Parametrix
let's create tomorrow, together

July 15, 2024

Parametrix No. 553-1550-067

Ryan Gardiner, Project Manager
Washington State Department of Ecology
Toxics Cleanup Program
15700 Dayton Ave. N.
Shoreline, Washington 98133

Re: South Park Landfill Second Quarter 2024 Progress Report

Dear Ryan:

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

General Activities During the 2024 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 Seattle Public Utilities (SPU) old South Transfer Station property.
- SPU requested access to the CenterPoint property to facilitate brush clearing and a property boundary survey for the STS Phase 2 project.

CenterPoint South Park LLC Property

- Ongoing remote monitoring of the landfill gas system blowers. The current tenants First Student and Amazon vehicle parking are active on CenterPoint property.
- Conducted quarterly inspection of the methane alarms in the on-site buildings.
- Conducted quarterly operation and maintenance of the landfill gas system.

Overall Settlement Parcels

- The 2024 second quarter compliance monitoring was completed. SPU staff conducted the gas monitoring and the Parametrix team conducted the groundwater monitoring.
- Parametrix reviewed field measurements and completed data management for the 2024 second quarter compliance monitoring events.

Deviations from Samples, Required Tasks, CAP, or Schedule

There were no deviations to report this quarter.

Data Summary

The perimeter gas probes were monitored by SPU on April 30, 2024. The recorded monitoring data are included as an attachment. Methane was not detected at any of the gas probes.

The groundwater wells were monitored by the Site Coordinator between May 1 and 3, 2024. The monitoring samples were analyzed by Analytical Resources, LLC. Data validation is complete and a trend and concentration trigger assessment for vinyl chloride was performed. A draft data summary table, updated time-series plots, and the final lab reports for the 2024 second quarter are included as attachments to this progress report.

Data management is complete for the 2024 second quarter compliance monitoring event.

Upcoming Activities

SRDS Property

- SPU has added significant scope changes to the STS Phase II project including combining stormwater treatment from the STS property to the SRDS property, larger trailer canopy, a combined electrical building, and crew quarter changes. The final design is anticipated to be completed in the winter of 2025.

CenterPoint Property

- Ongoing remote monitoring of the CenterPoint property landfill gas system blowers.
- Complete the third quarter 2024 operation and maintenance of the landfill gas system.

Overall Settlement Parcels

- SPU and the Site Coordinator will complete the third quarter 2024 compliance monitoring.
- The Site Coordinator will work with a drilling subcontractor to install supplemental gas probes as described in the approved Supplemental Gas Probes Work Plan and repair damaged probe GP-28.
- The 2024 annual cap reinspection report will be finalized and submitted to Ecology.
- SPU will coordinate with Seattle Department of Transportation on repair of the remaining areas of concern identified during the cap inspections in the rights-of-way.
- The Site Coordinator will inspect cap maintenance completed by property owners.

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

Sincerely,

Parametrix

Laura B. Lee
Project Manager

cc: Mark Jusayan, SPU Solid Waste Capital Planning and Landfill Closure Program Manager
Min Soon Yim, SPU Landfill Manager
Ashley Piatek, CenterPoint Properties
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
Suzanne Hildreth, SPU Solid Waste Transfer Station Manager
Lucie Harpster, SPU Solid Waste Transfer Station Manager

Attachments

1 – Landfill Gas and Groundwater Compliance Monitoring Field Sheets, Second Quarter 2024

2 – Draft Groundwater Quality Data Summary, Second Quarter 2024

3 – Draft Groundwater Quality Time Series Plots through Second Quarter 2024

4 – Draft Summary of Vinyl Chloride Trend Analyses for Wells that Exceed the Cleanup Level, Second Quarter 2024

5 – Second Quarter 2024 Groundwater Laboratory Data

Attachment 1

Landfill Gas and Groundwater Compliance
Monitoring Field Sheets
Second Quarter 2024

South Park Landfill

Second Quarter 2024 Gas Probe Monitoring Data

Gas Probe	Date	Time	Rel. Press. inches H2O	CH4 %	CO2 %	O2 %	Balance %	Blocked (Y/N)	Baro. Press. inches Hg
SP00GP37	4/30/2024	8:14	-0.01	0.0	8.6	6.7	84.7	N	30.03
SP00GP38	4/30/2024	8:22	0.00	0.0	13.1	4.4	82.5	N	30.05
SP00GP09	4/30/2024	8:29	0.03	0.0	6.6	14.7	78.7	N	30.04
SP00GP26	4/30/2024	8:40	0.03	0.0	1.8	19.7	78.5	N	30.05
SP00GP07	4/30/2024	9:05	0.01	0.0	1.9	19.4	78.7	N	30.06
SP00GP23	4/30/2024	9:19	0.02	0.0	7.0	14.0	79.0	N	30.06
SP00GP11	4/30/2024	9:44	0.03	0.0	0.7	21.1	78.2	N	30.06
SP00GP13	4/30/2024	9:52	-0.36	0.0	2.1	19.3	78.6	**Y**	30.06
SP00GP33	4/30/2024	10:05	-0.04	0.0	0.9	20.3	78.8	N	30.07
SP00GP03	4/30/2024	10:21	-0.01	0.0	4.1	13.5	82.4	N	30.08
SP00GP32	4/30/2024	10:28	-2.82	0.0	0.4	17.2	82.4	**Y**	30.08
SP00GP15	4/30/2024	10:32	-24.05	0.0	6.4	5.8	87.8	**Y**	30.08
SP00GP31	4/30/2024	10:38	-0.03	0.0	5.8	11.7	82.5	N	30.08
SP00GP16	4/30/2024	10:54	0.07	0.0	7.5	11.1	81.4	N	30.08
SP00GP29	4/30/2024	10:59	0.09	0.0	13.9	0.0	86.1	N	30.08
SP00GP28	4/30/2024	11:07	0.07	0.0	0.2	20.9	78.9	N	30.07
SP00GP27	4/30/2024	11:12	0.02	0.0	8.1	0.3	91.6	N	30.08

Device ID GEM™5000; G5 V1_15_12; LSGAM:6_0_20160627; {43838984636}

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

Water Level Measurement Field Report

DATE 5/17/24	JOB NO. 553-1550-067		
PROJECT: South Park Landfill	CLIENT: Seattle Public Utilities		
LOCATION: Seattle, WA			
WEATHER Partly cloudy	TEMP low 50s high 50's	°at 735 °at 900	AM PM
PRESENT AT SITE C. Bourgeois & R. Anderson			

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	7:38	5.89		TOC	15.3	10-15	1.52
MW-14	7:44	2.45		TOC	21.8	11.5-21.5	0.8
MW-29	7:52	6.72		TOC	30	20-30	-0.29
MW-18	8:00	15.07		TOC	40.4	30-40	1.25
MW-25	833	13.64		TOC	27	22-27	2.79
MW-32	808	10.71		TOC	24	19-24	-0.44
MW-33	809	10.59		TOC	25	20-25	-0.47
MW-26	847	9.38		TOC	25	15-25	2.39
MW-27	900	~~8.08~~ 8.08		TOC	20	10-20	2.04
MW-10	839	12.91		TOC	45	35-45	1.65
MW-24	845	8.62		TOC	45.3	35-45	1.56
MW-08	859	8.15		TOC	45.6	35.5 – 45.5	1.88
MW-30	840	9.90		TOC	13	8-13	-0.53
MW-31	842	10.79		TOC	23	18-23	-0.46

Comments:

MW-25 : 13.64

TOC – top of PVC casing SG – staff gauge

SIGNED: CBV

MW-29 Not flooded ~~(unusual)~~

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067 Date: 5/8/24 Well ID: MW-08

Sampling Organization: Parametrix / HWA Samplers: C. Bourgeois & R. Anderson

Purge Data Screened Interval (ft bgs): 35.5-45.5 Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): 8.10 Purge Water Disposal Method: O/WS

Purge Device: peristaltic Pump Intake Depth: 40.0 ft

Begin Purge Time: 737 End Purge Time: 809

Time	Depth to Water (feet below MP)	Pump Setting (psi)	Purge Rate (mL/min)	Cum. Vol. Purged (L)	Temp (°C)	DO (mg/L)	Specific Conductivity (µS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
740	8.10	25	250	1.75	11.4	0.24	1359	6.81	-55.0	10.2	slightly yellow
745	"	"	"	2.25	11.6	0.24	1251	6.80	-64.6	5.51	"
750	"	"	"	3.00	11.7	0.25	1205	6.79	-72.2	4.79	"
~~755~~	"	"	"	4.00	11.8	0.24	1177	6.79	-76.6	4.15	"
800	"	"	"	4.80	11.8	0.24	1164	6.79	-79.1	4.76	"
805	"	"	"	5.20	11.8	0.22	1145	6.79	-80.8	2.77	rel. 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_MW08-0524 Time Collected: 810 Weather: Sunny; low 60's

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

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: 5/1/24 Well ID: MW-10

Sampling Organization: Parametrix / HWA Samplers: C. Bourgeois & R. Anderson

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

Initial Depth of Water (Ft below TOC): 12.88 Purge Water Disposal Method: O/WS

Purge Device: peristaltic Pump Intake Depth: 40.0 ft

Begin Purge Time: 1018 End Purge Time: 1055

Time	Depth to Water (feet below MP)	Pump Setting (setting on peristaltic)	Purge Rate (ml/min)	Cum. Vol. Purged (L)	Temp (°C)	DO (mg/L)	Specific Conductivity (µS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
1020	12.88	3.2	300	1.5	13.9	4.32	1237	6.63	-63.4	4.08	Rel. clear
1025	"	"	"	3.5	13.9	2.05	1334	6.67	-99.5	1.64	"
1030	"	"	"	4.5	14.0	1.37	1339	6.68	-104.3	2.03	"
1035	"	"	"	6.5	14.1	0.92	1364	6.74	-111.7	0.96	"
1040	"	"	"	8.5	13.8	0.62	1398	6.78	-114.9	0.48	"
1045	"	"	"	10.0	14.0	0.44	1408	6.79	-116.1	0.40	"
1050	"	"	"	12.0	14.0	0.34	1419	6.79	-117.1	0.44	"
1055	"	"	"	14.0	14.0	0.25	1426	6.81	-118.5	0.39	"
Stabilization Criteria					3%	10%, or 3<0.5	3%	± 0.1	± 10 mv	10% or 3 <5 NTU	

Sampling Data

Sample ID: SPL-GW-MW10-0524 Time Collected: 1100 Weather: sunny, warm

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

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 tubing difficult to lower to target depth.

Parametrix

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067 Date: 5/1/24 Well ID: MW-12

Sampling Organization: Parametrix / HWA Samplers: C. Bourgeois & R. Anderson

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

Initial Depth of Water (Ft below TOC): 5.88 Purge Water Disposal Method: O/WS

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

Begin Purge Time: 1328 End Purge Time: 1350

Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate (mL/min)	Cum. Vol. Purged (L)	Temp (°C)	DO (mg/L)	Specific Conductivity (µS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
1335	5.96	10	290	1.80	12.0	0.43	448.7	6.69	41.[illegible]	1.57	Rel clear
1340	"	"	"	3.00	12.1	0.42	446.0	6.42	37.5	1.10	"
1345	5.96	"	"	4.00	12.2	0.32	445.3	6.43	36.0	1.32	"
1350	"	"	"	5.50	12.1	0.25	445.8	6.42	35.1	1.13	"
Stabilization Criteria					3%	10%, or 3<0.5	3%	± 0.1	± 10 mv	10% or 3 <5 NTU	

Sampling Data

Sample ID: SPL-GW_MW12-0524 Time Collected: 1355 Weather: Sunny, warm

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

Sample Analyses: cis-1,3-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: 5/1/24 Well ID: MW-14

Sampling Organization: Parametrix / HWA Samplers: C. Bourgeois & R. Anderson

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

Initial Depth of Water (Ft below TOC): 2.59 Purge Water Disposal Method: O/WS

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

Begin Purge Time: 1420 End Purge Time: 1532

Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate	Cum. Vol. Purged	Temp (°C)	DO (mg/L)	Specific Conductivity (µS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
1430	2.59	20	"	2.00	13.9	0.31	569.0	6.94	-80.1	591	yellow; turbid
1435	"	"	"	3.75	13.8	0.10	512.8	6.83	-61.7	185	"
1440	"	"	"	4.00	13.7	0.07	483.3	6.77	-48.0	122	"
1445	"	"	"	6.0	13.6	----	458.4	6.73	-34.7	57.5	clearing [illegible]
1450	"	"	"	6.9	13.7	----	454.7	6.72	-32.2	38.0	"
1455	2.58	"	"	8.0	13.6	----	453.2	6.72	-30.1	18.8	"
1500	"	"	"	8.9	13.5	----	452.8	6.71	-30.4	14.9	"
1505	"	"	"	10.3	13.6	----	452.7	6.71	-30.1	12.2	"
1510	"	"	"	11.9	13.5	----	453.3	6.72	-29.2	11.6	clearing up
1515	"	"	"	13.0	13.5	----	453.4	6.72	-29.3	7.78	"
1520	"	"	"	14.5	13.6	----	454.0	6.72	-29.4	6.61	"
1525	"	"	"	15.5	13.6	----	452.6	6.71	-29.0	6.88	"
1530	"	"		16.5	13.5	-0.01	454.7	6.72	-28.9	6.75	"
Stabilization Criteria					3%	10%, or 3<0.5	3%	± 0.1	± 10 mv	10% or 3 <5 NTU	

Sampling Data

Sample ID: SPL-GW-MW14-0524 Time Collected: 1535 Weather: Sunny, 60s

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

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

Duplicate Sample Collected: ☑ Yes ☐ No If yes, ID: SPL-GW-MW60-0524 @ 1600

MS/MSD Collected: ☑ Yes ☐ No

Additional Information/Comments

* DO slashed out on YSI reader

Parametrix

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067 Date: 5/2/24 Well ID: MW-18

Sampling Organization: Parametrix / HWA Samplers: C. Bourgeois & R. Anderson

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

Initial Depth of Water (Ft below TOC): 15.01 Purge Water Disposal Method: O/WS

Purge Device: dedicated bladder pump Pump Intake Depth: 35.0 ft

Begin Purge Time: 1113 End Purge Time: 1135

Time	Depth to Water (feet below MP)	Pump Setting (psi)	Purge Rate (mL/min)	Cum. Vol. Purged (L)	Temp (°C)	DO (mg/L)	Specific Conductivity (µS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
1115	15.01	21	250	0.75	14.4	3.11	531.7	6.79	-44.7	4.97	Rel. clear
1120	"	"	"	2.50	14.4	0.34	553.2	6.77	-61.9	2.17	"
1125	"	"	"	4.00	14.4	0.16	558.6	6.77	-67.9	2.33	"
1130	"	"	"	5.00	14.3	0.04	564.1	6.77	-72.3	1.73	"
1135	"	"	"	7.00	17.5	---	564.9	6.78	-75.2	1.73*	"
Stabilization Criteria					3%	10%, or 3<0.5	3%	± 0.1	± 10 mv	10% or 3 <5 NTU	

Sampling Data

Sample ID: SPL-GW-MW18-0524 Time Collected: 1140 Weather: Sunny, low 60s

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

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

* correct!

Parametrix

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067 Date: 5/2/24 Well ID: MW-24

Sampling Organization: Parametrix / NWA Samplers: C. Bourgeois & R. Anderson

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

Initial Depth of Water (Ft below TOC): 8.60 Purge Water Disposal Method: O/WS

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

Begin Purge Time: 1216 End Purge Time: 1235

Time	Depth to Water (feet below MP)	Pump Setting (psi)	Purge Rate (mL/min)	Cum. Vol. Purged (L)	Temp (°C)	DO (mg/L)	Specific Conductivity (µS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
1220	8.65	22	250	2.0	12.5	0.33	1066	6.67	-59.6	4.56	Rel. clear
1225	"	"	"	3.0	12.2	0.06	1073	6.68	-72.1	4.05	"
1230	"	"	225	4.0	12.2	----	1082	6.77	-78.5	3.83	"
1235	8.61	"		5.0	12.3	----	1089	6.69	-81.9	2.38	"
Stabilization Criteria					3%	10%, or 3<0.5	3%	± 0.1	± 10 mv	10% or 3 <5 NTU	

Sampling Data

Sample ID: SPL-GW-MW24-0524 Time Collected: 1240 Weather: Sunny; low 60s

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

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 Lock in extremely poor condition - replace

Parametrix

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067 **Date:** 5/1/24 **Well ID:** MW-25

Sampling Organization: Parametrix / HWA **Samplers:** C. Bourgeois & R. Anderson

Purge Data Screened Interval (ft bgs): 22.0-27.0 Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): ~~[illegible]~~ 13.67 Purge Water Disposal Method: O/WS

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

Begin Purge Time: 923 End Purge Time: 955

Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate (mL/min)	Cum. Vol. Purged (L)	Temp (°C)	DO (mg/L)	Specific Conductivity (µS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
930	13.67	45	~[illegible]	1.60	13.9	1.23	1087	6.54	-43.5	3.82	Rel. clear
935	"	"	"	2.50	14.1	0.70	1133	6.57	-59.0	2.94	"
940	"	"	"	3.75	14.2	0.53	1154	6.59	-67.9	2.11	"
945	13.66	"	"	5.00	14.2	0.47	1156	6.60	-72.9	2.25	"
950	"	"	"	6.00	14.2	0.44	1163	6.61	-75.3	1.68	"
955	"	"	"	7.00	14.0	0.41	1168	6.61	-77.9	1.46	"
Stabilization Criteria					3%	10%	3%	± 0.1	± 10 mv	10% or 3 <5 NTU	

Sampling Data

Sample ID: SPL-GW-MW25-0524 Time Collected: 1000 Weather: low 60's, sunny & windy

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

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

* Added 0.12' to depth to water on MW-25 in initial measurement – not this sheet

Parametrix

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067 Date: 5/2/24 Well ID: MW-26

Sampling Organization: Parametrix / HWA Samplers: C. Bourgeois & R. Anderson

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

Initial Depth of Water (Ft below TOC): 9.35 Purge Water Disposal Method: O/WS

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

Begin Purge Time: 1253 End Purge Time: 1342

Time	Depth to Water (feet below MP)	Pump Setting (psi)	Purge Rate (ml/min)	Cum. Vol. Purged (L)	Temp (°C)	DO (mg/L)	Specific Conductivity (µS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
1300	9.35	15	250	2.0	12.3	2.35	324.1	6.19	27.3	82.0	yellowish-hue
1305	"	"	"	3.0	12.3	1.73	300.8	6.18	29.2	28.7	"
1310	"	"	"	4.1	12.3	1.30	298.3	6.18	28.9	16.9	"
1315	"	"	"	5.5	12.3	0.95	294.7	6.17	29.4	8.69	"
1320	"	"	"	7.0	12.4	0.72	293.8	6.17	28.8	8.64	"
1325	"	"	"	8.9	12.3	0.58	293.8	6.16	28.6	4.48	"
1330	"	"	"	10.0	12.3	0.47	293.7	6.16	27.8	4.28	"
1335	"	"	"	11.0	12.3	0.38	293.4	6.17	27.0	3.88	"
1340	"	"	"	12.0	12.3	0.35	292.7	6.17	26.7	4.08	"
Stabilization Criteria					3%	10%, or 3<0.5	3%	± 0.1	± 10 mv	10% or 3 <5 NTU	

Sampling Data

Sample ID: SPL-GW_MW26-0524 Time Collected: 1345 Weather: Sunny; low 60's

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

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: 5/3/24 Well ID: MW-27

Sampling Organization: Parametrix / AWA Samplers: C. Bourgeois & R. Anderson

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

Initial Depth of Water (Ft below TOC): 8.09 Purge Water Disposal Method: O/WS

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

Begin Purge Time: 831 End Purge Time: 932

Time	Depth to Water (feet below MP)	Pump Setting (ft)	Purge Rate (ml/min)	Cum. Vol. Purged (L)	Temp (°C)	DO (mg/L)	Specific Conductivity (µS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
835	8.09	20	250	0.3	11.3	3.22	338.5	6.69	36.1	128	yellow & flaky
840	"	"	"	1.2	11.4	2.34	322.0	6.59	60.9	64.2	"
845	"	"	"	2.5	11.5	0.87	304.0	6.58	68.0	36.4	"
850	"	"	"	3.5	11.6	0.48	297.3	6.57	66.8	34.9	"
855	"	"	"	4.5	11.7	0.29	291.2	6.57	61.3	19.4	"
900	"	"	"	5.5	11.7	0.20	290.8	6.57	57.2	13.9	"
905	"	"	"	6.5	11.8	0.12	292.0	6.58	51.6	13.6	"
910	"	"	"	7.5	11.8	0.08	294.3	6.58	45.8	10.6	"
915	"	"	"	8.5	11.9	0.04	296.7	6.58	40.0	10.1	"
920	"	"	"	9.5	12.0	0.05	300.1	6.59	34.9	7.84	clearing up
925	"	"	"	10.5	12.1	0.04	302.7	6.59	29.9	7.36	"
930	"	"	"	11.5	12.1	----	305.0	6.59	25.8	7.65	"
Stabilization Criteria					3%	10%, or 3<0.5	3%	± 0.1	± 10 mv	10% or 3 <5 NTU	

Sampling Data

Sample ID: SPL-GW-MW27-0524 Time Collected: 935 Weather: Sunny, 60's

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

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

* ---- that's the readout on DO

Parametrix

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067 Date: ~~5/…/22~~ 5/1/24 Well ID: MW-29

Sampling Organization: Parametrix / HWA Samplers: C. Bourgeois & R. Anderson

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

Initial Depth of Water (Ft below TOC): 6.77 Purge Water Disposal Method: O/WS

Purge Device: peristaltic pump Pump Intake Depth: 25.0 ft

Begin Purge Time: 1633 End Purge Time: 1715

mL/min C

Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate	Cum. Vol. Purged	Temp (°C)	DO (mg/L)	Specific Conductivity (µS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
1640	7.95	2.75	250	2.00	12.4	0.08	1018	6.64	-90.6	18.2	flaky
1645	8.22	"	"	3.90	12.3	0.48	991	6.68	-88.0	11.9	somewhat flaky
1650	8.26	"	"	4.90	12.4	1.01	934	6.69	-82.5	4.67	clearing up
1655	8.27	"	"	6.50	12.3	1.10	924	6.70	-83.9	4.67*	"
1700	"	"	"	8.50	12.2	0.96	925	6.71	-87.3	3.24	"
1705	"	"	"	9.50	12.2	0.89	919	6.72	-91.9	1.82	"
1710	"	"	"	11.00	12.2	0.83	910	6.75	-96.0	1.46	"
1715	"	"	"	12.00	12.1	0.84	906	6.75	-98.1	1.21	"
Stabilization Criteria					3%	10%, or 3<0.5	3%	± 0.1	± 10 mv	10% or 3 <5 NTU	

Sampling Data

Sample ID: SPL-GW_MW29-0524 Time Collected: 1720 Weather: Sunny, 60's

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

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

6.66 → 6.77 → 6.77

* 2 in sequence

Parametrix

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067 Date: 5/2/24 Well ID: MW-30

Sampling Organization: Parametrix /HWA Samplers: C. Bourgeois & R. Anderson

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

Initial Depth of Water (Ft below TOC): 9.91 Purge Water Disposal Method: O/WS

Purge Device: peristaltic pump Pump Intake Depth: 10.5 ft

Begin Purge Time: 904 End Purge Time: 925

Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate (mL/min)	Cum. Vol. Purged (L)	Temp (°C)	DO (mg/L)	Specific Conductivity (µS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
910	10.09	2.5	250	4.0	12.0	0.15	599.4	6.41	71.8	87.0	yellowish hue
915	10.10	"	"	5.5	12.0	0.16	611.1	6.41	68.2	4.13	rel. clear
920	"	"	"	6.5	12.0	0.14	613.9	6.40	66.2	3.73	rel. clear
925	"	"	"	8.0	12.0	0.13	615.6	6.40	66.5	2.00	"
Stabilization Criteria					3%	10%, or 3<0.5	3%	± 0.1	± 10 mv	10% or 3 <5 NTU	

Sampling Data

Sample ID: SPL-GW_MW30-0524 Time Collected: 930 Weather: Partly cloudy; high 50's

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

Sample Analyses: cis-1,2-DCE, vinyl chloride, total iron, total manganese @ 1000

Duplicate Sample Collected: ☑ Yes ☐ No If yes, ID: SPL-GW_MW61-0524

MS/MSD Collected: ☑ Yes ☐ No

Additional Information/Comments

Parametrix

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067 Date: 5/2/24 Well ID: MW-31

Sampling Organization: Parametrix /AWA Samplers: C. Bourgeois & R. Anderson

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

Initial Depth of Water (Ft below TOC): 10.71 Purge Water Disposal Method: O/WS

Purge Device: peristaltic pump Pump Intake Depth: 20.5ft

Begin Purge Time: 951 End Purge Time: 1037

Time	Depth to Water (feet below MP)	Pump Setting (psi)	Purge Rate (mL/min)	Cum. Vol. Purged (L)	Temp (°C)	DO (mg/L)	Specific Conductivity (µS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
955	10.81	10	300	1.50	13.5	1.34	482.6	6.48	-26.2	168	brownish hue
1000	"	"	250	2.00	13.4	0.41	484.0	6.47	-37.6	83.6	clearing up
1005	10.87	"	"	4.00	13.5	0.33	489.7	6.46	-45.9	33.9	"
1010	10.81	"	"	4.8	13.5	0.13	492.3	6.46	-48.8	15.9	"
1015	"	"	"	6.0	13.7	0.09	494.5	6.46	-50.7	10.4	"
1020	"	"	"	7.4	13.6	0.08	495.0	6.45	-51.6	7.97	"
1025	"	"	"	8.5	13.7	0.06	494.0	6.46	-53.2	4.97	"
1030	"	"	"	9.5	13.7	0.03	494.5	6.46	-53.8	4.94	"
1035	"	"	"	10.9	13.8	0.02	495.0	6.47	-54.4	4.74	"

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

Sampling Data

Sample ID: SPL-GW_MW31-0524 Time Collected: 1040 Weather: Sunny; high 50s

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

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: 5/1/24 Well ID: MW-32

Sampling Organization: Parametrix / HWA Samplers: C. Bourgeois & R. Anderson

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

Initial Depth of Water (Ft below TOC): 10.55 Purge Water Disposal Method: O/WS

Purge Device peristaltic pump Pump Intake Depth: 21.5 ft

Begin Purge Time: 1140 End Purge Time: 1210

mL/min C

Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate	Cum. Vol. Purged	Temp (°C)	DO (mg/L)	Specific Conductivity (µS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
1145	10.55	2.5	250	1.5	14.7	0.08	768	6.85	-92.2	19.6	flakes present
1150	"	"	"	2.9	14.4	0.01	790	6.86	-106.2	11.4	"
1155	10.56	"	"	4.0	14.4	0.02	793	6.88	-109.4	8.17	some flakes
1200	"	"	"	5.5	14.7	0.01	795	6.88	-111.5	4.10	rel. clear
1205	"	"	"	6.5	14.8	0.01	796	6.88	-113.3	3.27	"
1210	10.57	"	"	8.0	14.5	0.02	801	6.87	-113.0	2.98	"
		Stabilization Criteria			3%	10%, or 3<0.5	3%	± 0.1	± 10 mv	10% or 3 <5 NTU	

Sampling Data

Sample ID: SPL-GW_MW32-0524 Time Collected: 1215 Weather: Sunny, low 60's

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

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: 5/1/24 Well ID: MW-33

Sampling Organization: Parametrix /HWA Samplers: C. Bourgeois & R. Anderson

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

Initial Depth of Water (Ft below TOC): 10.67 Purge Water Disposal Method: O/WS

Purge Device: peristaltic pump Pump Intake Depth: 22.5ft

Begin Purge Time: 1239 End Purge Time: 1255

Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate (mL/min)	Cum. Vol. Purged (L)	Temp (°C)	DO (mg/L)	Specific Conductivity (µS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
1245	10.68	2.5	255	2.0	15.5	0.14	1312	6.79	-107.8	2.43	Rel. clear
1250	"	"	"	3.0	15.5	0.18	1316	6.79	-110.5	1.18	"
1255	"	"	"	4.5	15.5	0.16	1312	6.80	-113.1	1.05	"

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

Sampling Data

Sample ID: SPL-GW-MW33-0524 Time Collected: 1300 Weather: Sunny, 60's

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

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

Attachment 2

Draft Groundwater Quality Data Summary
Second Quarter 2024

Groundwater Quality Data Summary, Second Quarter 2024, South Park Landfill

			Upgradient Wells				Downgradient Wells										Trip Blanks	
			A-Zone				Perched Zone		A-Zone						B-Zone			
Parameter	Units	Cleanup Level	MW-12 5/1/24	MW-14 5/1/24	MW-60 (MW-14 Dup) 5/1/24	MW-29 5/1/24	MW-30 [1] 5/2/24	MW-61 (MW-30 Dup) 5/2/24	MW-25 5/1/24	MW-26 5/2/24	MW-27 5/3/24	MW-31 [1] 5/2/24	MW-32 [2] 5/1/24	MW-33 [2] 5/1/24	MW-08 5/3/24	MW-10 5/1/24	MW-18 [2] 5/2/24	MW-24 5/2/24	MW-80 5/1/24	MW-81 5/3/24
Field Parameters																				
Temperature	C		12.1	13.5	--	12.1	12.0	--	14.0	12.3	12.1	13.8	14.5	15.5	11.8	14.0	14.5	12.3	--	--
Dissolved Oxygen	mg/L		0.25	0.01	--	0.84	0.13	--	0.41	0.35	0.00	0.02	0.02	0.16	0.22	0.25	0.00	0.00	--	--
Specific Conductivity	µS/cm		445.8	454.7	--	906	615.6	--	1168	292.7	305.0	485.0	801	1312	1145	1426	564.9	1089	--	--
pH	units		6.42	6.72	--	6.75	6.40	--	6.61	6.17	6.54	6.47	6.87	6.80	6.79	6.81	6.78	6.69	--	--
Redox	mv		35.1	-28.3	--	-98.1	66.5	--	-77.9	26.7	25.8	-54.4	-113.0	-113.1	-80.8	-118.5	-75.2	-81.9	--	--
Turbidity	NTU		1.13	6.75	--	1.21	2.00	--	1.46	4.08	7.65	4.74	2.98	1.05	2.77	0.39	1.73	2.38	--	--
Metals																				
Iron, Total	mg/L	27 A-Zone	2.07	3.49	3.55	26.4	0.539	0.563	**34.9**	7.82	2.74	18.7	12.8	16.4	--	--	--	--	--	--
		31 B-Zone	--	--	--	--	--	--	--	--	--	--	--	--	12.0	**35.5**	12.3	25.1	--	--
Manganese, Total	mg/L	2.2	0.150	0.791	0.814	0.666	0.0566	0.0557	**2.85**	0.100	0.146	0.775	1.25	1.76	0.763	2.01	0.683	1.49	--	--
Volatile Organic Compounds																				
Vinyl Chloride	µg/L	0.29	0.0200 U	0.0200 U	0.0200 U	0.0909	0.0827	0.0849	**0.386**	0.0200 U	0.0728	0.690 [1]	0.307	0.130	0.0594	0.0966	0.0200 U	0.0272	0.0200 U	0.0200 U
Cis-1,2-Dichloroethene	µg/L	16	0.20	0.20 UJ	0.20 U	0.20 U	0.25	0.32	0.21	0.33	0.21	0.32	0.57	0.20 U	0.20 U	0.85	0.20 U	0.20 U	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-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.

UJ = The analyte was not detected above a detection limit that may be incaccurate or imprecise.

Abbreviations:

µg/L Micrograms per liter

mg/L Milligrams per liter

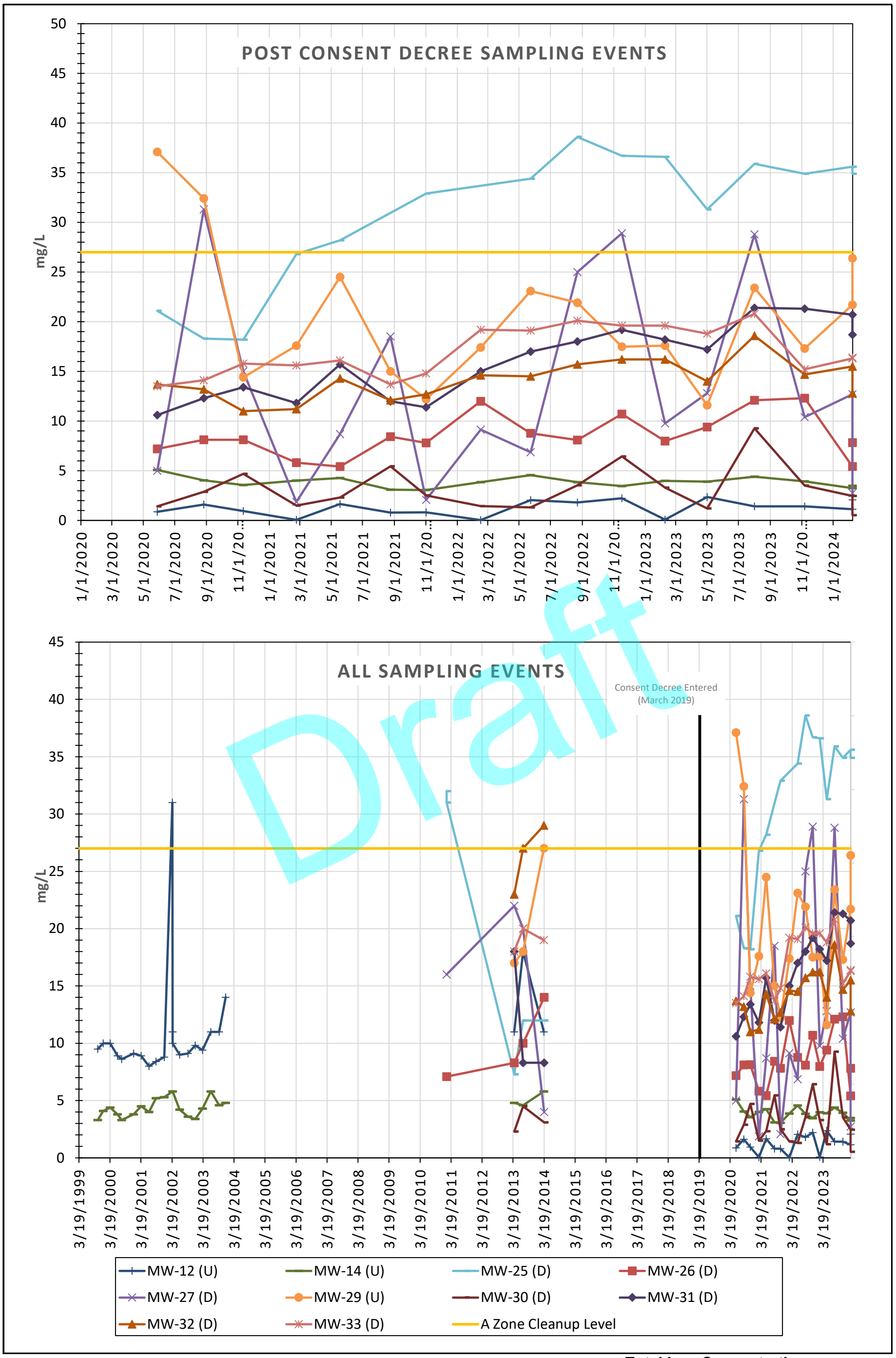
µS/cm Microsiemens per centimeter

NTU Nephelometric Turbidity unit

CPOC Conditional point of compliance

Attachment 3

Draft Groundwater Quality Time Series
Plots through Second Quarter 2024



Parametrix
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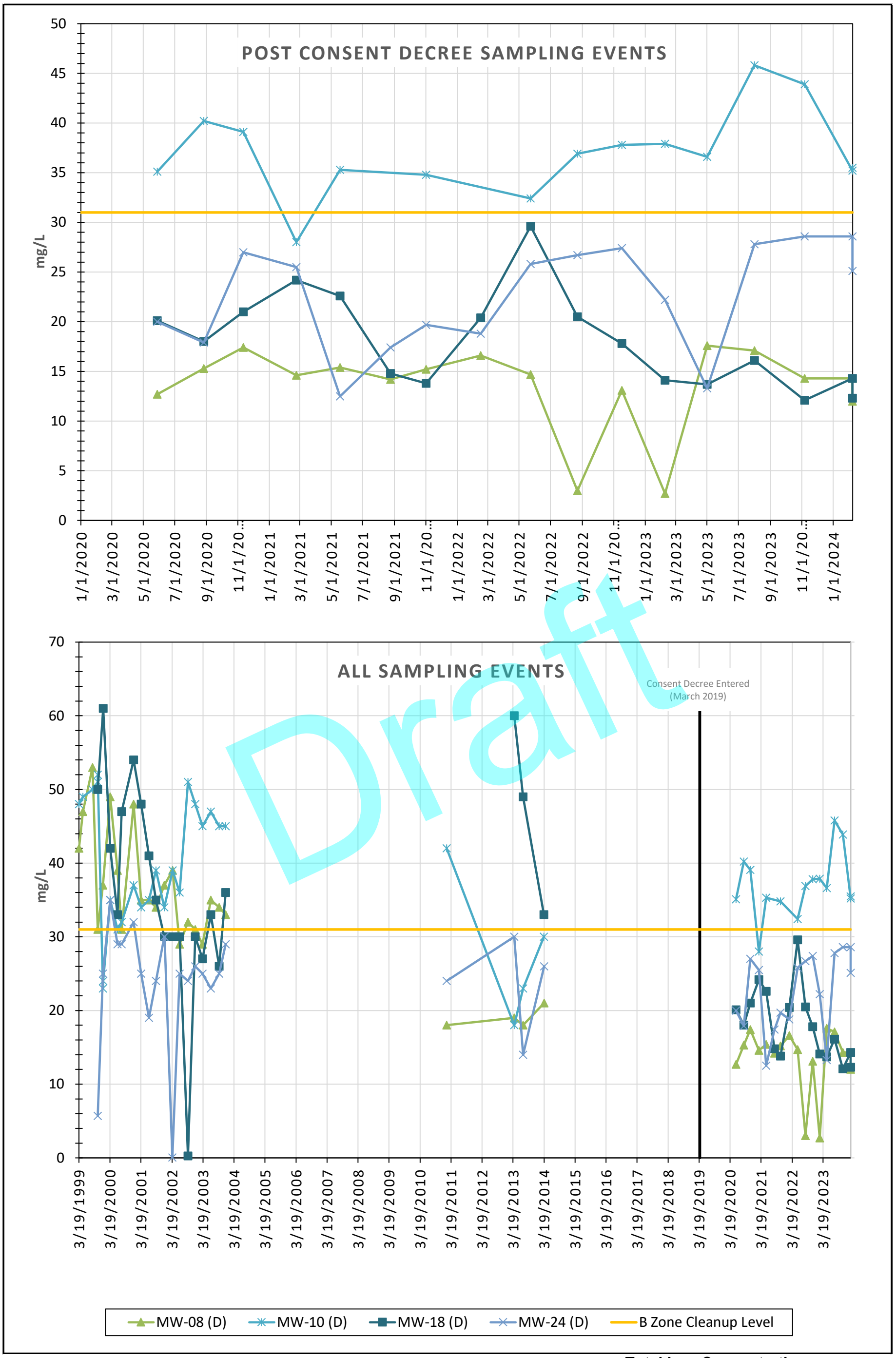
D = Downgradient
U = Upgradient

Total Iron Concentrations
A-Zone CPOC Wells
South Park Landfill



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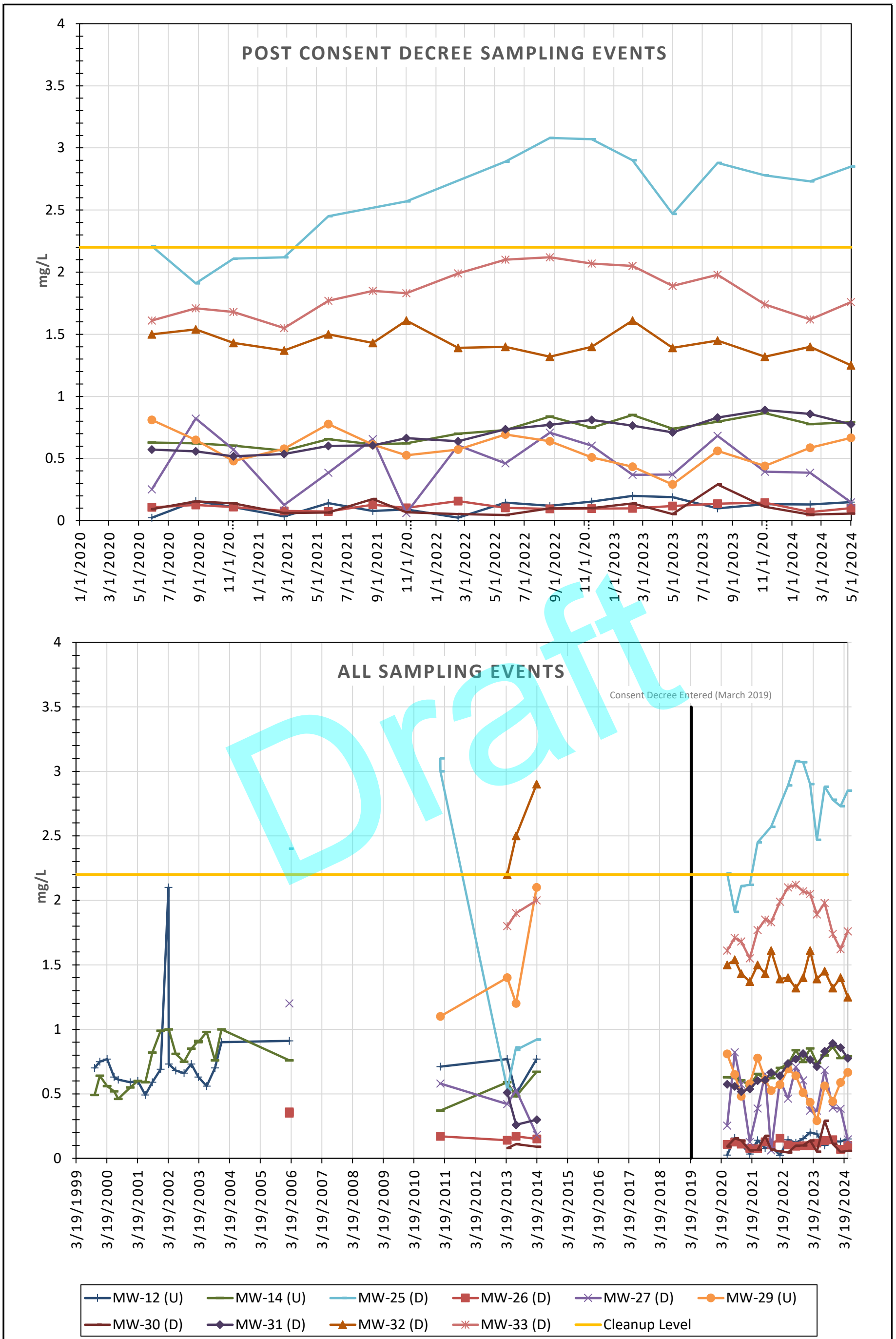
D = Downgradient
U = Upgradient

Total Iron Concentrations
B-Zone CPOC Wells
South Park Landfill



Parametrix
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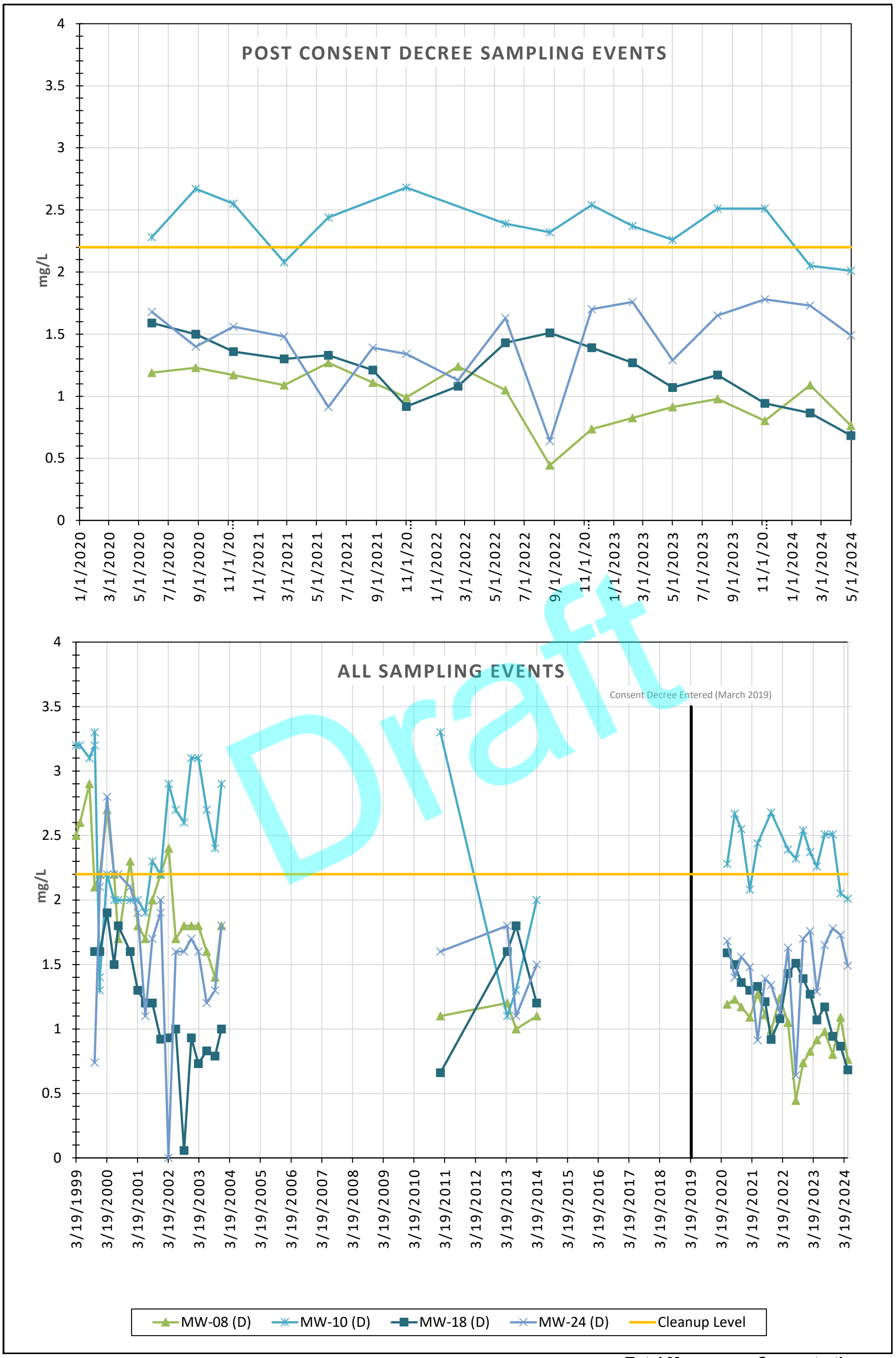
D = Downgradient
U = Upgradient

Total Manganese Concentrations
A-Zone CPOC Wells
South Park Landfill



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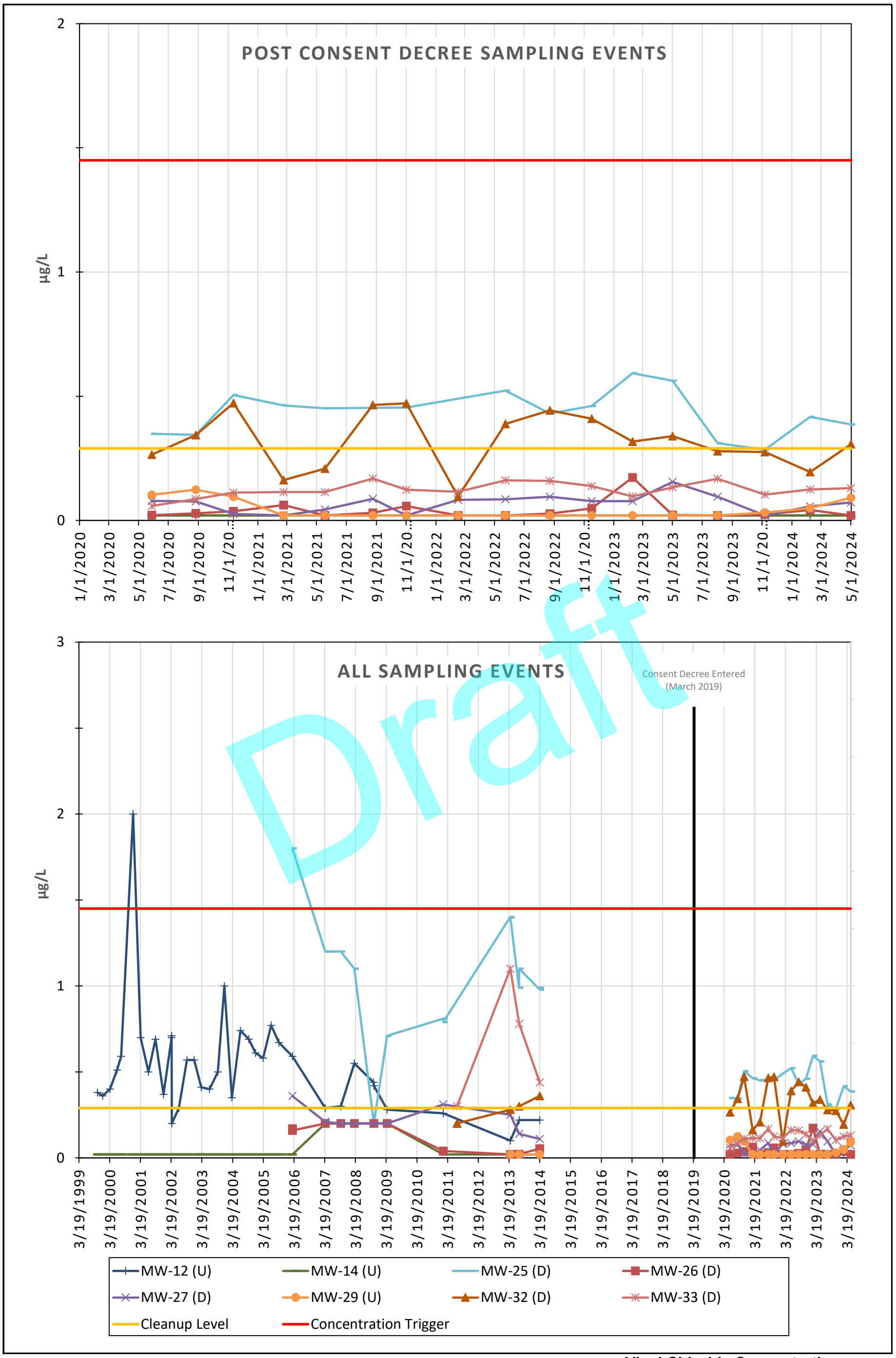
D = Downgradient
U = Upgradient

Total Manganese Concentrations
B-Zone CPOC Wells
South Park Landfill



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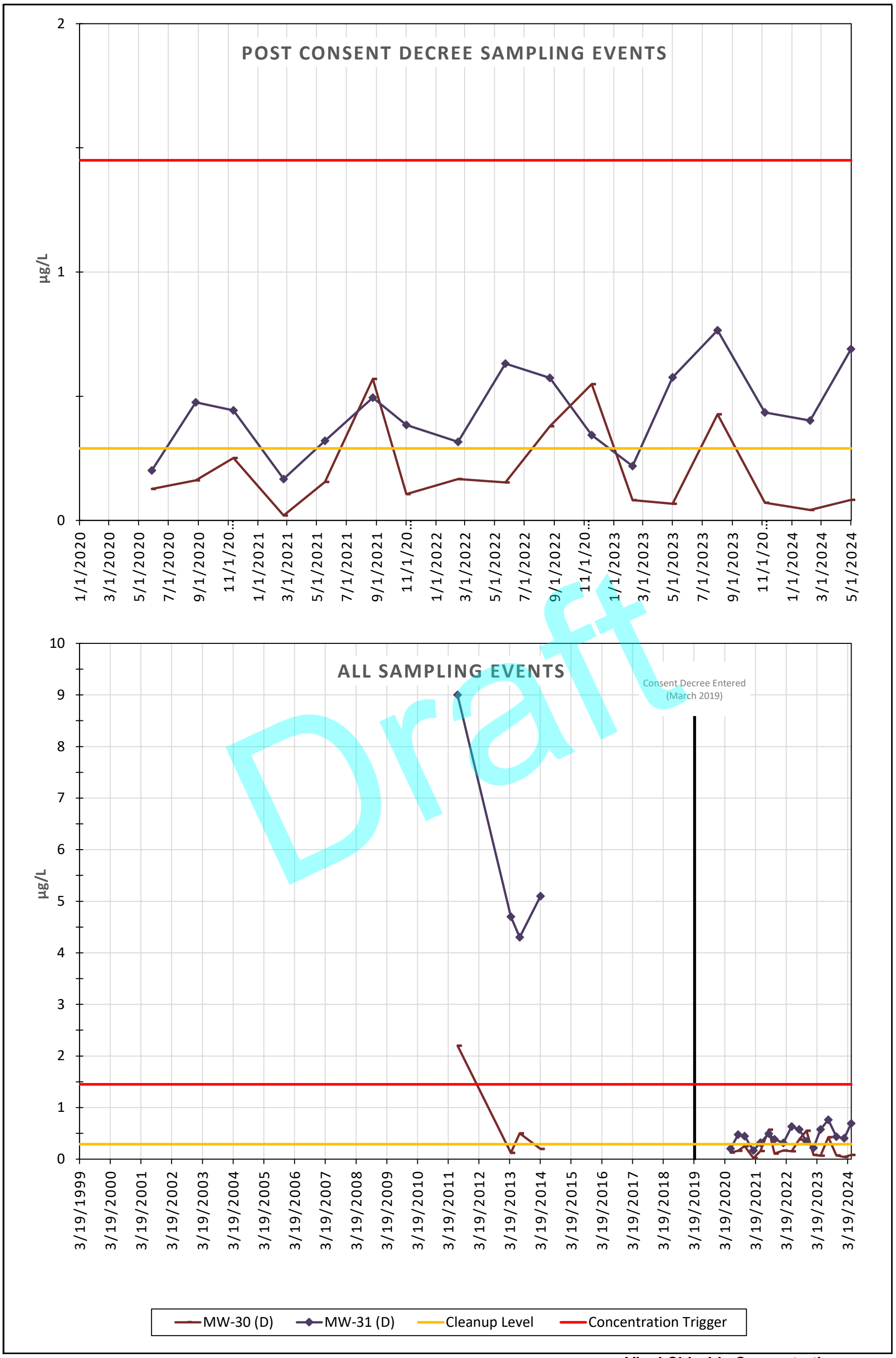
D = Downgradient
U = Upgradient

Vinyl Chloride Concentrations
A-Zone CPOC Wells
South Park Landfill



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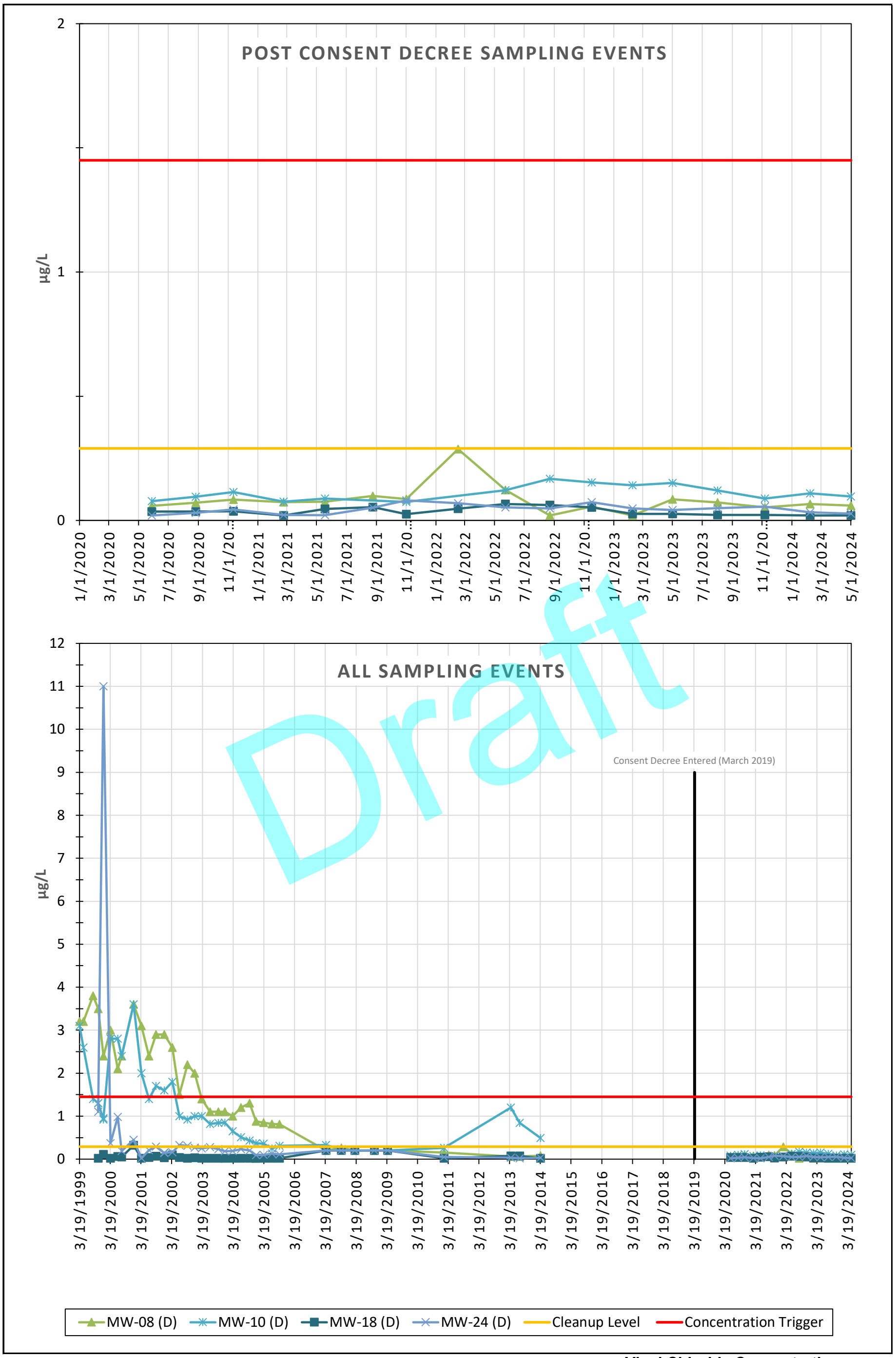
D = Downgradient
U = Upgradient

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



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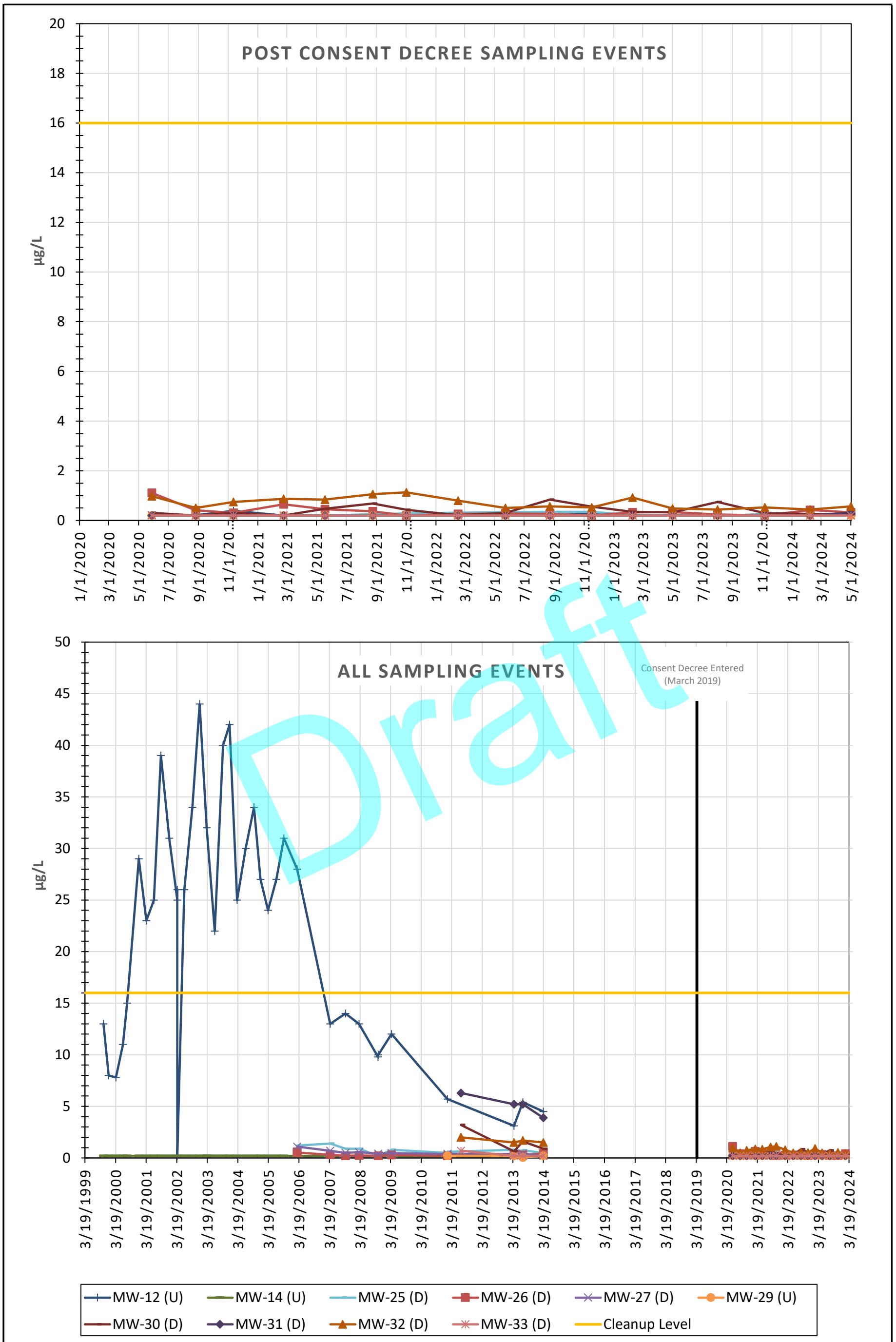
D = Downgradient
U = Upgradient

Vinyl Chloride Concentrations
B-Zone CPOC Wells
South Park Landfill



Parametrix
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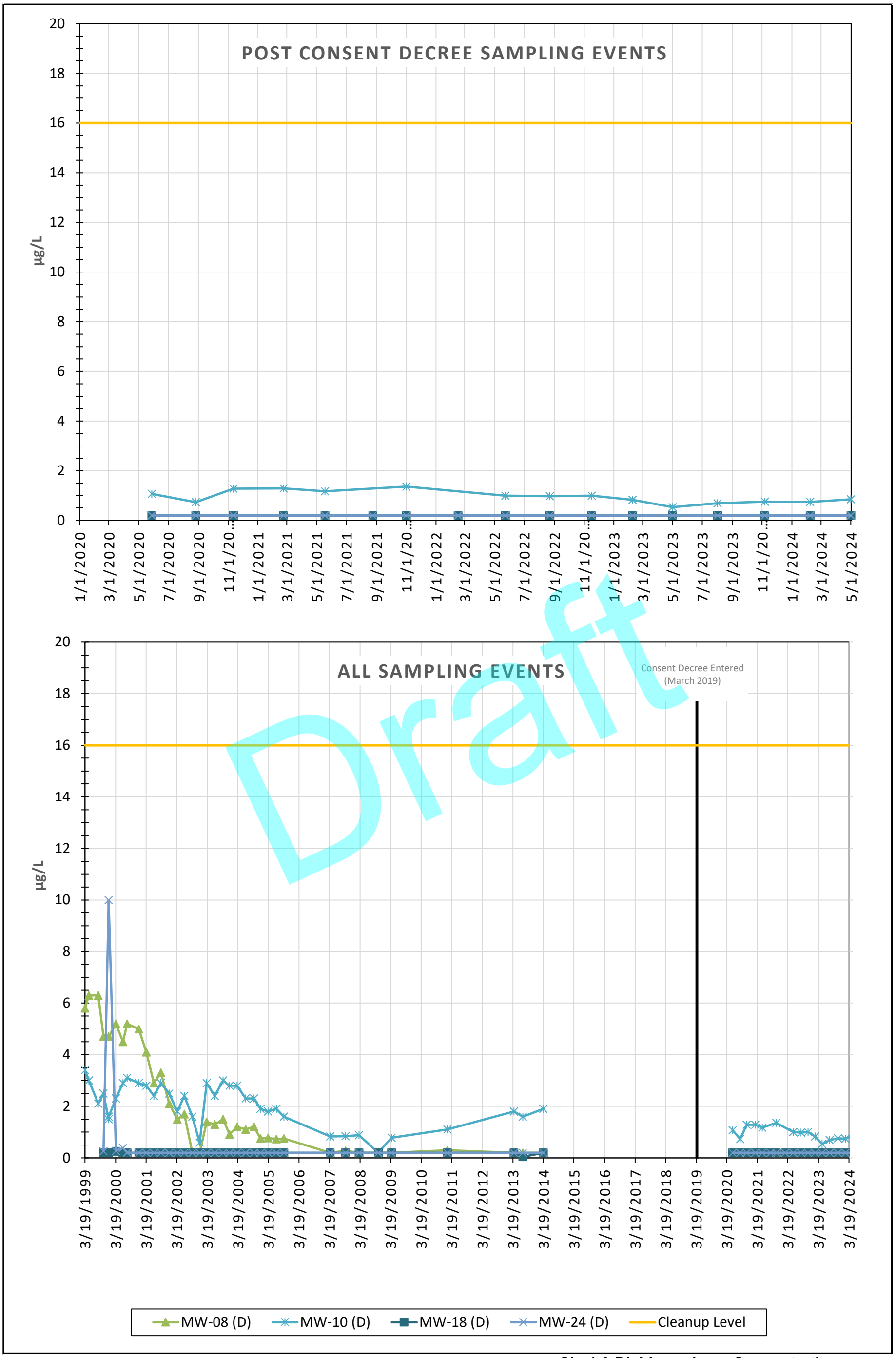
D = Downgradient
U = Upgradient

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



Parametrix
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D = Downgradient
U = Upgradient

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

Attachment 4

Draft Summary of Vinyl Chloride Trend Analyses for Wells that Exceed the Cleanup Level, Second Quarter 2024

Summary of Vinyl Chloride Trend Analyses for Wells that Exceed the Cleanup Level, South Park Landfill, Second Quarter 2024

Well ID	# Samples	# ND's	% ND's	MK S Value[1]	Significance Level[2]	Trend[2]
MW-25	15	0	0	-9	0.3490	no trend

Notes:

Trend analyses include all post-Consent Decree data (Second Quarter 2020 through Second Quarter 2024)

ND = Non-detected value

[1] The Mann-Kendall test statistic, S, is based on pair-wise differences between each concentration and all earlier concentrations. A positive S value indicates an increasing trend, a zero value indicates no trend, and a negative value indicates a decreasing trend. The null hypothesis for this test is no trend. For a positive S value, the alternative hypothesis is an increasing trend. For a negative S value, the alternative hypothesis is a decreasing trend.

[2] Significance of the Mann-Kendall test statistic, S, is a function of the magnitude of S and the number of concentrations, with a larger positive or negative value of S and a greater number of concentrations leading to a higher statistical significance. An increasing or decreasing trend is considered statistically significant if the significance level is less than 0.05 (the confidence level is greater than 0.95); otherwise, no trend is indicated. Value provided is the tabulated p-value reported by ProUCL.

Attachment 5

Second Quarter 2024 Groundwater
Laboratory Data

Analytical Resources, LLC
Analytical Chemists and Consultants
Tukwila, WA

22 May 2024

Min-Soon Yim
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)
24E0067	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

Kelly Bottem, Client Services Manager

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.

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 24E0067	Turn-around Requested: 2 weeks	Date: 5/2/2024	
ARI Client Company: Min Soon Yim, Seattle Public Utility	Phone: 206 684-7693	Page: 1 of 2	
Client Contact: Laura Lee	Phone: 206 394-3665	No. of Coolers:	Cooler Temps:
Client Project Name: SPU South Park Landfill			
	Samplers: Chris Bourgeois HWA & Richard Anderson 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	Vinyl Chloride	Total Fe, Mn								Notes/Comments
SPL-GW-MW12-0524	5/1/24	1355	water	7	X	X	X								
SPL-GW-MW14-0524	5/1/24	1535	water	13	X	X	X								MS/MSD
SPL-GW-MW29-0524	5/1/24	1720	water	7	X	X	X								
~~SPL-GW-MW18-0524~~			water	7	X	X	X								
SPL-GW-MW32-0524	5/1/24	1215	water	7	X	X	X								
SPL-GW-MW33-0524	5/1/24	1300	water	7	X	X	X								
SPL-GW-MW10-0524	5/1/24	1100	water	7	X	X	X								
SPL-GW-MW60-0524	5/1/24	1600	water	7	X	X	X								
SPL-GW-MW80-0524	5/1/24	—	water	2	X	X									

Comments/Special Instructions	Relinquished by:	Received by:	Relinquished by:	Received by:
	(Signature) Chris B	(Signature) E. St	(Signature)	(Signature)
	Printed Name: Chris Bourgeois	Printed Name: Emma Stewart	Printed Name:	Printed Name:
	Company: HWA	Company: ARI	Company:	Company:
	Date & Time: 5/2/24	Date & Time: 5/2/24 08:27	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: 24E0067	Turn-around Requested: 2 weeks	Date: 5/2/2024	
ARI Client Company: Min Soon Yim, Seattle Public Utility	Phone: 206 684-7693	Page: 2 of 2	
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 & Richard Anderson 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	Vinyl Chloride	Total Fe, Mn								Notes/Comments
SPL-GW-MW25-0524	5/1/24	1000	water	7	X	X	X								
SPL-GW-MW30-0524			water	13	X	X	X								MS/MSD
SPL-GW-MW31-0524			water	7	X	X	X								
SPL-GW-MW24-0524			water	7	X	X	X								
SPL-GW-MW26-0524			water	7	X	X	X								
SPL-GW-MW08-0524			water	7	X	X	X								
SPL-GW-MW27-0524			water	7	X	X	X								
SPL-GW-MW61-0524			water	7	X	X	X								
SPL-GW-MW81-0524			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: Emma Stewart	Printed Name:	Printed Name:
	Company: HWA	Company: ARI	Company:	Company:
	Date & Time: 5/2/24	Date & Time: 5/2/24 08:27	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: Min-Soon Yim	22-May-2024 15:21

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SPL-GW-MW12-0524	24E0067-01	Water	01-May-2024 13:55	02-May-2024 08:27
SPL-GW-MW14-0524	24E0067-02	Water	01-May-2024 15:35	02-May-2024 08:27
SPL-GW-MW29-0524	24E0067-03	Water	01-May-2024 17:20	02-May-2024 08:27
SPL-GW-MW32-0524	24E0067-04	Water	01-May-2024 12:15	02-May-2024 08:27
SPL-GW-MW33-0524	24E0067-05	Water	01-May-2024 13:00	02-May-2024 08:27
SPL-GW-MW10-0524	24E0067-06	Water	01-May-2024 11:00	02-May-2024 08:27
SPL-GW-MW60-0524	24E0067-07	Water	01-May-2024 16:00	02-May-2024 08:27
SPL-GW-MW80-0524	24E0067-08	Water	01-May-2024 00:00	02-May-2024 08:27
SPL-GW-MW25-0524	24E0067-09	Water	01-May-2024 10:00	02-May-2024 08:27

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: Min-Soon Yim	22-May-2024 15:21

Work Order Case Narrative

Client: Seattle Public Utilities
Project: South Park Landfill
Work Order: 24E0067

Sample receipt

Samples as listed on the preceding page were received May 2, 2024 under ARI work order 24E0067. 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 with the exception of analytes flagged on the associated forms.

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: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Min-Soon Yim	22-May-2024 15:21

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

Total Metals - EPA Method 6020B

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

Initial and continuing calibrations including interference checks were within method requirements for reported elements.

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 with the exception of analytes flagged on the associated forms.

WORK ORDER

24E0067

Client: Seattle Public Utilities	**Project Manager:** Kelly Bottem
Project: South Park Landfill -Parametrix Water	**Project Number:** 553-155-067

Preservation Confirmation

Container ID	Container Type	pH
24E0067-01 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 pass
24E0067-01 B	VOA Vial, Clear, 40 mL	
24E0067-01 C	VOA Vial, Clear, 40 mL	
24E0067-01 D	VOA Vial, Clear, 40 mL	
24E0067-01 E	VOA Vial, Clear, 40 mL, HCL	
24E0067-01 F	VOA Vial, Clear, 40 mL, HCL	
24E0067-01 G	VOA Vial, Clear, 40 mL, HCL	
24E0067-02 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 pass
24E0067-02 B	VOA Vial, Clear, 40 mL	
24E0067-02 C	VOA Vial, Clear, 40 mL	
24E0067-02 D	VOA Vial, Clear, 40 mL	
24E0067-02 E	VOA Vial, Clear, 40 mL	
24E0067-02 F	VOA Vial, Clear, 40 mL	
24E0067-02 G	VOA Vial, Clear, 40 mL	
24E0067-02 H	VOA Vial, Clear, 40 mL, HCL	
24E0067-02 I	VOA Vial, Clear, 40 mL, HCL	
24E0067-02 J	VOA Vial, Clear, 40 mL, HCL	
24E0067-02 K	VOA Vial, Clear, 40 mL, HCL	
24E0067-02 L	VOA Vial, Clear, 40 mL, HCL	
24E0067-02 M	VOA Vial, Clear, 40 mL, HCL	
24E0067-03 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 pass
24E0067-03 B	VOA Vial, Clear, 40 mL	
24E0067-03 C	VOA Vial, Clear, 40 mL	
24E0067-03 D	VOA Vial, Clear, 40 mL	
24E0067-03 E	VOA Vial, Clear, 40 mL, HCL	
24E0067-03 F	VOA Vial, Clear, 40 mL, HCL	
24E0067-03 G	VOA Vial, Clear, 40 mL, HCL	
24E0067-04 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 pass
24E0067-04 B	VOA Vial, Clear, 40 mL	
24E0067-04 C	VOA Vial, Clear, 40 mL	
24E0067-04 D	VOA Vial, Clear, 40 mL	
24E0067-04 E	VOA Vial, Clear, 40 mL, HCL	

Reviewed By

Date

WORK ORDER

24E0067

Client: Seattle Public Utilities | Project Manager: Kelly Bottem

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

24E0067-04 F	VOA Vial, Clear, 40 mL, HCL	
24E0067-04 G	VOA Vial, Clear, 40 mL, HCL	
24E0067-05 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 pass
24E0067-05 B	VOA Vial, Clear, 40 mL	
24E0067-05 C	VOA Vial, Clear, 40 mL	
24E0067-05 D	VOA Vial, Clear, 40 mL	
24E0067-05 E	VOA Vial, Clear, 40 mL, HCL	
24E0067-05 F	VOA Vial, Clear, 40 mL, HCL	
24E0067-05 G	VOA Vial, Clear, 40 mL, HCL	
24E0067-06 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 pass
24E0067-06 B	VOA Vial, Clear, 40 mL	
24E0067-06 C	VOA Vial, Clear, 40 mL	
24E0067-06 D	VOA Vial, Clear, 40 mL	
24E0067-06 E	VOA Vial, Clear, 40 mL, HCL	
24E0067-06 F	VOA Vial, Clear, 40 mL, HCL	
24E0067-06 G	VOA Vial, Clear, 40 mL, HCL	
24E0067-07 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 pass
24E0067-07 B	VOA Vial, Clear, 40 mL	
24E0067-07 C	VOA Vial, Clear, 40 mL	
24E0067-07 D	VOA Vial, Clear, 40 mL	
24E0067-07 E	VOA Vial, Clear, 40 mL, HCL	
24E0067-07 F	VOA Vial, Clear, 40 mL, HCL	
24E0067-07 G	VOA Vial, Clear, 40 mL, HCL	
24E0067-08 A	VOA Vial, Clear, 40 mL	
24E0067-08 B	VOA Vial, Clear, 40 mL, HCL	
24E0067-09 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 pass
24E0067-09 B	VOA Vial, Clear, 40 mL	
24E0067-09 C	VOA Vial, Clear, 40 mL	
24E0067-09 D	VOA Vial, Clear, 40 mL	
24E0067-09 E	VOA Vial, Clear, 40 mL, HCL	
24E0067-09 F	VOA Vial, Clear, 40 mL, HCL	
24E0067-09 G	VOA Vial, Clear, 40 mL, HCL	

Reviewed By _____ Date _____

WORK ORDER

24E0067

Client: Seattle Public Utilities	**Project Manager:** Kelly Bottem
Project: South Park Landfill -Parametrix Water	**Project Number:** 553-155-067

VD — Preservation Confirmed By

05/02/2024 — Date

Reviewed By

Date

Analytical Resources, LLC
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: SPU
Project Name: _____
COC No(s): _____ (NA)
Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____
Assigned ARI Job No: 24E0067
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 0827 — 2.9

If cooler temperature is out of compliance fill out form 00070F — Temp Gun ID#: 9708

Cooler Accepted by: EA Date: 5/2/24 Time: 0827

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: VD Date: 05/02/2024 Time: 08:39 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:

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: Min-Soon Yim	22-May-2024 15:21

SPL-GW-MW12-0524
24E0067-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/01/2024 13:55
Instrument: NT20 Analyst: LN — Analyzed: 05/02/2024 11:00

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24E0067-01 E
Preparation Batch: BME0063 — Sample Size: 10 mL
Prepared: 05/02/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.20	ug/L	
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: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Min-Soon Yim	22-May-2024 15:21

SPL-GW-MW12-0524

24E0067-01 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 05/01/2024 13:55
Instrument: NT16 Analyst: EM — Analyzed: 05/03/2024 14:15

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24E0067-01 B
Preparation Batch: BME0116 — Sample Size: 10 mL
Prepared: 05/03/2024 — 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 %*	*99.1*	*%*	

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: Min-Soon Yim	22-May-2024 15:21

SPL-GW-MW12-0524

24E0067-01 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 05/01/2024 13:55

Instrument: ICPMS2 Analyst: DOE — Analyzed: 05/14/2024 14:47

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 24E0067-01 A 01

Preparation Batch: BME0317 — Sample Size: 25 mL

Prepared: 05/13/2024 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	2	0.0720	2.07	mg/L	D
Manganese	7439-96-5	2	0.00100	0.150	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: Min-Soon Yim	22-May-2024 15:21

SPL-GW-MW14-0524

24E0067-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/01/2024 15:35
Instrument: NT20 Analyst: LN — Analyzed: 05/02/2024 11:23

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24E0067-02 H
Preparation Batch: BME0063 — Sample Size: 10 mL
Prepared: 05/02/2024 — 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: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Min-Soon Yim	22-May-2024 15:21

SPL-GW-MW14-0524

24E0067-02 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 05/01/2024 15:35
Instrument: NT16 Analyst: EM — Analyzed: 05/03/2024 14:37

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24E0067-02 B
Preparation Batch: BME0116 — Sample Size: 10 mL
Prepared: 05/03/2024 — 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: Min-Soon Yim	22-May-2024 15:21

SPL-GW-MW14-0524

24E0067-02 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 05/01/2024 15:35

Instrument: ICPMS1 Analyst: HAL — Analyzed: 05/16/2024 17:55

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 24E0067-02 A

Preparation Batch: BME0317 — Sample Size: 25 mL

Prepared: 05/13/2024 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	3.49	mg/L	D
Manganese	7439-96-5	20	0.0100	0.791	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: Min-Soon Yim	22-May-2024 15:21

SPL-GW-MW29-0524

24E0067-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/01/2024 17:20

Instrument: NT20 Analyst: LN — Analyzed: 05/02/2024 11:47

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24E0067-03 E

Preparation Batch: BME0063 — Sample Size: 10 mL

Prepared: 05/02/2024 — 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: Min-Soon Yim	22-May-2024 15:21

SPL-GW-MW29-0524

24E0067-03 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 05/01/2024 17:20

Instrument: NT16 Analyst: EM — Analyzed: 05/03/2024 14:59

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24E0067-03 D

Preparation Batch: BME0116 — Sample Size: 10 mL

Prepared: 05/03/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0909	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: Min-Soon Yim	22-May-2024 15:21

SPL-GW-MW29-0524

24E0067-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 05/01/2024 17:20

Instrument: ICPMS2 Analyst: DOE — Analyzed: 05/14/2024 14:24

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 24E0067-03 A 01

Preparation Batch: BME0317 — Sample Size: 25 mL

Prepared: 05/13/2024 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	26.4	mg/L	D
Manganese	7439-96-5	10	0.00500	0.666	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: Min-Soon Yim	22-May-2024 15:21

SPL-GW-MW32-0524

24E0067-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/01/2024 12:15

Instrument: NT20 Analyst: LN — Analyzed: 05/02/2024 12:10

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24E0067-04 E

Preparation Batch: BME0063 — Sample Size: 10 mL

Prepared: 05/02/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.57	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: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Min-Soon Yim	22-May-2024 15:21

SPL-GW-MW32-0524

24E0067-04 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 05/01/2024 12:15

Instrument: NT16 Analyst: EM — Analyzed: 05/03/2024 15:22

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24E0067-04 B

Preparation Batch: BME0116 — Sample Size: 10 mL

Prepared: 05/03/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.307	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: Min-Soon Yim	22-May-2024 15:21

SPL-GW-MW32-0524

24E0067-04 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 05/01/2024 12:15

Instrument: ICPMS2 Analyst: DOE — Analyzed: 05/14/2024 14:25

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 24E0067-04 A 01

Preparation Batch: BME0317 — Sample Size: 25 mL

Prepared: 05/13/2024 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	12.8	mg/L	D
Manganese	7439-96-5	20	0.0100	1.25	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: Min-Soon Yim	22-May-2024 15:21

SPL-GW-MW33-0524

24E0067-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/01/2024 13:00
Instrument: NT20 Analyst: LN — Analyzed: 05/02/2024 12:33

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24E0067-05 E
Preparation Batch: BME0063 — Sample Size: 10 mL
Prepared: 05/02/2024 — 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: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Min-Soon Yim	22-May-2024 15:21

SPL-GW-MW33-0524

24E0067-05 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 05/01/2024 13:00

Instrument: NT16 Analyst: EM — Analyzed: 05/03/2024 15:45

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24E0067-05 D

Preparation Batch: BME0116 — Sample Size: 10 mL

Prepared: 05/03/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.130	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: Min-Soon Yim	22-May-2024 15:21

SPL-GW-MW33-0524

24E0067-05 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 05/01/2024 13:00

Instrument: ICPMS2 Analyst: DOE — Analyzed: 05/14/2024 14:27

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 24E0067-05 A 01

Preparation Batch: BME0317 — Sample Size: 25 mL

Prepared: 05/13/2024 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	16.4	mg/L	D
Manganese	7439-96-5	20	0.0100	1.76	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: Min-Soon Yim	22-May-2024 15:21

SPL-GW-MW10-0524

24E0067-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/01/2024 11:00
Instrument: NT20 Analyst: LN — Analyzed: 05/02/2024 12:56

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24E0067-06 E
Preparation Batch: BME0063 — Sample Size: 10 mL
Prepared: 05/02/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.85	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: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Min-Soon Yim	22-May-2024 15:21

SPL-GW-MW10-0524

24E0067-06 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 05/01/2024 11:00
Instrument: NT16 Analyst: EM — Analyzed: 05/03/2024 16:08

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24E0067-06 B
Preparation Batch: BME0116 — Sample Size: 10 mL
Prepared: 05/03/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0966	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: Min-Soon Yim	22-May-2024 15:21

SPL-GW-MW10-0524

24E0067-06 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 05/01/2024 11:00

Instrument: ICPMS2 Analyst: DOE — Analyzed: 05/14/2024 14:43

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 24E0067-06 A 01

Preparation Batch: BME0317 — Sample Size: 25 mL

Prepared: 05/13/2024 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	50	1.80	35.5	mg/L	D
Manganese	7439-96-5	50	0.0250	2.01	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: Min-Soon Yim	22-May-2024 15:21

SPL-GW-MW60-0524

24E0067-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/01/2024 16:00

Instrument: NT20 Analyst: LN — Analyzed: 05/02/2024 13:19

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24E0067-07 E

Preparation Batch: BME0063 — Sample Size: 10 mL

Prepared: 05/02/2024 — 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 %*	*111*	*%*	

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: Min-Soon Yim	22-May-2024 15:21

SPL-GW-MW60-0524

24E0067-07 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 05/01/2024 16:00
Instrument: NT16 Analyst: EM — Analyzed: 05/03/2024 16:31

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24E0067-07 D
Preparation Batch: BME0116 — Sample Size: 10 mL
Prepared: 05/03/2024 — 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: Min-Soon Yim	22-May-2024 15:21

SPL-GW-MW60-0524

24E0067-07 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 05/01/2024 16:00
Instrument: ICPMS2 Analyst: DOE — Analyzed: 05/14/2024 14:44

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 24E0067-07 A 01
Preparation Batch: BME0317 — Sample Size: 25 mL
Prepared: 05/13/2024 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	50	1.80	3.55	mg/L	D
Manganese	7439-96-5	50	0.0250	0.814	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: Min-Soon Yim	22-May-2024 15:21

SPL-GW-MW80-0524

24E0067-08 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/01/2024 00:00
Instrument: NT20 Analyst: LN — Analyzed: 05/02/2024 13:43

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24E0067-08 B
Preparation Batch: BME0063 — Sample Size: 10 mL
Prepared: 05/02/2024 — 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 %*	*113*	*%*	

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: Min-Soon Yim	22-May-2024 15:21

SPL-GW-MW80-0524

24E0067-08 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 05/01/2024 00:00

Instrument: NT16 Analyst: EM — Analyzed: 05/03/2024 16:53

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24E0067-08 A

Preparation Batch: BME0116 — Sample Size: 10 mL

Prepared: 05/03/2024 — 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: Min-Soon Yim	22-May-2024 15:21

SPL-GW-MW25-0524

24E0067-09 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/01/2024 10:00
Instrument: NT20 Analyst: LN — Analyzed: 05/02/2024 14:06

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24E0067-09 E
Preparation Batch: BME0063 — Sample Size: 10 mL
Prepared: 05/02/2024 — 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 %*	*106*	*%*	

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: Min-Soon Yim	22-May-2024 15:21

SPL-GW-MW25-0524

24E0067-09 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 05/01/2024 10:00
Instrument: NT16 Analyst: EM — Analyzed: 05/03/2024 17:15

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24E0067-09 C
Preparation Batch: BME0116 — Sample Size: 10 mL
Prepared: 05/03/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.386	ug/L	
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: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Min-Soon Yim	22-May-2024 15:21

SPL-GW-MW25-0524

24E0067-09 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 05/01/2024 10:00
Instrument: ICPMS2 Analyst: DOE — Analyzed: 05/14/2024 14:46

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 24E0067-09 A 01
Preparation Batch: BME0317 — Sample Size: 25 mL
Prepared: 05/13/2024 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	50	1.80	34.9	mg/L	D
Manganese	7439-96-5	50	0.0250	2.85	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: Min-Soon Yim	22-May-2024 15:21

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BME0063 - EPA 8260D

Instrument: NT20 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BME0063-BLK1)			Prepared: 02-May-2024 Analyzed: 02-May-2024 10:37							
cis-1,2-Dichloroethene	ND	0.20	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5.49		ug/L	*5.00*		*110*	*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: Min-Soon Yim	22-May-2024 15:21

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BME0063 - EPA 8260D

Instrument: NT20 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BME0063-BS1)				Prepared: 02-May-2024 Analyzed: 02-May-2024 09:05						
cis-1,2-Dichloroethene	10.1	0.20	ug/L	10.0		101	80-121			
Surrogate: 1,2-Dichloroethane-d4	5.17		ug/L	*5.00*		*103*	*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: Min-Soon Yim	22-May-2024 15:21

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BME0063 - EPA 8260D

Instrument: NT20 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BME0063-BSD1)				Prepared: 02-May-2024 Analyzed: 02-May-2024 09:51						
cis-1,2-Dichloroethene	10.2	0.20	ug/L	10.0		102	80-121	0.82	30	
Surrogate: 1,2-Dichloroethane-d4	5.35		ug/L	*5.00*		*107*	*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: Min-Soon Yim	22-May-2024 15:21

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BME0063 - EPA 8260D

Instrument: NT20 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BME0063-MS1)	**Source: 24E0067-02**		Prepared: 02-May-2024 Analyzed: 02-May-2024 14:54							
cis-1,2-Dichloroethene	7.42	0.20	ug/L	10.0	ND	74.2	80-121			*
Surrogate: 1,2-Dichloroethane-d4	5.53		ug/L	*5.00*	*5.25*	*111*	*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: Min-Soon Yim	22-May-2024 15:21

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BME0063 - EPA 8260D

Instrument: NT20 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BME0063-MSD1)	**Source: 24E0067-02**		Prepared: 02-May-2024 Analyzed: 02-May-2024 15:17							
cis-1,2-Dichloroethene	7.03	0.20	ug/L	10.0	ND	70.3	80-121	5.43	30	*
Surrogate: 1,2-Dichloroethane-d4	5.33		ug/L	*5.00*	*5.25*	*107*	*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: Min-Soon Yim	22-May-2024 15:21

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BME0116 - EPA 8260D-SIM

Instrument: NT16 Analyst: EM

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BME0116-BLK1)			Prepared: 03-May-2024 Analyzed: 03-May-2024 13:08							
Vinyl chloride	ND	0.0200	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5050		ug/L	*5000*		*101*	*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: Min-Soon Yim	22-May-2024 15:21

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BME0116 - EPA 8260D-SIM

Instrument: NT16 Analyst: EM

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BME0116-BS1)				Prepared: 03-May-2024 Analyzed: 03-May-2024 12:24						
Vinyl chloride	1.84	0.0200	ug/L	2.00		91.8	62-141			
Surrogate: 1,2-Dichloroethane-d4	5130		ug/L	*5000*		*103*	*80-129*			

Seattle Public Utilities	Project: South Park Landfill -Parametrix Water	
700-5th Ave, Ste 4900, Box 34018	Project Number: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Min-Soon Yim	22-May-2024 15:21

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BME0116 - EPA 8260D-SIM

Instrument: NT16 Analyst: EM

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BME0116-BSD1)				Prepared: 03-May-2024 Analyzed: 03-May-2024 12:46						
Vinyl chloride	2.19	0.0200	ug/L	2.00		109	62-141	17.40	30	
Surrogate: 1,2-Dichloroethane-d4	5180		ug/L	*5000*		*104*	*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: Min-Soon Yim	22-May-2024 15:21

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BME0116 - EPA 8260D-SIM

Instrument: NT16 Analyst: EM

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BME0116-MS1)	**Source: 24E0067-02**		Prepared: 03-May-2024 Analyzed: 03-May-2024 20:49							
Vinyl chloride	1.96	0.0200	ug/L	2.00	ND	97.9	62-141			
Surrogate: 1,2-Dichloroethane-d4	5330		ug/L	*5000*	*5000*	*107*	*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: Min-Soon Yim	22-May-2024 15:21

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BME0116 - EPA 8260D-SIM

Instrument: NT16 Analyst: EM

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BME0116-MSD1)	**Source: 24E0067-02**		Prepared: 03-May-2024 Analyzed: 03-May-2024 21:09							
Vinyl chloride	1.96	0.0200	ug/L	2.00	ND	98.0	62-141	0.14	30	
Surrogate: 1,2-Dichloroethane-d4	5330		ug/L	*5000*	*5000*	*107*	*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: Min-Soon Yim	22-May-2024 15:21

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BME0317 - EPA 6020B

Instrument: ICPMS1 Analyst: HAL

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BME0317-BLK3)				Prepared: 13-May-2024 Analyzed: 16-May-2024 17:49							
Iron	54	ND	0.0360	mg/L							U
LCS (BME0317-BS3)				Prepared: 13-May-2024 Analyzed: 16-May-2024 17:52							
Iron	54	4.89	0.0360	mg/L	5.00		97.9	80-120			
Manganese	55	0.0253	0.000500	mg/L	0.0250		101	80-120			
Duplicate (BME0317-DUP2)		**Source: 24E0067-02**		Prepared: 13-May-2024 Analyzed: 16-May-2024 17:58							
Iron	54	3.65	0.720	mg/L		3.49			4.41	20	D
Manganese	55	0.834	0.0100	mg/L		0.791			5.33	20	D
Matrix Spike (BME0317-MS2)		**Source: 24E0067-02**		Prepared: 13-May-2024 Analyzed: 16-May-2024 18:01							
Iron	54	9.41	0.720	mg/L	5.00	3.49	118	75-125			D
Manganese	55	0.860	0.0100	mg/L	0.0250	0.791	279	75-125			*, D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BME0317-MSD2)		**Source: 24E0067-02**		Prepared: 13-May-2024 Analyzed: 16-May-2024 18:04							
Iron	54	9.49	0.720	mg/L	5.00	3.49	120	75-125	0.86	20	D
Manganese	55	0.880	0.0100	mg/L	0.0250	0.791	357	75-125	2.26	20	*, D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											

Instrument: ICPMS2 Analyst: DOE

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BME0317-BLK2)				Prepared: 13-May-2024 Analyzed: 15-May-2024 14:12							
Manganese	55	ND	0.000500	mg/L							U
LCS (BME0317-BS2)				Prepared: 13-May-2024 Analyzed: 15-May-2024 14:16							
Manganese	55	0.0230	0.000500	mg/L	0.0250		92.1	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: Min-Soon Yim	22-May-2024 15:21

Certified Analyses included in this Report

Analyte	Certifications
EPA 6020B in Water	
Iron-54	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
EPA 8260D in Water	
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
EPA 8260D-SIM in Water	
Vinyl chloride	NELAP,WADOE

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2025
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program, PJLA Testing	66169	02/28/2025
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2024
WADOE	WA Dept of Ecology	C558	06/30/2024
WA-DW	Ecology - Drinking Water	C558	06/30/2024

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: Min-Soon Yim	22-May-2024 15:21

Notes and Definitions

*	Flagged value is not within established control limits.
B	This analyte was detected in the method blank.
D	The reported value is from a dilution
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
J	Estimated concentration value detected below the reporting limit.
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
Tukwila, WA

22 May 2024

Min-Soon Yim
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)
24E0106	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

Kelly Bottem, Client Services Manager

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.

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 24E0106	Turn-around Requested: 2 weeks	Date: 5/3/2024	
ARI Client Company: Min Soon Yim, Seattle Public Utility	Phone: 206 684-7693	Page: 1 of 2	
Client Contact: Laura Lee	Phone: 206 394-3665	No. of Coolers:	Cooler Temps:
Client Project Name: SPU South Park Landfill			
	Samplers: Chris Bourgeois HWA & Richard Anderson 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	Vinyl Chloride	Total Fe, Mn								Notes/Comments
~~SPL-GW-MW12-0524~~			water	7	X	X	X								
~~SPL-GW-MW14-0524~~			water	13	X	X	X								MS/MSD
~~SPL-GW-MW29-0524~~			water	7	X	X	X								
SPL-GW-MW18-0524	5/2/24	1140	water	7	X	X	X								
~~SPL-GW-MW32-0524~~			water	7	X	X	X								
~~SPL-GW-MW33-0524~~			water	7	X	X	X								
~~SPL-GW-MW10-0524~~			water	7	X	X	X								
~~SPL-GW-MW60-0524~~			water	7	X	X	X								
~~SPL-GW-MW80-0524~~			water	2	X	X									

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Richard Anderson	Printed Name: R. Leesemann	Printed Name:	Printed Name:
	Company: HWA	Company: ARI	Company:	Company:
	Date & Time: 5/3/24 1005	Date & Time: 5-3-24 10:05	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: 24E0106	Turn-around Requested: 2 weeks	Date: 5/3/24
ARI Client Company: Min Soon Yim, Seattle Public Utility	Phone: 206 684-7693	Page: 2 of 2
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 & Richard Anderson 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	Vinyl Chloride	Total Fe, Mn								Notes/Comments
~~SPL-GW-MW25-0524~~			water	7	X	X	X								
SPL-GW-MW30-0524	5/2/24	930	water	13	X	X	X								MS/MSD
SPL-GW-MW31-0524	5/2/24	1040	water	7	X	X	X								
SPL-GW-MW24-0524	5/2/24	1240	water	7	X	X	X								
SPL-GW-MW26-0524	5/2/24	1345	water	7	X	X	X								
SPL-GW-MW08-0524	5/3/24	810	water	7	X	X	X								
SPL-GW-MW27-0524	5/3/24	935	water	7	X	X	X								
SPL-GW-MW61-0524	5/2/24	1000	water	7	X	X	X								
SPL-GW-MW81-0524	5/3/24	—	water	2	X	X									

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: ~~HWA~~ Richard Anderson	Printed Name: R Leesemann	Printed Name:	Printed Name:
	Company: HWA	Company: ART	Company:	Company:
	Date & Time: 5/3/24 1005	Date & Time: 5-3-24 10:09	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: Min-Soon Yim	22-May-2024 15:31

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SPL-GW-MW18-0524	24E0106-01	Water	02-May-2024 11:40	03-May-2024 10:05
SPL-GW-MW30-0524	24E0106-02	Water	02-May-2024 09:30	03-May-2024 10:05
SPL-GW-MW31-0524	24E0106-03	Water	02-May-2024 10:40	03-May-2024 10:05
SPL-GW-MW24-0524	24E0106-04	Water	02-May-2024 12:40	03-May-2024 10:05
SPL-GW-MW26-0524	24E0106-05	Water	02-May-2024 13:45	03-May-2024 10:05
SPL-GW-MW08-0524	24E0106-06	Water	03-May-2024 08:10	03-May-2024 10:05
SPL-GW-MW27-0524	24E0106-07	Water	03-May-2024 09:35	03-May-2024 10:05
SPL-GW-MW61-0524	24E0106-08	Water	02-May-2024 10:00	03-May-2024 10:05
SPL-GW-MW81-0524	24E0106-09	Water	03-May-2024 00:00	03-May-2024 10:05

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: Min-Soon Yim	22-May-2024 15:31

Work Order Case Narrative

Client: Seattle Public Utilities
Project: South Park Landfill
Work Order: 24E0106

Sample receipt

Samples as listed on the preceding page were received May 3, 2024 under ARI work order 24E0106. 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.

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

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: Min-Soon Yim	22-May-2024 15:31

advisory control limits.

Total Metals - EPA Method 6020B

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

Initial and continuing calibrations including interference checks were within method requirements for reported elements.

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

24E0106

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

Client: Seattle Public Utilities **Project Manager:** Kelly Bottem

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

Preservation Confirmation

Container ID	Container Type	pH
24E0106-01 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 pass
24E0106-01 B	VOA Vial, Clear, 40 mL	bubble
24E0106-01 C	VOA Vial, Clear, 40 mL	
24E0106-01 D	VOA Vial, Clear, 40 mL	
24E0106-01 E	VOA Vial, Clear, 40 mL, HCL	
24E0106-01 F	VOA Vial, Clear, 40 mL, HCL	
24E0106-01 G	VOA Vial, Clear, 40 mL, HCL	
24E0106-02 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 pass
24E0106-02 B	VOA Vial, Clear, 40 mL	
24E0106-02 C	VOA Vial, Clear, 40 mL	
24E0106-02 D	VOA Vial, Clear, 40 mL	
24E0106-02 E	VOA Vial, Clear, 40 mL	
24E0106-02 F	VOA Vial, Clear, 40 mL	
24E0106-02 G	VOA Vial, Clear, 40 mL	
24E0106-02 H	VOA Vial, Clear, 40 mL, HCL	
24E0106-02 I	VOA Vial, Clear, 40 mL, HCL	
24E0106-02 J	VOA Vial, Clear, 40 mL, HCL	
24E0106-02 K	VOA Vial, Clear, 40 mL, HCL	
24E0106-02 L	VOA Vial, Clear, 40 mL, HCL	
24E0106-02 M	VOA Vial, Clear, 40 mL, HCL	
24E0106-03 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 pass
24E0106-03 B	VOA Vial, Clear, 40 mL	
24E0106-03 C	VOA Vial, Clear, 40 mL	
24E0106-03 D	VOA Vial, Clear, 40 mL	
24E0106-03 E	VOA Vial, Clear, 40 mL, HCL	
24E0106-03 F	VOA Vial, Clear, 40 mL, HCL	
24E0106-03 G	VOA Vial, Clear, 40 mL, HCL	
24E0106-04 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 pass
24E0106-04 B	VOA Vial, Clear, 40 mL	
24E0106-04 C	VOA Vial, Clear, 40 mL	
24E0106-04 D	VOA Vial, Clear, 40 mL	
24E0106-04 E	VOA Vial, Clear, 40 mL, HCL	
24E0106-04 F	VOA Vial, Clear, 40 mL, HCL	
24E0106-04 G	VOA Vial, Clear, 40 mL, HCL	

Reviewed By Date

Analytical Resources, LLC
Analytical Chemists and Consultants

Printed: 5/3/2024 11:55:32AM

WORK ORDER

24E0106

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

Client: Seattle Public Utilities | **Project Manager:** Kelly Bottem

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

24E0106-05 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 pass
24E0106-05 B	VOA Vial, Clear, 40 mL	
24E0106-05 C	VOA Vial, Clear, 40 mL	
24E0106-05 D	VOA Vial, Clear, 40 mL	
24E0106-05 E	VOA Vial, Clear, 40 mL, HCL	
24E0106-05 F	VOA Vial, Clear, 40 mL, HCL	
24E0106-05 G	VOA Vial, Clear, 40 mL, HCL	
24E0106-06 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 pass
24E0106-06 B	VOA Vial, Clear, 40 mL	
24E0106-06 C	VOA Vial, Clear, 40 mL	
24E0106-06 D	VOA Vial, Clear, 40 mL	
24E0106-06 E	VOA Vial, Clear, 40 mL, HCL	
24E0106-06 F	VOA Vial, Clear, 40 mL, HCL	
24E0106-06 G	VOA Vial, Clear, 40 mL, HCL	
24E0106-07 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 pass
24E0106-07 B	VOA Vial, Clear, 40 mL	
24E0106-07 C	VOA Vial, Clear, 40 mL	
24E0106-07 D	VOA Vial, Clear, 40 mL	
24E0106-07 E	VOA Vial, Clear, 40 mL, HCL	
24E0106-07 F	VOA Vial, Clear, 40 mL, HCL	
24E0106-07 G	VOA Vial, Clear, 40 mL, HCL	
24E0106-08 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 pass
24E0106-08 B	VOA Vial, Clear, 40 mL	
24E0106-08 C	VOA Vial, Clear, 40 mL	
24E0106-08 D	VOA Vial, Clear, 40 mL	
24E0106-08 E	VOA Vial, Clear, 40 mL, HCL	
24E0106-08 F	VOA Vial, Clear, 40 mL, HCL	
24E0106-08 G	VOA Vial, Clear, 40 mL, HCL	
24E0106-09 A	VOA Vial, Clear, 40 mL	
24E0106-09 B	VOA Vial, Clear, 40 mL, HCL	

VD
Preservation Confirmed By

05/03/2024
Date

Reviewed By

Date

Analytical Resources, LLC
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: SPU SP Landfill Project Name: _____

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

Assigned ARI Job No: 24E0106 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 10:05 1.7

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 94

Cooler Accepted by: RL Date: 5-3-24 Time: 10:05

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: VD Date: 05/03/2024 Time: 10:41 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:

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: Min-Soon Yim	22-May-2024 15:31

SPL-GW-MW18-0524
24E0106-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/02/2024 11:40
Instrument: NT20 Analyst: LN — Analyzed: 05/03/2024 12:39

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24E0106-01 G
Preparation Batch: BME0101 — Sample Size: 10 mL
Prepared: 05/03/2024 — 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: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Min-Soon Yim	22-May-2024 15:31

SPL-GW-MW18-0524

24E0106-01 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 05/02/2024 11:40
Instrument: NT16 Analyst: EM — Analyzed: 05/03/2024 17:37

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24E0106-01 D
Preparation Batch: BME0116 — Sample Size: 10 mL
Prepared: 05/03/2024 — 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: Min-Soon Yim	22-May-2024 15:31

SPL-GW-MW18-0524

24E0106-01 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 05/02/2024 11:40

Instrument: ICPMS1 Analyst: HAL — Analyzed: 05/16/2024 18:50

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 24E0106-01 A

Preparation Batch: BME0345 — Sample Size: 25 mL

Prepared: 05/14/2024 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	12.3	mg/L	D
Manganese	7439-96-5	10	0.00500	0.683	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: Min-Soon Yim	22-May-2024 15:31

SPL-GW-MW30-0524

24E0106-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/02/2024 09:30

Instrument: NT20 Analyst: LN — Analyzed: 05/03/2024 13:03

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24E0106-02 H

Preparation Batch: BME0101 — Sample Size: 10 mL

Prepared: 05/03/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.25	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: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Min-Soon Yim	22-May-2024 15:31

SPL-GW-MW30-0524

24E0106-02 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 05/02/2024 09:30

Instrument: NT16 Analyst: EM — Analyzed: 05/03/2024 17:59

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24E0106-02 B

Preparation Batch: BME0116 — Sample Size: 10 mL

Prepared: 05/03/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0827	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: Min-Soon Yim	22-May-2024 15:31

SPL-GW-MW30-0524

24E0106-02 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 05/02/2024 09:30

Instrument: ICPMS1 Analyst: HAL — Analyzed: 05/14/2024 17:36

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 24E0106-02 A

Preparation Batch: BME0345 — Sample Size: 25 mL

Prepared: 05/14/2024 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	0.539	mg/L	D
Manganese	7439-96-5	10	0.00500	0.0566	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: Min-Soon Yim	22-May-2024 15:31

SPL-GW-MW31-0524

24E0106-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/02/2024 10:40

Instrument: NT20 Analyst: LN — Analyzed: 05/03/2024 13:27

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24E0106-03 E

Preparation Batch: BME0101 — Sample Size: 10 mL

Prepared: 05/03/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.32	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: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Min-Soon Yim	22-May-2024 15:31

SPL-GW-MW31-0524

24E0106-03 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 05/02/2024 10:40

Instrument: NT16 Analyst: EM — Analyzed: 05/03/2024 18:21

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24E0106-03 B

Preparation Batch: BME0116 — Sample Size: 10 mL

Prepared: 05/03/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.690	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: Min-Soon Yim	22-May-2024 15:31

SPL-GW-MW31-0524

24E0106-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 05/02/2024 10:40

Instrument: ICPMS1 Analyst: HAL — Analyzed: 05/16/2024 18:53

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 24E0106-03 A

Preparation Batch: BME0345 — Sample Size: 25 mL

Prepared: 05/14/2024 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	18.7	mg/L	D
Manganese	7439-96-5	10	0.00500	0.775	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: Min-Soon Yim	22-May-2024 15:31

SPL-GW-MW24-0524

24E0106-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/02/2024 12:40

Instrument: NT20 Analyst: LN — Analyzed: 05/03/2024 13:50

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24E0106-04 E

Preparation Batch: BME0101 — Sample Size: 10 mL

Prepared: 05/03/2024 — 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: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Min-Soon Yim	22-May-2024 15:31

SPL-GW-MW24-0524

24E0106-04 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 05/02/2024 12:40
Instrument: NT16 Analyst: EM — Analyzed: 05/03/2024 18:43

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24E0106-04 B
Preparation Batch: BME0116 — Sample Size: 10 mL
Prepared: 05/03/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0272	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: Min-Soon Yim	22-May-2024 15:31

SPL-GW-MW24-0524

24E0106-04 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 05/02/2024 12:40
Instrument: ICPMS1 Analyst: HAL — Analyzed: 05/16/2024 19:05

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 24E0106-04 A
Preparation Batch: BME0345 — Sample Size: 25 mL
Prepared: 05/14/2024 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	25.1	mg/L	D
Manganese	7439-96-5	20	0.0100	1.49	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: Min-Soon Yim	22-May-2024 15:31

SPL-GW-MW26-0524

24E0106-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/02/2024 13:45

Instrument: NT20 Analyst: LN — Analyzed: 05/03/2024 14:14

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24E0106-05 E

Preparation Batch: BME0101 — Sample Size: 10 mL

Prepared: 05/03/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.33	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: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Min-Soon Yim	22-May-2024 15:31

SPL-GW-MW26-0524

24E0106-05 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 05/02/2024 13:45
Instrument: NT16 Analyst: EM — Analyzed: 05/03/2024 19:05

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24E0106-05 B
Preparation Batch: BME0116 — Sample Size: 10 mL
Prepared: 05/03/2024 — 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: Min-Soon Yim	22-May-2024 15:31

SPL-GW-MW26-0524

24E0106-05 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 05/02/2024 13:45

Instrument: ICPMS1 Analyst: HAL — Analyzed: 05/16/2024 19:08

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 24E0106-05 A

Preparation Batch: BME0345 — Sample Size: 25 mL

Prepared: 05/14/2024 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	5	0.180	7.82	mg/L	D
Manganese	7439-96-5	5	0.00250	0.100	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: Min-Soon Yim	22-May-2024 15:31

SPL-GW-MW08-0524

24E0106-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/03/2024 08:10

Instrument: NT20 Analyst: LN — Analyzed: 05/03/2024 14:38

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24E0106-06 E

Preparation Batch: BME0101 — Sample Size: 10 mL

Prepared: 05/03/2024 — 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: Min-Soon Yim	22-May-2024 15:31

SPL-GW-MW08-0524

24E0106-06 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 05/03/2024 08:10
Instrument: NT16 Analyst: EM — Analyzed: 05/03/2024 19:26

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24E0106-06 B
Preparation Batch: BME0116 — Sample Size: 10 mL
Prepared: 05/03/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0594	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: Min-Soon Yim	22-May-2024 15:31

SPL-GW-MW08-0524

24E0106-06 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 05/03/2024 08:10
Instrument: ICPMS1 Analyst: HAL — Analyzed: 05/16/2024 18:56

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 24E0106-06 A
Preparation Batch: BME0345 — Sample Size: 25 mL
Prepared: 05/14/2024 — 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	0.763	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: Min-Soon Yim	22-May-2024 15:31

SPL-GW-MW27-0524

24E0106-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/03/2024 09:35

Instrument: NT20 Analyst: LN — Analyzed: 05/03/2024 15:02

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24E0106-07 E

Preparation Batch: BME0101 — Sample Size: 10 mL

Prepared: 05/03/2024 — 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 %*	*114*	*%*	

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: Min-Soon Yim	22-May-2024 15:31

SPL-GW-MW27-0524

24E0106-07 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 05/03/2024 09:35

Instrument: NT16 Analyst: EM — Analyzed: 05/03/2024 19:47

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24E0106-07 B

Preparation Batch: BME0116 — Sample Size: 10 mL

Prepared: 05/03/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0728	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: Min-Soon Yim	22-May-2024 15:31

SPL-GW-MW27-0524

24E0106-07 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 05/03/2024 09:35

Instrument: ICPMS1 Analyst: HAL — Analyzed: 05/16/2024 18:59

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 24E0106-07 A

Preparation Batch: BME0345 — Sample Size: 25 mL

Prepared: 05/14/2024 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	2.74	mg/L	D
Manganese	7439-96-5	10	0.00500	0.146	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: Min-Soon Yim	22-May-2024 15:31

SPL-GW-MW61-0524

24E0106-08 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/02/2024 10:00

Instrument: NT20 Analyst: LN — Analyzed: 05/03/2024 15:25

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24E0106-08 E

Preparation Batch: BME0101 — Sample Size: 10 mL

Prepared: 05/03/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.32	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: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Min-Soon Yim	22-May-2024 15:31

SPL-GW-MW61-0524

24E0106-08 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 05/02/2024 10:00
Instrument: NT16 Analyst: EM — Analyzed: 05/03/2024 20:08

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24E0106-08 B
Preparation Batch: BME0116 — Sample Size: 10 mL
Prepared: 05/03/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0849	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: Min-Soon Yim	22-May-2024 15:31

SPL-GW-MW61-0524

24E0106-08 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 05/02/2024 10:00
Instrument: ICPMS1 Analyst: HAL — Analyzed: 05/16/2024 19:02

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 24E0106-08 A
Preparation Batch: BME0345 — Sample Size: 25 mL
Prepared: 05/14/2024 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	0.563	mg/L	D
Manganese	7439-96-5	10	0.00500	0.0557	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: Min-Soon Yim	22-May-2024 15:31

SPL-GW-MW81-0524

24E0106-09 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/03/2024 00:00
Instrument: NT20 Analyst: LN — Analyzed: 05/03/2024 15:49

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24E0106-09 B
Preparation Batch: BME0101 — Sample Size: 10 mL
Prepared: 05/03/2024 — Final Volume: 10 mL

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

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: Min-Soon Yim	22-May-2024 15:31

SPL-GW-MW81-0524

24E0106-09 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 05/03/2024 00:00
Instrument: NT16 Analyst: EM — Analyzed: 05/03/2024 20:29

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24E0106-09 A
Preparation Batch: BME0116 — Sample Size: 10 mL
Prepared: 05/03/2024 — 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: Min-Soon Yim	22-May-2024 15:31

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BME0101 - EPA 8260D

Instrument: NT20 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BME0101-BLK1)			Prepared: 03-May-2024 Analyzed: 03-May-2024 11:53							
cis-1,2-Dichloroethene	ND	0.20	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5.39		ug/L	*5.00*		*108*	*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: Min-Soon Yim	22-May-2024 15:31

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BME0101 - EPA 8260D

Instrument: NT20 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BME0101-BS1)				Prepared: 03-May-2024 Analyzed: 03-May-2024 11:06						
cis-1,2-Dichloroethene	10.3	0.20	ug/L	10.0		103	80-121			
Surrogate: 1,2-Dichloroethane-d4	5.35		ug/L	*5.00*		*107*	*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: Min-Soon Yim	22-May-2024 15:31

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BME0101 - EPA 8260D

Instrument: NT20 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BME0101-BSD1)				Prepared: 03-May-2024 Analyzed: 03-May-2024 10:43						
cis-1,2-Dichloroethene	10.3	0.20	ug/L	10.0		103	80-121	0.43	30	
Surrogate: 1,2-Dichloroethane-d4	5.07		ug/L	*5.00*		*101*	*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: Min-Soon Yim	22-May-2024 15:31

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BME0101 - EPA 8260D

Instrument: NT20 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BME0101-MS1)	**Source: 24E0106-02**		Prepared: 03-May-2024 Analyzed: 03-May-2024 16:13							
cis-1,2-Dichloroethene	10.5	0.20	ug/L	10.0	0.25	103	80-121			
Surrogate: 1,2-Dichloroethane-d4	5.60		ug/L	*5.00*	*5.43*	*112*	*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: Min-Soon Yim	22-May-2024 15:31

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BME0101 - EPA 8260D

Instrument: NT20 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BME0101-MSD1)	**Source: 24E0106-02**		Prepared: 03-May-2024 Analyzed: 03-May-2024 16:37							
cis-1,2-Dichloroethene	10.4	0.20	ug/L	10.0	0.25	101	80-121	1.35	30	
Surrogate: 1,2-Dichloroethane-d4	5.40		ug/L	*5.00*	*5.43*	*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: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Min-Soon Yim	22-May-2024 15:31

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BME0116 - EPA 8260D-SIM

Instrument: NT16 Analyst: EM

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BME0116-BLK1)			Prepared: 03-May-2024 Analyzed: 03-May-2024 13:08							
Vinyl chloride	ND	0.0200	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5050		ug/L	*5000*		*101*	*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: Min-Soon Yim	22-May-2024 15:31

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BME0116 - EPA 8260D-SIM

Instrument: NT16 Analyst: EM

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BME0116-BS1)				Prepared: 03-May-2024 Analyzed: 03-May-2024 12:24						
Vinyl chloride	1.84	0.0200	ug/L	2.00		91.8	62-141			
Surrogate: 1,2-Dichloroethane-d4	5130		ug/L	*5000*		*103*	*80-129*			

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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BME0116 - EPA 8260D-SIM

Instrument: NT16 Analyst: EM

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BME0116-BSD1)				Prepared: 03-May-2024 Analyzed: 03-May-2024 12:46						
Vinyl chloride	2.19	0.0200	ug/L	2.00		109	62-141	17.40	30	
Surrogate: 1,2-Dichloroethane-d4	5180		ug/L	*5000*		*104*	*80-129*			

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Seattle WA, 98124-4018	Project Manager: Min-Soon Yim	22-May-2024 15:31

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BME0116 - EPA 8260D-SIM

Instrument: NT16 Analyst: EM

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BME0116-MS2)	**Source: 24E0106-02**		Prepared: 03-May-2024 Analyzed: 03-May-2024 21:30							
Vinyl chloride	2.15	0.0200	ug/L	2.00	0.0827	103	62-141			
Surrogate: 1,2-Dichloroethane-d4	5420		ug/L	*5000*	*5170*	*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: 553-1550-067	**Reported:**
Seattle WA, 98124-4018	Project Manager: Min-Soon Yim	22-May-2024 15:31

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BME0116 - EPA 8260D-SIM

Instrument: NT16 Analyst: EM

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BME0116-MSD2)	**Source: 24E0106-02**		Prepared: 03-May-2024 Analyzed: 03-May-2024 21:51							
Vinyl chloride	1.94	0.0200	ug/L	2.00	0.0827	92.8	62-141	10.40	30	
Surrogate: 1,2-Dichloroethane-d4	5340		ug/L	*5000*	*5170*	*107*	*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: Min-Soon Yim	22-May-2024 15:31

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BME0345 - EPA 6020B

Instrument: ICPMS1 Analyst: HAL

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BME0345-BLK1)				Prepared: 14-May-2024 Analyzed: 14-May-2024 17:25							
Iron	54	ND	0.0360	mg/L							U
Manganese	55	ND	0.000500	mg/L							U
LCS (BME0345-BS1)				Prepared: 14-May-2024 Analyzed: 14-May-2024 17:30							
Iron	54	4.72	0.0360	mg/L	5.00		94.3	80-120			
Manganese	55	0.0260	0.000500	mg/L	0.0250		104	80-120			
Duplicate (BME0345-DUP1)			**Source: 24E0106-02**	Prepared: 14-May-2024 Analyzed: 14-May-2024 17:39							
Iron	54	0.558	0.360	mg/L		0.539			3.52	20	D
Manganese	55	0.0600	0.00500	mg/L		0.0566			5.68	20	D
Matrix Spike (BME0345-MS1)			**Source: 24E0106-02**	Prepared: 14-May-2024 Analyzed: 14-May-2024 17:42							
Iron	54	5.54	0.360	mg/L	5.00	0.539	100	75-125			D
Manganese	55	0.0830	0.00500	mg/L	0.0250	0.0566	105	75-125			D

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

Matrix Spike Dup (BME0345-MSD1)			**Source: 24E0106-02**	Prepared: 14-May-2024 Analyzed: 14-May-2024 17:45							
Iron	54	5.53	0.360	mg/L	5.00	0.539	99.9	75-125	0.19	20	D
Manganese	55	0.0818	0.00500	mg/L	0.0250	0.0566	101	75-125	1.46	20	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: Min-Soon Yim	22-May-2024 15:31

Certified Analyses included in this Report

Analyte	Certifications
EPA 6020B in Water	
Iron-54	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
EPA 8260D in Water	
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
EPA 8260D-SIM in Water	
Vinyl chloride	NELAP,WADOE

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2025
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program, PJLA Testing	66169	02/28/2025
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2024
WADOE	WA Dept of Ecology	C558	06/30/2024
WA-DW	Ecology - Drinking Water	C558	06/30/2024

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Notes and Definitions

*	Flagged value is not within established control limits.
B	This analyte was detected in the method blank.
D	The reported value is from a dilution
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.