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SENT VIA EMAIL

July 20, 2022
Parametrix No. 553-1550-067

Julia Schwarz, Project Manager
Washington State Department of Ecology
Toxics Cleanup Program
3190 160th Avenue SE
Bellevue, Washington 98008-5452

Re: South Park Landfill Second Quarter 2022 Progress Report

Dear Julia:

This letter report provides an explanation of actions taken during the referenced period.

General Activities During the 2022 Second Quarter

SRDS Property

- The old South Transfer Station seep area (compactor shed) is fenced off and locked and all safeguards are still in place.
- Solid Waste Operations and Household Hazardous Waste Collection continues on the SPU old South Transfer Station property.
- Completed repair on a sewer line break near the HHW facility. A maintenance form was completed by SPU and will be included in the 2022 annual report.

SPPD Property

- The current tenants First Student and Amazon vehicle parking are active on SPPD property.
- Conducted monthly inspections of the methane alarms in the on-site buildings.
- Two new portable office trailers were installed, and the previous trailer was removed.
- Repaired holes in the landfill cap left behind from the portable office trailer that was removed. A maintenance form was completed by SPPD and will be included in the 2022 annual report.

Overall Settlement Parcels

- The 2022 second quarter compliance monitoring was conducted the week of May 23, 2022. SPU completed the landfill gas monitoring under Parametrix oversight. Field sheets and lab data reports are attached.
- Completed data management for first and second quarter compliance monitoring events.
- The 2022 annual cap inspection was conducted on April 20, 2022. A report summarizing the inspection with recommended actions is under review by the property owners.

Deviations from Samples, Required Tasks, CAP, or Schedule

There are no deviations to report.

Data Summary

The perimeter gas probes were monitored on May 23, 2022. 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-13 (0.7%), GP-29 (0.7%), and GP-27 (0.1%). No further action is required.

The groundwater wells were monitored May 23 through 25, 2022. The monitoring samples were analyzed by Analytical Resources, Incorporated. Data validation is complete and a concentration trigger assessment for vinyl chloride was performed. Draft data summary tables, updated time-series plots, and the final lab reports for the 2022 first and second quarters are included as attachments to this progress report.

Data management is complete for the 2022 second quarter compliance monitoring event.

Upcoming Activities

SRDS Property

- SPU will respond to comments on the draft EDR and 30% design drawings. SPU has decided to procure a new design team for the South Transfer Landfill remediation work. Proposals are due in late July followed by our selection process. Design work incorporating those comments will continue for the next 6 months towards a 60% level when the new contract is finalized.

SPPD Property

- Ongoing weekly inspections of the SPPD gas system.
- No input received for upcoming activities.

Overall Settlement Parcels

- Complete the third quarter compliance monitoring in August.
- Gas probe GP-09 and groundwater wells MW-10 and MW-25 are located in a right-of-way that is frequently occupied by urban campers creating an unsafe situation for compliance monitoring. SPU is working with SDOT to install fencing around this monitoring location.
- Finalize the 2022 cap inspection report and submit to Ecology.
- SPU staff will assume responsibility for the third quarter and future quarterly monitoring of the perimeter landfill gas probes.
- The landfill gas field forms and data management procedures are being updated to allow SPU to take over data collection efforts and submittal to the Site Coordinator.

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

Sincerely,

PARAMETRIX

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
Enna Lamping, SPU Solid Waste Transfer Station Manager
Suzanne Hildreth, SPU, Solid Waste Transfer Station Manager

Attachments

1 – Compliance Monitoring Field Sheets, Second Quarter 2022

2 – Groundwater Quality Data Summary, First Quarter 2022

3 – Groundwater Quality Data Summary, Second Quarter 2022

4 – Groundwater Quality Time Series Plots through Second Quarter 2022

5 – First Quarter 2022 Groundwater Laboratory Data

6 – Second Quarter 2022 Groundwater Laboratory Data

Attachment 1

Compliance Monitoring Field Sheets,
Second Quarter 2022

South Park Landfill

GAS PROBE MONITORING FIELD FORM

Sampling Organization: Parametrix & HWA + SPU

Project Number: 553-1550-067

Date: 5/23/2022

Field Personnel: C. Bourgeois (HWA), M. Brady (PMX), A Thom (PMX)

Gas Probe	Probe Diameter (ft)	Screened Interval (ft btoc)	Purge Volume (cc)	Purge Duration Purge rate = 550 ml/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	94 seconds	DRY	-0.08	10:22	0.0	8.5	5.6	—
GP-09	.063	6.62 to 10.62	899	98 seconds	DRY	-0.02	12:43	0.0	6.6	13.9	—
GP-26	.063	4.62 to 9.62	768[C]	83 seconds	8.15	0.11	1156	0.0	2.3	17.7	—
GP-23	.167	6.05 to 7.05	4,940*	8 min 59 sec	DRY	0.01	11:38	0.0	6.7	12.6	—
GP-07	.063	5.75 to 6.25	519	56 seconds	DRY	0.00	11.17	0.0	2.1	17.4	—
GP-27	.063	8.57 to 13.57	1,089[C]	119 seconds	12.00	0.07	10:05	0.1	8.3	0.0	—
GP-28	.063	6.59 to 11.59	1,010[C]	110 seconds	10.19	-0.09	9:56	0	2.5	11.3	—
GP-29	.063	4.62 to 9.62	814[C]	89 seconds	7.89	-0.09	9:45	0.7	14.6	0	—
GP-16	.167	6.60 to 9	5,867*	10 min 18 sec	DRY	+0.01	9:35	0.0	0.1	20.7	—
GP-31	.063	4.64 to 9.64	548[C]	60 seconds	5.72	-0.01	9:21	0.0	5.9	8.8	—
GP-15	.167	6.62 to 8.62	4,103[B]	Check for H2O (448 sec if open) B*	2.84	-2.59	9:05	0.0	4.4	14.8	—
GP-32	.063	4.72 to 9.72	416[B]	Check for H2O (45 sec if open) B*	1.56	-3.04	8:51	0	0.5	17.4	—
GP-03	.063	6.73 to 8.63	725	79 seconds	DRY	-0.02	8:41	0.0	4.5	16.2	—
GP-13	.167	4.91 to 5.41	3,043[B]	Check for H2O (332 sec if open) B*	2.62	-1.92	8:30	0.7	0.6	10.9	—
GP-11	.167	6.23 to 6.73	3,862[B]	Check for H2O (420 sec if open) B*	5.58	-0.30	8:10	0.0	0.5	20.3	—
GP-38	.063	3.8 to 8.8	882*	96 seconds	8.40	-0.08	10:33	0.0	12.5	4.0	—
GP-33	.063	8.2 to 13.2	1,165*	127 seconds	13.04	-0.02	10:51	0.0	6.9	5.0	—

*- occasional water in probe C - water consistently present in probe B - water typically blocks probe

IF CH_4 IS ABOVE 5% CALL PROJECT MANAGER IMMEDIATELY
Laura Lee 425-941-9409

Comments:

Equipment Used: SPU GEM

Barometer ("Hg) (Start): 30.2 (@700)

Barometer ("Hg) (Finish): 30.18

Barometric Trend: falling

Temperature: 50's at start, 67° at finish

Weather: 50's overcast. (start) 67° partly cloudy

Parametrix

2022 LFG NOTES (3/23/22)

GP-16: w/ 2" ID well hits bottom at 4.15' (TOC)
can hear a clean "thud" sound when sounder hits it.
↑
Sort of hollow sounding
- Also, area is more overgrown than I have ever seen.

GP-15: hornet ⅓ nest in inside of monument.

GB-33 water probe came up muddy

GP-26: plug accidentally pulled before GEM reading. Very briefly removed.

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

Water Level Measurement Field Report

DATE 5/23/2022	JOB NO. 553-1550-067		
PROJECT: South Park Landfill	CLIENT: Seattle Public Utilities		
LOCATION: Seattle, WA			
WEATHER mostly overcast	TEMP 57°	° at 1204	AM PM
	71°	° at 1357	PM
PRESENT AT SITE C. Bourgeois (HWA), A. Thom, M. Brand (Pmx)		mostly sunny at end	

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	1312	5.70	PVC	TOC	15.3	10-15	1.52
MW-14	1317	2.51	PVC	TOC	21.8	11.5-21.5	0.8
MW-29	1325	7.23	PVC	TOC	30	20-30	-0.29
MW-18	1306	15.19	PVC	TOC	40.4	30-40	1.25
MW-25	1256	14.04	PVC	TOC	27	22-27	2.79
MW-32	1348	10.92	PVC	TOC	24	19-24	-0.44
MW-33	1355	11.07	PVC	TOC	25	20-25	-0.47
MW-26	1210	9.78	PVC	TOC	25	15-25	2.39
MW-27	1217	8.34	PVC	TOC	20	10-20	2.04
MW-10	1245	13.27	PVC	TOC	45	35-45	1.65
MW-24	1206	9.0	PVC	TOC	45.3	35-45	1.56
MW-08	1221	8.36	PVC	TOC	45.6	35.5 – 45.5	1.88
MW-30	1228	10.15	PVC	TOC	13	8-13	-0.53
MW-31	1230	11.30	PVC	TOC	23	35.5-45.5	-0.46

Comments:

Lock in very bad shape. Replaced with new 2022 SPU lock.

All locks spin freely.

Lock in bad shape

TOC – top of PVC casing SG – staff gauge

SIGNED: _____

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067 Date: 5/25/22 Well ID: MW-08

Sampling Organization: Parametrix Samplers: C. Bourgeois + A. Thom

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

Initial Depth of Water (Ft below TOC): 8.45 Purge Water Disposal Method: OWS

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

Begin Purge Time: 1315 End Purge Time: 1425

	Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate (mL/min)	Cum. Vol. Purged (Liters)	Temp (°C)	DO (mg/L)	Specific Conductance (mg/cm) (mS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
5	1320	8.45	6/9	240/min	1.0	13.0	2.4	1.50	6.60	-4.7	3.54	Clear w/ turb.
10	1325	8.45	6/9		2.2	13.0	1.4	1.24	6.57	-46.4	3.13	"
15	1330	8.45	6/9		3.5	13.0	1.4	1.19	6.60	-62.2	2.24	"
20	1335	8.45	6/9		4.8	13.0	1.0	1.17	6.62	-71.5	1.97	"
25	1340	8.45	6/9		6.0	13.0	1.1	1.17	6.64	-78.5		Generator Shutoff
												Started for 2min then Died
30	1405	8.45	7/11	220/min	8.0	12.9	1.1	1.32	6.63	-77.7	1.81	Switched to Ninja Battery
35	1410	8.45	7/11		8.9	12.9	1.1	1.20	6.62	-78.0	2.16	Clear w/ turb
40	1415	8.45	7/11		10.2	13.0	1.0	1.15	6.62	-79.1	0.46	"
45	1420	8.45	7/11		11.5	13.0	1.2	1.15	6.62	-80.2	1.34	"
50	1425	8.45	7/11		12.7	12.9	1.2	1.14	6.62	-81.4	1.51	"

Stabilization Criteria 3% 10%, or 3<0.5 3% ± 0.1 ± 10 mv 10% or 3 <5 NTU

Sampling Data

Sample ID: SPL-GW_MW08-0522 Time Collected: 1430 Weather: Sunny, 70's

Sample Description (Color, Turbidity, Odor, Other): None

Sample Analyses: cis-1,2-DCE, vinyl chloride, total iron, total manganese, dissolved arsenic

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

MS/MSD Collected: ☐ Yes ☑ No

Additional Information/Comments

used ninja bat lithium battery after generator ran out of gas.

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South Park Landfill

Project No.: 553-1550-067 Date: 5/24/22 Well ID: MW-10

Sampling Organization: Parametrix Samplers: C. Bourgeois + A. Thim

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

Initial Depth of Water (Ft below TOC): 13.33 Purge Water Disposal Method: OWS

Purge Device ~~dedicated bladder pump~~ Peri-pump Pump Intake Depth: 30.0 ft

Begin Purge Time: 0950 End Purge Time: 1015

Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate (mL/min)	Cum. Vol. Purged (Liters)	Temp (°C)	DO (mg/L)	Specific Conductance (mg/cm) (mS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
0950	13.34	2.5	270/min	0	14.0	4.6	1.38	6.66	-100.5	14.4	
0955	13.34	2.5	270/min	3	14.0	3.6	1.39	6.73	-117.2	6.44	
1000	13.34	2.5		5	14.0	3.6	1.39	6.76	-122.1	2.95	
1005	13.34	2.5		6	14.0	3.0	1.39	6.76	-124.5	1.44	
1010	13.34	2.5		7	14.0	3.0	1.40	6.78	-125.9	0.02	clear
1015	13.34	2.5		6	14.0	2.8	1.40	6.78	-127.2	0.37	clear

Stabilization Criteria 3% 10%, or 3<0.5 3% ± 0.1 ± 10 mv 10% or 3 <5 NTU

Sampling Data

Sample ID: SPL-GW-MW10-0522 Time Collected: 1020 Weather: 50's overcast

Sample Description (Color, Turbidity, Odor, Other): minor turbidity visible.

Sample Analyses: cis-1,2-DCE, vinyl chloride, total iron, total manganese, dissolved arsenic

Duplicate Sample Collected: ☑ Yes ☐ No If yes, ID: SPL-GW-MW60-0522

MS/MSD Collected: ☑ Yes ☐ No ↳ collected @ 1040

Additional Information/Comments

Parametrix

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067 Date: 5/24/22 Well ID: MW-12

Sampling Organization: Parametrix Samplers: C. Bourgeois + A. Thom

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

Initial Depth of Water (Ft below TOC): 5.74 Purge Water Disposal Method: ows

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

Begin Purge Time: 1415 End Purge Time: 1445

Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate (mL/min.)	Cum. Vol. Purged (Liters)	Temp (°C)	DO (mg/L)	Specific Conductance (mg/cm) (mS/cm.)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
1420	5.76	5/8	280 mL/min	2.5	12.3	8.9	0.386	6.27	63.5	0.02	Clear
1425	5.76	"	"	3.5	12.2	6.3	0.379	6.27	56.6	0.70	"
1430	5.76	"	"	4.5	12.1	4.9	0.378	6.27	53.1	1.08	"
1435	5.76	"	"	6.5	12.1	3.5	0.378	6.27	49.7	0.73	"
1440	5.76	"	"	7.5	12.1	3.6	0.379	6.27	46.8	0.30	"
1445	5.76	"	"	8.5	12.1	3.7	0.379	6.27	45.0	0.02	"
Stabilization Criteria					3%	10%, or 3<0.5	3%	± 0.1	± 10 mv	10% or 3 <5 NTU	

Sampling Data

Sample ID: SPL-GW_MW12-0522 Time Collected: 1450 Weather: 60°F + Overcast

Sample Description (Color, Turbidity, Odor, Other): no odor, clear, minimal turbidity.

Sample Analyses: cis-1,3-DCE, vinyl chloride, total iron, total manganese, dissolved arsenic

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

MS/MSD Collected: ☐ Yes ☑ No

Additional Information/Comments

DO Jumping around quite a bit; moving ± 0.2 in span of 10s

6 3.5

Parametrix

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067 Date: 5/24/22 Well ID: MW-14

Sampling Organization: Parametrix Samplers: L. Bourgeois + A. Thom

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

Initial Depth of Water (Ft below TOC): 2.52 Purge Water Disposal Method: ows

Purge Device: dedicated bladder pump Pump Intake Depth: 16.5 ft

Begin Purge Time: 1525 End Purge Time: 1640

Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate (mL/min)	Cum. Vol. Purged (Liters)	Temp (°C)	DO (mg/L)	Specific Conductance (mS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
1525	2.64	5/6	260	~0	14.0	18.7	0.475	6.62	57.7	—	~~clear~~, cloudish
1530	2.61	"	"	1.5	13.9	7.1	0.521	6.64	-9.0	38.2	
1535	2.61	"	"	2.25	13.9	3.9	0.486	6.61	-31.5	363	orange
1540	2.61	"	240	3.40	13.8	2.4	0.460	6.57	-32.4	177	"
1545	2.61	"	"	4.6	13.8	1.7	0.442	6.53	-29.1	92.5	"
1550	2.61	"	"	5.25	13.7	1.5	0.436	6.52	-27.4	53.5	"
1555	2.61	"	"	6.25	13.7	1.5	0.433	6.51	-26.6	28.4	"
1600	2.61	"	"	7.5	13.7	1.5	0.431	6.51	-26.6	19.8	" cleaner
1605	2.61	"	"	8.2	13.7	1.5	0.431	6.51	-26.7	13.9	"
1610	2.61	"	"	9.1	13.7	1.5	0.430	6.51	-27.0	9.42	"
1615	2.61	"	"	10.2	13.7	1.5	0.430	6.51	-27.6	9.13	quite clear
1620	2.61	"	"	11.1	13.7	1.5	0.429	6.52	-28.0	7.01	"
1625	2.61	"	"	12.0	13.7	1.5	0.429	6.52	-28.0	6.66	"
1630	2.61	"	"	12.9	13.7	1.5	0.429	6.52	-28.2	4.44	"
1635	2.61	"	"	14.0	13.7	1.5	0.429	6.52	-28.9	3.24	"
1640	2.61	"	"	15.2	13.7	1.5	0.429		-28.9	3.25	"

Stabilization Criteria	3%	10%, or 3<0.5	3%	± 0.1	± 10 mv	10% or 3 <5 NTU

Sampling Data

Sample ID: SPL-GW-MW14-0522 Time Collected: 1645 Weather: 60's, overcast + minor drizzle

Sample Description (Color, Turbidity, Odor, Other): clear, slight sulfur odor

Sample Analyses: cis-1,2-DCE, vinyl chloride, total iron, total manganese

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

MS/MSD Collected: ☐ Yes ☑ No

Additional Information/Comments

Minor bubbles coming up from joint/elbow above well head. Didn't seem to effect DO

- Iron bacteria on top of sampler probe (orange)

Parametrix

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067 Date: 5/24/22 Well ID: MW-18

Sampling Organization: Parametrix Samplers: C. Bourgeois + A. Thom

Purge Data Screened Interval (ft bgs): 30.0-40.0 Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): 15.18 Purge Water Disposal Method: OWS

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

Begin Purge Time: 1250 End Purge Time: 1330

Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate (ml/min)	Cum. Vol. Purged (liters)	Temp (°C)	DO (mg/L)	Specific Conductance (mg/cm) (mS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
1255	15.18	6/11	300	0	14.9	18.0	0.94	6.52	12.1	←	loose battery on turb. meter
1300	15.19	6/11		2	14.9	5.4	1.03	6.47	-27.8	1.68	Clear w/ turbidity
1305	15.18	6/11	300	3.5	14.8	3.7	1.06	6.48	-45.7	1.32	"
1310	15.18	6/11		4.6	14.8	2.6	1.09	6.49	-55.2	0.37	"
1315	15.18	6/11		5.8	14.8	2.2	1.10	6.49	-59.5	0.02	clear w/ VLT
1320	15.19	6/11		6.9	14.8	2.0	1.12	6.49	-63.7	0.16	clear w/ VLT
1325	15.16	6/11		7.9	14.8	2.0	1.14	6.49	-66.6	0.02	clear w/ v. little turb.
1330	15.17	6/11		9.2	14.8	2.0	1.15	6.49	-69.5	0.82	"

Stabilization Criteria: Temp 3%; DO 10%, or 3<0.5; Specific Conductance 3%; pH ± 0.1; ORP ± 10 mv; Turbidity 10% or 3 <5 NTU

Sampling Data

Sample ID: SPL-GW-MW18-0522 Time Collected: 1335 Weather: 60°F + overcast

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

Sample Analyses: cis-1,2-DCE, vinyl chloride, total iron, total manganese, dissolved arsenic

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: 5/25/22 Well ID: MW-24

Sampling Organization: Parametrix Samplers: C. Bourgeois + A. Thm

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

Initial Depth of Water (Ft below TOC): 9.07 Purge Water Disposal Method: OWS

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

Begin Purge Time: 1200 End Purge Time: 1240

	Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate (mL/min.)	Cum. Vol. Purged (Liters)	Temp (°C)	DO (mg/L)	Specific Conductance (mg/cm) (mS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
5	1205	9.07	5/9	380/min	0.8	11.7	8.1	0.77	6.60	43.0	8.20	Clear w/ turbidity
10	1210	9.07	8/10	240/min	2.0	12.3	3.6	0.85	6.37	26.5	3.23	~~Bubbles coming up~~ "
15	1215	9.07	8/10		3.2	12.4	2.1	0.88	6.41	-6.6	2.42	"
20	1220	9.07	8/10		4.2	12.4	1.7	0.89	6.44	-32.9	0.10	~~0.10~~ Clear w/ turb.
25	1225	9.07	8/10		5.2	12.4	1.7	0.90	6.45	-46.9	3.14	"
30	1230	9.07	8/10		6.2	12.5	1.6	0.90	6.45	-54.1	2.06	"
35	1235	9.07	8/10		7.2	12.5	1.7	0.90	6.46	-58.8	2.74	"
40	1240	9.07	8/10		8.2	12.5	1.6	0.90	6.46	-61.2	2.24	"

Stabilization Criteria 3% 10%, or 3<0.5 3% ± 0.1 ± 10 mv 10% or 3 <5 NTU

Sampling Data

Sample ID: SPL-GW-MW24-0522 Time Collected: 1245 Weather: 64°F Partly Cloudy

Sample Description (Color, Turbidity, Odor, Other): no color or strong odor, minor turbidity

Sample Analyses: cis-1,2-DCE, vinyl chloride, total iron, total manganese, dissolved arsenic

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

MS/MSD Collected: ☐ Yes ☑ No

Additional Information/Comments

Bubbles coming up possibly at brass fitting at well head

Parametrix

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067 Date: 5/24/22 Well ID: MW-25

Sampling Organization: Parametrix Samplers: C. Bourgeois + A. Thom

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

Initial Depth of Water (Ft below TOC): 14.06 Purge Water Disposal Method: OWS

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

Begin Purge Time: 0835 End Purge Time: 0905

Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate (mL/min)	Cum. Vol. Purged (Liters)	Temp (°C)	DO (mg/L)	Specific Conductance (mg/cm) (mS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
0835	14.06	5/9	280/min	0	13.7	11.1	1.10	6.39	-42.0	6.42	bubbles coming up from underwell head
0840	14.06	5/9	250/min	3.5	13.7	5.0	1.12	6.47	-71.2	3.17	clear w/ turbidity
0845	14.06	5/9		5	13.9	3.3	1.13	6.51	-83.4	1.19	"
0850	14.06	5/9		6	13.8	3.2	1.13	6.52	-87.3	0.95	"
0855	14.06	5/9		7	13.9	2.6	1.13	6.54	-91.1	0.45	" Bubble
0900	14.06	5/9		8	13.9	2.6	1.14	6.54	-93.6	0.83	" issue resolved
0905	14.06	5/9		9	13.9	2.6	1.14	6.54	-95.0	0.13	"
Stabilization Criteria					3%	10%	3%	± 0.1	± 10 mv	10% or 3 <5 NTU	

Sampling Data

Sample ID: SPL-GW-MW25-0522 Time Collected: 9:10 Weather: 50's overcast

Sample Description (Color, Turbidity, Odor, Other): very pale, minor yellow hue; minor turbidity

Sample Analyses: cis-1,2-DCE, benzene, vinyl chloride, total iron, total manganese, dissolved arsenic

Duplicate Sample Collected: ☑ Yes ☐ No If yes, ID: SPL-GW-MW25-0522

MS/MSD Collected: ☑ Yes ☐ No

Additional Information/Comments

Dup collected at 9:30

Parametrix

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067 | Date: 5/25/22 | Well ID: MW-26

Sampling Organization: Parametrix | Samplers: C. Bourgeois + A. Thom

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

Initial Depth of Water (Ft below TOC): 9.81 | Purge Water Disposal Method: OWS

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

Begin Purge Time: 1050 | End Purge Time: 1140

	Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate [mL/min]	Cum. Vol. Purged [liters]	Temp (°C)	DO (mg/L)	Specific Conductance (mg/cm) [mS/cm]	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
5	1055	9.81	5/9	320/min	0.8	11.6	20.9	0.259	5.86	54.3	35.2	Slight yellow hue
10	1100	9.81	5/9		2.0	11.8	6.2	0.224	5.81	49.6	101	~~slight~~ orange hue
15	1105	9.82	5/9		4.0	11.7	3.8	0.218	5.88	42.7	61.5	Orange hue
20	1110	9.82	5/9		5.0	11.8	2.8	0.216	5.89	40.0	29.3	Slight yellow hue
25	1115	9.82	5/9	320/min	6.4	11.8	2.8	0.216	5.89	40.0	12.3	"
30	1120	9.82	5/9		8.0	11.8	2.1	0.216	5.89	39.7	8.61	"
35	1125	9.82	5/9		9.4	11.8	1.7	0.216	5.88	39.3	6.54	"
40	1130	9.82	5/9		10.8	11.7	1.7	0.217	5.88	39.1	4.77	Clear w/ turbidity
45	1135	9.82	5/9		12.0	11.6	1.7	0.217	5.87	39.4	3.62	"
50	1140	9.82	5/9		13.6	11.6	1.7	0.217	5.88	39.1	1.97	"
				Stabilization Criteria		3%	10%, or 3<0.5	3%	± 0.1	± 10 mv	10% or 3 <5 NTU	

Sampling Data

Sample ID: SPL-GW-MW26-0522 | Time Collected: 1145 | Weather: 63°F partly cloudy

Sample Description (Color, Turbidity, Odor, Other): no discernable odor or color, only minor turbidity

Sample Analyses: cis-1,2-DCE, vinyl chloride, total iron, total manganese, dissolved arsenic

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: 5/25/22 Well ID: MW-27

Sampling Organization: Parametrix Samplers: C. Bourgeois + A. Thom

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

Initial Depth of Water (Ft below TOC): 8.36 Purge Water Disposal Method: OWS

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

Begin Purge Time: 1450 End Purge Time: 1535

Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate (mL/min)	Cum. Vol. Purged (liters)	Temp (°C)	DO (mg/L)	Specific Conductance (mg/cm) (mS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
1455	8.36		~~340~~ 320/min	3.5	11.9	13.7	0.244	6.56	36.8	461	light orange
~~146~~ 1500	8.36	6/7	300/min	4.0	12.0	10.9	0.245	6.46	38.0	355	"
1505	8.36			5.1	12.2	6.3	0.251	6.43	37.5	136	less orange
1510	8.36	5.5/9.5	250	6.0	11.8	3.7	0.262	6.40	38.2	73.8	much clearer
1515	8.36	"	"	7.0	12.1	3.2	0.272	6.40	36.3	~~[illegible]~~	"
1520	8.36	"	"	8.0	12.1	2.9	0.283	6.40	35.3	52.2	← 50.8
1525	8.36	"	"	9.0	12.1	2.4	0.292	6.39	34.6	39.7	"
1530	8.36	"	"	9.9	12.1	2.4	0.296	6.39	33.7	39.0	"
1535	8.36	"	"	11.0	12.2	2.2	0.300	6.39	32.2	37.2	"
Stabilization Criteria					3%	10%, or 3<0.5	3%	± 0.1	± 10 mv	10% or 3 <5 NTU	

Sampling Data

Sample ID: SPL-GW-MW27-0522 Time Collected: 1540 Weather: sunny, 70s

Sample Description (Color, Turbidity, Odor, Other): pale ~~off-orange~~ opacity in sample, but still quite clear

Sample Analyses: cis-1,2-DCE, vinyl chloride, total iron, total manganese, dissolved arsenic

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

MS/MSD Collected: ☐ Yes ☑ No

Additional Information/Comments

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067 Date: 5/24/22 Well ID: MW-29

Sampling Organization: Parametrix Samplers: C. Bourgeois + A. Thomas

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

Initial Depth of Water (Ft below TOC): ~~7.~~ 6.97 Purge Water Disposal Method: OWS

Purge Device peristaltic pump Pump Intake Depth: 25.0 ft

Begin Purge Time: 1140 End Purge Time: 1210

Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate (mL/min)	(liters) Cum. Vol. Purged	Temp (°C)	DO (mg/L)	Specific Conductance (mg/cm) (mS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
1140	7.62	2.4	270/min	0	12.5	14.5	0.77	6.50	-20.9	20.8	slight yellow hue
1145	7.84	2.4		2.0	12.4	5.2	0.80	6.53	-55.5	7.03	"
1150	7.78	2.4	240/min	3.2	12.6	2.5	0.82	6.59	-79.5	7.10	"
1155 ~~1155~~	7.80	2.4		4.8	12.5	1.7	0.81	6.62	-87.7	1.19	v. slight yellow hue
1200	7.80	2.4		6.0	12.4	1.4	0.80	6.63	-92.0	0.24	Clear
1205	7.80	2.4	"	7.8	12.5	1.4	0.80	6.65	-95.1	1.06	v. slight yellow
1210	7.81	2.4	"	8.9	12.4	1.5	0.79	6.66	-96.2	0.64	+ turbidity
Stabilization Criteria					3%	10%, or 3<0.5	3%	± 0.1	± 10 mv	10% or 3 <5 NTU	

Sampling Data

Sample ID: SPL-GW_MW29-0522 Time Collected: 1215 Weather: high 50's overcast.

Sample Description (Color, Turbidity, Odor, Other): v. slight yellow hue & minor turbidity

Sample Analyses: cis-1,2-DCE, vinyl chloride, total iron, total manganese

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: 5/25/22 Well ID: MW-30

Sampling Organization: Parametrix Samplers: C. Bourgeois + A. Thom

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

Initial Depth of Water (Ft below TOC): 10.19 Purge Water Disposal Method: OWS

Purge Device peristaltic pump Pump Intake Depth: 10.5 ft

Begin Purge Time: 820 (Started pump @ 815) End Purge Time:

Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate (mL/min)	Cum. Vol. Purged (liters)	Temp (°C)	DO (mg/L)	Specific Conductance (mg/cm) (mS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
820	10.35	2.6	270		12.2	3.7	0.322	6.05	91.7	22.1	large turbidity
825	10.35	"	270	2.5	12.2	4.8	0.335	6.05	79.2	4.68	much less
830	10.35	"	"	3.5	12.2	7.3	0.337	6.16	67.8	2.07	minor turb.
835	10.35	"	"	5.0	12.2	6.3	0.337	6.21	61.2	1.35	"
840	10.35	"	"	6.8	12.2	8.1	0.343	6.22	57.1	0.78	"
845	10.35	"	"	7.5	12.2	8.6	0.345	6.21	55.2	0.02	"
850	10.35	"	"	8.8	12.2	9.1	0.348	6.22	53.6	0.02	"
855	10.35	"	"	10	12.2	10.6	0.348	6.22	52.5	0.50	"
900	10.35	"	"	11.25	12.3	11.3	0.347	6.22	51.9	0.02	"
905	10.35	"	"	12.5	12.3	11.3	0.347	6.22	52.1	0.08	
			Stabilization Criteria		3%	10%, or 3<0.5	3%	± 0.1	± 10 mv	10% or 3 <5 NTU	

Sampling Data

Sample ID: SPL-GW_MW30- 0522 Time Collected: 910 Weather: 50s overcast.

Sample Description (Color, Turbidity, Odor, Other): earth-like odor

Sample Analyses: cis-1,2-DCE, vinyl chloride, total iron, total manganese

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: 5/25/22 Well ID: MW-31

Sampling Organization: Parametrix Samplers: C. Bourgeois + A. Thom

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

Initial Depth of Water (Ft below TOC): 11.35 Purge Water Disposal Method: GWS

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

Begin Purge Time: 0920 End Purge Time: 1020

Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate (mL/min)	Cum. Vol. Purged (liters)	Temp (°C)	DO (mg/L)	Specific Conductance (mS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
0925	11.36	4.9/9	320 mL/min	2 liters	13.6	4.3	0.392	6.29	24.9	74.9	yellow hue
0930	11.36	4.9/9		2.8	13.7	2.1	0.399	6.30	6.2	53.1	slight yellow hue
0935	11.36	4.9/9		4.0	13.6	2.4	0.400	6.31	-7.1	37.0	"
0940	11.37	4.9/9		5.5	13.7	1.8	0.400	6.31	-18.2	27.6	"
0945	11.37	4.9/9		6.5	13.7	1.7	0.401	6.32	-24.6	24.0	"
0950	11.37	4.9/9		7.8	13.7	1.6	0.403	6.33	-30.5	19.4	"
0955	11.37	4.9/9		9.2	13.7	1.7	0.403	6.33	-34.3	18.1	"
1000	11.37	4.9/9		10.4	13.4	1.7	0.403	6.33	-36.5	16.5	clear
1005	11.37	4.9/9		11.6	13.7	1.7	0.403	6.34	-38.3	16.8	"
1010	11.37	4.9/9		12.9	13.6	1.8	0.403	6.34	-40.7	13.9	"
1015	11.37	4.9/9		14.0	13.7	1.8	0.403	6.34	-41.4	13.4	"
1020	11.37	4.9/9		15.5	13.8	1.7	0.403	6.34	-42.9	13.2	"
Stabilization Criteria					3%	10%, or 3<0.5	3%	± 0.1	± 10 mv	10% or 3 <5 NTU	

Sampling Data

Sample ID: SPL-GW_MW31-0522 Time Collected: 1025 Weather: 50's overcast, windy.

Sample Description (Color, Turbidity, Odor, Other): clear, no noticeable odor.

Sample Analyses: cis-1,2-DCE, vinyl chloride, total iron, total manganese

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

MS/MSD Collected: ☐ Yes ☑ No

Additional Information/Comments

Small amount of iron bacteria on sonde probe.

Parametrix

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067 Date: 5/23/22 Well ID: MW-32

Sampling Organization: Parametrix Samplers: C. Bourgeois + A. Thom

Purge Data Screened Interval (ft bgs): 19.0-24.0 Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): ~~10.92~~ 10.94 Purge Water Disposal Method: ows

Purge Device peristaltic pump Pump Intake Depth: 21.5 ft

Begin Purge Time: 1405 End Purge Time: 1510

Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate (mL/min)	Cum. Vol. Purged (gallons)	Temp (°C)	DO (mg/L)	Specific Conductance (mS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
~~1405~~	10.94	2.75	270/min	0	14.4	16.2	0.81	6.78	66	102	Slight orange tint
1410	10.94	2.75			13.9	2.6	0.78	6.42	-30.0	177	"
1415	10.94	2.75			13.9	1.8	0.78	6.54	-59.6	60.7	Slight orange tint
1420	10.94	2.75		1.0 gallons	13.8	1.6	0.78	6.58	-67.6	42.4	"
1425	10.94	2.75		0	13.8	1.5	0.78	6.61	-73.5	26.6	Slight yellow tint
1430	10.94	2.75		2.0	13.8	1.5	0.79	6.63	-77.5	13.5	"
1435	10.94	2.75		2.0	13.6	1.86	0.79	6.62	-78.8	21.1	"
1440	10.94	2.75	210/min		13.6	1.5	0.79	6.63	-82.7	18.5	"
1445	10.94	2.75	210/min		13.6	1.9	0.79	6.64	-85.0	20.4	"
1450	10.94	2.75		2.5	13.6	1.5	0.80	6.64	-86.2	15.0	"
1455	10.94	2.75	210/min		13.7	1.4	0.80	6.66	-88.0	16.6	
1500	10.94	2.75		2.75	13.7	1.5	0.80	6.67	-89.6	10.7	
1505	10.94	2.75			13.8	1.8	0.80	6.67	-90.7	9.91	
1510	10.94	2.75			13.9	1.6	0.80	6.68	-91.3	9.93	
Stabilization Criteria					3%	10%, or 3<0.5	3%	± 0.1	± 10 mv	10% or 3 <5 NTU	

Sampling Data

Sample ID: SPL-GW_MW32-0522 Time Collected: 1515 Weather: mostly sunny high 60's

Sample Description (Color, Turbidity, Odor, Other): clear (i.e. no color) minor turbidity, no odor.

Sample Analyses: cis-1,2-DCE, vinyl chloride, total iron, total manganese, dissolved arsenic

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: 5/22/22 Well ID: MW-33

Sampling Organization: Parametrix Samplers: C. Bourgeois

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

Initial Depth of Water (Ft below TOC): 11.06 Purge Water Disposal Method: OWS

Purge Device: peristaltic pump Pump Intake Depth: 22.5ft

Begin Purge Time: ~~~~ 1545 End Purge Time: 1630

Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate (mL/min)	Cum. Vol. Purged (gallons)	Temp (°C)	DO (mg/L)	Specific Conductance (mg/cm) (mS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
1545	11.06	2.75	300mL/min	0	16.0	6.6	1.29	6.66	-79.9	75.9	Slight Yellow hue
1550	11.07	2.75	270ml/min		15.7	3.9	1.28	6.65	-93.5	73.1	"
1555	11.07	2.75		1.0	15.7	3.3	1.28	6.64	-98.2	36.7	"
1600	11.07	2.75			15.8	3.3	1.28	6.65	-101.2	26.1	"
1605	11.07	2.75			16.0	3.2	1.28	6.66	-104.4	14.5	"
1610	"	"			15.8	3.1	1.27	6.67	-106.7	~~[illegible]~~ 11.1	"
1615	"		250		16.0	3.3	1.26	6.66	-106.6	11.2	"
1620	"	"	"	2.5	16.2	3.3	1.26	6.66	-107.6	10.0	"
1625	"	"	"	~~2.5~~	16.2	3.4	1.26	6.67	-108.1	9.62	"
1630					16.1	3.2	1.26	6.67	-107	9.10	
Stabilization Criteria					3%	10%, or 3<0.5	3%	± 0.1	± 10 mv	10% or 3 <5 NTU	

Sampling Data

Sample ID: SPL-GW-MW33-0522 Time Collected: 1635 Weather: Mostly Sunny, high 60's

Sample Description (Color, Turbidity, Odor, Other): slight turbidity, slight yellow hue, earthy odor

Sample Analyses: cis-1,2-DCE, vinyl chloride, total iron, total manganese, dissolved arsenic

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

MS/MSD Collected: ☐ Yes ☑ No

Additional Information/Comments

Parametrix

Attachment 2

Groundwater Quality Data Summary
First Quarter 2022

Groundwater Quality Data Summary, First Quarter 2022, South Park Landfill

			Upgradient Wells				Downgradient Wells												Trip Blanks	
			A-Zone				Perched Zone	A-Zone							B-Zone					
Parameter	Units	Cleanup Level	MW-12 2/16/22	MW-60 (MW-12 Dup) 2/16/22	MW-14 2/16/22	MW-29 2/16/22	MW-30 [1] 2/15/22	MW-25 Not Sampled	MW-26 2/15/22	MW-27 [2] 2/15/22	MW-61 (MW-27 Dup) 2/15/22	MW-31 [1] 2/15/22	MW-32 [3] 2/14/22	MW-33 [3] 2/14/22	MW-08 2/15/22	MW-10 Not Sampled	MW-18 [3] 2/16/22	MW-24 2/15/22	MW-80 2/16/22	MW-81 2/16/22
Field Parameters																				
Temperature	C		10.2	--	13.2	12.1	11.3	--	12.2	10.7	--	13.5	13.5	15.0	11.4	--	13.6	11.9	--	--
Dissolved Oxygen	mg/L		0.60	--	0.12	0.28	0.43	--	0.39	0.25	--	0.10	0.07	0.08	0.10	--	0.12	0.13	--	--
Specific Conductivity	µS/cm		339	--	381	500	376	--	264	260	--	326	690	1160	990	--	750	640	--	--
pH	units		6.42	--	6.69	6.79	6.36	--	6.00	6.45	--	6.51	6.81	6.75	6.74	--	6.64	6.71	--	--
Redox	mv		211.9	--	-45.3	-101.3	34.8	--	39.2	-16.6	--	-67.5	-123.3	-120.2	-99.1	--	-87.2	-100.0	--	--
Turbidity	NTU		0.54	--	7.31	0.66	1.00	--	7.18	23.3	--	3.63	4.23	3.83	2.19	--	0.89	4.13	--	--
Metals																				
Arsenic, Dissolved	µg/L	5.0	0.272	0.278	--	--	--	--	0.741	4.19	4.09	--	0.667	0.586	0.200 U	--	0.200 U	0.200 U	--	--
Iron, Total	mg/L	27 A-Zone	0.0360 U	0.0720 U	3.86	17.4	1.45	--	12.0	9.13	11.2	15.0	14.6	19.2	--	--	--	--	--	--
		31 B-Zone	--	--	--	--	--	--	--	--	--	--	--	--	16.6	--	20.4	18.8	--	--
Manganese, Total	mg/L	2.2	0.0238	0.0254	0.700	0.571	0.0527	--	0.157	0.606	0.626	0.640	1.39	1.99	1.24	--	1.08	1.13	--	--
Volatile Organic Compounds																				
Vinyl Chloride	µg/L	0.29	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.167	--	0.0200 U	0.0824	0.0838	0.316 [1]	0.0957	0.115	0.287	--	0.0471	0.0688	0.0200 U	0.0200 U
Cis-1,2-Dichloroethene	µg/L	16	0.20 U	0.20 U	0.20 U	0.20 U	0.21	--	0.26	0.20 U	0.20 U	0.20 U	0.80	0.20 U	0.20 U	--	0.20 U	0.20 U	0.20 U	0.20 U
Benzene	µg/L	5.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.20 U	0.20 U

Notes:

[1] MW-30 and MW-31 monitor the former Glitsa property and are not CPOC wells.

[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. MW-27 is not a CPOC well for arsenic.

[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 analyzed

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

Abbreviations:

µg/L Micrograms per liter
mg/L Milligrams per liter
µS/cm Microsiemens per centimeter
NTU Nephelometric Turbidity unit
CPOC Conditional point of compliance

Attachment 3

Groundwater Quality Data Summary
Second Quarter 2022

Groundwater Quality Data Summary, Second Quarter 2022, South Park Landfill

			Upgradient Wells			Downgradient Wells												Trip Blanks	
			A-Zone			Perched Zone	A-Zone						B-Zone						
Parameter	Units	Cleanup Level	MW-12 5/24/22	MW-14 5/24/22	MW-29 5/24/22	MW-30 [1] 5/25/22	MW-25 5/24/22	MW-61 (MW-25 Dup) 5/24/22	MW-26 5/25/22	MW-27 [2] 5/25/22	MW-31 [1] 5/25/22	MW-32 [3] 5/23/22	MW-33 [3] 5/23/22	MW-08 5/25/22	MW-10 5/24/22	MW-60 (MW-10 Dup) 5/24/22	MW-18 [3] 5/24/22	MW-24 5/25/22	MW-80 5/24/22	MW-81 5/25/22
Field Parameters																				
Temperature	C		12.1	13.7	12.4	12.3	13.9	--	11.6	12.2	13.8	13.9	16.1	12.9	14.0	--	14.8	12.5	--	--
Dissolved Oxygen	mg/L		3.7	1.5	1.5	11.3	2.6	--	1.7	2.2	1.7	1.6	3.2	1.2	2.8	--	2.0	1.6	--	--
Specific Conductivity	µS/cm		379	429	790	347	1140	--	217	300	403	800	1260	1140	1400	--	1150	900	--	--
pH	units		6.27	6.52	6.66	6.22	6.54	--	5.88	6.39	6.34	6.68	6.67	6.62	6.78	--	6.49	6.46	--	--
Redox	mv		45.0	-28.9	-96.2	52.1	-95.0	--	39.1	32.7	-42.9	-91.3	-107	-81.4	-127.2	--	-69.5	-61.2	--	--
Turbidity	NTU		0.02	3.25	0.64	0.08	0.13	--	1.97	37.2	13.2	9.93	9.10	1.51	0.37	--	0.82	2.24	--	--
Metals																				
Arsenic, Dissolved	µg/L	5.0	0.280	--	--	--	0.298	0.287	0.656	2.61	--	0.678	0.557	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	--	--
Iron, Total	mg/L	27 A-Zone	2.05	4.57	23.1	1.31	34.4	38.0	8.76	6.86	17.0	14.5	19.1	--	--	--	--	--	--	--
		31 B-Zone	--	--	--	--	--	--	--	--	--	--	--	14.7	32.4	32.7	29.6	25.8	--	--
Manganese, Total	mg/L	2.2	0.144	0.729	0.693	0.0453	2.89	2.66	0.103	0.462	0.735	1.40	2.10	1.05	2.39	2.43	1.43	1.63	--	--
Volatile Organic Compounds																				
Vinyl Chloride	µg/L	0.29	0.0200 U	0.0200 U	0.0200 U	0.153	0.523	0.518	0.0200 U	0.0847	0.632 [1]	0.389	0.161	0.123	0.122	0.109	0.0662	0.0523	0.0200 U	0.0200 U
Cis-1,2-Dichloroethene	µg/L	16	0.20 U	0.20 U	0.20 U	0.30	0.34	0.36	0.28	0.20 U	0.20 U	0.50	0.20 U	0.20 U	1.00	0.94	0.20 U	0.20 U	0.20 U	0.20 U
Benzene	µg/L	5.0	--	--	--	--	2.79	2.84	--	--	--	--	--	--	--	--	--	--	0.20 U	0.20 U

Notes:

[1] MW-30 and MW-31 monitor the former Glitsa property and are not CPOC wells.

[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. MW-27 is not a CPOC well for arsenic.

[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

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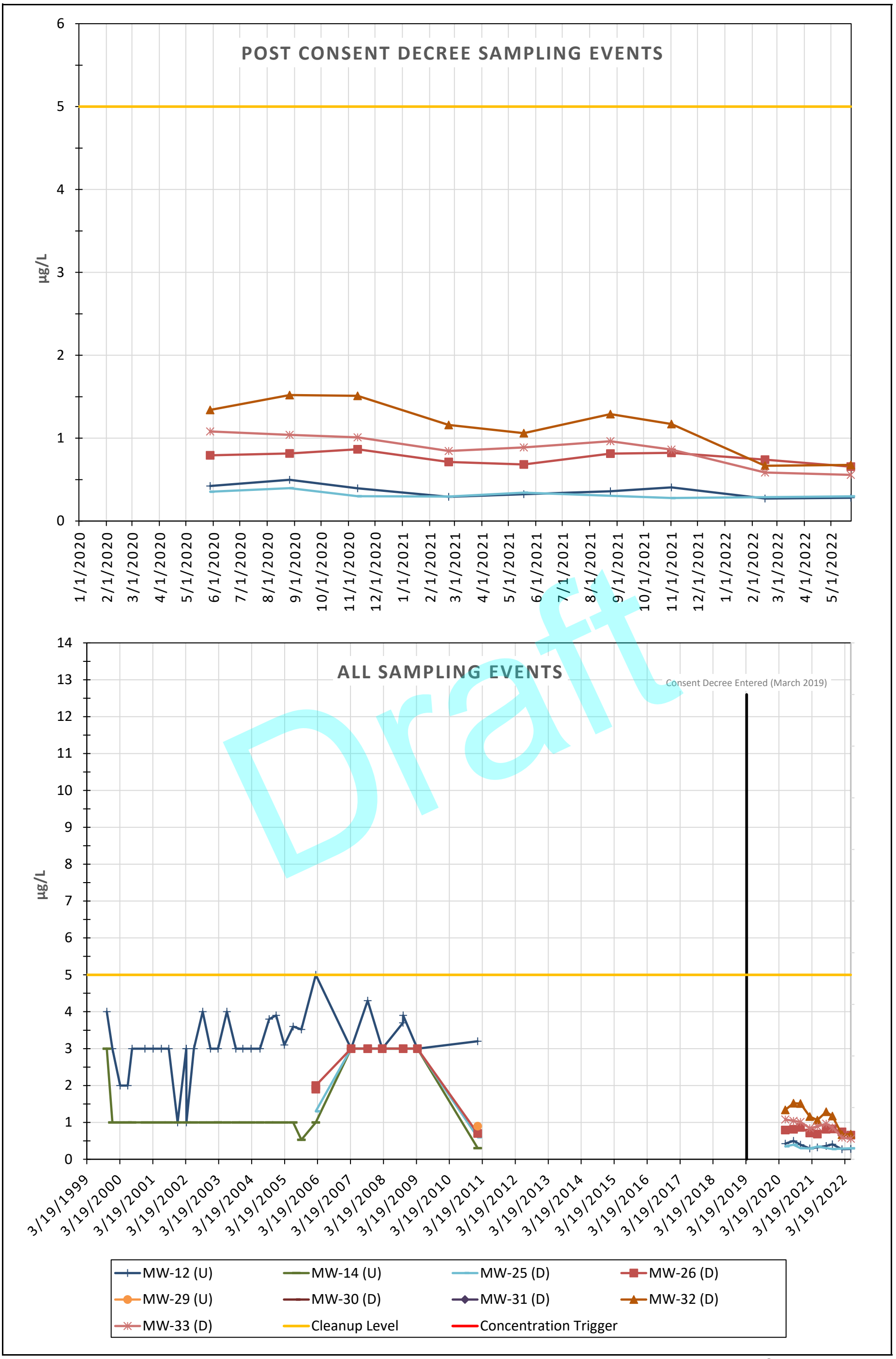
Abbreviations:

µg/L Micrograms per liter
mg/L Milligrams per liter
µS/cm Microsiemens per centimeter
NTU Nephelometric Turbidity unit
CPOC Conditional point of compliance

Attachment 4

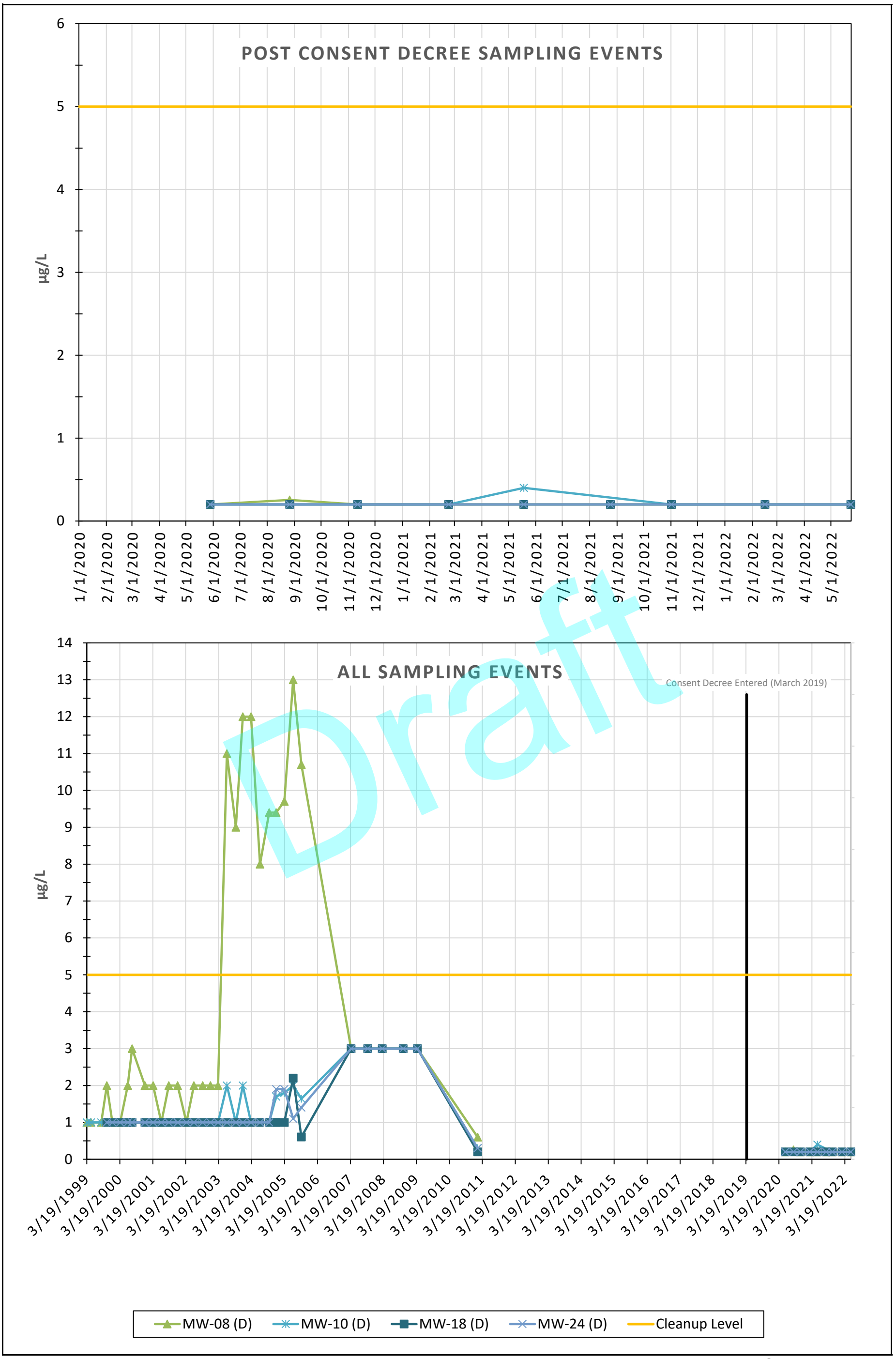
Groundwater Quality Time Series Plots
through Second Quarter 2022



Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

D = Downgradient
U = Upgradient

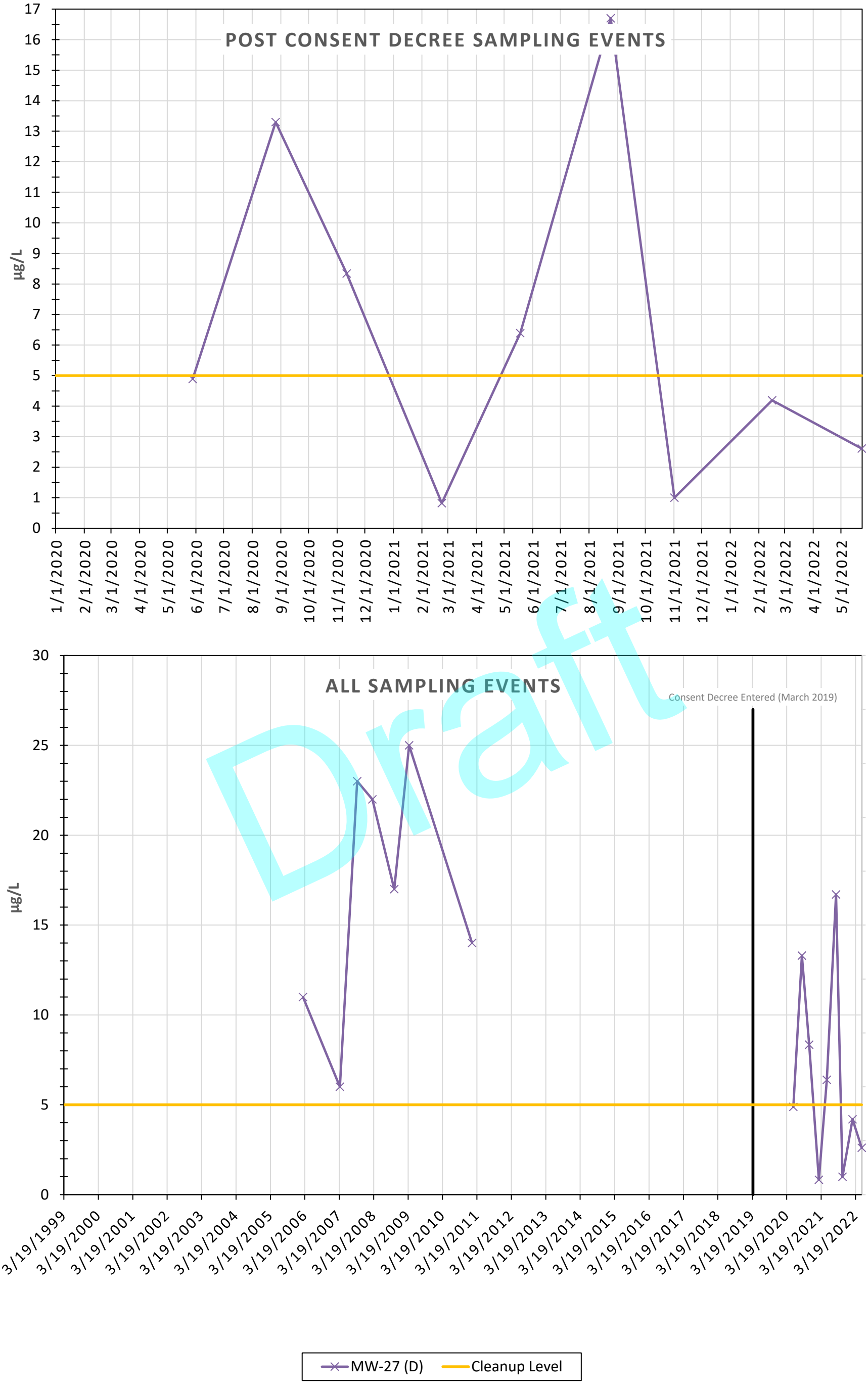
Dissolved Arsenic Concentrations
A-Zone CPOC Wells
South Park Landfill



Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

D = Downgradient
U = Upgradient

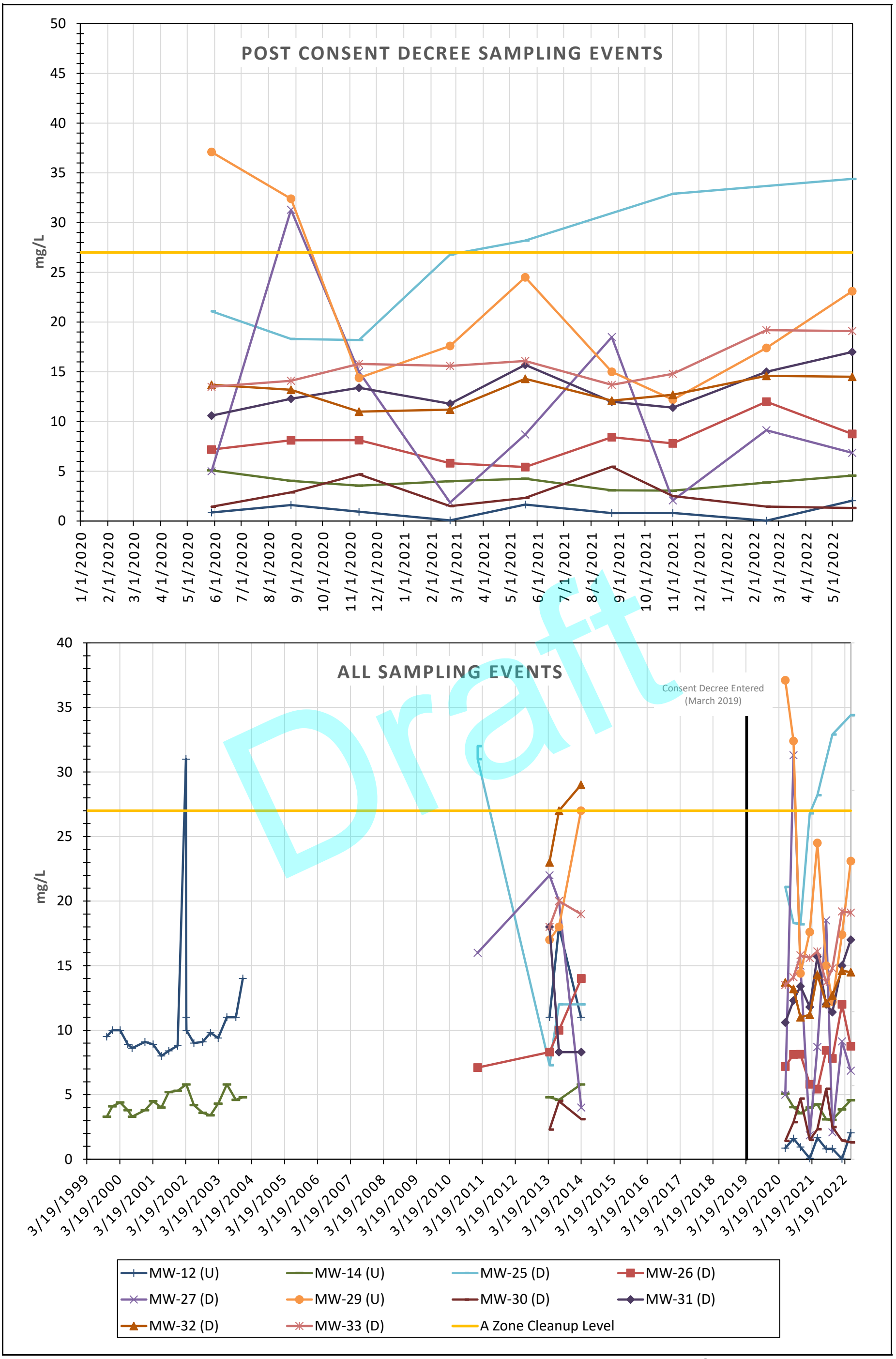
Dissolved Arsenic Concentrations
B-Zone CPOC Wells
South Park Landfill



Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

D = Downgradient
U = Upgradient

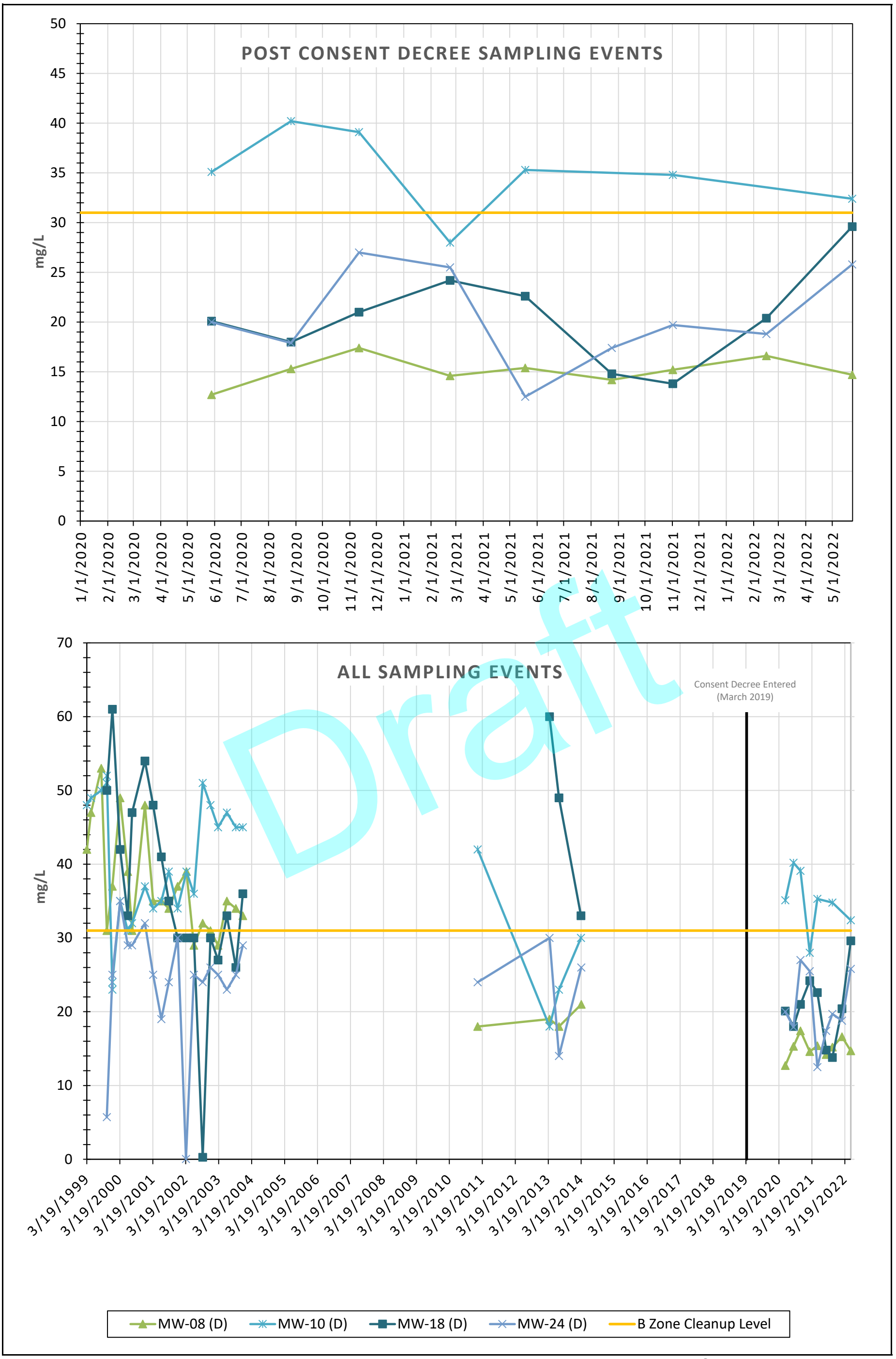
Dissolved Arsenic Concentrations
A-Zone Non-CPOC Wells
South Park Landfill



Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

D = Downgradient
U = Upgradient

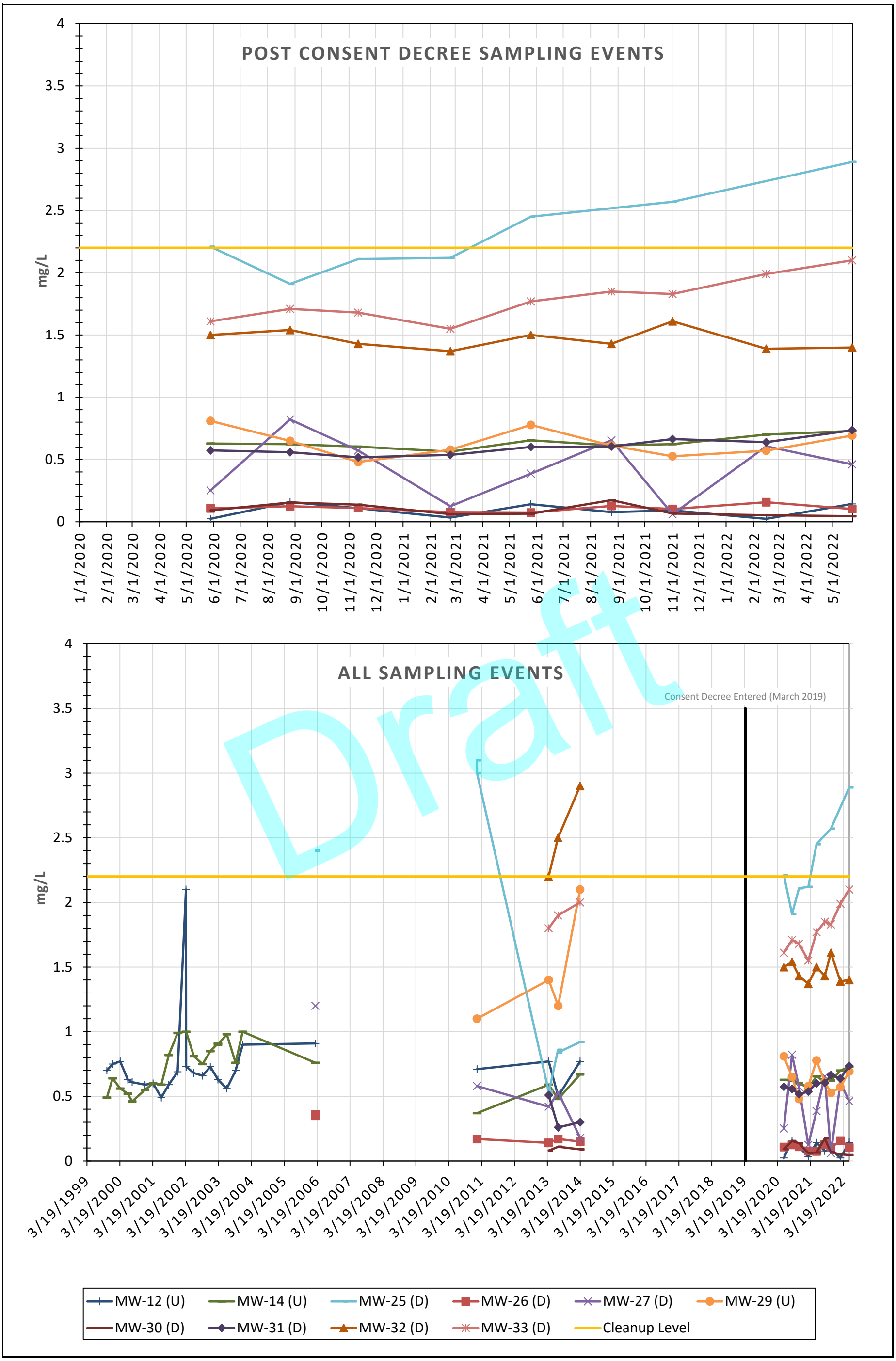
Total Iron Concentrations
A-Zone CPOC Wells
South Park Landfill



Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

D = Downgradient
U = Upgradient

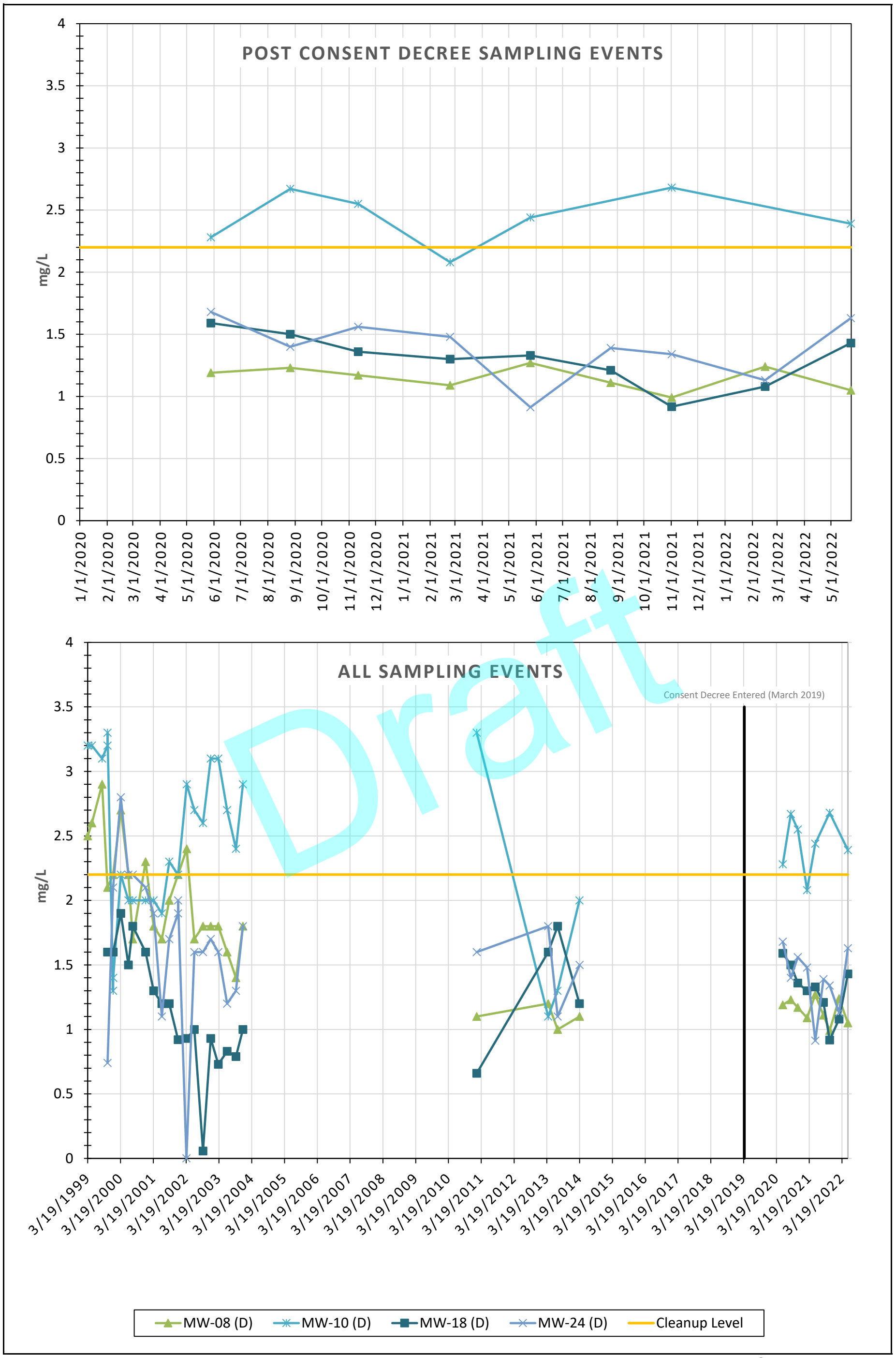
Total Iron Concentrations
B-Zone CPOC Wells
South Park Landfill



Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

D = Downgradient
U = Upgradient

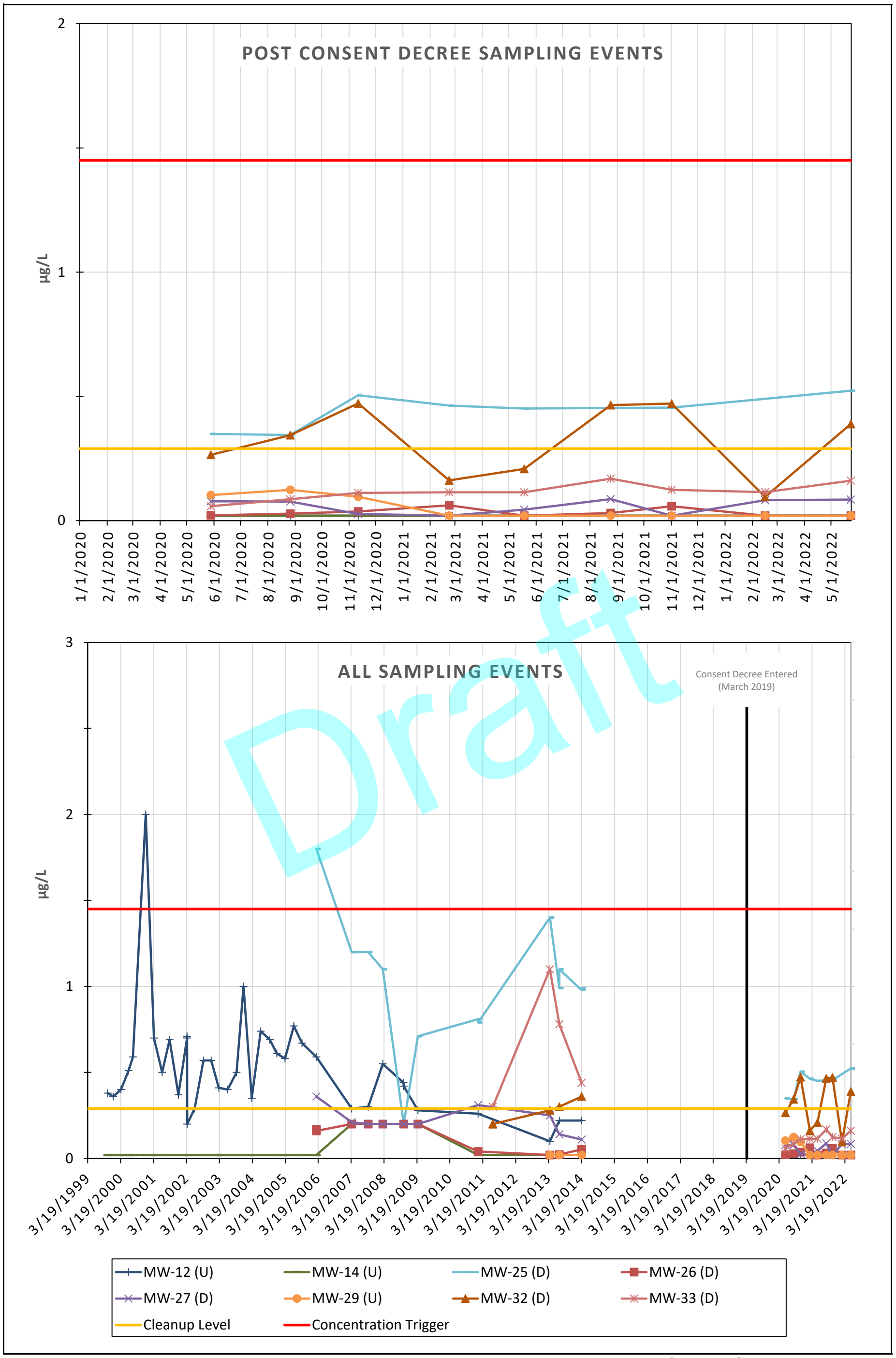
Total Manganese Concentrations
A-Zone CPOC Wells
South Park Landfill



Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

D = Downgradient
U = Upgradient

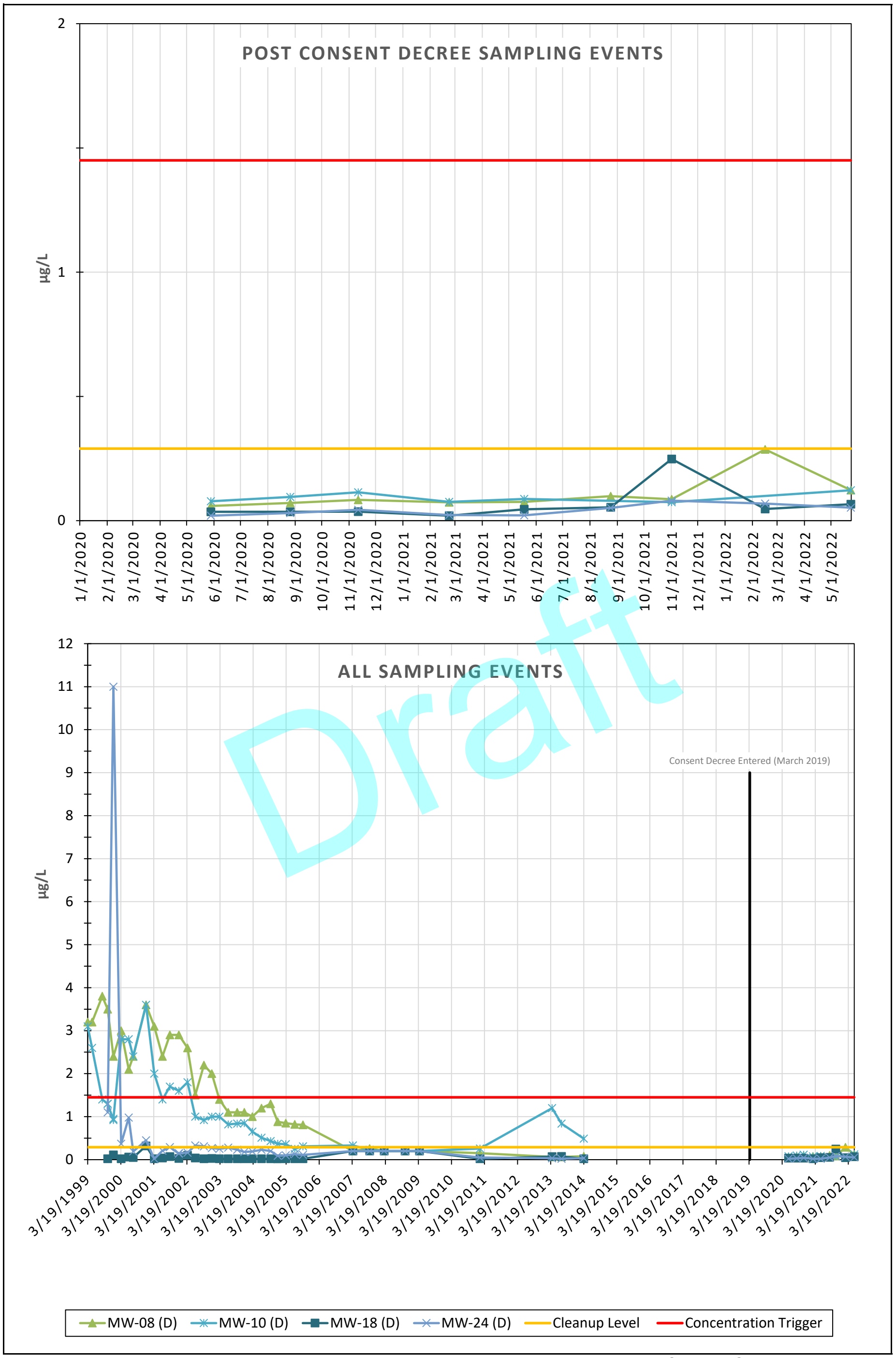
Total Manganese Concentrations
B-Zone CPOC Wells
South Park Landfill



Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

D = Downgradient
U = Upgradient

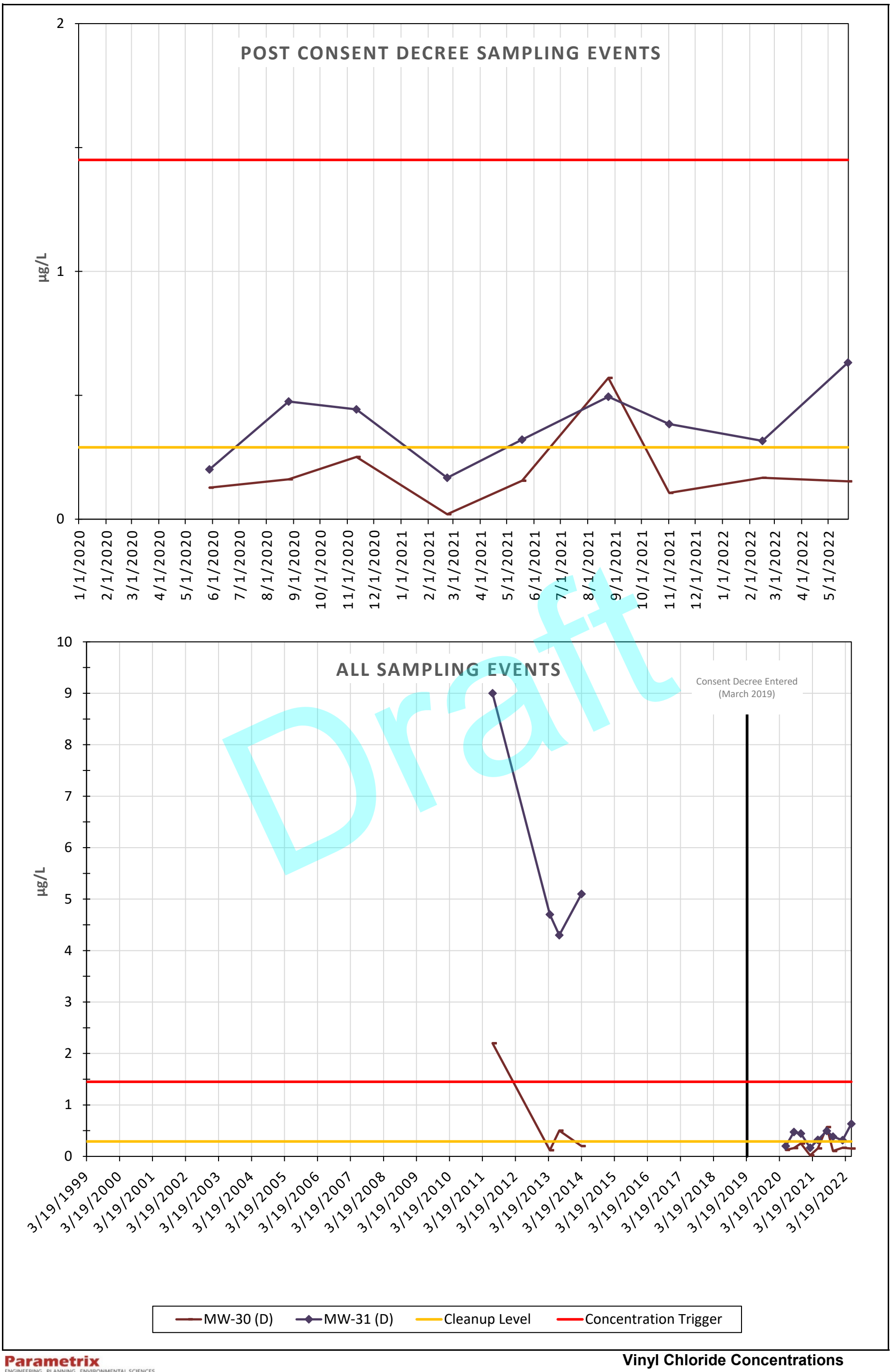
Vinyl Chloride Concentrations
A-Zone CPOC Wells
South Park Landfill



Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

D = Downgradient
U = Upgradient

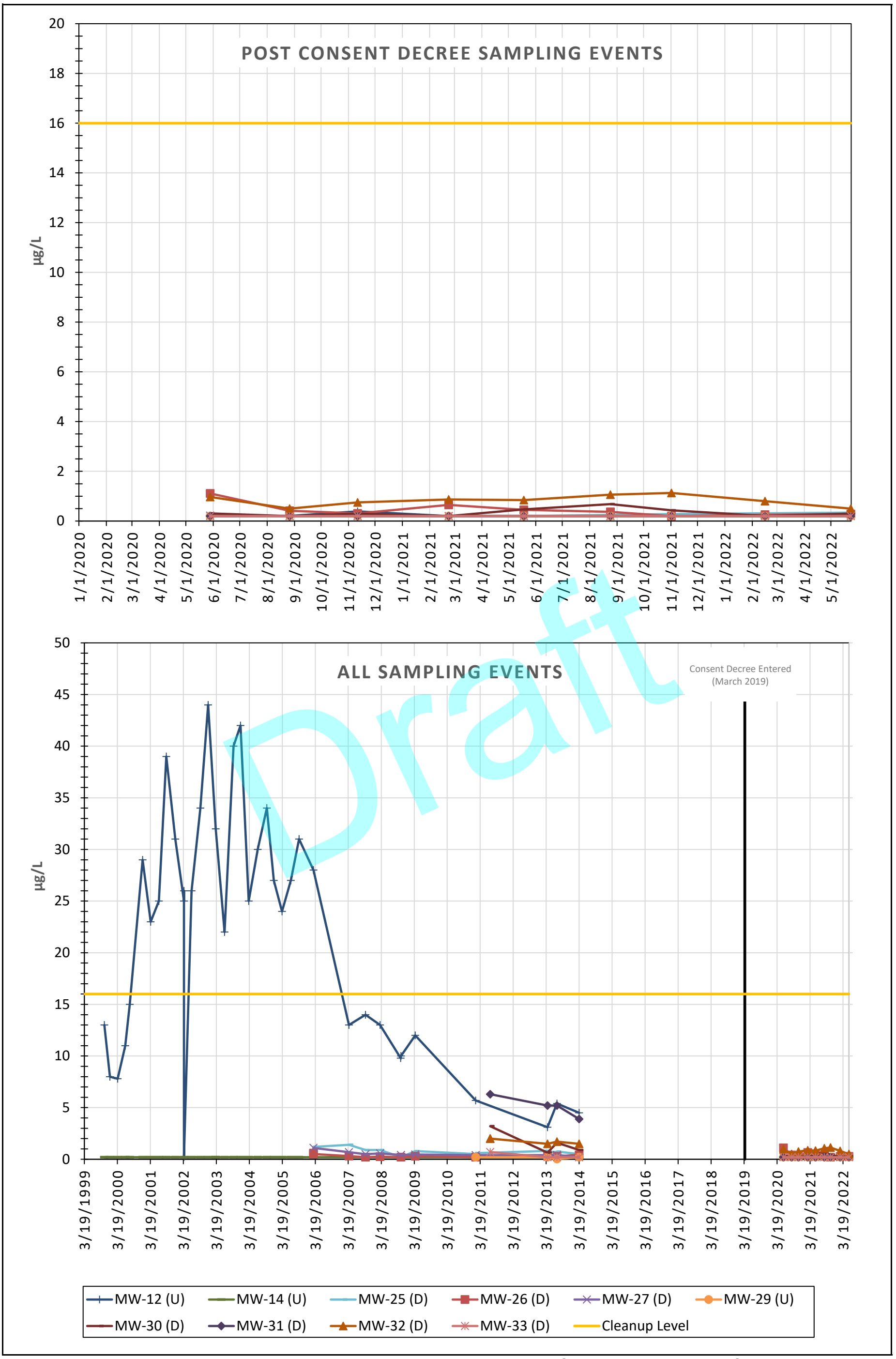
Vinyl Chloride Concentrations
B-Zone CPOC Wells
South Park Landfill



Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

D = Downgradient
U = Upgradient

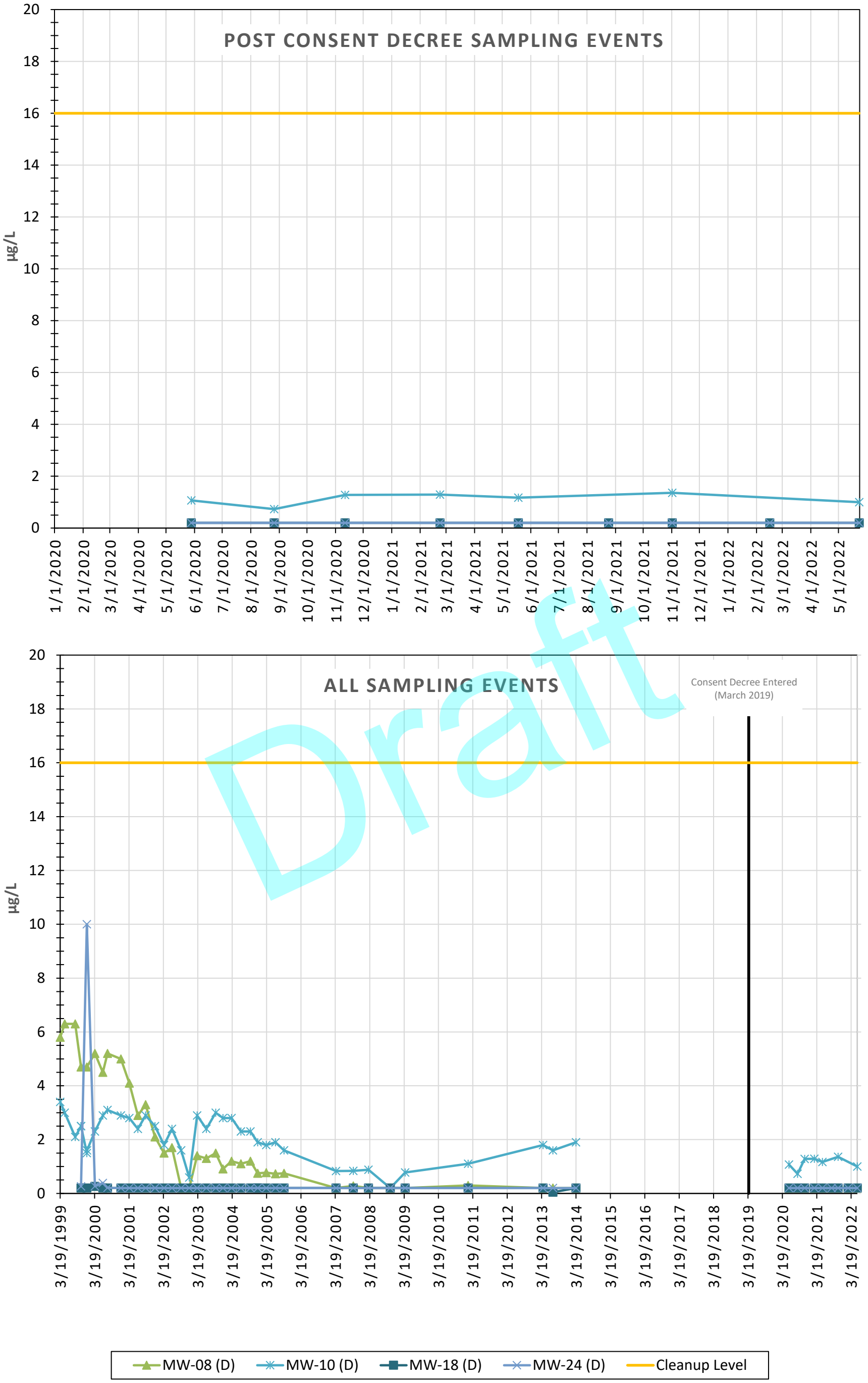
Vinyl Chloride Concentrations
A-Zone Non-CPOC Wells
South Park Landfill



Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

D = Downgradient
U = Upgradient

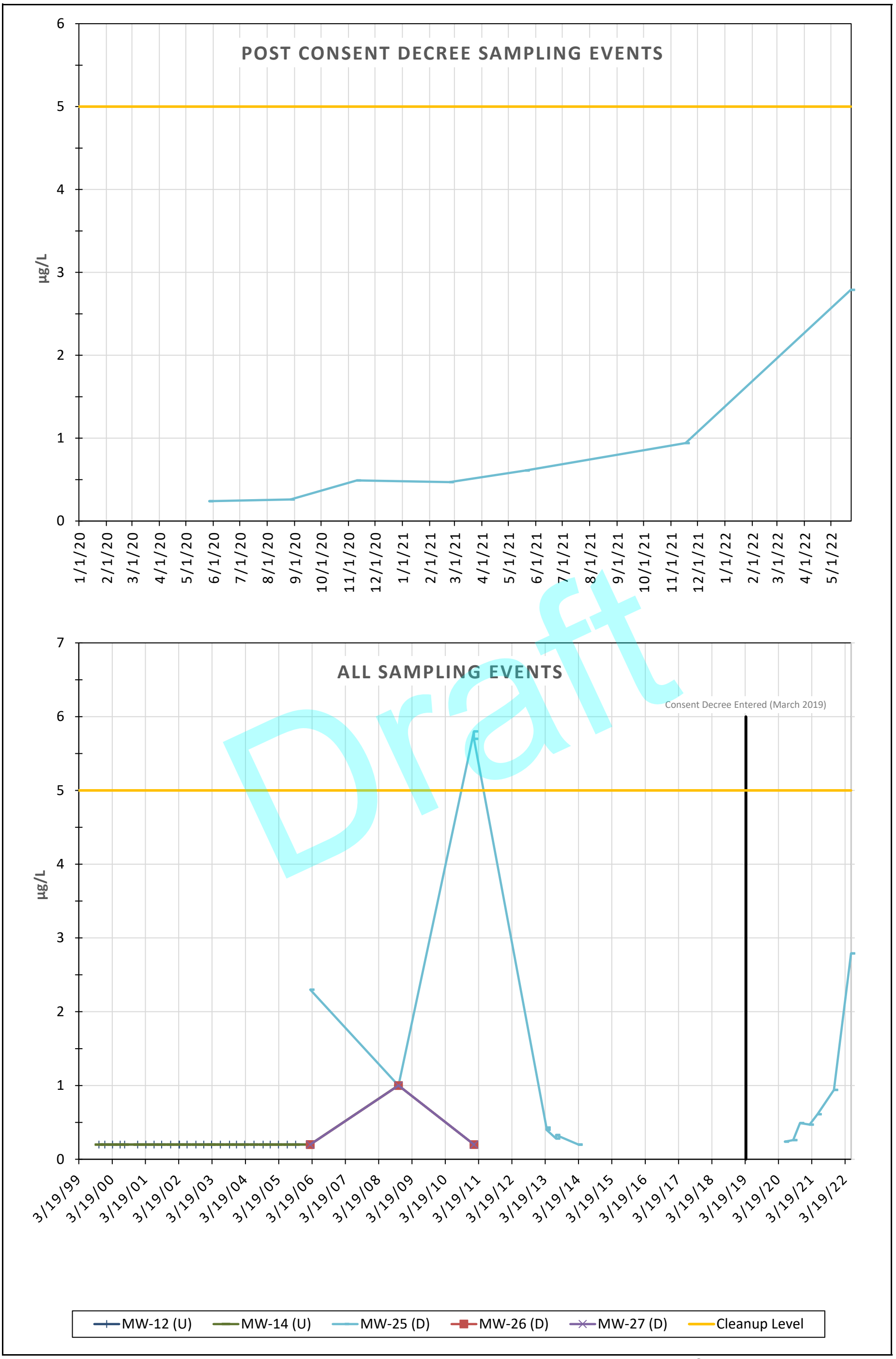
Cis-1,2-Dichloroethene Concentrations
A-Zone CPOC Wells
South Park Landfill



Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

D = Downgradient
U = Upgradient

Cis-1,2-Dichloroethene Concentrations
B-Zone CPOC Wells
South Park Landfill



Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

D = Downgradient
U = Upgradient

Benzene Concentrations
A-Zone CPOC Wells
South Park Landfill

Attachment 5

First Quarter 2022 Groundwater Laboratory Data

Analytical Resources, LLC
Analytical Chemists and Consultants

08 March 2022

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

RE: South Park Landfill -Parametrix Water (553-1550-067)

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)
22B0226	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, LLC

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

Shelly Fishel, Project Manager

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 22B0226	Turn-around Requested: 2 weeks	Date: 2/16/22	
ARI Client Company: Jeff Neuner, Seattle Public Utility	Phone: 206 684-7693	Page: 1 of 2	1
Client Contact: Laura Lee, Parametrix	Phone: 206 394-3665	No. of Coolers: 1	Cooler Temps: 4.3
Client Project Name: South Park Landfill			
Client Project #: 553-1550-067	Samplers: Chris Bourgeois HWA		

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-MW12-0222	2/16/22	900	water	14	X		X	X	X						MS/MSD
~~SPL-GW-MW14-0222~~			water	7	X		X	X							
~~SPL-GW-MW29-0222~~			water	7	X		X	X							
~~SPL-GW-MW18-0222~~			water	8	X		X	X	X						
SPL-GW-MW32-0222	2/14/22	1540	water	8	X		X	X	X						
SPL-GW-MW33-0222	2/14/22	1650	water	8	X		X	X	X						
~~SPL-GW-MW10-0222~~			water	8	X		X	X	X						
SPL-GW-MW60-0222	2/16/22	920	water	8	X		X	X	X						
SPL-GW-MW80-0222	2/16/22	900	water	2		X	X								

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Chris Bourgeois	Printed Name: Karen Barbera	Printed Name:	Printed Name:
	Company: HWA	Company: ARI	Company:	Company:
	Date & Time: 2/16/22 0957	Date & Time: 2/16/22 0957	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: 22B0226	Turn-around Requested: 2 weeks	Date: 2/16/22	
ARI Client Company: Jeff Neuner, Seattle Public Utility	Phone: 206 684-7693	Page: 2 of 2	1
Client Contact: Laura Lee, Parametrix	Phone: 206 394-3665	No. of Coolers: 1	Cooler Temps: 4.3
Client Project Name: South Park Landfill			
Client Project #: 553-1550-067	Samplers: Chris Bourgeois HWA		

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	cis-1,2-DCE	cis-1,2-DCE, benzene	Vinyl Chloride	Total Fe, Mn	Dissolved As**					Notes/Comments
					Analysis Requested									**Field-filtered
~~SPL-GW-MW25-0222~~			water	8		X	X	X	X					
SPL-GW-MW30-0222	2/15/22	0930	water	7	X		X	X						
SPL-GW-MW31-0222	2/15/22	1035	water	7	X		X	X						
SPL-GW-MW24-0222	2/15/22	1340	water	8	X		X	X	X					
SPL-GW-MW26-0222	2/15/22	1210	water	8	X		X	X	X					
SPL-GW-MW08-0222	2/15/22	1515	water	8	X		X	X	X					
SPL-GW-MW27-0222	2/15/22	1645	water	14	X		X	X	X					MS/MSD
SPL-GW-MW61-0222	2/15/22	1655	water	8	X		X	X	X					
~~SPL-GW-MW81-0222~~			water	2		X	X							

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Chris Bourgeois	Printed Name: Raven Barberg	Printed Name:	Printed Name:
	Company: HWA	Company: ARI	Company:	Company:
	Date & Time: 2/16/22 0957	Date & Time: 2/16/22 0957	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.

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SPL-GW-MW12-0222	22B0226-01	Water	16-Feb-2022 09:00	16-Feb-2022 09:57
SPL-GW-MW12-0222	22B0226-02	Water	16-Feb-2022 09:00	16-Feb-2022 09:57
SPL-GW-MW32-0222	22B0226-03	Water	14-Feb-2022 15:40	16-Feb-2022 09:57
SPL-GW-MW32-0222	22B0226-04	Water	14-Feb-2022 15:40	16-Feb-2022 09:57
SPL-GW-MW33-0222	22B0226-05	Water	14-Feb-2022 16:50	16-Feb-2022 09:57
SPL-GW-MW33-0222	22B0226-06	Water	14-Feb-2022 16:50	16-Feb-2022 09:57
SPL-GW-MW60-0222	22B0226-07	Water	16-Feb-2022 09:20	16-Feb-2022 09:57
SPL-GW-MW60-0222	22B0226-08	Water	16-Feb-2022 09:20	16-Feb-2022 09:57
SPL-GW-MW80-0222	22B0226-09	Water	16-Feb-2022 09:00	16-Feb-2022 09:57
SPL-GW-MW30-0222	22B0226-10	Water	15-Feb-2022 09:30	16-Feb-2022 09:57
SPL-GW-MW31-0222	22B0226-11	Water	15-Feb-2022 10:35	16-Feb-2022 09:57
SPL-GW-MW24-0222	22B0226-12	Water	15-Feb-2022 13:40	16-Feb-2022 09:57
SPL-GW-MW24-0222	22B0226-13	Water	15-Feb-2022 13:40	16-Feb-2022 09:57
SPL-GW-MW26-0222	22B0226-14	Water	15-Feb-2022 12:10	16-Feb-2022 09:57
SPL-GW-MW26-0222	22B0226-15	Water	15-Feb-2022 12:10	16-Feb-2022 09:57
SPL-GW-MW08-0222	22B0226-16	Water	15-Feb-2022 15:15	16-Feb-2022 09:57
SPL-GW-MW08-0222	22B0226-17	Water	15-Feb-2022 15:15	16-Feb-2022 09:57
SPL-GW-MW27-0222	22B0226-18	Water	15-Feb-2022 16:45	16-Feb-2022 09:57
SPL-GW-MW27-0222	22B0226-19	Water	15-Feb-2022 16:45	16-Feb-2022 09:57
SPL-GW-MW61-0222	22B0226-20	Water	15-Feb-2022 16:55	16-Feb-2022 09:57
SPL-GW-MW61-0222	22B0226-21	Water	15-Feb-2022 16:55	16-Feb-2022 09:57

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

Work Order Case Narrative

Client: Seattle Public Utilities
Project: South Park Landfill -Parametrix Water
Work Order: 22B0226

Sample receipt

Samples as listed on the preceding page were received 16-Feb-2022 09:57 under ARI work order 22B0226. 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.

The initial calibration verification failed. The analyst used the blank spike as the ICV. No blank spike/blank spike duplicate was performed. Two matrix spike/matrix spike duplicates were analyzed in the batch to show RPD compliance.

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 percent recoveries were within control limits. No blank spike duplicate was analyzed.

The matrix spike/matrix spike duplicate (MS/MSD) spike recoveries and relative percent difference (RPD) were within advisory control 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)

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

were within control limits.

The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits.

Total and Dissolved Metals - EPA Method 6020B

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.

The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits.

WORK ORDER

22B0226

Samples will be discarded 90 days after submission of a final report unless other instructions are received.

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

Project: South Park Landfill -Parametrix Water **Project Number:** 553-1550-067

Preservation Confirmation

Container ID	Container Type	pH	
22B0226-01 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass (P)
22B0226-01 B	VOA Vial, Clear, 40 mL, HCL		
22B0226-01 C	VOA Vial, Clear, 40 mL, HCL		
22B0226-01 D	VOA Vial, Clear, 40 mL, HCL		
22B0226-01 E	VOA Vial, Clear, 40 mL, HCL		
22B0226-01 F	VOA Vial, Clear, 40 mL, HCL		
22B0226-01 G	VOA Vial, Clear, 40 mL		
22B0226-01 H	VOA Vial, Clear, 40 mL		
22B0226-01 I	VOA Vial, Clear, 40 mL		
22B0226-01 J	VOA Vial, Clear, 40 mL		
22B0226-01 K	VOA Vial, Clear, 40 mL		
22B0226-02 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
22B0226-03 A	HDPE NM, 500 mL, 1:1 HNO3		
22B0226-03 B	VOA Vial, Clear, 40 mL, HCL		
22B0226-03 C	VOA Vial, Clear, 40 mL, HCL		
22B0226-03 D	VOA Vial, Clear, 40 mL, HCL		
22B0226-03 E	VOA Vial, Clear, 40 mL		
22B0226-03 F	VOA Vial, Clear, 40 mL		
22B0226-03 G	VOA Vial, Clear, 40 mL		
22B0226-04 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
22B0226-05 A	HDPE NM, 500 mL, 1:1 HNO3		
22B0226-05 B	VOA Vial, Clear, 40 mL, HCL		
22B0226-05 C	VOA Vial, Clear, 40 mL, HCL		
22B0226-05 D	VOA Vial, Clear, 40 mL, HCL		
22B0226-05 E	VOA Vial, Clear, 40 mL		
22B0226-05 F	VOA Vial, Clear, 40 mL		
22B0226-05 G	VOA Vial, Clear, 40 mL		
22B0226-06 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
22B0226-07 A	HDPE NM, 500 mL, 1:1 HNO3		
22B0226-07 B	VOA Vial, Clear, 40 mL, HCL		
22B0226-07 C	VOA Vial, Clear, 40 mL, HCL		
22B0226-07 D	VOA Vial, Clear, 40 mL, HCL		
22B0226-07 E	VOA Vial, Clear, 40 mL		
22B0226-07 F	VOA Vial, Clear, 40 mL		

Reviewed By

Date

WORK ORDER

22B0226

Samples will be discarded 90 days after submission of a final report unless other instructions are received.

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

Project: South Park Landfill -Parametrix Water **Project Number: 553-1550-067**

22B0226-07 G	VOA Vial, Clear, 40 mL		
22B0226-08 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	LZ	P
22B0226-09 A	VOA Vial, Clear, 40 mL, HCL		
22B0226-09 B	VOA Vial, Clear, 40 mL, HCL		
22B0226-09 C	VOA Vial, Clear, 40 mL		
22B0226-09 D	VOA Vial, Clear, 40 mL		
22B0226-10 A	HDPE NM, 500 mL, 1:1 HNO3	LZ	P
22B0226-10 B	VOA Vial, Clear, 40 mL, HCL		
22B0226-10 C	VOA Vial, Clear, 40 mL, HCL		
22B0226-10 D	VOA Vial, Clear, 40 mL, HCL		
22B0226-10 E	VOA Vial, Clear, 40 mL		
22B0226-10 F	VOA Vial, Clear, 40 mL		
22B0226-10 G	VOA Vial, Clear, 40 mL		
22B0226-11 A	HDPE NM, 500 mL, 1:1 HNO3	LZ	P
22B0226-11 B	VOA Vial, Clear, 40 mL, HCL		
22B0226-11 C	VOA Vial, Clear, 40 mL, HCL		
22B0226-11 D	VOA Vial, Clear, 40 mL, HCL		
22B0226-11 E	VOA Vial, Clear, 40 mL		
22B0226-11 F	VOA Vial, Clear, 40 mL		
22B0226-11 G	VOA Vial, Clear, 40 mL		
22B0226-12 A	HDPE NM, 500 mL, 1:1 HNO3	LZ	P
22B0226-12 B	VOA Vial, Clear, 40 mL, HCL		
22B0226-12 C	VOA Vial, Clear, 40 mL, HCL		
22B0226-12 D	VOA Vial, Clear, 40 mL, HCL		
22B0226-12 E	VOA Vial, Clear, 40 mL		
22B0226-12 F	VOA Vial, Clear, 40 mL		
22B0226-12 G	VOA Vial, Clear, 40 mL		
22B0226-13 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	LZ	P
22B0226-14 A	HDPE NM, 500 mL, 1:1 HNO3		
22B0226-14 B	VOA Vial, Clear, 40 mL, HCL		
22B0226-14 C	VOA Vial, Clear, 40 mL, HCL		
22B0226-14 D	VOA Vial, Clear, 40 mL, HCL		
22B0226-14 E	VOA Vial, Clear, 40 mL		
22B0226-14 F	VOA Vial, Clear, 40 mL		
22B0226-14 G	VOA Vial, Clear, 40 mL		
22B0226-15 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	LZ	P

Reviewed By

Date

WORK ORDER

22B0226

Samples will be discarded 90 days after submission of a final report unless other instructions are received.

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

Project: South Park Landfill -Parametrix Water **Project Number:** 553-1550-067

22B0226-16 A	HDPE NM, 500 mL, 1:1 HNO3	LZ	P
22B0226-16 B	VOA Vial, Clear, 40 mL, HCL		
22B0226-16 C	VOA Vial, Clear, 40 mL, HCL		
22B0226-16 D	VOA Vial, Clear, 40 mL, HCL		
22B0226-16 E	VOA Vial, Clear, 40 mL		
22B0226-16 F	VOA Vial, Clear, 40 mL		
22B0226-16 G	VOA Vial, Clear, 40 mL		
22B0226-17 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	LZ	P
22B0226-18 A	HDPE NM, 500 mL, 1:1 HNO3		
22B0226-18 B	VOA Vial, Clear, 40 mL, HCL		
22B0226-18 C	VOA Vial, Clear, 40 mL, HCL		
22B0226-18 D	VOA Vial, Clear, 40 mL, HCL		
22B0226-18 E	VOA Vial, Clear, 40 mL, HCL		
22B0226-18 F	VOA Vial, Clear, 40 mL, HCL		
22B0226-18 G	VOA Vial, Clear, 40 mL		
22B0226-18 H	VOA Vial, Clear, 40 mL		
22B0226-18 I	VOA Vial, Clear, 40 mL		
22B0226-18 J	VOA Vial, Clear, 40 mL		
22B0226-18 K	VOA Vial, Clear, 40 mL		
22B0226-19 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	LZ	P
22B0226-20 A	HDPE NM, 500 mL, 1:1 HNO3		
22B0226-20 B	VOA Vial, Clear, 40 mL, HCL		
22B0226-20 C	VOA Vial, Clear, 40 mL, HCL		
22B0226-20 D	VOA Vial, Clear, 40 mL, HCL		
22B0226-20 E	VOA Vial, Clear, 40 mL		
22B0226-20 F	VOA Vial, Clear, 40 mL		
22B0226-20 G	VOA Vial, Clear, 40 mL		
22B0226-21 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	LZ	P
22B0226-22 A	VOA Vial, Clear, 40 mL, HCL		
22B0226-22 B	VOA Vial, Clear, 40 mL		

RM
Preservation Confirmed By

2/16/22
Date

Reviewed By

Date

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: 22B0226 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) 4.3

Time 0957

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: DOO 10097008

Cooler Accepted by: RV Date: 2/16/22 Time: 0957

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: RV Date: 2/16/22 Time: 1041 Labels checked by:

*** 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:

- Sample SPL-GW-MW12-0222 only has 12 containers while COC says 14.
- Sample SPL-GW-MW80-0222 has 4 containers while COC says 2.
- Sample SPL-GW-MW27-0222 has 12 containers while COC says 14.
- Sample SPL-GW-MW81-0222 is crossed out on COC but 2 vials have labels for this sample, no time or date is filled out.

By: RV Date: 2/16/22

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW12-0222

22B0226-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/16/2022 09:00

Instrument: NT2 Analyst: LH — Analyzed: 02/16/2022 22:16

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22B0226-01 B

Preparation Batch: BKB0398 — Sample Size: 10 mL

Prepared: 02/16/2022 — 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*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW12-0222

22B0226-01 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/16/2022 09:00
Instrument: NT16 Analyst: KOTT — Analyzed: 02/18/2022 21:53

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22B0226-01 H
Preparation Batch: BKB0456 — Sample Size: 10 mL
Prepared: 02/18/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*103*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW12-0222

22B0226-01 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/16/2022 09:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2022 17:25

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22B0226-01 A 02
Preparation Batch: BKC0047 — Sample Size: 25 mL
Prepared: 03/02/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	0.0360	ND	mg/L	U
Manganese	7439-96-5	1	0.000500	0.0238	mg/L	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW12-0222

22B0226-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/16/2022 09:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2022 18:44

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22B0226-02 A 01
Preparation Batch: BKC0087 — Sample Size: 25 mL
Prepared: 03/03/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	0.272	ug/L	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW32-0222

22B0226-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/14/2022 15:40

Instrument: NT2 Analyst: LH — Analyzed: 02/16/2022 22:36

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22B0226-03 B

Preparation Batch: BKB0398 — Sample Size: 10 mL

Prepared: 02/16/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.80	ug/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*116*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW32-0222

22B0226-03 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/14/2022 15:40

Instrument: NT16 Analyst: KOTT — Analyzed: 02/19/2022 02:48

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22B0226-03 E

Preparation Batch: BKB0456 — Sample Size: 10 mL

Prepared: 02/18/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0957	ug/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*100*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW32-0222

22B0226-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/14/2022 15:40
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/03/2022 22:51

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22B0226-03 A 02
Preparation Batch: BKC0047 — Sample Size: 25 mL
Prepared: 03/02/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	14.6	mg/L	D
Manganese	7439-96-5	10	0.00500	1.39	mg/L	D

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW32-0222

22B0226-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/14/2022 15:40

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2022 18:35

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22B0226-04 A 01

Preparation Batch: BKC0087 — Sample Size: 25 mL

Prepared: 03/03/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	0.667	ug/L	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW33-0222

22B0226-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/14/2022 16:50

Instrument: NT2 Analyst: LH — Analyzed: 02/16/2022 22:57

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22B0226-05 B

Preparation Batch: BKB0398 — Sample Size: 10 mL

Prepared: 02/16/2022 — 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 %*	*112*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW33-0222

22B0226-05 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/14/2022 16:50
Instrument: NT16 Analyst: KOTT — Analyzed: 02/19/2022 01:45

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22B0226-05 E
Preparation Batch: BKB0456 — Sample Size: 10 mL
Prepared: 02/18/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.115	ug/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*103*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW33-0222

22B0226-05 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/14/2022 16:50
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/03/2022 22:55

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22B0226-05 A 02
Preparation Batch: BKC0047 — Sample Size: 25 mL
Prepared: 03/02/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	19.2	mg/L	D
Manganese	7439-96-5	10	0.00500	1.99	mg/L	D

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW33-0222

22B0226-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/14/2022 16:50

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2022 18:40

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22B0226-06 A 01

Preparation Batch: BKC0087 — Sample Size: 25 mL

Prepared: 03/03/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	0.586	ug/L	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW60-0222

22B0226-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/16/2022 09:20

Instrument: NT2 Analyst: LH — Analyzed: 02/16/2022 23:18

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22B0226-07 C

Preparation Batch: BKB0398 — Sample Size: 10 mL

Prepared: 02/16/2022 — 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 %*	*116*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW60-0222

22B0226-07 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/16/2022 09:20

Instrument: NT16 Analyst: KOTT — Analyzed: 02/18/2022 22:56

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22B0226-07 E

Preparation Batch: BKB0456 — Sample Size: 10 mL

Prepared: 02/18/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*101*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW60-0222

22B0226-07 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/16/2022 09:20
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2022 18:30

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22B0226-07 A 02
Preparation Batch: BKC0047 — Sample Size: 25 mL
Prepared: 03/02/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	2	0.0720	ND	mg/L	U
Manganese	7439-96-5	2	0.00100	0.0254	mg/L	D

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW60-0222

22B0226-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/16/2022 09:20
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2022 19:27

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22B0226-08 A 01
Preparation Batch: BKC0087 — Sample Size: 25 mL
Prepared: 03/03/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	0.278	ug/L	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW80-0222

22B0226-09 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/16/2022 09:00
Instrument: NT2 Analyst: LH — Analyzed: 02/16/2022 21:11

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22B0226-09 A
Preparation Batch: BKB0398 — Sample Size: 10 mL
Prepared: 02/16/2022 — 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*	*%*	
Surrogate: Toluene-d8			*80-120 %*	*99.4*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW80-0222

22B0226-09 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/16/2022 09:00
Instrument: NT16 Analyst: KOTT — Analyzed: 02/18/2022 23:17

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22B0226-09 C
Preparation Batch: BKB0456 — Sample Size: 10 mL
Prepared: 02/18/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*101*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW30-0222

22B0226-10 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/15/2022 09:30

Instrument: NT2 Analyst: LH — Analyzed: 02/16/2022 23:38

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22B0226-10 B

Preparation Batch: BKB0398 — Sample Size: 10 mL

Prepared: 02/16/2022 — 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 %*	*119*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW30-0222

22B0226-10 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/15/2022 09:30

Instrument: NT16 Analyst: KOTT — Analyzed: 02/18/2022 23:38

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22B0226-10 G

Preparation Batch: BKB0456 — Sample Size: 10 mL

Prepared: 02/18/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.167	ug/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*100*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW30-0222

22B0226-10 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/15/2022 09:30
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/03/2022 23:04

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22B0226-10 A 02
Preparation Batch: BKC0047 — Sample Size: 25 mL
Prepared: 03/02/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	1.45	mg/L	D
Manganese	7439-96-5	10	0.00500	0.0527	mg/L	D

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW31-0222

22B0226-11 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/15/2022 10:35

Instrument: NT2 Analyst: LH — Analyzed: 02/16/2022 23:59

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22B0226-11 B

Preparation Batch: BKB0398 — Sample Size: 10 mL

Prepared: 02/16/2022 — 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*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW31-0222

22B0226-11 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/15/2022 10:35
Instrument: NT16 Analyst: KOTT — Analyzed: 02/18/2022 23:59

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22B0226-11 F
Preparation Batch: BKB0456 — Sample Size: 10 mL
Prepared: 02/18/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.316	ug/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*101*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW31-0222

22B0226-11 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/15/2022 10:35
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/03/2022 22:28

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22B0226-11 A 02
Preparation Batch: BKC0047 — Sample Size: 25 mL
Prepared: 03/02/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	15.0	mg/L	D
Manganese	7439-96-5	10	0.00500	0.640	mg/L	D

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW24-0222

22B0226-12 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/15/2022 13:40

Instrument: NT2 Analyst: LH — Analyzed: 02/17/2022 00:21

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22B0226-12 B

Preparation Batch: BKB0398 — Sample Size: 10 mL

Prepared: 02/16/2022 — 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*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW24-0222

22B0226-12 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/15/2022 13:40
Instrument: NT16 Analyst: KOTT — Analyzed: 02/19/2022 02:06

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22B0226-12 E
Preparation Batch: BKB0456 — Sample Size: 10 mL
Prepared: 02/18/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0688	ug/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*102*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW24-0222

22B0226-12 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/15/2022 13:40
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/03/2022 22:33

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22B0226-12 A 02
Preparation Batch: BKC0047 — Sample Size: 25 mL
Prepared: 03/02/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	18.8	mg/L	D
Manganese	7439-96-5	10	0.00500	1.13	mg/L	D

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW24-0222

22B0226-13 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/15/2022 13:40

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2022 19:32

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22B0226-13 A 01

Preparation Batch: BKC0087 — Sample Size: 25 mL

Prepared: 03/03/2022 — 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

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW26-0222

22B0226-14 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/15/2022 12:10

Instrument: NT2 Analyst: LH — Analyzed: 02/17/2022 00:42

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22B0226-14 C

Preparation Batch: BKB0398 — Sample Size: 10 mL

Prepared: 02/16/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.26	ug/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*123*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW26-0222

22B0226-14 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/15/2022 12:10
Instrument: NT16 Analyst: KOTT — Analyzed: 02/19/2022 00:20

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22B0226-14 G
Preparation Batch: BKB0456 — Sample Size: 10 mL
Prepared: 02/18/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*102*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW26-0222

22B0226-14 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/15/2022 12:10
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/03/2022 22:37

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22B0226-14 A 02
Preparation Batch: BKC0047 — Sample Size: 25 mL
Prepared: 03/02/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	12.0	mg/L	D
Manganese	7439-96-5	10	0.00500	0.157	mg/L	D

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW26-0222

22B0226-15 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/15/2022 12:10

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2022 19:37

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22B0226-15 A 01

Preparation Batch: BKC0087 — Sample Size: 25 mL

Prepared: 03/03/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	0.741	ug/L	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW08-0222

22B0226-16 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/15/2022 15:15

Instrument: NT2 Analyst: LH — Analyzed: 02/17/2022 01:02

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22B0226-16 B

Preparation Batch: BKB0398 — Sample Size: 10 mL

Prepared: 02/16/2022 — 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*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW08-0222

22B0226-16 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/15/2022 15:15
Instrument: NT16 Analyst: KOTT — Analyzed: 02/19/2022 02:27

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22B0226-16 F
Preparation Batch: BKB0456 — Sample Size: 10 mL
Prepared: 02/18/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.287	ug/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*101*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW08-0222

22B0226-16 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/15/2022 15:15

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/03/2022 22:42

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22B0226-16 A 02

Preparation Batch: BKC0047 — Sample Size: 25 mL

Prepared: 03/02/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	16.6	mg/L	D
Manganese	7439-96-5	10	0.00500	1.24	mg/L	D

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW08-0222

22B0226-17 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/15/2022 15:15

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2022 19:42

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22B0226-17 A 01

Preparation Batch: BKC0087 — Sample Size: 25 mL

Prepared: 03/03/2022 — 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

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW27-0222

22B0226-18 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/15/2022 16:45

Instrument: NT2 Analyst: LH — Analyzed: 02/17/2022 01:23

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22B0226-18 B

Preparation Batch: BKB0398 — Sample Size: 10 mL

Prepared: 02/16/2022 — 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*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW27-0222

22B0226-18 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/15/2022 16:45

Instrument: NT16 Analyst: KOTT — Analyzed: 02/19/2022 00:42

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22B0226-18 I

Preparation Batch: BKB0456 — Sample Size: 10 mL

Prepared: 02/18/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0824	ug/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*104*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW27-0222

22B0226-18 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/15/2022 16:45

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2022 17:41

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22B0226-18 A 02

Preparation Batch: BKC0047 — Sample Size: 25 mL

Prepared: 03/02/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	0.0360	9.13	mg/L	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW27-0222

22B0226-18RE1 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/15/2022 16:45

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/05/2022 03:31

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22B0226-18RE1 A 02

Preparation Batch: BKC0047 — Sample Size: 25 mL

Prepared: 03/02/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	10	0.00500	0.606	mg/L	D

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW27-0222

22B0226-19 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/15/2022 16:45

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2022 19:52

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22B0226-19 A 01

Preparation Batch: BKC0087 — Sample Size: 25 mL

Prepared: 03/03/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	4.19	ug/L	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW61-0222

22B0226-20 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/15/2022 16:55

Instrument: NT2 Analyst: LH — Analyzed: 02/17/2022 01:43

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22B0226-20 B

Preparation Batch: BKB0398 — Sample Size: 10 mL

Prepared: 02/16/2022 — 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 %*	*125*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW61-0222

22B0226-20 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/15/2022 16:55
Instrument: NT16 Analyst: KOTT — Analyzed: 02/19/2022 03:09

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22B0226-20 E
Preparation Batch: BKB0456 — Sample Size: 10 mL
Prepared: 02/18/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0838	ug/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*102*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW61-0222

22B0226-20 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/15/2022 16:55
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/03/2022 22:46

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22B0226-20 A 02
Preparation Batch: BKC0047 — Sample Size: 25 mL
Prepared: 03/02/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	11.2	mg/L	D
Manganese	7439-96-5	10	0.00500	0.626	mg/L	D

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

SPL-GW-MW61-0222

22B0226-21 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/15/2022 16:55
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2022 19:46

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22B0226-21 A 01
Preparation Batch: BKC0087 — Sample Size: 25 mL
Prepared: 03/03/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	4.09	ug/L	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKB0398 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKB0398-BLK1)				Prepared: 16-Feb-2022 Analyzed: 16-Feb-2022 20:30						
cis-1,2-Dichloroethene	ND	0.20	ug/L							U
Benzene	ND	0.20	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5.63		ug/L	*5.00*		*113*	*80-129*			
Surrogate: Toluene-d8	4.90		ug/L	*5.00*		*97.9*	*80-120*			
LCS (BKB0398-BS1)				Prepared: 16-Feb-2022 Analyzed: 16-Feb-2022 19:28						
cis-1,2-Dichloroethene	11.1	0.20	ug/L	10.0		111	80-121			
Benzene	10.9	0.20	ug/L	10.0		109	80-120			
Surrogate: 1,2-Dichloroethane-d4	5.68		ug/L	*5.00*		*114*	*80-129*			
Surrogate: Toluene-d8	5.11		ug/L	*5.00*		*102*	*80-120*			
LCS Dup (BKB0398-BSD1)				Prepared: 16-Feb-2022 Analyzed: 16-Feb-2022 19:49						
cis-1,2-Dichloroethene	10.7	0.20	ug/L	10.0		107	80-121	3.38	30	
Benzene	10.3	0.20	ug/L	10.0		103	80-120	6.18	30	
Surrogate: 1,2-Dichloroethane-d4	5.67		ug/L	*5.00*		*113*	*80-129*			
Surrogate: Toluene-d8	5.14		ug/L	*5.00*		*103*	*80-120*			
Matrix Spike (BKB0398-MS1)	**Source: 22B0226-01**			Prepared: 16-Feb-2022 Analyzed: 17-Feb-2022 02:04						
cis-1,2-Dichloroethene	11.5	0.20	ug/L	10.0	ND	115	80-121			
Benzene	10.8	0.20	ug/L	10.0	ND	108	80-120			
Surrogate: 1,2-Dichloroethane-d4	5.89		ug/L	*5.00*	*5.76*	*118*	*80-129*			
Surrogate: Toluene-d8	5.11		ug/L	*5.00*		*102*	*80-120*			

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

Matrix Spike (BKB0398-MS2)	**Source: 22B0226-18**			Prepared: 16-Feb-2022 Analyzed: 17-Feb-2022 02:45						
cis-1,2-Dichloroethene	11.3	0.20	ug/L	10.0	ND	111	80-121			
Benzene	10.8	0.20	ug/L	10.0	ND	108	80-120			
Surrogate: 1,2-Dichloroethane-d4	6.04		ug/L	*5.00*	*6.03*	*121*	*80-129*			
Surrogate: Toluene-d8	5.06		ug/L	*5.00*		*101*	*80-120*			

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

Matrix Spike Dup (BKB0398-MSD1)	**Source: 22B0226-01**			Prepared: 16-Feb-2022 Analyzed: 17-Feb-2022 02:24						
cis-1,2-Dichloroethene	11.2	0.20	ug/L	10.0	ND	112	80-121	1.86	30	
Benzene	10.8	0.20	ug/L	10.0	ND	108	80-120	0.22	30	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKB0398 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BKB0398-MSD1)	**Source: 22B0226-01**		Prepared: 16-Feb-2022 Analyzed: 17-Feb-2022 02:24							
Surrogate: 1,2-Dichloroethane-d4	5.98		ug/L	*5.00*	*5.76*	*120*	*80-129*			
Surrogate: Toluene-d8	5.08		ug/L	*5.00*		*102*	*80-120*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike Dup (BKB0398-MSD2)	**Source: 22B0226-18**		Prepared: 16-Feb-2022 Analyzed: 17-Feb-2022 03:07							
cis-1,2-Dichloroethene	10.8	0.20	ug/L	10.0	ND	106	80-121	4.61	30	
Benzene	10.2	0.20	ug/L	10.0	ND	102	80-120	6.03	30	
Surrogate: 1,2-Dichloroethane-d4	5.99		ug/L	*5.00*	*6.03*	*120*	*80-129*			
Surrogate: Toluene-d8	5.14		ug/L	*5.00*		*103*	*80-120*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BKB0456 - EPA 5030C (Purge and Trap)

Instrument: NT16 Analyst: KOTT

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKB0456-BLK1)				Prepared: 18-Feb-2022 Analyzed: 18-Feb-2022 21:32						
Vinyl chloride	ND	0.0200	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5150		ug/L	*5000*		*103*	*80-129*			
LCS (BKB0456-BS1)				Prepared: 18-Feb-2022 Analyzed: 18-Feb-2022 21:11						
Vinyl chloride	2.03	0.0200	ug/L	2.00		102	62-141			
Surrogate: 1,2-Dichloroethane-d4	4790		ug/L	*5000*		*95.8*	*80-129*			
Matrix Spike (BKB0456-MS1)		**Source: 22B0226-01**		Prepared: 18-Feb-2022 Analyzed: 18-Feb-2022 22:14						
Vinyl chloride	2.42	0.0200	ug/L	2.00	ND	121	62-141			
Surrogate: 1,2-Dichloroethane-d4	4870		ug/L	*5000*	*5130*	*97.5*	*80-129*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike (BKB0456-MS2)		**Source: 22B0226-18**		Prepared: 18-Feb-2022 Analyzed: 19-Feb-2022 01:03						
Vinyl chloride	1.90	0.0200	ug/L	2.00	0.0824	91.0	62-141			
Surrogate: 1,2-Dichloroethane-d4	4840		ug/L	*5000*	*5190*	*96.7*	*80-129*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike Dup (BKB0456-MSD1)		**Source: 22B0226-01**		Prepared: 18-Feb-2022 Analyzed: 18-Feb-2022 22:35						
Vinyl chloride	1.89	0.0200	ug/L	2.00	ND	94.5	62-141	24.70	30	
Surrogate: 1,2-Dichloroethane-d4	4810		ug/L	*5000*	*5130*	*96.2*	*80-129*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike Dup (BKB0456-MSD2)		**Source: 22B0226-18**		Prepared: 18-Feb-2022 Analyzed: 19-Feb-2022 01:24						
Vinyl chloride	1.93	0.0200	ug/L	2.00	0.0824	92.3	62-141	1.34	30	
Surrogate: 1,2-Dichloroethane-d4	4800		ug/L	*5000*	*5190*	*96.1*	*80-129*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BKC0047 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: SKD

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKC0047-BLK1)				Prepared: 02-Mar-2022 Analyzed: 02-Mar-2022 18:03							
Iron	54	ND	0.0360	mg/L							U
Iron	57	ND	0.0360	mg/L							U
Manganese	55	ND	0.000500	mg/L							U
LCS (BKC0047-BS1)				Prepared: 02-Mar-2022 Analyzed: 02-Mar-2022 18:07							
Iron	54	5.19	0.0360	mg/L	5.00		104	80-120			
Iron	57	5.21	0.0360	mg/L	5.00		104	80-120			
Manganese	55	0.0264	0.000500	mg/L	0.0250		106	80-120			
Duplicate (BKC0047-DUP1)			**Source: 22B0226-01**	Prepared: 02-Mar-2022 Analyzed: 04-Mar-2022 17:31							
Iron	54	ND	0.0360	mg/L		ND					U
Manganese	55	0.0239	0.000500	mg/L		0.0238			0.69	20	
Duplicate (BKC0047-DUP2)			**Source: 22B0226-18**	Prepared: 02-Mar-2022 Analyzed: 04-Mar-2022 17:46							
Iron	54	9.13	0.0360	mg/L		9.13			0.04	20	
Duplicate (BKC0047-DUP4)			**Source: 22B0226-18RE1**	Prepared: 02-Mar-2022 Analyzed: 05-Mar-2022 03:36							
Manganese	55	0.598	0.00500	mg/L		0.606			1.43	20	D
Matrix Spike (BKC0047-MS1)			**Source: 22B0226-01**	Prepared: 02-Mar-2022 Analyzed: 04-Mar-2022 17:35							
Iron	54	4.45	0.0360	mg/L	5.00	ND	88.4	75-125			
Manganese	55	0.0473	0.000500	mg/L	0.0250	0.0238	94.0	75-125			

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

Matrix Spike (BKC0047-MS2)			**Source: 22B0226-18**	Prepared: 02-Mar-2022 Analyzed: 04-Mar-2022 17:51							
Iron	54	13.8	0.0360	mg/L	5.00	9.13	94.1	75-125			

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

Matrix Spike (BKC0047-MS4)			**Source: 22B0226-18RE1**	Prepared: 02-Mar-2022 Analyzed: 05-Mar-2022 03:41							
Manganese	55	0.629	0.00500	mg/L	0.0250	0.606	89.4	75-125			D

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

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BKC0087 - 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 (BKC0087-BLK1)				Prepared: 03-Mar-2022 Analyzed: 03-Mar-2022 19:17							
Arsenic, Dissolved	75a	ND	0.200	ug/L							U
LCS (BKC0087-BS1)				Prepared: 03-Mar-2022 Analyzed: 03-Mar-2022 19:21							
Arsenic, Dissolved	75a	25.1	0.200	ug/L	25.0		100	80-120			
Duplicate (BKC0087-DUP1)		**Source: 22B0226-02**		Prepared: 03-Mar-2022 Analyzed: 04-Mar-2022 18:50							
Arsenic, Dissolved	75a	0.271	0.200	ug/L		0.272			0.37	20	
Duplicate (BKC0087-DUP2)		**Source: 22B0226-19**		Prepared: 03-Mar-2022 Analyzed: 04-Mar-2022 19:57							
Arsenic, Dissolved	75a	3.89	0.200	ug/L		4.19			7.38	20	
Matrix Spike (BKC0087-MS1)		**Source: 22B0226-02**		Prepared: 03-Mar-2022 Analyzed: 04-Mar-2022 18:56							
Arsenic, Dissolved	75a	25.5	0.200	ug/L	25.0	0.272	101	75-125			

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

Matrix Spike (BKC0087-MS2)		**Source: 22B0226-19**		Prepared: 03-Mar-2022 Analyzed: 04-Mar-2022 20:03							
Arsenic, Dissolved	75a	27.9	0.200	ug/L	25.0	4.19	94.9	75-125			

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

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

Certified Analyses included in this Report

Analyte	Certifications
EPA 6020B in Water	
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
Arsenic-75a	NELAP,WADOE,DoD-ELAP,ADEC
EPA 8260D in Water	
Chloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Acrolein	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Iodomethane	DoD-ELAP,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
Styrene	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,NELAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,WADOE

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,WADOE
n-Hexane	WADOE
2-Pentanone	WADOE

EPA 8260D-SIM in Water

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

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2023
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	02/28/2022
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2022
WADOE	WA Dept of Ecology	C558	06/30/2022
WA-DW	Ecology - Drinking Water	C558	06/30/2022

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	08-Mar-2022 11:17

Notes and Definitions

*	Flagged value is not within established control limits.
D	The reported value is from a dilution
J	Estimated concentration value detected below the reporting limit.
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, LLC
Analytical Chemists and Consultants

07 March 2022

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

RE: South Park Landfill -Parametrix Water (553-1550-067)

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)
22B0235	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, LLC

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

Shelly Fishel, Project Manager

Accredited in accordance with nelac
Cert# 100006-012

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 22B0235	Turn-around Requested: 2 weeks
ARI Client Company: Jeff Neuner, Seattle Public Utility	Phone: 206 684-7693
Client Contact: Laura Lee, Parametrix	Phone: 206 394-3665
Client Project Name: South Park Landfill	
Client Project #: 553-1550-067	Samplers: Chris Bourgeois HWA

Date: 2/16/22
Page: 1 of 2 1
No. of Coolers: 1 Cooler Temps: 12.0

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-MW12-0222~~			water	~~14~~	X		X	X	X						~~MS/MSD~~
SPL-GW-MW14-0222	2/16/22	1110	water	7	X		X	X							
SPL-GW-MW29-0222	2/16/22	1230	water	7	X		X	X							
SPL-GW-MW18-0222	2/16/22	1355	water	8	X		X	X	X						
~~SPL-GW-MW32-0222~~			water	~~8~~	X		X	X	X						
~~SPL-GW-MW33-0222~~			water	8	X		X	X	X						
~~SPL-GW-MW10-0222~~			water	8	X		X	X	X						
~~SPL-GW-MW60-0222~~			water	8	X		X	X	X						
~~SPL-GW-MW80-0222~~			water	2		X	X								

Comments/Special Instructions

Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
Printed Name: Chris Bourgeois	Printed Name: Raven Barbera	Printed Name:	Printed Name:
Company: HWA	Company: ARI	Company:	Company:
Date & Time: 2/16/22 1457	Date & Time: 2/16/22 1505	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: 2280235	Turn-around Requested: 2 weeks	Date: 2/16/22	
ARI Client Company: Jeff Neuner, Seattle Public Utility	Phone: 206 684-7693	Page: 2 of 2	1
Client Contact: Laura Lee, Parametrix	Phone: 206 394-3665	No. of Coolers: 1	Cooler Temps: 12.0
Client Project Name: South Park Landfill			
Client Project #: 553-1550-067	Samplers: Chris Bourgeois HWA		

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-MW25-0222~~			water	8		X	X	X	X					**Field-filtered
~~SPL-GW-MW30-0222~~			water	7	X		X	X						
~~SPL-GW-MW31-0222~~			water	7	X		X	X						
~~SPL-GW-MW24-0222~~			water	8	X		X	X	X					
~~SPL-GW-MW26-0222~~			water	8	X		X	X	X					
~~SPL-GW-MW08-0222~~			water	8	X		X	X	X					
~~SPL-GW-MW27-0222~~			water	14	X		X	X	X					~~MS/MSD~~
~~SPL-GW-MW61-0222~~			water	8	X		X	X	X					
SPL-GW-MW81-0222	2/16/22	1450	water	2		X	X							

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Chris Bourgeois	Printed Name: Raven Barbera	Printed Name:	Printed Name:
	Company: HWA	Company: ARI	Company:	Company:
	Date & Time: 2/16/22 1459	Date & Time: 2/16/22 1505	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.

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	07-Mar-2022 17:09

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SPL-GW-MW14-0222	22B0235-01	Water	16-Feb-2022 11:10	16-Feb-2022 15:05
SPL-GW-MW29-0222	22B0235-02	Water	16-Feb-2022 12:30	16-Feb-2022 15:05
SPL-GW-MW18-0222	22B0235-03	Water	16-Feb-2022 13:55	16-Feb-2022 15:05
SPL-GW-MW18-0222	22B0235-04	Water	16-Feb-2022 13:55	16-Feb-2022 15:05
SPL-GW-MW81-0222	22B0235-05	Water	16-Feb-2022 14:50	16-Feb-2022 15:05

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	07-Mar-2022 17:09

Work Order Case Narrative

Client: Seattle Public Utilities
Project: South Park Landfill -Parametrix Water
Work Order: 22B0235

Sample receipt

Samples as listed on the preceding page were received 16-Feb-2022 15:05 under ARI work order 22B0235. 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 control 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 control limits.

Total and Dissolved Metals - EPA Method 6020B

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

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	07-Mar-2022 17:09

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.

WORK ORDER

22B0235

Samples will be discarded 90 days after submission of a final report unless other instructions are received.

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

Project: South Park Landfill -Parametrix Water **Project Number:** 553-1550-067

Preservation Confirmation

Container ID	Container Type	pH	
22B0235-01 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass (P)
22B0235-01 B	VOA Vial, Clear, 40 mL, HCL		
22B0235-01 C	VOA Vial, Clear, 40 mL, HCL		
22B0235-01 D	VOA Vial, Clear, 40 mL, HCL		
22B0235-01 E	VOA Vial, Clear, 40 mL		
22B0235-01 F	VOA Vial, Clear, 40 mL		
22B0235-01 G	VOA Vial, Clear, 40 mL		
22B0235-02 A	HDPE NM, 500 mL, 1:1 HNO3	<2	P
22B0235-02 B	VOA Vial, Clear, 40 mL, HCL		
22B0235-02 C	VOA Vial, Clear, 40 mL, HCL		
22B0235-02 D	VOA Vial, Clear, 40 mL, HCL		
22B0235-02 E	VOA Vial, Clear, 40 mL		
22B0235-02 F	VOA Vial, Clear, 40 mL		
22B0235-02 G	VOA Vial, Clear, 40 mL		
22B0235-03 A	HDPE NM, 500 mL, 1:1 HNO3	<2	P
22B0235-03 B	VOA Vial, Clear, 40 mL, HCL		
22B0235-03 C	VOA Vial, Clear, 40 mL, HCL		
22B0235-03 D	VOA Vial, Clear, 40 mL, HCL		
22B0235-03 E	VOA Vial, Clear, 40 mL		
22B0235-03 F	VOA Vial, Clear, 40 mL		
22B0235-03 G	VOA Vial, Clear, 40 mL		
22B0235-04 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
22B0235-05 A	VOA Vial, Clear, 40 mL, HCL	bubble	
22B0235-05 B	VOA Vial, Clear, 40 mL		

RD
Preservation Confirmed By

2/16/22
Date

Reviewed By

Date

Analytical Resources, Incorporated
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: 22B0235 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 1505 12.0

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

Cooler Accepted by: RM Date: 2/16/22 Time: 1505

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 RM 2/16/22
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: RM Date: 2/16/22 Time: 1555 Labels checked by: ____

***** 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:

Analytical Resources, LLC
Analytical Chemists and Consultants

Cooler Temperature Compliance Form

ARI Work Order: 22B0235

Cooler#: _____ **Temperature(°C):** 12.0°C

Sample ID	Bottle Count	Bottle Type
samples received above	6°C	

Cooler#: _____ **Temperature(°C):** _____

Sample ID	Bottle Count	Bottle Type

Cooler#: _____ **Temperature(°C):** _____

Sample ID	Bottle Count	Bottle Type

Cooler#: _____ **Temperature(°C):** _____

Sample ID	Bottle Count	Bottle Type

Completed by: RM Date: 2/16/22 Time: 1505

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	07-Mar-2022 17:09

SPL-GW-MW14-0222

22B0235-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/16/2022 11:10

Instrument: NT2 Analyst: LH — Analyzed: 02/17/2022 22:25

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22B0235-01 C

Preparation Batch: BKB0407 — Sample Size: 10 mL

Prepared: 02/17/2022 — 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 %*	*108*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	07-Mar-2022 17:09

SPL-GW-MW14-0222

22B0235-01 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/16/2022 11:10
Instrument: NT16 Analyst: KOTT — Analyzed: 02/22/2022 14:03

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22B0235-01 E
Preparation Batch: BKB0502 — Sample Size: 10 mL
Prepared: 02/22/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*100*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	07-Mar-2022 17:09

SPL-GW-MW14-0222

22B0235-01 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/16/2022 11:10
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2022 18:15

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22B0235-01 A 01
Preparation Batch: BKC0057 — Sample Size: 25 mL
Prepared: 03/02/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	3.86	mg/L	D
Manganese	7439-96-5	10	0.00500	0.700	mg/L	D

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	07-Mar-2022 17:09

SPL-GW-MW29-0222

22B0235-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/16/2022 12:30

Instrument: NT2 Analyst: LH — Analyzed: 02/17/2022 22:46

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22B0235-02 B

Preparation Batch: BKB0407 — Sample Size: 10 mL

Prepared: 02/17/2022 — 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 %*	*104*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	07-Mar-2022 17:09

SPL-GW-MW29-0222

22B0235-02 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/16/2022 12:30
Instrument: NT16 Analyst: KOTT — Analyzed: 02/22/2022 14:24

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22B0235-02 E
Preparation Batch: BKB0502 — Sample Size: 10 mL
Prepared: 02/22/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*102*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	07-Mar-2022 17:09

SPL-GW-MW29-0222

22B0235-02 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/16/2022 12:30
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2022 18:20

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22B0235-02 A 01
Preparation Batch: BKC0057 — Sample Size: 25 mL
Prepared: 03/02/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	17.4	mg/L	D
Manganese	7439-96-5	10	0.00500	0.571	mg/L	D

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	07-Mar-2022 17:09

SPL-GW-MW18-0222

22B0235-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/16/2022 13:55

Instrument: NT2 Analyst: LH — Analyzed: 02/17/2022 17:11

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22B0235-03 C

Preparation Batch: BKB0407 — Sample Size: 10 mL

Prepared: 02/17/2022 — 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*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	07-Mar-2022 17:09

SPL-GW-MW18-0222

22B0235-03 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/16/2022 13:55
Instrument: NT16 Analyst: KOTT — Analyzed: 02/22/2022 14:46

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22B0235-03 B
Preparation Batch: BKB0502 — Sample Size: 10 mL
Prepared: 02/22/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0471	ug/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*101*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	07-Mar-2022 17:09

SPL-GW-MW18-0222

22B0235-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/16/2022 13:55
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2022 18:25

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22B0235-03 A 01
Preparation Batch: BKC0057 — Sample Size: 25 mL
Prepared: 03/02/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	20.4	mg/L	D
Manganese	7439-96-5	10	0.00500	1.08	mg/L	D

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	07-Mar-2022 17:09

SPL-GW-MW18-0222

22B0235-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/16/2022 13:55
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/03/2022 19:44

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22B0235-04 A 01
Preparation Batch: BKC0087 — Sample Size: 25 mL
Prepared: 03/03/2022 — 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

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	07-Mar-2022 17:09

SPL-GW-MW81-0222

22B0235-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/16/2022 14:50

Instrument: NT2 Analyst: PKC — Analyzed: 02/18/2022 13:40

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22B0235-05 A

Preparation Batch: BKB0448 — Sample Size: 10 mL

Prepared: 02/18/2022 — 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 %*	*106*	*%*	
Surrogate: Toluene-d8			*80-120 %*	*98.0*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	07-Mar-2022 17:09

SPL-GW-MW81-0222

22B0235-05 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/16/2022 14:50
Instrument: NT16 Analyst: KOTT — Analyzed: 02/22/2022 13:42

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22B0235-05 B
Preparation Batch: BKB0502 — Sample Size: 10 mL
Prepared: 02/22/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*99.4*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	07-Mar-2022 17:09

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKB0407 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKB0407-BLK1)				Prepared: 17-Feb-2022 Analyzed: 17-Feb-2022 16:07						
cis-1,2-Dichloroethene	ND	0.20	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5.00		ug/L	*5.00*		*100*	*80-129*			
LCS (BKB0407-BS1)				Prepared: 17-Feb-2022 Analyzed: 17-Feb-2022 15:04						
cis-1,2-Dichloroethene	9.67	0.20	ug/L	10.0		96.7	80-121			
Surrogate: 1,2-Dichloroethane-d4	5.08		ug/L	*5.00*		*102*	*80-129*			
LCS Dup (BKB0407-BSD1)				Prepared: 17-Feb-2022 Analyzed: 17-Feb-2022 15:25						
cis-1,2-Dichloroethene	9.74	0.20	ug/L	10.0		97.4	80-121	0.70	30	
Surrogate: 1,2-Dichloroethane-d4	4.87		ug/L	*5.00*		*97.4*	*80-129*			

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	07-Mar-2022 17:09

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKB0448 - 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 (BKB0448-BLK2)				Prepared: 18-Feb-2022	Analyzed: 18-Feb-2022 12:38					
cis-1,2-Dichloroethene	ND	0.20	ug/L							U
Benzene	ND	0.20	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5.13		ug/L	*5.00*		*103*	*80-129*			
Surrogate: Toluene-d8	4.91		ug/L	*5.00*		*98.1*	*80-120*			
LCS (BKB0448-BS2)				Prepared: 18-Feb-2022	Analyzed: 18-Feb-2022 11:14					
cis-1,2-Dichloroethene	9.62	0.20	ug/L	10.0		96.2	80-121			
Benzene	9.70	0.20	ug/L	10.0		97.0	80-120			
Surrogate: 1,2-Dichloroethane-d4	5.40		ug/L	*5.00*		*108*	*80-129*			
Surrogate: Toluene-d8	4.99		ug/L	*5.00*		*99.8*	*80-120*			
LCS Dup (BKB0448-BSD2)				Prepared: 18-Feb-2022	Analyzed: 18-Feb-2022 11:56					
cis-1,2-Dichloroethene	9.95	0.20	ug/L	10.0		99.5	80-121	3.40	30	
Benzene	10.2	0.20	ug/L	10.0		102	80-120	4.91	30	
Surrogate: 1,2-Dichloroethane-d4	5.05		ug/L	*5.00*		*101*	*80-129*			
Surrogate: Toluene-d8	5.00		ug/L	*5.00*		*99.9*	*80-120*			

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	07-Mar-2022 17:09

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BKB0502 - EPA 5030C (Purge and Trap)

Instrument: NT16 Analyst: KOTT

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKB0502-BLK1)				Prepared: 22-Feb-2022 Analyzed: 22-Feb-2022 10:54						
Vinyl chloride	ND	0.0200	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	4740		ug/L	*5000*		*94.8*	*80-129*			
LCS (BKB0502-BS1)				Prepared: 22-Feb-2022 Analyzed: 22-Feb-2022 09:09						
Vinyl chloride	2.40	0.0200	ug/L	2.00		120	62-141			
Surrogate: 1,2-Dichloroethane-d4	4750		ug/L	*5000*		*94.9*	*80-129*			
LCS Dup (BKB0502-BSD1)				Prepared: 22-Feb-2022 Analyzed: 22-Feb-2022 09:51						
Vinyl chloride	1.96	0.0200	ug/L	2.00		98.0	62-141	20.20	30	
Surrogate: 1,2-Dichloroethane-d4	4680		ug/L	*5000*		*93.6*	*80-129*			

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	07-Mar-2022 17:09

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BKC0057 - 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 (BKC0057-BLK1)				Prepared: 02-Mar-2022 Analyzed: 03-Mar-2022 18:16							
Iron	54	ND	0.0360	mg/L							U
Iron	57	ND	0.0360	mg/L							U
Manganese	55	ND	0.000500	mg/L							U
LCS (BKC0057-BS1)				Prepared: 02-Mar-2022 Analyzed: 03-Mar-2022 18:20							
Iron	54	5.43	0.0360	mg/L	5.00		109	80-120			
Iron	57	5.45	0.0360	mg/L	5.00		109	80-120			
Manganese	55	0.0262	0.000500	mg/L	0.0250		105	80-120			

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	07-Mar-2022 17:09

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BKC0087 - 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 (BKC0087-BLK1)				Prepared: 03-Mar-2022 Analyzed: 03-Mar-2022 19:17							
Arsenic, Dissolved	75a	ND	0.200	ug/L							U
LCS (BKC0087-BS1)				Prepared: 03-Mar-2022 Analyzed: 03-Mar-2022 19:21							
Arsenic, Dissolved	75a	25.1	0.200	ug/L	25.0		100	80-120			

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	07-Mar-2022 17:09

Certified Analyses included in this Report

Analyte	Certifications
EPA 6020B in Water	
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
Arsenic-75a	NELAP,WADOE,DoD-ELAP,ADEC
EPA 8260D in Water	
Chloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Acrolein	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Iodomethane	DoD-ELAP,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	07-Mar-2022 17:09

2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
Styrene	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,NELAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,WADOE

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	07-Mar-2022 17:09

1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,WADOE
n-Hexane	WADOE
2-Pentanone	WADOE

EPA 8260D-SIM in Water

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

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2023
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	02/28/2022
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2022
WADOE	WA Dept of Ecology	C558	06/30/2022
WA-DW	Ecology - Drinking Water	C558	06/30/2022

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	07-Mar-2022 17:09

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)
J	Estimated concentration value detected below the reporting limit.
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.

Attachment 6

Second Quarter 2022 Groundwater Laboratory Data

Analytical Resources, LLC
Analytical Chemists and Consultants

15 June 2022

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

RE: South Park Landfill -Parametrix Water (553-155-067)

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)
22E0408	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, LLC

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

Shelly Fishel, Project Manager

Cert# 100006-012

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

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 220408	Turn-around Requested: 2 weeks	Date: 5/24/22	
ARI Client Company: Jeff Neuner, Seattle Public Utility	Phone: 206 684-7693	Page: 1 of 1	
Client Contact: Laura Lee	Phone: 206 394-3665	No. of Coolers: 2	Cooler Temps: 5.2, 4.4
Client Project Name: SPU South Park Landfill			
	Samplers: Chris Bourgeois HWA		

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-MW12-0522	5/24/22	1450	water	8	X		X	X	X						**Field-filtered
SPL-GW-MW14-0522	5/24/22	1645	water	7	X		X	X							
SPL-GW-MW29-0522	5/24/22	1215	water	7	X		X	X							
SPL-GW-MW18-0522	5/24/22	1335	water	8	X		X	X	X						
SPL-GW-MW32-0522	5/23/22	1515	water	8	X		X	X	X						
SPL-GW-MW33-0522	5/23/22	1635	water	8	X		X	X	X						
SPL-GW-MW10-0522	5/24/22	1020	water	14	X		X	X	X						MS/MSD
SPL-GW-MW60-0522	5/24/22	1040	water	8	X		X	X	X						
SPL-GW-MW80-0522	5/24/22	NA	water	2		X	X								

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Chris Bourgeois	Printed Name: DUNMIRE	Printed Name:	Printed Name:
	Company: HWA	Company: ARI	Company:	Company:
	Date & Time: 5/24/22, 1713	Date & Time: 05/24/22 1713	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: 22E0408	Turn-around Requested: 2 weeks	Date:
ARI Client Company: Jeff Neuner, Seattle Public Utility	Phone: 206 684-7693	Page: 1 of 1
Client Contact: Laura Lee, Parametrix	Phone: 206 394-3665	No. of Coolers: / Cooler Temps:
Client Project Name: SPU South Park Landfill		
Client Project #: 553-1550-067	Samplers: Chris Bourgeois HWA	

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-MW25-0222	5/24/22	0910	water	14		X	X	X	X					**Field-filtered MS/MSD
~~SPL-GW-MW30-0222~~			water	7	X		X	X						
~~SPL-GW-MW31-0222~~			water	7	X		X	X						
~~SPL-GW-MW24-0222~~			water	8	X		X	X	X					
~~SPL-GW-MW26-0222~~			water	8	X		X	X	X					
~~SPL-GW-MW08-0222~~			water	8	X		X	X	X					
~~SPL-GW-MW27-0222~~			water	8	X		X	X	X					
SPL-GW-MW61-0222	5/24/22	0930	water	8		x	X	X	X					
~~SPL-GW-MW81-0222~~			water	2		X	X							

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Chris Bourgeois	Printed Name: JUNIPER	Printed Name:	Printed Name:
	Company: HWA	Company: ARI	Company:	Company:
	Date & Time: 5/24/22, 1713	Date & Time: 05/24/22 1713	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.

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SPL-GW-MW12-0522	22E0408-01	Water	24-May-2022 14:50	24-May-2022 17:13
SPL-GW-MW12-0522	22E0408-02	Water	24-May-2022 14:50	24-May-2022 17:13
SPL-GW-MW14-0522	22E0408-03	Water	24-May-2022 16:45	24-May-2022 17:13
SPL-GW-MW29-0522	22E0408-04	Water	24-May-2022 12:15	24-May-2022 17:13
SPL-GW-MW18-0522	22E0408-05	Water	24-May-2022 13:35	24-May-2022 17:13
SPL-GW-MW18-0522	22E0408-06	Water	24-May-2022 13:35	24-May-2022 17:13
SPL-GW-MW32-0522	22E0408-07	Water	24-May-2022 15:15	24-May-2022 17:13
SPL-GW-MW32-0522	22E0408-08	Water	24-May-2022 15:15	24-May-2022 17:13
SPL-GW-MW33-0522	22E0408-09	Water	24-May-2022 16:35	24-May-2022 17:13
SPL-GW-MW33-0522	22E0408-10	Water	24-May-2022 16:35	24-May-2022 17:13
SPL-GW-MW10-0522	22E0408-11	Water	24-May-2022 10:20	24-May-2022 17:13
SPL-GW-MW10-0522	22E0408-12	Water	24-May-2022 10:20	24-May-2022 17:13
SPL-GW-MW60-0522	22E0408-13	Water	24-May-2022 10:40	24-May-2022 17:13
SPL-GW-MW60-0522	22E0408-14	Water	24-May-2022 10:40	24-May-2022 17:13
SPL-GW-MW80-0522	22E0408-15	Water	24-May-2022 00:00	24-May-2022 17:13
SPL-GW-MW25-0522	22E0408-16	Water	24-May-2022 09:10	24-May-2022 17:13
SPL-GW-MW25-0522	22E0408-17	Water	24-May-2022 09:10	24-May-2022 17:13
SPL-GW-MW61-0522	22E0408-18	Water	24-May-2022 09:30	24-May-2022 17:13
SPL-GW-MW61-0522	22E0408-19	Water	24-May-2022 09:30	24-May-2022 17:13

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

Work Order Case Narrative

Client: Seattle Public Utilities
Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Work Order: 22E0408

Sample receipt

Sample(s) as listed on the preceding page were received 24-May-2022 17:13 under ARI work order 22E0408. 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 control limits.

The matrix spike/matrix spike duplicate (MS/MSD) spike recoveries and relative percent difference (RPD) were within advisory control 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 control limits.

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits.

Total and Dissolved Metals - EPA Method 6020B

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.

The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits.

Analytical Resources, LLC
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: SPU / PUX

Project Name: SPU South Park Landfill

COC No(s): _____ NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 22E0408

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)

5.2 4.4 ___ ___ ___

Time 1713

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: 2565

Cooler Accepted by: SD Date: 05/24/22 Time: 1713

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: 05/26/2022 Time: 1257 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

22E0408

Samples will be discarded 90 days after submission of a final report unless other instructions are received.

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

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

Preservation Confirmation

Container ID	Container Type	pH
22E0408-01 A	VOA Vial, Clear, 40 mL	
22E0408-01 B	VOA Vial, Clear, 40 mL	
22E0408-01 C	VOA Vial, Clear, 40 mL	
22E0408-01 D	VOA Vial, Clear, 40 mL, HCL	
22E0408-01 E	VOA Vial, Clear, 40 mL, HCL	
22E0408-01 F	VOA Vial, Clear, 40 mL, HCL	
22E0408-01 G	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
22E0408-02 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2 pass
22E0408-03 A	VOA Vial, Clear, 40 mL	
22E0408-03 B	VOA Vial, Clear, 40 mL	
22E0408-03 C	VOA Vial, Clear, 40 mL	
22E0408-03 D	VOA Vial, Clear, 40 mL, HCL	
22E0408-03 E	VOA Vial, Clear, 40 mL, HCL	
22E0408-03 F	VOA Vial, Clear, 40 mL, HCL	
22E0408-03 G	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
22E0408-04 A	VOA Vial, Clear, 40 mL	
22E0408-04 B	VOA Vial, Clear, 40 mL	
22E0408-04 C	VOA Vial, Clear, 40 mL	
22E0408-04 D	VOA Vial, Clear, 40 mL, HCL	
22E0408-04 E	VOA Vial, Clear, 40 mL, HCL	
22E0408-04 F	VOA Vial, Clear, 40 mL, HCL	
22E0408-04 G	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
22E0408-05 A	VOA Vial, Clear, 40 mL	
22E0408-05 B	VOA Vial, Clear, 40 mL	
22E0408-05 C	VOA Vial, Clear, 40 mL	
22E0408-05 D	VOA Vial, Clear, 40 mL, HCL	
22E0408-05 E	VOA Vial, Clear, 40 mL, HCL	
22E0408-05 F	VOA Vial, Clear, 40 mL, HCL	
22E0408-05 G	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
22E0408-06 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2 pass
22E0408-07 A	VOA Vial, Clear, 40 mL	
22E0408-07 B	VOA Vial, Clear, 40 mL	
22E0408-07 C	VOA Vial, Clear, 40 mL	
22E0408-07 D	VOA Vial, Clear, 40 mL, HCL	

Reviewed By Date

WORK ORDER

22E0408

Samples will be discarded 90 days after submission of a final report unless other instructions are received.

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

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

22E0408-07 E	VOA Vial, Clear, 40 mL, HCL	
22E0408-07 F	VOA Vial, Clear, 40 mL, HCL	
22E0408-07 G	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
22E0408-08 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2 pass
22E0408-09 A	VOA Vial, Clear, 40 mL	
22E0408-09 B	VOA Vial, Clear, 40 mL	
22E0408-09 C	VOA Vial, Clear, 40 mL	
22E0408-09 D	VOA Vial, Clear, 40 mL, HCL	
22E0408-09 E	VOA Vial, Clear, 40 mL, HCL	
22E0408-09 F	VOA Vial, Clear, 40 mL, HCL	
22E0408-09 G	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
22E0408-10 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2 pass
22E0408-11 A	VOA Vial, Clear, 40 mL	
22E0408-11 B	VOA Vial, Clear, 40 mL	
22E0408-11 C	VOA Vial, Clear, 40 mL	
22E0408-11 D	VOA Vial, Clear, 40 mL, HCL	
22E0408-11 E	VOA Vial, Clear, 40 mL, HCL	
22E0408-11 F	VOA Vial, Clear, 40 mL, HCL	
22E0408-11 G	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
22E0408-11 H	VOA Vial, Clear, 40 mL	
22E0408-11 I	VOA Vial, Clear, 40 mL	
22E0408-11 J	VOA Vial, Clear, 40 mL	
22E0408-11 K	VOA Vial, Clear, 40 mL, HCL	
22E0408-11 L	VOA Vial, Clear, 40 mL, HCL	
22E0408-11 M	VOA Vial, Clear, 40 mL, HCL	
22E0408-12 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2 pass
22E0408-13 A	VOA Vial, Clear, 40 mL	
22E0408-13 B	VOA Vial, Clear, 40 mL	
22E0408-13 C	VOA Vial, Clear, 40 mL	
22E0408-13 D	VOA Vial, Clear, 40 mL, HCL	
22E0408-13 E	VOA Vial, Clear, 40 mL, HCL	
22E0408-13 F	VOA Vial, Clear, 40 mL, HCL	
22E0408-13 G	HDPE NM, 500 mL, 1:1 HNO3	72 fail
22E0408-14 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2 pass
22E0408-15 A	VOA Vial, Clear, 40 mL	
22E0408-15 B	VOA Vial, Clear, 40 mL	

Reviewed By _____ Date _____

WORK ORDER

22E0408

Samples will be discarded 90 days after submission of a final report unless other instructions are received.

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

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

22E0408-15 C	VOA Vial, Clear, 40 mL	
22E0408-15 D	VOA Vial, Clear, 40 mL, HCL	
22E0408-15 E	VOA Vial, Clear, 40 mL, HCL	
22E0408-15 F	VOA Vial, Clear, 40 mL, HCL	
22E0408-16 A	VOA Vial, Clear, 40 mL	
22E0408-16 B	VOA Vial, Clear, 40 mL	
22E0408-16 C	VOA Vial, Clear, 40 mL	
22E0408-16 D	VOA Vial, Clear, 40 mL, HCL	
22E0408-16 E	VOA Vial, Clear, 40 mL, HCL	
22E0408-16 F	VOA Vial, Clear, 40 mL, HCL	
22E0408-16 G	HDPE NM, 500 mL, 1:1 HNO3	<2 pH
22E0408-16 H	VOA Vial, Clear, 40 mL	
22E0408-16 I	VOA Vial, Clear, 40 mL	
22E0408-16 J	VOA Vial, Clear, 40 mL	
22E0408-16 K	VOA Vial, Clear, 40 mL, HCL	
22E0408-16 L	VOA Vial, Clear, 40 mL, HCL	
22E0408-16 M	VOA Vial, Clear, 40 mL, HCL	
22E0408-17 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2 pH
22E0408-18 A	VOA Vial, Clear, 40 mL	
22E0408-18 B	VOA Vial, Clear, 40 mL	
22E0408-18 C	VOA Vial, Clear, 40 mL	
22E0408-18 D	VOA Vial, Clear, 40 mL, HCL	
22E0408-18 E	VOA Vial, Clear, 40 mL, HCL	
22E0408-18 F	VOA Vial, Clear, 40 mL, HCL	
22E0408-18 G	HDPE NM, 500 mL, 1:1 HNO3	<2 pH
22E0408-19 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2 pH

Preservation Confirmed By

05/26/2022
Date

Reviewed By

Date

WORK ORDER

22E0408

Samples will be discarded 90 days after submission of a final report unless other instructions are received.

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

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

Preservation Confirmation

Container ID	Container Type	pH
22E0408-01 A	VOA Vial, Clear, 40 mL	
22E0408-01 B	VOA Vial, Clear, 40 mL	
22E0408-01 C	VOA Vial, Clear, 40 mL	
22E0408-01 D	VOA Vial, Clear, 40 mL, HCL	
22E0408-01 E	VOA Vial, Clear, 40 mL, HCL	
22E0408-01 F	VOA Vial, Clear, 40 mL, HCL	
22E0408-01 G	HDPE NM, 500 mL, 1:1 HNO3	<2 pH2
22E0408-02 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2 pH2
22E0408-03 A	VOA Vial, Clear, 40 mL	
22E0408-03 B	VOA Vial, Clear, 40 mL	
22E0408-03 C	VOA Vial, Clear, 40 mL	
22E0408-03 D	VOA Vial, Clear, 40 mL, HCL	
22E0408-03 E	VOA Vial, Clear, 40 mL, HCL	
22E0408-03 F	VOA Vial, Clear, 40 mL, HCL	
22E0408-03 G	HDPE NM, 500 mL, 1:1 HNO3	<2 pH2
22E0408-04 A	VOA Vial, Clear, 40 mL	
22E0408-04 B	VOA Vial, Clear, 40 mL	
22E0408-04 C	VOA Vial, Clear, 40 mL	
22E0408-04 D	VOA Vial, Clear, 40 mL, HCL	
22E0408-04 E	VOA Vial, Clear, 40 mL, HCL	
22E0408-04 F	VOA Vial, Clear, 40 mL, HCL	
22E0408-04 G	HDPE NM, 500 mL, 1:1 HNO3	<2 pH2
22E0408-05 A	VOA Vial, Clear, 40 mL	
22E0408-05 B	VOA Vial, Clear, 40 mL	
22E0408-05 C	VOA Vial, Clear, 40 mL	
22E0408-05 D	VOA Vial, Clear, 40 mL, HCL	
22E0408-05 E	VOA Vial, Clear, 40 mL, HCL	
22E0408-05 F	VOA Vial, Clear, 40 mL, HCL	
22E0408-05 G	HDPE NM, 500 mL, 1:1 HNO3	<2 pH2
22E0408-06 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2 pH2
22E0408-07 A	VOA Vial, Clear, 40 mL	
22E0408-07 B	VOA Vial, Clear, 40 mL	
22E0408-07 C	VOA Vial, Clear, 40 mL	
22E0408-07 D	VOA Vial, Clear, 40 mL, HCL	

Reviewed By Date

WORK ORDER

22E0408

Samples will be discarded 90 days after submission of a final report unless other instructions are received.

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

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

22E0408-07 E	VOA Vial, Clear, 40 mL, HCL	
22E0408-07 F	VOA Vial, Clear, 40 mL, HCL	
22E0408-07 G	HDPE NM, 500 mL, 1:1 HNO3	4Z pres
22E0408-08 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	4Z pres
22E0408-09 A	VOA Vial, Clear, 40 mL	
22E0408-09 B	VOA Vial, Clear, 40 mL	
22E0408-09 C	VOA Vial, Clear, 40 mL	
22E0408-09 D	VOA Vial, Clear, 40 mL, HCL	
22E0408-09 E	VOA Vial, Clear, 40 mL, HCL	
22E0408-09 F	VOA Vial, Clear, 40 mL, HCL	
22E0408-09 G	HDPE NM, 500 mL, 1:1 HNO3	4Z pres
22E0408-10 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	4Z pres
22E0408-11 A	VOA Vial, Clear, 40 mL	
22E0408-11 B	VOA Vial, Clear, 40 mL	
22E0408-11 C	VOA Vial, Clear, 40 mL	
22E0408-11 D	VOA Vial, Clear, 40 mL, HCL	
22E0408-11 E	VOA Vial, Clear, 40 mL, HCL	
22E0408-11 F	VOA Vial, Clear, 40 mL, HCL	
22E0408-11 G	HDPE NM, 500 mL, 1:1 HNO3	4Z pres
22E0408-11 H	VOA Vial, Clear, 40 mL	
22E0408-11 I	VOA Vial, Clear, 40 mL	
22E0408-11 J	VOA Vial, Clear, 40 mL	
22E0408-11 K	VOA Vial, Clear, 40 mL, HCL	
22E0408-11 L	VOA Vial, Clear, 40 mL, HCL	
22E0408-11 M	VOA Vial, Clear, 40 mL, HCL	
22E0408-12 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	4Z pres
22E0408-13 A	VOA Vial, Clear, 40 mL	
22E0408-13 B	VOA Vial, Clear, 40 mL	
22E0408-13 C	VOA Vial, Clear, 40 mL	
22E0408-13 D	VOA Vial, Clear, 40 mL, HCL	
22E0408-13 E	VOA Vial, Clear, 40 mL, HCL	
22E0408-13 F	VOA Vial, Clear, 40 mL, HCL	
22E0408-13 G	HDPE NM, 500 mL, 1:1 HNO3	7Z fail (1)
22E0408-14 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	4Z pres
22E0408-15 A	VOA Vial, Clear, 40 mL	
22E0408-15 B	VOA Vial, Clear, 40 mL	

Reviewed By Date

WORK ORDER

22E0408

Samples will be discarded 90 days after submission of a final report unless other instructions are received.

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

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

22E0408-15 C	VOA Vial, Clear, 40 mL	
22E0408-15 D	VOA Vial, Clear, 40 mL, HCL	
22E0408-15 E	VOA Vial, Clear, 40 mL, HCL	
22E0408-15 F	VOA Vial, Clear, 40 mL, HCL	
22E0408-16 A	VOA Vial, Clear, 40 mL	
22E0408-16 B	VOA Vial, Clear, 40 mL	
22E0408-16 C	VOA Vial, Clear, 40 mL	
22E0408-16 D	VOA Vial, Clear, 40 mL, HCL	
22E0408-16 E	VOA Vial, Clear, 40 mL, HCL	
22E0408-16 F	VOA Vial, Clear, 40 mL, HCL	
22E0408-16 G	HDPE NM, 500 mL, 1:1 HNO3	<2 pH<2
22E0408-16 H	VOA Vial, Clear, 40 mL	
22E0408-16 I	VOA Vial, Clear, 40 mL	
22E0408-16 J	VOA Vial, Clear, 40 mL	
22E0408-16 K	VOA Vial, Clear, 40 mL, HCL	
22E0408-16 L	VOA Vial, Clear, 40 mL, HCL	
22E0408-16 M	VOA Vial, Clear, 40 mL, HCL	
22E0408-17 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2 pH<2
22E0408-18 A	VOA Vial, Clear, 40 mL	
22E0408-18 B	VOA Vial, Clear, 40 mL	
22E0408-18 C	VOA Vial, Clear, 40 mL	
22E0408-18 D	VOA Vial, Clear, 40 mL, HCL	
22E0408-18 E	VOA Vial, Clear, 40 mL, HCL	
22E0408-18 F	VOA Vial, Clear, 40 mL, HCL	
22E0408-18 G	HDPE NM, 500 mL, 1:1 HNO3	<2 pH<2
22E0408-19 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2 pH<2

Preservation Confirmed By

05/26/2022
Date

(1) preserved to pH<2 with 1.0mL conc. HNO_3 (K3476) MMS/26/22

Reviewed By

Date

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW12-0522

22E0408-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/24/2022 14:50

Instrument: NT2 Analyst: LH — Analyzed: 05/27/2022 17:37

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22E0408-01 D

Preparation Batch: BKE0759 — Sample Size: 10 mL

Prepared: 05/27/2022 — 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 %*	*107*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW12-0522

22E0408-01 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 05/24/2022 14:50
Instrument: NT16 Analyst: KOTT — Analyzed: 05/26/2022 17:13

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22E0408-01 A
Preparation Batch: BKE0725 — Sample Size: 10 mL
Prepared: 05/26/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*114*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW12-0522

22E0408-01 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 05/24/2022 14:50
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/10/2022 00:12

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22E0408-01 G 02
Preparation Batch: BKF0235 — Sample Size: 25 mL
Prepared: 06/09/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	2	0.0720	2.05	mg/L	D
Manganese	7439-96-5	2	0.00100	0.144	mg/L	D

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW12-0522

22E0408-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 05/24/2022 14:50
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/10/2022 01:24

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22E0408-02 A 01
Preparation Batch: BKF0238 — Sample Size: 25 mL
Prepared: 06/09/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	0.280	ug/L	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW14-0522

22E0408-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/24/2022 16:45
Instrument: NT2 Analyst: LH — Analyzed: 05/27/2022 17:57

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22E0408-03 D
Preparation Batch: BKE0759 — Sample Size: 10 mL
Prepared: 05/27/2022 — 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 %*	*104*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW14-0522

22E0408-03 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 05/24/2022 16:45
Instrument: NT16 Analyst: KOTT — Analyzed: 05/26/2022 17:35

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22E0408-03 A
Preparation Batch: BKE0725 — Sample Size: 10 mL
Prepared: 05/26/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*113*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW14-0522

22E0408-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 05/24/2022 16:45
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/09/2022 23:07

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22E0408-03 G 02
Preparation Batch: BKF0235 — Sample Size: 25 mL
Prepared: 06/09/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	4.57	mg/L	D
Manganese	7439-96-5	10	0.00500	0.729	mg/L	D

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW29-0522

22E0408-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/24/2022 12:15

Instrument: NT2 Analyst: LH — Analyzed: 05/27/2022 18:18

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22E0408-04 D

Preparation Batch: BKE0759 — Sample Size: 10 mL

Prepared: 05/27/2022 — 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 %*	*105*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW29-0522

22E0408-04 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 05/24/2022 12:15
Instrument: NT16 Analyst: KOTT — Analyzed: 05/26/2022 17:57

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22E0408-04 A
Preparation Batch: BKE0725 — Sample Size: 10 mL
Prepared: 05/26/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*114*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW29-0522

22E0408-04 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 05/24/2022 12:15
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/09/2022 23:11

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22E0408-04 G 02
Preparation Batch: BKF0235 — Sample Size: 25 mL
Prepared: 06/09/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	23.1	mg/L	D
Manganese	7439-96-5	10	0.00500	0.693	mg/L	D

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW18-0522

22E0408-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/24/2022 13:35

Instrument: NT2 Analyst: LH — Analyzed: 05/27/2022 18:39

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22E0408-05 D

Preparation Batch: BKE0759 — Sample Size: 10 mL

Prepared: 05/27/2022 — 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 %*	*108*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW18-0522

22E0408-05 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 05/24/2022 13:35
Instrument: NT16 Analyst: KOTT — Analyzed: 05/26/2022 18:18

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22E0408-05 A
Preparation Batch: BKE0725 — Sample Size: 10 mL
Prepared: 05/26/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0662	ug/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*114*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW18-0522

22E0408-05 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 05/24/2022 13:35
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/10/2022 00:04

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22E0408-05 G 02
Preparation Batch: BKF0235 — Sample Size: 25 mL
Prepared: 06/09/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	29.6	mg/L	D
Manganese	7439-96-5	10	0.00500	1.43	mg/L	D

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW18-0522

22E0408-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 05/24/2022 13:35
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/10/2022 01:28

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22E0408-06 A 01
Preparation Batch: BKF0238 — Sample Size: 25 mL
Prepared: 06/09/2022 — 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

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW32-0522

22E0408-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/24/2022 15:15

Instrument: NT2 Analyst: LH — Analyzed: 05/27/2022 18:59

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22E0408-07 D

Preparation Batch: BKE0759 — Sample Size: 10 mL

Prepared: 05/27/2022 — 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 %*	*103*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW32-0522

22E0408-07 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 05/24/2022 15:15
Instrument: NT16 Analyst: KOTT — Analyzed: 05/26/2022 18:39

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22E0408-07 A
Preparation Batch: BKE0725 — Sample Size: 10 mL
Prepared: 05/26/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.389	ug/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*113*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW32-0522

22E0408-07 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 05/24/2022 15:15
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/09/2022 22:10

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22E0408-07 G 02
Preparation Batch: BKF0235 — Sample Size: 25 mL
Prepared: 06/09/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	14.5	mg/L	D
Manganese	7439-96-5	20	0.0100	1.40	mg/L	D

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW32-0522

22E0408-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 05/24/2022 15:15
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/10/2022 02:25

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22E0408-08 A 01
Preparation Batch: BKF0238 — Sample Size: 25 mL
Prepared: 06/09/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	0.678	ug/L	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW33-0522

22E0408-09 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/24/2022 16:35

Instrument: NT2 Analyst: LH — Analyzed: 05/27/2022 19:20

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22E0408-09 D

Preparation Batch: BKE0759 — Sample Size: 10 mL

Prepared: 05/27/2022 — 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*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW33-0522

22E0408-09 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 05/24/2022 16:35
Instrument: NT16 Analyst: KOTT — Analyzed: 05/26/2022 19:01

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22E0408-09 A
Preparation Batch: BKE0725 — Sample Size: 10 mL
Prepared: 05/26/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.161	ug/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*114*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW33-0522

22E0408-09 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 05/24/2022 16:35
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/09/2022 22:14

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22E0408-09 G 02
Preparation Batch: BKF0235 — Sample Size: 25 mL
Prepared: 06/09/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	19.1	mg/L	D
Manganese	7439-96-5	20	0.0100	2.10	mg/L	D

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW33-0522

22E0408-10 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 05/24/2022 16:35
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/10/2022 02:30

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22E0408-10 A 01
Preparation Batch: BKF0238 — Sample Size: 25 mL
Prepared: 06/09/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	0.557	ug/L	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW10-0522

22E0408-11 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/24/2022 10:20

Instrument: NT2 Analyst: LH — Analyzed: 05/27/2022 19:40

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22E0408-11 D

Preparation Batch: BKE0759 — Sample Size: 10 mL

Prepared: 05/27/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	1.00	ug/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*112*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW10-0522

22E0408-11 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 05/24/2022 10:20
Instrument: NT16 Analyst: KOTT — Analyzed: 05/26/2022 19:23

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22E0408-11 A
Preparation Batch: BKE0725 — Sample Size: 10 mL
Prepared: 05/26/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.122	ug/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*113*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW10-0522

22E0408-11 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 05/24/2022 10:20
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/09/2022 23:16

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22E0408-11 G 02
Preparation Batch: BKF0235 — Sample Size: 25 mL
Prepared: 06/09/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	32.4	mg/L	D
Manganese	7439-96-5	20	0.0100	2.39	mg/L	D

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW10-0522

22E0408-12 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 05/24/2022 10:20

Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/10/2022 01:42

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22E0408-12 A 01

Preparation Batch: BKF0238 — Sample Size: 25 mL

Prepared: 06/09/2022 — 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

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW60-0522

22E0408-13 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/24/2022 10:40

Instrument: NT2 Analyst: LH — Analyzed: 05/27/2022 20:01

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22E0408-13 D

Preparation Batch: BKE0759 — Sample Size: 10 mL

Prepared: 05/27/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.94	ug/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*111*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW60-0522

22E0408-13 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 05/24/2022 10:40
Instrument: NT16 Analyst: KOTT — Analyzed: 05/26/2022 20:28

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22E0408-13 A
Preparation Batch: BKE0725 — Sample Size: 10 mL
Prepared: 05/26/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.109	ug/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*113*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW60-0522

22E0408-13 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 05/24/2022 10:40
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/09/2022 22:18

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22E0408-13 G 02
Preparation Batch: BKF0235 — Sample Size: 25 mL
Prepared: 06/09/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	32.7	mg/L	D
Manganese	7439-96-5	20	0.0100	2.43	mg/L	D

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW60-0522

22E0408-14 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 05/24/2022 10:40
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/10/2022 02:40

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22E0408-14 A 01
Preparation Batch: BKF0238 — Sample Size: 25 mL
Prepared: 06/09/2022 — 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

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW80-0522

22E0408-15 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/24/2022 00:00
Instrument: NT2 Analyst: LH — Analyzed: 05/27/2022 17:16

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22E0408-15 B
Preparation Batch: BKE0759 — Sample Size: 10 mL
Prepared: 05/27/2022 — 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 %*	*104*	*%*	
Surrogate: Toluene-d8			*80-120 %*	*98.8*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW80-0522

22E0408-15 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 05/24/2022 00:00
Instrument: NT16 Analyst: KOTT — Analyzed: 05/26/2022 20:50

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22E0408-15 A
Preparation Batch: BKE0725 — Sample Size: 10 mL
Prepared: 05/26/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*110*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW25-0522

22E0408-16 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/24/2022 09:10

Instrument: NT2 Analyst: LH — Analyzed: 05/27/2022 20:21

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22E0408-16 D

Preparation Batch: BKE0759 — Sample Size: 10 mL

Prepared: 05/27/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.34	ug/L	
Benzene	71-43-2	1	0.20	2.79	ug/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*112*	*%*	
Surrogate: Toluene-d8			*80-120 %*	*99.6*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW25-0522

22E0408-16 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 05/24/2022 09:10

Instrument: NT16 Analyst: KOTT — Analyzed: 05/26/2022 21:11

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22E0408-16 A

Preparation Batch: BKE0725 — Sample Size: 10 mL

Prepared: 05/26/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.523	ug/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*108*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW25-0522

22E0408-16 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 05/24/2022 09:10
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/09/2022 23:33

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22E0408-16 G 02
Preparation Batch: BKF0235 — Sample Size: 25 mL
Prepared: 06/09/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	34.4	mg/L	D
Manganese	7439-96-5	20	0.0100	2.89	mg/L	D

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW25-0522

22E0408-17 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 05/24/2022 09:10
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/10/2022 02:44

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22E0408-17 A 01
Preparation Batch: BKF0238 — Sample Size: 25 mL
Prepared: 06/09/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	0.298	ug/L	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW61-0522

22E0408-18 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/24/2022 09:30

Instrument: NT2 Analyst: LH — Analyzed: 05/27/2022 20:42

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22E0408-18 D

Preparation Batch: BKE0759 — Sample Size: 10 mL

Prepared: 05/27/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.36	ug/L	
Benzene	71-43-2	1	0.20	2.84	ug/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*113*	*%*	
Surrogate: Toluene-d8			*80-120 %*	*101*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW61-0522

22E0408-18 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 05/24/2022 09:30

Instrument: NT16 Analyst: KOTT — Analyzed: 05/26/2022 22:16

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22E0408-18 A

Preparation Batch: BKE0725 — Sample Size: 10 mL

Prepared: 05/26/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.518	ug/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*108*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW61-0522

22E0408-18 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 05/24/2022 09:30

Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/10/2022 00:08

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22E0408-18 G 02

Preparation Batch: BKF0235 — Sample Size: 25 mL

Prepared: 06/09/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	38.0	mg/L	D
Manganese	7439-96-5	50	0.0250	2.66	mg/L	D

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

SPL-GW-MW61-0522

22E0408-19 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 05/24/2022 09:30
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/10/2022 01:32

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22E0408-19 A 01
Preparation Batch: BKF0238 — Sample Size: 25 mL
Prepared: 06/09/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	0.287	ug/L	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKE0759 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKE0759-BLK1)				Prepared: 27-May-2022 Analyzed: 27-May-2022 16:34						
cis-1,2-Dichloroethene	ND	0.20	ug/L							U
Benzene	ND	0.20	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	4.91		ug/L	*5.00*		*98.2*	*80-129*			
Surrogate: Toluene-d8	4.99		ug/L	*5.00*		*99.8*	*80-120*			
LCS (BKE0759-BS1)				Prepared: 27-May-2022 Analyzed: 27-May-2022 15:31						
cis-1,2-Dichloroethene	9.71	0.20	ug/L	10.0		97.1	80-121			
Benzene	10.0	0.20	ug/L	10.0		100	80-120			
Surrogate: 1,2-Dichloroethane-d4	4.87		ug/L	*5.00*		*97.4*	*80-129*			
Surrogate: Toluene-d8	4.99		ug/L	*5.00*		*99.8*	*80-120*			
LCS Dup (BKE0759-BSD1)				Prepared: 27-May-2022 Analyzed: 27-May-2022 15:52						
cis-1,2-Dichloroethene	9.70	0.20	ug/L	10.0		97.0	80-121	0.11	30	
Benzene	9.62	0.20	ug/L	10.0		96.2	80-120	4.28	30	
Surrogate: 1,2-Dichloroethane-d4	4.91		ug/L	*5.00*		*98.3*	*80-129*			
Surrogate: Toluene-d8	4.95		ug/L	*5.00*		*98.9*	*80-120*			
Matrix Spike (BKE0759-MS1)	**Source: 22E0408-11**			Prepared: 27-May-2022 Analyzed: 27-May-2022 23:04						
cis-1,2-Dichloroethene	10.7	0.20	ug/L	10.0	1.00	97.2	80-121			
Benzene	10.1	0.20	ug/L	10.0	ND	101	80-120			
Surrogate: 1,2-Dichloroethane-d4	5.50		ug/L	*5.00*	*5.59*	*110*	*80-129*			
Surrogate: Toluene-d8	5.14		ug/L	*5.00*		*103*	*80-120*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike (BKE0759-MS2)	**Source: 22E0408-16**			Prepared: 27-May-2022 Analyzed: 27-May-2022 23:45						
cis-1,2-Dichloroethene	10.3	0.20	ug/L	10.0	0.34	100	80-121			
Benzene	13.0	0.20	ug/L	10.0	2.79	102	80-120			
Surrogate: 1,2-Dichloroethane-d4	5.25		ug/L	*5.00*	*5.58*	*105*	*80-129*			
Surrogate: Toluene-d8	5.09		ug/L	*5.00*	*4.98*	*102*	*80-120*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike Dup (BKE0759-MSD1)	**Source: 22E0408-11**			Prepared: 27-May-2022 Analyzed: 27-May-2022 23:25						
cis-1,2-Dichloroethene	10.5	0.20	ug/L	10.0	1.00	94.7	80-121	2.38	30	
Benzene	10.3	0.20	ug/L	10.0	ND	103	80-120	1.32	30	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKE0759 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BKE0759-MSD1)	**Source: 22E0408-11**		Prepared: 27-May-2022 Analyzed: 27-May-2022 23:25							
Surrogate: 1,2-Dichloroethane-d4	5.56		ug/L	*5.00*	*5.59*	*111*	*80-129*			
Surrogate: Toluene-d8	5.10		ug/L	*5.00*		*102*	*80-120*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike Dup (BKE0759-MSD2)	**Source: 22E0408-16**		Prepared: 27-May-2022 Analyzed: 28-May-2022 00:06							
cis-1,2-Dichloroethene	10.0	0.20	ug/L	10.0	0.34	97.0	80-121	2.94	30	
Benzene	12.9	0.20	ug/L	10.0	2.79	101	80-120	0.58	30	
Surrogate: 1,2-Dichloroethane-d4	5.55		ug/L	*5.00*	*5.58*	*111*	*80-129*			
Surrogate: Toluene-d8	5.08		ug/L	*5.00*	*4.98*	*102*	*80-120*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BKE0725 - EPA 5030C (Purge and Trap)

Instrument: NT16 Analyst: KOTT

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKE0725-BLK1)				Prepared: 26-May-2022 Analyzed: 26-May-2022 16:28						
Vinyl chloride	ND	0.0200	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5310		ug/L	*5000*		*106*	*80-129*			
LCS (BKE0725-BS1)				Prepared: 26-May-2022 Analyzed: 26-May-2022 13:07						
Vinyl chloride	1.81	0.0200	ug/L	2.00		90.7	62-141			
Surrogate: 1,2-Dichloroethane-d4	5320		ug/L	*5000*		*106*	*80-129*			
LCS Dup (BKE0725-BSD1)				Prepared: 26-May-2022 Analyzed: 26-May-2022 15:25						
Vinyl chloride	1.85	0.0200	ug/L	2.00		92.4	62-141	1.76	30	
Surrogate: 1,2-Dichloroethane-d4	5290		ug/L	*5000*		*106*	*80-129*			
Matrix Spike (BKE0725-MS1)	**Source: 22E0408-11**			Prepared: 26-May-2022 Analyzed: 26-May-2022 19:45						
Vinyl chloride	1.72	0.0200	ug/L	2.00	0.122	80.0	62-141			
Surrogate: 1,2-Dichloroethane-d4	5400		ug/L	*5000*	*5660*	*108*	*80-129*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike (BKE0725-MS2)	**Source: 22E0408-16**			Prepared: 26-May-2022 Analyzed: 26-May-2022 21:33						
Vinyl chloride	2.23	0.0200	ug/L	2.00	0.523	85.3	62-141			
Surrogate: 1,2-Dichloroethane-d4	5430		ug/L	*5000*	*5410*	*109*	*80-129*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike Dup (BKE0725-MSD1)	**Source: 22E0408-11**			Prepared: 26-May-2022 Analyzed: 26-May-2022 20:07						
Vinyl chloride	1.75	0.0200	ug/L	2.00	0.122	81.5	62-141	1.75	30	
Surrogate: 1,2-Dichloroethane-d4	5420		ug/L	*5000*	*5660*	*108*	*80-129*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike Dup (BKE0725-MSD2)	**Source: 22E0408-16**			Prepared: 26-May-2022 Analyzed: 26-May-2022 21:54						
Vinyl chloride	2.16	0.0200	ug/L	2.00	0.523	81.9	62-141	3.09	30	
Surrogate: 1,2-Dichloroethane-d4	5420		ug/L	*5000*	*5410*	*108*	*80-129*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BKF0235 - 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 (BKF0235-BLK1)				Prepared: 09-Jun-2022 Analyzed: 09-Jun-2022 18:33							
Manganese	55	ND	0.000500	mg/L							U
Blank (BKF0235-BLK2)				Prepared: 09-Jun-2022 Analyzed: 09-Jun-2022 21:14							
Iron	54	ND	0.0360	mg/L							U
Iron	57	ND	0.0360	mg/L							U
LCS (BKF0235-BS1)				Prepared: 09-Jun-2022 Analyzed: 09-Jun-2022 18:28							
Manganese	55	0.0246	0.000500	mg/L	0.0250		98.3	80-120			
LCS (BKF0235-BS2)				Prepared: 09-Jun-2022 Analyzed: 09-Jun-2022 21:18							
Iron	54	5.46	0.0360	mg/L	5.00		109	80-120			
Iron	57	5.44	0.0360	mg/L	5.00		109	80-120			
Duplicate (BKF0235-DUP1)			**Source: 22E0408-11**	Prepared: 09-Jun-2022 Analyzed: 09-Jun-2022 23:20							
Iron	57	32.4	0.720	mg/L		32.4			0.02	20	D
Manganese	55	2.38	0.0100	mg/L		2.39			0.35	20	D
Duplicate (BKF0235-DUP2)			**Source: 22E0408-16**	Prepared: 09-Jun-2022 Analyzed: 09-Jun-2022 23:38							
Iron	57	36.6	0.720	mg/L		34.4			6.13	20	D
Manganese	55	3.08	0.0100	mg/L		2.89			6.27	20	D
Matrix Spike (BKF0235-MS1)			**Source: 22E0408-11**	Prepared: 09-Jun-2022 Analyzed: 09-Jun-2022 23:24							
Iron	57	37.6	0.720	mg/L	5.00	32.4	105	75-125			D
Manganese	55	2.43	0.0100	mg/L	0.0250	2.39	188	75-125			HC, D

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

Matrix Spike (BKF0235-MS2)			**Source: 22E0408-16**	Prepared: 09-Jun-2022 Analyzed: 09-Jun-2022 23:42							
Iron	57	40.9	0.720	mg/L	5.00	34.4	130	75-125			HC, D
Manganese	55	3.03	0.0100	mg/L	0.0250	2.89	527	75-125			HC, D

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

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BKF0238 - 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 (BKF0238-BLK1)				Prepared: 09-Jun-2022 Analyzed: 09-Jun-2022 21:23							
Arsenic, Dissolved	75a	ND	0.200	ug/L							U
LCS (BKF0238-BS1)				Prepared: 09-Jun-2022 Analyzed: 09-Jun-2022 21:27							
Arsenic, Dissolved	75a	25.6	0.200	ug/L	25.0		102	80-120			
Duplicate (BKF0238-DUP1)		**Source: 22E0408-12**		Prepared: 09-Jun-2022 Analyzed: 10-Jun-2022 01:47							
Arsenic, Dissolved	75a	ND	0.200	ug/L		ND					U
Duplicate (BKF0238-DUP2)		**Source: 22E0408-17**		Prepared: 09-Jun-2022 Analyzed: 10-Jun-2022 02:49							
Arsenic, Dissolved	75a	0.290	0.200	ug/L		0.298			2.72	20	
Matrix Spike (BKF0238-MS1)		**Source: 22E0408-12**		Prepared: 09-Jun-2022 Analyzed: 10-Jun-2022 01:53							
Arsenic, Dissolved	75a	25.7	0.200	ug/L	25.0	ND	102	75-125			

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

Matrix Spike (BKF0238-MS2)		**Source: 22E0408-17**		Prepared: 09-Jun-2022 Analyzed: 10-Jun-2022 02:55							
Arsenic, Dissolved	75a	25.4	0.200	ug/L	25.0	0.298	101	75-125			

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

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

Certified Analyses included in this Report

Analyte	Certifications
EPA 6020B in Water	
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
EPA 6020B UCT-KED in Water	
Arsenic-75a	NELAP,WADOE,DoD-ELAP,ADEC
EPA 8260D in Water	
Chloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Acrolein	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Iodomethane	DoD-ELAP,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
Styrene	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,NELAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,WADOE
n-Hexane	WADOE
2-Pentanone	WADOE

EPA 8260D-SIM in Water

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

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2023
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2023
WADOE	WA Dept of Ecology	C558	06/30/2022
WA-DW	Ecology - Drinking Water	C558	06/30/2022

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 15:21

Notes and Definitions

D	The reported value is from a dilution
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.
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, LLC
Analytical Chemists and Consultants

15 June 2022

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

RE: South Park Landfill -Parametrix Water (553-155-067)

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)
22E0411	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, LLC

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

Shelly Fishel, Project Manager

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 22E0411	Turn-around Requested: 2 weeks	Date: 5/25/22	
ARI Client Company: Jeff Neuner, Seattle Public Utility	Phone: 206 684-7693	Page: 1 of 1	
Client Contact: Laura Lee, Parametrix	Phone: 206 394-3665	No. of Coolers: 1	Cooler Temps: 5 4
Client Project Name: SPU South Park Landfill			
Client Project #: 553-1550-067	Samplers: Chris Bourgeois HWA		

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-MW25-0222~~			~~water~~	14		X	X	X	X					~~MS/MSD~~
SPL-GW-MW30-0222	5/25/22	910	water	7	X		X	X						
SPL-GW-MW31-0222	5/25/22	1025	water	7	X		X	X						
SPL-GW-MW24-0222	5/25/22	1245 1250 CB	water	8	X		X	X	X					
SPL-GW-MW26-0222	5/25/22	1145	water	8	X		X	X	X					
SPL-GW-MW08-0222	5/25/22	1430	water	8	X		X	X	X					
SPL-GW-MW27-0222	5/25/22	1540	water	8	X		X	X	X					
~~SPL-GW-MW61-0222~~			~~water~~	8		x	X	X	X					
SPL-GW-MW81-0222	5/25/22	NA	water	2		X	X							

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Chris Bourgeois	Printed Name: DUNNIHOO	Printed Name:	Printed Name:
	Company: HWA	Company: ARI	Company:	Company:
	Date & Time: 5/25/22, 1636	Date & Time: 5/25/22 1636	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.

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 14:54

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SPL-GW-MW30-0522	22E0411-01	Water	25-May-2022 09:10	25-May-2022 16:36
SPL-GW-MW31-0522	22E0411-02	Water	25-May-2022 10:25	25-May-2022 16:36
SPL-GW-MW24-0522	22E0411-03	Water	25-May-2022 12:45	25-May-2022 16:36
SPL-GW-MW24-0522	22E0411-04	Water	25-May-2022 12:45	25-May-2022 16:36
SPL-GW-MW26-0522	22E0411-05	Water	25-May-2022 11:45	25-May-2022 16:36
SPL-GW-MW26-0522	22E0411-06	Water	25-May-2022 11:45	25-May-2022 16:36
SPL-GW-MW08-0522	22E0411-07	Water	25-May-2022 14:30	25-May-2022 16:36
SPL-GW-MW08-0522	22E0411-08	Water	25-May-2022 14:30	25-May-2022 16:36
SPL-GW-MW27-0522	22E0411-09	Water	25-May-2022 15:40	25-May-2022 16:36
SPL-GW-MW27-0522	22E0411-10	Water	25-May-2022 15:40	25-May-2022 16:36
SPL-GW-MW81-0522	22E0411-11	Water	25-May-2022 00:00	25-May-2022 16:36

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 14:54

Work Order Case Narrative

Client: Seattle Public Utilities
Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Work Order: 22E0411

Sample receipt

Sample(s) as listed on the preceding page were received 25-May-2022 16:36 under ARI work order 22E0411. 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 control 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 control limits.

Total and Dissolved Metals - EPA Method 6020B

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 14:54

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.

Analytical Resources, LLC
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: SPU

Project Name: SPU South P/C LF

COC No(s): _____ NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: _____

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 1631 5.4 ___ ___ ___ ___ ___

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: 2526

Cooler Accepted by: SD Date: 05/25/22 Time: 1631

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: 05/26/2022 Time: 1422 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:

Analytical Resources, LLC
Analytical Chemists and Consultants

Printed: 5/26/2022 2:44:14PM

WORK ORDER

22E0411

Samples will be discarded 90 days after submission of a final report unless other instructions are received.

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

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

Preservation Confirmation

Container ID	Container Type	pH
22E0411-01 A	VOA Vial, Clear, 40 mL	
22E0411-01 B	VOA Vial, Clear, 40 mL	
22E0411-01 C	VOA Vial, Clear, 40 mL	
22E0411-01 D	VOA Vial, Clear, 40 mL, HCL	
22E0411-01 E	VOA Vial, Clear, 40 mL, HCL	
22E0411-01 F	VOA Vial, Clear, 40 mL, HCL	
22E0411-01 G	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
22E0411-02 A	VOA Vial, Clear, 40 mL	
22E0411-02 B	VOA Vial, Clear, 40 mL	
22E0411-02 C	VOA Vial, Clear, 40 mL	
22E0411-02 D	VOA Vial, Clear, 40 mL, HCL	
22E0411-02 E	VOA Vial, Clear, 40 mL, HCL	
22E0411-02 F	VOA Vial, Clear, 40 mL, HCL	
22E0411-02 G	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
22E0411-03 A	VOA Vial, Clear, 40 mL	
22E0411-03 B	VOA Vial, Clear, 40 mL	
22E0411-03 C	VOA Vial, Clear, 40 mL	
22E0411-03 D	VOA Vial, Clear, 40 mL, HCL	
22E0411-03 E	VOA Vial, Clear, 40 mL, HCL	
22E0411-03 F	VOA Vial, Clear, 40 mL, HCL	
22E0411-03 G	HDPE NM, 500 mL, 1:1 HNO3	
22E0411-04 G	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2 pass
22E0411-05 A	VOA Vial, Clear, 40 mL	
22E0411-05 B	VOA Vial, Clear, 40 mL	
22E0411-05 C	VOA Vial, Clear, 40 mL	
22E0411-05 D	VOA Vial, Clear, 40 mL, HCL	
22E0411-05 E	VOA Vial, Clear, 40 mL, HCL	
22E0411-05 F	VOA Vial, Clear, 40 mL, HCL	
22E0411-05 G	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
22E0411-06 G	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2 pass
22E0411-07 A	VOA Vial, Clear, 40 mL	
22E0411-07 B	VOA Vial, Clear, 40 mL	
22E0411-07 C	VOA Vial, Clear, 40 mL	
22E0411-07 D	VOA Vial, Clear, 40 mL, HCL	

Reviewed By Date

WORK ORDER

22E0411

Samples will be discarded 90 days after submission of a final report unless other instructions are received.

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

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

22E0411-07 E	VOA Vial, Clear, 40 mL, HCL	
22E0411-07 F	VOA Vial, Clear, 40 mL, HCL	
22E0411-07 G	HDPE NM, 500 mL, 1:1 HNO3	<2 pH>2
22E0411-08 G	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2 pH>2
22E0411-09 A	VOA Vial, Clear, 40 mL	
22E0411-09 B	VOA Vial, Clear, 40 mL	
22E0411-09 C	VOA Vial, Clear, 40 mL	
22E0411-09 D	VOA Vial, Clear, 40 mL, HCL	
22E0411-09 E	VOA Vial, Clear, 40 mL, HCL	
22E0411-09 F	VOA Vial, Clear, 40 mL, HCL	
22E0411-09 G	HDPE NM, 500 mL, 1:1 HNO3	<2 pH>2
22E0411-10 G	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2 pH>2
22E0411-11 A	VOA Vial, Clear, 40 mL	
22E0411-11 B	VOA Vial, Clear, 40 mL, HCL	

Preservation Confirmed By

05/26/2022
Date

Reviewed By

Date

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 14:54

SPL-GW-MW30-0522

22E0411-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/25/2022 09:10

Instrument: NT2 Analyst: LH — Analyzed: 05/27/2022 21:02

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22E0411-01 D

Preparation Batch: BKE0759 — Sample Size: 10 mL

Prepared: 05/27/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.30	ug/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*109*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 14:54

SPL-GW-MW30-0522

22E0411-01 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 05/25/2022 09:10

Instrument: NT16 Analyst: KOTT — Analyzed: 05/27/2022 12:54

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22E0411-01 C

Preparation Batch: BKE0750 — Sample Size: 10 mL

Prepared: 05/27/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.153	ug/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*109*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 14:54

SPL-GW-MW30-0522

22E0411-01 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 05/25/2022 09:10

Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/10/2022 00:16

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22E0411-01 G 02

Preparation Batch: BKF0235 — Sample Size: 25 mL

Prepared: 06/09/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	2	0.0720	1.31	mg/L	D
Manganese	7439-96-5	2	0.00100	0.0453	mg/L	D

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 14:54

SPL-GW-MW31-0522

22E0411-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/25/2022 10:25

Instrument: NT2 Analyst: LH — Analyzed: 05/27/2022 21:22

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22E0411-02 D

Preparation Batch: BKE0759 — Sample Size: 10 mL

Prepared: 05/27/2022 — 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 %*	*106*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 14:54

SPL-GW-MW31-0522

22E0411-02 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 05/25/2022 10:25
Instrument: NT16 Analyst: KOTT — Analyzed: 05/27/2022 13:15

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22E0411-02 C
Preparation Batch: BKE0750 — Sample Size: 10 mL
Prepared: 05/27/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.632	ug/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*111*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 14:54

SPL-GW-MW31-0522

22E0411-02 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 05/25/2022 10:25
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/10/2022 00:30

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22E0411-02 G 02
Preparation Batch: BKF0235 — Sample Size: 25 mL
Prepared: 06/09/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	17.0	mg/L	D
Manganese	7439-96-5	10	0.00500	0.735	mg/L	D

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 14:54

SPL-GW-MW24-0522

22E0411-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/25/2022 12:45

Instrument: NT2 Analyst: LH — Analyzed: 05/27/2022 21:42

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22E0411-03 D

Preparation Batch: BKE0759 — Sample Size: 10 mL

Prepared: 05/27/2022 — 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 %*	*104*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 14:54

SPL-GW-MW24-0522

22E0411-03 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 05/25/2022 12:45

Instrument: NT16 Analyst: KOTT — Analyzed: 05/27/2022 13:36

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22E0411-03 A

Preparation Batch: BKE0750 — Sample Size: 10 mL

Prepared: 05/27/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0523	ug/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*113*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 14:54

SPL-GW-MW24-0522

22E0411-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 05/25/2022 12:45
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/10/2022 00:39

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22E0411-03 G 02
Preparation Batch: BKF0235 — Sample Size: 25 mL
Prepared: 06/09/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	25.8	mg/L	D
Manganese	7439-96-5	20	0.0100	1.63	mg/L	D

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 14:54

SPL-GW-MW24-0522

22E0411-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 05/25/2022 12:45

Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/10/2022 02:20

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22E0411-04 G 01

Preparation Batch: BKF0238 — Sample Size: 25 mL

Prepared: 06/09/2022 — 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

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 14:54

SPL-GW-MW26-0522

22E0411-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/25/2022 11:45

Instrument: NT2 Analyst: LH — Analyzed: 05/27/2022 22:03

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22E0411-05 D

Preparation Batch: BKE0759 — Sample Size: 10 mL

Prepared: 05/27/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.28	ug/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*110*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 14:54

SPL-GW-MW26-0522

22E0411-05 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 05/25/2022 11:45
Instrument: NT16 Analyst: KOTT — Analyzed: 05/27/2022 13:57

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22E0411-05 A
Preparation Batch: BKE0750 — Sample Size: 10 mL
Prepared: 05/27/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*112*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 14:54

SPL-GW-MW26-0522

22E0411-05 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 05/25/2022 11:45
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/10/2022 00:21

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22E0411-05 G 02
Preparation Batch: BKF0235 — Sample Size: 25 mL
Prepared: 06/09/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	2	0.0720	8.76	mg/L	D
Manganese	7439-96-5	2	0.00100	0.103	mg/L	D

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 14:54

SPL-GW-MW26-0522

22E0411-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 05/25/2022 11:45
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/10/2022 01:19

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22E0411-06 G 01
Preparation Batch: BKF0238 — Sample Size: 25 mL
Prepared: 06/09/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	0.656	ug/L	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 14:54

SPL-GW-MW08-0522

22E0411-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/25/2022 14:30

Instrument: NT2 Analyst: LH — Analyzed: 05/27/2022 22:23

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22E0411-07 D

Preparation Batch: BKE0759 — Sample Size: 10 mL

Prepared: 05/27/2022 — 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 %*	*110*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 14:54

SPL-GW-MW08-0522

22E0411-07 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 05/25/2022 14:30
Instrument: NT16 Analyst: KOTT — Analyzed: 05/27/2022 14:18

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22E0411-07 C
Preparation Batch: BKE0750 — Sample Size: 10 mL
Prepared: 05/27/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.123	ug/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*114*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 14:54

SPL-GW-MW08-0522

22E0411-07 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 05/25/2022 14:30
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/10/2022 00:34

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22E0411-07 G 02
Preparation Batch: BKF0235 — Sample Size: 25 mL
Prepared: 06/09/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	14.7	mg/L	D
Manganese	7439-96-5	10	0.00500	1.05	mg/L	D

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 14:54

SPL-GW-MW08-0522

22E0411-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 05/25/2022 14:30
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/10/2022 02:16

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22E0411-08 G 01
Preparation Batch: BKF0238 — Sample Size: 25 mL
Prepared: 06/09/2022 — 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

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 14:54

SPL-GW-MW27-0522

22E0411-09 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/25/2022 15:40

Instrument: NT2 Analyst: LH — Analyzed: 05/27/2022 22:44

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22E0411-09 D

Preparation Batch: BKE0759 — Sample Size: 10 mL

Prepared: 05/27/2022 — 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 %*	*108*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 14:54

SPL-GW-MW27-0522

22E0411-09 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 05/25/2022 15:40
Instrument: NT16 Analyst: KOTT — Analyzed: 05/27/2022 14:40

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22E0411-09 A
Preparation Batch: BKE0750 — Sample Size: 10 mL
Prepared: 05/27/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0847	ug/L	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*114*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 14:54

SPL-GW-MW27-0522

22E0411-09 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 05/25/2022 15:40

Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/10/2022 00:25

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22E0411-09 G 02

Preparation Batch: BKF0235 — Sample Size: 25 mL

Prepared: 06/09/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	5	0.180	6.86	mg/L	D
Manganese	7439-96-5	5	0.00250	0.462	mg/L	D

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 14:54

SPL-GW-MW27-0522

22E0411-10 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 05/25/2022 15:40

Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/10/2022 01:15

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 22E0411-10 G 01

Preparation Batch: BKF0238 — Sample Size: 25 mL

Prepared: 06/09/2022 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	2.61	ug/L	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 14:54

SPL-GW-MW81-0522

22E0411-11 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/25/2022 00:00

Instrument: NT2 Analyst: LH — Analyzed: 05/27/2022 16:55

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22E0411-11 B

Preparation Batch: BKE0759 — Sample Size: 10 mL

Prepared: 05/27/2022 — 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 %*	*102*	*%*	
Surrogate: Toluene-d8			*80-120 %*	*96.5*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 14:54

SPL-GW-MW81-0522

22E0411-11 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 05/25/2022 00:00
Instrument: NT16 Analyst: KOTT — Analyzed: 05/27/2022 15:01

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22E0411-11 A
Preparation Batch: BKE0750 — Sample Size: 10 mL
Prepared: 05/27/2022 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*111*	*%*	

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 14:54

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKE0759 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKE0759-BLK1)				Prepared: 27-May-2022 Analyzed: 27-May-2022 16:34						
cis-1,2-Dichloroethene	ND	0.20	ug/L							U
Benzene	ND	0.20	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	4.91		ug/L	*5.00*		*98.2*	*80-129*			
Surrogate: Toluene-d8	4.99		ug/L	*5.00*		*99.8*	*80-120*			
LCS (BKE0759-BS1)				Prepared: 27-May-2022 Analyzed: 27-May-2022 15:31						
cis-1,2-Dichloroethene	9.71	0.20	ug/L	10.0		97.1	80-121			
Benzene	10.0	0.20	ug/L	10.0		100	80-120			
Surrogate: 1,2-Dichloroethane-d4	4.87		ug/L	*5.00*		*97.4*	*80-129*			
Surrogate: Toluene-d8	4.99		ug/L	*5.00*		*99.8*	*80-120*			
LCS Dup (BKE0759-BSD1)				Prepared: 27-May-2022 Analyzed: 27-May-2022 15:52						
cis-1,2-Dichloroethene	9.70	0.20	ug/L	10.0		97.0	80-121	0.11	30	
Benzene	9.62	0.20	ug/L	10.0		96.2	80-120	4.28	30	
Surrogate: 1,2-Dichloroethane-d4	4.91		ug/L	*5.00*		*98.3*	*80-129*			
Surrogate: Toluene-d8	4.95		ug/L	*5.00*		*98.9*	*80-120*			

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 14:54

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BKE0750 - EPA 5030C (Purge and Trap)

Instrument: NT16 Analyst: KOTT

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKE0750-BLK1)				Prepared: 27-May-2022 Analyzed: 27-May-2022 12:33						
Vinyl chloride	ND	0.0200	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5240		ug/L	*5000*		*105*	*80-129*			
LCS (BKE0750-BS1)				Prepared: 27-May-2022 Analyzed: 27-May-2022 10:22						
Vinyl chloride	2.01	0.0200	ug/L	2.00		100	62-141			
Surrogate: 1,2-Dichloroethane-d4	5100		ug/L	*5000*		*102*	*80-129*			
LCS Dup (BKE0750-BSD1)				Prepared: 27-May-2022 Analyzed: 27-May-2022 11:12						
Vinyl chloride	1.65	0.0200	ug/L	2.00		82.5	62-141	19.60	30	
Surrogate: 1,2-Dichloroethane-d4	5140		ug/L	*5000*		*103*	*80-129*			

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-155-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 14:54

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BKF0235 - 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 (BKF0235-BLK1)				Prepared: 09-Jun-2022 Analyzed: 09-Jun-2022 18:33							
Manganese	55	ND	0.000500	mg/L							U
Blank (BKF0235-BLK2)				Prepared: 09-Jun-2022 Analyzed: 09-Jun-2022 21:14							
Iron	54	ND	0.0360	mg/L							U
Iron	57	ND	0.0360	mg/L							U
LCS (BKF0235-BS1)				Prepared: 09-Jun-2022 Analyzed: 09-Jun-2022 18:28							
Manganese	55	0.0246	0.000500	mg/L	0.0250		98.3	80-120			
LCS (BKF0235-BS2)				Prepared: 09-Jun-2022 Analyzed: 09-Jun-2022 21:18							
Iron	54	5.46	0.0360	mg/L	5.00		109	80-120			
Iron	57	5.44	0.0360	mg/L	5.00		109	80-120			

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Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 14:54

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BKF0238 - 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 (BKF0238-BLK1)				Prepared: 09-Jun-2022 Analyzed: 09-Jun-2022 21:23							
Arsenic, Dissolved	75a	ND	0.200	ug/L							U
LCS (BKF0238-BS1)				Prepared: 09-Jun-2022 Analyzed: 09-Jun-2022 21:27							
Arsenic, Dissolved	75a	25.6	0.200	ug/L	25.0		102	80-120			

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
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Seattle WA, 98124-4018	Project Manager: Jeff Neuner	15-Jun-2022 14:54

Certified Analyses included in this Report

Analyte	Certifications
EPA 6020B in Water	
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
EPA 6020B UCT-KED in Water	
Arsenic-75a	NELAP,WADOE,DoD-ELAP,ADEC
EPA 8260D in Water	
Chloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Acrolein	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Iodomethane	DoD-ELAP,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE

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Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
Styrene	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,NELAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE

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Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,WADOE
n-Hexane	WADOE
2-Pentanone	WADOE

EPA 8260D-SIM in Water

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

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2023
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2023
WADOE	WA Dept of Ecology	C558	06/30/2022
WA-DW	Ecology - Drinking Water	C558	06/30/2022

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Notes and Definitions

D	The reported value is from a dilution
J	Estimated concentration value detected below the reporting limit.
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.