [2C]	0.0112			ug/L	0.0200		56.0	29-120			
Surrogate: Tetrachlorometaxylene [2C]	0.0108			ug/L	0.0200		53.9	32-120			



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**Metals and Metallic Compounds - Quality Control**

**Batch BHK0033 - TLM EPA 7470A low level**

Instrument: CVAA Analyst: SKM

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BHK0033-BLK1)</b>					Prepared: 04-Nov-2019 Analyzed: 06-Nov-2019 14:07						
Mercury	ND	0.000010	0.000020	mg/L							U
<b>LCS (BHK0033-BS1)</b>					Prepared: 04-Nov-2019 Analyzed: 06-Nov-2019 14:49						
Mercury	0.000246	0.000010	0.000020	mg/L	0.000200		123	80-120			*
<b>Duplicate (BHK0033-DUP1)</b>					Source: 19J0475-01 Prepared: 04-Nov-2019 Analyzed: 06-Nov-2019 14:16						
Mercury	ND	0.000010	0.000020	mg/L		ND					U
<b>Matrix Spike (BHK0033-MS1)</b>					Source: 19J0475-01 Prepared: 04-Nov-2019 Analyzed: 06-Nov-2019 14:19						
Mercury	0.000109	0.000010	0.000020	mg/L	0.000100	ND	109	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.



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**Metals and Metallic Compounds - Quality Control**

**Batch BHK0116 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix**

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BHK0116-BLK3)</b>						Prepared: 06-Nov-2019 Analyzed: 12-Nov-2019 16:17						
Iron	54	ND	6.27	20.0	ug/L							U
<b>LCS (BHK0116-BS3)</b>						Prepared: 06-Nov-2019 Analyzed: 12-Nov-2019 16:20						
Iron	54	5300	6.27	20.0	ug/L	5000		106	80-120			
<b>Duplicate (BHK0116-DUP2)</b>						Source: 19J0475-09 Prepared: 06-Nov-2019 Analyzed: 07-Nov-2019 18:58						
Chromium	52	0.349	0.130	0.500	ug/L		0.275			23.70	20	L, J
Lead	208	0.0780	0.0680	0.100	ug/L		ND					J
<b>Duplicate (BHK0116-DUP3)</b>						Source: 19J0475-09RE1 Prepared: 06-Nov-2019 Analyzed: 07-Nov-2019 20:12						
Manganese	55	1030	0.425	2.50	ug/L		1000			2.43	20	D
<b>Duplicate (BHK0116-DUP5)</b>						Source: 19J0475-09 Prepared: 06-Nov-2019 Analyzed: 12-Nov-2019 17:47						
Iron	54	17600	62.7	200	ug/L		17600			0.33	20	D
<b>Matrix Spike (BHK0116-MS2)</b>						Source: 19J0475-09 Prepared: 06-Nov-2019 Analyzed: 07-Nov-2019 19:04						
Chromium	52	25.7	0.130	0.500	ug/L	25.0	0.275	102	75-125			
Lead	208	25.1	0.0680	0.100	ug/L	25.0	ND	100	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

<b>Matrix Spike (BHK0116-MS3)</b>						Source: 19J0475-09RE1 Prepared: 06-Nov-2019 Analyzed: 07-Nov-2019 20:16						
Manganese	55	1080	0.425	2.50	ug/L	25.0	1000	326	75-125			HC, D

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

<b>Matrix Spike (BHK0116-MS5)</b>						Source: 19J0475-09 Prepared: 06-Nov-2019 Analyzed: 12-Nov-2019 17:53						
Iron	54	23700	62.7	200	ug/L	5000	17600	122	75-125			D

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Instrument: ICPMS2 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BHK0116-BLK1)</b>						Prepared: 06-Nov-2019 Analyzed: 06-Nov-2019 18:09						
Chromium	52	ND	0.130	0.500	ug/L							U
Lead	208	ND	0.0680	0.100	ug/L							U
Manganese	55	ND	0.0850	0.500	ug/L							U



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**Metals and Metallic Compounds - Quality Control**

**Batch BHK0116 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix**

Instrument: ICPMS2 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BHK0116-BLK1)</b>						Prepared: 06-Nov-2019 Analyzed: 06-Nov-2019 18:09						
Arsenic	75a	ND	0.0220	0.200	ug/L							U
Cadmium	111	ND	0.0300	0.100	ug/L							U
Copper	63	ND	0.340	0.500	ug/L							U
Nickel	60	ND	0.0500	0.500	ug/L							U
Zinc	66	3.17	0.820	4.00	ug/L							J
Zinc	67	2.41	0.940	4.00	ug/L							J
<b>LCS (BHK0116-BS1)</b>						Prepared: 06-Nov-2019 Analyzed: 06-Nov-2019 18:14						
Chromium	52	24.0	0.130	0.500	ug/L	25.0		96.0	80-120			
Lead	208	23.8	0.0680	0.100	ug/L	25.0		95.2	80-120			
Manganese	55	25.1	0.0850	0.500	ug/L	25.0		100	80-120			
Arsenic	75a	24.7	0.0220	0.200	ug/L	25.0		99.0	80-120			
Cadmium	111	25.7	0.0300	0.100	ug/L	25.0		103	80-120			
Copper	63	24.9	0.340	0.500	ug/L	25.0		99.7	80-120			
Nickel	60	26.0	0.0500	0.500	ug/L	25.0		104	80-120			
Zinc	66	84.6	0.820	4.00	ug/L	80.0		106	80-120			
Zinc	67	79.8	0.940	4.00	ug/L	80.0		99.8	80-120			
<b>Duplicate (BHK0116-DUP1)</b>						Source: 19J0475-09 Prepared: 06-Nov-2019 Analyzed: 07-Nov-2019 04:46						
Arsenic	75a	1.70	0.0220	0.200	ug/L		1.81			6.31	20	
Cadmium	111	ND	0.0300	0.100	ug/L		ND					U
Copper	63	ND	0.340	0.500	ug/L		ND					U
Nickel	60	2.57	0.0500	0.500	ug/L		2.53			1.53	20	
Zinc	66	4.57	0.820	4.00	ug/L		4.18			8.84	20	
<b>Matrix Spike (BHK0116-MS1)</b>						Source: 19J0475-09 Prepared: 06-Nov-2019 Analyzed: 07-Nov-2019 04:51						
Arsenic	75a	26.4	0.0220	0.200	ug/L	25.0	1.81	98.4	75-125			
Cadmium	111	23.5	0.0300	0.100	ug/L	25.0	ND	93.8	75-125			
Copper	63	25.1	0.340	0.500	ug/L	25.0	ND	100	75-125			
Nickel	60	29.0	0.0500	0.500	ug/L	25.0	2.53	106	75-125			
Zinc	66	76.8	0.820	4.00	ug/L	80.0	4.18	90.8	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.



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**Metals and Metallic Compounds (dissolved) - Quality Control**

**Batch BHK0035 - TLM EPA 7470A low level**

Instrument: CVAA Analyst: SKM

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BHK0035-BLK1)</b>						Prepared: 04-Nov-2019 Analyzed: 06-Nov-2019 15:22					
Mercury, Dissolved	ND	0.000010	0.000020	mg/L							U
<b>LCS (BHK0035-BS1)</b>						Prepared: 04-Nov-2019 Analyzed: 06-Nov-2019 15:25					
Mercury, Dissolved	0.000215	0.000010	0.000020	mg/L	0.000200		108	80-120			





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Reported:  
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**Metals and Metallic Compounds (dissolved) - Quality Control**

**Batch BHK0157 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix**

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BHK0157-BLK3)</b>												
						Prepared: 07-Nov-2019 Analyzed: 12-Nov-2019 16:11						
Iron, Dissolved	54	ND	6.27	20.0	ug/L							U

**LCS (BHK0157-BS3)**

Prepared: 07-Nov-2019 Analyzed: 12-Nov-2019 16:14

Iron, Dissolved	54	5290	6.27	20.0	ug/L	5000		106	80-120			
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Instrument: ICPMS2 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BHK0157-BLK1)</b>												
						Prepared: 07-Nov-2019 Analyzed: 07-Nov-2019 17:42						
Chromium, Dissolved	52	ND	0.130	0.500	ug/L							U
Lead, Dissolved	208	ND	0.0680	0.100	ug/L							U
Manganese, Dissolved	55	ND	0.0850	0.500	ug/L							U
Arsenic, Dissolved	75a	ND	0.0220	0.200	ug/L							U
Cadmium, Dissolved	111	ND	0.0300	0.100	ug/L							U
Copper, Dissolved	63	ND	0.340	0.500	ug/L							U
Nickel, Dissolved	60	ND	0.0500	0.500	ug/L							U
Nickel, Dissolved	62	ND	0.220	0.500	ug/L							U
Zinc, Dissolved	66	2.08	0.820	4.00	ug/L							J

**LCS (BHK0157-BS1)**

Prepared: 07-Nov-2019 Analyzed: 07-Nov-2019 17:47

Chromium, Dissolved	52	23.9	0.130	0.500	ug/L	25.0		95.6	80-120			
Lead, Dissolved	208	24.8	0.0680	0.100	ug/L	25.0		99.2	80-120			
Manganese, Dissolved	55	24.9	0.0850	0.500	ug/L	25.0		99.4	80-120			
Arsenic, Dissolved	75a	24.4	0.0220	0.200	ug/L	25.0		97.7	80-120			
Cadmium, Dissolved	111	24.5	0.0300	0.100	ug/L	25.0		97.9	80-120			
Copper, Dissolved	63	25.5	0.340	0.500	ug/L	25.0		102	80-120			
Nickel, Dissolved	60	25.3	0.0500	0.500	ug/L	25.0		101	80-120			
Nickel, Dissolved	62	26.2	0.220	0.500	ug/L	25.0		105	80-120			
Zinc, Dissolved	66	84.2	0.820	4.00	ug/L	80.0		105	80-120			



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Seattle WA, 98124-4018

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14-Nov-2019 16:02

### Certified Analyses included in this Report

Analyte	Certifications
<b>EPA 6020A in Water</b>	
Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
Lead-208	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
Lead-208	NELAP,WADOE,DoD-ELAP,ADEC
<b>EPA 6020A UCT-KED in Water</b>	
Arsenic-75a	WADOE,WA-DW,DoD-ELAP,ADEC,NELAP
Cadmium-111	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,WADOE,DoD-ELAP,ADEC
Copper-63	NELAP,WADOE,DoD-ELAP
Copper-65	NELAP,WADOE,DoD-ELAP
Nickel-60	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-62	NELAP,WADOE,DoD-ELAP,ADEC
Zinc-66	WADOE,WA-DW,DoD-ELAP
Zinc-67	WADOE,WA-DW,DoD-ELAP
Arsenic-75a	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-111	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,WADOE,DoD-ELAP,ADEC
Copper-63	NELAP,WADOE,DoD-ELAP
Copper-65	NELAP,WADOE,DoD-ELAP
Nickel-60	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-62	NELAP,WADOE,DoD-ELAP,ADEC
Zinc-66	NELAP,WADOE,DoD-ELAP
Zinc-67	NELAP,WADOE,DoD-ELAP
<b>EPA 7470A in Water</b>	
Mercury	WADOE,NELAP,DoD-ELAP,CALAP
Mercury	WADOE,NELAP,DoD-ELAP,CALAP



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**EPA 8082A in Water**

Aroclor 1016	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1262	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1262 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1268	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1268 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC

**EPA 8260C in Water**

Chloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acrolein	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromoethane	DoD-ELAP,NELAP,CALAP,WADOE
Iodomethane	DoD-ELAP,NELAP,CALAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,CALAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,CALAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,CALAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Butanone	DoD-ELAP,NELAP,CALAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE



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cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,CALAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,CALAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Styrene	DoD-ELAP,NELAP,CALAP,WADOE
Bromoform	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,CALAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,CALAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE



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1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,CALAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Hexane	WADOE
2-Pentanone	WADOE

**EPA 8270D in Water**

Phenol	NELAP,DoD-ELAP
bis(2-chloroethyl) ether	NELAP,DoD-ELAP
2-Chlorophenol	NELAP,DoD-ELAP
1,3-Dichlorobenzene	NELAP,DoD-ELAP
1,4-Dichlorobenzene	NELAP,DoD-ELAP
1,2-Dichlorobenzene	NELAP,DoD-ELAP
Benzyl Alcohol	NELAP,DoD-ELAP
2,2'-Oxybis(1-chloropropane)	NELAP,DoD-ELAP
2-Methylphenol	NELAP,DoD-ELAP
Hexachloroethane	NELAP,DoD-ELAP
N-Nitroso-di-n-Propylamine	NELAP,DoD-ELAP
4-Methylphenol	NELAP,DoD-ELAP
Nitrobenzene	NELAP,DoD-ELAP
Isophorone	NELAP,DoD-ELAP
2-Nitrophenol	NELAP,DoD-ELAP
2,4-Dimethylphenol	NELAP,DoD-ELAP
Bis(2-Chloroethoxy)methane	NELAP,DoD-ELAP
2,4-Dichlorophenol	NELAP,DoD-ELAP
1,2,4-Trichlorobenzene	NELAP,DoD-ELAP
Naphthalene	NELAP,DoD-ELAP
Benzoic acid	NELAP,DoD-ELAP
4-Chloroaniline	NELAP,DoD-ELAP



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Hexachlorobutadiene	NELAP,DoD-ELAP
4-Chloro-3-Methylphenol	NELAP,DoD-ELAP
2-Methylnaphthalene	NELAP,DoD-ELAP
Hexachlorocyclopentadiene	NELAP,DoD-ELAP
2,4,6-Trichlorophenol	NELAP,DoD-ELAP
2,4,5-Trichlorophenol	NELAP,DoD-ELAP
2-Chloronaphthalene	NELAP,DoD-ELAP
2-Nitroaniline	NELAP,DoD-ELAP
Acenaphthylene	NELAP,DoD-ELAP
Dimethylphthalate	NELAP,DoD-ELAP
2,6-Dinitrotoluene	NELAP,DoD-ELAP
Acenaphthene	NELAP,DoD-ELAP
3-Nitroaniline	NELAP,DoD-ELAP
2,4-Dinitrophenol	NELAP,DoD-ELAP
Dibenzofuran	NELAP,DoD-ELAP
4-Nitrophenol	NELAP,DoD-ELAP
2,4-Dinitrotoluene	NELAP,DoD-ELAP
Fluorene	NELAP,DoD-ELAP
4-Chlorophenylphenyl ether	NELAP,DoD-ELAP
Diethyl phthalate	NELAP,DoD-ELAP
4-Nitroaniline	NELAP,DoD-ELAP
4,6-Dinitro-2-methylphenol	NELAP,DoD-ELAP
N-Nitrosodiphenylamine	NELAP,DoD-ELAP
4-Bromophenyl phenyl ether	NELAP,DoD-ELAP
Hexachlorobenzene	NELAP,DoD-ELAP
Pentachlorophenol	NELAP,DoD-ELAP
Phenanthrene	NELAP,DoD-ELAP
Anthracene	NELAP,DoD-ELAP
Carbazole	NELAP,DoD-ELAP
Di-n-Butylphthalate	NELAP,DoD-ELAP
Fluoranthene	NELAP,DoD-ELAP
Pyrene	NELAP,DoD-ELAP
Butylbenzylphthalate	NELAP,DoD-ELAP
Benzo(a)anthracene	NELAP,DoD-ELAP
3,3'-Dichlorobenzidine	NELAP,DoD-ELAP
Chrysene	NELAP,DoD-ELAP
bis(2-Ethylhexyl)phthalate	NELAP,DoD-ELAP
Di-n-Octylphthalate	NELAP,DoD-ELAP
Benzo(b)fluoranthene	NELAP,DoD-ELAP
Benzo(k)fluoranthene	NELAP,DoD-ELAP



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Benzofluoranthenes, Total	NELAP
Benzo(a)pyrene	NELAP,DoD-ELAP
Indeno(1,2,3-cd)pyrene	NELAP,DoD-ELAP
Dibenzo(a,h)anthracene	NELAP,DoD-ELAP
Benzo(g,h,i)perylene	NELAP,DoD-ELAP
N-Nitrosodimethylamine	NELAP,DoD-ELAP
1-Methylnaphthalene	NELAP,DoD-ELAP

**EPA 8270D-SIM in Water**

1,4-Dioxane	WADOE,NELAP,DoD-ELAP
Naphthalene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
2-Methylnaphthalene	ADEC,DoD-ELAP,NELAP,CALAP
1-Methylnaphthalene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Biphenyl	NELAP
Acenaphthylene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Acenaphthene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Dibenzofuran	ADEC,DoD-ELAP,NELAP,CALAP
Fluorene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Phenanthrene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Anthracene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Carbazole	NELAP
Fluoranthene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Pyrene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Benzo(a)anthracene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Chrysene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Benzo(b)fluoranthene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Benzo(k)fluoranthene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Benzo(j)fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(e)pyrene	NELAP
Benzo(a)pyrene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Perylene	ADEC,NELAP,CALAP
Indeno(1,2,3-cd)pyrene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Dibenzo(a,h)anthracene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Benzo(g,h,i)perylene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE

**NWTPH-Dx in Water**

Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE



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Diesel Range Organics (C12-C22)	DoD-ELAP
Diesel Range Organics (C12-C25)	DoD-ELAP
Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Residual Range Organics (C23-C32)	DoD-ELAP
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,NELAP,WADOE
JP4 Range Organics (Tol-C14)	DoD-ELAP,NELAP,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE

**NWTPHg in Water**

Gasoline Range Organics (Tol-Nap)	WADOE,DoD-ELAP
Gasoline Range Organics (2MP-TMB)	WADOE,DoD-ELAP
Gasoline Range Organics (Tol-C12)	WADOE,DoD-ELAP
Gasoline Range Organics (C6-C10)	WADOE,ADEC,DoD-ELAP
Gasoline Range Organics (C5-C12)	WADOE,DoD-ELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	01/31/2021
CALAP	California Department of Public Health CAELAP	2748	06/30/2019
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2020
WADOE	WA Dept of Ecology	C558	06/30/2019
WA-DW	Ecology - Drinking Water	C558	06/30/2019





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### Notes and Definitions

- \* Flagged value is not within established control limits.
- B This analyte was detected in the method blank.
- D The reported value is from a dilution
- E The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
- H Hold time violation - Hold time was exceeded.
- HC The natural concentration of the spiked analyte is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
- J Estimated concentration value detected below the reporting limit.
- L Analyte concentration is  $\leq 5$  times the reporting limit and the replicate control limit defaults to  $\pm$  RL instead of 20% RPD
- NRS This surrogate not reported due to chromatographic interference
- P1 The reported value is greater than 40% difference between the concentrations determined on two GC columns where applicable.
- Q Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria ( $< 20\%$  RSD,  $< 20\%$  drift or minimum RRF)
- U This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- [2C] Indicates this result was quantified on the second column on a dual column analysis.

# DATA VALIDATION REPORT

SPU South Park Landfill  
Groundwater Sampling  
January 2020  
SDG 20A0325

*Prepared by:*

Aspect Consulting, LLC  
710 Second Ave, Suite 550  
Seattle, WA 98104

Project No. 190257 • February 2020

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# 1 Introduction

This report summarizes the findings of the United States Environmental Protection Agency (USEPA) Stage 2A data validation performed on analytical data for the groundwater samples collected on January 24, 2020 for SPU South Park Landfill. A complete list of samples for the sample delivery group (SDG) is provided in Section 2.

Samples were sent to Analytical Resources, Inc. (ARI) for analysis of various parameters. The analytical methods are summarized in Table 1 below:

**Table 1. Analytical Methods**

<b>Analysis</b>	<b>Method</b>	<b>Lab</b>
Gasoline	NWTPH-GX	ARI
Diesel	NWTPH-DX	ARI
Total/Dissolved Metals	SW6020	ARI
Total/Dissolved Mercury	SW7470A	ARI
VOCs	SW8260C	ARI
SVOCs	SW8270D	ARI
cPAHs and 1,4-Dioxane	SW8270DSIM	ARI
PCBs	SW8082A	ARI

The validation followed the procedures documented in the analytical methods, the *National Functional Guidelines for Inorganic Data Review* (USEPA, 2017a), the *National Functional Guidelines for Organic Data Review* (USEPA, 2017b), and *Contract Laboratory Program SOW* (USEPA, 2016). Data assigned a J/UJ/E qualifier (estimated) may be used for site evaluation purposes but the reasons for qualification should be considered when interpreting sample concentrations. Values without qualification meet all data measurement quality objectives and are suitable for use.

Data qualifier definitions and a summary table of the qualified data are included in the Qualified Data Summary at the end of this report. Data qualifiers have been incorporated into the project chemistry database to reflect the validation in this report.

## 2 Data Validation Findings for SDG 20A0325

Groundwater samples in this SDG are tabulated below. Each analysis listed above in Table 1 was performed on each sample. The sections below describe the results of the data quality review for this SDG by analyte group (analysis).

**Table 2. Sample Index**

<b>Sample Name</b>	<b>Sample Date</b>
MW-101-012420	01/24/2020
MW-102-012420	01/24/2020
MW-103-012420	01/24/2020
MW-104-012420	01/24/2020
MW-105-012420	01/24/2020
MW-106-012420	01/24/2020

## **2.1 Sample Receipt and Preservation**

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Sample receipt and preservation (0-6 degrees C) were acceptable.

## **2.2 TPHs (NWTPH-GX and NWTPH-DX)**

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### ***2.2.1 Holding Times***

Samples were analyzed within the requisite holding time limit.

### ***2.2.2 Method Blanks***

Target analytes were not detected at or above the reporting levels in the method blanks. No qualification or action was needed.

### ***2.2.3 Trip Blank***

Target analytes were not detected at or above the reporting levels in the trip blank. No qualification or action was needed.

### ***2.2.4 Surrogates***

All surrogate %R were within the laboratory specified control limits, with the following exception(s):

o-Terphenyl – No recovery reported from initial NWTPH-DX analysis of sample MW-104-012420 due to high analyte concentration. Surrogate was recovered and reported successfully in subsequent dilution analysis. No qualification or action was needed.

4-Bromofluorobenzene – High recovery reported from initial NWTPH-GX analysis of sample MW-104-012420, Surrogate was recovered and reported successfully in subsequent dilution analysis. Qualify initial result as estimated (J) and report result from dilution analysis.

### ***2.2.5 Dilutions and Reanalyses***

Some results exceeded the calibration range for the analysis and had to be reanalyzed at a dilution. The results that exceeded the linear range were qualified as estimated due to calibration range exceedance (E) and are not reported. Instead, the associated results are reported from the dilution analysis. All other results are reported from the initial analysis.

### **2.2.6 Laboratory Control Samples/Laboratory Control Sample Duplicates (LCS/LCSD)**

All LCS and LCSD %R and RPD were within the laboratory specified control limits. No qualification or action was needed.

### **2.2.7 Overall Assessment**

Accuracy was acceptable based on the LCS/LCSD %R, except as noted above. Precision was acceptable based on the LCS/LCSD RPD values, except as noted above. The data are of known quality and are acceptable for use as qualified.

## **2.3 VOCs (SW8260C)**

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### **2.3.1 Holding Times**

Samples were analyzed within the requisite holding time limit.

### **2.3.2 Method Blanks**

Target analytes were not detected at or above the reporting levels in the method blank, with the following exception(s):

Naphthalene – Detected at 0.13 J ug/L in BIA0527-BLK1. Associated detections that are less than or at the RL and flagged by the lab with a “J” are qualified as non-detect (U). Associated non-detections or detections greater than the RL do not require qualification.

Hexachlorobutadiene – Detected at 0.13 J ug/L in BIA0521-BLK2. Associated non-detections or detections greater than the RL do not require qualification.

Hexachlorobutadiene – Detected at 0.15 J ug/L in BIA0527-BLK1. Associated non-detections or detections greater than the RL do not require qualification.

n-Butylbenzene – Detected at 0.03 J ug/L in BIA0527-BLK1. Associated non-detections or detections greater than the RL do not require qualification.

### **2.3.3 Trip Blank**

Target analytes were not detected at or above the reporting levels in the trip blank, with the following exception(s):

Acetone – Detected at 7.55 ug/L. Associated detections that are less or at the RL and flagged by the lab with a “J” are qualified as non-detect (U) at the RL. Associated detections that are greater than the RL but less than the blank contamination are qualified as non-detect (U) at the sample result. Associated non-detections do not require qualification.

### **2.3.4 Surrogates**

All surrogate %R were within the laboratory specified control limits, with the following exception(s):

1,2-Dichloroethane-d4 – Low recovery reported from initial analysis of sample MW-102-012420. Surrogate was recovered and reported successfully in subsequent reanalysis with no dilution. No qualification required. Report all 8260 results from reanalysis.

1,2-Dichloroethane-d4 – Low recovery reported from initial analysis of sample MW-103-012420. Surrogate was recovered and reported successfully in subsequent reanalysis with no dilution. No qualification required. Report all 8260 results from reanalysis.

1,2-Dichloroethane-d4 – Low recovery reported from initial analysis of sample MW-104-012420. Surrogate was recovered and reported successfully in subsequent reanalysis with no dilution. No qualification required. Report all 8260 results from reanalysis.

4-Bromofluorobenzene – High recovery reported from initial analysis of sample MW-104-012420. Surrogate was recovered and reported successfully in subsequent reanalysis with no dilution. No qualification required. Report all 8260 results from reanalysis.

1,2-Dichloroethane-d4 – Low recovery reported from initial analysis of sample MW-105-012420. Surrogate was recovered and reported successfully in subsequent reanalysis with no dilution. No qualification required. Report all 8260 results from reanalysis.

1,2-Dichloroethane-d4 – Low recovery reported from initial analysis of sample MW-106-012420. Surrogate was recovered and reported successfully in subsequent reanalysis with no dilution. No qualification required. Report all 8260 results from reanalysis.

### ***2.3.5 Laboratory Control Samples/Laboratory Control Sample Duplicates (LCS/LCSD)***

All LCS and LCSD %R and RPD were within the laboratory specified control limits, with the following exception(s):

Hexachlorobutadiene – High recovery in BIA0527-BS1. Associated non-detections do not require qualification.

### ***2.3.6 Case Narrative/Laboratory Qualification***

The laboratory noted in the case narrative that %D values for the continuing calibration standards were outside control parameters for some parts of this analysis. The lab qualified some of the LCS and LCSD results using lab flag “Q” to indicate this. Evaluation of initial calibration standards is outside of the scope of a Level 2A validation. No further action was needed.

Certain results that are below the RL were qualified as estimated (J).

The lab noted that Vinyl Chloride was detected in sample MW-104-012420 with low spectral match parameters. The result was qualified as estimated (J).

### ***2.3.7 Overall Assessment***

Accuracy was acceptable based on the LCS/LCSD %R, except as noted above. Precision was acceptable based on the LCS/LCSD RPD values, except as noted above. The data are of known quality and are acceptable for use as qualified.

## **2.4 SVOCs (SW8270D and SW8270DSIM)**

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### ***2.4.1 Holding Times***

Samples were analyzed within the requisite holding time limit.



### **2.4.2 Method Blanks**

Target analytes were not detected at or above the reporting levels in the method blank, with the following exception(s):

Benzo(a)anthracene – Detected at 0.002 J ug/L in BIA0542-BLK1. Associated detections that are less than or equal to the RL and flagged by the lab with a “J” are qualified as non-detect (U). Associated non-detections or detections greater than the RL do not require qualification.

Benzo(b)fluoranthene – Detected at 0.002 J ug/L in BIA0542-BLK1. Associated detections that are less than or equal to the RL and flagged by the lab with a “J” are qualified as non-detect (U). Associated non-detections or detections greater than the RL do not require qualification

Chrysene – Detected at 0.002 J ug/L in BIA0542-BLK1. Associated detections that are less than or equal to the RL and flagged by the lab with a “J” are qualified as non-detect (U). Associated non-detections or detections greater than the RL do not require qualification.

Naphthalene – Detected at 0.001 J ug/L in BIA0542-BLK1. Associated detections that are less than or equal to the RL and flagged by the lab with a “J” are qualified as non-detect (U). Associated non-detections or detections greater than the RL do not require qualification.

Pyrene – Detected at 0.002 J ug/L in BIA0542-BLK1. Associated detections that are less than or equal to the RL and flagged by the lab with a “J” are qualified as non-detect (U). Associated non-detections or detections greater than the RL do not require qualification.

### **2.4.3 Surrogates**

All surrogate %R were within the laboratory specified control limits, with the following exception(s):

Fluoranthene-d10 – Low recovery reported from 8270DSIM initial and dilution analyses of sample MW-104-012420. The two other surrogates in both analyses had acceptable recovery. No qualification or action was needed.

Phenol-d5 – Low recovery reported from 8270D analysis all samples. The three other surrogates from the acid-extractable in all samples had acceptable recovery. No qualification or action was needed.

### **2.4.4 Dilutions and Reanalyses**

Some results exceeded the calibration range for the analysis and had to be reanalyzed at a dilution. The results that exceeded the linear range were qualified as estimated due to calibration range exceedance (E) and are not reported. Instead, the associated results are reported from the dilution analysis. All other results are reported from the initial analysis.

### **2.4.5 Laboratory Control Samples (LCS)**

All LCS %R were within the laboratory specified control limits, with the following exception(s):

4-Chloroaniline – Low recovery in BIA0595-BS1. Associated results are qualified as estimated (J/UJ).

4-Nitrophenol – Low recovery in BIA0595-BS1. Associated results are qualified as estimated (J/UJ).

Benzoic Acid – Low recovery in BIA0595-BS1. Associated results are qualified as estimated (J/UJ).

#### ***2.4.6 Case Narrative/Laboratory Qualification***

The laboratory noted in the case narrative that %D values for the continuing calibration standards were outside control parameters for some parts of this analysis. The lab qualified some of the LCS and LCSD results using lab flag “Q” to indicate this. Evaluation of initial calibration standards is outside of the scope of a Level 2A validation. No further action was needed.

Certain results that are below the RL were qualified as estimated (J).

#### ***2.4.7 Overall Assessment***

Accuracy was acceptable based on the LCS %R, except as noted above. The data are of known quality and are acceptable for use as qualified.

### **2.5 PCBs (SW8082A)**

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#### ***2.5.1 Holding Times***

Samples were analyzed within the requisite holding time limit.

#### ***2.5.2 Method Blanks***

Target analytes were not detected at or above the reporting levels in the method blank. No qualification or action was needed.

#### ***2.5.3 Surrogates***

All surrogate %R were within the laboratory specified control limits. No qualification or action was needed.

#### ***2.5.4 Laboratory Control Samples (LCS)***

All LCS %R were within the laboratory specified control limits. No qualification or action was needed.

#### ***2.5.5 Overall Assessment***

Accuracy was acceptable based on the LCS %R, except as noted above. The data are of known quality and are acceptable for use as qualified.

### **2.6 Metals (SW6020 and SW7470A)**

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#### ***2.6.1 Holding Times***

Samples were analyzed within the requisite holding time limit.

#### ***2.6.2 Method Blanks***

Target analytes were not detected at or above the reporting levels in the method blank, with the following exception(s):

Zinc, Total – Detected at 1.82 J ug/L in BIA0571-BLK1. Associated detections that are less than or equal to the RL and flagged by the lab with a “J” are qualified as non-detect (U). Associated non-detections or detections greater than the RL do not require qualification.

Zinc, Dissolved – Detected at 1.71 J ug/L in BIA0672-BLK1. Associated detections that are less than the RL are qualified as non-detect (U). Associated non-detections or detections greater than the RL do not require qualification.

Mercury, Total – Detected at 0.011 J ug/L in BIB0115-BLK1. Associated detections that are less than the RL are qualified as non-detect (U). Associated non-detections or detections greater than the RL do not require qualification.

Mercury, Dissolved – Detected at 0.011 J ug/L in BIB0116-BLK1. Associated detections that are less than the RL are qualified as non-detect (U). Associated non-detections or detections greater than the RL do not require qualification.

### ***2.6.3 Laboratory Control Samples (LCS)***

All LCS %R were within the laboratory specified control limits. No qualification or action was needed.

### ***2.6.4 Matrix Spikes (MS)***

All MS %R were within the laboratory specified control limits. No qualification or action was needed.

### ***2.6.5 Laboratory Duplicates (LD)***

All LD RPD were within the laboratory specified control limits. No qualification or action was needed.

### ***2.6.6 Case Narrative/Laboratory Qualification***

Certain results that are below the RL were qualified as estimated (J).

### ***2.6.7 Overall Assessment***

Accuracy was acceptable based on the LCS and MS %R, except as noted above. Precision was acceptable based on the LD RPD values, except as noted above. The data are of known quality and are acceptable for use as qualified.

### 3 Qualified Data Summary

Qualified and reportable sample results are listed below. Results just flagged non-detect (U) by lab with no further qualification necessary are not listed. Results flagged estimated (J) by the lab because they are below the RL are not listed.

**Table 3. Qualified Data Summary**

Sample ID	Method	Analyte	Qualifier	Reason
MW-101-012420	SW8260C	Acetone	U	TB detected at 7.55 ug/L
MW-101-012420	SW8270D	4-Chloroaniline	UJ	LCS %R low
MW-101-012420	SW8270D	4-Nitrophenol	UJ	LCS %R low
MW-101-012420	SW8270D	Benzoic acid	UJ	LCS %R low
MW-101-012420	SW8270DSIM	Benz(a)anthracene	U	MB detected at 0.002 J ug/L
MW-101-012420	SW8270DSIM	Benzo(b)fluoranthene	U	MB detected at 0.002 J ug/L
MW-101-012420	SW8270DSIM	Chrysene	U	MB detected at 0.002 J ug/L
MW-101-012420	SW8270DSIM	Naphthalene	U	MB detected at 0.001 J ug/L
MW-102-012420	SW7470A	Mercury, Dissolved	U	MB detected at 0.000011 J ug/L
MW-102-012420	SW8260C	Acetone	U	TB detected at 7.55 ug/L
MW-102-012420	SW8270D	4-Chloroaniline	UJ	LCS %R low
MW-102-012420	SW8270D	4-Nitrophenol	UJ	LCS %R low
MW-102-012420	SW8270D	Benzoic acid	UJ	LCS %R low
MW-102-012420	SW8270DSIM	Benz(a)anthracene	U	MB detected at 0.002 J ug/L
MW-102-012420	SW8270DSIM	Benzo(b)fluoranthene	U	MB detected at 0.002 J ug/L
MW-102-012420	SW8270DSIM	Chrysene	U	MB detected at 0.002 J ug/L
MW-102-012420	SW8270DSIM	Naphthalene	U	MB detected at 0.001 J ug/L
MW-103-012420	SW6020	Zinc, Dissolved	U	MB detected at 1.71 J ug/L
MW-103-012420	SW6020	Zinc, Total	U	MB detected at 1.82 J ug/L
MW-103-012420	SW7470A	Mercury, Dissolved	U	MB detected at 0.000011 J ug/L
MW-103-012420	SW7470A	Mercury, Total	U	MB detected at 0.000011 J ug/L
MW-103-012420	SW8260C	Acetone	U	TB detected at 7.55 ug/L
MW-103-012420	SW8270D	4-Chloroaniline	UJ	LCS %R low
MW-103-012420	SW8270D	4-Nitrophenol	UJ	LCS %R low
MW-103-012420	SW8270D	Benzoic acid	UJ	LCS %R low
MW-103-012420	SW8270DSIM	Benz(a)anthracene	U	MB detected at 0.002 J ug/L
MW-103-012420	SW8270DSIM	Chrysene	U	MB detected at 0.002 J ug/L
MW-103-012420	SW8270DSIM	Naphthalene	U	MB detected at 0.001 J ug/L
MW-104-012420	SW7470A	Mercury, Dissolved	U	MB detected at 0.000011 J ug/L
MW-104-012420	SW7470A	Mercury, Total	U	MB detected at 0.000011 J ug/L
MW-104-012420	SW8260C	Acetone	U	TB detected at 7.55 ug/L

Sample ID	Method	Analyte	Qualifier	Reason
MW-104-012420	SW8260C	Vinyl Chloride	J	Low spectral match
MW-104-012420	SW8270D	4-Chloroaniline	UJ	LCS %R low
MW-104-012420	SW8270D	4-Nitrophenol	UJ	LCS %R low
MW-104-012420	SW8270D	Benzoic acid	UJ	LCS %R low
MW-104-012420	SW8270DSIM	1-Methylnaphthalene	E	Result exceeded calibration range
MW-105-012420	SW6020	Zinc, Dissolved	U	MB detected at 1.71 J ug/L
MW-105-012420	SW6020	Zinc, Total	U	MB detected at 1.82 J ug/L
MW-105-012420	SW7470A	Mercury, Dissolved	U	MB detected at 0.000011 J ug/L
MW-105-012420	SW7470A	Mercury, Total	U	MB detected at 0.000011 J ug/L
MW-105-012420	SW8260C	Acetone	U	TB detected at 7.55 ug/L
MW-105-012420	SW8270D	4-Chloroaniline	UJ	LCS %R low
MW-105-012420	SW8270D	4-Nitrophenol	UJ	LCS %R low
MW-105-012420	SW8270D	Benzoic acid	UJ	LCS %R low
MW-105-012420	SW8270DSIM	Benz(a)anthracene	U	MB detected at 0.002 J ug/L
MW-105-012420	SW8270DSIM	Benzo(b)fluoranthene	U	MB detected at 0.002 J ug/L
MW-105-012420	SW8270DSIM	Chrysene	U	MB detected at 0.002 J ug/L
MW-105-012420	SW8270DSIM	Naphthalene	U	MB detected at 0.001 J ug/L
MW-105-012420	SW8270DSIM	Pyrene	U	MB detected at 0.002 J ug/L
MW-106-012420	SW7470A	Mercury, Total	U	MB detected at 0.000011 J ug/L
MW-106-012420	SW8260C	Acetone	U	TB detected at 7.55 ug/L
MW-106-012420	SW8270D	4-Chloroaniline	UJ	LCS %R low
MW-106-012420	SW8270D	4-Nitrophenol	UJ	LCS %R low
MW-106-012420	SW8270D	Benzoic acid	UJ	LCS %R low
MW-106-012420	SW8270DSIM	Chrysene	U	MB detected at 0.002 J ug/L
MW-106-012420	SW8270DSIM	Naphthalene	U	MB detected at 0.001 J ug/L
MW-106-012420	SW8270DSIM	Pyrene	U	MB detected at 0.002 J ug/L

**Table 4. Data Qualifier Definitions**

<b>Data Qualifier</b>	<b>Definition</b>
J	The analyte was detected above the reported quantitation limit, and the reported concentration was an estimated value.
R	The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
U	The analyte was analyzed for but was considered not detected at the reporting limit or reported value.
UJ	The analyte was analyzed for, and the associated quantitation limit was an estimated value.
E	The analyte was detected, and the result exceeded the instrument's linear calibration range and should be considered an estimate.

## 4 References

U.S. Environmental Protection Agency (USEPA), 2017a National Functional Guidelines for Inorganic Superfund Methods Data Review, Office of Superfund Remediation and Technology Innovation (OSRTI), USEPA Publication No. 540-R-2017-001, January.

USEPA, 2017b National Functional Guidelines for Organic Superfund Methods Data Review, Office of Superfund Remediation and Technology Innovation (OSRTI), USEPA Publication No. 540-R-2017-002, January.

USEPA, Contract Laboratory Program (CLP) Statement of Work (SOW) for Organic Superfund Methods, Multi-Media, Multi-Concentration, SOM02.4, October 2016.



11 February 2020

Jeff Neuner  
Seattle Public Utilities  
700-5th Ave, Ste 4900, Box 34018  
Seattle, WA 98124-4018

RE: South Park Landfill

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)  
20A0325

Associated SDG ID(s)  
N/A

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I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclosed Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

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



# Chain of Custody Record & Laboratory Analysis Request



**Analytical Resources, Incorporated**  
 Analytical Chemists and Consultants  
 4611 South 134th Place, Suite 100  
 Tukwila, WA 98168  
 206-695-6200 206-695-6201 (fax)  
 www.arilabs.com

ARI Assigned Number: <b>20A0325</b>	Turn-around Requested: <b>STD</b>	Page: <b>1</b> of <b>1</b>
ARI Client Company: <b>Aspect Consulting SPU</b>	Phone: <b>(206) 838-5830</b>	Date: <b>1/24/20</b> Ice Present?
Client Contact: <b>Steve Hamat / Jeff Neuner</b>	No. of Coolers: <b>5</b>	Cooler Temps: <b>See CRF</b>

Client Project Name: <b>South Park LF</b>	Analysis Requested	Notes/Comments
Client Project #: <b>190257</b>	Samplers: <b>DWU</b>	<b>* Field filtered</b>

Sample ID	Date	Time	Matrix	No. Containers	NUPH-6x/Dx	Total metals EPA 6030A	H <sub>2</sub> EPA 7170	Dissolved metals EPA 6030A	H <sub>2</sub> EPA 7170	SUOCs by EPA 8210D	low-level cPAHs by EPA 8210D	VH Dioxins EPA 8210D-20A	PAHs EPA 8082A	VOCs by EPA 8210
MW-101-012420	1/24/20	0925 <sup>10</sup>	Water	15	X	X	X	X	X	X	X	X	X	X
MW-102-012420		1520												
MW-103-012420		1400												
MW-104-012420		1705												
MW-105-012420		0925												
MW-106-012420		1225												
Trip Blank		-		2	X									
SC-012420		1610	Soil	8	X*	X			X				X	X

Comments/Special Instructions	Relinquished by: (Signature) <i>[Signature]</i>	Received by: (Signature) <i>[Signature]</i>	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: <b>David Unruh</b>	Printed Name: <b>Kenny Dang</b>	Printed Name:	Printed Name:
	Company: <b>Aspect Consulting</b>	Company: <b>ARI</b>	Company:	Company:
	Date & Time: <b>1/24/20 1810</b>	Date & Time: <b>1/24/2020 1812</b>	Date & Time:	Date & Time:

**Limits of Liability:** ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

**Sample Retention Policy:** All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.





Seattle Public Utilities  
700-5th Ave, Ste 4900, Box 34018  
Seattle WA, 98124-4018

Project: South Park Landfill  
Project Number: South Park Landfill  
Project Manager: Jeff Neuner

Reported:  
11-Feb-2020 09:22

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-101-012420	20A0325-01	Water	24-Jan-2020 10:50	24-Jan-2020 18:12
MW-101-012420	20A0325-02	Water	24-Jan-2020 10:50	24-Jan-2020 18:12
MW-102-012420	20A0325-03	Water	24-Jan-2020 15:20	24-Jan-2020 18:12
MW-102-012420	20A0325-04	Water	24-Jan-2020 15:20	24-Jan-2020 18:12
MW-103-012420	20A0325-05	Water	24-Jan-2020 14:00	24-Jan-2020 18:12
MW-103-012420	20A0325-06	Water	24-Jan-2020 14:00	24-Jan-2020 18:12
MW-104-012420	20A0325-07	Water	24-Jan-2020 17:05	24-Jan-2020 18:12
MW-104-012420	20A0325-08	Water	24-Jan-2020 17:05	24-Jan-2020 18:12
MW-105-012420	20A0325-09	Water	24-Jan-2020 09:25	24-Jan-2020 18:12
MW-105-012420	20A0325-10	Water	24-Jan-2020 09:25	24-Jan-2020 18:12
MW-106-012420	20A0325-11	Water	24-Jan-2020 12:25	24-Jan-2020 18:12
MW-106-012420	20A0325-12	Water	24-Jan-2020 12:25	24-Jan-2020 18:12
Trip Blank	20A0325-13	Water	24-Jan-2020 09:25	24-Jan-2020 18:12



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11-Feb-2020 09:22

## Work Order Case Narrative

**Client:** Seattle Public Utilities  
**Project:** South Park Landfill  
**Work Order:** 20A0325

### Sample receipt

Samples as listed on the preceding page were received 24-Jan-2020 18:12 under ARI work order 20A0325. For details regarding sample receipt, please refer to the Cooler Receipt Form.

### PCB Aroclors - EPA Method SW8082A

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.

### Gasoline by NWTPH-g (GC/MS)

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits except 4-Bromofluorobenzene which was out of control high in sample 20A0325-07 and is flagged.

The method blank(s) were clean at the reporting limits.

The LCS/LCSD percent recoveries and RPD were within control limits.

### Volatiles - EPA Method SW8260C

The sample(s) were analyzed within the recommended holding times.



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Initial and continuing calibrations were within method requirements except Carbon Disulfide, Hexachloro-1,3-Butadiene and Dichlorofluoromethane which were out of control high and Chloromethane, Vinyl Acetate and trans-1,3-Dichloropropene which were out of control low. All samples which contain analyte have been flagged with a "Q" qualifier.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits except 1,2-Dichloromethane-d4 which was out of control low in samples 20A0325-03, 20A0325-05, 20A0325-09, 20A0325-11 and the method blank. For sample 20A0325-07 surrogates 1,2-Dichloromethane which was out of control low and 4-Bromofluorobenzene which was out of control high. All deviations are flagged.

The method blank(s) were clean at the reporting limits.

The LCS/LCSD percent recoveries and RPD were within control limits.

#### **Semivolatiles - EPA Method SW8270D**

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements except 2,4-Dichlorophenol, 3,3'-Dichlorobenzidine and surrogate 2,4, 6-Tribromophenol which were out of control high and 4-Nitrophenol which was out of control low. All samples which contain analyte have been flagged with a "Q" qualifier.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits except 2,4,6-Tribromophenol which was out of control high in the Initial calibration verification and is flagged. Surrogate Phenol-d5 was out of control low in samples 20A0325-01, 20A0325-03, 20A0325-05, 20A0325-07, 20A0325-09, 20A0325-11 and the method blank. All deviations are flagged.

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits except Benzoic Acid, 4-Chloroaniline and 4-Nitrophenol which were out of control low and are flagged within the QC section of this report.

#### **Polynuclear Aromatic Hydrocarbons (PAH) - EPA Method SW8270D-SIM**

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements except Phenanthrene which was out of control high in samples associated with sequence SIB0051. All samples which contain analyte have been flagged with a "Q" qualifier.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits except Fluoranthene-d10 which was out of control low in sample 20A0325-07 and is flagged.



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Reported:  
11-Feb-2020 09:22

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.

**1,4-Dioxane- EPA Method SW8270D**

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.

**Total Metals - EPA Method 6020A**

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.

Sample specific QC was performed in association with sample 20A0325-01 in batch BIA0672. The duplicate RPD and matrix spike percent recoveries were within control limits.

**Total Mercury - EPA Method 7470**

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.

Sample specific QC was performed in association with sample 20A0325-01 in batch BIB0115. The duplicate RPD and matrix spike percent recovery were within control limits.



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**Diesel/Heavy Oil Range Organics - WA-Ecology Method NW-TPHDx**

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.

**Dissolved Metals - EPA Method 6020A**

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.

**Dissolved Mercury - EPA Method 7470**

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.

Sample specific QC was performed in association with sample 20A3025-02. The duplicate RPD and matrix spike percent recovery were within control limits.



WORK ORDER

20A0325

Client: Seattle Public Utilities	Project Manager: Shelly Fishel
Project: South Park Landfill	Project Number: South Park Landfill

Preservation Confirmation

Container ID	Container Type	pH	
20A0325-01 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
20A0325-01 B	VOA Vial, Clear, 40 mL, HCL		
20A0325-01 C	VOA Vial, Clear, 40 mL, HCL		
20A0325-01 D	VOA Vial, Clear, 40 mL, HCL		
20A0325-01 E	Glass NM, Amber, 1000 mL		
20A0325-01 F	Glass NM, Amber, 1000 mL		
20A0325-01 G	Glass NM, Amber, 500 mL		
20A0325-01 H	Glass NM, Amber, 500 mL		
20A0325-01 I	Glass NM, Amber, 500 mL		
20A0325-01 J	Glass NM, Amber, 500 mL		
20A0325-01 K	Glass NM, Amber, 500 mL		
20A0325-01 L	Glass NM, Amber, 500 mL		
20A0325-01 M	Glass NM, Amber, 500 mL		
20A0325-01 N	Glass NM, Amber, 500 mL		
20A0325-02 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	Pass
20A0325-03 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
20A0325-03 B	VOA Vial, Clear, 40 mL, HCL		
20A0325-03 C	VOA Vial, Clear, 40 mL, HCL		
20A0325-03 D	VOA Vial, Clear, 40 mL, HCL		
20A0325-03 E	Glass NM, Amber, 1000 mL		
20A0325-03 F	Glass NM, Amber, 1000 mL		
20A0325-03 G	Glass NM, Amber, 500 mL		
20A0325-03 H	Glass NM, Amber, 500 mL		
20A0325-03 I	Glass NM, Amber, 500 mL		
20A0325-03 J	Glass NM, Amber, 500 mL		
20A0325-03 K	Glass NM, Amber, 500 mL		
20A0325-03 L	Glass NM, Amber, 500 mL		
20A0325-03 M	Glass NM, Amber, 500 mL		
20A0325-03 N	Glass NM, Amber, 500 mL		
20A0325-04 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	Pass
20A0325-05 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
20A0325-05 B	VOA Vial, Clear, 40 mL, HCL		
20A0325-05 C	VOA Vial, Clear, 40 mL, HCL		
20A0325-05 D	VOA Vial, Clear, 40 mL, HCL		
20A0325-05 E	Glass NM, Amber, 1000 mL		



WORK ORDER

20A0325

<b>Client:</b> Seattle Public Utilities	<b>Project Manager:</b> Shelly Fishel
<b>Project:</b> South Park Landfill	<b>Project Number:</b> South Park Landfill

20A0325-05 F	Glass NM, Amber, 1000 mL		
20A0325-05 G	Glass NM, Amber, 500 mL		
20A0325-05 H	Glass NM, Amber, 500 mL		
20A0325-05 I	Glass NM, Amber, 500 mL		
20A0325-05 J	Glass NM, Amber, 500 mL		
20A0325-05 K	Glass NM, Amber, 500 mL		
20A0325-05 L	Glass NM, Amber, 500 mL		
20A0325-05 M	Glass NM, Amber, 500 mL		
20A0325-05 N	Glass NM, Amber, 500 mL		
20A0325-06 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	CD	Pass
20A0325-07 A	HDPE NM, 500 mL, 1:1 HNO3	CD	Pass
20A0325-07 B	VOA Vial, Clear, 40 mL, HCL		
20A0325-07 C	VOA Vial, Clear, 40 mL, HCL		
20A0325-07 D	VOA Vial, Clear, 40 mL, HCL		
20A0325-07 E	Glass NM, Amber, 1000 mL		
20A0325-07 F	Glass NM, Amber, 1000 mL		
20A0325-07 G	Glass NM, Amber, 500 mL		
20A0325-07 H	Glass NM, Amber, 500 mL		
20A0325-07 I	Glass NM, Amber, 500 mL		
20A0325-07 J	Glass NM, Amber, 500 mL		
20A0325-07 K	Glass NM, Amber, 500 mL		
20A0325-07 L	Glass NM, Amber, 500 mL		
20A0325-07 M	Glass NM, Amber, 500 mL		
20A0325-07 N	Glass NM, Amber, 500 mL		
20A0325-08 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	CD	Pass
20A0325-09 A	HDPE NM, 500 mL, 1:1 HNO3	CD	Pass
20A0325-09 B	VOA Vial, Clear, 40 mL, HCL		
20A0325-09 C	VOA Vial, Clear, 40 mL, HCL		
20A0325-09 D	VOA Vial, Clear, 40 mL, HCL		
20A0325-09 E	Glass NM, Amber, 1000 mL		
20A0325-09 F	Glass NM, Amber, 1000 mL		
20A0325-09 G	Glass NM, Amber, 500 mL		
20A0325-09 H	Glass NM, Amber, 500 mL		
20A0325-09 I	Glass NM, Amber, 500 mL		
20A0325-09 J	Glass NM, Amber, 500 mL		
20A0325-09 K	Glass NM, Amber, 500 mL		
20A0325-09 L	Glass NM, Amber, 500 mL		



WORK ORDER

20A0325

<b>Client:</b> Seattle Public Utilities	<b>Project Manager:</b> Shelly Fishel
<b>Project:</b> South Park Landfill	<b>Project Number:</b> South Park Landfill

20A0325-09 M	Glass NM, Amber, 500 mL		
20A0325-09 N	Glass NM, Amber, 500 mL		
20A0325-10 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	Pass
20A0325-11 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
20A0325-11 B	VOA Vial, Clear, 40 mL, HCL		
20A0325-11 C	VOA Vial, Clear, 40 mL, HCL		
20A0325-11 D	VOA Vial, Clear, 40 mL, HCL		
20A0325-11 E	Glass NM, Amber, 1000 mL		
20A0325-11 F	Glass NM, Amber, 1000 mL		
20A0325-11 G	Glass NM, Amber, 500 mL		
20A0325-11 H	Glass NM, Amber, 500 mL		
20A0325-11 I	Glass NM, Amber, 500 mL		
20A0325-11 J	Glass NM, Amber, 500 mL		
20A0325-11 K	Glass NM, Amber, 500 mL		
20A0325-11 L	Glass NM, Amber, 500 mL		
20A0325-11 M	Glass NM, Amber, 500 mL		
20A0325-11 N	Glass NM, Amber, 500 mL		
20A0325-12 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	Pass
20A0325-13 A	VOA Vial, Clear, 40 mL, HCL		
20A0325-13 B	VOA Vial, Clear, 40 mL, HCL		
20A0325-13 C	VOA Vial, Clear, 40 mL, HCL		
20A0325-13 D	VOA Vial, Clear, 40 mL, HCL		
20A0325-14 A	Glass WM, Clear, 8 oz		
20A0325-14 B	Glass WM, Clear, 4 oz		
20A0325-14 C	Glass WM w/septa, Clear, 2 oz		
20A0325-14 D	VOA Vial, Clear, 40 mL, NaHSO4	KD 1/27/20	
20A0325-14 E	VOA Vial, Clear, 40 mL, NaHSO4		
20A0325-14 F	VOA Vial, Clear, 40 mL, NaHSO4		
20A0325-14 G	VOA Vial, Clear, 40 mL, MeOH		
20A0325-14 H	VOA Vial, Clear, 40 mL, MeOH		

JBW  
Preservation Confirmed By

01/25/2020  
Date

Reviewed By \_\_\_\_\_ Date \_\_\_\_\_





# Cooler Receipt Form

ARI Client: Aspect  
 COC No(s): \_\_\_\_\_ (NA)  
 Assigned ARI Job No: 20A0325

Project Name: South Park LF  
 Delivered by: Fed-Ex UPS Courier Hand Delivered Other: \_\_\_\_\_  
 Tracking No: \_\_\_\_\_ (NA)

**Preliminary Examination Phase:**

Were intact, properly signed and dated custody seals attached to the outside of the cooler? YES  NO  
 Were custody papers included with the cooler? YES  NO  
 Were custody papers properly filled out (ink, signed, etc.) YES  NO  
 Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 1.5 2.5 1.9 2.7 0.8  
 Time 1812  
 If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: DOO 3206  
 Cooler Accepted by: KO Date: 1/24/2020 Time: 1812

**Complete custody forms and attach all shipping documents**

**Log-In Phase:**

Was a temperature blank included in the cooler? YES  NO  
 What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: \_\_\_\_\_  
 Was sufficient ice used (if appropriate)? NA  YES  NO  
 How were bottles sealed in plastic bags? Individually  Grouped  Not  
 Did all bottles arrive in good condition (unbroken)? YES  NO  
 Were all bottle labels complete and legible? YES  NO  
 Did the number of containers listed on COC match with the number of containers received? JSW YES  NO  
 Did all bottle labels and tags agree with custody papers? YES  NO  
 Were all bottles used correct for the requested analyses? YES  NO  
 Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) ... NA  YES  NO  
 Were all VOC vials free of air bubbles? NA  YES  NO  
 Was sufficient amount of sample sent in each bottle? JSW YES  NO  
 Date VOC Trip Blank was made at ARI: 01/16/2020  
 Were the sample(s) split by ARI?  YES  NO Date/Time: \_\_\_\_\_ Equipment: \_\_\_\_\_ Split by: \_\_\_\_\_

Samples Logged by: JSW Date: 01/25/2020 Time: 1012 Labels checked by: JSW

**\*\* Notify Project Manager of discrepancies or concerns \*\***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

**Additional Notes, Discrepancies, & Resolutions:**

4 Trip Blanks in total were received, instead of the 2 listed on the Clients COC.

By: JSW Date: 01/25/2020



Seattle Public Utilities  
700-5th Ave, Ste 4900, Box 34018  
Seattle WA, 98124-4018

Project: South Park Landfill  
Project Number: South Park Landfill  
Project Manager: Jeff Neuner

Reported:  
11-Feb-2020 09:22

**MW-101-012420**  
**20A0325-01 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 01/24/2020 10:50

Instrument: NT2 Analyst: PKC

Analyzed: 01/27/2020 11:54

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)

Extract ID: 20A0325-01 B

Preparation Batch: BIA0521

Sample Size: 10 mL

Prepared: 27-Jan-2020

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.09	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.06	0.20	<b>0.21</b>	ug/L	
Bromomethane	74-83-9	1	0.25	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.09	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.04	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.48	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.04	0.20	ND	ug/L	U
Acetone	67-64-1	1	2.06	5.00	<b>4.25</b>	ug/L	J
1,1-Dichloroethene	75-35-4	1	0.05	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.04	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.23	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.49	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.60	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.04	0.20	<b>0.04</b>	ug/L	J
trans-1,2-Dichloroethene	156-60-5	1	0.05	0.20	<b>0.21</b>	ug/L	
Vinyl Acetate	108-05-4	1	0.07	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.05	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	0.81	5.00	<b>1.83</b>	ug/L	J
2,2-Dichloropropane	594-20-7	1	0.05	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.04	0.20	<b>6.81</b>	ug/L	
Chloroform	67-66-3	1	0.03	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.06	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.04	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.03	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.04	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.07	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.03	0.20	<b>0.03</b>	ug/L	J
Trichloroethene	79-01-6	1	0.05	0.20	<b>10.1</b>	ug/L	
1,2-Dichloropropane	78-87-5	1	0.04	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.05	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.15	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.25	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	0.97	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.06	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.08	0.20	ND	ug/L	U



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Project: South Park Landfill  
Project Number: South Park Landfill  
Project Manager: Jeff Neuner

Reported:  
11-Feb-2020 09:22

**MW-101-012420**  
**20A0325-01 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 01/24/2020 10:50

Instrument: NT2 Analyst: PKC

Analyzed: 01/27/2020 11:54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	0.90	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.13	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.06	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.05	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.05	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.07	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.02	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.09	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.05	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.06	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.06	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.13	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.32	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.02	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.06	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.02	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.02	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.02	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.03	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.02	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.02	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.02	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.03	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.04	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.04	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.02	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.04	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.37	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.11	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.07	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.12	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.11	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.05	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.07	0.50	ND	ug/L	U
2-Pentanone	107-87-9	1	5.00	5.00	ND	ug/L	U



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Reported:  
11-Feb-2020 09:22

**MW-101-012420**  
**20A0325-01 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 01/24/2020 10:50

Instrument: NT2 Analyst: PKC

Analyzed: 01/27/2020 11:54

Analyte	CAS Number	Recovery		Units	Notes
		Limits	Recovery		
Surrogate: 1,2-Dichloroethane-d4		80-129 %	111	%	
Surrogate: Toluene-d8		80-120 %	100	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	93.0	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	102	%	



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11-Feb-2020 09:22

**MW-101-012420**  
**20A0325-01 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 01/24/2020 10:50  
Instrument: NT2 Analyst: PKC Analyzed: 01/27/2020 11:54  
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) Extract ID: 20A0325-01 B  
Preparation Batch: BIA0521 Sample Size: 10 mL  
Prepared: 27-Jan-2020 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	100	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	93.0	%	



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**MW-101-012420**  
**20A0325-01 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 01/24/2020 10:50

Instrument: NT10 Analyst: VTS

Analyzed: 02/03/2020 18:03

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BIA0595  
Prepared: 30-Jan-2020

Sample Size: 1000 mL  
Final Volume: 1 mL

Extract ID: 20A0325-01 F 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	0.01	0.2	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	0.03	0.2	ND	ug/L	U
2-Chlorophenol	95-57-8	1	0.03	0.2	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.03	0.2	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.03	0.2	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.03	0.2	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	0.02	0.2	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	0.03	0.2	ND	ug/L	U
2-Methylphenol	95-48-7	1	0.03	0.2	ND	ug/L	U
Hexachloroethane	67-72-1	1	0.04	0.2	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	0.04	0.2	ND	ug/L	U
4-Methylphenol	106-44-5	1	0.03	0.2	ND	ug/L	U
Nitrobenzene	98-95-3	1	0.03	0.2	ND	ug/L	U
Isophorone	78-59-1	1	0.03	0.2	ND	ug/L	U
2-Nitrophenol	88-75-5	1	0.04	1.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	0.3	1.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	0.03	0.2	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	0.1	1.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.03	0.2	ND	ug/L	U
Benzoic acid	65-85-0	1	0.1	2.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	0.04	1.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	0.04	0.2	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	0.1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	0.1	1.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	0.2	1.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	0.1	1.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	0.03	0.2	ND	ug/L	U
2-Nitroaniline	88-74-4	1	0.2	1.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	0.04	0.2	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	0.2	1.0	ND	ug/L	U
3-Nitroaniline	99-09-2	1	0.2	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	0.2	2.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	0.06	1.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	0.1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	0.02	0.2	ND	ug/L	U
Diethyl phthalate	84-66-2	1	0.06	0.2	ND	ug/L	U



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Reported:  
11-Feb-2020 09:22

**MW-101-012420**  
**20A0325-01 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 01/24/2020 10:50

Instrument: NT10 Analyst: VTS

Analyzed: 02/03/2020 18:03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
4-Nitroaniline	100-01-6	1	0.2	1.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	0.4	2.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	0.03	0.2	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	0.02	0.2	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	0.04	0.2	ND	ug/L	U
Pentachlorophenol	87-86-5	1	0.1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.04	0.2	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	0.05	0.2	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	0.07	0.2	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	0.3	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	0.2	0.2	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	0.05	0.2	ND	ug/L	U
<i>Surrogate: 2-Fluorophenol</i>					30-160 %	40.6 %	
<i>Surrogate: Phenol-d5</i>					30-160 %	21.4 %	*
<i>Surrogate: 2-Chlorophenol-d4</i>					30-160 %	63.4 %	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>					30-160 %	58.8 %	
<i>Surrogate: Nitrobenzene-d5</i>					30-160 %	61.8 %	
<i>Surrogate: 2-Fluorobiphenyl</i>					30-160 %	64.6 %	
<i>Surrogate: 2,4,6-Tribromophenol</i>					30-160 %	89.8 %	Q
<i>Surrogate: p-Terphenyl-d14</i>					30-160 %	75.2 %	



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**MW-101-012420**  
**20A0325-01 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM Sampled: 01/24/2020 10:50  
Instrument: NT11 Analyst: VTS Analyzed: 02/01/2020 13:43

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 20A0325-01 H 01  
Preparation Batch: BIA0542 Sample Size: 500 mL  
Prepared: 27-Jan-2020 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel Extract ID: 20A0325-01 H 01  
Cleanup Batch: CIA0212 Initial Volume: 0.5 mL  
Cleaned: 30-Jan-2020 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.010	0.005	ug/L	J
2-Methylnaphthalene	91-57-6	1	0.001	0.010	0.003	ug/L	J
1-Methylnaphthalene	90-12-0	1	0.0009	0.010	0.002	ug/L	J
2-Chloronaphthalene	91-58-7	1	0.001	0.010	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.002	0.010	ND	ug/L	U
Acenaphthene	83-32-9	1	0.003	0.010	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.002	0.010	ND	ug/L	U
Fluorene	86-73-7	1	0.002	0.010	ND	ug/L	U
Phenanthrene	85-01-8	1	0.001	0.010	ND	ug/L	U
Anthracene	120-12-7	1	0.001	0.010	ND	ug/L	U
Carbazole	86-74-8	1	0.001	0.010	0.018	ug/L	
Fluoranthene	206-44-0	1	0.002	0.010	ND	ug/L	U
Pyrene	129-00-0	1	0.001	0.010	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.0008	0.010	0.001	ug/L	J
Chrysene	218-01-9	1	0.0009	0.010	0.002	ug/L	J
Benzo(b)fluoranthene	205-99-2	1	0.0005	0.010	0.001	ug/L	J
Benzo(k)fluoranthene	207-08-9	1	0.003	0.010	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	1	0.002	0.010	ND	ug/L	U
Benzofluoranthenes, Total		1	0.004	0.010	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.002	0.010	ND	ug/L	U
Perylene	1985-5-0	1	0.006	0.010	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.001	0.010	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.001	0.010	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.001	0.010	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>					42-120 %	73.2 %	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>					29-120 %	81.6 %	
<i>Surrogate: Fluoranthene-d10</i>					57-120 %	89.5 %	

Instrument: NT12 Analyst: JZ Analyzed: 01/31/2020 13:32

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 20A0325-01 G 01  
Preparation Batch: BIA0540 Sample Size: 460 mL  
Prepared: 30-Jan-2020 Final Volume: 1 mL





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**MW-101-012420**  
**20A0325-01 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM

Sampled: 01/24/2020 10:50

Instrument: NT12 Analyst: JZ

Analyzed: 01/31/2020 13:32

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.04	0.2	<b>0.05</b>	ug/L	J
<i>Surrogate: 1,4-Dioxane-d8</i>				33.6-120 %	69.9	%	



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**MW-101-012420**  
**20A0325-01 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx

Sampled: 01/24/2020 10:50

Instrument: FID4 Analyst: JGR

Analyzed: 01/31/2020 10:25

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 20A0325-01 I 01

Preparation Batch: BIA0587

Sample Size: 500 mL

Prepared: 30-Jan-2020

Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	87.4	%	



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**MW-101-012420**  
**20A0325-01 (Water)**

**Aroclor PCB**

Method: EPA 8082A		Sampled: 01/24/2020 10:50
Instrument: ECD7 Analyst: JGR		Analyzed: 01/30/2020 14:15
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BIA0568 Prepared: 28-Jan-2020	Sample Size: 1000 mL Final Volume: 0.5 mL Extract ID: 20A0325-01 E 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CIA0203 Cleaned: 29-Jan-2020	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 20A0325-01 E 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CIA0201 Cleaned: 29-Jan-2020	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 20A0325-01 E 01
Sample Cleanup:	Cleanup Method: Sulfur Cleanup Batch: CIA0202 Cleaned: 29-Jan-2020	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 20A0325-01 E 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.002	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.002	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.002	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.002	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1262	37324-23-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1268	11100-14-4	1	0.003	0.010	ND	ug/L	U
<i>Surrogate: Decachlorobiphenyl</i>					29-120 %	60.1	%
<i>Surrogate: Tetrachlorometaxylene</i>					32-120 %	48.7	%
<i>Surrogate: Decachlorobiphenyl [2C]</i>					29-120 %	58.3	%
<i>Surrogate: Tetrachlorometaxylene [2C]</i>					32-120 %	47.4	%



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**MW-101-012420**  
**20A0325-01 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6020A

Sampled: 01/24/2020 10:50

Instrument: ICPMS2 Analyst: MCB

Analyzed: 01/31/2020 21:12

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix  
Preparation Batch: BIA0672 Sample Size: 25 mL  
Prepared: 31-Jan-2020 Final Volume: 25 mL

Extract ID: 20A0325-01 A 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	1	0.130	0.500	ND	ug/L	U
Iron	7439-89-6	1	6.27	20.0	1790	ug/L	
Lead	7439-92-1	1	0.0680	0.100	0.480	ug/L	
Manganese	7439-96-5	1	0.0850	0.500	34.2	ug/L	



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**MW-101-012420**  
**20A0325-01 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6020A UCT-KED

Sampled: 01/24/2020 10:50

Instrument: ICPMS2 Analyst: MCB

Analyzed: 01/31/2020 21:12

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 20A0325-01 A 01

Preparation Batch: BIA0672

Sample Size: 25 mL

Prepared: 31-Jan-2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	3.72	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	0.511	ug/L	
Copper	7440-50-8	1	0.340	0.500	5.31	ug/L	
Nickel	7440-02-0	1	0.0500	0.500	9.29	ug/L	
Zinc	7440-66-6	1	0.940	4.00	95.4	ug/L	



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**Reported:**  
11-Feb-2020 09:22

**MW-101-012420**  
**20A0325-01 (Water)**

**Metals and Metallic Compounds**

Method: EPA 7470A	Preparation Method: TLM EPA 7470A low level	Sampled: 01/24/2020 10:50
Instrument: HYDRA Analyst: JPK	Preparation Batch: BIB0115	Analyzed: 02/07/2020 15:46
Sample Preparation:	Prepared: 06-Feb-2020	Extract ID: 20A0325-01 A
	Sample Size: 20 mL	
	Final Volume: 20 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000010	0.000020	ND	mg/L	U



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**MW-101-012420**  
**20A0325-02 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6020A Sampled: 01/24/2020 10:50  
Instrument: ICPMS1 Analyst: MCB Analyzed: 01/29/2020 22:19

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 20A0325-02 A 01  
Preparation Batch: BIA0571 Sample Size: 25 mL  
Prepared: 28-Jan-2020 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium, Dissolved	7440-47-3	1	0.130	0.500	ND	ug/L	U
Iron, Dissolved	7439-89-6	1	6.27	20.0	<b>842</b>	ug/L	
Lead, Dissolved	7439-92-1	1	0.0680	0.100	<b>0.101</b>	ug/L	

Instrument: ICPMS2 Analyst: MCB Analyzed: 01/30/2020 19:05

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 20A0325-02 A 01  
Preparation Batch: BIA0571 Sample Size: 25 mL  
Prepared: 28-Jan-2020 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	1	0.0850	0.500	<b>34.9</b>	ug/L	



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**MW-101-012420**  
**20A0325-02 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6020A UCT-KED Sampled: 01/24/2020 10:50  
Instrument: ICPMS1 Analyst: MCB Analyzed: 01/29/2020 22:19

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 20A0325-02 A 01  
Preparation Batch: BIA0571 Sample Size: 25 mL  
Prepared: 28-Jan-2020 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	2.72	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	0.524	ug/L	
Copper, Dissolved	7440-50-8	1	0.340	0.500	4.88	ug/L	
Zinc, Dissolved	7440-66-6	1	0.940	4.00	97.0	ug/L	

Instrument: ICPMS2 Analyst: MCB Analyzed: 01/31/2020 23:03

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 20A0325-02 A 01  
Preparation Batch: BIA0571 Sample Size: 25 mL  
Prepared: 28-Jan-2020 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nickel, Dissolved	7440-02-0	2	0.100	1.00	9.32	ug/L	D





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Project: South Park Landfill  
Project Number: South Park Landfill  
Project Manager: Jeff Neuner

Reported:  
11-Feb-2020 09:22

**MW-101-012420**  
**20A0325-02 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 7470A	Sampled: 01/24/2020 10:50
Instrument: HYDRA Analyst: JPK	Analyzed: 02/07/2020 16:31
Sample Preparation:	Preparation Method: TLM EPA 7470A low level
	Preparation Batch: BIB0116
	Prepared: 06-Feb-2020
	Sample Size: 20 mL
	Final Volume: 20 mL
	Extract ID: 20A0325-02 A

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000010	0.000020	ND	mg/L	U



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11-Feb-2020 09:22

**MW-102-012420**  
**20A0325-03 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 01/24/2020 15:20

Instrument: NT2 Analyst: PKC

Analyzed: 01/27/2020 12:14

Sample Preparation:

Preparation Method: EPA 5030 (Purge and Trap)

Extract ID: 20A0325-03 B

Preparation Batch: BIA0521

Sample Size: 10 mL

Prepared: 27-Jan-2020

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.09	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.06	0.20	<b>0.52</b>	ug/L	
Bromomethane	74-83-9	1	0.25	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.09	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.04	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.48	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.04	0.20	ND	ug/L	U
Acetone	67-64-1	1	2.06	5.00	<b>2.32</b>	ug/L	J
1,1-Dichloroethene	75-35-4	1	0.05	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.04	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.23	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.49	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.60	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.04	0.20	<b>0.07</b>	ug/L	J
trans-1,2-Dichloroethene	156-60-5	1	0.05	0.20	<b>0.07</b>	ug/L	J
Vinyl Acetate	108-05-4	1	0.07	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.05	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	0.81	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.05	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.04	0.20	<b>0.84</b>	ug/L	
Chloroform	67-66-3	1	0.03	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.06	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.04	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.03	0.20	<b>0.11</b>	ug/L	J
Carbon tetrachloride	56-23-5	1	0.04	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.07	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.03	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.05	0.20	<b>4.18</b>	ug/L	
1,2-Dichloropropane	78-87-5	1	0.04	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.05	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.15	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.25	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	0.97	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.06	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	<b>0.06</b>	ug/L	J
trans-1,3-Dichloropropene	10061-02-6	1	0.08	0.20	ND	ug/L	U



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Reported:  
11-Feb-2020 09:22

**MW-102-012420**  
**20A0325-03 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 01/24/2020 15:20

Instrument: NT2 Analyst: PKC

Analyzed: 01/27/2020 12:14

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	0.90	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.13	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.06	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.05	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.05	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.07	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.02	0.20	<b>0.25</b>	ug/L	
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.09	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.05	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.06	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.06	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.13	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.32	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.02	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.06	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.02	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.02	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.02	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.03	0.20	<b>0.28</b>	ug/L	
1,3,5-Trimethylbenzene	108-67-8	1	0.02	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.02	0.20	<b>0.03</b>	ug/L	J
s-Butylbenzene	135-98-8	1	0.02	0.20	<b>0.45</b>	ug/L	
4-Isopropyl Toluene	99-87-6	1	0.03	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.04	0.20	<b>0.08</b>	ug/L	J
1,4-Dichlorobenzene	106-46-7	1	0.04	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.02	0.20	<b>0.03</b>	ug/L	J
1,2-Dichlorobenzene	95-50-1	1	0.04	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.37	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.11	0.50	<b>0.71</b>	ug/L	
Hexachloro-1,3-Butadiene	87-68-3	1	0.07	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.12	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.11	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.05	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.07	0.50	ND	ug/L	U
2-Pentanone	107-87-9	1	5.00	5.00	ND	ug/L	U



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**Reported:**  
11-Feb-2020 09:22

**MW-102-012420**  
**20A0325-03 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 01/24/2020 15:20

Instrument: NT2 Analyst: PKC

Analyzed: 01/27/2020 12:14

Analyte	CAS Number	Recovery		Units	Notes
		Limits	Recovery		
Surrogate: 1,2-Dichloroethane-d4		80-120 %	76.5	%	*
Surrogate: Toluene-d8		80-120 %	95.7	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	114	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	106	%	



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11-Feb-2020 09:22

**MW-102-012420**  
**20A0325-03 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 01/24/2020 15:20  
Instrument: NT2 Analyst: PKC Analyzed: 01/27/2020 12:14  
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) Extract ID: 20A0325-03 B  
Preparation Batch: BIA0521 Sample Size: 10 mL  
Prepared: 27-Jan-2020 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	129	ug/L	
HC ID: GAS						
Surrogate: Toluene-d8			80-120 %	95.7	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	114	%	



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11-Feb-2020 09:22

**MW-102-012420**  
**20A0325-03 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D Sampled: 01/24/2020 15:20  
Instrument: NT10 Analyst: VTS Analyzed: 02/03/2020 18:40

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 20A0325-03 F 01  
Preparation Batch: BIA0595 Sample Size: 1000 mL  
Prepared: 30-Jan-2020 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	0.01	0.2	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	0.03	0.2	ND	ug/L	U
2-Chlorophenol	95-57-8	1	0.03	0.2	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.03	0.2	<b>0.06</b>	ug/L	J
1,4-Dichlorobenzene	106-46-7	1	0.03	0.2	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.03	0.2	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	0.02	0.2	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	0.03	0.2	ND	ug/L	U
2-Methylphenol	95-48-7	1	0.03	0.2	ND	ug/L	U
Hexachloroethane	67-72-1	1	0.04	0.2	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	0.04	0.2	ND	ug/L	U
4-Methylphenol	106-44-5	1	0.03	0.2	ND	ug/L	U
Nitrobenzene	98-95-3	1	0.03	0.2	ND	ug/L	U
Isophorone	78-59-1	1	0.03	0.2	ND	ug/L	U
2-Nitrophenol	88-75-5	1	0.04	1.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	0.3	1.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	0.03	0.2	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	0.1	1.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.03	0.2	<b>0.4</b>	ug/L	
Benzoic acid	65-85-0	1	0.1	2.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	0.04	1.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	0.04	0.2	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	0.1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	0.1	1.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	0.2	1.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	0.1	1.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	0.03	0.2	ND	ug/L	U
2-Nitroaniline	88-74-4	1	0.2	1.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	0.04	0.2	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	0.2	1.0	ND	ug/L	U
3-Nitroaniline	99-09-2	1	0.2	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	0.2	2.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	0.06	1.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	0.1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	0.02	0.2	ND	ug/L	U
Diethyl phthalate	84-66-2	1	0.06	0.2	ND	ug/L	U



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Reported:  
11-Feb-2020 09:22

**MW-102-012420**  
**20A0325-03 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 01/24/2020 15:20

Instrument: NT10 Analyst: VTS

Analyzed: 02/03/2020 18:40

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
4-Nitroaniline	100-01-6	1	0.2	1.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	0.4	2.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	0.03	0.2	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	0.02	0.2	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	0.04	0.2	ND	ug/L	U
Pentachlorophenol	87-86-5	1	0.1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.04	0.2	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	0.05	0.2	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	0.07	0.2	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	0.3	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	0.2	0.2	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	0.05	0.2	ND	ug/L	U
<i>Surrogate: 2-Fluorophenol</i>				30-160 %	44.4	%	
<i>Surrogate: Phenol-d5</i>				30-160 %	24.9	%	*
<i>Surrogate: 2-Chlorophenol-d4</i>				30-160 %	70.9	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>				30-160 %	64.1	%	
<i>Surrogate: Nitrobenzene-d5</i>				30-160 %	68.0	%	
<i>Surrogate: 2-Fluorobiphenyl</i>				30-160 %	73.0	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>				30-160 %	102	%	Q
<i>Surrogate: p-Terphenyl-d14</i>				30-160 %	75.5	%	



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Reported:  
11-Feb-2020 09:22

**MW-102-012420**  
**20A0325-03 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM Sampled: 01/24/2020 15:20  
Instrument: NT11 Analyst: VTS Analyzed: 02/01/2020 14:13

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 20A0325-03 H 01  
Preparation Batch: BIA0542 Sample Size: 500 mL  
Prepared: 27-Jan-2020 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel Extract ID: 20A0325-03 H 01  
Cleanup Batch: CIA0212 Initial Volume: 0.5 mL  
Cleaned: 30-Jan-2020 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.010	0.005	ug/L	J
2-Methylnaphthalene	91-57-6	1	0.001	0.010	0.005	ug/L	J
1-Methylnaphthalene	90-12-0	1	0.0009	0.010	0.009	ug/L	J
2-Chloronaphthalene	91-58-7	1	0.001	0.010	0.028	ug/L	
Acenaphthylene	208-96-8	1	0.002	0.010	0.008	ug/L	J
Acenaphthene	83-32-9	1	0.003	0.010	0.218	ug/L	
Dibenzofuran	132-64-9	1	0.002	0.010	0.003	ug/L	J
Fluorene	86-73-7	1	0.002	0.010	0.381	ug/L	
Phenanthrene	85-01-8	1	0.001	0.010	0.006	ug/L	J
Anthracene	120-12-7	1	0.001	0.010	ND	ug/L	U
Carbazole	86-74-8	1	0.001	0.010	ND	ug/L	U
Fluoranthene	206-44-0	1	0.002	0.010	0.014	ug/L	
Pyrene	129-00-0	1	0.001	0.010	0.023	ug/L	
Benzo(a)anthracene	56-55-3	1	0.0008	0.010	0.002	ug/L	J
Chrysene	218-01-9	1	0.0009	0.010	0.009	ug/L	J
Benzo(b)fluoranthene	205-99-2	1	0.0005	0.010	0.002	ug/L	J
Benzo(k)fluoranthene	207-08-9	1	0.003	0.010	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	1	0.002	0.010	ND	ug/L	U
Benzofluoranthenes, Total		1	0.004	0.010	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.002	0.010	ND	ug/L	U
Perylene	1985-5-0	1	0.006	0.010	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.001	0.010	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.001	0.010	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.001	0.010	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>					42-120 %	86.4 %	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>					29-120 %	91.2 %	
<i>Surrogate: Fluoranthene-d10</i>					57-120 %	98.1 %	

Instrument: NT12 Analyst: JZ Analyzed: 01/31/2020 13:58

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 20A0325-03 G 01  
Preparation Batch: BIA0540 Sample Size: 500 mL  
Prepared: 30-Jan-2020 Final Volume: 1 mL





Seattle Public Utilities  
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Project: South Park Landfill  
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Project Manager: Jeff Neuner

**Reported:**  
11-Feb-2020 09:22

**MW-102-012420**  
**20A0325-03 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM

Sampled: 01/24/2020 15:20

Instrument: NT12 Analyst: JZ

Analyzed: 01/31/2020 13:58

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.04	0.2	ND	ug/L	U
<i>Surrogate: 1,4-Dioxane-d8</i>				33.6-120 %	60.2	%	



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Reported:  
11-Feb-2020 09:22

**MW-102-012420**  
**20A0325-03 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx

Sampled: 01/24/2020 15:20

Instrument: FID4 Analyst: JGR

Analyzed: 01/31/2020 10:44

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 20A0325-03 I 01

Preparation Batch: BIA0587

Sample Size: 500 mL

Prepared: 30-Jan-2020

Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24) HC ID: DRO	DRO	1	0.100	<b>0.618</b>	mg/L	
Motor Oil Range Organics (C24-C38) HC ID: MOTOR OIL	RRO	1	0.200	<b>0.256</b>	mg/L	
Surrogate: <i>o</i> -Terphenyl			50-150 %	90.8	%	



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11-Feb-2020 09:22

**MW-102-012420**  
**20A0325-03 (Water)**

**Aroclor PCB**

Method: EPA 8082A		Sampled: 01/24/2020 15:20
Instrument: ECD7 Analyst: JGR		Analyzed: 01/30/2020 14:36
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BIA0568 Prepared: 28-Jan-2020	Sample Size: 1000 mL Final Volume: 0.5 mL Extract ID: 20A0325-03 E 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CIA0203 Cleaned: 29-Jan-2020	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 20A0325-03 E 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CIA0201 Cleaned: 29-Jan-2020	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 20A0325-03 E 01
Sample Cleanup:	Cleanup Method: Sulfur Cleanup Batch: CIA0202 Cleaned: 29-Jan-2020	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 20A0325-03 E 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.002	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.002	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.002	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.002	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1262	37324-23-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1268	11100-14-4	1	0.003	0.010	ND	ug/L	U
<i>Surrogate: Decachlorobiphenyl</i>					29-120 %	45.0	%
<i>Surrogate: Tetrachlorometaxylene</i>					32-120 %	41.4	%
<i>Surrogate: Decachlorobiphenyl [2C]</i>					29-120 %	38.0	%
<i>Surrogate: Tetrachlorometaxylene [2C]</i>					32-120 %	44.4	%



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**MW-102-012420**  
**20A0325-03 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6020A Sampled: 01/24/2020 15:20  
Instrument: ICPMS2 Analyst: MCB Analyzed: 01/31/2020 20:46  
Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 20A0325-03 A 01  
Preparation Batch: BIA0672 Sample Size: 25 mL  
Prepared: 31-Jan-2020 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	1	0.130	0.500	<b>0.599</b>	ug/L	
Iron	7439-89-6	1	6.27	20.0	<b>3280</b>	ug/L	
Lead	7439-92-1	1	0.0680	0.100	<b>0.0820</b>	ug/L	J
Manganese	7439-96-5	1	0.0850	0.500	<b>173</b>	ug/L	



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**MW-102-012420**  
**20A0325-03 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6020A UCT-KED Sampled: 01/24/2020 15:20  
Instrument: ICPMS2 Analyst: MCB Analyzed: 01/31/2020 20:46

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 20A0325-03 A 01  
Preparation Batch: BIA0672 Sample Size: 25 mL  
Prepared: 31-Jan-2020 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	<b>0.691</b>	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper	7440-50-8	1	0.340	0.500	ND	ug/L	U
Nickel	7440-02-0	1	0.0500	0.500	<b>0.870</b>	ug/L	
Zinc	7440-66-6	1	0.820	4.00	<b>10.1</b>	ug/L	



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**MW-102-012420**  
**20A0325-03 (Water)**

**Metals and Metallic Compounds**

Method: EPA 7470A	Preparation Method: TLM EPA 7470A low level	Sampled: 01/24/2020 15:20
Instrument: HYDRA Analyst: JPK	Preparation Batch: BIB0115	Analyzed: 02/07/2020 15:55
Sample Preparation:	Prepared: 06-Feb-2020	Extract ID: 20A0325-03 A
	Sample Size: 20 mL	
	Final Volume: 20 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000010	0.000020	ND	mg/L	U



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11-Feb-2020 09:22

**MW-102-012420**  
**20A0325-03RE1 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 01/24/2020 15:20

Instrument: NT3 Analyst: PKC

Analyzed: 01/27/2020 14:10

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)  
Preparation Batch: BIA0527  
Prepared: 27-Jan-2020

Sample Size: 10 mL  
Final Volume: 10 mL

Extract ID: 20A0325-03RE1 C

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.09	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.06	0.20	<b>1.02</b>	ug/L	
Bromomethane	74-83-9	1	0.25	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.09	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.04	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.48	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.04	0.20	ND	ug/L	U
Acetone	67-64-1	1	2.06	5.00	<b>3.30</b>	ug/L	J
1,1-Dichloroethene	75-35-4	1	0.05	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.04	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.23	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.49	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.60	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.04	0.20	<b>0.12</b>	ug/L	J
trans-1,2-Dichloroethene	156-60-5	1	0.05	0.20	<b>0.10</b>	ug/L	J
Vinyl Acetate	108-05-4	1	0.07	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.05	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	0.81	5.00	<b>0.84</b>	ug/L	J
2,2-Dichloropropane	594-20-7	1	0.05	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.04	0.20	<b>1.17</b>	ug/L	
Chloroform	67-66-3	1	0.03	0.20	<b>0.04</b>	ug/L	J
Bromochloromethane	74-97-5	1	0.06	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.04	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.03	0.20	<b>0.21</b>	ug/L	
Carbon tetrachloride	56-23-5	1	0.04	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.07	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.03	0.20	<b>0.03</b>	ug/L	J
Trichloroethene	79-01-6	1	0.05	0.20	<b>4.67</b>	ug/L	
1,2-Dichloropropane	78-87-5	1	0.04	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.05	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.15	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.25	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	0.97	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.06	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	<b>0.08</b>	ug/L	J
trans-1,3-Dichloropropene	10061-02-6	1	0.08	0.20	ND	ug/L	U



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Reported:  
11-Feb-2020 09:22

**MW-102-012420**  
**20A0325-03RE1 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 01/24/2020 15:20

Instrument: NT3 Analyst: PKC

Analyzed: 01/27/2020 14:10

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	0.90	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.13	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.06	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.05	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.05	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.07	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.02	0.20	<b>0.30</b>	ug/L	
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.09	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.05	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.06	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.06	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.13	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.32	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.02	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.06	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.02	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.02	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.02	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.03	0.20	<b>0.34</b>	ug/L	
1,3,5-Trimethylbenzene	108-67-8	1	0.02	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.02	0.20	<b>0.05</b>	ug/L	J
s-Butylbenzene	135-98-8	1	0.02	0.20	<b>0.56</b>	ug/L	
4-Isopropyl Toluene	99-87-6	1	0.03	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.04	0.20	<b>0.12</b>	ug/L	J
1,4-Dichlorobenzene	106-46-7	1	0.04	0.20	<b>0.07</b>	ug/L	J
n-Butylbenzene	104-51-8	1	0.02	0.20	<b>0.06</b>	ug/L	J
1,2-Dichlorobenzene	95-50-1	1	0.04	0.20	<b>0.06</b>	ug/L	J
1,2-Dibromo-3-chloropropane	96-12-8	1	0.37	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.11	0.50	<b>0.68</b>	ug/L	
Hexachloro-1,3-Butadiene	87-68-3	1	0.07	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.12	0.50	<b>0.14</b>	ug/L	J
1,2,3-Trichlorobenzene	87-61-6	1	0.11	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.05	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.07	0.50	ND	ug/L	U
2-Pentanone	107-87-9	1	5.00	5.00	ND	ug/L	U





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Reported:  
11-Feb-2020 09:22

**MW-102-012420**  
**20A0325-03RE1 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 01/24/2020 15:20

Instrument: NT3 Analyst: PKC

Analyzed: 01/27/2020 14:10

Analyte	CAS Number	Recovery		Units	Notes
		Limits	Recovery		
Surrogate: 1,2-Dichloroethane-d4		80-129 %	103	%	
Surrogate: Toluene-d8		80-120 %	100	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	101	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	97.6	%	



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**MW-102-012420**  
**20A0325-04 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6020A Sampled: 01/24/2020 15:20  
Instrument: ICPMS1 Analyst: MCB Analyzed: 01/29/2020 22:24

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 20A0325-04 A 01  
Preparation Batch: BIA0571 Sample Size: 25 mL  
Prepared: 28-Jan-2020 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium, Dissolved	7440-47-3	1	0.130	0.500	<b>0.561</b>	ug/L	
Iron, Dissolved	7439-89-6	1	6.27	20.0	<b>3500</b>	ug/L	
Lead, Dissolved	7439-92-1	1	0.0680	0.100	ND	ug/L	U

Instrument: ICPMS2 Analyst: MCB Analyzed: 01/30/2020 19:10

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 20A0325-04 A 01  
Preparation Batch: BIA0571 Sample Size: 25 mL  
Prepared: 28-Jan-2020 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	1	0.0850	0.500	<b>180</b>	ug/L	



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**MW-102-012420**  
**20A0325-04 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6020A UCT-KED Sampled: 01/24/2020 15:20  
Instrument: ICPMS1 Analyst: MCB Analyzed: 01/29/2020 22:24

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 20A0325-04 A 01  
Preparation Batch: BIA0571 Sample Size: 25 mL  
Prepared: 28-Jan-2020 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	<b>0.775</b>	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper, Dissolved	7440-50-8	1	0.340	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	0.820	4.00	<b>10.4</b>	ug/L	

Instrument: ICPMS2 Analyst: MCB Analyzed: 01/30/2020 19:10

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 20A0325-04 A 01  
Preparation Batch: BIA0571 Sample Size: 25 mL  
Prepared: 28-Jan-2020 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	<b>0.847</b>	ug/L	



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**MW-102-012420**  
**20A0325-04 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 7470A Sampled: 01/24/2020 15:20  
Instrument: HYDRA Analyst: JPK Analyzed: 02/07/2020 16:46  
Sample Preparation: Preparation Method: TLM EPA 7470A low level Extract ID: 20A0325-04 A  
Preparation Batch: BIB0116 Sample Size: 20 mL  
Prepared: 06-Feb-2020 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000010	0.000020	<b>0.000013</b>	mg/L	J



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Reported:  
11-Feb-2020 09:22

**MW-103-012420**  
**20A0325-05 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 01/24/2020 14:00

Instrument: NT2 Analyst: PKC

Analyzed: 01/27/2020 12:34

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)  
Preparation Batch: BIA0521  
Prepared: 27-Jan-2020

Sample Size: 10 mL  
Final Volume: 10 mL

Extract ID: 20A0325-05 C

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.09	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.06	0.20	<b>0.09</b>	ug/L	J
Bromomethane	74-83-9	1	0.25	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.09	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.04	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.48	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.04	0.20	ND	ug/L	U
Acetone	67-64-1	1	2.06	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.05	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.04	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.23	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.49	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.60	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.04	0.20	<b>0.30</b>	ug/L	
trans-1,2-Dichloroethene	156-60-5	1	0.05	0.20	<b>0.19</b>	ug/L	J
Vinyl Acetate	108-05-4	1	0.07	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.05	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	0.81	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.05	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.04	0.20	<b>2.38</b>	ug/L	
Chloroform	67-66-3	1	0.03	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.06	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.04	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.03	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.04	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.07	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.03	0.20	<b>0.06</b>	ug/L	J
Trichloroethene	79-01-6	1	0.05	0.20	<b>0.17</b>	ug/L	J
1,2-Dichloropropane	78-87-5	1	0.04	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.05	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.15	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.25	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	0.97	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.06	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.08	0.20	ND	ug/L	U



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Reported:  
11-Feb-2020 09:22

**MW-103-012420**  
**20A0325-05 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 01/24/2020 14:00

Instrument: NT2 Analyst: PKC

Analyzed: 01/27/2020 12:34

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	0.90	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.13	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.06	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.05	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.05	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.07	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.02	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.09	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.05	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.06	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.06	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.13	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.32	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.02	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.06	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.02	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.02	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.02	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.03	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.02	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.02	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.02	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.03	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.04	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.04	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.02	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.04	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.37	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.11	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.07	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.12	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.11	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.05	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.07	0.50	ND	ug/L	U
2-Pentanone	107-87-9	1	5.00	5.00	ND	ug/L	U



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**Reported:**  
11-Feb-2020 09:22

**MW-103-012420**  
**20A0325-05 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 01/24/2020 14:00

Instrument: NT2 Analyst: PKC

Analyzed: 01/27/2020 12:34

Analyte	CAS Number	Recovery		Units	Notes
		Limits	Recovery		
Surrogate: 1,2-Dichloroethane-d4		80-129 %	72.1	%	*
Surrogate: Toluene-d8		80-120 %	94.5	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	111	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	107	%	



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11-Feb-2020 09:22

**MW-103-012420**  
**20A0325-05 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 01/24/2020 14:00  
Instrument: NT2 Analyst: PKC Analyzed: 01/27/2020 12:34  
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) Extract ID: 20A0325-05 C  
Preparation Batch: BIA0521 Sample Size: 10 mL  
Prepared: 27-Jan-2020 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	94.5	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	111	%	





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11-Feb-2020 09:22

**MW-103-012420**  
**20A0325-05 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D Sampled: 01/24/2020 14:00  
Instrument: NT10 Analyst: VTS Analyzed: 02/03/2020 19:15

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 20A0325-05 F 01  
Preparation Batch: BIA0595 Sample Size: 1000 mL  
Prepared: 30-Jan-2020 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	0.01	0.2	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	0.03	0.2	ND	ug/L	U
2-Chlorophenol	95-57-8	1	0.03	0.2	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.03	0.2	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.03	0.2	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.03	0.2	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	0.02	0.2	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	0.03	0.2	ND	ug/L	U
2-Methylphenol	95-48-7	1	0.03	0.2	ND	ug/L	U
Hexachloroethane	67-72-1	1	0.04	0.2	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	0.04	0.2	ND	ug/L	U
4-Methylphenol	106-44-5	1	0.03	0.2	ND	ug/L	U
Nitrobenzene	98-95-3	1	0.03	0.2	ND	ug/L	U
Isophorone	78-59-1	1	0.03	0.2	ND	ug/L	U
2-Nitrophenol	88-75-5	1	0.04	1.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	0.3	1.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	0.03	0.2	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	0.1	1.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.03	0.2	ND	ug/L	U
Benzoic acid	65-85-0	1	0.1	2.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	0.04	1.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	0.04	0.2	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	0.1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	0.1	1.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	0.2	1.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	0.1	1.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	0.03	0.2	ND	ug/L	U
2-Nitroaniline	88-74-4	1	0.2	1.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	0.04	0.2	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	0.2	1.0	ND	ug/L	U
3-Nitroaniline	99-09-2	1	0.2	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	0.2	2.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	0.06	1.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	0.1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	0.02	0.2	ND	ug/L	U
Diethyl phthalate	84-66-2	1	0.06	0.2	ND	ug/L	U



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Reported:  
11-Feb-2020 09:22

**MW-103-012420**  
**20A0325-05 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 01/24/2020 14:00

Instrument: NT10 Analyst: VTS

Analyzed: 02/03/2020 19:15

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
4-Nitroaniline	100-01-6	1	0.2	1.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	0.4	2.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	0.03	0.2	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	0.02	0.2	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	0.04	0.2	ND	ug/L	U
Pentachlorophenol	87-86-5	1	0.1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.04	0.2	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	0.05	0.2	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	0.07	0.2	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	0.3	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	0.2	0.2	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	0.05	0.2	ND	ug/L	U
<i>Surrogate: 2-Fluorophenol</i>					30-160 %	44.0 %	
<i>Surrogate: Phenol-d5</i>					30-160 %	22.5 %	*
<i>Surrogate: 2-Chlorophenol-d4</i>					30-160 %	68.7 %	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>					30-160 %	62.2 %	
<i>Surrogate: Nitrobenzene-d5</i>					30-160 %	64.8 %	
<i>Surrogate: 2-Fluorobiphenyl</i>					30-160 %	68.4 %	
<i>Surrogate: 2,4,6-Tribromophenol</i>					30-160 %	91.7 %	Q
<i>Surrogate: p-Terphenyl-d14</i>					30-160 %	71.7 %	



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**MW-103-012420**  
**20A0325-05 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM Sampled: 01/24/2020 14:00  
Instrument: NT11 Analyst: VTS Analyzed: 02/01/2020 14:42

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 20A0325-05 H 01  
Preparation Batch: BIA0542 Sample Size: 500 mL  
Prepared: 27-Jan-2020 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel Extract ID: 20A0325-05 H 01  
Cleanup Batch: CIA0212 Initial Volume: 0.5 mL  
Cleaned: 30-Jan-2020 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.010	<b>0.003</b>	ug/L	J
2-Methylnaphthalene	91-57-6	1	0.001	0.010	<b>0.001</b>	ug/L	J
1-Methylnaphthalene	90-12-0	1	0.0009	0.010	<b>0.003</b>	ug/L	J
2-Chloronaphthalene	91-58-7	1	0.001	0.010	<b>0.002</b>	ug/L	J
Acenaphthylene	208-96-8	1	0.002	0.010	ND	ug/L	U
Acenaphthene	83-32-9	1	0.003	0.010	<b>0.010</b>	ug/L	J
Dibenzofuran	132-64-9	1	0.002	0.010	ND	ug/L	U
Fluorene	86-73-7	1	0.002	0.010	ND	ug/L	U
Phenanthrene	85-01-8	1	0.001	0.010	ND	ug/L	U
Anthracene	120-12-7	1	0.001	0.010	ND	ug/L	U
Carbazole	86-74-8	1	0.001	0.010	ND	ug/L	U
Fluoranthene	206-44-0	1	0.002	0.010	ND	ug/L	U
Pyrene	129-00-0	1	0.001	0.010	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.0008	0.010	<b>0.001</b>	ug/L	J
Chrysene	218-01-9	1	0.0009	0.010	<b>0.002</b>	ug/L	J
Benzo(b)fluoranthene	205-99-2	1	0.0005	0.010	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.003	0.010	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	1	0.002	0.010	ND	ug/L	U
Benzofluoranthenes, Total		1	0.004	0.010	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.002	0.010	ND	ug/L	U
Perylene	1985-5-0	1	0.006	0.010	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.001	0.010	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.001	0.010	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.001	0.010	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>					42-120 %	65.8 %	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>					29-120 %	73.4 %	
<i>Surrogate: Fluoranthene-d10</i>					57-120 %	81.1 %	

Instrument: NT12 Analyst: JZ Analyzed: 01/31/2020 14:23

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 20A0325-05 G 01  
Preparation Batch: BIA0540 Sample Size: 460 mL  
Prepared: 30-Jan-2020 Final Volume: 1 mL



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**MW-103-012420**  
**20A0325-05 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM

Sampled: 01/24/2020 14:00

Instrument: NT12 Analyst: JZ

Analyzed: 01/31/2020 14:23

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.04	0.2	<b>0.07</b>	ug/L	J
<i>Surrogate: 1,4-Dioxane-d8</i>				<i>33.6-120 %</i>	<i>63.4</i>	<i>%</i>	



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**Reported:**  
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**MW-103-012420**  
**20A0325-05 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx

Sampled: 01/24/2020 14:00

Instrument: FID4 Analyst: JGR

Analyzed: 01/31/2020 11:04

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 20A0325-05 1 01

Preparation Batch: BIA0587

Sample Size: 500 mL

Prepared: 30-Jan-2020

Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	<b>0.232</b>	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: <i>o</i> -Terphenyl			50-150 %	87.3	%	



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**MW-103-012420**  
**20A0325-05 (Water)**

**Aroclor PCB**

Method: EPA 8082A		Sampled: 01/24/2020 14:00
Instrument: ECD7 Analyst: JGR		Analyzed: 01/30/2020 14:57
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BIA0568 Prepared: 28-Jan-2020	Sample Size: 1000 mL Final Volume: 0.5 mL Extract ID: 20A0325-05 E 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CIA0203 Cleaned: 29-Jan-2020	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 20A0325-05 E 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CIA0201 Cleaned: 29-Jan-2020	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 20A0325-05 E 01
Sample Cleanup:	Cleanup Method: Sulfur Cleanup Batch: CIA0202 Cleaned: 29-Jan-2020	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 20A0325-05 E 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.002	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.002	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.002	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.002	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1262	37324-23-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1268	11100-14-4	1	0.003	0.010	ND	ug/L	U
<i>Surrogate: Decachlorobiphenyl</i>					29-120 %	60.5	%
<i>Surrogate: Tetrachlorometaxylene</i>					32-120 %	51.6	%
<i>Surrogate: Decachlorobiphenyl [2C]</i>					29-120 %	54.5	%
<i>Surrogate: Tetrachlorometaxylene [2C]</i>					32-120 %	50.1	%



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**MW-103-012420**  
**20A0325-05 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6020A Sampled: 01/24/2020 14:00  
Instrument: ICPMS2 Analyst: MCB Analyzed: 01/31/2020 20:51  
Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 20A0325-05 A 01  
Preparation Batch: BIA0672 Sample Size: 25 mL  
Prepared: 31-Jan-2020 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	1	0.130	0.500	<b>0.246</b>	ug/L	J
Iron	7439-89-6	1	6.27	20.0	<b>928</b>	ug/L	
Lead	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Manganese	7439-96-5	1	0.0850	0.500	<b>216</b>	ug/L	



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Project Number: South Park Landfill  
Project Manager: Jeff Neuner

Reported:  
11-Feb-2020 09:22

**MW-103-012420**  
**20A0325-05 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6020A UCT-KED

Sampled: 01/24/2020 14:00

Instrument: ICPMS2 Analyst: MCB

Analyzed: 01/31/2020 20:51

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 20A0325-05 A 01

Preparation Batch: BIA0672

Sample Size: 25 mL

Prepared: 31-Jan-2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	2.76	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper	7440-50-8	1	0.340	0.500	0.545	ug/L	
Nickel	7440-02-0	1	0.0500	0.500	6.63	ug/L	
Zinc	7440-66-6	1	0.820	4.00	3.19	ug/L	J





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Reported:  
11-Feb-2020 09:22

**MW-103-012420**  
**20A0325-05 (Water)**

**Metals and Metallic Compounds**

Method: EPA 7470A

Sampled: 01/24/2020 14:00

Instrument: HYDRA Analyst: JPK

Analyzed: 02/07/2020 15:58

Sample Preparation:

Preparation Method: TLM EPA 7470A low level

Extract ID: 20A0325-05 A

Preparation Batch: BIB0115

Sample Size: 20 mL

Prepared: 06-Feb-2020

Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000010	0.000020	<b>0.000012</b>	mg/L	J



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Reported:  
11-Feb-2020 09:22

**MW-103-012420**  
**20A0325-05RE1 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 01/24/2020 14:00

Instrument: NT3 Analyst: PKC

Analyzed: 01/27/2020 14:38

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)  
Preparation Batch: BIA0527  
Prepared: 27-Jan-2020

Sample Size: 10 mL  
Final Volume: 10 mL

Extract ID: 20A0325-05RE1 B

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.09	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.06	0.20	<b>0.14</b>	ug/L	J
Bromomethane	74-83-9	1	0.25	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.09	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.04	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.48	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.04	0.20	ND	ug/L	U
Acetone	67-64-1	1	2.06	5.00	<b>5.07</b>	ug/L	
1,1-Dichloroethene	75-35-4	1	0.05	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.04	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.23	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.49	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.60	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.04	0.20	<b>0.66</b>	ug/L	Q
trans-1,2-Dichloroethene	156-60-5	1	0.05	0.20	<b>0.32</b>	ug/L	
Vinyl Acetate	108-05-4	1	0.07	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.05	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	0.81	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.05	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.04	0.20	<b>3.62</b>	ug/L	
Chloroform	67-66-3	1	0.03	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.06	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.04	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.03	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.04	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.07	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.03	0.20	<b>0.07</b>	ug/L	J
Trichloroethene	79-01-6	1	0.05	0.20	<b>0.21</b>	ug/L	
1,2-Dichloropropane	78-87-5	1	0.04	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.05	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.15	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.25	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	0.97	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.06	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.08	0.20	ND	ug/L	U



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Reported:  
11-Feb-2020 09:22

**MW-103-012420**  
**20A0325-05RE1 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 01/24/2020 14:00

Instrument: NT3 Analyst: PKC

Analyzed: 01/27/2020 14:38

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	0.90	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.13	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.06	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.05	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.05	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.07	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.02	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.09	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.05	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.06	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.06	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.13	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.32	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.02	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.06	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.02	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.02	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.02	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.03	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.02	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.02	0.20	0.03	ug/L	J
s-Butylbenzene	135-98-8	1	0.02	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.03	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.04	0.20	0.05	ug/L	J
1,4-Dichlorobenzene	106-46-7	1	0.04	0.20	0.05	ug/L	J
n-Butylbenzene	104-51-8	1	0.02	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.04	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.37	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.11	0.50	0.11	ug/L	J
Hexachloro-1,3-Butadiene	87-68-3	1	0.07	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.12	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.11	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.05	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.07	0.50	ND	ug/L	U
2-Pentanone	107-87-9	1	5.00	5.00	ND	ug/L	U



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**Reported:**  
11-Feb-2020 09:22

**MW-103-012420**  
**20A0325-05RE1 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 01/24/2020 14:00

Instrument: NT3 Analyst: PKC

Analyzed: 01/27/2020 14:38

Analyte	CAS Number	Recovery		Units	Notes
		Limits	Recovery		
Surrogate: 1,2-Dichloroethane-d4		80-129 %	96.5	%	
Surrogate: Toluene-d8		80-120 %	102	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	99.4	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	98.0	%	



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11-Feb-2020 09:22

**MW-103-012420**  
**20A0325-06 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6020A Sampled: 01/24/2020 14:00  
Instrument: ICPMS1 Analyst: MCB Analyzed: 01/29/2020 22:29

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 20A0325-06 A 01  
Preparation Batch: BIA0571 Sample Size: 25 mL  
Prepared: 28-Jan-2020 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium, Dissolved	7440-47-3	1	0.130	0.500	<b>0.285</b>	ug/L	J
Iron, Dissolved	7439-89-6	1	6.27	20.0	<b>933</b>	ug/L	
Lead, Dissolved	7439-92-1	1	0.0680	0.100	ND	ug/L	U

Instrument: ICPMS2 Analyst: MCB Analyzed: 01/30/2020 19:15

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 20A0325-06 A 01  
Preparation Batch: BIA0571 Sample Size: 25 mL  
Prepared: 28-Jan-2020 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	1	0.0850	0.500	<b>226</b>	ug/L	



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Reported:  
11-Feb-2020 09:22

**MW-103-012420**  
**20A0325-06 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6020A UCT-KED Sampled: 01/24/2020 14:00  
Instrument: ICPMS1 Analyst: MCB Analyzed: 01/29/2020 22:29

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 20A0325-06 A 01  
Preparation Batch: BIA0571 Sample Size: 25 mL  
Prepared: 28-Jan-2020 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	<b>3.06</b>	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper, Dissolved	7440-50-8	1	0.340	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	0.820	4.00	<b>2.80</b>	ug/L	J

Instrument: ICPMS2 Analyst: MCB Analyzed: 01/30/2020 19:15

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 20A0325-06 A 01  
Preparation Batch: BIA0571 Sample Size: 25 mL  
Prepared: 28-Jan-2020 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	<b>6.38</b>	ug/L	



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**Reported:**  
11-Feb-2020 09:22

**MW-103-012420**  
**20A0325-06 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 7470A		Sampled: 01/24/2020 14:00
Instrument: HYDRA Analyst: JPK		Analyzed: 02/07/2020 16:49
Sample Preparation:	Preparation Method: TLM EPA 7470A low level	Extract ID: 20A0325-06 A
	Preparation Batch: BIB0116	Sample Size: 20 mL
	Prepared: 06-Feb-2020	Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000010	0.000020	<b>0.000012</b>	mg/L	J



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Reported:  
11-Feb-2020 09:22

**MW-104-012420**  
**20A0325-07 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 01/24/2020 17:05

Instrument: NT2 Analyst: PKC

Analyzed: 01/27/2020 12:55

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)

Extract ID: 20A0325-07 B

Preparation Batch: BIA0521

Sample Size: 10 mL

Prepared: 27-Jan-2020

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.09	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.06	0.20	<b>0.42</b>	ug/L	
Bromomethane	74-83-9	1	0.25	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.09	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.04	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.48	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.04	0.20	ND	ug/L	U
Acetone	67-64-1	1	2.06	5.00	<b>2.07</b>	ug/L	J
1,1-Dichloroethene	75-35-4	1	0.05	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.04	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.23	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.49	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.60	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.04	0.20	<b>0.19</b>	ug/L	J
trans-1,2-Dichloroethene	156-60-5	1	0.05	0.20	<b>0.18</b>	ug/L	J
Vinyl Acetate	108-05-4	1	0.07	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.05	0.20	<b>0.21</b>	ug/L	
2-Butanone	78-93-3	1	0.81	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.05	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.04	0.20	<b>0.25</b>	ug/L	
Chloroform	67-66-3	1	0.03	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.06	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.04	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.03	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.04	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.07	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.03	0.20	<b>4.37</b>	ug/L	
Trichloroethene	79-01-6	1	0.05	0.20	<b>0.28</b>	ug/L	
1,2-Dichloropropane	78-87-5	1	0.04	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.05	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.15	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.25	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	0.97	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.06	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	<b>0.32</b>	ug/L	
trans-1,3-Dichloropropene	10061-02-6	1	0.08	0.20	ND	ug/L	U





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Reported:  
11-Feb-2020 09:22

**MW-104-012420**  
**20A0325-07 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 01/24/2020 17:05

Instrument: NT2 Analyst: PKC

Analyzed: 01/27/2020 12:55

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	0.90	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.13	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.06	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.05	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.05	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.07	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.02	0.20	<b>3.73</b>	ug/L	
Ethylbenzene	100-41-4	1	0.04	0.20	<b>1.15</b>	ug/L	
1,1,1,2-Tetrachloroethane	630-20-6	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	<b>0.63</b>	ug/L	
o-Xylene	95-47-6	1	0.03	0.20	<b>0.21</b>	ug/L	
Xylenes, total	1330-20-7	1	0.09	0.60	<b>0.84</b>	ug/L	
Styrene	100-42-5	1	0.05	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.06	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.06	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.13	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.32	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.02	0.20	<b>31.5</b>	ug/L	
Bromobenzene	108-86-1	1	0.06	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.02	0.20	<b>26.8</b>	ug/L	
2-Chlorotoluene	95-49-8	1	0.02	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.02	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.03	0.20	<b>1.02</b>	ug/L	
1,3,5-Trimethylbenzene	108-67-8	1	0.02	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.02	0.20	<b>0.12</b>	ug/L	J
s-Butylbenzene	135-98-8	1	0.02	0.20	<b>6.61</b>	ug/L	
4-Isopropyl Toluene	99-87-6	1	0.03	0.20	<b>0.14</b>	ug/L	J
1,3-Dichlorobenzene	541-73-1	1	0.04	0.20	<b>1.38</b>	ug/L	
1,4-Dichlorobenzene	106-46-7	1	0.04	0.20	<b>8.31</b>	ug/L	
n-Butylbenzene	104-51-8	1	0.02	0.20	<b>3.94</b>	ug/L	
1,2-Dichlorobenzene	95-50-1	1	0.04	0.20	<b>16.8</b>	ug/L	
1,2-Dibromo-3-chloropropane	96-12-8	1	0.37	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.11	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.07	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.12	0.50	<b>0.22</b>	ug/L	J
1,2,3-Trichlorobenzene	87-61-6	1	0.11	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.05	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.07	0.50	ND	ug/L	U
2-Pentanone	107-87-9	1	5.00	5.00	ND	ug/L	U



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Reported:  
11-Feb-2020 09:22

**MW-104-012420**  
**20A0325-07 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 01/24/2020 17:05

Instrument: NT2 Analyst: PKC

Analyzed: 01/27/2020 12:55

Analyte	CAS Number	Recovery		Units	Notes
		Limits	Recovery		
Surrogate: 1,2-Dichloroethane-d4		80-129 %	72.7	%	*
Surrogate: Toluene-d8		80-120 %	96.0	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	122	%	*
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	108	%	



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Reported:  
11-Feb-2020 09:22

**MW-104-012420**  
**20A0325-07 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg	Sampled: 01/24/2020 17:05
Instrument: NT2 Analyst: PKC	Analyzed: 01/27/2020 12:55
Sample Preparation:	Extract ID: 20A0325-07 B
Preparation Method: EPA 5030 (Purge and Trap)	
Preparation Batch: BIA0521	Sample Size: 10 mL
Prepared: 27-Jan-2020	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	<b>1930</b>	ug/L	
HC ID: GAS						
Surrogate: Toluene-d8			80-120 %	96.0	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	122	%	*



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Reported:  
11-Feb-2020 09:22

**MW-104-012420**  
**20A0325-07 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 01/24/2020 17:05

Instrument: NT10 Analyst: VTS

Analyzed: 02/03/2020 19:51

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BIA0595  
Prepared: 30-Jan-2020

Sample Size: 1000 mL  
Final Volume: 1 mL

Extract ID: 20A0325-07 F 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	0.01	0.2	1.1	ug/L	
bis(2-chloroethyl) ether	111-44-4	1	0.03	0.2	ND	ug/L	U
2-Chlorophenol	95-57-8	1	0.03	0.2	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.03	0.2	1.4	ug/L	
1,4-Dichlorobenzene	106-46-7	1	0.03	0.2	7.9	ug/L	
1,2-Dichlorobenzene	95-50-1	1	0.03	0.2	14.9	ug/L	
Benzyl Alcohol	100-51-6	1	0.02	0.2	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	0.03	0.2	ND	ug/L	U
2-Methylphenol	95-48-7	1	0.03	0.2	ND	ug/L	U
Hexachloroethane	67-72-1	1	0.04	0.2	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	0.04	0.2	ND	ug/L	U
4-Methylphenol	106-44-5	1	0.03	0.2	ND	ug/L	U
Nitrobenzene	98-95-3	1	0.03	0.2	ND	ug/L	U
Isophorone	78-59-1	1	0.03	0.2	ND	ug/L	U
2-Nitrophenol	88-75-5	1	0.04	1.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	0.3	1.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	0.03	0.2	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	0.1	1.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.03	0.2	ND	ug/L	U
Benzoic acid	65-85-0	1	0.1	2.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	0.04	1.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	0.04	0.2	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	0.1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	0.1	1.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	0.2	1.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	0.1	1.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	0.03	0.2	ND	ug/L	U
2-Nitroaniline	88-74-4	1	0.2	1.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	0.04	0.2	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	0.2	1.0	ND	ug/L	U
3-Nitroaniline	99-09-2	1	0.2	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	0.2	2.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	0.06	1.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	0.1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	0.02	0.2	ND	ug/L	U
Diethyl phthalate	84-66-2	1	0.06	0.2	3.6	ug/L	



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Reported:  
11-Feb-2020 09:22

**MW-104-012420**  
**20A0325-07 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 01/24/2020 17:05

Instrument: NT10 Analyst: VTS

Analyzed: 02/03/2020 19:51

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
4-Nitroaniline	100-01-6	1	0.2	1.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	0.4	2.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	0.03	0.2	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	0.02	0.2	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	0.04	0.2	ND	ug/L	U
Pentachlorophenol	87-86-5	1	0.1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.04	0.2	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	0.05	0.2	<b>2.9</b>	ug/L	
Butylbenzylphthalate	85-68-7	1	0.07	0.2	<b>0.6</b>	ug/L	
3,3'-Dichlorobenzidine	91-94-1	1	0.3	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	0.2	0.2	<b>6.0</b>	ug/L	
Di-n-Octylphthalate	117-84-0	1	0.05	0.2	ND	ug/L	U
<i>Surrogate: 2-Fluorophenol</i>					30-160 %	51.5 %	
<i>Surrogate: Phenol-d5</i>					30-160 %	28.4 %	*
<i>Surrogate: 2-Chlorophenol-d4</i>					30-160 %	75.0 %	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>					30-160 %	71.8 %	
<i>Surrogate: Nitrobenzene-d5</i>					30-160 %	66.6 %	
<i>Surrogate: 2-Fluorobiphenyl</i>					30-160 %	73.0 %	
<i>Surrogate: 2,4,6-Tribromophenol</i>					30-160 %	41.4 %	Q
<i>Surrogate: p-Terphenyl-d14</i>					30-160 %	76.6 %	



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**MW-104-012420**  
**20A0325-07 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM Sampled: 01/24/2020 17:05  
Instrument: NT11 Analyst: VTS Analyzed: 02/01/2020 15:12

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 20A0325-07 H 01  
Preparation Batch: BIA0542 Sample Size: 500 mL  
Prepared: 27-Jan-2020 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel Extract ID: 20A0325-07 H 01  
Cleanup Batch: CIA0212 Initial Volume: 0.5 mL  
Cleaned: 30-Jan-2020 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.010	0.042	ug/L	
2-Methylnaphthalene	91-57-6	1	0.001	0.010	0.419	ug/L	
1-Methylnaphthalene	90-12-0	1	0.0009	0.010	4.18	ug/L	E
2-Chloronaphthalene	91-58-7	1	0.001	0.010	0.210	ug/L	
Acenaphthylene	208-96-8	1	0.002	0.010	0.345	ug/L	
Acenaphthene	83-32-9	1	0.003	0.010	0.645	ug/L	
Dibenzofuran	132-64-9	1	0.002	0.010	0.223	ug/L	
Fluorene	86-73-7	1	0.002	0.010	0.903	ug/L	
Phenanthrene	85-01-8	1	0.001	0.010	0.055	ug/L	
Anthracene	120-12-7	1	0.001	0.010	0.004	ug/L	J
Carbazole	86-74-8	1	0.001	0.010	0.289	ug/L	
Fluoranthene	206-44-0	1	0.002	0.010	0.032	ug/L	
Pyrene	129-00-0	1	0.001	0.010	0.088	ug/L	
Benzo(a)anthracene	56-55-3	1	0.0008	0.010	0.085	ug/L	
Chrysene	218-01-9	1	0.0009	0.010	0.101	ug/L	
Benzo(b)fluoranthene	205-99-2	1	0.0005	0.010	0.041	ug/L	
Benzo(k)fluoranthene	207-08-9	1	0.003	0.010	0.018	ug/L	
Benzo(j)fluoranthene	205-82-3	1	0.002	0.010	0.015	ug/L	
Benzofluoranthenes, Total		1	0.004	0.010	0.073	ug/L	
Benzo(a)pyrene	50-32-8	1	0.002	0.010	0.053	ug/L	
Perylene	1985-5-0	1	0.006	0.010	0.015	ug/L	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.001	0.010	0.020	ug/L	
Dibenzo(a,h)anthracene	53-70-3	1	0.001	0.010	0.010	ug/L	J
Benzo(g,h,i)perylene	191-24-2	1	0.001	0.010	0.036	ug/L	
<i>Surrogate: 2-Methylnaphthalene-d10</i>					42-120 %	88.7 %	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>					29-120 %	90.0 %	
<i>Surrogate: Fluoranthene-d10</i>					57-120 %	28.8 %	*

Instrument: NT12 Analyst: JZ Analyzed: 01/31/2020 14:48

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 20A0325-07 G 01  
Preparation Batch: BIA0540 Sample Size: 460 mL  
Prepared: 30-Jan-2020 Final Volume: 1 mL



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Reported:  
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**MW-104-012420**  
**20A0325-07 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM

Sampled: 01/24/2020 17:05

Instrument: NT12 Analyst: JZ

Analyzed: 01/31/2020 14:48

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.04	0.2	<b>0.1</b>	ug/L	J
<i>Surrogate: 1,4-Dioxane-d8</i>				33.6-120 %	58.3	%	



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**MW-104-012420**  
**20A0325-07 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx

Sampled: 01/24/2020 17:05

Instrument: FID4 Analyst: JGR

Analyzed: 01/31/2020 11:23

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 20A0325-07 I 01

Preparation Batch: BIA0587

Sample Size: 500 mL

Prepared: 30-Jan-2020

Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24) HC ID: DRO	DRO	1	0.100	<b>7.87</b>	mg/L	E
Motor Oil Range Organics (C24-C38) HC ID: MOTOR OIL	RRO	1	0.200	<b>1.98</b>	mg/L	
Surrogate: <i>o</i> -Terphenyl			50-150 %		NRS	NRS





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Reported:  
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**MW-104-012420**  
**20A0325-07 (Water)**

**Aroclor PCB**

Method: EPA 8082A		Sampled: 01/24/2020 17:05
Instrument: ECD7 Analyst: JGR		Analyzed: 02/03/2020 15:35
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BIA0568 Prepared: 28-Jan-2020	Sample Size: 1000 mL Final Volume: 0.5 mL Extract ID: 20A0325-07 E 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CIA0203 Cleaned: 29-Jan-2020	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 20A0325-07 E 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CIA0201 Cleaned: 29-Jan-2020	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 20A0325-07 E 01
Sample Cleanup:	Cleanup Method: Sulfur Cleanup Batch: CIA0202 Cleaned: 29-Jan-2020	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 20A0325-07 E 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	10	0.025	0.100	ND	ug/L	U
Aroclor 1221	11104-28-2	10	0.025	0.100	ND	ug/L	U
Aroclor 1232	11141-16-5	10	0.025	0.100	ND	ug/L	U
Aroclor 1242	53469-21-9	10	0.025	0.100	ND	ug/L	U
Aroclor 1248	12672-29-6	10	0.025	0.100	1.13	ug/L	D
Aroclor 1254	11097-69-1	10	0.025	0.100	2.78	ug/L	D
Aroclor 1260	11096-82-5	10	0.028	0.100	1.09	ug/L	D
Aroclor 1262	37324-23-5	10	0.028	0.100	ND	ug/L	U
Aroclor 1268	11100-14-4	10	0.028	0.100	ND	ug/L	U
<i>Surrogate: Decachlorobiphenyl</i>					29-120 %	67.6	%
<i>Surrogate: Tetrachlorometaxylene</i>					32-120 %	46.0	%
<i>Surrogate: Decachlorobiphenyl [2C]</i>					29-120 %	53.4	%
<i>Surrogate: Tetrachlorometaxylene [2C]</i>					32-120 %	52.7	%



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**MW-104-012420**  
**20A0325-07 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6020A Sampled: 01/24/2020 17:05  
Instrument: ICPMS2 Analyst: MCB Analyzed: 01/31/2020 20:56  
Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 20A0325-07 A 01  
Preparation Batch: BIA0672 Sample Size: 25 mL  
Prepared: 31-Jan-2020 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	1	0.130	0.500	<b>0.357</b>	ug/L	J
Iron	7439-89-6	1	6.27	20.0	<b>389</b>	ug/L	
Lead	7439-92-1	1	0.0680	0.100	<b>0.237</b>	ug/L	
Manganese	7439-96-5	1	0.0850	0.500	<b>197</b>	ug/L	



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Reported:  
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**MW-104-012420**  
**20A0325-07 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6020A UCT-KED Sampled: 01/24/2020 17:05  
Instrument: ICPMS2 Analyst: MCB Analyzed: 01/31/2020 20:56  
Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 20A0325-07 A 01  
Preparation Batch: BIA0672 Sample Size: 25 mL  
Prepared: 31-Jan-2020 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	<b>0.481</b>	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper	7440-50-8	1	0.340	0.500	<b>0.934</b>	ug/L	
Nickel	7440-02-0	1	0.0500	0.500	<b>1.65</b>	ug/L	
Zinc	7440-66-6	1	0.820	4.00	<b>27.9</b>	ug/L	



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**Reported:**  
11-Feb-2020 09:22

**MW-104-012420**  
**20A0325-07 (Water)**

**Metals and Metallic Compounds**

Method: EPA 7470A	Preparation Method: TLM EPA 7470A low level	Sampled: 01/24/2020 17:05
Instrument: HYDRA Analyst: JPK	Preparation Batch: BIB0115	Analyzed: 02/07/2020 16:01
Sample Preparation:	Prepared: 06-Feb-2020	Extract ID: 20A0325-07 A
	Sample Size: 20 mL	
	Final Volume: 20 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000010	0.000020	<b>0.000011</b>	mg/L	J



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**MW-104-012420**  
**20A0325-07RE1 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 01/24/2020 17:05

Instrument: NT3 Analyst: PKC

Analyzed: 01/27/2020 15:06

Sample Preparation:

Preparation Method: EPA 5030 (Purge and Trap)

Extract ID: 20A0325-07RE1 C

Preparation Batch: BIA0527

Sample Size: 10 mL

Prepared: 27-Jan-2020

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.09	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.06	0.20	<b>0.79</b>	ug/L	M
Bromomethane	74-83-9	1	0.25	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.09	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.04	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.48	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.04	0.20	ND	ug/L	U
Acetone	67-64-1	1	2.06	5.00	<b>4.29</b>	ug/L	J
1,1-Dichloroethene	75-35-4	1	0.05	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.04	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.23	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.49	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.60	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.04	0.20	<b>0.47</b>	ug/L	Q
trans-1,2-Dichloroethene	156-60-5	1	0.05	0.20	<b>0.33</b>	ug/L	
Vinyl Acetate	108-05-4	1	0.07	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.05	0.20	<b>0.38</b>	ug/L	
2-Butanone	78-93-3	1	0.81	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.05	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.04	0.20	<b>0.41</b>	ug/L	
Chloroform	67-66-3	1	0.03	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.06	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.04	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.03	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.04	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.07	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.03	0.20	<b>6.25</b>	ug/L	
Trichloroethene	79-01-6	1	0.05	0.20	<b>0.34</b>	ug/L	
1,2-Dichloropropane	78-87-5	1	0.04	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.05	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.15	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.25	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	0.97	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.06	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	<b>0.47</b>	ug/L	
trans-1,3-Dichloropropene	10061-02-6	1	0.08	0.20	ND	ug/L	U



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Project: South Park Landfill  
Project Number: South Park Landfill  
Project Manager: Jeff Neuner

Reported:  
11-Feb-2020 09:22

**MW-104-012420**  
**20A0325-07RE1 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 01/24/2020 17:05

Instrument: NT3 Analyst: PKC

Analyzed: 01/27/2020 15:06

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	0.90	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.13	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.06	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.05	0.20	<b>0.05</b>	ug/L	J
Dibromochloromethane	124-48-1	1	0.05	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.07	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.02	0.20	<b>4.54</b>	ug/L	
Ethylbenzene	100-41-4	1	0.04	0.20	<b>1.55</b>	ug/L	
1,1,1,2-Tetrachloroethane	630-20-6	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	<b>0.83</b>	ug/L	
o-Xylene	95-47-6	1	0.03	0.20	<b>0.25</b>	ug/L	
Xylenes, total	1330-20-7	1	0.09	0.60	<b>1.09</b>	ug/L	
Styrene	100-42-5	1	0.05	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.06	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.06	0.20	<b>0.21</b>	ug/L	Y1
1,2,3-Trichloropropane	96-18-4	1	0.13	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.32	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.02	0.20	<b>47.6</b>	ug/L	
Bromobenzene	108-86-1	1	0.06	0.20	<b>0.09</b>	ug/L	J
Isopropyl Benzene	98-82-8	1	0.02	0.20	<b>34.6</b>	ug/L	
2-Chlorotoluene	95-49-8	1	0.02	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.02	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.03	0.20	<b>1.23</b>	ug/L	
1,3,5-Trimethylbenzene	108-67-8	1	0.02	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.02	0.20	<b>0.13</b>	ug/L	J
s-Butylbenzene	135-98-8	1	0.02	0.20	<b>8.17</b>	ug/L	
4-Isopropyl Toluene	99-87-6	1	0.03	0.20	<b>0.17</b>	ug/L	J
1,3-Dichlorobenzene	541-73-1	1	0.04	0.20	<b>1.66</b>	ug/L	
1,4-Dichlorobenzene	106-46-7	1	0.04	0.20	<b>9.81</b>	ug/L	
n-Butylbenzene	104-51-8	1	0.02	0.20	<b>4.86</b>	ug/L	
1,2-Dichlorobenzene	95-50-1	1	0.04	0.20	<b>19.1</b>	ug/L	
1,2-Dibromo-3-chloropropane	96-12-8	1	0.37	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.11	0.50	<b>0.15</b>	ug/L	J
Hexachloro-1,3-Butadiene	87-68-3	1	0.07	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.12	0.50	<b>0.25</b>	ug/L	J
1,2,3-Trichlorobenzene	87-61-6	1	0.11	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.05	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.07	0.50	ND	ug/L	U
2-Pentanone	107-87-9	1	5.00	5.00	ND	ug/L	U



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Reported:  
11-Feb-2020 09:22

**MW-104-012420**  
**20A0325-07RE1 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 01/24/2020 17:05

Instrument: NT3 Analyst: PKC

Analyzed: 01/27/2020 15:06

Analyte	CAS Number	Recovery		Units	Notes
		Limits	Recovery		
Surrogate: 1,2-Dichloroethane-d4		80-129 %	97.5	%	
Surrogate: Toluene-d8		80-120 %	102	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	103	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	102	%	



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11-Feb-2020 09:22

**MW-104-012420**  
**20A0325-07RE1 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 01/24/2020 17:05  
Instrument: NT2 Analyst: LH Analyzed: 01/28/2020 14:53  
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) Extract ID: 20A0325-07RE1 B  
Preparation Batch: BIA0570 Sample Size: 10 mL  
Prepared: 28-Jan-2020 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	<b>1580</b>	ug/L	
<i>Surrogate: Toluene-d8</i>			80-120 %	99.2	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	102	%	





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**MW-104-012420**  
**20A0325-07RE1 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM Sampled: 01/24/2020 17:05  
Instrument: NT11 Analyst: VTS Analyzed: 02/06/2020 15:48

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 20A0325-07RE1 H 01  
Preparation Batch: BIA0542 Sample Size: 500 mL  
Prepared: 27-Jan-2020 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel Extract ID: 20A0325-07RE1 H 01  
Cleanup Batch: CIA0212 Initial Volume: 0.5 mL  
Cleaned: 30-Jan-2020 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	5	0.007	0.050	<b>0.047</b>	ug/L	J, D
2-Methylnaphthalene	91-57-6	5	0.005	0.050	<b>0.537</b>	ug/L	D
1-Methylnaphthalene	90-12-0	5	0.005	0.050	<b>6.02</b>	ug/L	D, E
2-Chloronaphthalene	91-58-7	5	0.005	0.050	ND	ug/L	U
Acenaphthylene	208-96-8	5	0.009	0.050	ND	ug/L	U
Acenaphthene	83-32-9	5	0.014	0.050	<b>0.889</b>	ug/L	D
Dibenzofuran	132-64-9	5	0.008	0.050	<b>0.324</b>	ug/L	D
Fluorene	86-73-7	5	0.008	0.050	<b>1.02</b>	ug/L	D
Phenanthrene	85-01-8	5	0.007	0.050	<b>0.107</b>	ug/L	Q, D
Anthracene	120-12-7	5	0.006	0.050	<b>0.015</b>	ug/L	J, D
Carbazole	86-74-8	5	0.006	0.050	<b>0.147</b>	ug/L	D
Fluoranthene	206-44-0	5	0.009	0.050	<b>0.016</b>	ug/L	J, D
Pyrene	129-00-0	5	0.006	0.050	<b>0.043</b>	ug/L	J, D
Benzo(a)anthracene	56-55-3	5	0.004	0.050	<b>0.087</b>	ug/L	D
Chrysene	218-01-9	5	0.005	0.050	<b>0.103</b>	ug/L	D
Benzo(b)fluoranthene	205-99-2	5	0.002	0.050	<b>0.039</b>	ug/L	J, D
Benzo(k)fluoranthene	207-08-9	5	0.016	0.050	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	5	0.009	0.050	<b>0.016</b>	ug/L	J, D
Benzofluoranthenes, Total		5	0.018	0.050	<b>0.068</b>	ug/L	D
Benzo(a)pyrene	50-32-8	5	0.012	0.050	<b>0.050</b>	ug/L	J, D
Perylene	1985-5-0	5	0.029	0.050	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	5	0.005	0.050	<b>0.019</b>	ug/L	J, D
Dibenzo(a,h)anthracene	53-70-3	5	0.007	0.050	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	5	0.007	0.050	<b>0.034</b>	ug/L	J, D
<i>Surrogate: 2-Methylnaphthalene-d10</i>					42-120 %	115 %	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>					29-120 %	78.5 %	
<i>Surrogate: Fluoranthene-d10</i>					57-120 %	13.5 %	*



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**Reported:**  
11-Feb-2020 09:22

**MW-104-012420**  
**20A0325-07RE1 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx

Sampled: 01/24/2020 17:05

Instrument: FID4 Analyst: JGR

Analyzed: 02/04/2020 09:28

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 20A0325-07RE1 I 01

Preparation Batch: BIA0587

Sample Size: 500 mL

Prepared: 30-Jan-2020

Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	10	1.00	<b>8.92</b>	mg/L	D
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	10	2.00	ND	mg/L	U
Surrogate: <i>o</i> -Terphenyl			50-150 %	96.0	%	



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11-Feb-2020 09:22

**MW-104-012420**  
**20A0325-08 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6020A Sampled: 01/24/2020 17:05  
Instrument: ICPMS1 Analyst: MCB Analyzed: 01/29/2020 22:34

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 20A0325-08 A 01  
Preparation Batch: BIA0571 Sample Size: 25 mL  
Prepared: 28-Jan-2020 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium, Dissolved	7440-47-3	1	0.130	0.500	<b>0.421</b>	ug/L	J
Iron, Dissolved	7439-89-6	1	6.27	20.0	<b>323</b>	ug/L	
Lead, Dissolved	7439-92-1	1	0.0680	0.100	ND	ug/L	U

Instrument: ICPMS2 Analyst: MCB Analyzed: 01/30/2020 20:38

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 20A0325-08 A 01  
Preparation Batch: BIA0571 Sample Size: 25 mL  
Prepared: 28-Jan-2020 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	1	0.0850	0.500	<b>199</b>	ug/L	



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11-Feb-2020 09:22

**MW-104-012420**  
**20A0325-08 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6020A UCT-KED Sampled: 01/24/2020 17:05  
Instrument: ICPMS1 Analyst: MCB Analyzed: 01/29/2020 22:34

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 20A0325-08 A 01  
Preparation Batch: BIA0571 Sample Size: 25 mL  
Prepared: 28-Jan-2020 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	<b>0.405</b>	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	<b>0.0360</b>	ug/L	J
Copper, Dissolved	7440-50-8	1	0.340	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	0.820	4.00	<b>4.77</b>	ug/L	

Instrument: ICPMS2 Analyst: MCB Analyzed: 01/30/2020 20:38

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 20A0325-08 A 01  
Preparation Batch: BIA0571 Sample Size: 25 mL  
Prepared: 28-Jan-2020 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	<b>1.60</b>	ug/L	



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11-Feb-2020 09:22

**MW-104-012420**  
**20A0325-08 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 7470A	Preparation Method: TLM EPA 7470A low level	Sampled: 01/24/2020 17:05
Instrument: HYDRA Analyst: JPK	Preparation Batch: BIB0116	Analyzed: 02/07/2020 16:52
Sample Preparation:	Prepared: 06-Feb-2020	Extract ID: 20A0325-08 A
	Sample Size: 20 mL	
	Final Volume: 20 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000010	0.000020	<b>0.000010</b>	mg/L	J



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11-Feb-2020 09:22

**MW-105-012420**  
**20A0325-09 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 01/24/2020 09:25

Instrument: NT2 Analyst: PKC

Analyzed: 01/27/2020 13:15

Sample Preparation:

Preparation Method: EPA 5030 (Purge and Trap)

Extract ID: 20A0325-09 B

Preparation Batch: BIA0521

Sample Size: 10 mL

Prepared: 27-Jan-2020

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.09	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.06	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	0.25	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.09	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.04	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.48	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.04	0.20	ND	ug/L	U
Acetone	67-64-1	1	2.06	5.00	<b>5.41</b>	ug/L	
1,1-Dichloroethene	75-35-4	1	0.05	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.04	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.23	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.49	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.60	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.04	0.20	<b>0.06</b>	ug/L	J
trans-1,2-Dichloroethene	156-60-5	1	0.05	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.07	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.05	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	0.81	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.05	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.04	0.20	<b>0.08</b>	ug/L	J
Chloroform	67-66-3	1	0.03	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.06	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.04	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.03	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.04	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.07	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.03	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.05	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.04	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.05	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.15	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.25	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	0.97	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.06	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.08	0.20	ND	ug/L	U



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11-Feb-2020 09:22

**MW-105-012420**  
**20A0325-09 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 01/24/2020 09:25

Instrument: NT2 Analyst: PKC

Analyzed: 01/27/2020 13:15

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	0.90	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.13	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.06	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.05	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.05	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.07	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.02	0.20	<b>0.02</b>	ug/L	J
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.09	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.05	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.06	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.06	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.13	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.32	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.02	0.20	<b>0.12</b>	ug/L	J
Bromobenzene	108-86-1	1	0.06	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.02	0.20	<b>0.05</b>	ug/L	J
2-Chlorotoluene	95-49-8	1	0.02	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.02	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.03	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.02	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.02	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.02	0.20	<b>0.02</b>	ug/L	J
4-Isopropyl Toluene	99-87-6	1	0.03	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.04	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.04	0.20	<b>0.15</b>	ug/L	J
n-Butylbenzene	104-51-8	1	0.02	0.20	<b>0.04</b>	ug/L	J
1,2-Dichlorobenzene	95-50-1	1	0.04	0.20	<b>0.11</b>	ug/L	J
1,2-Dibromo-3-chloropropane	96-12-8	1	0.37	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.11	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.07	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.12	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.11	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.05	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.07	0.50	ND	ug/L	U
2-Pentanone	107-87-9	1	5.00	5.00	ND	ug/L	U



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Reported:  
11-Feb-2020 09:22

**MW-105-012420**  
**20A0325-09 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 01/24/2020 09:25

Instrument: NT2 Analyst: PKC

Analyzed: 01/27/2020 13:15

Analyte	CAS Number	Recovery		Units	Notes
		Limits	Recovery		
Surrogate: 1,2-Dichloroethane-d4		80-129 %	70.5	%	*
Surrogate: Toluene-d8		80-120 %	95.0	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	116	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	105	%	





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11-Feb-2020 09:22

**MW-105-012420**  
**20A0325-09 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 01/24/2020 09:25  
Instrument: NT2 Analyst: PKC Analyzed: 01/27/2020 13:15  
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) Extract ID: 20A0325-09 B  
Preparation Batch: BIA0521 Sample Size: 10 mL  
Prepared: 27-Jan-2020 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	95.0	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	116	%	



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11-Feb-2020 09:22

**MW-105-012420**  
**20A0325-09 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D Sampled: 01/24/2020 09:25  
Instrument: NT10 Analyst: VTS Analyzed: 02/03/2020 20:27

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 20A0325-09 F 01  
Preparation Batch: BIA0595 Sample Size: 1000 mL  
Prepared: 30-Jan-2020 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	0.01	0.2	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	0.03	0.2	ND	ug/L	U
2-Chlorophenol	95-57-8	1	0.03	0.2	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.03	0.2	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.03	0.2	0.07	ug/L	J
1,2-Dichlorobenzene	95-50-1	1	0.03	0.2	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	0.02	0.2	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	0.03	0.2	ND	ug/L	U
2-Methylphenol	95-48-7	1	0.03	0.2	ND	ug/L	U
Hexachloroethane	67-72-1	1	0.04	0.2	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	0.04	0.2	ND	ug/L	U
4-Methylphenol	106-44-5	1	0.03	0.2	ND	ug/L	U
Nitrobenzene	98-95-3	1	0.03	0.2	ND	ug/L	U
Isophorone	78-59-1	1	0.03	0.2	ND	ug/L	U
2-Nitrophenol	88-75-5	1	0.04	1.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	0.3	1.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	0.03	0.2	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	0.1	1.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.03	0.2	ND	ug/L	U
Benzoic acid	65-85-0	1	0.1	2.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	0.04	1.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	0.04	0.2	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	0.1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	0.1	1.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	0.2	1.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	0.1	1.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	0.03	0.2	ND	ug/L	U
2-Nitroaniline	88-74-4	1	0.2	1.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	0.04	0.2	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	0.2	1.0	ND	ug/L	U
3-Nitroaniline	99-09-2	1	0.2	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	0.2	2.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	0.06	1.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	0.1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	0.02	0.2	ND	ug/L	U
Diethyl phthalate	84-66-2	1	0.06	0.2	ND	ug/L	U



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Reported:  
11-Feb-2020 09:22

**MW-105-012420**  
**20A0325-09 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 01/24/2020 09:25

Instrument: NT10 Analyst: VTS

Analyzed: 02/03/2020 20:27

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
4-Nitroaniline	100-01-6	1	0.2	1.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	0.4	2.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	0.03	0.2	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	0.02	0.2	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	0.04	0.2	ND	ug/L	U
Pentachlorophenol	87-86-5	1	0.1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.04	0.2	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	0.05	0.2	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	0.07	0.2	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	0.3	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	0.2	0.2	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	0.05	0.2	ND	ug/L	U
<i>Surrogate: 2-Fluorophenol</i>					30-160 %	53.1 %	
<i>Surrogate: Phenol-d5</i>					30-160 %	29.4 %	*
<i>Surrogate: 2-Chlorophenol-d4</i>					30-160 %	81.4 %	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>					30-160 %	71.6 %	
<i>Surrogate: Nitrobenzene-d5</i>					30-160 %	74.2 %	
<i>Surrogate: 2-Fluorobiphenyl</i>					30-160 %	79.8 %	
<i>Surrogate: 2,4,6-Tribromophenol</i>					30-160 %	103 %	Q
<i>Surrogate: p-Terphenyl-d14</i>					30-160 %	85.2 %	



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**MW-105-012420**  
**20A0325-09 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM Sampled: 01/24/2020 09:25  
Instrument: NT11 Analyst: VTS Analyzed: 02/01/2020 15:41

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 20A0325-09 H 01  
Preparation Batch: BIA0542 Sample Size: 500 mL  
Prepared: 27-Jan-2020 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel Extract ID: 20A0325-09 H 01  
Cleanup Batch: CIA0212 Initial Volume: 0.5 mL  
Cleaned: 30-Jan-2020 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.010	0.003	ug/L	J
2-Methylnaphthalene	91-57-6	1	0.001	0.010	0.002	ug/L	J
1-Methylnaphthalene	90-12-0	1	0.0009	0.010	0.003	ug/L	J
2-Chloronaphthalene	91-58-7	1	0.001	0.010	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.002	0.010	ND	ug/L	U
Acenaphthene	83-32-9	1	0.003	0.010	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.002	0.010	ND	ug/L	U
Fluorene	86-73-7	1	0.002	0.010	ND	ug/L	U
Phenanthrene	85-01-8	1	0.001	0.010	0.002	ug/L	J
Anthracene	120-12-7	1	0.001	0.010	ND	ug/L	U
Carbazole	86-74-8	1	0.001	0.010	ND	ug/L	U
Fluoranthene	206-44-0	1	0.002	0.010	ND	ug/L	U
Pyrene	129-00-0	1	0.001	0.010	0.002	ug/L	J
Benzo(a)anthracene	56-55-3	1	0.0008	0.010	0.001	ug/L	J
Chrysene	218-01-9	1	0.0009	0.010	0.002	ug/L	J
Benzo(b)fluoranthene	205-99-2	1	0.0005	0.010	0.0009	ug/L	J
Benzo(k)fluoranthene	207-08-9	1	0.003	0.010	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	1	0.002	0.010	ND	ug/L	U
Benzofluoranthenes, Total		1	0.004	0.010	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.002	0.010	ND	ug/L	U
Perylene	1985-5-0	1	0.006	0.010	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.001	0.010	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.001	0.010	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.001	0.010	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>					42-120 %	84.2 %	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>					29-120 %	92.2 %	
<i>Surrogate: Fluoranthene-d10</i>					57-120 %	97.0 %	

Instrument: NT12 Analyst: JZ Analyzed: 01/31/2020 15:13

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 20A0325-09 G 01  
Preparation Batch: BIA0540 Sample Size: 460 mL  
Prepared: 30-Jan-2020 Final Volume: 1 mL



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**MW-105-012420**  
**20A0325-09 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM

Sampled: 01/24/2020 09:25

Instrument: NT12 Analyst: JZ

Analyzed: 01/31/2020 15:13

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.04	0.2	<b>0.08</b>	ug/L	J
<i>Surrogate: 1,4-Dioxane-d8</i>				<i>33.6-120 %</i>	<i>65.0</i>	<i>%</i>	



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**MW-105-012420**  
**20A0325-09 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx

Sampled: 01/24/2020 09:25

Instrument: FID4 Analyst: JGR

Analyzed: 01/31/2020 11:42

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 20A0325-09 I 01

Preparation Batch: BIA0587

Sample Size: 500 mL

Prepared: 30-Jan-2020

Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	<b>0.124</b>	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: <i>o</i> -Terphenyl			50-150 %	92.5	%	



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**MW-105-012420**  
**20A0325-09 (Water)**

**Aroclor PCB**

Method: EPA 8082A		Sampled: 01/24/2020 09:25
Instrument: ECD7 Analyst: JGR		Analyzed: 01/30/2020 15:39
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BIA0568 Prepared: 28-Jan-2020	Sample Size: 1000 mL Final Volume: 0.5 mL Extract ID: 20A0325-09 E 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CIA0203 Cleaned: 29-Jan-2020	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 20A0325-09 E 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CIA0201 Cleaned: 29-Jan-2020	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 20A0325-09 E 01
Sample Cleanup:	Cleanup Method: Sulfur Cleanup Batch: CIA0202 Cleaned: 29-Jan-2020	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 20A0325-09 E 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.002	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.002	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.002	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.002	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1262	37324-23-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1268	11100-14-4	1	0.003	0.010	ND	ug/L	U
<i>Surrogate: Decachlorobiphenyl</i>					29-120 %	57.2	%
<i>Surrogate: Tetrachlorometaxylene</i>					32-120 %	55.5	%
<i>Surrogate: Decachlorobiphenyl [2C]</i>					29-120 %	44.0	%
<i>Surrogate: Tetrachlorometaxylene [2C]</i>					32-120 %	51.6	%



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**MW-105-012420**  
**20A0325-09 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6020A

Sampled: 01/24/2020 09:25

Instrument: ICPMS2 Analyst: MCB

Analyzed: 01/31/2020 21:01

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 20A0325-09 A 01

Preparation Batch: BIA0672

Sample Size: 25 mL

Prepared: 31-Jan-2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	1	0.130	0.500	<b>0.143</b>	ug/L	J
Iron	7439-89-6	1	6.27	20.0	<b>14400</b>	ug/L	
Lead	7439-92-1	1	0.0680	0.100	<b>0.124</b>	ug/L	
Manganese	7439-96-5	10	0.850	5.00	<b>1150</b>	ug/L	D





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**MW-105-012420**  
**20A0325-09 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6020A UCT-KED

Sampled: 01/24/2020 09:25

Instrument: ICPMS2 Analyst: MCB

Analyzed: 01/31/2020 21:01

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 20A0325-09 A 01

Preparation Batch: BIA0672

Sample Size: 25 mL

Prepared: 31-Jan-2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	<b>2.26</b>	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper	7440-50-8	1	0.340	0.500	ND	ug/L	U
Nickel	7440-02-0	1	0.0500	0.500	<b>1.92</b>	ug/L	
Zinc	7440-66-6	1	0.820	4.00	<b>2.01</b>	ug/L	J



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**MW-105-012420**  
**20A0325-09 (Water)**

**Metals and Metallic Compounds**

Method: EPA 7470A

Sampled: 01/24/2020 09:25

Instrument: HYDRA Analyst: JPK

Analyzed: 02/07/2020 16:04

Sample Preparation:

Preparation Method: TLM EPA 7470A low level

Extract ID: 20A0325-09 A

Preparation Batch: BIB0115

Sample Size: 20 mL

Prepared: 06-Feb-2020

Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000010	0.000020	<b>0.000011</b>	mg/L	J



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**MW-105-012420**  
**20A0325-09RE1 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 01/24/2020 09:25

Instrument: NT3 Analyst: PKC

Analyzed: 01/27/2020 15:34

Sample Preparation:

Preparation Method: EPA 5030 (Purge and Trap)

Extract ID: 20A0325-09RE1 C

Preparation Batch: BIA0527

Sample Size: 10 mL

Prepared: 27-Jan-2020

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.09	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.06	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	0.25	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.09	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.04	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.48	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.04	0.20	ND	ug/L	U
Acetone	67-64-1	1	2.06	5.00	2.20	ug/L	J
1,1-Dichloroethene	75-35-4	1	0.05	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.04	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.23	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.49	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.60	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.04	0.20	0.12	ug/L	J
trans-1,2-Dichloroethene	156-60-5	1	0.05	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.07	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.05	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	0.81	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.05	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.04	0.20	0.09	ug/L	J
Chloroform	67-66-3	1	0.03	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.06	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.04	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.03	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.04	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.07	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.03	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.05	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.04	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.05	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.15	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.25	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	0.97	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.06	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.08	0.20	ND	ug/L	U



Seattle Public Utilities  
700-5th Ave, Ste 4900, Box 34018  
Seattle WA, 98124-4018

Project: South Park Landfill  
Project Number: South Park Landfill  
Project Manager: Jeff Neuner

Reported:  
11-Feb-2020 09:22

**MW-105-012420**  
**20A0325-09RE1 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 01/24/2020 09:25

Instrument: NT3 Analyst: PKC

Analyzed: 01/27/2020 15:34

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	0.90	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.13	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.06	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.05	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.05	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.07	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.02	0.20	<b>0.03</b>	ug/L	J
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.09	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.05	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.06	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.06	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.13	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.32	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.02	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.06	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.02	0.20	<b>0.09</b>	ug/L	J
2-Chlorotoluene	95-49-8	1	0.02	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.02	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.03	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.02	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.02	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.02	0.20	<b>0.05</b>	ug/L	J
4-Isopropyl Toluene	99-87-6	1	0.03	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.04	0.20	<b>0.04</b>	ug/L	J
1,4-Dichlorobenzene	106-46-7	1	0.04	0.20	<b>0.19</b>	ug/L	J
n-Butylbenzene	104-51-8	1	0.02	0.20	<b>0.06</b>	ug/L	J
1,2-Dichlorobenzene	95-50-1	1	0.04	0.20	<b>0.18</b>	ug/L	J
1,2-Dibromo-3-chloropropane	96-12-8	1	0.37	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.11	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.07	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.12	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.11	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.05	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.07	0.50	ND	ug/L	U
2-Pentanone	107-87-9	1	5.00	5.00	ND	ug/L	U



Seattle Public Utilities  
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Project: South Park Landfill  
Project Number: South Park Landfill  
Project Manager: Jeff Neuner

**Reported:**  
11-Feb-2020 09:22

**MW-105-012420**  
**20A0325-09RE1 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 01/24/2020 09:25

Instrument: NT3 Analyst: PKC

Analyzed: 01/27/2020 15:34

Analyte	CAS Number	Recovery		Units	Notes
		Limits	Recovery		
Surrogate: 1,2-Dichloroethane-d4		80-129 %	98.0	%	
Surrogate: Toluene-d8		80-120 %	100	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	100	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	101	%	



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Reported:  
11-Feb-2020 09:22

**MW-105-012420**  
**20A0325-10 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6020A Sampled: 01/24/2020 09:25  
Instrument: ICPMS1 Analyst: MCB Analyzed: 01/29/2020 22:38

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 20A0325-10 A 01  
Preparation Batch: BIA0571 Sample Size: 25 mL  
Prepared: 28-Jan-2020 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium, Dissolved	7440-47-3	1	0.130	0.500	<b>0.192</b>	ug/L	J
Lead, Dissolved	7439-92-1	1	0.0680	0.100	ND	ug/L	U

Instrument: ICPMS2 Analyst: MCB Analyzed: 01/31/2020 23:09

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 20A0325-10 A 01  
Preparation Batch: BIA0571 Sample Size: 25 mL  
Prepared: 28-Jan-2020 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	10	0.850	5.00	<b>1110</b>	ug/L	D



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Reported:  
11-Feb-2020 09:22

**MW-105-012420**  
**20A0325-10 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6020A UCT-KED Sampled: 01/24/2020 09:25  
Instrument: ICPMS1 Analyst: MCB Analyzed: 01/29/2020 22:38

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 20A0325-10 A 01  
Preparation Batch: BIA0571 Sample Size: 25 mL  
Prepared: 28-Jan-2020 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	<b>2.38</b>	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper, Dissolved	7440-50-8	1	0.340	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	0.820	4.00	<b>2.54</b>	ug/L	J

Instrument: ICPMS2 Analyst: MCB Analyzed: 01/30/2020 20:45

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 20A0325-10 A 01  
Preparation Batch: BIA0571 Sample Size: 25 mL  
Prepared: 28-Jan-2020 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	<b>1.89</b>	ug/L	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill Project Number: South Park Landfill Project Manager: Jeff Neuner	Reported: 11-Feb-2020 09:22
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**MW-105-012420**  
**20A0325-10 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 7470A	Preparation Method: TLM EPA 7470A low level	Sampled: 01/24/2020 09:25
Instrument: HYDRA Analyst: JPK	Preparation Batch: BIB0116	Analyzed: 02/07/2020 16:55
Sample Preparation:	Prepared: 06-Feb-2020	Extract ID: 20A0325-10 A
	Sample Size: 20 mL	
	Final Volume: 20 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000010	0.000020	<b>0.000012</b>	mg/L	J





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**Reported:**  
11-Feb-2020 09:22

**MW-105-012420**  
**20A0325-10RE1 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6020A

Sampled: 01/24/2020 09:25

Instrument: ICPMS1 Analyst: MCB

Analyzed: 01/30/2020 17:29

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 20A0325-10RE1 A 01

Preparation Batch: BIA0571

Sample Size: 25 mL

Prepared: 28-Jan-2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	5	31.4	100	<b>17100</b>	ug/L	D



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Reported:  
11-Feb-2020 09:22

**MW-106-012420**  
**20A0325-11 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 01/24/2020 12:25

Instrument: NT2 Analyst: PKC

Analyzed: 01/27/2020 13:35

Sample Preparation:

Preparation Method: EPA 5030 (Purge and Trap)

Extract ID: 20A0325-11 B

Preparation Batch: BIA0521

Sample Size: 10 mL

Prepared: 27-Jan-2020

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.09	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.06	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	0.25	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.09	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.04	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.48	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.04	0.20	ND	ug/L	U
Acetone	67-64-1	1	2.06	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.05	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.04	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.23	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.49	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.60	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.04	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.05	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.07	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.05	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	0.81	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.05	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.04	0.20	<b>0.18</b>	ug/L	J
Chloroform	67-66-3	1	0.03	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.06	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.04	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.03	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.04	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.07	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.03	0.20	<b>0.29</b>	ug/L	
Trichloroethene	79-01-6	1	0.05	0.20	<b>2.01</b>	ug/L	
1,2-Dichloropropane	78-87-5	1	0.04	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.05	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.15	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.25	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	0.97	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.06	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.08	0.20	ND	ug/L	U



Seattle Public Utilities  
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Project: South Park Landfill  
Project Number: South Park Landfill  
Project Manager: Jeff Neuner

Reported:  
11-Feb-2020 09:22

**MW-106-012420**  
**20A0325-11 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 01/24/2020 12:25

Instrument: NT2 Analyst: PKC

Analyzed: 01/27/2020 13:35

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	0.90	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.13	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.06	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.05	0.20	<b>0.13</b>	ug/L	J
Dibromochloromethane	124-48-1	1	0.05	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.07	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.02	0.20	<b>0.42</b>	ug/L	
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.09	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.05	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.06	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.06	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.13	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.32	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.02	0.20	<b>0.04</b>	ug/L	J
Bromobenzene	108-86-1	1	0.06	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.02	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.02	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.02	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.03	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.02	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.02	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.02	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.03	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.04	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.04	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.02	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.04	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.37	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.11	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.07	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.12	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.11	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.05	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.07	0.50	ND	ug/L	U
2-Pentanone	107-87-9	1	5.00	5.00	ND	ug/L	U



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**Reported:**  
11-Feb-2020 09:22

**MW-106-012420**  
**20A0325-11 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 01/24/2020 12:25

Instrument: NT2 Analyst: PKC

Analyzed: 01/27/2020 13:35

Analyte	CAS Number	Recovery		Units	Notes
		Limits	Recovery		
Surrogate: 1,2-Dichloroethane-d4		80-129 %	72.1	%	*
Surrogate: Toluene-d8		80-120 %	92.0	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	109	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	104	%	



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Reported:  
11-Feb-2020 09:22

**MW-106-012420**  
**20A0325-11 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 01/24/2020 12:25  
Instrument: NT2 Analyst: PKC Analyzed: 01/27/2020 13:35  
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) Extract ID: 20A0325-11 B  
Preparation Batch: BIA0521 Sample Size: 10 mL  
Prepared: 27-Jan-2020 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	92.0	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	109	%	



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Project: South Park Landfill  
Project Number: South Park Landfill  
Project Manager: Jeff Neuner

Reported:  
11-Feb-2020 09:22

**MW-106-012420**  
**20A0325-11 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 01/24/2020 12:25

Instrument: NT10 Analyst: VTS

Analyzed: 02/03/2020 21:03

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 20A0325-11 F 01

Preparation Batch: BIA0595

Sample Size: 1000 mL

Prepared: 30-Jan-2020

Final Volume: 1 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	0.01	0.2	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	0.03	0.2	ND	ug/L	U
2-Chlorophenol	95-57-8	1	0.03	0.2	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.03	0.2	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.03	0.2	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.03	0.2	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	0.02	0.2	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	0.03	0.2	ND	ug/L	U
2-Methylphenol	95-48-7	1	0.03	0.2	ND	ug/L	U
Hexachloroethane	67-72-1	1	0.04	0.2	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	0.04	0.2	ND	ug/L	U
4-Methylphenol	106-44-5	1	0.03	0.2	ND	ug/L	U
Nitrobenzene	98-95-3	1	0.03	0.2	ND	ug/L	U
Isophorone	78-59-1	1	0.03	0.2	ND	ug/L	U
2-Nitrophenol	88-75-5	1	0.04	1.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	0.3	1.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	0.03	0.2	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	0.1	1.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.03	0.2	ND	ug/L	U
Benzoic acid	65-85-0	1	0.1	2.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	0.04	1.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	0.04	0.2	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	0.1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	0.1	1.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	0.2	1.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	0.1	1.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	0.03	0.2	ND	ug/L	U
2-Nitroaniline	88-74-4	1	0.2	1.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	0.04	0.2	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	0.2	1.0	ND	ug/L	U
3-Nitroaniline	99-09-2	1	0.2	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	0.2	2.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	0.06	1.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	0.1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	0.02	0.2	ND	ug/L	U
Diethyl phthalate	84-66-2	1	0.06	0.2	ND	ug/L	U



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Reported:  
11-Feb-2020 09:22

**MW-106-012420**  
**20A0325-11 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 01/24/2020 12:25

Instrument: NT10 Analyst: VTS

Analyzed: 02/03/2020 21:03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
4-Nitroaniline	100-01-6	1	0.2	1.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	0.4	2.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	0.03	0.2	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	0.02	0.2	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	0.04	0.2	ND	ug/L	U
Pentachlorophenol	87-86-5	1	0.1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.04	0.2	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	0.05	0.2	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	0.07	0.2	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	0.3	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	0.2	0.2	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	0.05	0.2	ND	ug/L	U
<i>Surrogate: 2-Fluorophenol</i>				30-160 %	50.1	%	
<i>Surrogate: Phenol-d5</i>				30-160 %	27.4	%	*
<i>Surrogate: 2-Chlorophenol-d4</i>				30-160 %	75.6	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>				30-160 %	72.3	%	
<i>Surrogate: Nitrobenzene-d5</i>				30-160 %	70.3	%	
<i>Surrogate: 2-Fluorobiphenyl</i>				30-160 %	78.5	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>				30-160 %	99.5	%	Q
<i>Surrogate: p-Terphenyl-d14</i>				30-160 %	82.5	%	



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**MW-106-012420**  
**20A0325-11 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM Sampled: 01/24/2020 12:25  
Instrument: NT11 Analyst: VTS Analyzed: 02/01/2020 16:11

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 20A0325-11 H 01  
Preparation Batch: BIA0542 Sample Size: 500 mL  
Prepared: 27-Jan-2020 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel Extract ID: 20A0325-11 H 01  
Cleanup Batch: CIA0212 Initial Volume: 0.5 mL  
Cleaned: 30-Jan-2020 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.010	<b>0.003</b>	ug/L	J
2-Methylnaphthalene	91-57-6	1	0.001	0.010	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.0009	0.010	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	0.001	0.010	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.002	0.010	ND	ug/L	U
Acenaphthene	83-32-9	1	0.003	0.010	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.002	0.010	ND	ug/L	U
Fluorene	86-73-7	1	0.002	0.010	ND	ug/L	U
Phenanthrene	85-01-8	1	0.001	0.010	ND	ug/L	U
Anthracene	120-12-7	1	0.001	0.010	ND	ug/L	U
Carbazole	86-74-8	1	0.001	0.010	ND	ug/L	U
Fluoranthene	206-44-0	1	0.002	0.010	ND	ug/L	U
Pyrene	129-00-0	1	0.001	0.010	<b>0.002</b>	ug/L	J
Benzo(a)anthracene	56-55-3	1	0.0008	0.010	ND	ug/L	U
Chrysene	218-01-9	1	0.0009	0.010	<b>0.002</b>	ug/L	J
Benzo(b)fluoranthene	205-99-2	1	0.0005	0.010	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.003	0.010	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	1	0.002	0.010	ND	ug/L	U
Benzofluoranthenes, Total		1	0.004	0.010	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.002	0.010	ND	ug/L	U
Perylene	1985-5-0	1	0.006	0.010	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.001	0.010	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.001	0.010	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.001	0.010	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>					42-120 %	81.2 %	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>					29-120 %	91.4 %	
<i>Surrogate: Fluoranthene-d10</i>					57-120 %	96.5 %	

Instrument: NT12 Analyst: JZ Analyzed: 01/31/2020 15:39

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 20A0325-11 G 01  
Preparation Batch: BIA0540 Sample Size: 465 mL  
Prepared: 30-Jan-2020 Final Volume: 1 mL





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11-Feb-2020 09:22

**MW-106-012420**  
**20A0325-11 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM

Sampled: 01/24/2020 12:25

Instrument: NT12 Analyst: JZ

Analyzed: 01/31/2020 15:39

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.04	0.2	ND	ug/L	U
<i>Surrogate: 1,4-Dioxane-d8</i>				<i>33.6-120 %</i>	<i>59.1</i>	<i>%</i>	



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**MW-106-012420**  
**20A0325-11 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx

Sampled: 01/24/2020 12:25

Instrument: FID4 Analyst: JGR

Analyzed: 01/31/2020 12:02

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 20A0325-11 I 01

Preparation Batch: BIA0587

Sample Size: 500 mL

Prepared: 30-Jan-2020

Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	92.5	%	



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11-Feb-2020 09:22

**MW-106-012420**  
**20A0325-11 (Water)**

**Aroclor PCB**

Method: EPA 8082A		Sampled: 01/24/2020 12:25
Instrument: ECD7 Analyst: JGR		Analyzed: 01/30/2020 16:00
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BIA0568 Prepared: 28-Jan-2020	Sample Size: 1000 mL Final Volume: 0.5 mL Extract ID: 20A0325-11 E 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CIA0203 Cleaned: 29-Jan-2020	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 20A0325-11 E 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CIA0201 Cleaned: 29-Jan-2020	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 20A0325-11 E 01
Sample Cleanup:	Cleanup Method: Sulfur Cleanup Batch: CIA0202 Cleaned: 29-Jan-2020	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 20A0325-11 E 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.002	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.002	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.002	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.002	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1262	37324-23-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1268	11100-14-4	1	0.003	0.010	ND	ug/L	U
<i>Surrogate: Decachlorobiphenyl</i>					29-120 %	57.3	%
<i>Surrogate: Tetrachlorometaxylene</i>					32-120 %	46.9	%
<i>Surrogate: Decachlorobiphenyl [2C]</i>					29-120 %	54.2	%
<i>Surrogate: Tetrachlorometaxylene [2C]</i>					32-120 %	45.6	%



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**MW-106-012420**  
**20A0325-11 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6020A

Sampled: 01/24/2020 12:25

Instrument: ICPMS2 Analyst: MCB

Analyzed: 01/31/2020 21:06

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 20A0325-11 A 01

Preparation Batch: BIA0672

Sample Size: 25 mL

Prepared: 31-Jan-2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	1	0.130	0.500	<b>0.299</b>	ug/L	J
Iron	7439-89-6	1	6.27	20.0	<b>676</b>	ug/L	
Lead	7439-92-1	1	0.0680	0.100	<b>0.302</b>	ug/L	
Manganese	7439-96-5	1	0.0850	0.500	<b>197</b>	ug/L	



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**MW-106-012420**  
**20A0325-11 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6020A UCT-KED

Sampled: 01/24/2020 12:25

Instrument: ICPMS2 Analyst: MCB

Analyzed: 01/31/2020 21:06

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 20A0325-11 A 01

Preparation Batch: BIA0672

Sample Size: 25 mL

Prepared: 31-Jan-2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	<b>1.19</b>	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	<b>0.228</b>	ug/L	
Copper	7440-50-8	1	0.340	0.500	<b>2.37</b>	ug/L	
Nickel	7440-02-0	1	0.0500	0.500	<b>4.59</b>	ug/L	
Zinc	7440-66-6	2	1.88	8.00	<b>286</b>	ug/L	D



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11-Feb-2020 09:22

**MW-106-012420**  
**20A0325-11 (Water)**

**Metals and Metallic Compounds**

Method: EPA 7470A	Preparation Method: TLM EPA 7470A low level	Sampled: 01/24/2020 12:25
Instrument: HYDRA Analyst: JPK	Preparation Batch: BIB0115	Analyzed: 02/07/2020 16:13
Sample Preparation:	Prepared: 06-Feb-2020	Extract ID: 20A0325-11 A
	Sample Size: 20 mL	
	Final Volume: 20 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000010	0.000020	<b>0.000011</b>	mg/L	J



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**MW-106-012420**  
**20A0325-11RE1 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 01/24/2020 12:25

Instrument: NT3 Analyst: PKC

Analyzed: 01/27/2020 16:02

Sample Preparation:

Preparation Method: EPA 5030 (Purge and Trap)

Extract ID: 20A0325-11RE1 C

Preparation Batch: BIA0527

Sample Size: 10 mL

Prepared: 27-Jan-2020

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.09	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.06	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	0.25	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.09	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.04	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.48	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.04	0.20	ND	ug/L	U
Acetone	67-64-1	1	2.06	5.00	<b>4.22</b>	ug/L	J
1,1-Dichloroethene	75-35-4	1	0.05	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.04	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.23	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.49	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.60	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.04	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.05	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.07	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.05	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	0.81	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.05	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.04	0.20	<b>0.26</b>	ug/L	
Chloroform	67-66-3	1	0.03	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.06	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.04	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.03	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.04	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.07	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.03	0.20	<b>0.38</b>	ug/L	
Trichloroethene	79-01-6	1	0.05	0.20	<b>2.16</b>	ug/L	
1,2-Dichloropropane	78-87-5	1	0.04	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.05	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.15	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.25	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	0.97	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.06	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.08	0.20	ND	ug/L	U



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Reported:  
11-Feb-2020 09:22

**MW-106-012420**  
**20A0325-11RE1 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 01/24/2020 12:25

Instrument: NT3 Analyst: PKC

Analyzed: 01/27/2020 16:02

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	0.90	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.13	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.06	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.05	0.20	<b>0.14</b>	ug/L	J
Dibromochloromethane	124-48-1	1	0.05	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.07	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.02	0.20	<b>0.44</b>	ug/L	
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.09	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.05	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.06	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.06	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.13	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.32	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.02	0.20	<b>0.03</b>	ug/L	J
Bromobenzene	108-86-1	1	0.06	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.02	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.02	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.02	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.03	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.02	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.02	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.02	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.03	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.04	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.04	0.20	<b>0.04</b>	ug/L	J
n-Butylbenzene	104-51-8	1	0.02	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.04	0.20	<b>0.04</b>	ug/L	J
1,2-Dibromo-3-chloropropane	96-12-8	1	0.37	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.11	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.07	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.12	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.11	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.05	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.07	0.50	ND	ug/L	U
2-Pentanone	107-87-9	1	5.00	5.00	ND	ug/L	U





Seattle Public Utilities  
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Seattle WA, 98124-4018

Project: South Park Landfill  
Project Number: South Park Landfill  
Project Manager: Jeff Neuner

Reported:  
11-Feb-2020 09:22

**MW-106-012420**  
**20A0325-11RE1 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 01/24/2020 12:25

Instrument: NT3 Analyst: PKC

Analyzed: 01/27/2020 16:02

Analyte	CAS Number	Recovery		Units	Notes
		Limits	Recovery		
Surrogate: 1,2-Dichloroethane-d4		80-129 %	100	%	
Surrogate: Toluene-d8		80-120 %	101	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	101	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	98.8	%	



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Reported:  
11-Feb-2020 09:22

**MW-106-012420**  
**20A0325-12 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6020A Sampled: 01/24/2020 12:25  
Instrument: ICPMS1 Analyst: MCB Analyzed: 01/29/2020 22:43

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 20A0325-12 A 01  
Preparation Batch: BIA0571 Sample Size: 25 mL  
Prepared: 28-Jan-2020 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium, Dissolved	7440-47-3	1	0.130	0.500	<b>0.313</b>	ug/L	J
Iron, Dissolved	7439-89-6	1	6.27	20.0	<b>680</b>	ug/L	
Lead, Dissolved	7439-92-1	1	0.0680	0.100	ND	ug/L	U

Instrument: ICPMS2 Analyst: MCB Analyzed: 01/30/2020 20:30

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 20A0325-12 A 01  
Preparation Batch: BIA0571 Sample Size: 25 mL  
Prepared: 28-Jan-2020 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	2	0.170	1.00	<b>209</b>	ug/L	D



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Reported:  
11-Feb-2020 09:22

**MW-106-012420**  
**20A0325-12 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6020A UCT-KED Sampled: 01/24/2020 12:25  
Instrument: ICPMS1 Analyst: MCB Analyzed: 01/29/2020 22:43

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 20A0325-12 A 01  
Preparation Batch: BIA0571 Sample Size: 25 mL  
Prepared: 28-Jan-2020 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	<b>1.14</b>	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	<b>0.194</b>	ug/L	
Copper, Dissolved	7440-50-8	1	0.340	0.500	<b>1.34</b>	ug/L	

Instrument: ICPMS2 Analyst: MCB Analyzed: 01/30/2020 20:30

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 20A0325-12 A 01  
Preparation Batch: BIA0571 Sample Size: 25 mL  
Prepared: 28-Jan-2020 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nickel, Dissolved	7440-02-0	2	0.100	1.00	<b>4.57</b>	ug/L	D
Zinc, Dissolved	7440-66-6	2	1.88	8.00	<b>288</b>	ug/L	D



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11-Feb-2020 09:22

**MW-106-012420**  
**20A0325-12 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 7470A	Preparation Method: TLM EPA 7470A low level	Sampled: 01/24/2020 12:25
Instrument: HYDRA Analyst: JPK	Preparation Batch: BIB0116	Analyzed: 02/07/2020 16:59
Sample Preparation:	Prepared: 06-Feb-2020	Extract ID: 20A0325-12 A
	Sample Size: 20 mL	
	Final Volume: 20 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000010	0.000020	ND	mg/L	U



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11-Feb-2020 09:22

**Trip Blank**  
**20A0325-13 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 01/24/2020 09:25

Instrument: NT2 Analyst: PKC

Analyzed: 01/27/2020 11:13

Sample Preparation:

Preparation Method: EPA 5030 (Purge and Trap)

Extract ID: 20A0325-13 C

Preparation Batch: BIA0521

Sample Size: 10 mL

Prepared: 27-Jan-2020

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.09	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.06	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	0.25	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.09	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.04	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.48	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.04	0.20	ND	ug/L	U
Acetone	67-64-1	1	2.06	5.00	7.55	ug/L	
1,1-Dichloroethene	75-35-4	1	0.05	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.04	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.23	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.49	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.60	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.04	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.05	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.07	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.05	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	0.81	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.05	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.04	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.03	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.06	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.04	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.03	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.04	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.07	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.03	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.05	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.04	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.05	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.15	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.25	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	0.97	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.06	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.08	0.20	ND	ug/L	U



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Reported:  
11-Feb-2020 09:22

**Trip Blank**  
**20A0325-13 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 01/24/2020 09:25

Instrument: NT2 Analyst: PKC

Analyzed: 01/27/2020 11:13

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	0.90	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.13	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.06	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.05	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.05	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.07	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.02	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.09	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.05	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.06	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.06	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.13	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.32	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.02	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.06	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.02	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.02	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.02	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.03	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.02	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.02	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.02	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.03	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.04	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.04	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.02	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.04	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.37	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.11	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.07	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.12	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.11	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.05	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.07	0.50	ND	ug/L	U
2-Pentanone	107-87-9	1	5.00	5.00	ND	ug/L	U



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Project: South Park Landfill  
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Reported:  
11-Feb-2020 09:22

**Trip Blank**  
**20A0325-13 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260C

Sampled: 01/24/2020 09:25

Instrument: NT2 Analyst: PKC

Analyzed: 01/27/2020 11:13

Analyte	CAS Number	Recovery		Units	Notes
		Limits	Recovery		
Surrogate: 1,2-Dichloroethane-d4		80-129 %	98.3	%	
Surrogate: Toluene-d8		80-120 %	98.3	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	94.7	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	105	%	



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11-Feb-2020 09:22

**Trip Blank**  
**20A0325-13 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 01/24/2020 09:25  
Instrument: NT2 Analyst: PKC Analyzed: 01/27/2020 11:13  
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) Extract ID: 20A0325-13 C  
Preparation Batch: BIA0521 Sample Size: 10 mL  
Prepared: 27-Jan-2020 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	98.3	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	94.7	%	





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11-Feb-2020 09:22

### Volatile Organic Compounds - Quality Control

#### Batch BIA0521 - EPA 5030 (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BIA0521-BLK1)</b>		Prepared: 27-Jan-2020 Analyzed: 27-Jan-2020 10:33								
Gasoline Range Organics (Tol-Nap)	ND	100	ug/L							U
Surrogate: Toluene-d8	4.70		ug/L	5.00		93.9	80-120			
Surrogate: 4-Bromofluorobenzene	5.24		ug/L	5.00		105	80-120			
<b>Blank (BIA0521-BLK2)</b>		Prepared: 27-Jan-2020 Analyzed: 27-Jan-2020 10:33								
Chloromethane	ND	0.09	0.50	ug/L						U
Vinyl Chloride	ND	0.06	0.20	ug/L						U
Bromomethane	ND	0.25	1.00	ug/L						U
Chloroethane	ND	0.09	0.20	ug/L						U
Trichlorofluoromethane	ND	0.04	0.20	ug/L						U
Acrolein	ND	2.48	5.00	ug/L						U
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.04	0.20	ug/L						U
Acetone	ND	2.06	5.00	ug/L						U
1,1-Dichloroethene	ND	0.05	0.20	ug/L						U
Bromoethane	ND	0.04	0.20	ug/L						U
Iodomethane	ND	0.23	1.00	ug/L						U
Methylene Chloride	ND	0.49	1.00	ug/L						U
Acrylonitrile	ND	0.60	1.00	ug/L						U
Carbon Disulfide	ND	0.04	0.20	ug/L						U
trans-1,2-Dichloroethene	ND	0.05	0.20	ug/L						U
Vinyl Acetate	ND	0.07	0.20	ug/L						U
1,1-Dichloroethane	ND	0.05	0.20	ug/L						U
2-Butanone	ND	0.81	5.00	ug/L						U
2,2-Dichloropropane	ND	0.05	0.20	ug/L						U
cis-1,2-Dichloroethene	ND	0.04	0.20	ug/L						U
Chloroform	ND	0.03	0.20	ug/L						U
Bromochloromethane	ND	0.06	0.20	ug/L						U
1,1,1-Trichloroethane	ND	0.04	0.20	ug/L						U
1,1-Dichloropropene	ND	0.03	0.20	ug/L						U
Carbon tetrachloride	ND	0.04	0.20	ug/L						U
1,2-Dichloroethane	ND	0.07	0.20	ug/L						U
Benzene	ND	0.03	0.20	ug/L						U
Trichloroethene	ND	0.05	0.20	ug/L						U
1,2-Dichloropropane	ND	0.04	0.20	ug/L						U
Bromodichloromethane	ND	0.05	0.20	ug/L						U



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11-Feb-2020 09:22

### Volatile Organic Compounds - Quality Control

#### Batch BIA0521 - EPA 5030 (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BIA0521-BLK2)</b>						Prepared: 27-Jan-2020 Analyzed: 27-Jan-2020 10:33					
Dibromomethane	ND	0.15	0.20	ug/L							U
2-Chloroethyl vinyl ether	ND	0.25	1.00	ug/L							U
4-Methyl-2-Pentanone	ND	0.97	5.00	ug/L							U
cis-1,3-Dichloropropene	ND	0.06	0.20	ug/L							U
Toluene	ND	0.04	0.20	ug/L							U
trans-1,3-Dichloropropene	ND	0.08	0.20	ug/L							U
2-Hexanone	ND	0.90	5.00	ug/L							U
1,1,2-Trichloroethane	ND	0.13	0.20	ug/L							U
1,3-Dichloropropane	ND	0.06	0.20	ug/L							U
Tetrachloroethene	ND	0.05	0.20	ug/L							U
Dibromochloromethane	ND	0.05	0.20	ug/L							U
1,2-Dibromoethane	ND	0.07	0.20	ug/L							U
Chlorobenzene	ND	0.02	0.20	ug/L							U
Ethylbenzene	ND	0.04	0.20	ug/L							U
1,1,1,2-Tetrachloroethane	ND	0.04	0.20	ug/L							U
m,p-Xylene	ND	0.05	0.40	ug/L							U
o-Xylene	ND	0.03	0.20	ug/L							U
Xylenes, total	ND	0.09	0.60	ug/L							U
Styrene	ND	0.05	0.20	ug/L							U
Bromoform	ND	0.06	0.20	ug/L							U
1,1,1,2-Tetrachloroethane	ND	0.06	0.20	ug/L							U
1,2,3-Trichloropropane	ND	0.13	0.50	ug/L							U
trans-1,4-Dichloro 2-Butene	ND	0.32	1.00	ug/L							U
n-Propylbenzene	ND	0.02	0.20	ug/L							U
Bromobenzene	ND	0.06	0.20	ug/L							U
Isopropyl Benzene	ND	0.02	0.20	ug/L							U
2-Chlorotoluene	ND	0.02	0.20	ug/L							U
4-Chlorotoluene	ND	0.02	0.20	ug/L							U
t-Butylbenzene	ND	0.03	0.20	ug/L							U
1,3,5-Trimethylbenzene	ND	0.02	0.20	ug/L							U
1,2,4-Trimethylbenzene	ND	0.02	0.20	ug/L							U
s-Butylbenzene	ND	0.02	0.20	ug/L							U
4-Isopropyl Toluene	ND	0.03	0.20	ug/L							U
1,3-Dichlorobenzene	ND	0.04	0.20	ug/L							U
1,4-Dichlorobenzene	ND	0.04	0.20	ug/L							U



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Seattle WA, 98124-4018

Project: South Park Landfill  
Project Number: South Park Landfill  
Project Manager: Jeff Neuner

Reported:  
11-Feb-2020 09:22

**Volatile Organic Compounds - Quality Control**

**Batch BIA0521 - EPA 5030 (Purge and Trap)**

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BIA0521-BLK2)</b>											
						Prepared: 27-Jan-2020 Analyzed: 27-Jan-2020 10:33					
n-Butylbenzene	ND	0.02	0.20	ug/L							U
1,2-Dichlorobenzene	ND	0.04	0.20	ug/L							U
1,2-Dibromo-3-chloropropane	ND	0.37	0.50	ug/L							U
1,2,4-Trichlorobenzene	ND	0.11	0.50	ug/L							U
Hexachloro-1,3-Butadiene	0.13	0.07	0.50	ug/L							J
Naphthalene	ND	0.12	0.50	ug/L							U
1,2,3-Trichlorobenzene	ND	0.11	0.50	ug/L							U
Dichlorodifluoromethane	ND	0.05	0.20	ug/L							U
Methyl tert-butyl Ether	ND	0.07	0.50	ug/L							U
2-Pentanone	ND	5.00	5.00	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	3.99			ug/L	5.00		79.7	80-129			*
Surrogate: Toluene-d8	4.70			ug/L	5.00		93.9	80-120			
Surrogate: 4-Bromofluorobenzene	5.24			ug/L	5.00		105	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	5.24			ug/L	5.00		105	80-120			
<b>LCS (BIA0521-BS1)</b>											
						Prepared: 27-Jan-2020 Analyzed: 27-Jan-2020 08:29					
Gasoline Range Organics (Tol-Nap)	1090		100	ug/L	1000		109	72-128			
Surrogate: Toluene-d8	4.88			ug/L	5.00		97.6	80-120			
Surrogate: 4-Bromofluorobenzene	5.78			ug/L	5.00		116	80-120			
<b>LCS (BIA0521-BS2)</b>											
						Prepared: 27-Jan-2020 Analyzed: 27-Jan-2020 09:09					
Chloromethane	6.09	0.09	0.50	ug/L	10.0		60.9	60-138			Q
Vinyl Chloride	8.66	0.06	0.20	ug/L	10.0		86.6	66-133			
Bromomethane	8.16	0.25	1.00	ug/L	10.0		81.6	72-131			
Chloroethane	9.12	0.09	0.20	ug/L	10.0		91.2	60-155			
Trichlorofluoromethane	9.40	0.04	0.20	ug/L	10.0		94.0	80-129			
Acrolein	41.1	2.48	5.00	ug/L	50.0		82.3	52-144			
1,1,2-Trichloro-1,2,2-Trifluoroethane	8.73	0.04	0.20	ug/L	10.0		87.3	76-129			
Acetone	41.0	2.06	5.00	ug/L	50.0		82.0	58-142			
1,1-Dichloroethene	8.45	0.05	0.20	ug/L	10.0		84.5	69-135			
Bromoethane	9.27	0.04	0.20	ug/L	10.0		92.7	78-128			
Iodomethane	8.66	0.23	1.00	ug/L	10.0		86.6	56-147			
Methylene Chloride	8.46	0.49	1.00	ug/L	10.0		84.6	65-135			
Acrylonitrile	8.34	0.60	1.00	ug/L	10.0		83.4	64-134			
Carbon Disulfide	8.73	0.04	0.20	ug/L	10.0		87.3	78-125			



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Reported:  
11-Feb-2020 09:22

### Volatile Organic Compounds - Quality Control

#### Batch BIA0521 - EPA 5030 (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BIA0521-BS2)</b>						Prepared: 27-Jan-2020 Analyzed: 27-Jan-2020 09:09					
trans-1,2-Dichloroethene	8.49	0.05	0.20	ug/L	10.0		84.9	78-128			
Vinyl Acetate	7.59	0.07	0.20	ug/L	10.0		75.9	55-138			Q
1,1-Dichloroethane	8.70	0.05	0.20	ug/L	10.0		87.0	76-124			
2-Butanone	42.2	0.81	5.00	ug/L	50.0		84.4	61-140			
2,2-Dichloropropane	9.10	0.05	0.20	ug/L	10.0		91.0	78-125			
cis-1,2-Dichloroethene	9.06	0.04	0.20	ug/L	10.0		90.6	80-121			
Chloroform	8.81	0.03	0.20	ug/L	10.0		88.1	80-122			
Bromochloromethane	8.88	0.06	0.20	ug/L	10.0		88.8	80-121			
1,1,1-Trichloroethane	9.03	0.04	0.20	ug/L	10.0		90.3	79-123			
1,1-Dichloropropene	9.46	0.03	0.20	ug/L	10.0		94.6	80-120			
Carbon tetrachloride	9.80	0.04	0.20	ug/L	10.0		98.0	53-137			
1,2-Dichloroethane	8.63	0.07	0.20	ug/L	10.0		86.3	75-123			
Benzene	9.40	0.03	0.20	ug/L	10.0		94.0	80-120			
Trichloroethene	9.74	0.05	0.20	ug/L	10.0		97.4	80-120			
1,2-Dichloropropane	9.22	0.04	0.20	ug/L	10.0		92.2	80-120			
Bromodichloromethane	9.84	0.05	0.20	ug/L	10.0		98.4	80-121			
Dibromomethane	9.54	0.15	0.20	ug/L	10.0		95.4	80-120			
2-Chloroethyl vinyl ether	8.14	0.25	1.00	ug/L	10.0		81.4	74-127			
4-Methyl-2-Pentanone	45.7	0.97	5.00	ug/L	50.0		91.3	67-133			
cis-1,3-Dichloropropene	8.63	0.06	0.20	ug/L	10.0		86.3	80-124			
Toluene	9.55	0.04	0.20	ug/L	10.0		95.5	80-120			
trans-1,3-Dichloropropene	7.85	0.08	0.20	ug/L	10.0		78.5	71-127			Q
2-Hexanone	45.4	0.90	5.00	ug/L	50.0		90.8	69-133			
1,1,1-Trichloroethane	9.52	0.13	0.20	ug/L	10.0		95.2	80-121			
1,3-Dichloropropane	9.43	0.06	0.20	ug/L	10.0		94.3	80-120			
Tetrachloroethene	9.86	0.05	0.20	ug/L	10.0		98.6	80-120			
Dibromochloromethane	9.13	0.05	0.20	ug/L	10.0		91.3	65-135			
1,2-Dibromoethane	9.96	0.07	0.20	ug/L	10.0		99.6	80-121			
Chlorobenzene	9.67	0.02	0.20	ug/L	10.0		96.7	80-120			
Ethylbenzene	9.57	0.04	0.20	ug/L	10.0		95.7	80-120			
1,1,1,2-Tetrachloroethane	10.4	0.04	0.20	ug/L	10.0		104	80-120			
m,p-Xylene	20.5	0.05	0.40	ug/L	20.0		102	80-121			
o-Xylene	10.4	0.03	0.20	ug/L	10.0		104	80-121			
Xylenes, total	30.9	0.09	0.60	ug/L	30.0		103	76-127			
Styrene	10.7	0.05	0.20	ug/L	10.0		107	80-124			



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11-Feb-2020 09:22

### Volatile Organic Compounds - Quality Control

#### Batch BIA0521 - EPA 5030 (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BIA0521-BS2)</b>						Prepared: 27-Jan-2020 Analyzed: 27-Jan-2020 09:09					
Bromoform	8.38	0.06	0.20	ug/L	10.0		83.8	51-134			
1,1,2,2-Tetrachloroethane	9.07	0.06	0.20	ug/L	10.0		90.7	77-123			
1,2,3-Trichloropropane	9.03	0.13	0.50	ug/L	10.0		90.3	76-125			
trans-1,4-Dichloro 2-Butene	8.79	0.32	1.00	ug/L	10.0		87.9	55-129			
n-Propylbenzene	9.93	0.02	0.20	ug/L	10.0		99.3	78-130			
Bromobenzene	9.60	0.06	0.20	ug/L	10.0		96.0	80-120			
Isopropyl Benzene	10.4	0.02	0.20	ug/L	10.0		104	80-128			
2-Chlorotoluene	10.6	0.02	0.20	ug/L	10.0		106	78-122			
4-Chlorotoluene	9.90	0.02	0.20	ug/L	10.0		99.0	80-121			
t-Butylbenzene	10.6	0.03	0.20	ug/L	10.0		106	78-125			
1,3,5-Trimethylbenzene	10.3	0.02	0.20	ug/L	10.0		103	80-129			
1,2,4-Trimethylbenzene	10.6	0.02	0.20	ug/L	10.0		106	80-127			
s-Butylbenzene	10.5	0.02	0.20	ug/L	10.0		105	78-129			
4-Isopropyl Toluene	11.1	0.03	0.20	ug/L	10.0		111	79-130			
1,3-Dichlorobenzene	9.78	0.04	0.20	ug/L	10.0		97.8	80-120			
1,4-Dichlorobenzene	9.65	0.04	0.20	ug/L	10.0		96.5	80-120			
n-Butylbenzene	10.8	0.02	0.20	ug/L	10.0		108	74-129			
1,2-Dichlorobenzene	9.79	0.04	0.20	ug/L	10.0		97.9	80-120			
1,2-Dibromo-3-chloropropane	8.35	0.37	0.50	ug/L	10.0		83.5	62-123			
1,2,4-Trichlorobenzene	11.2	0.11	0.50	ug/L	10.0		112	64-124			
Hexachloro-1,3-Butadiene	10.1	0.07	0.50	ug/L	10.0		101	58-123			
Naphthalene	10.0	0.12	0.50	ug/L	10.0		100	50-134			
1,2,3-Trichlorobenzene	11.1	0.11	0.50	ug/L	10.0		111	49-133			
Dichlorodifluoromethane	8.72	0.05	0.20	ug/L	10.0		87.2	48-147			
Methyl tert-butyl Ether	8.78	0.07	0.50	ug/L	10.0		87.8	71-132			
2-Pentanone	42.3	5.00	5.00	ug/L	50.0		84.7	69-134			
Surrogate: 1,2-Dichloroethane-d4	4.49			ug/L	5.00		89.8	80-129			
Surrogate: Toluene-d8	5.00			ug/L	5.00		100	80-120			
Surrogate: 4-Bromofluorobenzene	5.33			ug/L	5.00		107	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	5.13			ug/L	5.00		103	80-120			
<b>LCS Dup (BIA0521-BSD1)</b>						Prepared: 27-Jan-2020 Analyzed: 27-Jan-2020 08:49					
Gasoline Range Organics (Tol-Nap)	1020		100	ug/L	1000		102	72-128	6.57	30	
Surrogate: Toluene-d8	5.10			ug/L	5.00		102	80-120			



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11-Feb-2020 09:22

### Volatile Organic Compounds - Quality Control

#### Batch BIA0521 - EPA 5030 (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BIA0521-BSD1)</b>					Prepared: 27-Jan-2020 Analyzed: 27-Jan-2020 08:49					
Surrogate: 4-Bromofluorobenzene	5.45		ug/L	5.00		109	80-120			
<b>LCS Dup (BIA0521-BSD2)</b>					Prepared: 27-Jan-2020 Analyzed: 27-Jan-2020 09:30					
Chloromethane	6.25	0.09	0.50	ug/L	10.0	62.5	60-138	2.57	30	Q
Vinyl Chloride	8.51	0.06	0.20	ug/L	10.0	85.1	66-133	1.70	30	
Bromomethane	8.71	0.25	1.00	ug/L	10.0	87.1	72-131	6.45	30	
Chloroethane	9.23	0.09	0.20	ug/L	10.0	92.3	60-155	1.24	30	
Trichlorofluoromethane	9.26	0.04	0.20	ug/L	10.0	92.6	80-129	1.52	30	
Acrolein	42.3	2.48	5.00	ug/L	50.0	84.6	52-144	2.74	30	
1,1,2-Trichloro-1,2,2-Trifluoroethane	8.48	0.04	0.20	ug/L	10.0	84.8	76-129	2.90	30	
Acetone	42.1	2.06	5.00	ug/L	50.0	84.2	58-142	2.62	30	
1,1-Dichloroethene	8.41	0.05	0.20	ug/L	10.0	84.1	69-135	0.45	30	
Bromoethane	9.25	0.04	0.20	ug/L	10.0	92.5	78-128	0.21	30	
Iodomethane	8.58	0.23	1.00	ug/L	10.0	85.8	56-147	0.97	30	
Methylene Chloride	8.59	0.49	1.00	ug/L	10.0	85.9	65-135	1.49	30	
Acrylonitrile	8.51	0.60	1.00	ug/L	10.0	85.1	64-134	1.95	30	
Carbon Disulfide	8.78	0.04	0.20	ug/L	10.0	87.8	78-125	0.56	30	
trans-1,2-Dichloroethene	8.54	0.05	0.20	ug/L	10.0	85.4	78-128	0.55	30	
Vinyl Acetate	7.86	0.07	0.20	ug/L	10.0	78.6	55-138	3.42	30	Q
1,1-Dichloroethane	8.74	0.05	0.20	ug/L	10.0	87.4	76-124	0.41	30	
2-Butanone	43.2	0.81	5.00	ug/L	50.0	86.4	61-140	2.40	30	
2,2-Dichloropropane	9.09	0.05	0.20	ug/L	10.0	90.9	78-125	0.13	30	
cis-1,2-Dichloroethene	9.18	0.04	0.20	ug/L	10.0	91.8	80-121	1.37	30	
Chloroform	8.80	0.03	0.20	ug/L	10.0	88.0	80-122	0.12	30	
Bromochloromethane	8.96	0.06	0.20	ug/L	10.0	89.6	80-121	0.85	30	
1,1,1-Trichloroethane	9.21	0.04	0.20	ug/L	10.0	92.1	79-123	1.98	30	
1,1-Dichloropropene	9.52	0.03	0.20	ug/L	10.0	95.2	80-120	0.55	30	
Carbon tetrachloride	9.91	0.04	0.20	ug/L	10.0	99.1	53-137	1.06	30	
1,2-Dichloroethane	8.67	0.07	0.20	ug/L	10.0	86.7	75-123	0.50	30	
Benzene	9.41	0.03	0.20	ug/L	10.0	94.1	80-120	0.19	30	
Trichloroethene	9.77	0.05	0.20	ug/L	10.0	97.7	80-120	0.30	30	
1,2-Dichloropropane	9.29	0.04	0.20	ug/L	10.0	92.9	80-120	0.71	30	
Bromodichloromethane	10.0	0.05	0.20	ug/L	10.0	100	80-121	1.86	30	
Dibromomethane	9.62	0.15	0.20	ug/L	10.0	96.2	80-120	0.77	30	
2-Chloroethyl vinyl ether	8.17	0.25	1.00	ug/L	10.0	81.7	74-127	0.26	30	



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11-Feb-2020 09:22

### Volatile Organic Compounds - Quality Control

#### Batch BIA0521 - EPA 5030 (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BIA0521-BSD2)</b>						Prepared: 27-Jan-2020 Analyzed: 27-Jan-2020 09:30					
4-Methyl-2-Pentanone	46.5	0.97	5.00	ug/L	50.0		93.1	67-133	1.93	30	
cis-1,3-Dichloropropene	8.77	0.06	0.20	ug/L	10.0		87.7	80-124	1.64	30	
Toluene	9.57	0.04	0.20	ug/L	10.0		95.7	80-120	0.21	30	
trans-1,3-Dichloropropene	7.94	0.08	0.20	ug/L	10.0		79.4	71-127	1.18	30	Q
2-Hexanone	46.8	0.90	5.00	ug/L	50.0		93.6	69-133	2.99	30	
1,1,2-Trichloroethane	9.64	0.13	0.20	ug/L	10.0		96.4	80-121	1.26	30	
1,3-Dichloropropane	9.66	0.06	0.20	ug/L	10.0		96.6	80-120	2.36	30	
Tetrachloroethene	9.89	0.05	0.20	ug/L	10.0		98.9	80-120	0.34	30	
Dibromochloromethane	9.42	0.05	0.20	ug/L	10.0		94.2	65-135	3.13	30	
1,2-Dibromoethane	10.0	0.07	0.20	ug/L	10.0		100	80-121	0.66	30	
Chlorobenzene	9.81	0.02	0.20	ug/L	10.0		98.1	80-120	1.44	30	
Ethylbenzene	9.75	0.04	0.20	ug/L	10.0		97.5	80-120	1.85	30	
1,1,1,2-Tetrachloroethane	10.6	0.04	0.20	ug/L	10.0		106	80-120	2.06	30	
m,p-Xylene	20.7	0.05	0.40	ug/L	20.0		103	80-121	1.05	30	
o-Xylene	10.5	0.03	0.20	ug/L	10.0		105	80-121	1.15	30	
Xylenes, total	31.2	0.09	0.60	ug/L	30.0		104	76-127	1.08	30	
Styrene	10.8	0.05	0.20	ug/L	10.0		108	80-124	1.31	30	
Bromoform	8.58	0.06	0.20	ug/L	10.0		85.8	51-134	2.41	30	
1,1,2,2-Tetrachloroethane	9.19	0.06	0.20	ug/L	10.0		91.9	77-123	1.41	30	
1,2,3-Trichloropropane	8.83	0.13	0.50	ug/L	10.0		88.3	76-125	2.25	30	
trans-1,4-Dichloro 2-Butene	9.12	0.32	1.00	ug/L	10.0		91.2	55-129	3.64	30	
n-Propylbenzene	10.1	0.02	0.20	ug/L	10.0		101	78-130	1.76	30	
Bromobenzene	9.55	0.06	0.20	ug/L	10.0		95.5	80-120	0.46	30	
Isopropyl Benzene	10.6	0.02	0.20	ug/L	10.0		106	80-128	1.81	30	
2-Chlorotoluene	10.7	0.02	0.20	ug/L	10.0		107	78-122	0.59	30	
4-Chlorotoluene	10.1	0.02	0.20	ug/L	10.0		101	80-121	1.75	30	
t-Butylbenzene	10.7	0.03	0.20	ug/L	10.0		107	78-125	0.94	30	
1,3,5-Trimethylbenzene	10.4	0.02	0.20	ug/L	10.0		104	80-129	0.70	30	
1,2,4-Trimethylbenzene	10.6	0.02	0.20	ug/L	10.0		106	80-127	0.10	30	
s-Butylbenzene	10.6	0.02	0.20	ug/L	10.0		106	78-129	1.24	30	
4-Isopropyl Toluene	11.2	0.03	0.20	ug/L	10.0		112	79-130	0.41	30	
1,3-Dichlorobenzene	9.82	0.04	0.20	ug/L	10.0		98.2	80-120	0.36	30	
1,4-Dichlorobenzene	9.64	0.04	0.20	ug/L	10.0		96.4	80-120	0.06	30	
n-Butylbenzene	11.0	0.02	0.20	ug/L	10.0		110	74-129	1.36	30	
1,2-Dichlorobenzene	9.82	0.04	0.20	ug/L	10.0		98.2	80-120	0.35	30	



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Project: South Park Landfill  
Project Number: South Park Landfill  
Project Manager: Jeff Neuner

Reported:  
11-Feb-2020 09:22

**Volatile Organic Compounds - Quality Control**

**Batch BIA0521 - EPA 5030 (Purge and Trap)**

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BIA0521-BSD2)</b>						Prepared: 27-Jan-2020 Analyzed: 27-Jan-2020 09:30					
1,2-Dibromo-3-chloropropane	8.51	0.37	0.50	ug/L	10.0		85.1	62-123	1.83	30	
1,2,4-Trichlorobenzene	11.3	0.11	0.50	ug/L	10.0		113	64-124	1.39	30	
Hexachloro-1,3-Butadiene	11.0	0.07	0.50	ug/L	10.0		110	58-123	7.84	30	
Naphthalene	10.1	0.12	0.50	ug/L	10.0		101	50-134	1.01	30	
1,2,3-Trichlorobenzene	11.3	0.11	0.50	ug/L	10.0		113	49-133	2.27	30	
Dichlorodifluoromethane	8.96	0.05	0.20	ug/L	10.0		89.6	48-147	2.73	30	
Methyl tert-butyl Ether	8.72	0.07	0.50	ug/L	10.0		87.2	71-132	0.67	30	
2-Pentanone	42.1	5.00	5.00	ug/L	50.0		84.2	69-134	0.55	30	
Surrogate: 1,2-Dichloroethane-d4	4.49			ug/L	5.00		89.9	80-129			
Surrogate: Toluene-d8	5.10			ug/L	5.00		102	80-120			
Surrogate: 4-Bromofluorobenzene	5.30			ug/L	5.00		106	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	5.18			ug/L	5.00		104	80-120			





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Project: South Park Landfill  
Project Number: South Park Landfill  
Project Manager: Jeff Neuner

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11-Feb-2020 09:22

### Volatile Organic Compounds - Quality Control

#### Batch BIA0527 - EPA 5030 (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BIA0527-BLK1)</b>											
						Prepared: 27-Jan-2020 Analyzed: 27-Jan-2020 11:19					
Chloromethane	ND	0.09	0.50	ug/L							U
Vinyl Chloride	ND	0.06	0.20	ug/L							U
Bromomethane	ND	0.25	1.00	ug/L							U
Chloroethane	ND	0.09	0.20	ug/L							U
Trichlorofluoromethane	ND	0.04	0.20	ug/L							U
Acrolein	ND	2.48	5.00	ug/L							U
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.04	0.20	ug/L							U
Acetone	ND	2.06	5.00	ug/L							U
1,1-Dichloroethene	ND	0.05	0.20	ug/L							U
Bromoethane	ND	0.04	0.20	ug/L							U
Iodomethane	ND	0.23	1.00	ug/L							U
Methylene Chloride	ND	0.49	1.00	ug/L							U
Acrylonitrile	ND	0.60	1.00	ug/L							U
Carbon Disulfide	ND	0.04	0.20	ug/L							U
trans-1,2-Dichloroethene	ND	0.05	0.20	ug/L							U
Vinyl Acetate	ND	0.07	0.20	ug/L							U
1,1-Dichloroethane	ND	0.05	0.20	ug/L							U
2-Butanone	ND	0.81	5.00	ug/L							U
2,2-Dichloropropane	ND	0.05	0.20	ug/L							U
cis-1,2-Dichloroethene	ND	0.04	0.20	ug/L							U
Chloroform	ND	0.03	0.20	ug/L							U
Bromochloromethane	ND	0.06	0.20	ug/L							U
1,1,1-Trichloroethane	ND	0.04	0.20	ug/L							U
1,1-Dichloropropene	ND	0.03	0.20	ug/L							U
Carbon tetrachloride	ND	0.04	0.20	ug/L							U
1,2-Dichloroethane	ND	0.07	0.20	ug/L							U
Benzene	ND	0.03	0.20	ug/L							U
Trichloroethene	ND	0.05	0.20	ug/L							U
1,2-Dichloropropane	ND	0.04	0.20	ug/L							U
Bromodichloromethane	ND	0.05	0.20	ug/L							U
Dibromomethane	ND	0.15	0.20	ug/L							U
2-Chloroethyl vinyl ether	ND	0.25	1.00	ug/L							U
4-Methyl-2-Pentanone	ND	0.97	5.00	ug/L							U
cis-1,3-Dichloropropene	ND	0.06	0.20	ug/L							U
Toluene	ND	0.04	0.20	ug/L							U



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11-Feb-2020 09:22

**Volatile Organic Compounds - Quality Control**

**Batch BIA0527 - EPA 5030 (Purge and Trap)**

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BIA0527-BLK1)</b>						Prepared: 27-Jan-2020 Analyzed: 27-Jan-2020 11:19					
trans-1,3-Dichloropropene	ND	0.08	0.20	ug/L							U
2-Hexanone	ND	0.90	5.00	ug/L							U
1,1,2-Trichloroethane	ND	0.13	0.20	ug/L							U
1,3-Dichloropropane	ND	0.06	0.20	ug/L							U
Tetrachloroethene	ND	0.05	0.20	ug/L							U
Dibromochloromethane	ND	0.05	0.20	ug/L							U
1,2-Dibromoethane	ND	0.07	0.20	ug/L							U
Chlorobenzene	ND	0.02	0.20	ug/L							U
Ethylbenzene	ND	0.04	0.20	ug/L							U
1,1,1,2-Tetrachloroethane	ND	0.04	0.20	ug/L							U
m,p-Xylene	ND	0.05	0.40	ug/L							U
o-Xylene	ND	0.03	0.20	ug/L							U
Xylenes, total	ND	0.09	0.60	ug/L							U
Styrene	ND	0.05	0.20	ug/L							U
Bromoform	ND	0.06	0.20	ug/L							U
1,1,2,2-Tetrachloroethane	ND	0.06	0.20	ug/L							U
1,2,3-Trichloropropane	ND	0.13	0.50	ug/L							U
trans-1,4-Dichloro 2-Butene	ND	0.32	1.00	ug/L							U
n-Propylbenzene	ND	0.02	0.20	ug/L							U
Bromobenzene	ND	0.06	0.20	ug/L							U
Isopropyl Benzene	ND	0.02	0.20	ug/L							U
2-Chlorotoluene	ND	0.02	0.20	ug/L							U
4-Chlorotoluene	ND	0.02	0.20	ug/L							U
t-Butylbenzene	ND	0.03	0.20	ug/L							U
1,3,5-Trimethylbenzene	ND	0.02	0.20	ug/L							U
1,2,4-Trimethylbenzene	ND	0.02	0.20	ug/L							U
s-Butylbenzene	ND	0.02	0.20	ug/L							U
4-Isopropyl Toluene	ND	0.03	0.20	ug/L							U
1,3-Dichlorobenzene	ND	0.04	0.20	ug/L							U
1,4-Dichlorobenzene	ND	0.04	0.20	ug/L							U
n-Butylbenzene	0.03	0.02	0.20	ug/L							J
1,2-Dichlorobenzene	ND	0.04	0.20	ug/L							U
1,2-Dibromo-3-chloropropane	ND	0.37	0.50	ug/L							U
1,2,4-Trichlorobenzene	ND	0.11	0.50	ug/L							U
Hexachloro-1,3-Butadiene	0.15	0.07	0.50	ug/L							J



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### Volatile Organic Compounds - Quality Control

#### Batch BIA0527 - EPA 5030 (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BIA0527-BLK1)</b>											
						Prepared: 27-Jan-2020 Analyzed: 27-Jan-2020 11:19					
Naphthalene	0.13	0.12	0.50	ug/L							J
1,2,3-Trichlorobenzene	ND	0.11	0.50	ug/L							U
Dichlorodifluoromethane	ND	0.05	0.20	ug/L							U
Methyl tert-butyl Ether	ND	0.07	0.50	ug/L							U
2-Pentanone	ND	5.00	5.00	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5.16			ug/L	5.00		103	80-129			
Surrogate: Toluene-d8	5.04			ug/L	5.00		101	80-120			
Surrogate: 4-Bromofluorobenzene	4.94			ug/L	5.00		98.9	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	4.99			ug/L	5.00		99.9	80-120			

#### LCS (BIA0527-BS1)

						Prepared: 27-Jan-2020 Analyzed: 27-Jan-2020 09:55					
Chloromethane	9.01	0.09	0.50	ug/L	10.0		90.1	60-138			
Vinyl Chloride	11.8	0.06	0.20	ug/L	10.0		118	66-133			
Bromomethane	10.5	0.25	1.00	ug/L	10.0		105	72-131			
Chloroethane	11.3	0.09	0.20	ug/L	10.0		113	60-155			
Trichlorofluoromethane	11.6	0.04	0.20	ug/L	10.0		116	80-129			
Acrolein	56.7	2.48	5.00	ug/L	50.0		113	52-144			
1,1,2-Trichloro-1,2,2-Trifluoroethane	11.1	0.04	0.20	ug/L	10.0		111	76-129			
Acetone	49.0	2.06	5.00	ug/L	50.0		98.0	58-142			
1,1-Dichloroethene	10.6	0.05	0.20	ug/L	10.0		106	69-135			
Bromoethane	11.0	0.04	0.20	ug/L	10.0		110	78-128			
Iodomethane	10.7	0.23	1.00	ug/L	10.0		107	56-147			
Methylene Chloride	10.2	0.49	1.00	ug/L	10.0		102	65-135			
Acrylonitrile	10.6	0.60	1.00	ug/L	10.0		106	64-134			
Carbon Disulfide	12.1	0.04	0.20	ug/L	10.0		121	78-125			Q
trans-1,2-Dichloroethene	10.5	0.05	0.20	ug/L	10.0		105	78-128			
Vinyl Acetate	10.8	0.07	0.20	ug/L	10.0		108	55-138			
1,1-Dichloroethane	10.7	0.05	0.20	ug/L	10.0		107	76-124			
2-Butanone	50.7	0.81	5.00	ug/L	50.0		101	61-140			
2,2-Dichloropropane	11.3	0.05	0.20	ug/L	10.0		113	78-125			
cis-1,2-Dichloroethene	10.2	0.04	0.20	ug/L	10.0		102	80-121			
Chloroform	10.4	0.03	0.20	ug/L	10.0		104	80-122			
Bromochloromethane	10.0	0.06	0.20	ug/L	10.0		100	80-121			
1,1,1-Trichloroethane	10.3	0.04	0.20	ug/L	10.0		103	79-123			
1,1-Dichloropropene	10.2	0.03	0.20	ug/L	10.0		102	80-120			



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Reported:  
11-Feb-2020 09:22

### Volatile Organic Compounds - Quality Control

#### Batch BIA0527 - EPA 5030 (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BIA0527-BS1)</b>						Prepared: 27-Jan-2020 Analyzed: 27-Jan-2020 09:55					
Carbon tetrachloride	10.8	0.04	0.20	ug/L	10.0		108	53-137			
1,2-Dichloroethane	9.67	0.07	0.20	ug/L	10.0		96.7	75-123			
Benzene	10.4	0.03	0.20	ug/L	10.0		104	80-120			
Trichloroethene	10.0	0.05	0.20	ug/L	10.0		100	80-120			
1,2-Dichloropropane	10.4	0.04	0.20	ug/L	10.0		104	80-120			
Bromodichloromethane	10.2	0.05	0.20	ug/L	10.0		102	80-121			
Dibromomethane	9.44	0.15	0.20	ug/L	10.0		94.4	80-120			
2-Chloroethyl vinyl ether	8.49	0.25	1.00	ug/L	10.0		84.9	74-127			
4-Methyl-2-Pentanone	49.2	0.97	5.00	ug/L	50.0		98.4	67-133			
cis-1,3-Dichloropropene	10.8	0.06	0.20	ug/L	10.0		108	80-124			
Toluene	10.0	0.04	0.20	ug/L	10.0		100	80-120			
trans-1,3-Dichloropropene	10.3	0.08	0.20	ug/L	10.0		103	71-127			
2-Hexanone	47.6	0.90	5.00	ug/L	50.0		95.3	69-133			
1,1,2-Trichloroethane	9.85	0.13	0.20	ug/L	10.0		98.5	80-121			
1,3-Dichloropropane	9.23	0.06	0.20	ug/L	10.0		92.3	80-120			
Tetrachloroethene	9.59	0.05	0.20	ug/L	10.0		95.9	80-120			
Dibromochloromethane	10.2	0.05	0.20	ug/L	10.0		102	65-135			
1,2-Dibromoethane	9.53	0.07	0.20	ug/L	10.0		95.3	80-121			
Chlorobenzene	9.63	0.02	0.20	ug/L	10.0		96.3	80-120			
Ethylbenzene	9.80	0.04	0.20	ug/L	10.0		98.0	80-120			
1,1,1,2-Tetrachloroethane	9.95	0.04	0.20	ug/L	10.0		99.5	80-120			
m,p-Xylene	19.3	0.05	0.40	ug/L	20.0		96.3	80-121			
o-Xylene	9.78	0.03	0.20	ug/L	10.0		97.8	80-121			
Xylenes, total	29.0	0.09	0.60	ug/L	30.0		96.8	76-127			
Styrene	10.2	0.05	0.20	ug/L	10.0		102	80-124			
Bromoform	9.31	0.06	0.20	ug/L	10.0		93.1	51-134			
1,1,1,2-Tetrachloroethane	9.02	0.06	0.20	ug/L	10.0		90.2	77-123			
1,2,3-Trichloropropane	8.04	0.13	0.50	ug/L	10.0		80.4	76-125			
trans-1,4-Dichloro 2-Butene	9.89	0.32	1.00	ug/L	10.0		98.9	55-129			
n-Propylbenzene	10.0	0.02	0.20	ug/L	10.0		100	78-130			
Bromobenzene	9.00	0.06	0.20	ug/L	10.0		90.0	80-120			
Isopropyl Benzene	9.86	0.02	0.20	ug/L	10.0		98.6	80-128			
2-Chlorotoluene	9.63	0.02	0.20	ug/L	10.0		96.3	78-122			
4-Chlorotoluene	9.49	0.02	0.20	ug/L	10.0		94.9	80-121			
t-Butylbenzene	10.0	0.03	0.20	ug/L	10.0		100	78-125			



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Project: South Park Landfill  
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Reported:  
11-Feb-2020 09:22

### Volatile Organic Compounds - Quality Control

#### Batch BIA0527 - EPA 5030 (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BIA0527-BS1)</b>						Prepared: 27-Jan-2020 Analyzed: 27-Jan-2020 09:55					
1,3,5-Trimethylbenzene	9.96	0.02	0.20	ug/L	10.0		99.6	80-129			
1,2,4-Trimethylbenzene	9.90	0.02	0.20	ug/L	10.0		99.0	80-127			
s-Butylbenzene	10.1	0.02	0.20	ug/L	10.0		101	78-129			
4-Isopropyl Toluene	9.92	0.03	0.20	ug/L	10.0		99.2	79-130			
1,3-Dichlorobenzene	9.45	0.04	0.20	ug/L	10.0		94.5	80-120			
1,4-Dichlorobenzene	9.46	0.04	0.20	ug/L	10.0		94.6	80-120			
n-Butylbenzene	10.3	0.02	0.20	ug/L	10.0		103	74-129			
1,2-Dichlorobenzene	9.22	0.04	0.20	ug/L	10.0		92.2	80-120			
1,2-Dibromo-3-chloropropane	9.19	0.37	0.50	ug/L	10.0		91.9	62-123			
1,2,4-Trichlorobenzene	9.68	0.11	0.50	ug/L	10.0		96.8	64-124			
Hexachloro-1,3-Butadiene	12.5	0.07	0.50	ug/L	10.0		125	58-123			Q
Naphthalene	9.21	0.12	0.50	ug/L	10.0		92.1	50-134			
1,2,3-Trichlorobenzene	9.03	0.11	0.50	ug/L	10.0		90.3	49-133			
Dichlorodifluoromethane	13.2	0.05	0.20	ug/L	10.0		132	48-147			Q
Methyl tert-butyl Ether	10.1	0.07	0.50	ug/L	10.0		101	71-132			
2-Pentanone	46.7	5.00	5.00	ug/L	50.0		93.3	69-134			
<hr/>											
Surrogate: 1,2-Dichloroethane-d4	5.01			ug/L	5.00		100	80-129			
Surrogate: Toluene-d8	5.11			ug/L	5.00		102	80-120			
Surrogate: 4-Bromofluorobenzene	5.01			ug/L	5.00		100	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	5.20			ug/L	5.00		104	80-120			
<b>LCS Dup (BIA0527-BSD1)</b>						Prepared: 27-Jan-2020 Analyzed: 27-Jan-2020 10:23					
Chloromethane	8.28	0.09	0.50	ug/L	10.0		82.8	60-138	8.43	30	
Vinyl Chloride	11.1	0.06	0.20	ug/L	10.0		111	66-133	6.04	30	
Bromomethane	9.66	0.25	1.00	ug/L	10.0		96.6	72-131	7.92	30	
Chloroethane	10.4	0.09	0.20	ug/L	10.0		104	60-155	8.12	30	
Trichlorofluoromethane	9.76	0.04	0.20	ug/L	10.0		97.6	80-129	17.40	30	
Acrolein	53.6	2.48	5.00	ug/L	50.0		107	52-144	5.63	30	
1,1,2-Trichloro-1,2,2-Trifluoroethane	10.4	0.04	0.20	ug/L	10.0		104	76-129	6.20	30	
Acetone	47.9	2.06	5.00	ug/L	50.0		95.7	58-142	2.39	30	
1,1-Dichloroethene	10.1	0.05	0.20	ug/L	10.0		101	69-135	4.82	30	
Bromoethane	10.4	0.04	0.20	ug/L	10.0		104	78-128	5.49	30	
Iodomethane	9.94	0.23	1.00	ug/L	10.0		99.4	56-147	7.14	30	
Methylene Chloride	9.83	0.49	1.00	ug/L	10.0		98.3	65-135	3.27	30	
Acrylonitrile	11.0	0.60	1.00	ug/L	10.0		110	64-134	3.59	30	



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### Volatile Organic Compounds - Quality Control

#### Batch BIA0527 - EPA 5030 (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BIA0527-BSD1)</b>						Prepared: 27-Jan-2020 Analyzed: 27-Jan-2020 10:23					
Carbon Disulfide	11.5	0.04	0.20	ug/L	10.0	115	78-125	5.43	30	Q	
trans-1,2-Dichloroethene	9.62	0.05	0.20	ug/L	10.0	96.2	78-128	8.54	30		
Vinyl Acetate	10.3	0.07	0.20	ug/L	10.0	103	55-138	5.03	30		
1,1-Dichloroethane	9.93	0.05	0.20	ug/L	10.0	99.3	76-124	7.28	30		
2-Butanone	50.2	0.81	5.00	ug/L	50.0	100	61-140	1.00	30		
2,2-Dichloropropane	10.2	0.05	0.20	ug/L	10.0	102	78-125	10.40	30		
cis-1,2-Dichloroethene	9.83	0.04	0.20	ug/L	10.0	98.3	80-121	3.30	30		
Chloroform	9.72	0.03	0.20	ug/L	10.0	97.2	80-122	6.39	30		
Bromochloromethane	9.45	0.06	0.20	ug/L	10.0	94.5	80-121	5.98	30		
1,1,1-Trichloroethane	9.88	0.04	0.20	ug/L	10.0	98.8	79-123	4.30	30		
1,1-Dichloropropene	9.68	0.03	0.20	ug/L	10.0	96.8	80-120	4.92	30		
Carbon tetrachloride	10.2	0.04	0.20	ug/L	10.0	102	53-137	5.80	30		
1,2-Dichloroethane	9.46	0.07	0.20	ug/L	10.0	94.6	75-123	2.18	30		
Benzene	9.78	0.03	0.20	ug/L	10.0	97.8	80-120	6.03	30		
Trichloroethene	9.57	0.05	0.20	ug/L	10.0	95.7	80-120	4.37	30		
1,2-Dichloropropane	9.87	0.04	0.20	ug/L	10.0	98.7	80-120	5.24	30		
Bromodichloromethane	9.90	0.05	0.20	ug/L	10.0	99.0	80-121	2.95	30		
Dibromomethane	9.16	0.15	0.20	ug/L	10.0	91.6	80-120	2.98	30		
2-Chloroethyl vinyl ether	8.99	0.25	1.00	ug/L	10.0	89.9	74-127	5.77	30		
4-Methyl-2-Pentanone	49.9	0.97	5.00	ug/L	50.0	99.9	67-133	1.48	30		
cis-1,3-Dichloropropene	10.3	0.06	0.20	ug/L	10.0	103	80-124	4.56	30		
Toluene	9.71	0.04	0.20	ug/L	10.0	97.1	80-120	3.33	30		
trans-1,3-Dichloropropene	10.2	0.08	0.20	ug/L	10.0	102	71-127	0.67	30		
2-Hexanone	49.4	0.90	5.00	ug/L	50.0	98.8	69-133	3.61	30		
1,1,2-Trichloroethane	9.74	0.13	0.20	ug/L	10.0	97.4	80-121	1.06	30		
1,3-Dichloropropane	9.07	0.06	0.20	ug/L	10.0	90.7	80-120	1.72	30		
Tetrachloroethene	9.16	0.05	0.20	ug/L	10.0	91.6	80-120	4.54	30		
Dibromochloromethane	10.0	0.05	0.20	ug/L	10.0	100	65-135	2.32	30		
1,2-Dibromoethane	9.57	0.07	0.20	ug/L	10.0	95.7	80-121	0.49	30		
Chlorobenzene	9.22	0.02	0.20	ug/L	10.0	92.2	80-120	4.32	30		
Ethylbenzene	9.37	0.04	0.20	ug/L	10.0	93.7	80-120	4.45	30		
1,1,1,2-Tetrachloroethane	9.82	0.04	0.20	ug/L	10.0	98.2	80-120	1.38	30		
m,p-Xylene	18.7	0.05	0.40	ug/L	20.0	93.6	80-121	2.84	30		
o-Xylene	9.48	0.03	0.20	ug/L	10.0	94.8	80-121	3.03	30		
Xylenes, total	28.2	0.09	0.60	ug/L	30.0	94.0	76-127	2.90	30		



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Project: South Park Landfill  
Project Number: South Park Landfill  
Project Manager: Jeff Neuner

Reported:  
11-Feb-2020 09:22

### Volatile Organic Compounds - Quality Control

#### Batch BIA0527 - EPA 5030 (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BIA0527-BSD1)</b>						Prepared: 27-Jan-2020 Analyzed: 27-Jan-2020 10:23					
Styrene	9.69	0.05	0.20	ug/L	10.0		96.9	80-124	4.92	30	
Bromoform	9.01	0.06	0.20	ug/L	10.0		90.1	51-134	3.34	30	
1,1,2,2-Tetrachloroethane	9.12	0.06	0.20	ug/L	10.0		91.2	77-123	1.11	30	
1,2,3-Trichloropropane	8.36	0.13	0.50	ug/L	10.0		83.6	76-125	3.84	30	
trans-1,4-Dichloro 2-Butene	9.50	0.32	1.00	ug/L	10.0		95.0	55-129	3.99	30	
n-Propylbenzene	9.42	0.02	0.20	ug/L	10.0		94.2	78-130	6.03	30	
Bromobenzene	8.64	0.06	0.20	ug/L	10.0		86.4	80-120	4.05	30	
Isopropyl Benzene	9.33	0.02	0.20	ug/L	10.0		93.3	80-128	5.46	30	
2-Chlorotoluene	9.24	0.02	0.20	ug/L	10.0		92.4	78-122	4.12	30	
4-Chlorotoluene	9.07	0.02	0.20	ug/L	10.0		90.7	80-121	4.59	30	
t-Butylbenzene	9.42	0.03	0.20	ug/L	10.0		94.2	78-125	6.21	30	
1,3,5-Trimethylbenzene	9.42	0.02	0.20	ug/L	10.0		94.2	80-129	5.57	30	
1,2,4-Trimethylbenzene	9.50	0.02	0.20	ug/L	10.0		95.0	80-127	4.14	30	
s-Butylbenzene	9.63	0.02	0.20	ug/L	10.0		96.3	78-129	4.89	30	
4-Isopropyl Toluene	9.51	0.03	0.20	ug/L	10.0		95.1	79-130	4.23	30	
1,3-Dichlorobenzene	8.96	0.04	0.20	ug/L	10.0		89.6	80-120	5.30	30	
1,4-Dichlorobenzene	9.04	0.04	0.20	ug/L	10.0		90.4	80-120	4.48	30	
n-Butylbenzene	9.55	0.02	0.20	ug/L	10.0		95.5	74-129	7.28	30	
1,2-Dichlorobenzene	8.86	0.04	0.20	ug/L	10.0		88.6	80-120	3.92	30	
1,2-Dibromo-3-chloropropane	9.05	0.37	0.50	ug/L	10.0		90.5	62-123	1.55	30	
1,2,4-Trichlorobenzene	9.35	0.11	0.50	ug/L	10.0		93.5	64-124	3.46	30	
Hexachloro-1,3-Butadiene	11.4	0.07	0.50	ug/L	10.0		114	58-123	8.95	30	Q
Naphthalene	9.17	0.12	0.50	ug/L	10.0		91.7	50-134	0.38	30	
1,2,3-Trichlorobenzene	8.99	0.11	0.50	ug/L	10.0		89.9	49-133	0.41	30	
Dichlorodifluoromethane	11.8	0.05	0.20	ug/L	10.0		118	48-147	10.90	30	Q
Methyl tert-butyl Ether	9.56	0.07	0.50	ug/L	10.0		95.6	71-132	5.39	30	
2-Pentanone	47.7	5.00	5.00	ug/L	50.0		95.4	69-134	2.23	30	
Surrogate: 1,2-Dichloroethane-d4	4.90			ug/L	5.00		98.1	80-129			
Surrogate: Toluene-d8	5.24			ug/L	5.00		105	80-120			
Surrogate: 4-Bromofluorobenzene	4.94			ug/L	5.00		98.8	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	5.05			ug/L	5.00		101	80-120			



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11-Feb-2020 09:22

**Volatile Organic Compounds - Quality Control**

**Batch BIA0570 - EPA 5030 (Purge and Trap)**

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BIA0570-BLK1)</b>		Prepared: 28-Jan-2020 Analyzed: 28-Jan-2020 13:51								
Gasoline Range Organics (Tol-Nap)	ND	100	ug/L							U
Surrogate: Toluene-d8	4.91		ug/L	5.00		98.2	80-120			
Surrogate: 4-Bromofluorobenzene	4.69		ug/L	5.00		93.8	80-120			
<b>LCS (BIA0570-BS1)</b>		Prepared: 28-Jan-2020 Analyzed: 28-Jan-2020 08:05								
Gasoline Range Organics (Tol-Nap)	980	100	ug/L	1000		98.0	72-128			
Surrogate: Toluene-d8	5.01		ug/L	5.00		100	80-120			
Surrogate: 4-Bromofluorobenzene	5.06		ug/L	5.00		101	80-120			
<b>LCS Dup (BIA0570-BSD1)</b>		Prepared: 28-Jan-2020 Analyzed: 28-Jan-2020 08:45								
Gasoline Range Organics (Tol-Nap)	1050	100	ug/L	1000		105	72-128	6.74	30	
Surrogate: Toluene-d8	5.08		ug/L	5.00		102	80-120			
Surrogate: 4-Bromofluorobenzene	5.03		ug/L	5.00		101	80-120			





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Semivolatile Organic Compounds - Quality Control

Batch BIA0595 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BIA0595-BLK1)</b>											
						Prepared: 30-Jan-2020 Analyzed: 03-Feb-2020 16:51					
Phenol	ND	0.01	0.2	ug/L							U
bis(2-chloroethyl) ether	ND	0.03	0.2	ug/L							U
2-Chlorophenol	ND	0.03	0.2	ug/L							U
1,3-Dichlorobenzene	ND	0.03	0.2	ug/L							U
1,4-Dichlorobenzene	ND	0.03	0.2	ug/L							U
1,2-Dichlorobenzene	ND	0.03	0.2	ug/L							U
Benzyl Alcohol	ND	0.02	0.2	ug/L							U
2,2'-Oxybis(1-chloropropane)	ND	0.03	0.2	ug/L							U
2-Methylphenol	ND	0.03	0.2	ug/L							U
Hexachloroethane	ND	0.04	0.2	ug/L							U
N-Nitroso-di-n-Propylamine	ND	0.04	0.2	ug/L							U
4-Methylphenol	ND	0.03	0.2	ug/L							U
Nitrobenzene	ND	0.03	0.2	ug/L							U
Isophorone	ND	0.03	0.2	ug/L							U
2-Nitrophenol	ND	0.04	1.0	ug/L							U
2,4-Dimethylphenol	ND	0.3	1.0	ug/L							U
Bis(2-Chloroethoxy)methane	ND	0.03	0.2	ug/L							U
2,4-Dichlorophenol	ND	0.1	1.0	ug/L							U
1,2,4-Trichlorobenzene	ND	0.03	0.2	ug/L							U
Benzoic acid	ND	0.1	2.0	ug/L							U
4-Chloroaniline	ND	0.04	1.0	ug/L							U
Hexachlorobutadiene	ND	0.04	0.2	ug/L							U
4-Chloro-3-Methylphenol	ND	0.1	1.0	ug/L							U
Hexachlorocyclopentadiene	ND	0.1	1.0	ug/L							U
2,4,6-Trichlorophenol	ND	0.2	1.0	ug/L							U
2,4,5-Trichlorophenol	ND	0.1	1.0	ug/L							U
2-Chloronaphthalene	ND	0.03	0.2	ug/L							U
2-Nitroaniline	ND	0.2	1.0	ug/L							U
Dimethylphthalate	ND	0.04	0.2	ug/L							U
2,6-Dinitrotoluene	ND	0.2	1.0	ug/L							U
3-Nitroaniline	ND	0.2	1.0	ug/L							U
2,4-Dinitrophenol	ND	0.2	2.0	ug/L							U
4-Nitrophenol	ND	0.06	1.0	ug/L							U
2,4-Dinitrotoluene	ND	0.1	1.0	ug/L							U
4-Chlorophenylphenyl ether	ND	0.02	0.2	ug/L							U



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Semivolatle Organic Compounds - Quality Control

Batch BIA0595 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BIA0595-BLK1)</b>											
						Prepared: 30-Jan-2020 Analyzed: 03-Feb-2020 16:51					
Diethyl phthalate	ND	0.06	0.2	ug/L							U
4-Nitroaniline	ND	0.2	1.0	ug/L							U
4,6-Dinitro-2-methylphenol	ND	0.4	2.0	ug/L							U
N-Nitrosodiphenylamine	ND	0.03	0.2	ug/L							U
4-Bromophenyl phenyl ether	ND	0.02	0.2	ug/L							U
Hexachlorobenzene	ND	0.04	0.2	ug/L							U
Pentachlorophenol	ND	0.1	1.0	ug/L							U
Carbazole	ND	0.04	0.2	ug/L							U
Di-n-Butylphthalate	ND	0.05	0.2	ug/L							U
Butylbenzylphthalate	ND	0.07	0.2	ug/L							U
3,3'-Dichlorobenzidine	ND	0.3	1.0	ug/L							U
bis(2-Ethylhexyl)phthalate	ND	0.2	0.2	ug/L							U
Di-n-Octylphthalate	ND	0.05	0.2	ug/L							U
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Surrogate: 2-Fluorophenol	3.67			ug/L	7.50		48.9	30-160			
Surrogate: Phenol-d5	1.92			ug/L	7.50		25.5	30-160			*
Surrogate: 2-Chlorophenol-d4	5.52			ug/L	7.50		73.5	30-160			
Surrogate: 1,2-Dichlorobenzene-d4	3.27			ug/L	5.00		65.3	30-160			
Surrogate: Nitrobenzene-d5	3.35			ug/L	5.00		66.9	30-160			
Surrogate: 2-Fluorobiphenyl	3.29			ug/L	5.00		65.8	30-160			
Surrogate: 2,4,6-Tribromophenol	5.45			ug/L	7.50		72.7	30-160			Q
Surrogate: p-Terphenyl-d14	4.01			ug/L	5.00		80.2	30-160			
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<b>LCS (BIA0595-BS1)</b>						Prepared: 30-Jan-2020 Analyzed: 03-Feb-2020 17:27					
Phenol	1.8	0.01	0.2	ug/L	5.00		36.0	30-160			
bis(2-chloroethyl) ether	3.8	0.03	0.2	ug/L	5.00		75.8	30-160			
2-Chlorophenol	3.9	0.03	0.2	ug/L	5.00		78.0	30-160			
1,3-Dichlorobenzene	3.4	0.03	0.2	ug/L	5.00		67.8	30-160			
1,4-Dichlorobenzene	3.3	0.03	0.2	ug/L	5.00		66.8	30-160			
1,2-Dichlorobenzene	3.5	0.03	0.2	ug/L	5.00		70.7	30-160			
Benzyl Alcohol	2.7	0.02	0.2	ug/L	5.00		54.1	30-160			
2,2'-Oxybis(1-chloropropane)	3.4	0.03	0.2	ug/L	5.00		67.3	30-160			
2-Methylphenol	3.5	0.03	0.2	ug/L	5.00		69.4	30-160			
Hexachloroethane	3.0	0.04	0.2	ug/L	5.00		60.2	30-160			
N-Nitroso-di-n-Propylamine	3.8	0.04	0.2	ug/L	5.00		76.4	30-160			
4-Methylphenol	3.6	0.03	0.2	ug/L	5.00		71.3	30-160			



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### Semivolatile Organic Compounds - Quality Control

#### Batch BIA0595 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BIA0595-BS1)</b>						Prepared: 30-Jan-2020 Analyzed: 03-Feb-2020 17:27					
Nitrobenzene	3.3	0.03	0.2	ug/L	5.00		66.1	30-160			
Isophorone	3.8	0.03	0.2	ug/L	5.00		76.8	30-160			
2-Nitrophenol	3.9	0.04	1.0	ug/L	5.00		78.5	30-160			
2,4-Dimethylphenol	9.8	0.3	1.0	ug/L	15.0		65.4	30-160			
Bis(2-Chloroethoxy)methane	3.1	0.03	0.2	ug/L	5.00		62.4	30-160			
2,4-Dichlorophenol	12.5	0.1	1.0	ug/L	15.0		83.4	30-160			Q
1,2,4-Trichlorobenzene	2.9	0.03	0.2	ug/L	5.00		57.5	30-160			
Benzoic acid	6.6	0.1	2.0	ug/L	27.5		23.9	30-160			*
4-Chloroaniline	3.7	0.04	1.0	ug/L	15.0		24.8	30-160			*
Hexachlorobutadiene	2.8	0.04	0.2	ug/L	5.00		55.5	30-160			
4-Chloro-3-Methylphenol	11.3	0.1	1.0	ug/L	15.0		75.5	30-160			
Hexachlorocyclopentadiene	8.1	0.1	1.0	ug/L	15.0		54.2	30-160			
2,4,6-Trichlorophenol	13.0	0.2	1.0	ug/L	15.0		86.7	30-160			
2,4,5-Trichlorophenol	12.9	0.1	1.0	ug/L	15.0		85.9	30-160			
2-Chloronaphthalene	3.9	0.03	0.2	ug/L	5.00		77.4	30-160			
2-Nitroaniline	13.5	0.2	1.0	ug/L	15.0		89.7	30-160			
Dimethylphthalate	4.3	0.04	0.2	ug/L	5.00		86.5	30-160			
2,6-Dinitrotoluene	14.5	0.2	1.0	ug/L	15.0		96.5	30-160			
3-Nitroaniline	13.8	0.2	1.0	ug/L	15.0		92.0	30-160			
2,4-Dinitrophenol	20.2	0.2	2.0	ug/L	27.5		73.6	30-160			
4-Nitrophenol	2.9	0.06	1.0	ug/L	15.0		19.1	30-160			*, Q
2,4-Dinitrotoluene	15.4	0.1	1.0	ug/L	15.0		103	30-160			
4-Chlorophenylphenyl ether	3.9	0.02	0.2	ug/L	5.00		78.7	30-160			
Diethyl phthalate	4.4	0.06	0.2	ug/L	5.00		87.3	30-160			
4-Nitroaniline	13.2	0.2	1.0	ug/L	15.0		87.9	30-160			
4,6-Dinitro-2-methylphenol	23.9	0.4	2.0	ug/L	27.5		86.9	30-160			
N-Nitrosodiphenylamine	5.5	0.03	0.2	ug/L	5.00		110	30-160			
4-Bromophenyl phenyl ether	4.4	0.02	0.2	ug/L	5.00		88.1	30-160			
Hexachlorobenzene	4.2	0.04	0.2	ug/L	5.00		83.1	30-160			
Pentachlorophenol	10.9	0.1	1.0	ug/L	15.0		72.5	30-160			
Carbazole	4.7	0.04	0.2	ug/L	5.00		94.6	30-160			
Di-n-Butylphthalate	4.5	0.05	0.2	ug/L	5.00		90.3	30-160			
Butylbenzylphthalate	4.4	0.07	0.2	ug/L	5.00		88.1	30-160			
3,3'-Dichlorobenzidine	18.8	0.3	1.0	ug/L	15.0		125	30-160			Q
bis(2-Ethylhexyl)phthalate	4.4	0.2	0.2	ug/L	5.00		87.1	30-160			



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Project: South Park Landfill  
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**Semivolatile Organic Compounds - Quality Control**

**Batch BIA0595 - EPA 3510C SepF**

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BIA0595-BS1)</b>						Prepared: 30-Jan-2020 Analyzed: 03-Feb-2020 17:27					
Di-n-Octylphthalate	4.1	0.05	0.2	ug/L	5.00		82.6	30-160			
Surrogate: 2-Fluorophenol	3.96			ug/L	7.50		52.8	30-160			
Surrogate: Phenol-d5	2.53			ug/L	7.50		33.7	30-160			
Surrogate: 2-Chlorophenol-d4	5.98			ug/L	7.50		79.7	30-160			
Surrogate: 1,2-Dichlorobenzene-d4	3.30			ug/L	5.00		66.0	30-160			
Surrogate: Nitrobenzene-d5	3.29			ug/L	5.00		65.7	30-160			
Surrogate: 2-Fluorobiphenyl	3.73			ug/L	5.00		74.6	30-160			
Surrogate: 2,4,6-Tribromophenol	7.44			ug/L	7.50		99.2	30-160			
Surrogate: p-Terphenyl-d14	4.36			ug/L	5.00		87.2	30-160			



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Project: South Park Landfill  
Project Number: South Park Landfill  
Project Manager: Jeff Neuner

Reported:  
11-Feb-2020 09:22

Semivolatile Organic Compounds - SIM - Quality Control

Batch BIA0540 - EPA 3520C (Liq Liq)

Instrument: NT12 Analyst: JZ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BIA0540-BLK1)</b>					Prepared: 30-Jan-2020 Analyzed: 31-Jan-2020 12:42						
1,4-Dioxane	ND	0.04	0.2	ug/L							U
Surrogate: 1,4-Dioxane-d8	6.48			ug/L	10.0	64.8		33.6-120			
<b>LCS (BIA0540-BS1)</b>					Prepared: 30-Jan-2020 Analyzed: 31-Jan-2020 13:07						
1,4-Dioxane	8.2	0.04	0.2	ug/L	10.0	81.7		39.9-120			
Surrogate: 1,4-Dioxane-d8	7.52			ug/L	10.0	75.2		33.6-120			



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11-Feb-2020 09:22

Semivolatile Organic Compounds - SIM - Quality Control

Batch BIA0542 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BIA0542-BLK1)</b>											
						Prepared: 27-Jan-2020 Analyzed: 01-Feb-2020 12:45					
Naphthalene	0.001	0.001	0.010	ug/L							J
2-Methylnaphthalene	ND	0.001	0.010	ug/L							U
1-Methylnaphthalene	ND	0.0009	0.010	ug/L							U
2-Chloronaphthalene	ND	0.001	0.010	ug/L							U
Acenaphthylene	ND	0.002	0.010	ug/L							U
Acenaphthene	ND	0.003	0.010	ug/L							U
Dibenzofuran	ND	0.002	0.010	ug/L							U
Fluorene	ND	0.002	0.010	ug/L							U
Phenanthrene	ND	0.001	0.010	ug/L							U
Anthracene	ND	0.001	0.010	ug/L							U
Carbazole	ND	0.001	0.010	ug/L							U
Fluoranthene	ND	0.002	0.010	ug/L							U
Pyrene	0.002	0.001	0.010	ug/L							J
Benzo(a)anthracene	0.002	0.0008	0.010	ug/L							J
Chrysene	0.002	0.0009	0.010	ug/L							J
Benzo(b)fluoranthene	0.002	0.0005	0.010	ug/L							J
Benzo(k)fluoranthene	ND	0.003	0.010	ug/L							U
Benzo(j)fluoranthene	ND	0.002	0.010	ug/L							U
Benzofluoranthenes, Total	ND	0.004	0.010	ug/L							U
Benzo(a)pyrene	ND	0.002	0.010	ug/L							U
Perylene	ND	0.006	0.010	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	0.001	0.010	ug/L							U
Dibenzo(a,h)anthracene	ND	0.001	0.010	ug/L							U
Benzo(g,h,i)perylene	ND	0.001	0.010	ug/L							U
Surrogate: 2-Methylnaphthalene-d10	0.245			ug/L	0.300		81.8	42-120			
Surrogate: Dibenzo[a,h]anthracene-d14	0.276			ug/L	0.300		91.8	29-120			
Surrogate: Fluoranthene-d10	0.297			ug/L	0.300		99.2	57-120			

LCS (BIA0542-BS1)

Prepared: 27-Jan-2020 Analyzed: 01-Feb-2020 13:14

Naphthalene	0.225	0.001	0.010	ug/L	0.300		74.9	37-120			
2-Methylnaphthalene	0.230	0.001	0.010	ug/L	0.300		76.8	37-120			
1-Methylnaphthalene	0.230	0.0009	0.010	ug/L	0.300		76.7	29-120			
2-Chloronaphthalene	0.221	0.001	0.010	ug/L	0.300		73.6	30-160			
Acenaphthylene	0.247	0.002	0.010	ug/L	0.300		82.5	41-120			
Acenaphthene	0.230	0.003	0.010	ug/L	0.300		76.5	41-120			



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Semivolatile Organic Compounds - SIM - Quality Control

Batch BIA0542 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BIA0542-BS1)</b>						Prepared: 27-Jan-2020 Analyzed: 01-Feb-2020 13:14					
Dibenzofuran	0.234	0.002	0.010	ug/L	0.300		78.0	38-120			
Fluorene	0.247	0.002	0.010	ug/L	0.300		82.4	43-120			
Phenanthrene	0.247	0.001	0.010	ug/L	0.300		82.3	41-120			
Anthracene	0.239	0.001	0.010	ug/L	0.300		79.7	40-120			
Carbazole	0.247	0.001	0.010	ug/L	0.300		82.4	30-160			
Fluoranthene	0.256	0.002	0.010	ug/L	0.300		85.2	45-120			
Pyrene	0.257	0.001	0.010	ug/L	0.300		85.5	41-120			
Benzo(a)anthracene	0.270	0.0008	0.010	ug/L	0.300		90.1	42-120			
Chrysene	0.249	0.0009	0.010	ug/L	0.300		82.9	44-120			
Benzo(b)fluoranthene	0.281	0.0005	0.010	ug/L	0.300		93.7	44-120			
Benzo(k)fluoranthene	0.270	0.003	0.010	ug/L	0.300		89.9	50-120			
Benzo(j)fluoranthene	0.261	0.002	0.010	ug/L	0.300		87.1	39-160			
Benzofluoranthenes, Total	0.812	0.004	0.010	ug/L	0.900		90.2	46-120			
Benzo(a)pyrene	0.251	0.002	0.010	ug/L	0.300		83.8	35-120			
Perylene	0.226	0.006	0.010	ug/L	0.300		75.3	30-160			
Indeno(1,2,3-cd)pyrene	0.264	0.001	0.010	ug/L	0.300		87.9	37-120			
Dibenzo(a,h)anthracene	0.259	0.001	0.010	ug/L	0.300		86.2	34-120			
Benzo(g,h,i)perylene	0.242	0.001	0.010	ug/L	0.300		80.7	38-120			
Surrogate: 2-Methylnaphthalene-d10	0.244			ug/L	0.300		81.3	42-120			
Surrogate: Dibenzo[a,h]anthracene-d14	0.278			ug/L	0.300		92.7	29-120			
Surrogate: Fluoranthene-d10	0.272			ug/L	0.300		90.6	57-120			



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11-Feb-2020 09:22

**Petroleum Hydrocarbons - Quality Control**

**Batch BIA0587 - EPA 3510C SepF**

Instrument: FID4 Analyst: JGR

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BIA0587-BLK1)</b>		Prepared: 30-Jan-2020 Analyzed: 31-Jan-2020 09:46								
Diesel Range Organics (C12-C24)	ND	0.100	mg/L							U
Motor Oil Range Organics (C24-C38)	ND	0.200	mg/L							U
<i>Surrogate: o-Terphenyl</i>	0.198		mg/L	0.225	88.1		50-150			
<b>LCS (BIA0587-BS1)</b>		Prepared: 30-Jan-2020 Analyzed: 31-Jan-2020 10:05								
Diesel Range Organics (C12-C24)	2.62	0.100	mg/L	3.00	87.3		56-120			
<i>Surrogate: o-Terphenyl</i>	0.206		mg/L	0.225	91.4		50-150			





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11-Feb-2020 09:22

**Aroclor PCB - Quality Control**

**Batch BIA0568 - EPA 3510C SepF**

Instrument: ECD7 Analyst: JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BIA0568-BLK1)</b>											
						Prepared: 28-Jan-2020 Analyzed: 30-Jan-2020 13:12					
Aroclor 1016	ND	0.002	0.010	ug/L							U
Aroclor 1221	ND	0.002	0.010	ug/L							U
Aroclor 1232	ND	0.002	0.010	ug/L							U
Aroclor 1242	ND	0.002	0.010	ug/L							U
Aroclor 1248	ND	0.002	0.010	ug/L							U
Aroclor 1254	ND	0.002	0.010	ug/L							U
Aroclor 1260	ND	0.003	0.010	ug/L							U
Aroclor 1262	ND	0.003	0.010	ug/L							U
Aroclor 1268	ND	0.003	0.010	ug/L							U
Surrogate: Decachlorobiphenyl	0.00931			ug/L	0.0200		46.5	29-120			
Surrogate: Tetrachlorometaxylene	0.00996			ug/L	0.0200		49.8	32-120			
Surrogate: Decachlorobiphenyl [2C]	0.00865			ug/L	0.0200		43.2	29-120			
Surrogate: Tetrachlorometaxylene [2C]	0.00975			ug/L	0.0200		48.7	32-120			
<b>LCS (BIA0568-BS1)</b>											
						Prepared: 28-Jan-2020 Analyzed: 30-Jan-2020 13:33					
Aroclor 1016	0.035	0.002	0.010	ug/L	0.0500		69.9	54-120			
Aroclor 1260	0.035	0.003	0.010	ug/L	0.0500		69.5	51-128			
Surrogate: Decachlorobiphenyl	0.00967			ug/L	0.0200		48.4	29-120			
Surrogate: Tetrachlorometaxylene	0.0100			ug/L	0.0200		50.1	32-120			
Surrogate: Decachlorobiphenyl [2C]	0.00910			ug/L	0.0200		45.5	29-120			
Surrogate: Tetrachlorometaxylene [2C]	0.00932			ug/L	0.0200		46.6	32-120			



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**Metals and Metallic Compounds - Quality Control**

**Batch BIA0672 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix**

Instrument: ICPMS2 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BIA0672-BLK1)</b>						Prepared: 31-Jan-2020 Analyzed: 31-Jan-2020 16:37						
Chromium	52	ND	0.130	0.500	ug/L							U
Chromium	53	ND	0.0700	0.500	ug/L							U
Iron	54	ND	6.27	20.0	ug/L							U
Iron	57	1.56	1.40	20.0	ug/L							J
Lead	208	ND	0.0680	0.100	ug/L							U
Manganese	55	ND	0.0850	0.500	ug/L							U
Arsenic	75a	ND	0.0220	0.200	ug/L							U
Cadmium	111	ND	0.0300	0.100	ug/L							U
Cadmium	114	ND	0.0400	0.100	ug/L							U
Copper	63	ND	0.340	0.500	ug/L							U
Copper	65	ND	0.350	0.500	ug/L							U
Nickel	60	ND	0.0500	0.500	ug/L							U
Nickel	62	ND	0.220	0.500	ug/L							U
Zinc	66	1.82	0.820	4.00	ug/L							J
Zinc	67	1.97	0.940	4.00	ug/L							J

<b>LCS (BIA0672-BS1)</b>						Prepared: 31-Jan-2020 Analyzed: 31-Jan-2020 16:42						
Chromium	52	25.7	0.130	0.500	ug/L	25.0		103	80-120			
Chromium	53	24.8	0.0700	0.500	ug/L	25.0		99.3	80-120			
Iron	54	5020	6.27	20.0	ug/L	5000		100	80-120			
Iron	57	5060	1.40	20.0	ug/L	5000		101	80-120			
Lead	208	26.4	0.0680	0.100	ug/L	25.0		106	80-120			
Manganese	55	26.0	0.0850	0.500	ug/L	25.0		104	80-120			
Arsenic	75a	25.0	0.0220	0.200	ug/L	25.0		100	80-120			
Cadmium	111	25.7	0.0300	0.100	ug/L	25.0		103	80-120			
Cadmium	114	25.8	0.0400	0.100	ug/L	25.0		103	80-120			
Copper	63	25.5	0.340	0.500	ug/L	25.0		102	80-120			
Copper	65	25.5	0.350	0.500	ug/L	25.0		102	80-120			
Nickel	60	25.6	0.0500	0.500	ug/L	25.0		102	80-120			
Nickel	62	26.2	0.220	0.500	ug/L	25.0		105	80-120			
Zinc	66	83.9	0.820	4.00	ug/L	80.0		105	80-120			
Zinc	67	78.4	0.940	4.00	ug/L	80.0		98.0	80-120			

<b>Duplicate (BIA0672-DUP1)</b>						Source: 20A0325-01 Prepared: 31-Jan-2020 Analyzed: 31-Jan-2020 21:17						
Chromium	52	ND	0.130	0.500	ug/L		ND					U



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11-Feb-2020 09:22

**Metals and Metallic Compounds - Quality Control**

**Batch BIA0672 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix**

Instrument: ICPMS2 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Duplicate (BIA0672-DUP1)</b>		<b>Source: 20A0325-01</b>			Prepared: 31-Jan-2020 Analyzed: 31-Jan-2020 21:17							
Iron	54	1770	6.27	20.0	ug/L		1790			1.32	20	
Lead	208	0.457	0.0680	0.100	ug/L		0.480			4.91	20	
Manganese	55	34.1	0.0850	0.500	ug/L		34.2			0.32	20	
Arsenic	75a	3.70	0.0220	0.200	ug/L		3.72			0.70	20	
Cadmium	111	0.463	0.0300	0.100	ug/L		0.511			9.86	20	
Copper	63	5.31	0.340	0.500	ug/L		5.31			0.15	20	
Nickel	60	9.25	0.0500	0.500	ug/L		9.29			0.43	20	
Zinc	67	94.2	0.940	4.00	ug/L		95.4			1.24	20	

<b>Matrix Spike (BIA0672-MS1)</b>		<b>Source: 20A0325-01</b>			Prepared: 31-Jan-2020 Analyzed: 31-Jan-2020 21:23							
Chromium	52	21.9	0.130	0.500	ug/L	25.0	ND	87.4	75-125			
Iron	54	5890	6.27	20.0	ug/L	5000	1790	81.9	75-125			
Lead	208	25.0	0.0680	0.100	ug/L	25.0	0.480	98.0	75-125			
Manganese	55	53.4	0.0850	0.500	ug/L	25.0	34.2	77.1	75-125			
Arsenic	75a	28.5	0.0220	0.200	ug/L	25.0	3.72	99.0	75-125			
Cadmium	111	24.5	0.0300	0.100	ug/L	25.0	0.511	96.1	75-125			
Copper	63	29.3	0.340	0.500	ug/L	25.0	5.31	95.8	75-125			
Nickel	60	34.1	0.0500	0.500	ug/L	25.0	9.29	99.1	75-125			
Zinc	67	160	0.940	4.00	ug/L	80.0	95.4	81.0	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.



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11-Feb-2020 09:22

**Metals and Metallic Compounds - Quality Control**

**Batch BIB0115 - TLM EPA 7470A low level**

Instrument: HYDRA Analyst: JPK

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BIB0115-BLK1)</b>						Prepared: 06-Feb-2020 Analyzed: 07-Feb-2020 15:40					
Mercury	0.000011	0.000010	0.000020	mg/L							J
<b>LCS (BIB0115-BS1)</b>						Prepared: 06-Feb-2020 Analyzed: 07-Feb-2020 15:43					
Mercury	0.000181	0.000010	0.000020	mg/L	0.000200		90.7	80-120			
<b>Duplicate (BIB0115-DUP1)</b>						Source: 20A0325-01 Prepared: 06-Feb-2020 Analyzed: 07-Feb-2020 15:49					
Mercury	0.000011	0.000010	0.000020	mg/L		ND					J
<b>Matrix Spike (BIB0115-MS1)</b>						Source: 20A0325-01 Prepared: 06-Feb-2020 Analyzed: 07-Feb-2020 15:52					
Mercury	0.000114	0.000010	0.000020	mg/L	0.000100	ND	114	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.



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11-Feb-2020 09:22

**Metals and Metallic Compounds (dissolved) - Quality Control**

**Batch BIA0571 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix**

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BIA0571-BLK1)</b>												
						Prepared: 28-Jan-2020 Analyzed: 29-Jan-2020 16:06						
Chromium, Dissolved	52	ND	0.130	0.500	ug/L							U
Chromium, Dissolved	53	ND	0.0700	0.500	ug/L							U
Lead, Dissolved	208	ND	0.0680	0.100	ug/L							U
Arsenic, Dissolved	75a	ND	0.0220	0.200	ug/L							U
Cadmium, Dissolved	111	ND	0.0300	0.100	ug/L							U
Cadmium, Dissolved	114	ND	0.0400	0.100	ug/L							U
Copper, Dissolved	63	ND	0.340	0.500	ug/L							U
Copper, Dissolved	65	ND	0.350	0.500	ug/L							U
Zinc, Dissolved	66	1.71	0.820	4.00	ug/L							J
Zinc, Dissolved	67	1.56	0.940	4.00	ug/L							J

<b>Blank (BIA0571-BLK2)</b>												
						Prepared: 28-Jan-2020 Analyzed: 30-Jan-2020 16:59						
Iron, Dissolved	54	ND	6.27	20.0	ug/L							U
Iron, Dissolved	57	ND	1.40	20.0	ug/L							U

<b>LCS (BIA0571-BS1)</b>												
						Prepared: 28-Jan-2020 Analyzed: 29-Jan-2020 16:10						
Chromium, Dissolved	52	25.2	0.130	0.500	ug/L	25.0		101	80-120			
Chromium, Dissolved	53	26.2	0.0700	0.500	ug/L	25.0		105	80-120			
Lead, Dissolved	208	25.5	0.0680	0.100	ug/L	25.0		102	80-120			
Arsenic, Dissolved	75a	24.9	0.0220	0.200	ug/L	25.0		99.6	80-120			
Cadmium, Dissolved	111	24.8	0.0300	0.100	ug/L	25.0		99.2	80-120			
Cadmium, Dissolved	114	24.5	0.0400	0.100	ug/L	25.0		98.1	80-120			
Copper, Dissolved	63	25.5	0.340	0.500	ug/L	25.0		102	80-120			
Copper, Dissolved	65	25.2	0.350	0.500	ug/L	25.0		101	80-120			
Zinc, Dissolved	66	80.9	0.820	4.00	ug/L	80.0		101	80-120			
Zinc, Dissolved	67	74.5	0.940	4.00	ug/L	80.0		93.1	80-120			

<b>LCS (BIA0571-BS2)</b>												
						Prepared: 28-Jan-2020 Analyzed: 30-Jan-2020 17:02						
Iron, Dissolved	54	4890	6.27	20.0	ug/L	5000		97.7	80-120			
Iron, Dissolved	57	4910	1.40	20.0	ug/L	5000		98.3	80-120			

Instrument: ICPMS2 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BIA0571-BLK3)</b>												
						Prepared: 28-Jan-2020 Analyzed: 30-Jan-2020 18:56						



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**Metals and Metallic Compounds (dissolved) - Quality Control**

**Batch BIA0571 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix**

Instrument: ICPMS2 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BIA0571-BLK3)</b>						Prepared: 28-Jan-2020 Analyzed: 30-Jan-2020 18:56						
Manganese, Dissolved	55	ND	0.0850	0.500	ug/L							U
Nickel, Dissolved	60	ND	0.0500	0.500	ug/L							U
Nickel, Dissolved	62	ND	0.220	0.500	ug/L							U
<b>LCS (BIA0571-BS3)</b>						Prepared: 28-Jan-2020 Analyzed: 30-Jan-2020 19:00						
Manganese, Dissolved	55	25.0	0.0850	0.500	ug/L	25.0		100	80-120			
Nickel, Dissolved	60	25.1	0.0500	0.500	ug/L	25.0		101	80-120			
Nickel, Dissolved	62	25.1	0.220	0.500	ug/L	25.0		100	80-120			



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**Metals and Metallic Compounds (dissolved) - Quality Control**

**Batch BIB0116 - TLM EPA 7470A low level**

Instrument: HYDRA Analyst: JPK

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BIB0116-BLK1)</b>						Prepared: 06-Feb-2020 Analyzed: 07-Feb-2020 16:25					
Mercury, Dissolved	0.000011	0.000010	0.000020	mg/L							J
<b>LCS (BIB0116-BS1)</b>						Prepared: 06-Feb-2020 Analyzed: 07-Feb-2020 16:28					
Mercury, Dissolved	0.000180	0.000010	0.000020	mg/L	0.000200		89.9	80-120			
<b>Duplicate (BIB0116-DUP1)</b>						Source: 20A0325-02 Prepared: 06-Feb-2020 Analyzed: 07-Feb-2020 16:34					
Mercury, Dissolved	ND	0.000010	0.000020	mg/L		ND					U
<b>Matrix Spike (BIB0116-MS1)</b>						Source: 20A0325-02 Prepared: 06-Feb-2020 Analyzed: 07-Feb-2020 16:37					
Mercury, Dissolved	0.000102	0.000010	0.000020	mg/L	0.000100	ND	102	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.



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### Certified Analyses included in this Report

Analyte	Certifications
<b>EPA 6020A in Water</b>	
Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
Lead-208	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
Lead-208	NELAP,WADOE,DoD-ELAP,ADEC
<b>EPA 6020A UCT-KED in Water</b>	
Arsenic-75a	WADOE,WA-DW,DoD-ELAP,ADEC,NELAP
Cadmium-111	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,WADOE,DoD-ELAP,ADEC
Copper-63	NELAP,WADOE,DoD-ELAP
Copper-65	NELAP,WADOE,DoD-ELAP
Nickel-60	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-62	NELAP,WADOE,DoD-ELAP,ADEC
Zinc-66	WADOE,WA-DW,DoD-ELAP
Zinc-67	WADOE,WA-DW,DoD-ELAP
Arsenic-75a	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-111	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,WADOE,DoD-ELAP,ADEC
Copper-63	NELAP,WADOE,DoD-ELAP
Copper-65	NELAP,WADOE,DoD-ELAP
Nickel-60	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-62	NELAP,WADOE,DoD-ELAP,ADEC
Zinc-66	NELAP,WADOE,DoD-ELAP
Zinc-67	NELAP,WADOE,DoD-ELAP
<b>EPA 7470A in Water</b>	
Mercury	WADOE,NELAP,DoD-ELAP,CALAP
Mercury	WADOE,NELAP,DoD-ELAP,CALAP





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**EPA 8082A in Water**

Aroclor 1016	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1262	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1262 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1268	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1268 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC

**EPA 8260C in Water**

Chloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acrolein	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromoethane	DoD-ELAP,NELAP,CALAP,WADOE
Iodomethane	DoD-ELAP,NELAP,CALAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,CALAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,CALAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,CALAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Butanone	DoD-ELAP,NELAP,CALAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE



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cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,CALAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,CALAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Styrene	DoD-ELAP,NELAP,CALAP,WADOE
Bromoform	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,CALAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,CALAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE



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1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,CALAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Hexane	WADOE
2-Pentanone	WADOE

**EPA 8270D in Water**

Phenol	NELAP,DoD-ELAP
bis(2-chloroethyl) ether	NELAP,DoD-ELAP
2-Chlorophenol	NELAP,DoD-ELAP
1,3-Dichlorobenzene	NELAP,DoD-ELAP
1,4-Dichlorobenzene	NELAP,DoD-ELAP
1,2-Dichlorobenzene	NELAP,DoD-ELAP
Benzyl Alcohol	NELAP,DoD-ELAP
2,2'-Oxybis(1-chloropropane)	NELAP,DoD-ELAP
2-Methylphenol	NELAP,DoD-ELAP
Hexachloroethane	NELAP,DoD-ELAP
N-Nitroso-di-n-Propylamine	NELAP,DoD-ELAP
4-Methylphenol	NELAP,DoD-ELAP
Nitrobenzene	NELAP,DoD-ELAP
Isophorone	NELAP,DoD-ELAP
2-Nitrophenol	NELAP,DoD-ELAP
2,4-Dimethylphenol	NELAP,DoD-ELAP
Bis(2-Chloroethoxy)methane	NELAP,DoD-ELAP
2,4-Dichlorophenol	NELAP,DoD-ELAP
1,2,4-Trichlorobenzene	NELAP,DoD-ELAP
Naphthalene	NELAP,DoD-ELAP
Benzoic acid	NELAP,DoD-ELAP
4-Chloroaniline	NELAP,DoD-ELAP



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Hexachlorobutadiene	NELAP,DoD-ELAP
4-Chloro-3-Methylphenol	NELAP,DoD-ELAP
2-Methylnaphthalene	NELAP,DoD-ELAP
Hexachlorocyclopentadiene	NELAP,DoD-ELAP
2,4,6-Trichlorophenol	NELAP,DoD-ELAP
2,4,5-Trichlorophenol	NELAP,DoD-ELAP
2-Chloronaphthalene	NELAP,DoD-ELAP
2-Nitroaniline	NELAP,DoD-ELAP
Acenaphthylene	NELAP,DoD-ELAP
Dimethylphthalate	NELAP,DoD-ELAP
2,6-Dinitrotoluene	NELAP,DoD-ELAP
Acenaphthene	NELAP,DoD-ELAP
3-Nitroaniline	NELAP,DoD-ELAP
2,4-Dinitrophenol	NELAP,DoD-ELAP
Dibenzofuran	NELAP,DoD-ELAP
4-Nitrophenol	NELAP,DoD-ELAP
2,4-Dinitrotoluene	NELAP,DoD-ELAP
Fluorene	NELAP,DoD-ELAP
4-Chlorophenylphenyl ether	NELAP,DoD-ELAP
Diethyl phthalate	NELAP,DoD-ELAP
4-Nitroaniline	NELAP,DoD-ELAP
4,6-Dinitro-2-methylphenol	NELAP,DoD-ELAP
N-Nitrosodiphenylamine	NELAP,DoD-ELAP
4-Bromophenyl phenyl ether	NELAP,DoD-ELAP
Hexachlorobenzene	NELAP,DoD-ELAP
Pentachlorophenol	NELAP,DoD-ELAP
Phenanthrene	NELAP,DoD-ELAP
Anthracene	NELAP,DoD-ELAP
Carbazole	NELAP,DoD-ELAP
Di-n-Butylphthalate	NELAP,DoD-ELAP
Fluoranthene	NELAP,DoD-ELAP
Pyrene	NELAP,DoD-ELAP
Butylbenzylphthalate	NELAP,DoD-ELAP
Benzo(a)anthracene	NELAP,DoD-ELAP
3,3'-Dichlorobenzidine	NELAP,DoD-ELAP
Chrysene	NELAP,DoD-ELAP
bis(2-Ethylhexyl)phthalate	NELAP,DoD-ELAP
Di-n-Octylphthalate	NELAP,DoD-ELAP
Benzo(b)fluoranthene	NELAP,DoD-ELAP
Benzo(k)fluoranthene	NELAP,DoD-ELAP



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Benzofluoranthenes, Total	NELAP
Benzo(a)pyrene	NELAP,DoD-ELAP
Indeno(1,2,3-cd)pyrene	NELAP,DoD-ELAP
Dibenzo(a,h)anthracene	NELAP,DoD-ELAP
Benzo(g,h,i)perylene	NELAP,DoD-ELAP
N-Nitrosodimethylamine	NELAP,DoD-ELAP
1-Methylnaphthalene	NELAP,DoD-ELAP

**EPA 8270D-SIM in Water**

1,4-Dioxane	WADOE,NELAP,DoD-ELAP
Naphthalene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
2-Methylnaphthalene	ADEC,DoD-ELAP,NELAP,CALAP
1-Methylnaphthalene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Biphenyl	NELAP
Acenaphthylene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Acenaphthene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Dibenzofuran	ADEC,DoD-ELAP,NELAP,CALAP
Fluorene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Phenanthrene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Anthracene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Carbazole	NELAP
Fluoranthene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Pyrene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Benzo(a)anthracene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Chrysene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Benzo(b)fluoranthene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Benzo(k)fluoranthene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Benzo(j)fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(e)pyrene	NELAP
Benzo(a)pyrene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Perylene	ADEC,NELAP,CALAP
Indeno(1,2,3-cd)pyrene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Dibenzo(a,h)anthracene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Benzo(g,h,i)perylene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE

**NWTPH-Dx in Water**

Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE



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Diesel Range Organics (C12-C22)	DoD-ELAP
Diesel Range Organics (C12-C25)	DoD-ELAP
Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Residual Range Organics (C23-C32)	DoD-ELAP
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,NELAP,WADOE
JP4 Range Organics (Tol-C14)	DoD-ELAP,NELAP,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE

**NWTPHg in Water**

Gasoline Range Organics (Tol-Nap)	WADOE,DoD-ELAP
Gasoline Range Organics (2MP-TMB)	WADOE,DoD-ELAP
Gasoline Range Organics (Tol-C12)	WADOE,DoD-ELAP
Gasoline Range Organics (C6-C10)	WADOE,ADEC,DoD-ELAP
Gasoline Range Organics (C5-C12)	WADOE,DoD-ELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	01/31/2021
CALAP	California Department of Public Health CAELAP	2748	06/30/2019
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2020
WADOE	WA Dept of Ecology	C558	06/30/2019
WA-DW	Ecology - Drinking Water	C558	06/30/2019



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### Notes and Definitions

- \* Flagged value is not within established control limits.
- B This analyte was detected in the method blank.
- D The reported value is from a dilution
- E The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
- J Estimated concentration value detected below the reporting limit.
- M Estimated value for a GC/MS analyte detected and confirmed by an analyst but with low spectral match parameters.
- NRS This surrogate not reported due to chromatographic interference
- P1 The reported value is greater than 40% difference between the concentrations determined on two GC columns where applicable.
- Q Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20% RSD, <20% drift or minimum RRF)
- U This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
- Y1 Raised reporting limit due to interference
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- [2C] Indicates this result was quantified on the second column on a dual column analysis.