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August 12, 2020
Parametrix No. 553-1550-067

Mr. Jerome Cruz, Project Manager
Washington State Department of Ecology
Toxics Cleanup Program
3190 160th Avenue SE
Bellevue, Washington 98008-5452

Re: South Park Landfill August and September 2020 Progress Report

Dear Jerome:

This letter report provides an explanation of actions taken during the months of August and September.

General Activities During August and September

- SPU notified Ecology in writing on July 20 of SPU's intent to delay the landfill cap improvements and any redevelopment of the site for a minimum of 24 months. The delay is needed to evaluate the project and complete the design of the required landfill cap improvements while maintaining the most flexibility for future use of the site allowed under the consent decree.
- The SRDS seep area (compactor shed) is fenced off and locked and all safeguards are still in place.
- Because of re-occurring break-ins at the Household Hazardous Waste Facility, security fence improvements are being evaluated. The improvements may require added fence posts.
- Solid Waste Operations and Household Hazardous Waste Collection continue, on the SPU property.
- A work plan for performing the 2020 baseline cap inspection was finalized and approved by Ecology. The cap inspection was performed on September 21. During the inspection, a break in an underground water line was observed on SPPD property resulting in water coming up through the cap. The leak was located; it was from a joint on the pipe that came undone. There is no settlement from the water break. Repair to the pipe was completed in October and the asphalt will be patched soon.
- The groundwater wells were redeveloped prior to the third quarter monitoring event.
- Completed the third quarter compliance monitoring of the Settlement Area groundwater wells and perimeter landfill gas probes the week of August 24.
- The blowers of the gas system and an overview of the SPPD property were checked weekly. The current tenants First Student and commercial trailer parking are active onsite.

Deviations from Samples, Required Tasks, CAP, or Schedule

There are no deviations to report.

Data Summary

The perimeter gas probes were monitored on August 24. The results are included on the attached gas probe monitoring field form. All concentrations were less than the 5 percent by volume regulatory action limit. Low levels of methane were detected in probes GP-27 (0.5%) and GP-29 (1.8%). A trigger assessment was performed per the flowchart in the Landfill Gas Monitoring and Contingency Plan (Appendix A.2 of the Cleanup Action Plan). The landfill gas level at probe GP-29 has been shown to be previously protective and no further action is required.

The groundwater wells were monitored August 25 through 27. Lab reports were received in September and are included in the attachments of this progress report. The data is summarized on the attached table. A trigger assessment was performed for vinyl chloride. No further action is required for this monitoring event.

Upcoming Activities

- SPU staff are working on the revised scope and schedule for the evaluation of the cap requirements.
- Off-site purge water disposal.
- Ongoing weekly inspections of the SPPD gas system.
- Repair broken water pipe located under the cap on SPPD property.
- Finalize the 2020 cap inspection report and submit to property owners and Ecology, including recommended repairs and maintenance.

If you have any questions regarding this progress report, please do not hesitate to contact me.

Sincerely,

Laura B. Lee
Project Manager

cc: Jeff Neuner, SPU Landfill Closure Business Area Manager
Robert Howie, South Park Property Development LLC
Jeff Fowler, SPU, Solid Waste Line of Business Deputy Director
Susan Fife-Ferris, SPU, Solid Waste Line of Business/Solid Waste Planning Director
Megan J Joplin, SPU, Law Department, Attorney
Hui Yang, SPU, SRDS Redevelopment Project Manager
Lee Momon, SPU, Solid Waste Transfer Station Manager
Suzanne Hildreth, SPU, Solid Waste Transfer Station Manager
Aaron Werner, SPU

Attachments

1. Perimeter Gas Probe Field Monitoring Results
2. Groundwater Quality Data Summary, Third Quarter 2020
3. Groundwater Quality Analytical Laboratory Reports, Third Quarter 2020

South Park Landfill

GAS PROBE MONITORING FIELD FORM

Sampling Organization: Parametrix

Project Number:

Date: 8/24/20

Field Personnel: T. Parry + A. York

Gas Probe	Probe Diameter (ft)	Screened Interval (ft btoc)	Purge Volume (cc)	Purge Duration Purge rate = 550 ml/min (min)	Depth to Water (ft - btoc)	Pressure (in W.C.)	Time	CH_4 (% Volume)	CO_2 (% Volume)	O_2 (% Volume)	H_2S (ppm)	
GP-37	.063	2.8 to 7.8	868	1.57	Dry	0.0	12:20	0.0	11.5	10.6	0	
GP-09	.063	6.62 to 10.62	899	1.63	Dry	0.0	12:07	0.0	4.8	18.6	0	
GP-26	.063	4.62 to 9.62	868	1.57	7.89	0.0	13:16	0.0	7.6	19.2	0	
GP-23	.167	6.05 to 7.05	4,940	8.98	7.42	0.0	13:35	0.0	7.7	14.6	0	
GP-07	.063	5.75 to 6.25	519	0.94	Dry	0.0	13:50	0.0	3.5	19.0	0	
GP-27	.063	8.57 to 13.57	1,216	2.21	12.29	0.0	11:40	0.5	12.9	0.0	5	O_2 read <<<<, which was interpreted as 0.0
GP-28	.063	6.59 to 11.59	1,042	1.89	11.45	0.0	11:30	0.0	9.5	5.7	C	
GP-29	.063	4.62 to 9.62	868	1.57	9.23	0.0	11:19	1.8	14.8	2.0	0	
GP-16	.167	6.60 to 9	5,867	10.67	Dry	0.0	10:45	0.0	0.4	20.4	0	
GP-31	.063	4.64 to 9.64	868	1.57	5.81	0.0	9:45	0.0	15.4	3.6	0	
GP-15	.167	6.62 to 8.62	5,558	10.11	6.08	0.0	10:22	0.0	3.1	18.5	0	Blocked screen.
GP-32	.063	4.72 to 9.72	868	1.57	3.09	0.0	10:10	No reading; screen covered.				Blocked screen.
GP-03	.063	6.73 to 8.63	725	1.32	Dry	0.0	9:33	0.0	9.2	10.4	0	
GP-13	.167	4.91 to 5.41	4,014	7.29	3.13	0.0	9:15	0.0	0.1	21.9	0	Blocked screen.
GP-11	.167	6.23 to 6.73	4,632	8.42	6.13	0.0	8:49	0.0	0.1	21.9	0	
GP-38	.063	3.8 to 8.8	882	1.6	Dry	0.0	12:37	0.0	17.7	0.8	0	
GP-33	.063	8.2 to 13.2	1,165	2.12	13.31	0.0	12:55	0.0	6.7	9.5	0	

Comments: All casings were maintained, however, they still need locking bolts.

Barometer ("Hg) (Start): 30.03 (recorded from Landtec) Barometer ("Hg) (Finish): 30.02

Temperature: Start: 62°F End: 72°F Weather: Sunny with clear skies

Equipment Used: Landtec 5000

Parametrix

DRAFT Groundwater Quality Data Summary, Third Quarter 2020, South Park Landfill

Parameter	Units	Cleanup Level	Upgradient Wells (Zone A)					Downgradient Wells (Zone A)							Downgradient Wells (Zone B)				Trip Blanks	
			MW-12	MW-14	MW-29	MW-60 (MW-29 Dup)	MW-30 [1]	MW-25	MW-26	MW-27 [2]	MW-31	MW-32 [3]	MW-61 (MW-32 Dup)	MW-33 [3]	MW-08	MW-10	MW-18 [3]	MW-24	MW-80	MW-81
			8/25/20	8/25/20	8/25/20	8/25/20	8/26/20	8/27/20	8/27/20	8/26/20	8/26/20	8/27/20	8/27/20	8/25/20	8/26/20	8/27/20	8/25/20	8/26/20	8/25/20	8/27/20
Field Parameters																				
Temperature	C		14.5	17.2	13.8	- -	15.3	17.0	13.6	16.3	16.0	14.4	- -	16.0	13.9	14.6	16.0	13.9	- -	- -
Dissolved Oxygen	mg/L		0.26	0.05	0.00	- -	0.27	0.34	0.30	0.16	0.22	0.03	- -	0.00	0.77	0.03	0.07	1.89	- -	- -
Specific Conductivity	µS/cm		487	550	878	- -	639	970	197	428	388	912	- -	1401	1094	1482	1070	941	- -	- -
pH	units		6.30	6.56	6.65	- -	6.22	6.49	6.06	6.39	6.36	6.66	- -	6.66	6.53	6.61	6.55	6.47	- -	- -
Redox	mv		45.1	-143.1	-118.7	- -	7.2	-64.3	22.4	-74.0	-62.6	-96.4	- -	-107.8	-74.3	-112.3	-78.2	-56.3	- -	- -
Turbidity	NTU		40.02	67.82	119.9	- -	3.34	4.11	10.97	14.95	42.15	47.08	- -	739.69	8.85	9.99	221.04	7.16	- -	- -
Metals																				
Arsenic, Dissolved	µg/L	5.0	0.497	- -	- -	- -	- -	0.396	0.816	13.3 [2]	- -	1.52	1.50	1.04	0.254	0.200 U	0.200 U	0.200 U	- -	- -
Iron, Total	µg/L	27000 Zone A 31000 Zone B	1610	4040	**32400**	**34000**	2880	18300	8120	**31300**	12300	13200	13400	14100	15300	**40200**	18000	17900	- -	- -
Manganese, Total	µg/L	2100 Zone A 1100 Zone B	158	623	650	687	155	1910	125	822	558	1540	1520	1710	**1230**	**2670**	**1500**	**1400**	- -	- -
Volatile Organic Compounds																				
Vinyl Chloride	ng/L	290	20.0 U	20.0 U	124	132	161	**345**	28.0	76.9	**475**	**344**	**347**	86.2	71.2	95.2	35.7	30.8	20.0 U	20.0 U
Cis-1,2-Dichloroethene	µg/L	16	0.21 J	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	0.41 J	0.20 UJ	0.20 UJ	0.50 J	0.54 J	0.20 UJ	0.20 UJ	0.73 J	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ
Benzene	µg/L	5.0	- -	- -	- -	- -	- -	0.26 J	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -		0.20 UJ

Notes:

[1] MW-30 is located in a discontinous zone of perched groundwater that is not hydraulically connected to the Landfill.

[2] MW-27, a downgradient A-Zone well across SR 99 consistently has arsenic at concentrations greater than the CUL due to a cement kiln dust deposit that is across the street from the Settlement Area. Arsenic is not a CPOC for this well.

[3] MW-18 is completed in refuse along the downgradient edge of the Landfill; MW-32 and MW-33 are completed beneath refuse along the downgradient edge.

= Exceeds cleanup level for CPOC wells

- - = Not sampled

U = The analyte was analyzed for but was not detected above the reported sample quantitation limit.

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

Abbreviations:

µg/L Micrograms per liter

mg/L Milligrams per liter

ng/L nanograms per liter

µS/cm microsiemens per centimeter

NTU Nephelometric Turbidity unit

CPOC Conditional point of compliance

PARAMETRIX Form 07-EN-215/Rev. 02/07

Water Level Measurement Field Report

DATE 8/24/20	JOB NO. 553-1550-067	
PROJECT: South Park Landfill	CLIENT: Seattle Public Utilities	
LOCATION: Seattle, WA		
WEATHER: Sunny with clear skies	TEMP: 62 ° at 9:00 AM; 72 ° at 14:45 PM	
PRESENT AT SITE: T. Parry + A. York		

THE FOLLOWING WAS NOTED:

WELL NUMBER	Time	Measured Depth to Water (ft from TOC or SG level)	Total Measured Well Depth (ft from TOC)	Measuring Point	Total Well Depth (ft bgs)	Screen Interval (ft bgs)	SU (ft)
MW-12	14:49	6.26	–	TOC	15.3	10-15	1.52
MW-14	14:55	3.04	–	TOC	21.8	11.5-21.5	0.8
MW-29	15:17	9.11	–	TOC	30	20-30	-0.29
MW-18	14:59	15.98	–	TOC	40.4	30-40	1.25
MW-25	14:44	14.44	–	TOC	27	22-27	2.79
MW-32	15:33	11.40	–	TOC	24	19-24	-0.44
MW-33	15:44	11.57	–	TOC	25	20-25	-0.47
MW-26	14:22	10.26	–	TOC	25	15-25	2.39
MW-27	13:56	8.98	–	TOC	20	10-20	2.04
MW-10	14:42	13.70	–	TOC	45	35-45	1.65
MW-24	13:37	9.47	–	TOC	45.3	35-45	1.56
MW-08	13:54	8.99	–	TOC	45.6	35.5 – 45.5	1.88
MW-30	15:09	10.95	–	TOC	13	8-13	-0.53
MW-31	14:09	11.57	–	TOC	23	35.5-45.5	-0.46

Comments:

TOC – top of PVC casing SG – staff gauge

SIGNED: _____

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067 Date: 08/26/20 Well ID: MW-08

Sampling Organization: Parametrix Samplers: T. Parry + A. York

Purge Data Screened Interval (ft bgs): 5.0-20.0 Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): 9.09 Purge Water Disposal Method: ~~Bladder Pump~~ Drum

Purge Device: dedicated bladder pump Pump Intake Depth: 10.5ft

Begin Purge Time: 10:44 End Purge Time: 1202

Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate	Cum. Vol. Purged	Temp (°C)	DO (mg/L)	Specific Conductance (mg/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
1047	9.09	8/14	360	0.33	14.6	2.23	1.143	6.78	16.4	279.26	Dark orange color
1052	9.09	8/12	255	0.75	13.9	1.36	1.133	6.51	-58.7	161.68	
1057	9.09	"	"	~~1.25~~ 1.2	14.0	0.54	1.080	6.53	-61.1	118.97	
1102	9.11	"	"	1.5	13.8	0.40	1.104	6.54	-64.3	63.51	
1107	9.12	"	"	2.0	13.5	0.26	1.123	6.53	-65.3	63.11	
1112	9.10	"	"	2.3	13.5	0.31	1.121	6.58	-69.0	60.35	
1117	9.11	"	"	2.75	13.5	0.25	1.113	6.54	-69.5	63.12	
1122	9.11	"	"	3.20	13.5	0.28	1.111	6.55	-71.7	66.41	
1127	9.11	"	"	3.60	13.5	0.26	1.110	6.54	-71.8	221.02	Emptied flow
1132	9.11	"	"	4.10	13.5	3.75	1.120	6.52	-69.9	19.64	through cell
1137	9.11	"	"	4.45	13.7	2.18	1.084	6.51	-69.8	16.35	done to turbidity
1142	9.11	"	"	4.85	13.7	1.14	1.091	6.57	-72.1	10.72	Build up.
1147	9.11	"	"	5.20	13.7	0.93	1.095	6.52	-72.0	10.47	
1152	9.11	"	"	5.60	13.8	0.84	1.095	6.53	-72.2	9.41	
1157	9.11	"	"	5.90	13.8	0.79	1.098	6.53	-73.2	9.44	
1202	9.11	"	"	6.30	13.9	0.77	1.094	6.53	-74.3	8.85	
1207	Sampled at	12:15									
1212											
1217											
1222											
1227											
1232											
1237											
1242											
			Stabilization Criteria		3%	10%	3%	± 0.1	± 10 mv	10%	

Sampling Data

Sample ID: SPL-GW-MW08-0820 Time Collected: 1215 Weather: Sunny 2/ clear sky.

Sample Description (Color, Turbidity, Odor, Other): Clear

Sample Analyses:

Duplicate Sample Collected: ☐ Yes ☒ No If yes, ID:

MS/MSD Collected: ☐ Yes ☒ No

Additional Information/Comments

Parametrix

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067 Date: 8/27 Well ID: MW-10

Sampling Organization: Parametrix Samplers: T. Parry + A. York

Purge Data Screened Interval (ft bgs): 35.0-44.0 Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): 13.76 Purge Water Disposal Method: Drum

Purge Device: dedicated bladder pump (broken), sampled with peristaltic pump and dedicated tubing Pump Intake Depth: 30.0 ft

Begin Purge Time: 1052 End Purge Time: 1159

Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate	Cum. Vol. Purged	Temp (°C)	DO (mg/L)	Specific Conductance (mg/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
1054	10.76	1/3	300	0.05	14.8	1.73	1.245	6.87	24.7	69.10	
1059	"	"	"	0.70	14.7	0.33	1.397	6.47	-76.9	74.92	
1104	"	"	"	0.85	14.7	0.32	1.400	6.48	-80.6	75.10	
1109	"	"	"	1.25	14.7	0.28	1.408	6.49	-89.4	82.87	
1114	"	"	"	1.75	14.7	0.26	1.427	6.51	-95.9	96.81	
1119	"	"	"	2.05	14.7	0.07	1.443	6.53	-100.9	23.15	
1124	"	"	"	2.50	14.6	0.06	1.453	6.57	-104.3	25.72	
1129	"	"	"	2.75	14.6	0.04	1.458	6.56	-105.5	13.82	
1134	10.77	"	"	3.20	14.6	0.03	1.467	6.57	-107.9	25.42	
1139	"	"	"	3.50	14.6	0.02	1.471	6.58	-109.4	20.37	
1144	"	"	"	3.75	14.7	0.02	1.474	6.58	-110.4	19.23	
1149	"	"	"	4.00	14.6	0.03	1.475	6.59	-111.2	10.29	
1154	"	"	"	4.50	14.6	0.03	1.477	6.60	-111.6	9.61	
1159	"	"	"	5.00	14.6	0.03	1.482	6.61	-112.3	9.99	
1204	Sampled at 12:10										
1209											
1214											
1219											
1224											
1229											
1234											
1239											
1244											
1249											
			Stabilization Criteria		3%	10%	3%	± 0.1	± 10 mv	10%	

Sampling Data

Sample ID: SPL-GW-MW10-0820 Time Collected: 1210 Weather: Sunny 2/ clear sky

Sample Description (Color, Turbidity, Odor, Other): Clear.

Sample Analyses:

Duplicate Sample Collected: ☐ Yes ☒ No If yes, ID:

MS/MSD Collected: ☐ Yes ☒ No

Additional Information/Comments

Parametrix

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067 Date: 8/25/20 Well ID: MW-12

Sampling Organization: Parametrix Samplers: T. Parry A. York

Purge Data Screened Interval (ft bgs): 10.0-15.0 Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): 6.28 Purge Water Disposal Method: Drum

Purge Device: dedicated bladder pump Pump Intake Depth: 12.5 ft

Begin Purge Time: 8:33 End Purge Time: 9:26

Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate	Cum. Vol. Purged	Temp (°C)	DO (mg/L)	Specific Conductance (mg/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
831	6.31	5/7	440	1/2 gal.	14.0	4.78	0.475	7.53	75.6	101.1	Orange
836	6.31	4/7	275	1	14.1	2.24	0.476	6.54	63.7	74.92	Clear
841	6.31	"	~~275~~ 265	1.5	14.3	1.34	0.479	6.37	57.9	48.92	
846	6.30	"	255	1.75	14.3	0.90	0.480	6.33	55.3	36.65	
851	6.31	"	275	2.1	14.3	0.68	0.481	6.31	53.6	30.39	
856	6.31	"	"	2.5	14.3	0.50	0.482	6.30	52.7	28.38	
901	6.32	"	"	2.75	14.4	0.40	0.482	6.30	50.8	28.78	
906	6.32	"	"	3.25	14.4	0.39	0.483	6.30	49.4	28.52	
911	6.32	"	"	3.6	14.4	0.32	0.484	6.32	48.0	30.20	
916	6.32	"	"	4.1	14.5	0.28	0.485	6.30	48.2	38.5	
921	6.32	"	"	4.75	14.5	0.27	0.486	6.30	47.0	41.61	
926	6.32	"	"	5.25	14.5	0.26	0.487	6.30	45.1	40.02	
931	Sampled at 0926										
936											
941											
946											
951											
956											
1001											
1006											
1011											
1016											
1021											
1026											
			Stabilization Criteria		3%	10%	3%	± 0.1	± 10 mv	10%	

Sampling Data

Sample ID: SPL-GW-MW12-0820 Time Collected: 0926 Weather: Sunny w/ clear sky

Sample Description (Color, Turbidity, Odor, Other): Clear

Sample Analyses:

Duplicate Sample Collected: ☐ Yes ☒ No If yes, ID:

MS/MSD Collected: ☐ Yes ☒ No

Additional Information/Comments

Parametrix

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067 Date: 8/25 Well ID: MW-14

Sampling Organization: Parametrix Samplers: T. Perry + A. York.

Purge Data Screened Interval (ft bgs): 11.5-21.5 Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): 3.07 Purge Water Disposal Method: Onsm.

Purge Device dedicated bladder pump Pump Intake Depth: 16.5 ft

Begin Purge Time: 1005 End Purge Time: 1128

Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate	Cum. Vol. Purged	Temp (°C)	DO (mg/L)	Specific Conductance (mg/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
1008	3.17	4/5	550	0.5	15.7	1.10	0.593	6.84	-88.5	44.72	
1013	3.14	3/5	225	0.7	17.0	0.42	0.566	6.68	-114.2	54.29	
1018	3.16	"	235	1.0	17.3	0.24	0.552	6.62	-131.6	96.06	
1023	3.15	"	230	1.25	17.5	0.12	0.550	6.59	-145.8	30.68	
1028	3.15	"	"	1.50	17.5	0.08	0.550	6.59	-151.8	45.68	
1033	3.15	"	"	1.75	17.4	0.06	0.550	6.58	-155.4	57.46	
1038	3.14	"	"	2.0	17.4	0.06	0.551	6.60	-158.0	69.80	
1043	3.13	"	"	2.25	17.4	0.05	0.551	6.58	-157.9	80.50	
1048	3.13	"	"	2.5	17.5	0.05	0.552	6.58	-158.3	89.24	
1053	3.13	"	"	2.75	17.5	0.04	0.551	6.59	-157.4	100.45	
1058	3.13	"	"	3.00	17.6	0.04	0.551	6.59	-156.1	4.95	← Emptied casing for turbidity stabilization
1103	3.15	"	"	3.25	17.4	0.15	0.553	6.56	-132.2	5.50	
1108	3.15	"	"	3.5	17.5	0.08	0.552	6.56	-139.4	18.60	
1113	3.15	"	"	3.75	17.4	0.06	0.551	6.54	-142.0	32.75	
1118	3.13	"	"	4.0	17.5	0.05	0.551	6.55	-143.3	62.13	
1123	3.13	"	"	4.25	17.4	0.05	0.551	6.55	-143.2	62.99	
1128	3.13	"	"	4.50	17.2	0.05	0.550	6.56	-143.1	67.82	
1133	Sampled MW-14										
1138											
1143											
1148											
1153											
1158											
1203											
			Stabilization Criteria		3%	10%	3%	± 0.1	± 10 mv	10%	

Sampling Data

Sample ID: SPL-GW-MW14-0820 Time Collected: 11:33 Weather: Sunny with clear sky.

Sample Description (Color, Turbidity, Odor, Other): Clear.

Sample Analyses:

Duplicate Sample Collected: ☐ Yes ☒ No If yes, ID:

MS/MSD Collected: ☐ Yes ☒ No

Additional Information/Comments

Parametrix

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067 Date: 8/25/20 Well ID: MW-18

Sampling Organization: Parametrix Samplers: T. Perry + A. Volk

Purge Data Screened Interval (ft bgs): _____ Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): ~~30.0-40.0~~ 16.00 Purge Water Disposal Method: Onsite

Purge Device: dedicated bladder pump Pump Intake Depth: 20.0 ft

Begin Purge Time: 1348 End Purge Time: 1454

Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate	Cum. Vol. Purged	Temp (°C)	DO (mg/L)	Specific Conductance (mg/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
1354	16.00	5/8	260 ml/min	0.05	16.9	1.66	0.941	6.75	-26.5	119.18	
1359	16.00	"	200	1/2	16.0	1.23	1.212	6.47	-54.1	105.48	
1404	16.00	"	"	0.75	16.6	0.34	1.112	6.52	-63.5	69.93	
1409	16.00	"	"	1.0	16.5	0.21	1.096	6.53	-65.7	53.19	
1414	16.00	"	"	1.25	16.5	0.14	1.092	6.53	-68.3	49.22	
1419	16.00	"	"	1.50	16.3	0.12	1.092	6.54	-70.3	50.38	
1424	16.00	"	"	1.80	16.0	0.09	1.082	6.54	-72.4	53.95	
1429	16.00	"	"	2.30	15.9	0.09	1.072	6.54	-74.2	66.71	
1434	16.00	"	225	2.45	16.2	0.07	1.072	6.55	-75.8	79.81	
1439	16.00	"	"	2.60	16.0	0.07	1.076	6.55	-76.8	~~118.27~~ 113.21	
1444	16.00	"	"	3.00	16.0	0.07	1.076	6.55	-77.3	142.37	
1449	16.00	"	"	3.25	16.0	0.07	1.070	6.56	-77.7	198.21	
1454	1600	"	"	3.50	16.0	0.07	1.070	6.55	-78.2	221.04	
1459	—	—	—	—	—	—	—	—	—	—	
1504	Sampled at 1500										
1509											
1514											
1519											
1524											
1529											
1534											
1539											
1544											
1549											
			Stabilization Criteria		3%	10%	3%	± 0.1	± 10 mv	10%	

Sampling Data

Sample ID: SPL-GW-MW18-0820 Time Collected: 1500 Weather: Sunny with clear sky.

Sample Description (Color, Turbidity, Odor, Other): Clear.

Sample Analyses: _____

Duplicate Sample Collected: ☐ Yes ☒ No If yes, ID: _____

MS/MSD Collected: ☐ Yes ☒ No

Additional Information/Comments

Oily sheen present on the surface of the purged water.

Parametrix

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067 Date: 8/26/20 Well ID: MW-24

Sampling Organization: Parametrix Samplers: T. Thorny + A. York

Purge Data Screened Interval (ft bgs): 35.0-45.0 Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): ~~35.0-45.0~~ 9.53 Purge Water Disposal Method: Drum

Purge Device: dedicated bladder pump Pump Intake Depth: 40.0 ft

Begin Purge Time: 1426 End Purge Time: 1547

Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate	Cum. Vol. Purged	Temp (°C)	DO (mg/L)	Specific Conductance (mg/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
1432	9.56	7/10	195	0.1	15.0	2.87	0.823	6.96	34.4	168.54	
1437	"	"	"	0.4	14.2	2.43	0.951	6.62	-43.5	102.00	
1442	9.54	"	"	0.6	14.1	2.29	0.965	6.53	-53.3	60.03	
1447	"	"	"	0.75	14.0	2.10	0.970	6.52	-56.6	44.39	
1452	"	"	"	1.0	14.0	1.88	0.962	6.51	-58.0	39.40	
1457	"	"	180	1.25	14.0	2.00	0.955	6.50	-57.6	35.20	
1502	"	"	"	1.50	14.1	2.11	0.950	6.49	-57.8	29.70	
1507	"	"	"	1.75	14.0	1.97	0.950	6.49	-56.0	27.00	
1512	"	"	"	2.00	14.1	2.09	0.944	6.49	-57.4	22.51	
1517	"	"	"	2.25	14.1	2.12	0.945	6.48	-57.3	17.25	
1522	"	"	"	2.50	14.1	2.11	0.945	6.48	-57.0	14.22	
1527	"	"	"	2.75	14.1	1.92	0.944	6.48	-57.2	9.91	
1532	"	"	"	3.00	14.1	1.99	0.944	6.47	-56.7	8.41	
1537	"	"	"	3.25	13.8	1.84	0.942	6.47	-56.4	7.70	
1542	"	"	"	3.50	13.9	1.92	0.942	6.47	-56.8	7.25	
1547	"	"	"	3.75	13.9	1.89	0.941	6.47	-56.3	7.16	
1552	Sampled at 1600										
1557											
1602											
1607											
1612											
1617											
1622											
1627											
			Stabilization Criteria		3%	10%	3%	± 0.1	± 10 mv	10%	

Sampling Data

Sample ID: SPL-GW-MW24-0820 Time Collected: 1600 Weather: Sunny w/ clear sky

Sample Description (Color, Turbidity, Odor, Other):

Sample Analyses:

Duplicate Sample Collected: ☐ Yes ☒ No If yes, ID:

MS/MSD Collected: ☐ Yes ☒ No

Additional Information/Comments

Parametrix

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067 Date: 8/17 Well ID: MW-25

Sampling Organization: Parametrix Samplers: T. Perry + A. York

Purge Data Screened Interval (ft bgs): 20.0-27.0 Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): 14.50 Purge Water Disposal Method: onsite

Purge Device: dedicated bladder pump Pump Intake Depth: 24.5 ft

Begin Purge Time: 1220 End Purge Time: 1350

Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate	Cum. Vol. Purged	Temp (°C)	DO (mg/L)	Specific Conductance (mg/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
1222	14.51	5/7	100	0.05	15.5	6.69	0.866	7.15	23.1	9.50	
1227	"	"	"	0.10	16.6	1.79	0.916	6.54	-23.2	5.02	
1232	"	"	"	0.25	16.8	1.43	0.925	6.52	-28.8	4.38	
1237	"	"	"	0.35	17.1	1.15	0.939	6.52	-41.0	5.15	
1242	"	"	"	0.45	17.3	0.87	0.945	6.51	-49.2	3.54	
1247	"	"	"	0.5	17.4	0.82	0.948	6.51	-52.2	4.14	
1252	"	"	"	0.55	17.3	0.57	0.953	6.51	-55.8	3.39	
1257	"	"	"	0.65	17.5	0.42	0.960	6.50	-58.7	3.87	
1302	"	"	"	0.75	17.3	0.37	0.965	6.50	-61.6	3.75	
1307	"	"	"	0.85	17.1	0.36	0.967	6.50	-62.8	4.00	
1312	"	"	"	0.95	17.0	0.34	0.969	6.49	-63.6	3.95	
1317	"	"	"	1.05	17.0	0.34	0.970	6.49	-64.3	4.11	
1322				sampled @ 1322							
1327											
1332											
1337											
1342											
1347											
1352											
1357											
1402											
1407											
1412											
1417											
			Stabilization Criteria		3%	10%	3%	± 0.1	± 10 mv	10%	

Sampling Data

Sample ID: SPL-GW-MW25-0820 Time Collected: 1322 Weather: Sunny 2/ Clear sky

Sample Description (Color, Turbidity, Odor, Other): Bucket/purge water light brown, sample water clear, no odor

Sample Analyses:

Duplicate Sample Collected: ☐ Yes ☒ No If yes, ID:

MS/MSD Collected: ☒ Yes ☐ No

Additional Information/Comments

Parametrix

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067 Date: 8/28/20 Well ID: MW-26

Sampling Organization: Parametrix Samplers: T. Perry - A. York

Purge Data Screened Interval (ft bgs): 15.0-25.0 Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): 10.28 Purge Water Disposal Method: Drum

Purge Device: dedicated bladder pump Pump Intake Depth: 20.0 ft

Begin Purge Time: 715 End Purge Time: 816

Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate	Cum. Vol. Purged	Temp (°C)	DO (mg/L)	Specific Conductance (mg/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
716	10.28	80 ml/min ↔ 5/9		0.05	13.0	5.34	0.199	7.53	29.2	47.65	
721	10.28	175	6/9	0.50	12.9	2.96	0.222	6.21	29.8	42.04	
726	10.28	6/9	175	0.75	13.2	2.17	0.200	6.10	28.5	30.27	
731	10.28	"	"	0.90	13.5	1.34	0.200	6.07	26.5	27.87	
736	10.28	"	"	1.05	13.4	0.95	0.199	6.06	25.3	24.33	
741	10.28	"	"	1.20	13.5	0.71	0.198	6.06	24.4	21.89	
746	10.28	"	"	1.30	13.5	0.54	0.198	6.06	24.0	18.80	
751	10.28	"	"	1.50	13.6	0.49	0.199	6.06	23.6	16.52	
756	10.28	"	"	1.65	13.6	0.40	0.197	6.06	23.3	15.82	
801	10.28	"	"	1.80	13.7	0.37	0.196	6.06	23.0	13.13	
806	10.28	"	"	1.90	13.6	0.33	0.197	6.06	22.7	11.94	
811	10.28	"	"	2.10	13.6	0.32	0.197	6.06	22.6	10.75	
816	10.28	"	"	2.25	13.6	0.30	0.197	6.06	22.4	10.97	
821	Sampled at 8:25										
826											
831											
836											
841											
846											
851											
856											
901											
906											
911											
			Stabilization Criteria		3%	10%	3%	± 0.1	± 10 mv	10%	

Sampling Data

Sample ID: SPL-GW-MW26-0820 Time Collected: 8:25 Weather: Sunny w/ clear sky

Sample Description (Color, Turbidity, Odor, Other): Clear

Sample Analyses:

Duplicate Sample Collected: ☐ Yes ☒ No If yes, ID:

MS/MSD Collected: ☐ Yes ☒ No

Additional Information/Comments

Parametrix

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067 Date: 8/26/20 Well ID: MW-27

Sampling Organization: Parametrix Samplers: T. Ramy + A. York

Purge Data Screened Interval (ft bgs): 10.0-20.0 Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): 9.04 Purge Water Disposal Method: Drum

Purge Device: dedicated bladder pump Pump Intake Depth: 15.0 ft

Begin Purge Time: 1219 End Purge Time: 1345

Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate	Cum. Vol. Purged	Temp (°C)	DO (mg/L)	Specific Conductance (mg/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
1220	"	5/9	100	0.1	15.0	4.00	0.371	7.42	-8.7	105.74	
1225	9.06	"	100	0.25	16.6	2.03	0.384	6.47	-35.4	49.59	
1230	9.05	"	"	0.3	16.6	1.54	0.398	6.42	-44.1	31.32	
1235	"	"	"	0.45	16.3	0.97	0.409	6.42	-53.8	21.70	
1240	"	"	"	0.5	16.3	0.82	0.411	6.42	-56.6	21.68	
1245	"	"	"	0.6	16.2	0.61	0.414	6.43	-61.5	19.30	
1250	"	"	"	0.7	16.2	0.48	0.416	6.46	-64.5	18.05	
1255	"	"	"	0.8	16.2	0.37	0.418	6.43	-67.2	17.55	
1300	"	"	"	0.9	16.2	0.30	0.419	6.43	-69.4	18.53	
1305	"	"	"	1.0	16.1	0.28	0.420	6.44	-71.4	20.05	
1310	"	"	95	1.2	16.1	0.24	0.421	6.44	-73.3	28.03	
1315	"	"	"	1.35	16.1	0.22	0.421	6.44	-74.3	33.75	
1320	"	"	"	1.45	16.2	0.21	0.422	6.45	-75.2	40.80	Cleared flow-cell
1325	"	"	"	1.5	15.5	1.00	0.425	6.36	-53.9	3.95	
1330	"	"	"	1.6	16.1	0.20	0.424	6.33	-70.1	3.66	
1335	"	"	"	1.65	16.2	0.19	0.426	6.37	-70.2	3.70	
1340	"	"	"	1.75	16.3	0.17	0.428	6.40	-73.6	3.85	
1345	"	"	"	1.85	16.3	0.16	0.428	6.39	-74.0	14.95	
1350			Sampled MW-27								
1355											
1400											
1405											
1410											
1415											
			Stabilization Criteria		3%	10%	3%	± 0.1	± 10 mv	10%	

Sampling Data

Sample ID: SPL-GW-MW27-0820 Time Collected: 1350 Weather: Sunny with clear sky.

Sample Description (Color, Turbidity, Odor, Other): Purge water light yellow-brown, no odor, oil sheen on purged water

Sample Analyses:

Duplicate Sample Collected: ☐ Yes ☒ No If yes, ID:

MS/MSD Collected: ☒ Yes ☐ No

Additional Information/Comments

See Sample description.

Parametrix

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067 Date: 8/25/20 Well ID: MW-29

Sampling Organization: Parametrix Samplers: T. Ahmy + A. York

Purge Data Screened Interval (ft bgs): 20.0-30.0 Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): 9.15 Purge Water Disposal Method: Drum

Purge Device peristaltic pump Pump Intake Depth: 25.0 ft

Begin Purge Time: 12:13 End Purge Time: 1310

Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate	(gal) Cum. Vol. Purged	Temp (°C)	DO (mg/L)	Specific Conductance (mg/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
1215	9.00	1/3	230	0.05	19.0	4.01	0.847	7.38	-77.7	21.88	
1220	9.97	"	"	0.4	14.1	0.34	0.875	6.63	-98.0	12.70	
1225	10.04	"	250	0.6	13.9	0.14	0.907	6.60	-105.7	17.00	
1230	10.15	"	260	1.1	13.8	0.07	0.914	6.60	-110.0	28.62	
1235	10.21	"	"	1.8	13.8	0.04	0.912	6.61	-112.1	50.99	Slowed Flow
1240	10.14	1/4	240	1.8	13.9	0.03	0.917	6.61	-113.4	66.00	
1245	10.12	"	"	2.0	14.0	0.02	0.910	6.61	-114.6	77.52	
1250	10.14	"	250	2.25	13.9	0.01	0.902	6.62	-115.2	86.30	
1255	10.16	"	"	2.6	13.9	0.00	0.897	6.63	-115.9	99.71	
1300	"	"	"	2.9	13.9	0.00	0.889	6.64	-117.0	113.6	
1305	10.17	"	"	3.25	13.8	0.00	0.880	6.64	-118.2	116.9	
1310	"	"	"	3.6	13.8	0.00	0.878	6.65	-119.7	119.9	
1315	sampled MW-29										
1320											
1325											
1330											
1335											
1340											
1345											
1350											
1355											
1400											
1405											
1410											
			Stabilization Criteria		3%	10%	3%	± 0.1	± 10 mv	10%	

Sampling Data

Sample ID: SPL-GW-MW29-0820 Time Collected: 1315 Weather: Sunny with clear sky.

Sample Description (Color, Turbidity, Odor, Other): Clear, no odor

Sample Analyses:

Duplicate Sample Collected: ☒ Yes ☐ No If yes, ID: MW-60

MS/MSD Collected: ☐ Yes ☒ No

Additional Information/Comments

Fill containers for MW60

Parametrix

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067 Date: 8/26/20 Well ID: MW-30

Sampling Organization: Parametrix Samplers: T. Pamy + A. York.

Purge Data Screened Interval (ft bgs): 8.0-13.0 Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): 10.98 Purge Water Disposal Method: Drum

Purge Device peristaltic pump Pump Intake Depth: 10.5 ft

Begin Purge Time: 8:24 End Purge Time: 856

Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate	Cum. Vol. Purged	Temp (°C)	DO (mg/L)	Specific Conductance (mg/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
826	11.19	1/3	240	0.05	16.1	4.43	0.619	7.31	-5.3	18.12	
831	11.28	1/3	"	0.50	15.4	0.71	0.616	6.24	-3.1	5.49	
836	11.34	"	"	0.75	15.4	0.41	0.626	6.22	5.6	3.38	
841	11.33	"	"	1.0	15.3	0.34	0.630	6.21	6.4	3.52	
846	11.33	"	"	1.25	15.4	0.28	0.635	6.21	6.8	3.16	
851	11.33	"	"	1.60	15.3	0.27	0.637	6.21	7.1	3.09	
856	11.33	"	"	1.80	15.3	0.27	0.639	6.22	7.2	3.34	
901	Sampled at 9:00										
906											
911											
916											
921											
926											
931											
936											
941											
946											
951											
956											
1001											
1006											
1011											
1016											
1021											
			Stabilization Criteria		3%	10%	3%	± 0.1	± 10 mv	10%	

Sampling Data

Sample ID: SPL-GW-MW30-0820 Time Collected: 9:00 Weather: Sunny with clear sky.

Sample Description (Color, Turbidity, Odor, Other): Clear.

Sample Analyses:

Duplicate Sample Collected: ☐ Yes ☒ No If yes, ID:

MS/MSD Collected: ☐ Yes ☒ No

Additional Information/Comments

Parametrix

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067 Date: 8/26/20 Well ID: MW-31

Sampling Organization: Parametrix Samplers: T. Pany - A. York

Purge Data Screened Interval (ft bgs): 18.0-23.0 Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): 11.60 Purge Water Disposal Method: Dam

Purge Device: dedicated bladder pump Pump Intake Depth: 20.5ft

Begin Purge Time: 9:13 End Purge Time: 1005

Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate	Cum. Vol. Purged	Temp (°C)	DO (mg/L)	Specific Conductance (mg/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
915	11.61	~~4/8~~ 5/8	300	0.05	14.7	3.01	0.372	6.79	-35.9	220.47	Yellowish color
920	11.61	4/8	110	0.50	15.4	1.21	0.362	6.36	-35.8	101.74	
~~925~~	11.61	"	"	0.65	15.8	0.81	0.365	6.33	-41.3	90.91	
930	11.61	"	"	0.75	15.8	0.57	0.371	6.34	-46.7	65.34	
935	11.61	"	"	0.75	15.5	0.48	0.375	6.34	-48.9	57.08	
940	11.61	"	"	0.85	15.5	0.40	0.380	6.33	-51.8	51.8	
945	11.61	"	"	0.95	15.4	0.31	0.386	6.34	-54.8	41.47	
950	11.61	"	"	1.10	15.9	0.28	0.386	6.34	-57.3	40.03	
955	11.61	"	"	1.25	15.9	0.24	0.389	6.37	-60.6	40.30	
1000	11.61	"	"	1.40	15.9	0.23	0.388	6.36	-61.6	40.78	
1005	11.61	"	"	1.55	16.0	0.22	0.388	6.36	-62.6	42.15	
1010	Sampled at 1010										
1015											
1020											
1025											
1030											
1035											
1040											
1045											
1050											
1055											
1100											
1105											
1110											
			Stabilization Criteria		3%	10%	3%	± 0.1	± 10 mv	10%	

Sampling Data

Sample ID: SPL-GW-MW31-0820 Time Collected: 1010 Weather: Sunny with clear sky

Sample Description (Color, Turbidity, Odor, Other): Slight yellowish hue

Sample Analyses:

Duplicate Sample Collected: ☐ Yes ☒ No If yes, ID:

MS/MSD Collected: ☐ Yes ☒ No

Additional Information/Comments

Parametrix

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067 Date: 8/27/20 Well ID: MW-32

Sampling Organization: Parametrix Samplers: T. Rainey + A. York.

Purge Data Screened Interval (ft bgs): 19.0-24.00 Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): ~~19.0-24.0~~ 11.44 Purge Water Disposal Method: Onsite

Purge Device peristaltic pump Pump Intake Depth: 21.5 ft

Begin Purge Time: 8:54. End Purge Time: 1006

Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate	Cum. Vol. Purged	Temp (°C)	DO (mg/L)	Specific Conductance (mg/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
856	11.44	13	275	0.05	15.0	1.84	0.845	6.41	-9.1	11.22	
901	11.44	"	"	0.25	14.4	0.30	0.851	6.48	-52.3	17.84	
906	"	"	"	0.5	14.4	0.21	0.859	6.52	-62.0	37.76	
911	"	"	"	0.85	14.4	0.15	0.872	6.57	-70.6	63.56	
916	"	"	"	1.4	14.5	0.14	0.882	6.59	-76.4	122.96	
921	"	"	"	1.8	14.4	0.16	0.887	6.61	-81.1	179.32	
926	"	"	"	~~2.25~~ 2.0	14.4	0.13	0.893	6.62	-84.8	214.09	
931	11.45	"	"	~~2.75~~ 2.25	14.4	0.13	0.897	6.63	-87.6	276.78	
936	11.45	"	"	~~2.8~~ 2.5	14.4	0.17	0.898	6.64	-89.4	352.39	
941	"	"	"	2.75	14.4	0.04	0.905	6.64	-91.3	5.35	Shook meter ~~to clear~~
946	"	"	"	3.0	14.4	0.03	0.906	6.65	-92.8	8.50	
951	"	"	"	3.3	14.4	0.03	0.908	6.65	-94.0	15.16	
956	"	"	"	3.5	14.4	0.03	0.910	6.69	-95.8	22.95	
1001	"	"	"	3.75	14.4	0.02	0.909	6.66	-95.5	33.52	
1006	"	"	"	4.0	14.4	0.03	0.912	6.66	-96.4	47.08	
1011			Sampled @ 1010								
1016											
1021											
1026											
1031											
1036											
1041											
1046											
1051											
			Stabilization Criteria		3%	10%	3%	± 0.1	± 10 mv	10%	

Sampling Data

Sample ID: SPL-GW-MW32-0820 Time Collected: 1010 Weather: Sunny with clear sky.

Sample Description (Color, Turbidity, Odor, Other): Clear, no odor

Sample Analyses:

Duplicate Sample Collected: ☒ Yes ☐ No If yes, ID: MW-61

MS/MSD Collected: ☐ Yes ☒ No

Additional Information/Comments

Fill containers for MW-61

Parametrix

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067 Date: 8/25/20 Well ID: MW-33

Sampling Organization: Parametrix Samplers: T. Parry + A. York

Purge Data Screened Interval (ft bgs): 20.0-25.0 Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): 11.58 Purge Water Disposal Method: Drum

Purge Device peristaltic pump Pump Intake Depth: 22.5ft

Begin Purge Time: 15:27 End Purge Time: 1610

Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate	Cum. Vol. Purged	Temp (°C)	DO (mg/L)	Specific Conductance (mg/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
1530	11.58	1.5	220	0.05	16.8	1.90	1.489	6.79	-92.3	81.62	
1535	11.58	"	"	0.6	16.3	0.21	1.461	6.66	-99.0	550.45	
1540	11.58	"	"	0.6	16.3	0.33	1.460	6.63	-92.6	413.50	Emptied flow through cell in attempt to clear turbidity.
1545	11.58	"	"	0.8	16.1	0.09	1.454	6.64	-98.8	605.5	
1550	"	"	"	1.1	16.2	0.05	1.444	6.65	-102.0	620.1	
1555	"	"	"	1.5	16.1	0.03	1.435	6.66	-104.1	680.20	
1600	"	"	"	1.75	16.1	0.02	1.421	6.66	-105.7	765.33	
1605	"	"	"	2.2	16.1	0.02	1.408	6.66	-107.1	740.15	
1610	"	"	"	2.4	16.0	0.00	1.401	6.66	-107.8	739.60	
1615		Sampled MW-33 at 16:15									
1620											
1625											
1630											
1635											
1640											
1645											
1650											
1655											
1700											
1705											
1710											
1715											
1720											
1725											
				Stabilization Criteria	3%	10%	3%	± 0.1	± 10 mv	10%	

Sampling Data

Sample ID: SPL-GW-MW33-0820 Time Collected: 1615 Weather: Sunny w/ clear sky

Sample Description (Color, Turbidity, Odor, Other): At purged clear, no odor, bucket water brown, water sample slight yellow color

Sample Analyses:

Duplicate Sample Collected: ☐ Yes ☒ No If yes, ID:

MS/MSD Collected: ☐ Yes ☒ No

Additional Information/Comments

Parametrix

Analytical Resources, Incorporated
Analytical Chemists and Consultants

11 September 2020

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

RE: South Park Landfill -Parametrix Water 2020

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)	Associated SDG ID(s)
20H0287	N/A

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.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 2010287	Turn-around Requested: 2 weeks	Date: 8/26/20	
ARI Client Company: Jeff Neuner, Seattle Public Utility	Phone: 206 684-7693	Page: 1 of 2	
Client Contact: Laura Lee, Parametrix	Phone: 206 394-3665	No. of Coolers: 1	Cooler Temps: 3.6°C
Client Project Name: South Park Landfill			
Client Project #: 553-1550-067	Samplers: Trey Parry		

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

Sample ID	Date	Time	Matrix	Number of Containers	Analysis Requested: cis-1,2-DCE	cis-1,2-DCE, benzene	Vinyl Chloride	Total Fe, Mn	Dissolved As**						Notes/Comments
SPL-GW-MW12-0820	8/25	9:26	water	8	X		X	X	X						**Field-filtered
SPL-GW-MW14-0820	8/25	11:33	water	7	X		X	X							
SPL-GW-MW29-0820	8/25	13:15	water	7	X		X	X							
SPL-GW-MW18-0820	8/25	15:00	water	8	X		X	X	X						
~~SPL-GW-MW25-0820~~			water	14		X	X	X	X						MS/MSD
~~SPL-GW-MW10-0820~~			water	8	X		X	X	X						
SPL-GW-MW33-0820	8/25	16:15	water	8	X		X	X	X						
SPL-GW-MW60-0820	8/25	1331	water	~~8~~ 7	X		X	X	[illegible]						No Dissolved As Analysis
SPL-GW-MW80-0820	8/19	N/A	water	~~8~~ 2	X		X								

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Trey Parry	Printed Name: Jamshalter	Printed Name:	Printed Name:
	Company: Parametrix	Company: ARI	Company:	Company:
	Date & Time: 8/26/20 1628	Date & Time: 08/26/2020 1628	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, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: Unless specified by work order or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 204027	Turn-around Requested: 2 weeks	Date: 8/26/20	
ARI Client Company: Jeff Neuner, Seattle Public Utility	Phone: 206 684-7693	Page: 2 of 2	
Client Contact: Lisa Gilbert, Parametrix	Phone: 206 394-3667	No. of Coolers: 1	Cooler Temps: 3.6 C
Client Project Name: South Park Landfill			
Client Project #: 553-1550-067	Samplers: Trey Parry		

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

Sample ID	Date	Time	Matrix	Number of Containers	Analysis Requested: cis-1,2-DCE	cis-1,2-DCE, benzene	Vinyl Chloride	Total Fe, Mn	Dissolved As**	Notes/Comments
~~SPL-GW-MW32-0820~~			water	8	X		X	X	X	**Field-filtered
SPL-GW-MW27-0820	8/26	1350	water	14	X		X	X	X	MS/MSD
SPL-GW-MW08-0820	8/26	1215	water	8	X		X	X	X	
~~SPL-GW-MW26-0820~~			water	8	X		X	X	X	
SPL-GW-MW24-0820	8/26	1600	water	8	X		X	X	X	
SPL-GW-MW31-0820	8/26	10:10	water	7	X		X	X		
SPL-GW-MW30-0820	8/26	9:00	water	7	X		X	X		
~~SPL-GW-MW61-0820~~			water	8	X		X	X	X	
~~SPL-GW-MW81-0820~~	8/19		water	~~8~~ 2		X	X			

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Trey Parry	Printed Name: Jacob Leathe	Printed Name:	Printed Name:
	Company: Parametrix	Company: ARI	Company:	Company:
	Date & Time: 8/26/20 16:26	Date & Time: 08/26/2020 1638	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, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: Unless specified by work order or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.

Analytical Report

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SPL-GW-MW12-0820	20H0287-01	Water	25-Aug-2020 09:26	26-Aug-2020 16:28
SPL-GW-MW12-0820	20H0287-02	Water	25-Aug-2020 09:26	26-Aug-2020 16:28
SPL-GW-MW14-0820	20H0287-03	Water	25-Aug-2020 11:33	26-Aug-2020 16:28
SPL-GW-MW29-0820	20H0287-04	Water	25-Aug-2020 13:15	26-Aug-2020 16:28
SPL-GW-MW18-0820	20H0287-05	Water	25-Aug-2020 15:00	26-Aug-2020 16:28
SPL-GW-MW18-0820	20H0287-06	Water	25-Aug-2020 15:00	26-Aug-2020 16:28
SPL-GW-MW33-0820	20H0287-07	Water	25-Aug-2020 16:15	26-Aug-2020 16:28
SPL-GW-MW33-0820	20H0287-08	Water	25-Aug-2020 16:15	26-Aug-2020 16:28
SPL-GW-MW60-0820	20H0287-09	Water	25-Aug-2020 13:31	26-Aug-2020 16:28
SPL-GW-MW80-0820	20H0287-10	Water	25-Aug-2020 00:00	26-Aug-2020 16:28
SPL-GW-MW27-0820	20H0287-11	Water	26-Aug-2020 13:50	26-Aug-2020 16:28
SPL-GW-MW27-0820	20H0287-12	Water	26-Aug-2020 13:50	26-Aug-2020 16:28
SPL-GW-MW08-0820	20H0287-13	Water	26-Aug-2020 12:15	26-Aug-2020 16:28
SPL-GW-MW08-0820	20H0287-14	Water	26-Aug-2020 12:15	26-Aug-2020 16:28
SPL-GW-MW24-0820	20H0287-15	Water	26-Aug-2020 16:00	26-Aug-2020 16:28
SPL-GW-MW24-0820	20H0287-16	Water	26-Aug-2020 16:00	26-Aug-2020 16:28
SPL-GW-MW31-0820	20H0287-17	Water	26-Aug-2020 10:10	26-Aug-2020 16:28
SPL-GW-MW30-0820	20H0287-18	Water	26-Aug-2020 09:00	26-Aug-2020 16:28

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

Work Order Case Narrative

Client: Seattle Public Utilities
Project: South Park Landfill -Parametrix Water 2020
Work Order: 20H0287

Sample receipt

Samples as listed on the preceding page were received 26-Aug-2020 16:28 under ARI work order 20H0287. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Volatiles - EPA Method SW8260D

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 blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within limits.

Sample specific QC was performed in association with sample 20H0287-11 in batch BII0015. The matrix spike/matrix spike duplicate (MS/MSD) spike recoveries were out of control low and have been flagged within the QC section of this report. The MS/MSD relative percent difference (RPD) were within limits.

Volatiles - EPA Method 8260D-SIM (Selected Ion Monitoring)

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 blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within limits.

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

Sample specific QC was performed in association with sample 20H0287-11 in batch BIH0605. The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within 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 blank spike (BS/LCS) percent recoveries were within control limits.

Sample specific QC was performed in association with sample 20H0287-11 in batch BII0113The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within limits.

Dissolved Arsenic - 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 blank spike (BS/LCS) percent recoveries were within control limits.

Sample specific QC was performed in association with sample 20H0287-12 in batch BII0056. The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within limits.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: SPU/Parametrix Project Name: South Park Landfill

COC No(s): ____ (NA) Delivered by: Fed-Ex UPS Courier Hand Delivered Other: ____

Assigned ARI Job No: 20140287 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 1628 3.6

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: D00(5)06

Cooler Accepted by: JSm Date: 08/26/2020 Time: 1628

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)		____

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

Samples Logged by: [signature] Date: 8/27/2020 Time: 1049 Labels checked by: SLF

***** 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:

WORK ORDER

20H0287

Client: Seattle Public Utilities **Project Manager:** Shelly Fishel

Project: South Park Landfill -Parametrix Water 2020 **Project Number:** 553-155-067

Preservation Confirmation

Container ID	Container Type	pH
20H0287-01 A	VOA Vial, Amber, 40 mL, HCL	
20H0287-01 B	VOA Vial, Amber, 40 mL, HCL	
20H0287-01 C	VOA Vial, Amber, 40 mL, HCL	
20H0287-01 D	VOA Vial, Clear, 40 mL	
20H0287-01 E	VOA Vial, Clear, 40 mL	
20H0287-01 F	VOA Vial, Clear, 40 mL	
20H0287-01 G	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
20H0287-02 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2 pass
20H0287-03 A	VOA Vial, Amber, 40 mL, HCL	
20H0287-03 B	VOA Vial, Amber, 40 mL, HCL	
20H0287-03 C	VOA Vial, Amber, 40 mL, HCL	
20H0287-03 D	VOA Vial, Clear, 40 mL	
20H0287-03 E	VOA Vial, Clear, 40 mL	
20H0287-03 F	VOA Vial, Clear, 40 mL	
20H0287-03 G	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
20H0287-04 A	VOA Vial, Amber, 40 mL, HCL	
20H0287-04 B	VOA Vial, Amber, 40 mL, HCL	
20H0287-04 C	VOA Vial, Amber, 40 mL, HCL	
20H0287-04 D	VOA Vial, Clear, 40 mL	
20H0287-04 E	VOA Vial, Clear, 40 mL	
20H0287-04 F	VOA Vial, Clear, 40 mL	
20H0287-04 G	HDPE NM, 500 mL, 1:1 HNO3	
20H0287-05 A	VOA Vial, Amber, 40 mL, HCL	<2 pass
20H0287-05 B	VOA Vial, Amber, 40 mL, HCL	
20H0287-05 C	VOA Vial, Amber, 40 mL, HCL	
20H0287-05 D	VOA Vial, Clear, 40 mL	
20H0287-05 E	VOA Vial, Clear, 40 mL	
20H0287-05 F	VOA Vial, Clear, 40 mL	
20H0287-05 G	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
20H0287-06 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2 pass
20H0287-07 A	VOA Vial, Amber, 40 mL, HCL	
20H0287-07 B	VOA Vial, Amber, 40 mL, HCL	
20H0287-07 C	VOA Vial, Amber, 40 mL, HCL	
20H0287-07 D	VOA Vial, Clear, 40 mL	
20H0287-07 E	VOA Vial, Clear, 40 mL	

Reviewed By

Date

WORK ORDER

20H0287

Client: Seattle Public Utilities **Project Manager:** Shelly Fishel

Project: South Park Landfill -Parametrix Water 2020 **Project Number:** 553-155-067

20H0287-07 F	VOA Vial, Clear, 40 mL
20H0287-07 G	HDPE NM, 500 mL, 1:1 HNO3
20H0287-08 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)
20H0287-09 A	VOA Vial, Amber, 40 mL, HCL
20H0287-09 B	VOA Vial, Amber, 40 mL, HCL
20H0287-09 C	VOA Vial, Amber, 40 mL, HCL
20H0287-09 D	VOA Vial, Clear, 40 mL
20H0287-09 E	VOA Vial, Clear, 40 mL
20H0287-09 F	VOA Vial, Clear, 40 mL
20H0287-09 G	HDPE NM, 500 mL, 1:1 HNO3
20H0287-10 A	VOA Vial, Amber, 40 mL, HCL
20H0287-10 B	VOA Vial, Clear, 40 mL
20H0287-11 A	VOA Vial, Amber, 40 mL, HCL
20H0287-11 B	VOA Vial, Amber, 40 mL, HCL
20H0287-11 C	VOA Vial, Amber, 40 mL, HCL
20H0287-11 D	VOA Vial, Clear, 40 mL
20H0287-11 E	VOA Vial, Clear, 40 mL
20H0287-11 F	VOA Vial, Clear, 40 mL
20H0287-11 G	HDPE NM, 500 mL, 1:1 HNO3
20H0287-11 H	VOA Vial, Amber, 40 mL, HCL
20H0287-11 I	VOA Vial, Amber, 40 mL, HCL
20H0287-11 J	VOA Vial, Amber, 40 mL, HCL
20H0287-11 K	VOA Vial, Clear, 40 mL
20H0287-11 L	VOA Vial, Clear, 40 mL
20H0287-11 M	VOA Vial, Clear, 40 mL
20H0287-12 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)
20H0287-13 A	VOA Vial, Amber, 40 mL, HCL
20H0287-13 B	VOA Vial, Amber, 40 mL, HCL
20H0287-13 C	VOA Vial, Amber, 40 mL, HCL
20H0287-13 D	VOA Vial, Clear, 40 mL
20H0287-13 E	VOA Vial, Clear, 40 mL
20H0287-13 F	VOA Vial, Clear, 40 mL
20H0287-13 G	HDPE NM, 500 mL, 1:1 HNO3
20H0287-14 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)
20H0287-15 A	VOA Vial, Amber, 40 mL, HCL
20H0287-15 B	VOA Vial, Amber, 40 mL, HCL
20H0287-15 C	VOA Vial, Amber, 40 mL, HCL

Reviewed By

Date

WORK ORDER

20H0287

Client: Seattle Public Utilities | **Project Manager:** Shelly Fishel

Project: South Park Landfill -Parametrix Water 2020 | **Project Number:** 553-155-067

20H0287-15 D	VOA Vial, Clear, 40 mL	
20H0287-15 E	VOA Vial, Clear, 40 mL	
20H0287-15 F	VOA Vial, Clear, 40 mL	
20H0287-15 G	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
20H0287-16 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2 pass
20H0287-17 A	VOA Vial, Amber, 40 mL, HCL	
20H0287-17 B	VOA Vial, Amber, 40 mL, HCL	
20H0287-17 C	VOA Vial, Amber, 40 mL, HCL	
20H0287-17 D	VOA Vial, Clear, 40 mL	
20H0287-17 E	VOA Vial, Clear, 40 mL	
20H0287-17 F	VOA Vial, Clear, 40 mL	
20H0287-17 G	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
20H0287-18 A	VOA Vial, Amber, 40 mL, HCL	
20H0287-18 B	VOA Vial, Amber, 40 mL, HCL	
20H0287-18 C	VOA Vial, Amber, 40 mL, HCL	
20H0287-18 D	VOA Vial, Clear, 40 mL	
20H0287-18 E	VOA Vial, Clear, 40 mL	
20H0287-18 F	VOA Vial, Clear, 40 mL	
20H0287-18 G	HDPE NM, 500 mL, 1:1 HNO3	<2 pass

Preservation Confirmed By

8/27/2020
Date

Reviewed By

Date

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW12-0820

20H0287-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/25/2020 09:26

Instrument: NT2 Analyst: PKC — Analyzed: 08/31/2020 20:25

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20H0287-01 B

Preparation Batch: BIH0671 — Sample Size: 10 mL

Prepared: 08/31/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.21	ug/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*113*	*%*	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW12-0820

20H0287-01 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/25/2020 09:26

Instrument: NT16 Analyst: PB — Analyzed: 08/28/2020 12:49

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20H0287-01 D

Preparation Batch: BIH0605 — Sample Size: 10 mL

Prepared: 08/28/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	ND	ng/L	U
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*96.2*	*%*	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW12-0820

20H0287-01 (Water)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 08/25/2020 09:26

Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/04/2020 17:21

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0287-01 G 01

Preparation Batch: BII0113 — Sample Size: 25 mL

Prepared: 09/04/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	20.0	1610	ug/L	

Instrument: ICPMS2 Analyst: MCB — Analyzed: 09/08/2020 16:11

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0287-01 G 01

Preparation Batch: BII0113 — Sample Size: 25 mL

Prepared: 09/04/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	1	0.500	158	ug/L	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW12-0820

20H0287-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020A UCT-KED — Sampled: 08/25/2020 09:26

Instrument: ICPMS2 Analyst: MCB — Analyzed: 09/08/2020 17:21

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0287-02 A 01

Preparation Batch: BII0156 — Sample Size: 25 mL

Prepared: 09/07/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	0.497	ug/L	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW14-0820

20H0287-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/25/2020 11:33

Instrument: NT2 Analyst: PKC — Analyzed: 08/31/2020 20:46

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20H0287-03 A

Preparation Batch: BIH0671 — Sample Size: 10 mL

Prepared: 08/31/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*115*	*%*	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW14-0820

20H0287-03 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/25/2020 11:33

Instrument: NT16 Analyst: PB — Analyzed: 08/28/2020 13:09

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20H0287-03 E

Preparation Batch: BIH0605 — Sample Size: 10 mL

Prepared: 08/28/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	ND	ng/L	U
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*95.3*	*%*	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW14-0820

20H0287-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 08/25/2020 11:33
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/04/2020 17:25

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0287-03 G 01
Preparation Batch: BII0113 — Sample Size: 25 mL
Prepared: 09/04/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	20.0	4040	ug/L	

Instrument: ICPMS2 Analyst: MCB — Analyzed: 09/08/2020 16:03

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0287-03 G 01
Preparation Batch: BII0113 — Sample Size: 25 mL
Prepared: 09/04/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	5	2.50	623	ug/L	D

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW29-0820

20H0287-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/25/2020 13:15

Instrument: NT2 Analyst: PKC — Analyzed: 08/31/2020 21:06

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20H0287-04 A

Preparation Batch: BIH0671 — Sample Size: 10 mL

Prepared: 08/31/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*114*	*%*	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW29-0820

20H0287-04 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/25/2020 13:15

Instrument: NT16 Analyst: PB — Analyzed: 08/28/2020 13:30

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20H0287-04 D

Preparation Batch: BIH0605 — Sample Size: 10 mL

Prepared: 08/28/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	124	ng/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*98.8*	*%*	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW29-0820

20H0287-04 (Water)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 08/25/2020 13:15

Instrument: ICPMS2 Analyst: MCB — Analyzed: 09/08/2020 16:55

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0287-04 G 01

Preparation Batch: BII0113 — Sample Size: 25 mL

Prepared: 09/04/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	200	32400	ug/L	D
Manganese	7439-96-5	10	5.00	650	ug/L	D

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW18-0820

20H0287-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/25/2020 15:00

Instrument: NT2 Analyst: PKC — Analyzed: 08/31/2020 21:27

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20H0287-05 A

Preparation Batch: BIH0671 — Sample Size: 10 mL

Prepared: 08/31/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*119*	*%*	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW18-0820

20H0287-05 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/25/2020 15:00

Instrument: NT16 Analyst: PB — Analyzed: 08/28/2020 13:50

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20H0287-05 D

Preparation Batch: BIH0605 — Sample Size: 10 mL

Prepared: 08/28/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	35.7	ng/L	M
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*99.0*	*%*	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW18-0820

20H0287-05 (Water)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 08/25/2020 15:00

Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/04/2020 17:34

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0287-05 G 01

Preparation Batch: BII0113 — Sample Size: 25 mL

Prepared: 09/04/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	20.0	18000	ug/L	

Instrument: ICPMS2 Analyst: MCB — Analyzed: 09/08/2020 16:19

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0287-05 G 01

Preparation Batch: BII0113 — Sample Size: 25 mL

Prepared: 09/04/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	10	5.00	1500	ug/L	D

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW18-0820

20H0287-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020A UCT-KED — Sampled: 08/25/2020 15:00

Instrument: ICPMS2 Analyst: MCB — Analyzed: 09/08/2020 17:26

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0287-06 A 01

Preparation Batch: BII0156 — Sample Size: 25 mL

Prepared: 09/07/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	ND	ug/L	U

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW33-0820

20H0287-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/25/2020 16:15

Instrument: NT2 Analyst: PKC — Analyzed: 08/31/2020 21:47

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20H0287-07 B

Preparation Batch: BIH0671 — Sample Size: 10 mL

Prepared: 08/31/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*117*	*%*	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW33-0820

20H0287-07 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/25/2020 16:15

Instrument: NT16 Analyst: PB — Analyzed: 08/28/2020 14:10

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20H0287-07 D

Preparation Batch: BIH0605 — Sample Size: 10 mL

Prepared: 08/28/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	86.2	ng/L	M
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*99.7*	*%*	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW33-0820

20H0287-07 (Water)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 08/25/2020 16:15

Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/04/2020 17:38

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0287-07 G 01

Preparation Batch: BII0113 — Sample Size: 25 mL

Prepared: 09/04/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	20.0	14100	ug/L	

Instrument: ICPMS2 Analyst: MCB — Analyzed: 09/08/2020 16:23

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0287-07 G 01

Preparation Batch: BII0113 — Sample Size: 25 mL

Prepared: 09/04/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	10	5.00	1710	ug/L	D

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW33-0820

20H0287-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020A UCT-KED — Sampled: 08/25/2020 16:15

Instrument: ICPMS2 Analyst: MCB — Analyzed: 09/08/2020 17:32

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0287-08 A 01

Preparation Batch: BII0156 — Sample Size: 25 mL

Prepared: 09/07/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	1.04	ug/L	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW60-0820

20H0287-09 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/25/2020 13:31

Instrument: NT2 Analyst: PKC — Analyzed: 09/01/2020 14:59

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20H0287-09 A

Preparation Batch: BII0015 — Sample Size: 10 mL

Prepared: 09/01/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*121*	*%*	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW60-0820

20H0287-09 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/25/2020 13:31

Instrument: NT16 Analyst: PB — Analyzed: 08/28/2020 14:30

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20H0287-09 D

Preparation Batch: BIH0605 — Sample Size: 10 mL

Prepared: 08/28/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	132	ng/L	M
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*98.6*	*%*	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW60-0820

20H0287-09 (Water)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 08/25/2020 13:31

Instrument: ICPMS2 Analyst: MCB — Analyzed: 09/08/2020 16:59

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0287-09 G 01

Preparation Batch: BII0113 — Sample Size: 25 mL

Prepared: 09/04/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	200	34000	ug/L	D
Manganese	7439-96-5	10	5.00	687	ug/L	D

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW80-0820

20H0287-10 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/25/2020 00:00

Instrument: NT2 Analyst: PKC — Analyzed: 09/01/2020 14:19

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20H0287-10 A

Preparation Batch: BII0015 — Sample Size: 10 mL

Prepared: 09/01/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*109*	*%*	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW80-0820

20H0287-10 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/25/2020 00:00

Instrument: NT16 Analyst: PB — Analyzed: 08/28/2020 12:29

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20H0287-10 B

Preparation Batch: BIH0605 — Sample Size: 10 mL

Prepared: 08/28/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	ND	ng/L	U
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*90.5*	*%*	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW27-0820

20H0287-11 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/26/2020 13:50

Instrument: NT2 Analyst: PKC — Analyzed: 09/01/2020 15:20

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20H0287-11 B

Preparation Batch: BII0015 — Sample Size: 10 mL

Prepared: 09/01/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*109*	*%*	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW27-0820

20H0287-11 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/26/2020 13:50

Instrument: NT16 Analyst: PB — Analyzed: 08/28/2020 14:50

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20H0287-11 F

Preparation Batch: BIH0605 — Sample Size: 10 mL

Prepared: 08/28/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	76.9	ng/L	M
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*101*	*%*	

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Analytical Report

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW27-0820

20H0287-11 (Water)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 08/26/2020 13:50

Instrument: ICPMS2 Analyst: MCB — Analyzed: 09/08/2020 17:03

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0287-11 G 01

Preparation Batch: BII0113 — Sample Size: 25 mL

Prepared: 09/04/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	200	31300	ug/L	D
Manganese	7439-96-5	10	5.00	822	ug/L	D

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW27-0820

20H0287-12 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020A UCT-KED — Sampled: 08/26/2020 13:50

Instrument: ICPMS2 Analyst: MCB — Analyzed: 09/08/2020 18:17

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0287-12 A 01

Preparation Batch: BII0156 — Sample Size: 25 mL

Prepared: 09/07/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	13.3	ug/L	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW08-0820

20H0287-13 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/26/2020 12:15

Instrument: NT2 Analyst: PKC — Analyzed: 09/01/2020 15:40

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20H0287-13 B

Preparation Batch: BII0015 — Sample Size: 10 mL

Prepared: 09/01/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*114*	*%*	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW08-0820

20H0287-13 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/26/2020 12:15

Instrument: NT16 Analyst: PB — Analyzed: 08/28/2020 15:11

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20H0287-13 F

Preparation Batch: BIH0605 — Sample Size: 10 mL

Prepared: 08/28/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	71.2	ng/L	M
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*101*	*%*	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW08-0820

20H0287-13 (Water)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 08/26/2020 12:15

Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/04/2020 17:47

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0287-13 G 01

Preparation Batch: BII0113 — Sample Size: 25 mL

Prepared: 09/04/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	20.0	15300	ug/L	

Instrument: ICPMS2 Analyst: MCB — Analyzed: 09/08/2020 16:27

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0287-13 G 01

Preparation Batch: BII0113 — Sample Size: 25 mL

Prepared: 09/04/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	10	5.00	1230	ug/L	D

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW08-0820

20H0287-14 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020A UCT-KED — Sampled: 08/26/2020 12:15

Instrument: ICPMS2 Analyst: MCB — Analyzed: 09/08/2020 18:10

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0287-14 A 01

Preparation Batch: BII0156 — Sample Size: 25 mL

Prepared: 09/07/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	0.254	ug/L	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW24-0820

20H0287-15 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/26/2020 16:00

Instrument: NT2 Analyst: PKC — Analyzed: 09/01/2020 16:00

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20H0287-15 B

Preparation Batch: BII0015 — Sample Size: 10 mL

Prepared: 09/01/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*123*	*%*	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW24-0820

20H0287-15 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/26/2020 16:00

Instrument: NT16 Analyst: PB — Analyzed: 08/28/2020 15:31

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20H0287-15 F

Preparation Batch: BIH0605 — Sample Size: 10 mL

Prepared: 08/28/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	30.8	ng/L	M
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*98.9*	*%*	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW24-0820

20H0287-15 (Water)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 08/26/2020 16:00

Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/04/2020 17:51

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0287-15 G 01

Preparation Batch: BII0113 — Sample Size: 25 mL

Prepared: 09/04/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	20.0	17900	ug/L	

Instrument: ICPMS2 Analyst: MCB — Analyzed: 09/08/2020 16:30

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0287-15 G 01

Preparation Batch: BII0113 — Sample Size: 25 mL

Prepared: 09/04/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	10	5.00	1400	ug/L	D

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW24-0820

20H0287-16 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020A UCT-KED — Sampled: 08/26/2020 16:00

Instrument: ICPMS2 Analyst: MCB — Analyzed: 09/08/2020 18:13

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0287-16 A 01

Preparation Batch: BII0156 — Sample Size: 25 mL

Prepared: 09/07/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	ND	ug/L	U

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW31-0820

20H0287-17 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/26/2020 10:10

Instrument: NT2 Analyst: PKC — Analyzed: 09/01/2020 16:21

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20H0287-17 C

Preparation Batch: BII0015 — Sample Size: 10 mL

Prepared: 09/01/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*124*	*%*	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW31-0820

20H0287-17 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/26/2020 10:10

Instrument: NT16 Analyst: PB — Analyzed: 08/28/2020 15:51

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20H0287-17 E

Preparation Batch: BIH0605 — Sample Size: 10 mL

Prepared: 08/28/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	475	ng/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*99.3*	*%*	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW31-0820

20H0287-17 (Water)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 08/26/2020 10:10

Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/04/2020 17:56

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0287-17 G 01

Preparation Batch: BII0113 — Sample Size: 25 mL

Prepared: 09/04/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	20.0	12300	ug/L	

Instrument: ICPMS2 Analyst: MCB — Analyzed: 09/08/2020 16:07

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0287-17 G 01

Preparation Batch: BII0113 — Sample Size: 25 mL

Prepared: 09/04/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	5	2.50	558	ug/L	D

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700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW30-0820

20H0287-18 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/26/2020 09:00

Instrument: NT2 Analyst: PKC — Analyzed: 09/01/2020 16:41

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20H0287-18 B

Preparation Batch: BII0015 — Sample Size: 10 mL

Prepared: 09/01/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*120*	*%*	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW30-0820

20H0287-18 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/26/2020 09:00

Instrument: NT16 Analyst: PB — Analyzed: 08/28/2020 16:11

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20H0287-18 D

Preparation Batch: BIH0605 — Sample Size: 10 mL

Prepared: 08/28/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	161	ng/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*99.2*	*%*	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

SPL-GW-MW30-0820

20H0287-18 (Water)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 08/26/2020 09:00

Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/04/2020 18:03

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0287-18 G 01

Preparation Batch: BII0113 — Sample Size: 25 mL

Prepared: 09/04/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	20.0	2880	ug/L	

Instrument: ICPMS2 Analyst: MCB — Analyzed: 09/08/2020 16:15

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0287-18 G 01

Preparation Batch: BII0113 — Sample Size: 25 mL

Prepared: 09/04/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	1	0.500	155	ug/L	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

Volatile Organic Compounds - Quality Control

Batch BIH0671 - EPA 5030C (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
Blank (BIH0671-BLK1)				Prepared: 31-Aug-2020 Analyzed: 31-Aug-2020 14:16						
cis-1,2-Dichloroethene	ND	0.20	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5.08		ug/L	*5.00*		*102*	*80-129*			
LCS (BIH0671-BS1)				Prepared: 31-Aug-2020 Analyzed: 31-Aug-2020 10:52						
cis-1,2-Dichloroethene	9.16	0.20	ug/L	10.0		91.6	80-121			
Surrogate: 1,2-Dichloroethane-d4	4.79		ug/L	*5.00*		*95.7*	*80-129*			
LCS Dup (BIH0671-BSD1)				Prepared: 31-Aug-2020 Analyzed: 31-Aug-2020 11:15						
cis-1,2-Dichloroethene	8.97	0.20	ug/L	10.0		89.7	80-121	2.01	30	
Surrogate: 1,2-Dichloroethane-d4	4.70		ug/L	*5.00*		*94.1*	*80-129*			

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

Volatile Organic Compounds - Quality Control

Batch BII0015 - EPA 5030C (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
Blank (BII0015-BLK1)				Prepared: 01-Sep-2020 Analyzed: 01-Sep-2020 13:58						
cis-1,2-Dichloroethene	ND	0.20	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5.38		ug/L	*5.00*		*108*	*80-129*			
LCS (BII0015-BS1)				Prepared: 01-Sep-2020 Analyzed: 01-Sep-2020 11:56						
cis-1,2-Dichloroethene	9.01	0.20	ug/L	10.0		90.1	80-121			
Surrogate: 1,2-Dichloroethane-d4	5.16		ug/L	*5.00*		*103*	*80-129*			
LCS Dup (BII0015-BSD1)				Prepared: 01-Sep-2020 Analyzed: 01-Sep-2020 12:17						
cis-1,2-Dichloroethene	9.39	0.20	ug/L	10.0		93.9	80-121	4.17	30	
Surrogate: 1,2-Dichloroethane-d4	4.95		ug/L	*5.00*		*99.1*	*80-129*			
Matrix Spike (BII0015-MS1)	**Source: 20H0287-11**			Prepared: 01-Sep-2020 Analyzed: 01-Sep-2020 21:00						
cis-1,2-Dichloroethene	7.75	0.20	ug/L	10.0	ND	76.2	80-121			*
Surrogate: 1,2-Dichloroethane-d4	5.66		ug/L	*5.00*	*5.47*	*113*	*80-129*			

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

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BII0015-MSD1)	**Source: 20H0287-11**			Prepared: 01-Sep-2020 Analyzed: 01-Sep-2020 21:21						
cis-1,2-Dichloroethene	7.90	0.20	ug/L	10.0	ND	77.7	80-121	1.88	30	*
Surrogate: 1,2-Dichloroethane-d4	5.69		ug/L	*5.00*	*5.47*	*114*	*80-129*			

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

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

Volatile Organic Compounds - SIM - Quality Control

Batch BIH0605 - EPA 5030C (Purge and Trap)

Instrument: NT16 Analyst: PB

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIH0605-BLK1)				Prepared: 28-Aug-2020 Analyzed: 28-Aug-2020 10:37						
Vinyl chloride	ND	20.0	ng/L							U
Surrogate: 1,2-Dichloroethane-d4	4700		ng/L	*5000*		*94.1*	*80-129*			
LCS (BIH0605-BS1)				Prepared: 28-Aug-2020 Analyzed: 28-Aug-2020 09:40						
Vinyl chloride	2410	20.0	ng/L	2000		120	76-120			
Surrogate: 1,2-Dichloroethane-d4	4840		ng/L	*5000*		*96.9*	*80-129*			
LCS Dup (BIH0605-BSD1)				Prepared: 28-Aug-2020 Analyzed: 28-Aug-2020 10:17						
Vinyl chloride	1950	20.0	ng/L	2000		97.6	76-120	20.90	30	
Surrogate: 1,2-Dichloroethane-d4	4700		ng/L	*5000*		*93.9*	*80-129*			
Matrix Spike (BIH0605-MS1)	**Source: 20H0287-11**			Prepared: 28-Aug-2020 Analyzed: 28-Aug-2020 18:32						
Vinyl chloride	2040	20.0	ng/L	2000	76.9	98.1	76-120			
Surrogate: 1,2-Dichloroethane-d4	4990		ng/L	*5000*	*5030*	*99.9*	*80-129*			

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

Matrix Spike Dup (BIH0605-MSD1)	**Source: 20H0287-11**			Prepared: 28-Aug-2020 Analyzed: 28-Aug-2020 18:52						
Vinyl chloride	2030	20.0	ng/L	2000	76.9	97.6	76-120	0.48	30	
Surrogate: 1,2-Dichloroethane-d4	5100		ng/L	*5000*	*5030*	*102*	*80-129*			

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

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
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Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

Metals and Metallic Compounds - Quality Control

Batch BII0113 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BII0113-BLK1)				Prepared: 04-Sep-2020 Analyzed: 04-Sep-2020 13:07							
Iron	54	ND	20.0	ug/L							U
Iron	57	ND	20.0	ug/L							U
Manganese	55	ND	0.500	ug/L							U
LCS (BII0113-BS1)				Prepared: 04-Sep-2020 Analyzed: 04-Sep-2020 13:11							
Iron	54	4970	20.0	ug/L	5000		99.5	80-120			
Iron	57	5070	20.0	ug/L	5000		101	80-120			
Manganese	55	28.9	0.500	ug/L	25.0		116	80-120			

Instrument: ICPMS2 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Duplicate (BII0113-DUP2)		**Source: 20H0287-11**		Prepared: 04-Sep-2020 Analyzed: 08-Sep-2020 17:07							
Iron	54	30600	200	ug/L		31300			2.43	20	D
Manganese	55	794	5.00	ug/L		822			3.37	20	D
Matrix Spike (BII0113-MS2)		**Source: 20H0287-11**		Prepared: 04-Sep-2020 Analyzed: 08-Sep-2020 17:11							
Iron	54	37500	200	ug/L	5000	31300	123	75-125			D
Manganese	55	855	5.00	ug/L	25.0	822	132	75-125			HC, D

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

Matrix Spike Dup (BII0113-MSD2)		**Source: 20H0287-11**		Prepared: 04-Sep-2020 Analyzed: 08-Sep-2020 17:15							
Iron	54	35600	200	ug/L	5000	31300	85.1	75-125	5.19	20	D
Manganese	55	812	5.00	ug/L	25.0	822	-38.0	75-125	5.11	20	HC, D

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

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700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BII0156 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS2 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BII0156-BLK1)					Prepared: 07-Sep-2020 Analyzed: 08-Sep-2020 15:02						
Arsenic, Dissolved	75a	ND	0.200	ug/L							U
LCS (BII0156-BS1)					Prepared: 07-Sep-2020 Analyzed: 08-Sep-2020 15:05						
Arsenic, Dissolved	75a	25.7	0.200	ug/L	25.0		103	80-120			
Duplicate (BII0156-DUP1)		**Source: 20H0287-12**			Prepared: 07-Sep-2020 Analyzed: 08-Sep-2020 18:21						
Arsenic, Dissolved	75a	13.1	0.200	ug/L		13.3			1.64	20	
Matrix Spike (BII0156-MS1)		**Source: 20H0287-12**			Prepared: 07-Sep-2020 Analyzed: 08-Sep-2020 18:25						
Arsenic, Dissolved	75a	38.7	0.200	ug/L	25.0	13.3	102	75-125			

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

Matrix Spike Dup (BII0156-MSD1)		**Source: 20H0287-12**			Prepared: 07-Sep-2020 Analyzed: 08-Sep-2020 18:31						
Arsenic, Dissolved	75a	37.0	0.200	ug/L	25.0	13.3	94.8	75-125	4.48	20	

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
EPA 6020A in Water	
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-54	NELAP,DoD-ELAP
Iron-54	WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,DoD-ELAP
Iron-57	WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,DoD-ELAP
Manganese-55	WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
EPA 6020A UCT-KED in Water	
Arsenic-75a	WADOE,DoD-ELAP,ADEC
Arsenic-75a	NELAP,WADOE,DoD-ELAP,ADEC
Arsenic-75a	NELAP,DoD-ELAP,ADEC
Arsenic-75a	NELAP,WADOE,DoD-ELAP,ADEC
EPA 8260D in Water	
Chloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloromethane	DoD-ELAP,ADEC,CALAP,WADOE
Chloromethane	DoD-ELAP,ADEC,NELAP,CALAP
Vinyl Chloride	DoD-ELAP,ADEC,CALAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,CALAP
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromomethane	DoD-ELAP,ADEC,CALAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,CALAP
Chloroethane	DoD-ELAP,ADEC,CALAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,CALAP
Chloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,WADOE

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Trichlorofluoromethane	DoD-ELAP,ADEC,CALAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,CALAP
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Acrolein	DoD-ELAP,NELAP,WADOE
Acrolein	DoD-ELAP,CALAP,WADOE
Acrolein	DoD-ELAP,NELAP,CALAP
Acrolein	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,CALAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acetone	DoD-ELAP,ADEC,CALAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,CALAP
1,1-Dichloroethene	DoD-ELAP,ADEC,CALAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Iodomethane	DoD-ELAP,CALAP,WADOE
Iodomethane	DoD-ELAP,NELAP,CALAP
Iodomethane	DoD-ELAP,NELAP,CALAP,WADOE
Iodomethane	DoD-ELAP,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,CALAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,CALAP
Acrylonitrile	DoD-ELAP,CALAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,CALAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,CALAP
Carbon Disulfide	DoD-ELAP,NELAP,CALAP
Carbon Disulfide	DoD-ELAP,CALAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,CALAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,CALAP,WADOE

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trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,CALAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,CALAP
Vinyl Acetate	DoD-ELAP,NELAP,CALAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP
2-Butanone	DoD-ELAP,CALAP,WADOE
2-Butanone	DoD-ELAP,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP,CALAP
2-Butanone	DoD-ELAP,NELAP,CALAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP
2,2-Dichloropropane	DoD-ELAP,ADEC,CALAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,CALAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloroform	DoD-ELAP,ADEC,CALAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,CALAP
Bromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP
Bromochloromethane	DoD-ELAP,ADEC,CALAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP
1,1-Dichloropropene	DoD-ELAP,ADEC,CALAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,CALAP
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE

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Carbon tetrachloride	DoD-ELAP,ADEC,CALAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,2-Dichloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,CALAP
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,CALAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,CALAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,CALAP
Trichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,CALAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,CALAP
Bromodichloromethane	DoD-ELAP,ADEC,CALAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,CALAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,CALAP
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,CALAP
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,CALAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,CALAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,CALAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,CALAP
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,CALAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE

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Toluene	DoD-ELAP,ADEC,NELAP,CALAP
Toluene	DoD-ELAP,ADEC,CALAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,CALAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,CALAP,WADOE
2-Hexanone	DoD-ELAP,CALAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,CALAP
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1,2-Trichloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,CALAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,CALAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,CALAP
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP
Dibromochloromethane	DoD-ELAP,ADEC,CALAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,CALAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,CALAP
1,2-Dibromoethane	DoD-ELAP,NELAP,CALAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
Chlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,CALAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,CALAP

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,CALAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,CALAP
m,p-Xylene	DoD-ELAP,ADEC,CALAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,CALAP
o-Xylene	DoD-ELAP,ADEC,CALAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Styrene	DoD-ELAP,NELAP,WADOE
Styrene	DoD-ELAP,CALAP,WADOE
Styrene	DoD-ELAP,NELAP,CALAP
Styrene	DoD-ELAP,NELAP,CALAP,WADOE
Bromoform	DoD-ELAP,CALAP,WADOE
Bromoform	DoD-ELAP,NELAP,CALAP
Bromoform	DoD-ELAP,NELAP,CALAP,WADOE
Bromoform	DoD-ELAP,NELAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,CALAP
1,2,3-Trichloropropane	DoD-ELAP,ADEC,CALAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,CALAP
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,CALAP,WADOE
n-Propylbenzene	DoD-ELAP,CALAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,CALAP
n-Propylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,CALAP,WADOE
Bromobenzene	DoD-ELAP,CALAP,WADOE

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

Bromobenzene	DoD-ELAP,NELAP,CALAP
Isopropyl Benzene	DoD-ELAP,CALAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,CALAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,CALAP
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,CALAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP
4-Chlorotoluene	DoD-ELAP,ADEC,CALAP,WADOE
t-Butylbenzene	DoD-ELAP,CALAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,CALAP
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,CALAP
1,3,5-Trimethylbenzene	DoD-ELAP,CALAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,CALAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,CALAP
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,CALAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,CALAP
s-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,CALAP
4-Isopropyl Toluene	DoD-ELAP,CALAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,CALAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

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

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

n-Hexane	
n-Hexane	WADOE
n-Hexane	WADOE
2-Pentanone	WADOE
2-Pentanone	
2-Pentanone	WADOE
2-Pentanone	WADOE

EPA 8260D-SIM in Water

Acrylonitrile	NELAP,CALAP
Acrylonitrile	NELAP,WADOE
Acrylonitrile	NELAP,CALAP,WADOE
Acrylonitrile	CALAP,WADOE
Vinyl chloride	CALAP,WADOE
Vinyl chloride	NELAP,CALAP
Vinyl chloride	NELAP,WADOE
Vinyl chloride	NELAP,CALAP,WADOE
1,1-Dichloroethene	NELAP,CALAP,WADOE
1,1-Dichloroethene	NELAP,WADOE
1,1-Dichloroethene	CALAP,WADOE
1,1-Dichloroethene	NELAP,CALAP
cis-1,2-Dichloroethene	NELAP,CALAP,WADOE
cis-1,2-Dichloroethene	NELAP,WADOE
cis-1,2-Dichloroethene	CALAP,WADOE
cis-1,2-Dichloroethene	NELAP,CALAP
trans-1,2-Dichloroethene	CALAP,WADOE
trans-1,2-Dichloroethene	NELAP,CALAP
trans-1,2-Dichloroethene	NELAP,WADOE
trans-1,2-Dichloroethene	NELAP,CALAP,WADOE
Trichloroethene	CALAP,WADOE
Trichloroethene	NELAP,CALAP
Trichloroethene	NELAP,CALAP,WADOE
Trichloroethene	NELAP,WADOE
Tetrachloroethene	NELAP,CALAP,WADOE
Tetrachloroethene	NELAP,WADOE
Tetrachloroethene	CALAP,WADOE
Tetrachloroethene	NELAP,CALAP
1,1,2,2-Tetrachloroethane	NELAP,CALAP,WADOE
1,1,2,2-Tetrachloroethane	NELAP,CALAP
1,1,2,2-Tetrachloroethane	CALAP,WADOE

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

1,1,2,2-Tetrachloroethane	NELAP,WADOE
1,2-Dichloroethane	NELAP,CALAP
1,2-Dichloroethane	CALAP,WADOE
1,2-Dichloroethane	NELAP,WADOE
1,2-Dichloroethane	NELAP,CALAP,WADOE
Benzene	NELAP,CALAP,WADOE
Benzene	NELAP,CALAP
Benzene	CALAP,WADOE
Benzene	NELAP,WADOE

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	01/31/2021
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 09:55

Notes and Definitions

*	Flagged value is not within established control limits.
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)
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.
M	Estimated value for a GC/MS analyte detected and confirmed by an analyst but with low spectral match parameters.
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.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

11 September 2020

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

RE: South Park Landfill -Parametrix Water 2020

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)	Associated SDG ID(s)
20H0297	N/A

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.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 20H0297	Turn-around Requested: 2 weeks	Date: 8/27/20
ARI Client Company: Jeff Neuner, Seattle Public Utility	Phone: 206 684-7693	Page: 1 of 2
Client Contact: Lisa Gilbert, Parametrix	Phone: 206 394-3667	No. of Coolers: 1 Cooler Temps: 4.1
Client Project Name: South Park Landfill		
Client Project #: 553-1550-067	Samplers: Trey Parry	

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

Sample ID	Date	Time	Matrix	Number of Containers	Analysis Requested: cis-1,2-DCE	cis-1,2-DCE, benzene	Vinyl Chloride	Total Fe, Mn	Dissolved As**						Notes/Comments
SPL-GW-MW32-0820	8/27	10:10	water	8	X		X	X	X						**Field-filtered
~~SPL-GW-MW27-0820~~			water	14	X		X	X	X						MS/MSD
~~SPL-GW-MW08-0820~~			water	8	X		X	X	X						
SPL-GW-MW26-0820	8/27	8:25	water	8	X		X	X	X						
~~SPL-GW-MW24-0820~~			water	8	X		X	X	X						
~~SPL-GW-MW31-0820~~			water	7	X		X	X							
~~SPL-GW-MW30-0820~~			water	7	X		X	X							
SPL-GW-MW61-0820	8/27	10:25	water	8	X		X	X	X						
SPL-GW-MW81-0820	8/19	N/A.	water	~~8~~ 2		X	X								

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Trey Parry	Printed Name: Kenny Dang	Printed Name:	Printed Name:
	Company: Parametrix	Company: ARI	Company:	Company:
	Date & Time: 8/27/20 1456	Date & Time: 8/27/20 1456	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, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: Unless specified by work order or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 2040297	Turn-around Requested: 2 weeks	Date: 8/27/20	
ARI Client Company: Jeff Neuner, Seattle Public Utility	Phone: 206 684-7693	Page: 2 of 2	
Client Contact: Laura Lee, Parametrix	Phone: 206 394-3665	No. of Coolers: 1	Cooler Temps: 4.1
Client Project Name: South Park Landfill			
Client Project #: 553-1550-067	Samplers: Trey Parry		

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

Sample ID	Date	Time	Matrix	Number of Containers	Analysis Requested: cis-1,2-DCE	cis-1,2-DCE, benzene	Vinyl Chloride	Total Fe, Mn	Dissolved As**					Notes/Comments
~~SPL-GW-MW12-0820~~			water	8	X		X	X	X					**Field-filtered
~~SPL-GW-MW14-0820~~			water	7	X		X	X						
~~SPL-GW-MW29-0820~~			water	7	X		X	X						
~~SPL-GW-MW18-0820~~			water	8	X		X	X	X					
SPL-GW-MW25-0820	8/27	13:22	water	14		X	X	X	X					MS/MSD
SPL-GW-MW10-0820	8/27	12:10	water	8	X		X	X	X					
~~SPL-GW-MW33-0820~~			water	8	X		X	X	X					
~~SPL-GW-MW60-0820~~			water	8	X		X	X	X					
~~SPL-GW-MW80-0820~~			water	6	X		X							

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Trey Parry	Printed Name: Kenny Dang	Printed Name:	Printed Name:
	Company: Parametrix	Company: ARI	Company:	Company:
	Date & Time: 8/27/20	Date & Time: 8/27/20 1456	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, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: Unless specified by work order or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 10:28

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SPL-GW-MW32-0820	20H0297-01	Water	27-Aug-2020 10:10	27-Aug-2020 14:56
SPL-GW-MW32-0820	20H0297-02	Water	27-Aug-2020 10:10	27-Aug-2020 14:56
SPL-GW-MW26-0820	20H0297-03	Water	27-Aug-2020 08:25	27-Aug-2020 14:56
SPL-GW-MW26-0820	20H0297-04	Water	27-Aug-2020 08:25	27-Aug-2020 14:56
SPL-GW-MW61-0820	20H0297-05	Water	27-Aug-2020 10:25	27-Aug-2020 14:56
SPL-GW-MW61-0820	20H0297-06	Water	27-Aug-2020 10:25	27-Aug-2020 14:56
SPL-GW-MW81-0820	20H0297-07	Water	27-Aug-2020 00:00	27-Aug-2020 14:56
SPL-GW-MW25-0820	20H0297-08	Water	27-Aug-2020 13:22	27-Aug-2020 14:56
SPL-GW-MW25-0820	20H0297-09	Water	27-Aug-2020 13:22	27-Aug-2020 14:56
SPL-GW-MW10-0820	20H0297-10	Water	27-Aug-2020 12:10	27-Aug-2020 14:56
SPL-GW-MW10-0820	20H0297-11	Water	27-Aug-2020 12:10	27-Aug-2020 14:56

4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 10:28

Work Order Case Narrative

Client: Seattle Public Utilities
Project: South Park Landfill -Parametrix Water 2020
Work Order: 20H0297

Sample receipt

Samples as listed on the preceding page were received 27-Aug-2020 14:56 under ARI work order 20H0297. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Volatiles - EPA Method SW8260D

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 blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within limits.

Sample specific QC was performed in association with sample 20H0297-08 in batch BII0015. The matrix spike/matrix spike duplicate (MS/MSD) spike recoveries were out of control low and have been flagged within the QC section of this report. The MS/MSD relative percent difference (RPD) were within limits.

Volatiles - EPA Method 8260D-SIM (Selected Ion Monitoring)

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 blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within limits.

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 10:28

Sample specific QC was performed in association with sample 20H0297-08 in batch BIH0605. The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within 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 blank spike (BS/LCS) percent recoveries were within control limits.

Sample specific QC was performed in association with sample 20H0297-08 in batch BIH0586. The duplicate (DUP) relative percent difference (RPD) were within limits. The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and RPD were within control limits.

Dissolved Arsenic - 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 blank spike (BS/LCS) percent recoveries were within control limits.

Sample specific QC was performed in association with sample 20H0297-09 in batch BII0156. The duplicate (DUP) relative percent difference (RPD) were within limits. The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and RPD were within control limits.

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Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: SPU
Project Name: South Park Landfill
COC No(s): NA
Delivered by: Fed-Ex UPS Courier Hand Delivered Other:
Assigned ARI Job No: 20H0297
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 1456 4.1

If cooler temperature is out of compliance fill out form 00070F
Temp Gun ID#: D00 5206

Cooler Accepted by: KD Date: 8/27/20 Time: 1456

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		

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

Samples Logged by: Date: 8/27/2020 Time: 1454 Labels checked by: SLF

***** 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:

WORK ORDER

20H0297

Client: Seattle Public Utilities | **Project Manager:** Shelly Fishel

Project: South Park Landfill -Parametrix Water 2020 | **Project Number:** 553-155-067

20H0297-08 J	VOA Vial, Amber, 40 mL, HCL	
20H0297-08 K	VOA Vial, Clear, 40 mL	
20H0297-08 L	VOA Vial, Clear, 40 mL	
20H0297-08 M	VOA Vial, Clear, 40 mL	
20H0297-09 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2 pass
20H0297-10 A	VOA Vial, Amber, 40 mL, HCL	
20H0297-10 B	VOA Vial, Amber, 40 mL, HCL	
20H0297-10 C	VOA Vial, Amber, 40 mL, HCL	
20H0297-10 D	VOA Vial, Clear, 40 mL	
20H0297-10 E	VOA Vial, Clear, 40 mL	
20H0297-10 F	VOA Vial, Clear, 40 mL	
20H0297-10 G	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
20H0297-11 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2 pass

Preservation Confirmed By

8/27/2020
Date

Reviewed By

Date

WORK ORDER

20H0297

Client: Seattle Public Utilities | **Project Manager:** Shelly Fishel

Project: South Park Landfill -Parametrix Water 2020 | **Project Number:** 553-155-067

Preservation Confirmation

Container ID	Container Type	pH
20H0297-01 A	VOA Vial, Amber, 40 mL, HCL	
20H0297-01 B	VOA Vial, Amber, 40 mL, HCL	
20H0297-01 C	VOA Vial, Amber, 40 mL, HCL	
20H0297-01 D	VOA Vial, Clear, 40 mL	
20H0297-01 E	VOA Vial, Clear, 40 mL	
20H0297-01 F	VOA Vial, Clear, 40 mL	
20H0297-01 G	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
20H0297-02 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2 pass
20H0297-03 A	VOA Vial, Amber, 40 mL, HCL	
20H0297-03 B	VOA Vial, Amber, 40 mL, HCL	
20H0297-03 C	VOA Vial, Amber, 40 mL, HCL	
20H0297-03 D	VOA Vial, Clear, 40 mL	
20H0297-03 E	VOA Vial, Clear, 40 mL	
20H0297-03 F	VOA Vial, Clear, 40 mL	
20H0297-03 G	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
20H0297-04 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2 pass
20H0297-05 A	VOA Vial, Amber, 40 mL, HCL	
20H0297-05 B	VOA Vial, Amber, 40 mL, HCL	
20H0297-05 C	VOA Vial, Amber, 40 mL, HCL	
20H0297-05 D	VOA Vial, Clear, 40 mL	
20H0297-05 E	VOA Vial, Clear, 40 mL	
20H0297-05 F	VOA Vial, Clear, 40 mL	
20H0297-05 G	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
20H0297-06 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2 pass
20H0297-07 A	VOA Vial, Amber, 40 mL, HCL	
20H0297-07 B	VOA Vial, Clear, 40 mL	
20H0297-08 A	VOA Vial, Amber, 40 mL, HCL	
20H0297-08 B	VOA Vial, Amber, 40 mL, HCL	
20H0297-08 C	VOA Vial, Amber, 40 mL, HCL	
20H0297-08 D	VOA Vial, Clear, 40 mL	
20H0297-08 E	VOA Vial, Clear, 40 mL	
20H0297-08 F	VOA Vial, Clear, 40 mL	
20H0297-08 G	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
20H0297-08 H	VOA Vial, Amber, 40 mL, HCL	
20H0297-08 I	VOA Vial, Amber, 40 mL, HCL	

Reviewed By _____ Date _____

WORK ORDER

20H0297

Client: Seattle Public Utilities | **Project Manager:** Shelly Fishel

Project: South Park Landfill -Parametrix Water 2020 | **Project Number:** 553-155-067

Analysis	Due	TAT	Expires	Comments
20H0297-10 SPL-GW-MW10-0820 [Water] Sampled 27-Aug-2020 12:10				2 Versions
8260D VOA	09/10/2020	10	9/10/2020	
8260D-SIM VOC	09/10/2020	10	9/3/2020	
Met 6020A - Fe	09/10/2020	10	2/23/2021	
Met 6020A - Mn	09/10/2020	10	2/23/2021	
Metals Prep ICPMS	09/10/2020	10	8/27/2021	
20H0297-11 SPL-GW-MW10-0820 [Water] Sampled 27-Aug-2020 12:10				
Met Diss 6020A - As UCT	09/10/2020	10	2/23/2021	
Metals Prep Diss ICPMS	09/10/2020	10	8/27/2021	

Reviewed By

Date

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 10:28

SPL-GW-MW32-0820

20H0297-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/27/2020 10:10

Instrument: NT2 Analyst: PKC — Analyzed: 09/01/2020 17:02

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20H0297-01 B

Preparation Batch: BII0015 — Sample Size: 10 mL

Prepared: 09/01/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.50	ug/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*122*	*%*	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 10:28

SPL-GW-MW32-0820

20H0297-01 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/27/2020 10:10

Instrument: NT16 Analyst: PB — Analyzed: 08/28/2020 16:31

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20H0297-01 D

Preparation Batch: BIH0605 — Sample Size: 10 mL

Prepared: 08/28/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	344	ng/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*100*	*%*	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 10:28

SPL-GW-MW32-0820

20H0297-01 (Water)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 08/27/2020 10:10

Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/28/2020 16:38

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0297-01 G 01

Preparation Batch: BIH0586 — Sample Size: 25 mL

Prepared: 08/28/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	20.0	13200	ug/L	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 10:28

SPL-GW-MW32-0820

20H0297-01RE1 (Water)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 08/27/2020 10:10

Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/28/2020 17:41

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0297-01RE1 G 01

Preparation Batch: BIH0586 — Sample Size: 25 mL

Prepared: 08/28/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	10	5.00	1540	ug/L	D

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 10:28

SPL-GW-MW32-0820

20H0297-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020A UCT-KED — Sampled: 08/27/2020 10:10

Instrument: ICPMS2 Analyst: MCB — Analyzed: 09/08/2020 18:43

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0297-02 A 01

Preparation Batch: BII0156 — Sample Size: 25 mL

Prepared: 09/07/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	1.52	ug/L	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 10:28

SPL-GW-MW26-0820

20H0297-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/27/2020 08:25

Instrument: NT2 Analyst: PKC — Analyzed: 09/01/2020 17:22

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20H0297-03 A

Preparation Batch: BII0015 — Sample Size: 10 mL

Prepared: 09/01/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.41	ug/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*123*	*%*	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 10:28

SPL-GW-MW26-0820

20H0297-03 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/27/2020 08:25

Instrument: NT16 Analyst: PB — Analyzed: 08/28/2020 16:52

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20H0297-03 F

Preparation Batch: BIH0605 — Sample Size: 10 mL

Prepared: 08/28/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	28.0	ng/L	M
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*99.7*	*%*	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 10:28

SPL-GW-MW26-0820

20H0297-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 08/27/2020 08:25
Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/28/2020 16:43

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0297-03 G 01
Preparation Batch: BIH0586 — Sample Size: 25 mL
Prepared: 08/28/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	20.0	8120	ug/L	
Manganese	7439-96-5	1	0.500	125	ug/L	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 10:28

SPL-GW-MW26-0820

20H0297-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020A UCT-KED — Sampled: 08/27/2020 08:25
Instrument: ICPMS2 Analyst: MCB — Analyzed: 09/08/2020 18:47

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0297-04 A 01
Preparation Batch: BII0156 — Sample Size: 25 mL
Prepared: 09/07/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	0.816	ug/L	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 10:28

SPL-GW-MW61-0820

20H0297-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/27/2020 10:25

Instrument: NT2 Analyst: PKC — Analyzed: 09/01/2020 17:43

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20H0297-05 B

Preparation Batch: BII0015 — Sample Size: 10 mL

Prepared: 09/01/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.54	ug/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*125*	*%*	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 10:28

SPL-GW-MW61-0820

20H0297-05 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/27/2020 10:25

Instrument: NT16 Analyst: PB — Analyzed: 08/28/2020 17:12

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20H0297-05 D

Preparation Batch: BIH0605 — Sample Size: 10 mL

Prepared: 08/28/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	347	ng/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*101*	*%*	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 10:28

SPL-GW-MW61-0820

20H0297-05 (Water)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 08/27/2020 10:25

Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/28/2020 16:48

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0297-05 G 01

Preparation Batch: BIH0586 — Sample Size: 25 mL

Prepared: 08/28/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	20.0	13400	ug/L	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 10:28

SPL-GW-MW61-0820

20H0297-05RE1 (Water)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 08/27/2020 10:25

Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/28/2020 17:44

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0297-05RE1 G 01

Preparation Batch: BIH0586 — Sample Size: 25 mL

Prepared: 08/28/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	10	5.00	1520	ug/L	D

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Analytical Report

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 10:28

SPL-GW-MW61-0820

20H0297-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020A UCT-KED — Sampled: 08/27/2020 10:25

Instrument: ICPMS2 Analyst: MCB — Analyzed: 09/08/2020 19:09

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0297-06 A 01

Preparation Batch: BII0156 — Sample Size: 25 mL

Prepared: 09/07/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	1.50	ug/L	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 10:28

SPL-GW-MW81-0820

20H0297-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/27/2020 00:00

Instrument: NT2 Analyst: PKC — Analyzed: 09/01/2020 14:39

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20H0297-07 A

Preparation Batch: BII0015 — Sample Size: 10 mL

Prepared: 09/01/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*112*	*%*	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 10:28

SPL-GW-MW81-0820

20H0297-07 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/27/2020 00:00

Instrument: NT16 Analyst: PB — Analyzed: 08/28/2020 17:32

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20H0297-07 B

Preparation Batch: BIH0605 — Sample Size: 10 mL

Prepared: 08/28/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	ND	ng/L	U
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*98.6*	*%*	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 10:28

SPL-GW-MW25-0820

20H0297-08 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/27/2020 13:22

Instrument: NT2 Analyst: PKC — Analyzed: 09/01/2020 18:03

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20H0297-08 H

Preparation Batch: BII0015 — Sample Size: 10 mL

Prepared: 09/01/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	0.26	ug/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*125*	*%*	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 10:28

SPL-GW-MW25-0820

20H0297-08 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/27/2020 13:22

Instrument: NT16 Analyst: PB — Analyzed: 08/28/2020 17:52

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20H0297-08 D

Preparation Batch: BIH0605 — Sample Size: 10 mL

Prepared: 08/28/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	345	ng/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*99.9*	*%*	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 10:28

SPL-GW-MW25-0820

20H0297-08 (Water)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 08/27/2020 13:22
Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/28/2020 15:50

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0297-08 G 01
Preparation Batch: BIH0586 — Sample Size: 25 mL
Prepared: 08/28/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	20.0	18300	ug/L	

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SPL-GW-MW25-0820

20H0297-08RE1 (Water)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 08/27/2020 13:22

Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/28/2020 17:05

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0297-08RE1 G 01

Preparation Batch: BIH0586 — Sample Size: 25 mL

Prepared: 08/28/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	10	5.00	1910	ug/L	D

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SPL-GW-MW25-0820

20H0297-09 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020A UCT-KED — Sampled: 08/27/2020 13:22

Instrument: ICPMS2 Analyst: MCB — Analyzed: 09/08/2020 19:17

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0297-09 A 01

Preparation Batch: BII0156 — Sample Size: 25 mL

Prepared: 09/07/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	0.396	ug/L	

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Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 10:28

SPL-GW-MW10-0820

20H0297-10 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/27/2020 12:10

Instrument: NT2 Analyst: PKC — Analyzed: 09/01/2020 18:25

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20H0297-10 A

Preparation Batch: BII0015 — Sample Size: 10 mL

Prepared: 09/01/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.73	ug/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*127*	*%*	

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Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
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Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 10:28

SPL-GW-MW10-0820

20H0297-10 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/27/2020 12:10

Instrument: NT16 Analyst: PB — Analyzed: 08/28/2020 18:12

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20H0297-10 D

Preparation Batch: BIH0605 — Sample Size: 10 mL

Prepared: 08/28/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	95.2	ng/L	M
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*99.8*	*%*	

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700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 10:28

SPL-GW-MW10-0820

20H0297-10 (Water)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 08/27/2020 12:10

Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/28/2020 17:37

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0297-10 G 01

Preparation Batch: BIH0586 — Sample Size: 25 mL

Prepared: 08/28/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	400	40200	ug/L	D
Manganese	7439-96-5	20	10.0	2670	ug/L	D

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Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 10:28

SPL-GW-MW10-0820

20H0297-11 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020A UCT-KED — Sampled: 08/27/2020 12:10

Instrument: ICPMS2 Analyst: MCB — Analyzed: 09/08/2020 19:13

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20H0297-11 A 01

Preparation Batch: BII0156 — Sample Size: 25 mL

Prepared: 09/07/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	ND	ug/L	U

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700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	11-Sep-2020 10:28

Volatile Organic Compounds - Quality Control

Batch BII0015 - EPA 5030C (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
Blank (BII0015-BLK1)				Prepared: 01-Sep-2020 Analyzed: 01-Sep-2020 13:58						
cis-1,2-Dichloroethene	ND	0.20	ug/L							U
Benzene	ND	0.20	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5.38		ug/L	*5.00*		*108*	*80-129*			
LCS (BII0015-BS1)				Prepared: 01-Sep-2020 Analyzed: 01-Sep-2020 11:56						
cis-1,2-Dichloroethene	9.01	0.20	ug/L	10.0		90.1	80-121			
Benzene	9.41	0.20	ug/L	10.0		94.1	80-120			
Surrogate: 1,2-Dichloroethane-d4	5.16		ug/L	*5.00*		*103*	*80-129*			
LCS Dup (BII0015-BSD1)				Prepared: 01-Sep-2020 Analyzed: 01-Sep-2020 12:17						
cis-1,2-Dichloroethene	9.39	0.20	ug/L	10.0		93.9	80-121	4.17	30	
Benzene	9.69	0.20	ug/L	10.0		96.9	80-120	2.97	30	
Surrogate: 1,2-Dichloroethane-d4	4.95		ug/L	*5.00*		*99.1*	*80-129*			
Matrix Spike (BII0015-MS2)	**Source: 20H0297-08**			Prepared: 01-Sep-2020 Analyzed: 01-Sep-2020 21:43						
cis-1,2-Dichloroethene	6.46	0.20	ug/L	10.0	ND	63.7	80-121			*
Benzene	7.24	0.20	ug/L	10.0	0.26	69.8	80-120			*
Surrogate: 1,2-Dichloroethane-d4	5.80		ug/L	*5.00*	*6.24*	*116*	*80-129*			

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

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BII0015-MSD2)	**Source: 20H0297-08**			Prepared: 01-Sep-2020 Analyzed: 01-Sep-2020 22:04						
cis-1,2-Dichloroethene	6.27	0.20	ug/L	10.0	ND	61.7	80-121	3.12	30	*
Benzene	7.06	0.20	ug/L	10.0	0.26	68.0	80-120	2.51	30	*
Surrogate: 1,2-Dichloroethane-d4	5.81		ug/L	*5.00*	*6.24*	*116*	*80-129*			

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

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Volatile Organic Compounds - SIM - Quality Control

Batch BIH0605 - EPA 5030C (Purge and Trap)

Instrument: NT16 Analyst: PB

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIH0605-BLK1)				Prepared: 28-Aug-2020 Analyzed: 28-Aug-2020 10:37						
Vinyl chloride	ND	20.0	ng/L							U
Surrogate: 1,2-Dichloroethane-d4	4700		ng/L	*5000*		*94.1*	*80-129*			
LCS (BIH0605-BS1)				Prepared: 28-Aug-2020 Analyzed: 28-Aug-2020 09:40						
Vinyl chloride	2410	20.0	ng/L	2000		120	76-120			
Surrogate: 1,2-Dichloroethane-d4	4840		ng/L	*5000*		*96.9*	*80-129*			
LCS Dup (BIH0605-BSD1)				Prepared: 28-Aug-2020 Analyzed: 28-Aug-2020 10:17						
Vinyl chloride	1950	20.0	ng/L	2000		97.6	76-120	20.90	30	
Surrogate: 1,2-Dichloroethane-d4	4700		ng/L	*5000*		*93.9*	*80-129*			
Matrix Spike (BIH0605-MS2)	**Source: 20H0297-08**			Prepared: 28-Aug-2020 Analyzed: 28-Aug-2020 19:13						
Vinyl chloride	2610	20.0	ng/L	2000	345	113	76-120			
Surrogate: 1,2-Dichloroethane-d4	5440		ng/L	*5000*	*4990*	*109*	*80-129*			

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

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BIH0605-MSD2)	**Source: 20H0297-08**			Prepared: 28-Aug-2020 Analyzed: 28-Aug-2020 19:34						
Vinyl chloride	2690	20.0	ng/L	2000	345	117	76-120	3.12	30	
Surrogate: 1,2-Dichloroethane-d4	5930		ng/L	*5000*	*4990*	*119*	*80-129*			

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

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
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Metals and Metallic Compounds - Quality Control

Batch BIH0586 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIH0586-BLK1)				Prepared: 28-Aug-2020 Analyzed: 28-Aug-2020 14:15							
Iron	54	ND	20.0	ug/L							U
Iron	57	ND	20.0	ug/L							U
Manganese	55	ND	0.500	ug/L							U
LCS (BIH0586-BS1)				Prepared: 28-Aug-2020 Analyzed: 28-Aug-2020 14:19							
Iron	54	5070	20.0	ug/L	5000		101	80-120			
Iron	57	5120	20.0	ug/L	5000		102	80-120			
Manganese	55	25.9	0.500	ug/L	25.0		104	80-120			
Duplicate (BIH0586-DUP1)			**Source: 20H0297-08**	Prepared: 28-Aug-2020 Analyzed: 28-Aug-2020 15:57							
Iron	54	18200	20.0	ug/L		18300			0.66	20	
Duplicate (BIH0586-DUP2)			**Source: 20H0297-08RE1**	Prepared: 28-Aug-2020 Analyzed: 28-Aug-2020 17:09							
Manganese	55	1940	5.00	ug/L		1910			1.75	20	D
Matrix Spike (BIH0586-MS1)			**Source: 20H0297-08**	Prepared: 28-Aug-2020 Analyzed: 28-Aug-2020 16:02							
Iron	54	22300	20.0	ug/L	5000	18300	79.1	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike (BIH0586-MS2)			**Source: 20H0297-08RE1**	Prepared: 28-Aug-2020 Analyzed: 28-Aug-2020 17:13							
Manganese	55	1970	5.00	ug/L	250	1910	24.8	75-125			HC, D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BIH0586-MSD1)			**Source: 20H0297-08**	Prepared: 28-Aug-2020 Analyzed: 28-Aug-2020 16:09							
Iron	54	22500	20.0	ug/L	5000	18300	83.3	75-125	0.93	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BIH0586-MSD2)			**Source: 20H0297-08RE1**	Prepared: 28-Aug-2020 Analyzed: 28-Aug-2020 17:17							
Manganese	55	1920	5.00	ug/L	250	1910	6.04	75-125	2.42	20	HC, D
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 BII0156 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS2 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BII0156-BLK1)					Prepared: 07-Sep-2020 Analyzed: 08-Sep-2020 15:02						
Arsenic, Dissolved	75a	ND	0.200	ug/L							U
LCS (BII0156-BS1)					Prepared: 07-Sep-2020 Analyzed: 08-Sep-2020 15:05						
Arsenic, Dissolved	75a	25.7	0.200	ug/L	25.0		103	80-120			
Duplicate (BII0156-DUP2)		**Source: 20H0297-09**			Prepared: 07-Sep-2020 Analyzed: 08-Sep-2020 19:21						
Arsenic, Dissolved	75a	0.381	0.200	ug/L		0.396			3.86	20	
Matrix Spike (BII0156-MS2)		**Source: 20H0297-09**			Prepared: 07-Sep-2020 Analyzed: 08-Sep-2020 19:26						
Arsenic, Dissolved	75a	25.6	0.200	ug/L	25.0	0.396	101	75-125			

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

Matrix Spike Dup (BII0156-MSD2)		**Source: 20H0297-09**			Prepared: 07-Sep-2020 Analyzed: 08-Sep-2020 19:31						
Arsenic, Dissolved	75a	25.7	0.200	ug/L	25.0	0.396	101	75-125	0.25	20	

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
EPA 6020A in Water	
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-54	NELAP,DoD-ELAP
Iron-54	WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,DoD-ELAP
Iron-57	WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,DoD-ELAP
Manganese-55	WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
EPA 6020A UCT-KED in Water	
Arsenic-75a	WADOE,DoD-ELAP,ADEC
Arsenic-75a	NELAP,WADOE,DoD-ELAP,ADEC
Arsenic-75a	NELAP,DoD-ELAP,ADEC
Arsenic-75a	NELAP,WADOE,DoD-ELAP,ADEC
EPA 8260D in Water	
Chloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloromethane	DoD-ELAP,ADEC,CALAP,WADOE
Chloromethane	DoD-ELAP,ADEC,NELAP,CALAP
Vinyl Chloride	DoD-ELAP,ADEC,CALAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,CALAP
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromomethane	DoD-ELAP,ADEC,CALAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,CALAP
Chloroethane	DoD-ELAP,ADEC,CALAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,CALAP
Chloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,WADOE

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Trichlorofluoromethane	DoD-ELAP,ADEC,CALAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,CALAP
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Acrolein	DoD-ELAP,NELAP,WADOE
Acrolein	DoD-ELAP,CALAP,WADOE
Acrolein	DoD-ELAP,NELAP,CALAP
Acrolein	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,CALAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acetone	DoD-ELAP,ADEC,CALAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,CALAP
1,1-Dichloroethene	DoD-ELAP,ADEC,CALAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Iodomethane	DoD-ELAP,CALAP,WADOE
Iodomethane	DoD-ELAP,NELAP,CALAP
Iodomethane	DoD-ELAP,NELAP,CALAP,WADOE
Iodomethane	DoD-ELAP,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,CALAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,CALAP
Acrylonitrile	DoD-ELAP,CALAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,CALAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,CALAP
Carbon Disulfide	DoD-ELAP,NELAP,CALAP
Carbon Disulfide	DoD-ELAP,CALAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,CALAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,CALAP,WADOE

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trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,CALAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,CALAP
Vinyl Acetate	DoD-ELAP,NELAP,CALAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP
2-Butanone	DoD-ELAP,CALAP,WADOE
2-Butanone	DoD-ELAP,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP,CALAP
2-Butanone	DoD-ELAP,NELAP,CALAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP
2,2-Dichloropropane	DoD-ELAP,ADEC,CALAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,CALAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloroform	DoD-ELAP,ADEC,CALAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,CALAP
Bromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP
Bromochloromethane	DoD-ELAP,ADEC,CALAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP
1,1-Dichloropropene	DoD-ELAP,ADEC,CALAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,CALAP
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
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Carbon tetrachloride	DoD-ELAP,ADEC,CALAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,2-Dichloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,CALAP
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,CALAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,CALAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,CALAP
Trichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,CALAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,CALAP
Bromodichloromethane	DoD-ELAP,ADEC,CALAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,CALAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,CALAP
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,CALAP
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,CALAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,CALAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,CALAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,CALAP
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,CALAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
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Toluene	DoD-ELAP,ADEC,NELAP,CALAP
Toluene	DoD-ELAP,ADEC,CALAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,CALAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,CALAP,WADOE
2-Hexanone	DoD-ELAP,CALAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,CALAP
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1,2-Trichloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,CALAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,CALAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,CALAP
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP
Dibromochloromethane	DoD-ELAP,ADEC,CALAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,CALAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,CALAP
1,2-Dibromoethane	DoD-ELAP,NELAP,CALAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
Chlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,CALAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,CALAP

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
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1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,CALAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,CALAP
m,p-Xylene	DoD-ELAP,ADEC,CALAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,CALAP
o-Xylene	DoD-ELAP,ADEC,CALAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Styrene	DoD-ELAP,NELAP,WADOE
Styrene	DoD-ELAP,CALAP,WADOE
Styrene	DoD-ELAP,NELAP,CALAP
Styrene	DoD-ELAP,NELAP,CALAP,WADOE
Bromoform	DoD-ELAP,CALAP,WADOE
Bromoform	DoD-ELAP,NELAP,CALAP
Bromoform	DoD-ELAP,NELAP,CALAP,WADOE
Bromoform	DoD-ELAP,NELAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,CALAP
1,2,3-Trichloropropane	DoD-ELAP,ADEC,CALAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,CALAP
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,CALAP,WADOE
n-Propylbenzene	DoD-ELAP,CALAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,CALAP
n-Propylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,CALAP,WADOE
Bromobenzene	DoD-ELAP,CALAP,WADOE

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
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Bromobenzene	DoD-ELAP,NELAP,CALAP
Isopropyl Benzene	DoD-ELAP,CALAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,CALAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,CALAP
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,CALAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP
4-Chlorotoluene	DoD-ELAP,ADEC,CALAP,WADOE
t-Butylbenzene	DoD-ELAP,CALAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,CALAP
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,CALAP
1,3,5-Trimethylbenzene	DoD-ELAP,CALAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,CALAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,CALAP
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,CALAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,CALAP
s-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,CALAP
4-Isopropyl Toluene	DoD-ELAP,CALAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,CALAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
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1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,CALAP
n-Butylbenzene	DoD-ELAP,CALAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,CALAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,CALAP
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,CALAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,CALAP
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,WADOE
Naphthalene	DoD-ELAP,ADEC,CALAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,CALAP
Naphthalene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,CALAP
Dichlorodifluoromethane	DoD-ELAP,ADEC,CALAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,CALAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,CALAP
n-Hexane	WADOE

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n-Hexane	
n-Hexane	WADOE
n-Hexane	WADOE
2-Pentanone	WADOE
2-Pentanone	
2-Pentanone	WADOE
2-Pentanone	WADOE

EPA 8260D-SIM in Water

Acrylonitrile	NELAP,CALAP
Acrylonitrile	NELAP,WADOE
Acrylonitrile	NELAP,CALAP,WADOE
Acrylonitrile	CALAP,WADOE
Vinyl chloride	CALAP,WADOE
Vinyl chloride	NELAP,CALAP
Vinyl chloride	NELAP,WADOE
Vinyl chloride	NELAP,CALAP,WADOE
1,1-Dichloroethene	NELAP,CALAP,WADOE
1,1-Dichloroethene	NELAP,WADOE
1,1-Dichloroethene	CALAP,WADOE
1,1-Dichloroethene	NELAP,CALAP
cis-1,2-Dichloroethene	NELAP,CALAP,WADOE
cis-1,2-Dichloroethene	NELAP,WADOE
cis-1,2-Dichloroethene	CALAP,WADOE
cis-1,2-Dichloroethene	NELAP,CALAP
trans-1,2-Dichloroethene	CALAP,WADOE
trans-1,2-Dichloroethene	NELAP,CALAP
trans-1,2-Dichloroethene	NELAP,WADOE
trans-1,2-Dichloroethene	NELAP,CALAP,WADOE
Trichloroethene	CALAP,WADOE
Trichloroethene	NELAP,CALAP
Trichloroethene	NELAP,CALAP,WADOE
Trichloroethene	NELAP,WADOE
Tetrachloroethene	NELAP,CALAP,WADOE
Tetrachloroethene	NELAP,WADOE
Tetrachloroethene	CALAP,WADOE
Tetrachloroethene	NELAP,CALAP
1,1,2,2-Tetrachloroethane	NELAP,CALAP,WADOE
1,1,2,2-Tetrachloroethane	NELAP,CALAP
1,1,2,2-Tetrachloroethane	CALAP,WADOE

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water 2020	
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1,1,2,2-Tetrachloroethane	NELAP,WADOE
1,2-Dichloroethane	NELAP,CALAP
1,2-Dichloroethane	CALAP,WADOE
1,2-Dichloroethane	NELAP,WADOE
1,2-Dichloroethane	NELAP,CALAP,WADOE
Benzene	NELAP,CALAP,WADOE
Benzene	NELAP,CALAP
Benzene	CALAP,WADOE
Benzene	NELAP,WADOE

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	01/31/2021
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021

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Notes and Definitions

*	Flagged value is not within established control limits.
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)
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.
M	Estimated value for a GC/MS analyte detected and confirmed by an analyst but with low spectral match parameters.
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.