

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 Fourth Quarter 2024 Progress Report

Dear Ryan:

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

General Activities During the 2024 Fourth 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.
- Drums of excavated soil generated from an underground water leak early this summer were transported and disposed of at Chemical Waste Management in Arlington, Oregon.
- SPU provided a temporary sublease/permit of a small portion of the SRDS property to Strategic Materials, Inc. for clean glass cullet storage. King County Public Health (KCPH) has been notified of the proposed temporary change to operational usage. Glass cullet storage will cease prior to construction activities related to STS Phase II.
- Addition of metals adsorption media to filters in select catch basins.
- SPU also performed 2 waste audits on a small portion of the SRDS property. KCPH is aware of this proposed activity. An additional 5 waste audits are planned for 2025.

CenterPoint South Park LLC Property

- Ongoing remote monitoring of the landfill gas system blowers. The current tenant Amazon vehicle parking is active on CenterPoint property. First Student has vacated the property.
- Quarterly inspection of the methane alarms in the on-site buildings was not conducted as the buildings are vacant.
- Conducted quarterly operation and maintenance of the landfill gas system.

Overall Settlement Parcels

- The 2024 fourth 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 fourth quarter compliance monitoring events.



- The 2024 mid-year cap reinspection of issues identified in the March 2024 annual inspection was conducted. A draft report is under review by property owners.

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 October 29, 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 November 4 and 6, 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 fourth quarter are included as attachments to this progress report.

Data management is complete for the 2024 fourth 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 first quarter 2025 operation and maintenance of the landfill gas system.
- Catch basin cleaning and sediment removal, plant removal and minor asphalt repairs as noted in the 2024 annual cap inspection.

Overall Settlement Parcels

- SPU and the Site Coordinator will complete the 2025 first quarter compliance monitoring. Groundwater monitoring will transition from the Parametrix team to SPU over the next two quarters.
- Once permits are approved 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 driller will also assist with removal and filling of old buried purge water drums. Seattle Department of Transportation has approved three of four permits for this work; approval of the remaining permit is anticipated in January.
- The 2024 mid-year cap reinspection report will be finalized and submitted to Ecology.
- The Site Coordinator will conduct the 2025 annual cap inspection.



- The annual report presenting results of 2024 operations, maintenance, and monitoring will be submitted to Ecology in March.

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
Lucie Harpster, SPU Solid Waste Transfer Station Manager



Attachments

- 1 Landfill Gas and Groundwater Compliance Monitoring Field Sheets, Fourth Quarter 2024
- 2 Draft Groundwater Quality Data Summary, Fourth Quarter 2024
- 3 Draft Groundwater Quality Time Series Plots through Fourth Quarter 2024
- 4 Fourth Quarter 2024 Groundwater Laboratory Data

Attachment 1

Landfill Gas and Groundwater
Compliance Monitoring Field
Sheets,
Fourth Quarter 2024

**South Park Landfill
Fourth 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
SP00GP33	10/29/2024	9:56	-0.01	0.0	2.3	18.1	79.6	N	30.07
SP00GP37	10/29/2024	10:12	0.04	0.0	9.4	10.7	79.9	N	30.07
SP00GP38	10/29/2024	10:19	0.02	0.0	16.0	3.1	80.9	N	30.08
SP00GP09	10/29/2024	10:26	0.04	0.0	4.2	17.7	78.1	N	30.08
SP00GP11	10/29/2024	10:38	-0.05	0.0	0.7	20.9	78.4	Y	30.07
SP00GP03	10/29/2024	10:45	0.08	0.0	7.0	12.4	80.6	N	30.07
SP00GP07	10/29/2024	10:56	0.01	0.0	2.6	18.5	78.9	N	30.07
SP00GP23	10/29/2024	11:14	0.01	0.0	7.2	14.8	78.0	N	30.09
SP00GP26	10/29/2024	11:23	0.05	0.0	2.1	19.3	78.6	N	30.08
SP00GP13	10/29/2024	11:36	-2.75	0.0	4.3	16.1	79.6	Y	30.09
SP00GP32	10/29/2024	11:45	1.59	0.0	1.0	18.6	80.4	Y	30.08
SP00GP15	10/29/2024	11:56	-30.51	0.0	1.0	20.6	78.4	N	30.08
SP00GP31	10/29/2024	12:03	0.05	0.0	9.4	7.1	83.5	N	30.09
SP00GP16	10/29/2024	12:18	0.01	0.0	11.7	6.8	81.5	N	30.09
SP00GP29	10/29/2024	12:23	0.11	0.0	15.8	0.0	84.2	N	30.08
SP00GP28	10/29/2024	12:32	-0.01	0.0	0.2	21.3	78.5	N	30.08
SP00GP27	10/29/2024	12:38	0.02	0.0	12.4	0.7	86.9	N	30.07

GEM™5000; G5 V1_15_12; LSGAM:6_0_20160627; {20672848369}

Water Level Measurement Field Report

DATE: 11/4/2024	JOB NO. 553-1550-067
PROJECT: South Park Landfill	CLIENT: Seattle Public Utilities
LOCATION: Seattle, WA	
WEATHER: Rain, 50°F	TEMP: 50°F ° at 8 AM ° at PM
PRESENT AT SITE: Krista Keski-Hynnila, Nicole Kapise, + Richard 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	0850	8.59		TOC	15.3	10-15	1.52
MW-14	0844	2.81		TOC	21.8	11.5-21.5	0.8
MW-29	0837	8.43		TOC	30	20-30	-0.29
MW-18	0857	15.72		TOC	40.4	30-40	1.25
MW-25	0939	14.19		TOC	27	22-27	2.79
MW-32	0919	11.17		TOC	24	19-24	-0.44
MW-33	0912	11.29		TOC	25	20-25	-0.47
MW-26	0802	10.03		TOC	25	15-25	2.39
MW-27	0812	8.81		TOC	20	10-20	2.04
MW-10	0937	13.45		TOC	45	35-45	1.65
MW-24	0804	9.43		TOC	45.3	35-45	1.56
MW-08	0814	8.84		TOC	45.6	35.5 - 45.5	1.88
MW-30	755	10.89		TOC	13	8-13	-0.53
MW-31	750	11.39		TOC	23	18-23	-0.46

Comments:

TOC – top of PVC casing SG – staff gauge

SIGNED: *[Signature]*

Krista Keski-Hynnila

5.59

one bolt started, down bolt 5

H₂O has 3 plug no lock

need tool

10.81

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067

Date: 11/4/2024

Well ID: MW-10

Sampling Organization: Parametrix

Samplers: Richard Anderson and Krista Keski-Hynnala

Purge Data Screened Interval (ft bgs): 35.0-45.0

Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): 1344 @ 1007

Purge Water Disposal Method: OWS

Purge Device: peristaltic

Pump Intake Depth: 40.0 ft

Begin Purge Time: 1008

End Purge Time: 1036

Time	Depth to Water (feet below MP)	notch Pump Setting	ML/min Purge Rate	Liters Cum. Vol. Purged	Temp (°C)	DO (mg/L)	Specific Conductivity (µS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
1015	13.43	3	250/min	2.60	13.7	1.51	1401	6.57	-119.98	5.54	mostly clear
1020	13.43	3	"	4.15	13.9	5.10	1433	6.68	-134.00	5.02	"
1025	"	3	"	6	13.9	0.34	1435	6.71	-138.50	3.23	"
1030	"	"	"	7	13.9	0.22	1441	6.73	-141.7	3.38	"
1035	"	"	"	8.8	13.9	0.18	1450	6.76	-144.8	2.81	"
				9							

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

Sampling Data

Sample ID: SPL-GW-MW10-1124

Time Collected: 1040

Weather: rain, 50°F

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

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

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

MS/MSD Collected: Yes No

Additional Information/Comments

missing lock

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067 Date: 11/4/2024 Well ID: MW-25

Sampling Organization: Parametrix Samplers: Richard Anderson and Krista Keski-Hynnala

Purge Data Screened Interval (ft bgs): 22.0-27.0 Well Casing/Diameter: PVC/2 in
Initial Depth of Water (Ft below TOC): 14.15 @ 1055 Purge Water Disposal Method: O/WS
Purge Device: dedicated bladder pump Pump Intake Depth: 24.5 ft
Begin Purge Time: 1055 End Purge Time: 1116

Table with 12 columns: Time, Depth to Water (feet below MP), PSI Pump Setting, M/L/min Purge Rate, Cum. Vol. Purged, Temp (°C), DO (mg/L), Specific Conductivity (µS/cm), pH (units), ORP (mv), Turbidity (NTU), Comments. Includes handwritten data for times 1100, 1105, 1110, 1115.

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

Sampling Data

Sample ID: SPL-GW-MW25-1124 Time Collected: 1121 Weather: cloudy, light rain, 50°F

Sample Description (Color, Turbidity, Odor, Other): clear, no odor because partly cloudy, windy

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

Duplicate Sample Collected: [] Yes [x] No If yes, ID:

MS/MSD Collected: [] Yes [x] No

Additional Information/Comments

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067

Date: 11/4/2024

Well ID: MW-33

Sampling Organization: Parametrix

Samplers: Richard Anderson and Krista Keski-Hynnala

Purge Data Screened Interval (ft bgs): 20.0-25.0

Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): 11.30 @ 12:09

Purge Water Disposal Method: O/WS

Purge Device: peristaltic pump

Pump Intake Depth: 22.5ft

Begin Purge Time: 12:11

End Purge Time: 12:52

Time	Depth to Water (feet below MP)	notch Pump Setting	mL/min Purge Rate	Liters Cum. Vol. Purged	Temp (°C)	DO (mg/L)	Specific Conductivity (µS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
12:15	11.32	3	300 mL	1.75	15.3	0.31	1308	6.78	-110.0	186	brown, turbid
12:20	"	"	"	3.40	15.3	0.18	1295	6.74	-114.3	20.7	slightly brown, turbid
12:25	"	"	"	4.90	15.3	0.15	1288	6.76	-117.3	16.5	slightly brown, turbid
12:30	"	"	"	6.40	15.4	0.13	1273	6.79	-119.4	8.52	"
12:35	"	"	"	8.10	15.3	0.13	1264	6.77	-120.4	10.5	"
12:40	"	"	"	9.45	15.3	0.12	1255	6.75	-121.6	9.23	"
12:45	"	"	"	11.00	15.4	0.12	1250	6.76	-123.1	8.78	"
12:50	"	"	"	13.5	15.4	0.10	1247	6.78	-124.7	8.89	"

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

Sampling Data

Sample ID: SPL-GW-MW33-1124

Time Collected: 12:55

Weather: Sunny, windy, 55°F

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

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

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

MS/MSD Collected: Yes No

Additional Information/Comments

1.27
19.73/2 1.72
19.28/2

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067 Date: 11/4/24 Well ID: MW-32

Sampling Organization: Parametrix Samplers: Richard Anderson and Krista Keski-Hynnala

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

Initial Depth of Water (Ft below TOC): 11.14 Purge Water Disposal Method: O/WS

Purge Device peristaltic pump Pump Intake Depth: 21.5 ft

Begin Purge Time: 1317 End Purge Time: 1356

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
1320	11.14	3	275	0.90	14.2	0.51	847	6.79	-95.7	211	brown turbid, flakes
1325	"	"	"	2.25	14.2	0.23	832	6.81	-105.2	182	gray turbid, flakes
1330	"	"	"	4.25	14.2	0.15	829	6.79	-104.7	266	"
1335	"	"	"	6.00	14.2	0.10	830	6.80	-113.2	41.6	minor turbidity / flakes
1340	"	"	"	7.90	14.2	0.07	827	6.80	-114.0	18.6	"
1345	"	"	"	9.25	14.3	0.08	829	6.80	-115.2	4.31	clear
1350	"	"	"	11.00	14.2	0.07	827	6.81	-116.5	4.43	"
1355	"	"	"	12.50	14.2	0.08	824	6.80	-116.6	2.25	"

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

Sampling Data

Sample ID: SPL-GW-MW32-1124 Time Collected: 1400 Weather: Sunny; 50's F; windy

Sample Description (Color, Turbidity, Odor, Other): First VOA slightly turbid; others 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

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GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067 Date: 11/4/24 Well ID: MW-18
 Sampling Organization: Parametrix Samplers: Richard Anderson and Krista Keski-Hynnla

Purge Data Screened Interval (ft bgs): 30.0-40.0 Well Casing/Diameter: PVC/2 in
 Initial Depth of Water (Ft below TOC): 15.77 Purge Water Disposal Method: O/WS
 Purge Device: dedicated bladder pump Pump Intake Depth: 35.0 ft
 Begin Purge Time: 1525 1425 End Purge Time: 1451

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	15.79	50 ft	250	0.40	15.6	2.49	525.8	6.80	-44.8	7.34	Mostly Clear
1435	15.77	"	"	2.00	14.8	0.98	547.1	6.69	-60.6	4.48	"
1440	15.79	"	"	2.75	14.3	2.05	558.2	6.71	-72.4	2.43	"
1445	15.78	"	"	3.90	14.6	0.32	562.2	6.76	-78.4	0.89	"
1450	15.77	"	"	4.50	14.5	0.25	565.3	6.77	-81.3	0.14	"

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

Sampling Data

Sample ID: SPL-GW-MW18-1124 Time Collected: 1455 Weather: Sunny, 50's
 Sample Description (Color, Turbidity, Odor, Other): clear, no odor
 Sample Analyses: cis-1,2-DCE, vinyl chloride, total iron, total manganese
 Duplicate Sample Collected: Yes No If yes, ID: SPL-GW-MW60-1124 @ 1600
 MS/MSD Collected: Yes No

Additional Information/Comments

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067

Date:

11/5/2024

Well ID:

MW-12

Sampling Organization: Parametrix

Samplers: Richard Anderson and Krista Keski-Hynnala

Purge Data Screened Interval (ft bgs): 10.0-15.0

Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): 5.59

Purge Water Disposal Method: O/WS

Purge Device: dedicated bladder pump

Pump Intake Depth: 12.5 ft

Begin Purge Time: 0800

End Purge Time: 0830

Time	Depth to Water (feet below MP)	ft Pump Setting	ML/min Purge Rate	Liters Cum. Vol. Purged	Temp (°C)	DO (mg/L)	Specific Conductivity (µS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
0805	5.59	25	250	1.5	14.5	2.94	533.7	6.06	164.9	4.42	mostly clear
0810	"	"	"	3.0	14.7	1.05	537.6	6.02	176.2	4.01	"
0815	"	"	"	3.9	14.7	0.64	536.8	6.03	180.4	3.70	"
0820	"	"	"	5	14.8	0.49	536.4	6.05	182.7	3.15	"
0825	"	"	"	6.7	14.8	0.37	535.4	6.05	185.1	3.58	"
0830	5.60	"	"	8.0	14.8	0.36	534.2	6.06	186.5	4.15	"

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

Sampling Data

Sample ID: SPL-GW-MW12-1124

Time Collected: 0835

Weather: sunny, cool, ~50°F

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

mostly clear, no odor

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

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067

Date: 11/5/2024

Well ID: MW-29

Sampling Organization: Parametrix

Samplers: Richard Anderson and Krista Keski-Hynnala

Purge Data Screened Interval (ft bgs): 20.0-30.0

Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): 8.15

Purge Water Disposal Method: OWS

Purge Device: peristaltic pump

Pump Intake Depth: 25.0 ft

Begin Purge Time: 0900

End Purge Time: 0950

Time	Depth to Water (feet below MP)	Notch Pump Setting	µl/min Purge Rate	Liters Cum. Vol. Purged	Temp (°C)	DO (mg/L)	Specific Conductivity (µS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
0905	9.35	3	300	1.00	12.5	0.65	620.5	6.70	-67.0	246	murky, brownish grey
0910	9.33	4	"	2.10	12.4	0.20	621.5	6.73	-94.5	58.5	"
0915	9.25	"	"	3.00	12.6	0.28	624.0	6.73	-95.5	358	"
0920	9.80	"	"	4.40	12.4	0.16	612.4	6.72	-97.4	105	mostly clear
0925	9.96	"	"	6.10	12.4	0.13	612.9	6.73	-98.2	33.0	"
0930	10.01	"	"	7.90	12.4	0.12	618.0	6.76	-101.2	24.0	"
0935	10.02	"	"	10.0	12.5	0.10	618.0	6.78	-103.2	14.9	"
0940	10.05	"	"	12.0	12.5	0.10	616.0	6.80	-105.0	13.1	"
0945	10.05	"	"	13.5	12.4	0.10	617.5	6.81	-106.8	12.6	"
0950	"	"	"	15.5	12.4	0.09	614.7	6.82	-109.8	12.2	"

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

Sampling Data

Sample ID: SPL-GW-MW29-1124

Time Collected: 0955

Weather: Sunny, 50°F

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

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

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

MS/MSD Collected: Yes No

Additional Information/Comments

Water became a bit more turbid while collecting poly bottle sample

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067

Date: 1/15/2024 Well ID: MW-14

Sampling Organization: Parametrix

Samplers: Richard Anderson and Krista Keski-Hyynila

Purge Data Screened Interval (ft bgs): 11.5-21.5

Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): 2.84

Purge Water Disposal Method: O/WS

Purge Device: dedicated bladder pump

Pump Intake Depth: 16.5 ft

Begin Purge Time: 1025

End Purge Time: 1045

Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate (mL/min)	Liters Cum. Vol. Purged	Temp (°C)	DO (mg/L)	Specific Conductivity (µS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
1030	2.98	35	250	2.0	15.2	0.64	591.0	6.86	-54.1	4.92	mostly clear
1035	"	"	"	3.0	15.4	0.41	564.0	6.82	-49.6	4.89	"
1040	"	"	"	4.0	15.5	0.23	557.7	6.79	-47.1	4.28	"
1045	"	"	"	5.4	15.6	0.15	555.4	6.77	-46.4	3.02	"

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

Sampling Data

Sample ID: SPL-GW-MW14-1124 Time Collected: 1050 Weather: partly sunny, 55°F, light wind

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

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

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

MS/MSD Collected: Yes No

Additional Information/Comments

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067

Date: 11/5/2024

Well ID: MW-30

Sampling Organization: Parametrix

Samplers: Richard Anderson and Krista Keski-Hyynila

Purge Data Screened Interval (ft bgs): 8.0-13.0

Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): 11.79

Purge Water Disposal Method: O/WS

Purge Device: peristaltic pump

Pump Intake Depth: 10.5 ft

Begin Purge Time: 1115

End Purge Time: 1130

Time	Depth to Water (feet below MP)	Notch Pump Setting	ML/min Purge Rate	Liters Cum. Vol. Purged	Temp (°C)	DO (mg/L)	Specific Conductivity (µS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
1120	11.46	3	300	1.90	15.3	0.35	591.5	6.39	-22.2	2.67	Mostly clear
1125	"	"	"	3.25	15.3	0.28	591.9	6.40	-24.4	1.90	"
1130	11.77	"	"	5.60	15.3	0.17	588.3	6.38	-23.2	1.32	"

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

Sampling Data

Sample ID: SPL-GW-MW30-1124

Time Collected: 1135

Weather: Sunny, 80°F

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

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

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

MS/MSD Collected: Yes No

Additional Information/Comments



South Park Landfill

Project No.: 553-1550-067

Date: 11/5/2024

Well ID: MW-31

Sampling Organization: Parametrix

Samplers: Richard Anderson and Krista Keski-Hynnila

Purge Data Screened Interval (ft bgs): 18.0-23.0

Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): 11.48

Purge Water Disposal Method: O/WS

Purge Device: dedicated bladder pump

Pump Intake Depth: 20.5ft

Begin Purge Time: 1200

End Purge Time: 1235

Time	Depth to Water (feet below MP)	ft Pump Setting	mil/L Purge Rate	Liters Cum. Vol. Purged	Temp (°C)	DO (mg/L)	Specific Conductivity (µS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
1205	11.48	35	300	1.9	4.6	2.22	491.2	6.41	-26.4	32.8	slight brown/murky
1210	11.50	"	"	2.9	14.5	0.43	502.9	6.40	-36.5	23.8	"
1215	"	"	"	3.9	14.6	0.25	508.1	6.41	-42.6	13.8	"
1220	"	"	"	5.0	14.6	0.18	513.6	6.41	-49.5	6.92	"
1225	"	"	"	6.5	14.5	0.15	516.4	6.42	-53.0	3.72	clear
1230	"	"	"	8.0	14.5	0.11	517.2	6.42	-55.5	3.91	"
1235	"	"	"	9.2	14.5	0.10	517.5	6.42	-57.1	3.07	"

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

Sampling Data

Sample ID: SPL-GW-MW31-1124

Time Collected: 1240

Weather: Partly cloudy; 50's F

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

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

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

MS/MSD Collected: Yes No

Additional Information/Comments

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067 Date: 11/6/2024 Well ID: MW-26

Sampling Organization: Parametrix Samplers: Richard Anderson and Krista Keski-Hynnila

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

Initial Depth of Water (Ft below TOC): 10.27 Purge Water Disposal Method: O/WS

Purge Device dedicated bladder pump Pump Intake Depth: 20.0 ft

Begin Purge Time: 0800 End Purge Time: 0830

Time	Depth to Water (feet below MP)	ft Pump Setting	ml/min Purge Rate	Liters Cum. Vol. Purged	Temp (°C)	DO (mg/L)	Specific Conductivity (µS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
0805	10.25	40	300	1.3	12.0	1.75	297.3	6.13	42.2	5.82	Mostly clear
0810	"	"	"	2.4	12.1	0.96	295.4	6.09	38.9	5.80	"
0815	"	"	"	4.0	12.1	0.47	308.9	6.05	38.1	4.72	"
0820	10.27	"	"	6.0	12.1	0.32	324.3	6.05	34.7	4.94	"
0825	"	"	"	7.8	12.1	0.23	329.0	6.05	33.2	4.57	"
0830	"	"	"	8.9	12.1	0.18	330.9	6.05	32.0	4.29	"

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

Sampling Data

Sample ID: SPL-GW-MW26-1124 Time Collected: 0835 Weather: Mostly sunny, 50°F

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

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

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

MS/MSD Collected: Yes No

Additional Information/Comments

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067

Date: 11/6/2024

Well ID: MW-24

Sampling Organization: Parametrix

Samplers: Richard Anderson and Krista Keski-Hynnilla

Purge Data Screened Interval (ft bgs): 35.0-45.0

Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): 9.59

Purge Water Disposal Method: O/WS

Purge Device: dedicated bladder pump

Pump Intake Depth: 40.0 ft

Begin Purge Time: 0845

End Purge Time: 0910

Time	Depth to Water (feet below MP)	ft Pump Setting	ml/min Purge Rate	Liters Cum. Vol. Purged	Temp (°C)	DO (mg/L)	Specific Conductivity (µS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
0850	9.59	60	300	1.5	12.4	0.20	1102	6.47	-15.2	4.29	mostly clear
0855	"	"	"	2.6	12.3	0.22	1054	6.59	-50.8	4.76	"
0900	"	"	"	4.5	12.3	0.13	1052	6.59	-64.4	4.70	"
0905	"	"	"	6.0	12.3	0.11	1053	6.60	-71.4	4.32	"
0910	"	"	"	8.5	12.3	0.09	1052	6.60	-72.6	4.17	"

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

Sampling Data

Sample ID: SPL-GW-MW24-1124 Time Collected: 0915 Weather: Sunny, 50°F

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

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

Duplicate Sample Collected: Yes No If yes, ID: SPL-GW-MW61-1124 @ 1000

MS/MSD Collected: Yes No

Additional Information/Comments: no lock

South Park Landfill

Project No.: 553-1550-067

Date: 11/6/2024

Well ID: MW-27

Sampling Organization: Parametrix

Samplers: Richard Anderson and Krista Keski-Hynnila

Purge Data Screened Interval (ft bgs): 10.0-20.0

Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): 8.94

Purge Water Disposal Method: O/WS

Purge Device: dedicated bladder pump

Pump Intake Depth: 15.0 ft

Begin Purge Time: 1000

End Purge Time: 1020

Time	Depth to Water (feet below MP)	ft Pump Setting	Mill/min Purge Rate	Liters Cum. Vol. Purged	Temp (°C)	DO (mg/L)	Specific Conductivity (µS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
1005	8.94	45	300	1.9	13.2	0.93	614.2	6.52	-491	8.37	mostly clear
1000	"	"	"	3.4	13.3	0.48	571.6	6.44	-49.5	8.24	"
1010	"	"	"	5.0	13.3	0.38	574.0	6.44	-53.9	4.81	"
1015	"	"	"	6.5	13.2	0.23	578.3	6.44	-59.0	5.18	"
1020	"	"	"	8.4	13.2	0.19	582.2	6.45	-62.5	5.07	"
1025											

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

Sampling Data

Sample ID: SPL-GW-MW27-1124

Time Collected: 1025

Weather: Sunny, 55°F

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

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

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

MS/MSD Collected: Yes No

Additional Information/Comments: no lock

Attachment 2

Draft Groundwater Quality
Data Summary,
Fourth Quarter 2024

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

Parameter	Units	Cleanup Level	Upgradient Wells			Downgradient Wells													Trip Blanks	
			A-Zone			Perched Zone	A-Zone						B-Zone						MW-80	MW-81
			MW-12	MW-14	MW-29	MW-30 ¹	MW-25	MW-26	MW-27	MW-31 ¹	MW-32 ²	MW-33 ²	MW-08	MW-10	MW-18 ²	MW-60 (MW-18 Dup)	MW-24	MW-61 (MW-24 Dup)	MW-80	MW-81
11/5/24	11/5/24	11/5/24	11/5/24	11/4/24	11/6/24	11/6/24	11/5/24	11/4/24	11/4/24	11/6/24	11/4/24	11/4/24	11/4/24	11/4/24	11/6/24	11/6/24	11/4/24	11/6/24		
Field Parameters																				
Temperature	C		14.8	15.6	12.4	15.3	14.0	12.1	13.2	14.5	14.2	15.4	12.6	13.9	14.5	--	12.3	--	--	--
Dissolved Oxygen	mg/L		0.36	0.15	0.09	0.17	0.14	0.18	0.19	0.10	0.08	0.10	0.10	0.18	0.25	--	0.09	--	--	--
Specific Conductivity	µS/cm		534.2	555.4	619.7	588.3	1147	330.9	582.2	517.5	824	1247	990	1450	565.3	--	1052	--	--	--
pH	units		6.06	6.77	6.82	6.38	6.66	6.05	6.45	6.42	6.80	6.78	6.73	6.76	6.77	--	6.60	--	--	--
Redox	mv		186.5	-46.4	-109.8	-23.2	-114.1	32.0	-62.5	-57.4	-116.6	-124.7	-97.6	-144.8	-81.3	--	-72.6	--	--	--
Turbidity	NTU		4.15	3.02	12.2	1.32	3.60	4.29	5.07	3.07	2.25	8.89	4.44	2.81	0.14	--	4.17	--	--	--
Metals																				
Iron, Total	mg/L	27 A-Zone	0.360 U	3.02	45.7	4.67	28.1	6.94	21.3	18.8	14.4	14.7	--	--	--	--	--	--	--	--
		31 B-Zone	--	--	--	--	--	--	--	--	--	--	--	12.3	36.2	11.6	11.1	23.4 J-	22.1	--
Manganese, Total	mg/L	2.2	0.0168	0.735	0.712	0.178	2.59	0.0945	0.530	0.864	1.16	1.77	0.714	2.25	0.727 J-	0.688	1.51 J+	1.59	--	--
Volatile Organic Compounds																				
Vinyl Chloride	µg/L	0.29	0.0200 U	0.0200 U	0.0442	0.259	0.441	0.0264	0.0452	0.776	0.357	0.190	0.0545	0.125	0.0200 U	0.0200	0.0524	0.0544	0.0200 U	0.0200 U
Cis-1,2-Dichloroethene	µg/L	16	0.20 U	0.20 U	0.20 U	0.41	0.22	0.20 U	0.20 U	0.36	0.47	0.20 U	0.20 U	0.76	0.20 U	0.20	0.20 UJ	0.20 U	0.20 U	0.20 U

Notes:

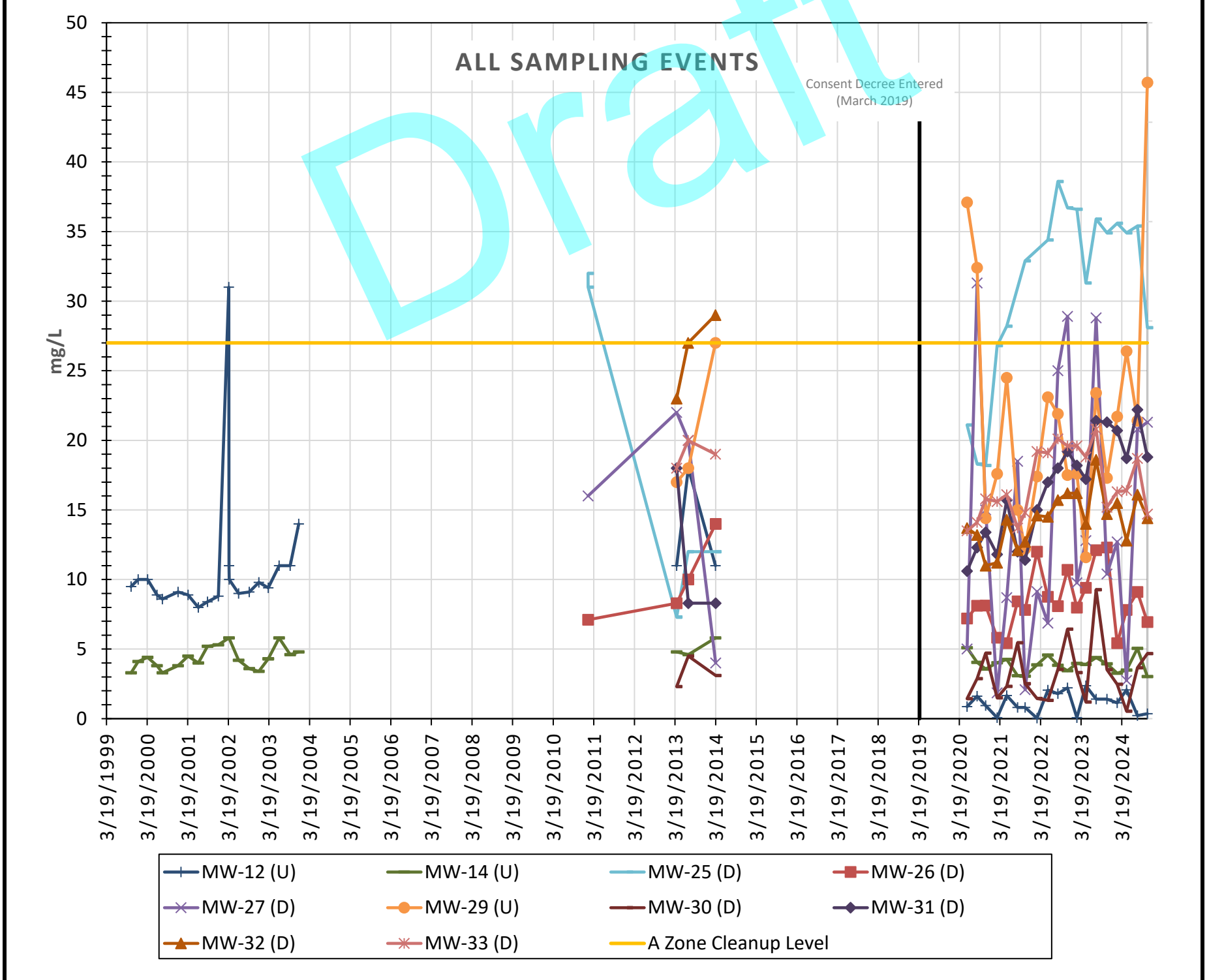
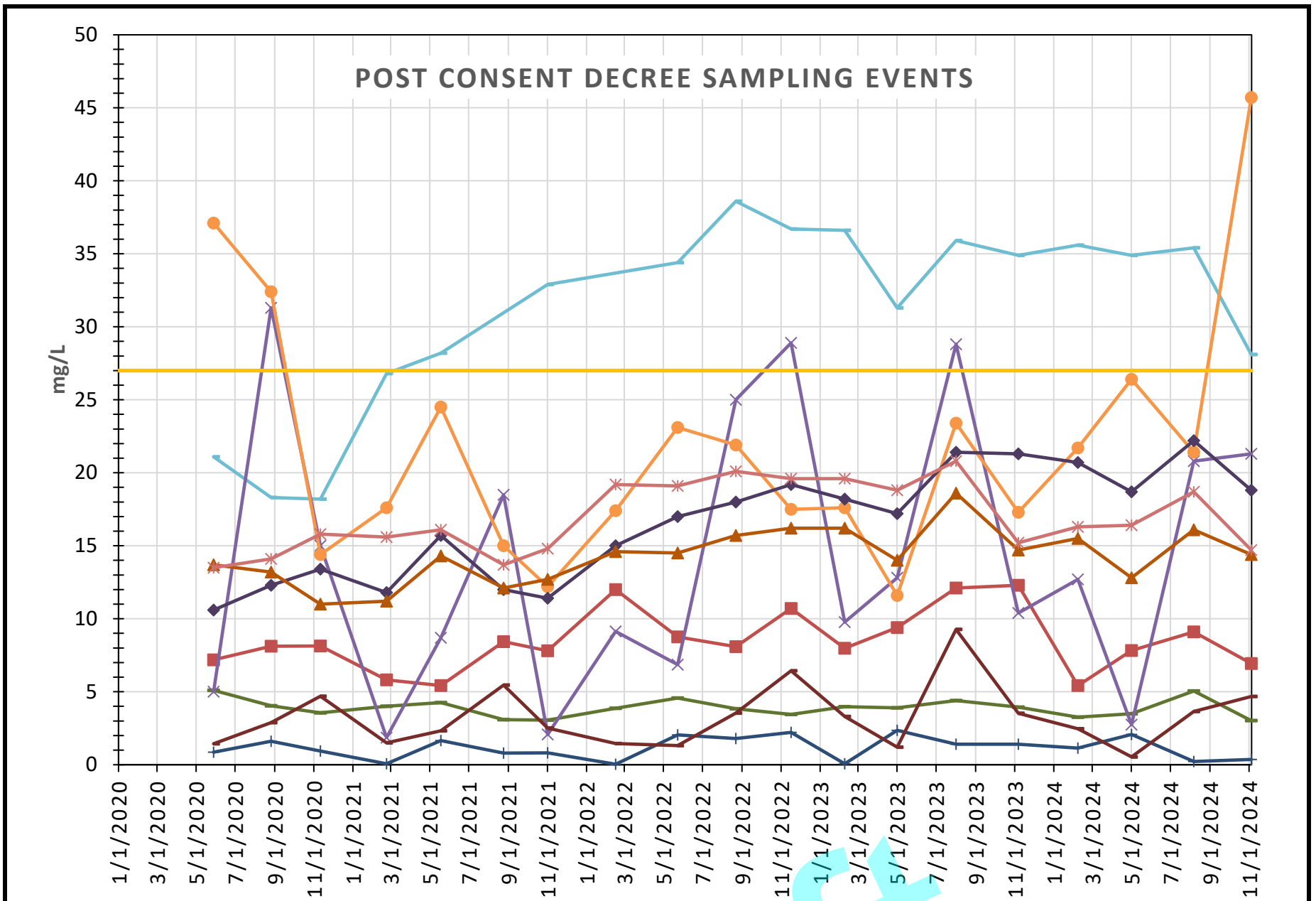
- ¹ MW 30 and MW-31 monitor the former Glitsa property and are not CPOC wells.
- ² MW 18 is completed in refuse along the downgradient edge of the Landfill; MW 32 and MW 33 are completed beneath refuse along the downgradient edge.
- █ = Exceeds cleanup level for CPOC wells
- = Not analyzed
- U = The 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 inaccurate or imprecise.
- J+ = The result is an estimated quantity, but the result may be biased high.
- J- = The result is an estimated quantity, but the result may be biased low.

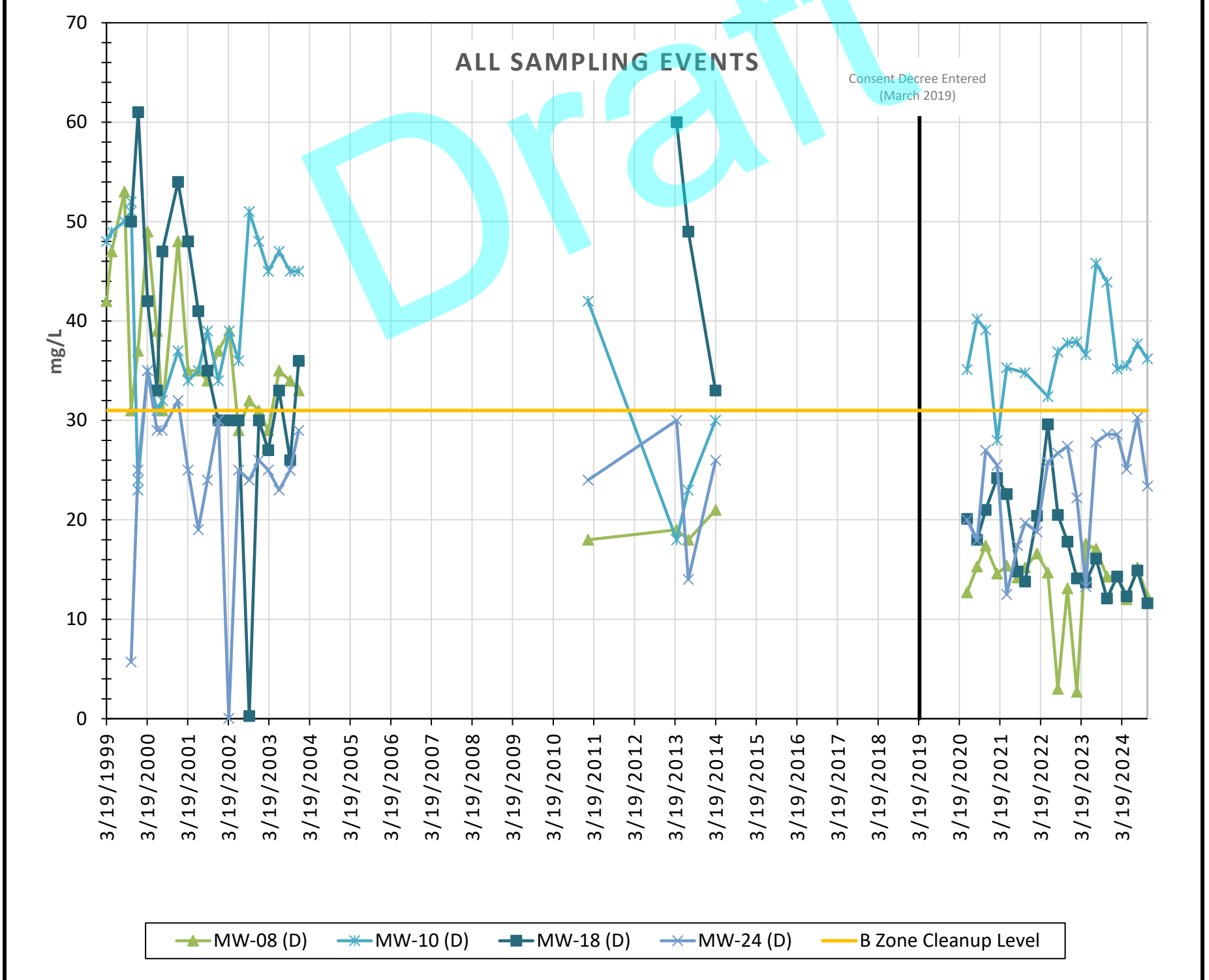
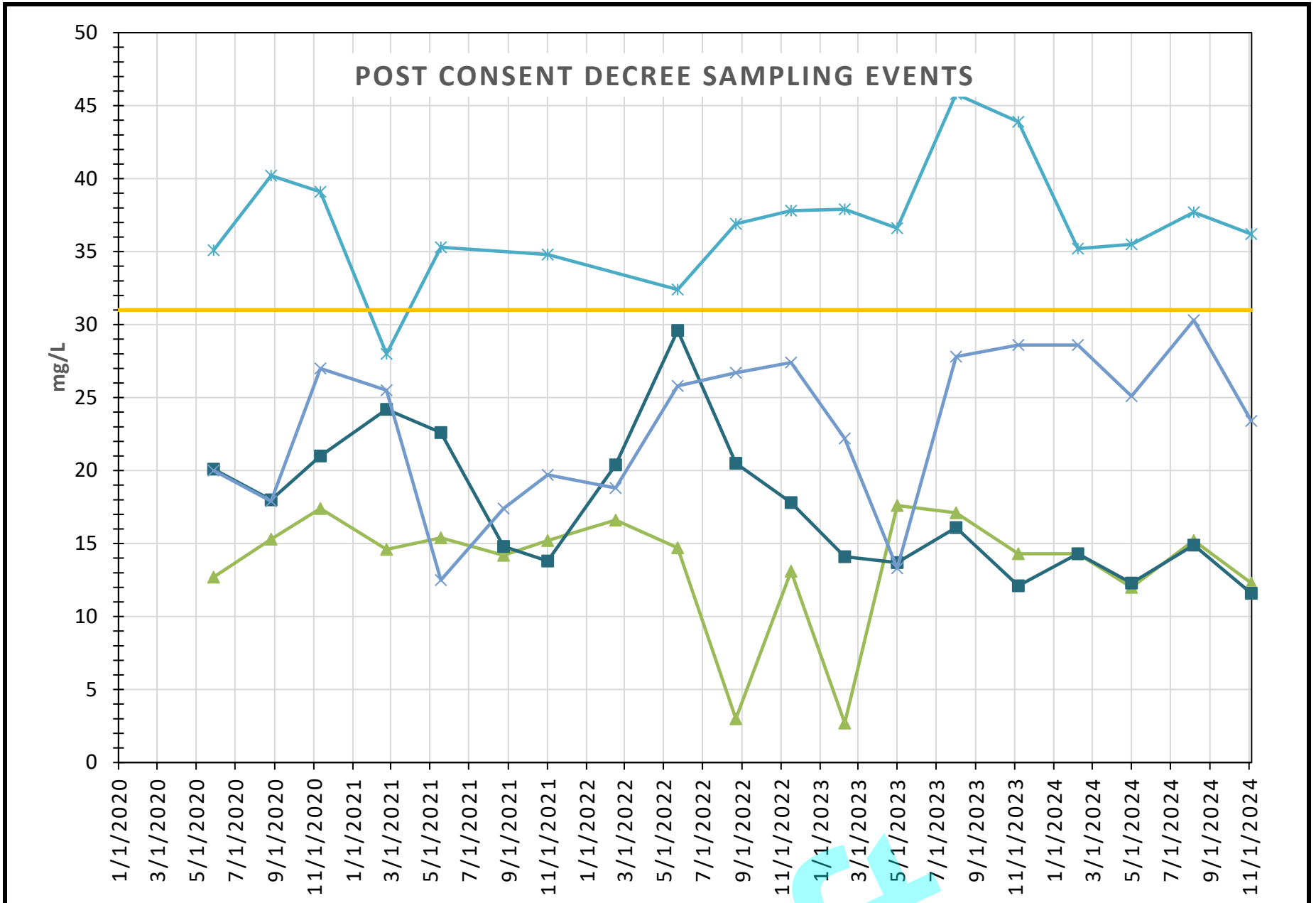
Abbreviations:

- 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
Fourth Quarter 2024



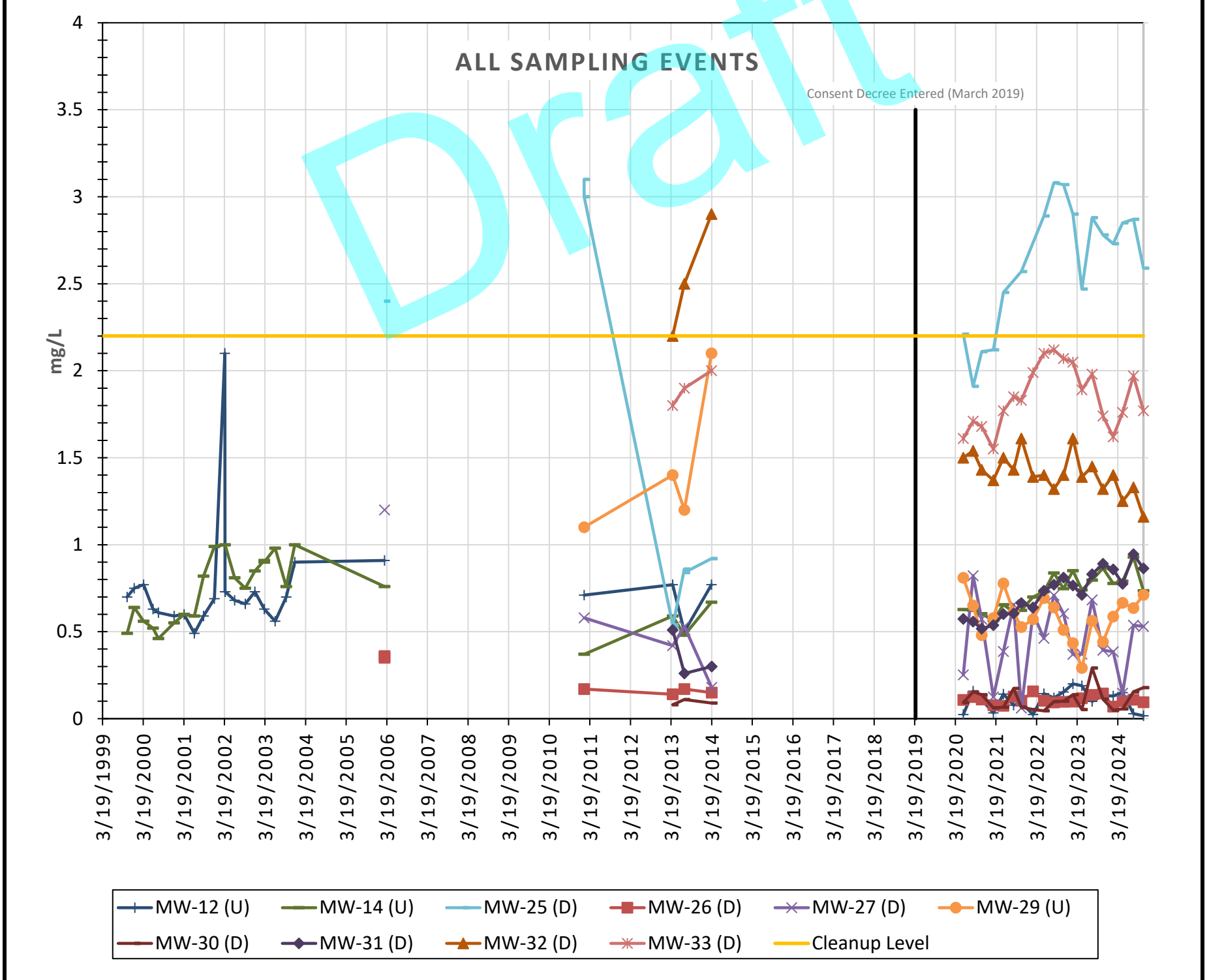
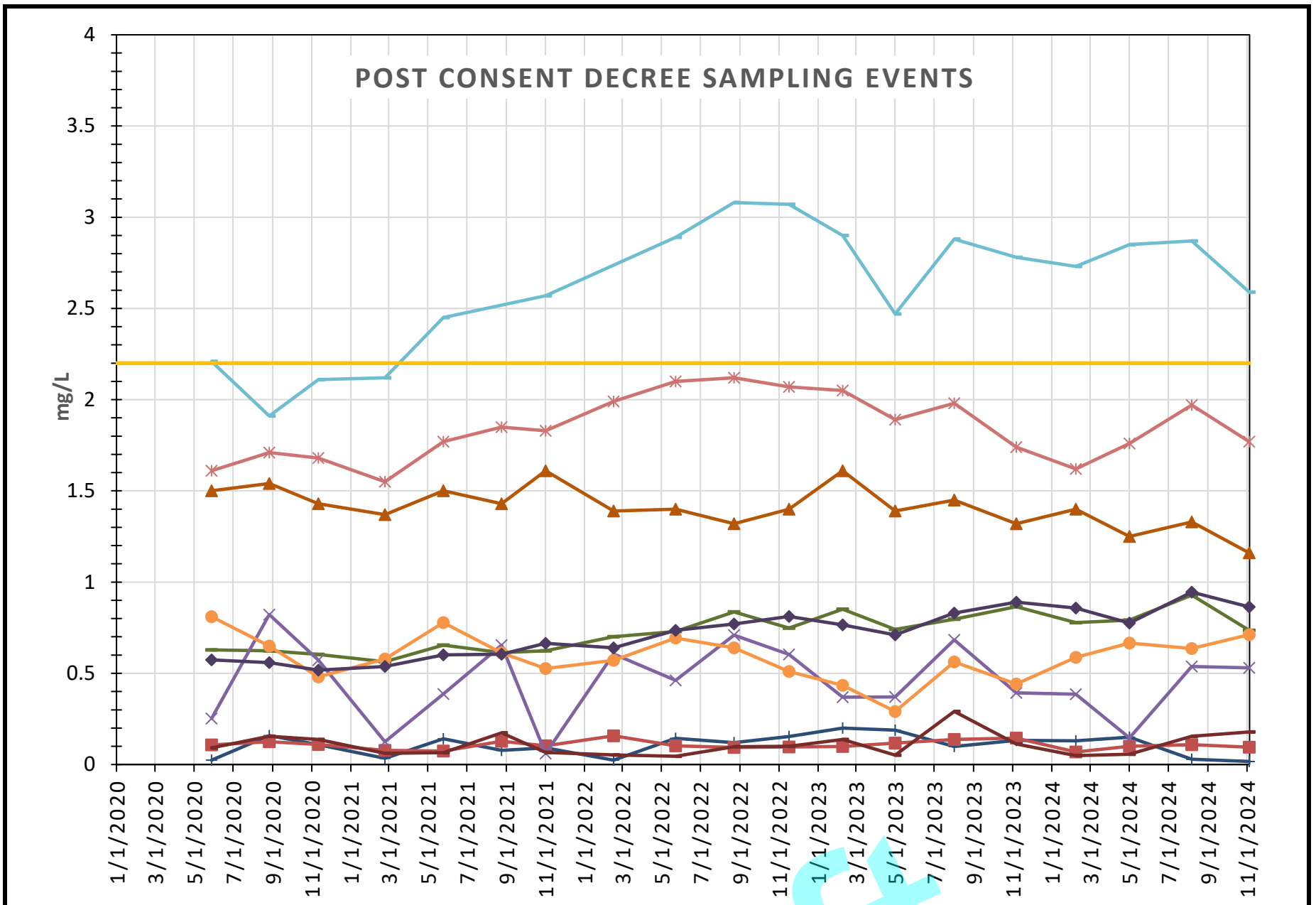


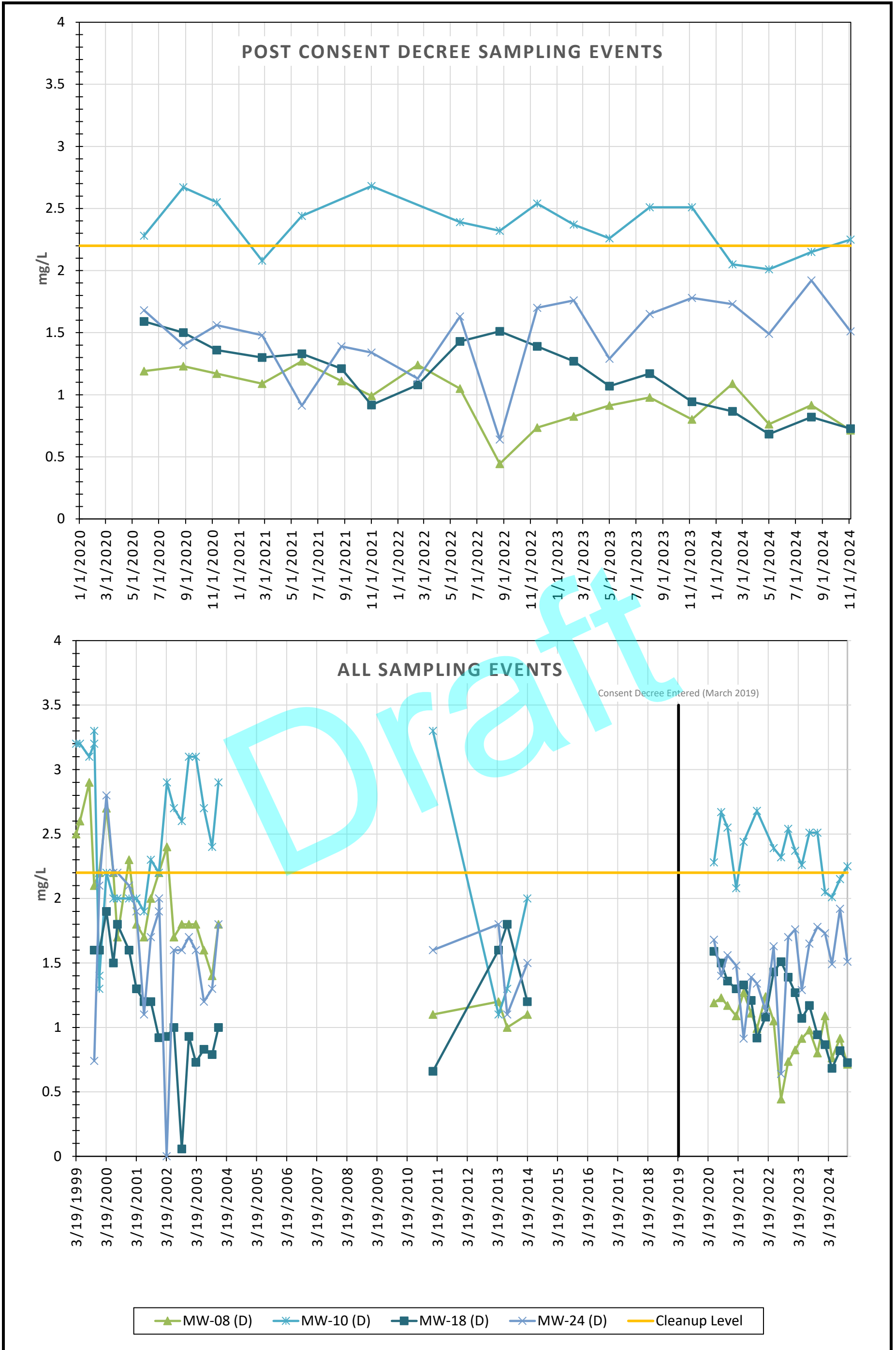
▲ MW-08 (D)
 ✱ MW-10 (D)
 ■ MW-18 (D)
 ✱ MW-24 (D)
 — B Zone Cleanup Level

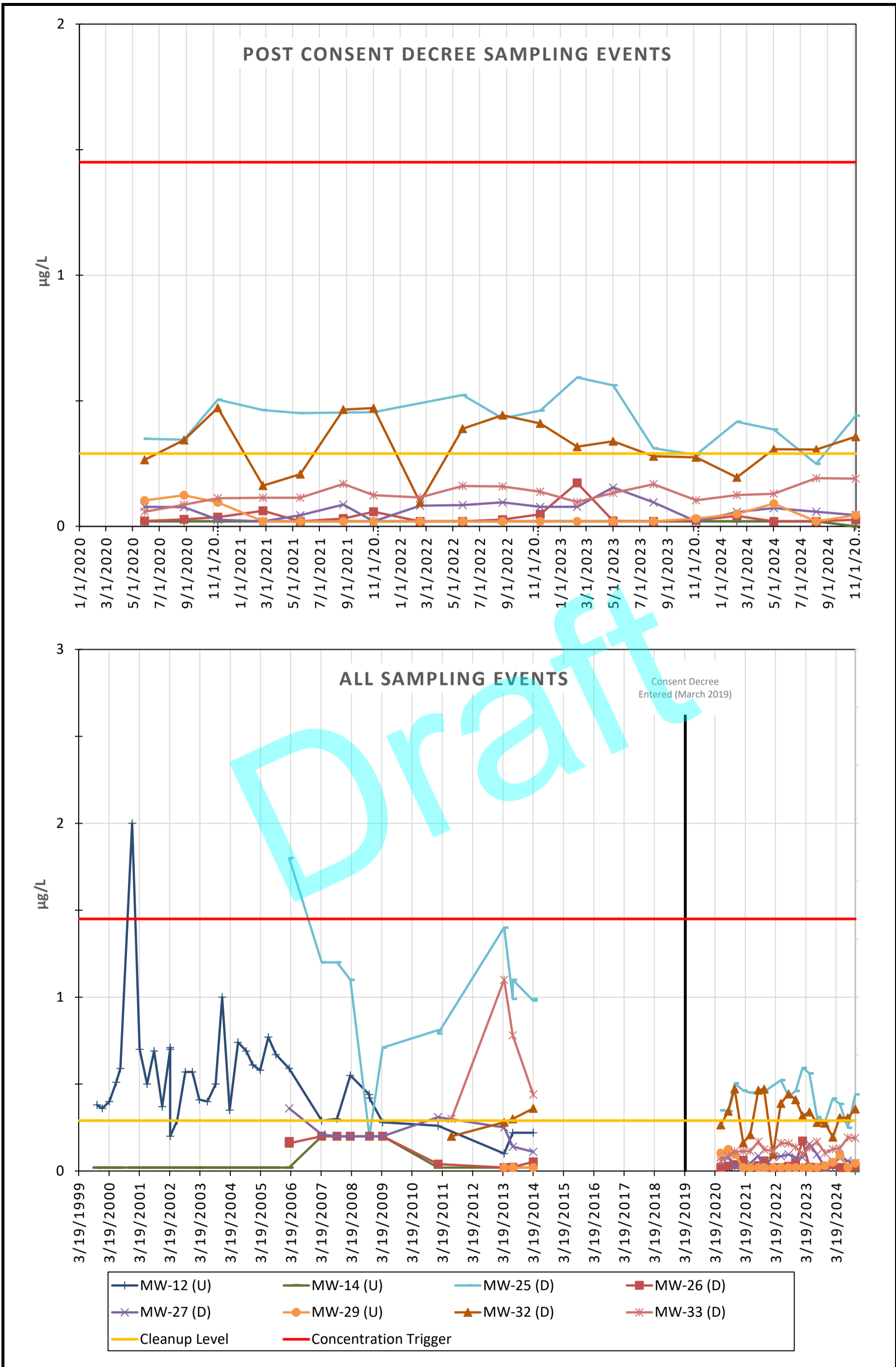


**Total Iron Concentrations
B-Zone CPOC Wells
South Park Landfill**

D = Downgradient
U = Upgradient



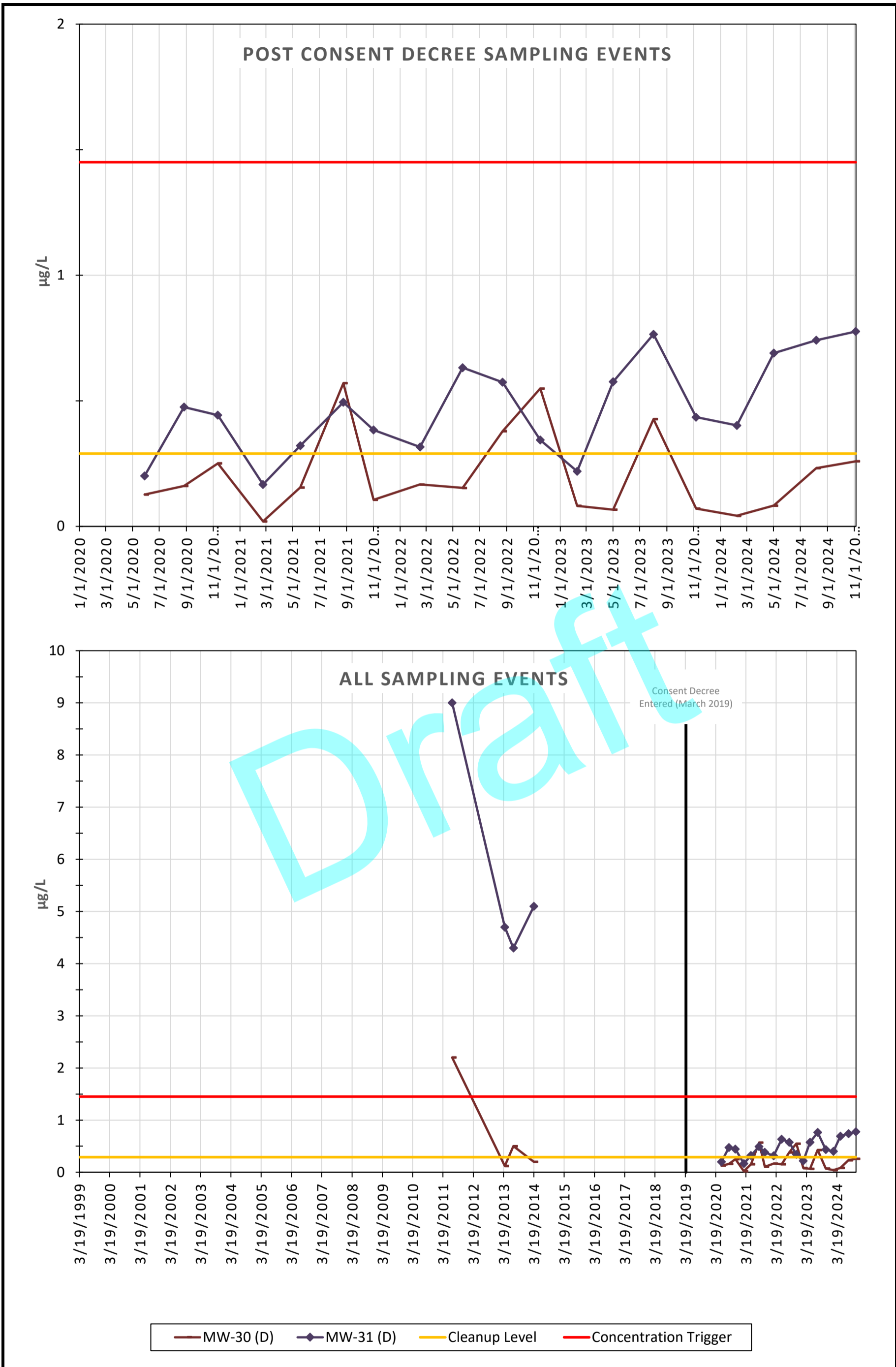


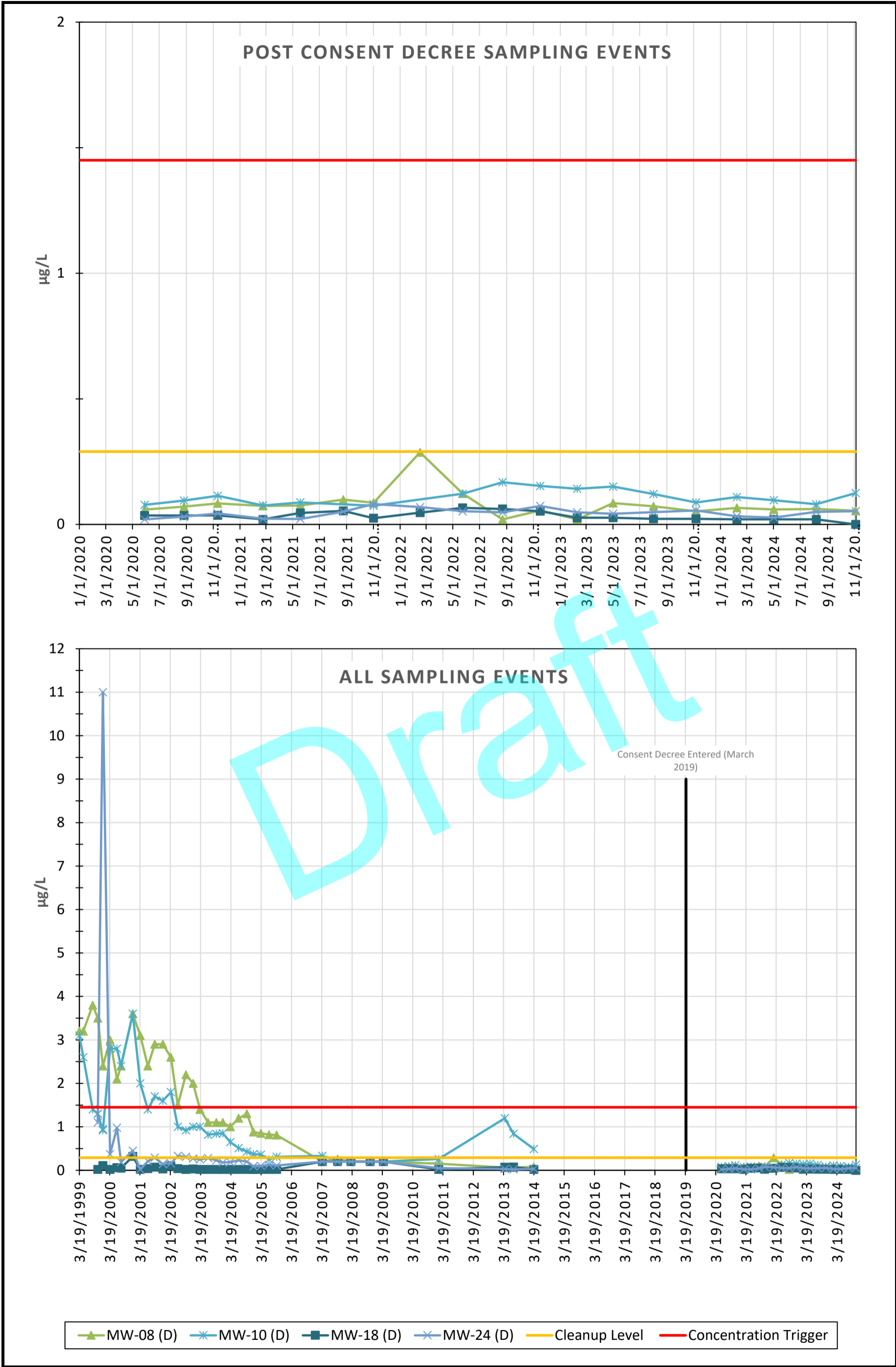


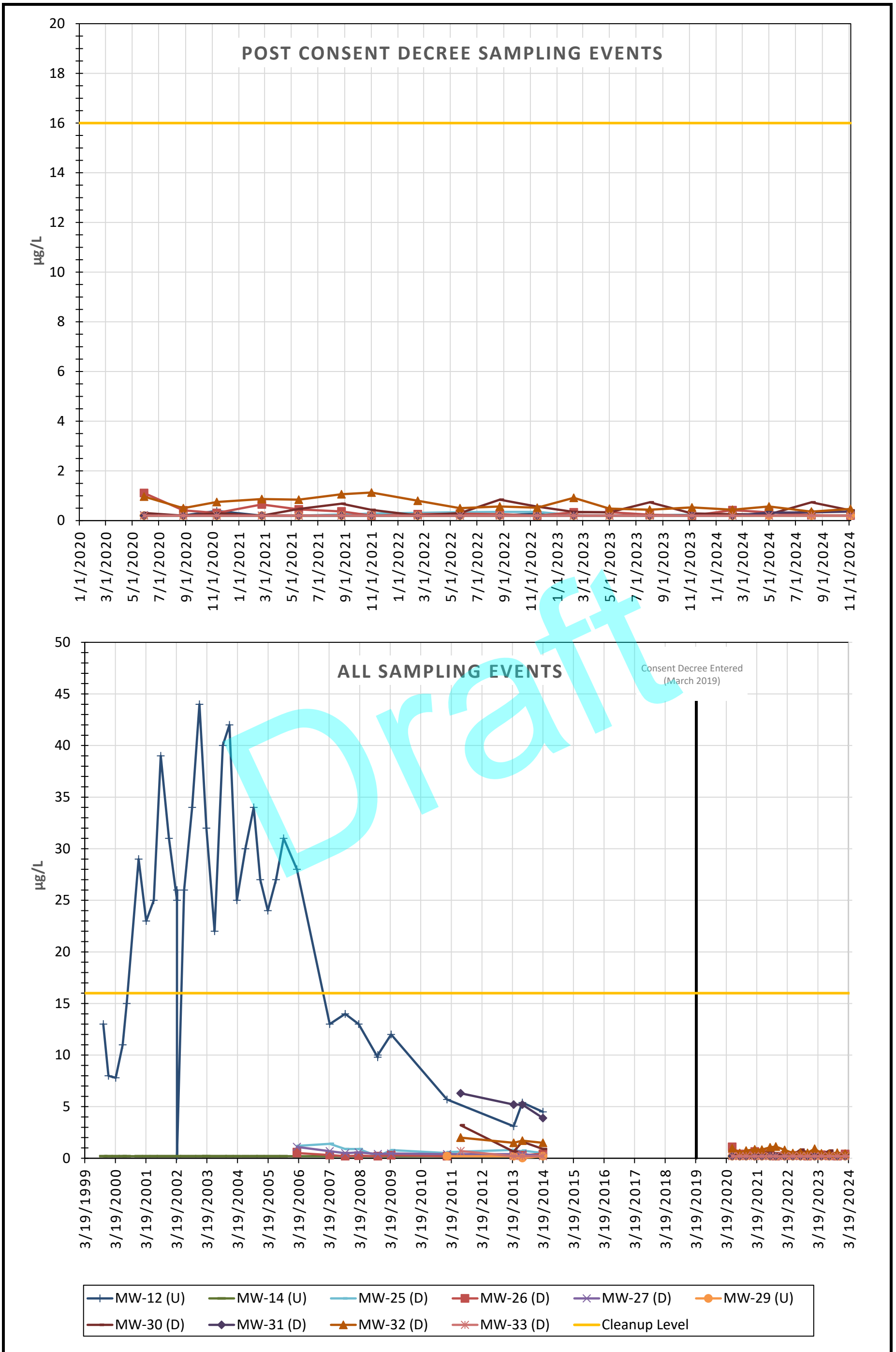
Parametrix

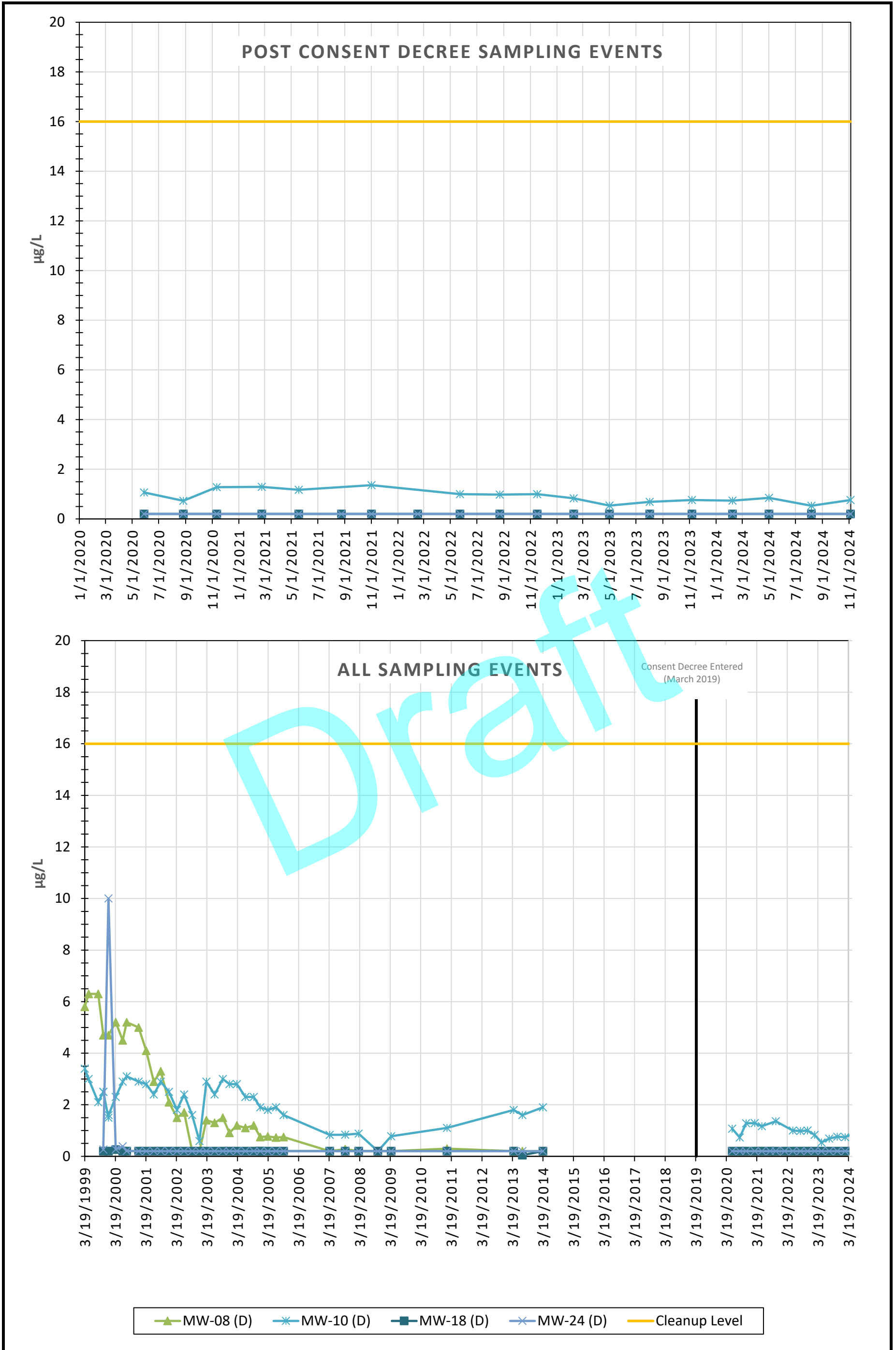
**Vinyl Chloride Concentrations
A-Zone CPOC Wells
South Park Landfill**

D = Downgradient
U = Upgradient









Attachment 4

Fourth Quarter 2024

Groundwater Laboratory Data



Analytical Resources, LLC
Analytical Chemists and Consultants
Tukwila, WA

27 November 2024

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

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

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

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

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

Associated Work Order(s)
24K0087

Associated SDG ID(s)
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 enclosed Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

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

Analytical Resources, 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.



Chain of Custody Record & Laboratory Analysis Request

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

ARI Assigned Number: <i>24K0087</i>	Turn-around Requested: 2 weeks	Date: <i>11/5/2024</i>
ARI Client Company: Min Soon Yim, Seattle Public Utility	Phone: 206 684-7693	Page: <i>1</i> of <i>2</i>
Client Contact: Laura Lee	Phone: 206 394-3665	No. of Coolers: <i>2</i> Cooler Temps: <i>10.4, 5.8</i>

Client Project Name: SPU South Park Landfill	Analysis Requested	Notes/Comments
Samplers: Richard Anderson & Krista Keski-Hynnala HWA		

Sample ID	Date	Time	Matrix	Number of Containers	cis-1,2-DCE	Vinyl Chloride	Total Fe, Mn											
SPL-GW-MW12-1124	<i>11/5/2024</i>	<i>0835</i>	water	7	X	X	X											
SPL-GW-MW14-1124	<i>11/5/24</i>	<i>1050</i>	water	7	X	X	X											
SPL-GW-MW29-1124	<i>11/5/24</i>	<i>0955</i>	water	7	X	X	X											
SPL-GW-MW18-1124	<i>11/4/24</i>	<i>1455</i>	water	13	X	X	X											MS/MSD
SPL-GW-MW32-1124	<i>11/4/24</i>	<i>1400</i>	water	7	X	X	X											
SPL-GW-MW33-1124	<i>11/4/24</i>	<i>1255</i>	water	7	X	X	X											
SPL-GW-MW10-1124	<i>11/4/24</i>	<i>1040</i>	water	7	X	X	X											
SPL-GW-MW60-1124	<i>11/4/24</i>	<i>1600</i>	water	7	X	X	X											
SPL-GW-MW80-1124	<i>11/5/24</i>	<i>—</i>	water	2	X	X												

Comments/Special Instructions	Relinquished by: (Signature) <i>Krista Keski-Hynnala</i>	Received by: (Signature) <i>R Leese</i>	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: <i>Krista Keski-Hynnala</i>	Printed Name: <i>R Leese</i>	Printed Name:	Printed Name:
	Company: <i>HWA Geosciences</i>	Company: <i>ARI</i>	Company:	Company:
	Date & Time: <i>11/5/2024 1335</i>	Date & Time: <i>11-5-24 1335</i>	Date & Time:	Date & Time:

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

Sample Retention Policy: 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

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

ARI Assigned Number: 24K0087	Turn-around Requested: 2 weeks	Date: 11/5/2024
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: 2 Cooler Temps:

Client Project Name: SPU South Park Landfill					Analysis Requested										Notes/Comments	
Sample ID	Date	Time	Matrix	Number of Containers	cis-1,2-DCE	Vinyl Chloride	Total Fe, Mn									
SPL-GW-MW25-1124	11/4/24	1121	water	7	X	X	X									
SPL-GW-MW30-1124	11/5/24	1135	water	7	X	X	X									
SPL-GW-MW31-1124	11/5/24	1240	water	7	X	X	X									
SPL-GW-MW24-1124			water	13	X	X	X									MS/MSD
SPL-GW-MW26-1124			water	7	X	X	X									
SPL-GW-MW08-1124			water	7	X	X	X									
SPL-GW-MW27-1124			water	7	X	X	X									
SPL-GW-MW61-1124			water	7	X	X	X									
SPL-GW-MW81-1124			water	2	X	X										

Comments/Special Instructions	Relinquished by: (Signature) <i>Krista Keski-Hynnilla</i>	Received by: (Signature) <i>R Leesemann</i>	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: <i>Krista Keski-Hynnilla</i>	Printed Name: <i>R Leesemann</i>	Printed Name:	Printed Name:
	Company: <i>HWA Geosciences</i>	Company: <i>ARI</i>	Company:	Company:
	Date & Time: <i>11/5/2024 1335</i>	Date & Time: <i>11-5-24 1335</i>	Date & Time:	Date & Time:

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

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

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
27-Nov-2024 14:50

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SPL-GW-MW12-1124	24K0087-01	Water	05-Nov-2024 08:35	05-Nov-2024 13:35
SPL-GW-MW14-1124	24K0087-02	Water	05-Nov-2024 10:50	05-Nov-2024 13:35
SPL-GW-MW29-1124	24K0087-03	Water	05-Nov-2024 09:55	05-Nov-2024 13:35
SPL-GW-MW18-1124	24K0087-04	Water	04-Nov-2024 14:55	05-Nov-2024 13:35
SPL-GW-MW32-1124	24K0087-05	Water	04-Nov-2024 14:00	05-Nov-2024 13:35
SPL-GW-MW33-1124	24K0087-06	Water	04-Nov-2024 12:55	05-Nov-2024 13:35
SPL-GW-MW10-1124	24K0087-07	Water	04-Nov-2024 10:40	05-Nov-2024 13:35
SPL-GW-MW60-1124	24K0087-08	Water	04-Nov-2024 16:00	05-Nov-2024 13:35
SPL-GW-MW80-1124	24K0087-09	Water	04-Nov-2024 10:40	05-Nov-2024 13:35
SPL-GW-MW25-1124	24K0087-10	Water	04-Nov-2024 11:21	05-Nov-2024 13:35
SPL-GW-MW30-1124	24K0087-11	Water	05-Nov-2024 11:35	05-Nov-2024 13:35
SPL-GW-MW31-1124	24K0087-12	Water	05-Nov-2024 12:40	05-Nov-2024 13:35



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

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
27-Nov-2024 14:50

Work Order Case Narrative

Client: Seattle Public Utilities
Project: South Park Landfill
Work Order: 24K0087

Sample receipt

Samples as listed on the preceding page were received November 5, 2024 under ARI work order 24K0087. 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.



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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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 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.

Client: {CLIENT}

Project: {PROJECT}

Work Order: {WORKORDER}

Sample receipt

Samples as listed on the preceding page were received {RECEIVED} under ARI work order {WORKORDER}. For details regarding sample receipt, please refer to the Cooler Receipt Form.



WORK ORDER

24K0087

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: 553-155-067

Preservation Confirmation

Container ID	Container Type	pH
24K0087-01 A	VOA Vial, Clear, 40 mL, HCL	
24K0087-01 B	VOA Vial, Clear, 40 mL, HCL	
24K0087-01 C	VOA Vial, Clear, 40 mL, HCL	
24K0087-01 D	VOA Vial, Clear, 40 mL	
24K0087-01 E	VOA Vial, Clear, 40 mL	
24K0087-01 F	VOA Vial, Clear, 40 mL	
24K0087-01 G	HDPE NM, 500 mL, 1:1 HNO3	4.2p
24K0087-02 A	VOA Vial, Clear, 40 mL, HCL	
24K0087-02 B	VOA Vial, Clear, 40 mL, HCL	
24K0087-02 C	VOA Vial, Clear, 40 mL, HCL	
24K0087-02 D	VOA Vial, Clear, 40 mL	
24K0087-02 E	VOA Vial, Clear, 40 mL	
24K0087-02 F	VOA Vial, Clear, 40 mL	
24K0087-02 G	HDPE NM, 500 mL, 1:1 HNO3	4.2p
24K0087-03 A	VOA Vial, Clear, 40 mL, HCL	
24K0087-03 B	VOA Vial, Clear, 40 mL, HCL	
24K0087-03 C	VOA Vial, Clear, 40 mL, HCL	
24K0087-03 D	VOA Vial, Clear, 40 mL	
24K0087-03 E	VOA Vial, Clear, 40 mL	
24K0087-03 F	VOA Vial, Clear, 40 mL	
24K0087-03 G	HDPE NM, 500 mL, 1:1 HNO3	4.2p
24K0087-04 A	HDPE NM, 500 mL, 1:1 HNO3	4.2p
24K0087-04 B	VOA Vial, Clear, 40 mL, HCL	
24K0087-04 C	VOA Vial, Clear, 40 mL, HCL	
24K0087-04 D	VOA Vial, Clear, 40 mL, HCL	
24K0087-04 E	VOA Vial, Clear, 40 mL, HCL	
24K0087-04 F	VOA Vial, Clear, 40 mL, HCL	
24K0087-04 G	VOA Vial, Clear, 40 mL, HCL	
24K0087-04 H	VOA Vial, Clear, 40 mL	
24K0087-04 I	VOA Vial, Clear, 40 mL	
24K0087-04 J	VOA Vial, Clear, 40 mL	
24K0087-04 K	VOA Vial, Clear, 40 mL	
24K0087-04 L	VOA Vial, Clear, 40 mL	
24K0087-04 M	VOA Vial, Clear, 40 mL	



WORK ORDER

24K0087

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: 553-155-067

24K0087-05 A	VOA Vial, Clear, 40 mL, HCL	
24K0087-05 B	VOA Vial, Clear, 40 mL, HCL	
24K0087-05 C	VOA Vial, Clear, 40 mL, HCL	
24K0087-05 D	VOA Vial, Clear, 40 mL	
24K0087-05 E	VOA Vial, Clear, 40 mL	
24K0087-05 F	VOA Vial, Clear, 40 mL	
24K0087-05 G	HDPE NM, 500 mL, 1:1 HNO3	L2p
24K0087-06 A	VOA Vial, Clear, 40 mL, HCL	
24K0087-06 B	VOA Vial, Clear, 40 mL, HCL	
24K0087-06 C	VOA Vial, Clear, 40 mL, HCL	
24K0087-06 D	VOA Vial, Clear, 40 mL	
24K0087-06 E	VOA Vial, Clear, 40 mL	
24K0087-06 F	VOA Vial, Clear, 40 mL	
24K0087-06 G	HDPE NM, 500 mL, 1:1 HNO3	L2p
24K0087-07 A	VOA Vial, Clear, 40 mL, HCL	
24K0087-07 B	VOA Vial, Clear, 40 mL, HCL	
24K0087-07 C	VOA Vial, Clear, 40 mL, HCL	
24K0087-07 D	VOA Vial, Clear, 40 mL	
24K0087-07 E	VOA Vial, Clear, 40 mL	
24K0087-07 F	VOA Vial, Clear, 40 mL	
24K0087-07 G	HDPE NM, 500 mL, 1:1 HNO3	L2p
24K0087-08 A	VOA Vial, Clear, 40 mL, HCL	
24K0087-08 B	VOA Vial, Clear, 40 mL, HCL	
24K0087-08 C	VOA Vial, Clear, 40 mL, HCL	
24K0087-08 D	VOA Vial, Clear, 40 mL	
24K0087-08 E	VOA Vial, Clear, 40 mL	
24K0087-08 F	VOA Vial, Clear, 40 mL	
24K0087-08 G	HDPE NM, 500 mL, 1:1 HNO3	L2p
24K0087-09 A	VOA Vial, Clear, 40 mL, HCL	
24K0087-09 B	VOA Vial, Clear, 40 mL	
24K0087-10 A	VOA Vial, Clear, 40 mL, HCL	
24K0087-10 B	VOA Vial, Clear, 40 mL, HCL	
24K0087-10 C	VOA Vial, Clear, 40 mL, HCL	
24K0087-10 D	VOA Vial, Clear, 40 mL	
24K0087-10 E	VOA Vial, Clear, 40 mL	
24K0087-10 F	VOA Vial, Clear, 40 mL	



WORK ORDER

24K0087

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: 553-155-067

24K0087-10 G	HDPE NM, 500 mL, 1:1 HNO3	L2p
24K0087-11 A	VOA Vial, Clear, 40 mL, HCL	
24K0087-11 B	VOA Vial, Clear, 40 mL, HCL	
24K0087-11 C	VOA Vial, Clear, 40 mL, HCL	
24K0087-11 D	VOA Vial, Clear, 40 mL	
24K0087-11 E	VOA Vial, Clear, 40 mL	
24K0087-11 F	VOA Vial, Clear, 40 mL	
24K0087-11 G	HDPE NM, 500 mL, 1:1 HNO3	L2p
24K0087-12 A	VOA Vial, Clear, 40 mL, HCL	
24K0087-12 B	VOA Vial, Clear, 40 mL, HCL	
24K0087-12 C	VOA Vial, Clear, 40 mL, HCL	
24K0087-12 D	VOA Vial, Clear, 40 mL	
24K0087-12 E	VOA Vial, Clear, 40 mL	
24K0087-12 F	VOA Vial, Clear, 40 mL	
24K0087-12 G	HDPE NM, 500 mL, 1:1 HNO3	L2p

SA

Preservation Confirmed By _____

11/05/24

Date _____



Cooler Receipt Form

ARI Client: SPU

Project Name: South Park Landfill

COC No(s): _____ (NA)

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

Assigned ARI Job No: 24K0087

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) Time B35 10:4 5:8 Temp Gun ID#: 5009708
 Was a temperature blank included in the cooler? YES (NO)
 Were coolers received between 0°- 6° (°C) YES (NO)
 Was sufficient ice used (if appropriate)? NA YES (NO)

Cooler Accepted by: RL Date: 11-9-24 Time: 1335

Complete custody forms and attach all shipping documents

Log-In Phase:

What kind of packing material was used? Bubble Wrap Wet Ice (X) Gel Packs Baggies Foam Block N/A Other: _____
 Are any samples that were out of temperature compliance documented in LIMS? 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: SA Date: 11/05/24 Time: 1500 Labels checked by: SA

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

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW12-1124
24K0087-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Sampled: 11/05/2024 08:35
Instrument: NT20 Analyst: LN	Analyzed: 11/07/2024 14:10
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0087-01 C
Preparation Batch: BMK0166	Sample Size: 10 mL
Prepared: 11/07/2024	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
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	102	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW12-1124
24K0087-01 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 11/05/2024 08:35
Instrument: NT16 Analyst: MN	Analyzed: 11/06/2024 14:54
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0087-01 D
Preparation Batch: BMK0128	Sample Size: 10 mL
Prepared: 11/06/2024	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
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>99.6</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW12-1124
24K0087-01 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: HAL	Sampled: 11/05/2024 08:35	Analyzed: 11/25/2024 17:43
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMK0386	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 11/15/2024		Extract ID: 24K0087-01 G 01	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	ND	mg/L	U
Manganese	7439-96-5	10	0.00500	0.0168	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW14-1124
24K0087-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 11/05/2024 10:50
Instrument: NT20 Analyst: LN	Preparation Batch: BMK0166	Analyzed: 11/07/2024 14:33
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24K0087-02 C
	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
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	101	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW14-1124
24K0087-02 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 11/05/2024 10:50
Instrument: NT16 Analyst: MN	Analyzed: 11/06/2024 15:15
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0087-02 D
Preparation Batch: BMK0128	Sample Size: 10 mL
Prepared: 11/06/2024	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
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>100</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW14-1124
24K0087-02 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: HAL	Sampled: 11/05/2024 10:50	Analyzed: 11/15/2024 21:09
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMK0386	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 11/15/2024		Extract ID: 24K0087-02 G	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	3.02	mg/L	D
Manganese	7439-96-5	20	0.0100	0.735	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW29-1124
24K0087-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Sampled: 11/05/2024 09:55
Instrument: NT20 Analyst: LN	Analyzed: 11/07/2024 14:56
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0087-03 C
Preparation Batch: BMK0166	Sample Size: 10 mL
Prepared: 11/07/2024	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
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	103	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW29-1124
24K0087-03 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 11/05/2024 09:55
Instrument: NT16 Analyst: MN	Analyzed: 11/06/2024 15:36
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0087-03 D
Preparation Batch: BMK0128	Sample Size: 10 mL
Prepared: 11/06/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0442	ug/L	M
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>101</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW29-1124
24K0087-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Preparation Method: REN - EPA 3010A M	Sample Size: 25 mL	Sampled: 11/05/2024 09:55
Instrument: ICPMS1 Analyst: HAL	Preparation Batch: BMK0386	Final Volume: 25 mL	Analyzed: 11/15/2024 21:13
Sample Preparation:	Prepared: 11/15/2024	Extract ID: 24K0087-03 G	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	45.7	mg/L	D
Manganese	7439-96-5	50	0.0250	0.712	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW18-1124
24K0087-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 11/04/2024 14:55
Instrument: NT20 Analyst: LN	Preparation Batch: BMK0166	Analyzed: 11/07/2024 15:19
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24K0087-04 C
	Final Volume: 10 mL	
Prepared: 11/07/2024		

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>102</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW18-1124
24K0087-04 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 11/04/2024 14:55
Instrument: NT16 Analyst: MN	Analyzed: 11/06/2024 15:57
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0087-04 H
Preparation Batch: BMK0128	Sample Size: 10 mL
Prepared: 11/06/2024	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
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>102</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW18-1124
24K0087-04 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: HAL	Sampled: 11/04/2024 14:55	Analyzed: 11/15/2024 20:10
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMK0386	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 11/15/2024		Extract ID: 24K0087-04 A	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	11.6	mg/L	D
Manganese	7439-96-5	20	0.0100	0.727	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW32-1124
24K0087-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 11/04/2024 14:00
Instrument: NT20 Analyst: LN	Preparation Batch: BMK0166	Analyzed: 11/07/2024 15:42
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24K0087-05 C
	Final Volume: 10 mL	
Prepared: 11/07/2024		

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.47	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	102	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW32-1124
24K0087-05 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 11/04/2024 14:00
Instrument: NT16 Analyst: MN	Analyzed: 11/06/2024 16:18
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0087-05 F
Preparation Batch: BMK0128	Sample Size: 10 mL
Prepared: 11/06/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.357	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>102</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW32-1124
24K0087-05 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Preparation Method: REN - EPA 3010A M	Sample Size: 25 mL	Sampled: 11/04/2024 14:00
Instrument: ICPMS1 Analyst: HAL	Preparation Batch: BMK0386	Final Volume: 25 mL	Analyzed: 11/15/2024 21:18
Sample Preparation:	Prepared: 11/15/2024	Extract ID: 24K0087-05 G	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	14.4	mg/L	D
Manganese	7439-96-5	20	0.0100	1.16	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW33-1124
24K0087-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Sampled: 11/04/2024 12:55
Instrument: NT20 Analyst: LN	Analyzed: 11/07/2024 16:05
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0087-06 C
Preparation Batch: BMK0166	Sample Size: 10 mL
Prepared: 11/07/2024	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
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>101</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW33-1124
24K0087-06 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 11/04/2024 12:55
Instrument: NT16 Analyst: MN	Analyzed: 11/06/2024 16:38
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0087-06 D
Preparation Batch: BMK0128	Sample Size: 10 mL
Prepared: 11/06/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.190	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>102</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW33-1124
24K0087-06 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: HAL	Sampled: 11/04/2024 12:55	Analyzed: 11/15/2024 21:22
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMK0386	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 11/15/2024		Extract ID: 24K0087-06 G	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	50	1.80	14.7	mg/L	D
Manganese	7439-96-5	50	0.0250	1.77	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW10-1124
24K0087-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 11/04/2024 10:40
Instrument: NT20 Analyst: LN	Preparation Batch: BMK0166	Analyzed: 11/07/2024 16:28
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24K0087-07 C
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.76	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	100	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW10-1124
24K0087-07 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 11/04/2024 10:40
Instrument: NT16 Analyst: MN	Analyzed: 11/06/2024 16:59
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0087-07 D
Preparation Batch: BMK0128	Sample Size: 10 mL
Prepared: 11/06/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.125	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	103	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW10-1124
24K0087-07 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Preparation Method: REN - EPA 3010A M	Sample Size: 25 mL	Sampled: 11/04/2024 10:40
Instrument: ICPMS1 Analyst: HAL	Preparation Batch: BMK0386	Final Volume: 25 mL	Analyzed: 11/15/2024 21:27
Sample Preparation:	Prepared: 11/15/2024	Extract ID: 24K0087-07 G	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	50	1.80	36.2	mg/L	D
Manganese	7439-96-5	50	0.0250	2.25	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW60-1124
24K0087-08 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 11/04/2024 16:00
Instrument: NT20 Analyst: LN	Preparation Batch: BMK0166	Analyzed: 11/07/2024 16:51
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24K0087-08 C
	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
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	102	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW60-1124
24K0087-08 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 11/04/2024 16:00
Instrument: NT16 Analyst: MN	Analyzed: 11/06/2024 17:20
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0087-08 D
Preparation Batch: BMK0128	Sample Size: 10 mL
Prepared: 11/06/2024	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
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>101</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW60-1124
24K0087-08 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: HAL	Sampled: 11/04/2024 16:00	Analyzed: 11/15/2024 21:31
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMK0386	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 11/15/2024		Extract ID: 24K0087-08 G	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	11.1	mg/L	D
Manganese	7439-96-5	20	0.0100	0.688	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW80-1124
24K0087-09 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 11/04/2024 10:40
Instrument: NT20 Analyst: LN	Preparation Batch: BMK0166	Analyzed: 11/07/2024 11:51
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24K0087-09 A
	Final Volume: 10 mL	
	Prepared: 11/07/2024	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>101</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW80-1124
24K0087-09 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 11/04/2024 10:40
Instrument: NT16 Analyst: MN	Analyzed: 11/06/2024 14:33
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0087-09 B
Preparation Batch: BMK0128	Sample Size: 10 mL
Prepared: 11/06/2024	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
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>97.9</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW25-1124
24K0087-10 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Sampled: 11/04/2024 11:21
Instrument: NT20 Analyst: LN	Analyzed: 11/07/2024 17:14
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0087-10 C
Preparation Batch: BMK0166	Sample Size: 10 mL
Prepared: 11/07/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.22	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	101	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW25-1124
24K0087-10 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 11/04/2024 11:21
Instrument: NT16 Analyst: MN	Analyzed: 11/06/2024 17:40
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0087-10 D
Preparation Batch: BMK0128	Sample Size: 10 mL
Prepared: 11/06/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.441	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>104</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW25-1124
24K0087-10 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Sampled: 11/04/2024 11:21
Instrument: ICPMS1 Analyst: HAL	Analyzed: 11/15/2024 21:36
Sample Preparation: Preparation Method: REN - EPA 3010A M	Extract ID: 24K0087-10 G
Preparation Batch: BMK0386	Sample Size: 25 mL
Prepared: 11/15/2024	Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	100	3.60	28.1	mg/L	D
Manganese	7439-96-5	100	0.0500	2.59	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW30-1124
24K0087-11 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 11/05/2024 11:35
Instrument: NT20 Analyst: LN	Preparation Batch: BMK0166	Analyzed: 11/07/2024 17:37
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24K0087-11 C
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.41	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	103	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW30-1124
24K0087-11 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 11/05/2024 11:35
Instrument: NT16 Analyst: MN	Analyzed: 11/06/2024 18:00
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0087-11 D
Preparation Batch: BMK0128	Sample Size: 10 mL
Prepared: 11/06/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.259	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	104	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW30-1124
24K0087-11 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: HAL	Sampled: 11/05/2024 11:35	Analyzed: 11/15/2024 21:40
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMK0386	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 11/15/2024		Extract ID: 24K0087-11 G	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	5	0.180	4.67	mg/L	D
Manganese	7439-96-5	20	0.0100	0.178	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW31-1124
24K0087-12 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Sampled: 11/05/2024 12:40
Instrument: NT20 Analyst: LN	Analyzed: 11/07/2024 18:00
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0087-12 B
Preparation Batch: BMK0166	Sample Size: 10 mL
Prepared: 11/07/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.36	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	99.8	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW31-1124
24K0087-12 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 11/05/2024 12:40
Instrument: NT16 Analyst: MN	Analyzed: 11/06/2024 18:21
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0087-12 D
Preparation Batch: BMK0128	Sample Size: 10 mL
Prepared: 11/06/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.776	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	103	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW31-1124
24K0087-12 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: HAL	Sampled: 11/05/2024 12:40	Analyzed: 11/15/2024 22:19
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMK0386	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 11/15/2024		Extract ID: 24K0087-12 G	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	18.8	mg/L	D
Manganese	7439-96-5	20	0.0100	0.864	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMK0166 - 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 (BMK0166-BLK1)					Prepared: 07-Nov-2024 Analyzed: 07-Nov-2024 10:09					
cis-1,2-Dichloroethene	ND	0.20	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5.21		ug/L	5.00		104	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMK0166 - 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 (BMK0166-BS1)					Prepared: 07-Nov-2024 Analyzed: 07-Nov-2024 09:00					
cis-1,2-Dichloroethene	9.82	0.20	ug/L	10.0		98.2	80-121			
Surrogate: 1,2-Dichloroethane-d4	5.22		ug/L	5.00		104	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMK0166 - 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 (BMK0166-BSD1)				Prepared: 07-Nov-2024 Analyzed: 07-Nov-2024 09:23						
cis-1,2-Dichloroethene	10.0	0.20	ug/L	10.0		100	80-121	2.18	30	
Surrogate: 1,2-Dichloroethane-d4	5.02		ug/L	5.00		100	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMK0166 - 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 (BMK0166-MS1)		Source: 24K0087-04		Prepared: 07-Nov-2024		Analyzed: 07-Nov-2024 18:46				
cis-1,2-Dichloroethene	10.0	0.20	ug/L	10.0	ND	100	80-121			
Surrogate: 1,2-Dichloroethane-d4	4.98		ug/L	5.00	5.12	99.7	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMK0166 - 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 (BMK0166-MSD1)		Source: 24K0087-04		Prepared: 07-Nov-2024		Analyzed: 07-Nov-2024 19:09				
cis-1,2-Dichloroethene	9.86	0.20	ug/L	10.0	ND	98.6	80-121	1.41	30	
Surrogate: 1,2-Dichloroethane-d4	5.13		ug/L	5.00	5.12	103	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMK0128 - EPA 8260D-SIM

Instrument: NT16 Analyst: MN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMK0128-BLK1)					Prepared: 06-Nov-2024 Analyzed: 06-Nov-2024 13:32					
Vinyl chloride	ND	0.0200	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5010		ug/L	5000		100	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMK0128 - EPA 8260D-SIM

Instrument: NT16 Analyst: MN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMK0128-BS1)					Prepared: 06-Nov-2024 Analyzed: 06-Nov-2024 12:30					
Vinyl chloride	1.65	0.0200	ug/L	2.00		82.3	62-141			
Surrogate: 1,2-Dichloroethane-d4	5170		ug/L	5000		103	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMK0128 - EPA 8260D-SIM

Instrument: NT16 Analyst: MN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMK0128-BSD1)					Prepared: 06-Nov-2024 Analyzed: 06-Nov-2024 12:51					
Vinyl chloride	2.06	0.0200	ug/L	2.00	103	103	62-141	22.20	30	
Surrogate: 1,2-Dichloroethane-d4	5170		ug/L	5000	103	103	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMK0128 - EPA 8260D-SIM

Instrument: NT16 Analyst: MN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BMK0128-MS1)		Source: 24K0087-04		Prepared: 06-Nov-2024		Analyzed: 06-Nov-2024 18:42				
Vinyl chloride	1.93	0.0200	ug/L	2.00	ND	95.7	62-141			
Surrogate: 1,2-Dichloroethane-d4	5260		ug/L	5000	5100	105	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMK0128 - EPA 8260D-SIM

Instrument: NT16 Analyst: MN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BMK0128-MSD1)		Source: 24K0087-04		Prepared: 06-Nov-2024		Analyzed: 06-Nov-2024 19:03				
Vinyl chloride	2.07	0.0200	ug/L	2.00	ND	102	62-141	6.63	30	
Surrogate: 1,2-Dichloroethane-d4	5270		ug/L	5000	5100	105	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BMK0386 - 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 (BMK0386-BLK1)					Prepared: 15-Nov-2024 Analyzed: 15-Nov-2024 18:07						
Iron	54	ND	0.0360	mg/L							U
Iron	57	ND	0.0360	mg/L							U
Manganese	55	ND	0.000500	mg/L							U

LCS (BMK0386-BS1)					Prepared: 15-Nov-2024 Analyzed: 15-Nov-2024 18:11						
Iron	54	4.89	0.0360	mg/L	5.00		97.9	80-120			
Iron	57	4.94	0.0360	mg/L	5.00		98.8	80-120			
Manganese	55	0.0230	0.000500	mg/L	0.0250		91.8	80-120			

Duplicate (BMK0386-DUP1)					Source: 24K0087-04 Prepared: 15-Nov-2024 Analyzed: 15-Nov-2024 20:14						
Iron	54	11.7	0.720	mg/L		11.6			1.25	20	D
Manganese	55	0.722	0.0100	mg/L		0.727			0.76	20	D

Matrix Spike (BMK0386-MS1)					Source: 24K0087-04 Prepared: 15-Nov-2024 Analyzed: 15-Nov-2024 20:19						
Iron	54	15.7	0.720	mg/L	5.00	11.6	83.0	75-125			D
Manganese	55	0.722	0.0100	mg/L	0.0250	0.727	-22.4	75-125			*, D

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

Matrix Spike Dup (BMK0386-MSD1)					Source: 24K0087-04 Prepared: 15-Nov-2024 Analyzed: 15-Nov-2024 20:23						
Iron	54	15.9	0.720	mg/L	5.00	11.6	86.5	75-125	1.09	20	D
Manganese	55	0.738	0.0100	mg/L	0.0250	0.727	42.8	75-125	2.23	20	*, D

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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Certified Analyses included in this Report

Analyte	Certifications
EPA 6020B in Water	
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
EPA 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	05/12/2025
WADOE	WA Dept of Ecology	C558	06/30/2025
WA-DW	Ecology - Drinking Water	C558	06/30/2025



Seattle Public Utilities

700-5th Ave, Ste 4900, Box 34018

Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water

Project Number: 553-155-067

Project Manager: Min-Soon Yim

Reported:

27-Nov-2024 14:50

Notes and Definitions

- * Flagged value is not within established control limits.
- D The reported value is from a dilution
- J Estimated concentration value detected below the reporting limit.
- M Estimated value for a GC/MS analyte detected and confirmed by an analyst but with low spectral match parameters.
- U This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- [2C] Indicates this result was quantified on the second column on a dual column analysis.



Analytical Resources, LLC
Analytical Chemists and Consultants
Tukwila, WA

01 December 2024

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

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

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

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

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

Associated Work Order(s)
24K0161

Associated SDG ID(s)
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 enclosed Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

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

Analytical Resources, 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.



Chain of Custody Record & Laboratory Analysis Request

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

ARI Assigned Number: <u>24K0161</u>	Turn-around Requested: 2 weeks	Date: <u>11/6/2024</u>
ARI Client Company: Min Soon Yim, Seattle Public Utility	Phone: 206 684-7693	Page: <u>1</u> of <u>1</u>
Client Contact: Laura Lee, Parametrix	Phone: 206 394-3665	No. of Coolers: <u>1</u> Cooler Temps: <u>6.4°C</u>

Client Project Name: SPU South Park Landfill					Analysis Requested										Notes/Comments			
Client Project #: 553-1550-067		Samplers: Richard Anderson & Krista Keski-Hynnilla HWA			cis-1,2-DCE	Vinyl Chloride	Total Fe, Mn											
Sample ID	Date	Time	Matrix	Number of Containers														
SPL-GW-MW25-1124			water	7	X	X	X											
SPL-GW-MW30-1124			water	7	X	X	X											
SPL-GW-MW31-1124			water	7	X	X	X											
SPL-GW-MW24-1124	<u>11/6/2024</u>	<u>0915</u>	water	13	X	X	X											MS/MSD
SPL-GW-MW26-1124	<u>11/6/2024</u>	<u>0830</u>	water	7	X	X	X											
SPL-GW-MW08-1124	<u>11/6/2024</u>	<u>1105</u>	water	7	X	X	X											
SPL-GW-MW27-1124	<u>11/6/2024</u>	<u>1025</u>	water	7	X	X	X											
SPL-GW-MW61-1124	<u>11/6/2024</u>	<u>1000</u>	water	7	X	X	X											
SPL-GW-MW81-1124	<u>11/6/2024</u>	<u>—</u>	water	2	X	X												

Comments/Special Instructions	Relinquished by: (Signature) <u>Krista Keski-Hynnilla</u>	Received by: (Signature) <u>Matthew Danne</u>	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: <u>Krista Keski-Hynnilla</u>	Printed Name: <u>Matthew Danne</u>	Printed Name:	Printed Name:
	Company: <u>HWA Geosciences</u>	Company: <u>ARCC</u>	Company:	Company:
	Date & Time: <u>11/6/2024 1140</u>	Date & Time: <u>11/6/24 1140</u>	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
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
01-Dec-2024 13:25

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SPL-GW-MW24-1124	24K0161-01	Water	06-Nov-2024 09:15	06-Nov-2024 11:40
SPL-GW-MW26-1124	24K0161-02	Water	06-Nov-2024 08:30	06-Nov-2024 11:40
SPL-GW-MW08-1124	24K0161-03	Water	06-Nov-2024 11:05	06-Nov-2024 11:40
SPL-GW-MW27-1124	24K0161-04	Water	06-Nov-2024 10:25	06-Nov-2024 11:40
SPL-GW-MW61-1124	24K0161-05	Water	06-Nov-2024 10:00	06-Nov-2024 11:40
SPL-GW-MW81-1124	24K0161-06	Water	06-Nov-2024 08:30	06-Nov-2024 11:40



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

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
01-Dec-2024 13:25

Work Order Case Narrative

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.

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.



Seattle Public Utilities

700-5th Ave, Ste 4900, Box 34018

Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water

Project Number: 553-155-067

Project Manager: Min-Soon Yim

Reported:

01-Dec-2024 13:25

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

24K0161

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: 553-155-067

Preservation Confirmation

Container ID	Container Type	pH
24K0161-01 A	HDPE NM, 500 mL, 1:1 HNO3	L2p
24K0161-01 B	VOA Vial, Clear, 40 mL, HCL	
24K0161-01 C	VOA Vial, Clear, 40 mL, HCL	
24K0161-01 D	VOA Vial, Clear, 40 mL, HCL	
24K0161-01 E	VOA Vial, Clear, 40 mL, HCL	
24K0161-01 F	VOA Vial, Clear, 40 mL, HCL	
24K0161-01 G	VOA Vial, Clear, 40 mL, HCL	
24K0161-01 H	VOA Vial, Clear, 40 mL	
24K0161-01 I	VOA Vial, Clear, 40 mL	
24K0161-01 J	VOA Vial, Clear, 40 mL	
24K0161-01 K	VOA Vial, Clear, 40 mL	
24K0161-01 L	VOA Vial, Clear, 40 mL	
24K0161-01 M	VOA Vial, Clear, 40 mL	
24K0161-02 A	HDPE NM, 500 mL, 1:1 HNO3	L2p
24K0161-02 B	VOA Vial, Clear, 40 mL, HCL	
24K0161-02 C	VOA Vial, Clear, 40 mL, HCL	
24K0161-02 D	VOA Vial, Clear, 40 mL, HCL	
24K0161-02 E	VOA Vial, Clear, 40 mL	
24K0161-02 F	VOA Vial, Clear, 40 mL	
24K0161-02 G	VOA Vial, Clear, 40 mL	
24K0161-03 A	HDPE NM, 500 mL, 1:1 HNO3	L2p
24K0161-03 B	VOA Vial, Clear, 40 mL, HCL	
24K0161-03 C	VOA Vial, Clear, 40 mL, HCL	
24K0161-03 D	VOA Vial, Clear, 40 mL, HCL	
24K0161-03 E	VOA Vial, Clear, 40 mL	
24K0161-03 F	VOA Vial, Clear, 40 mL	
24K0161-03 G	VOA Vial, Clear, 40 mL	
24K0161-04 A	HDPE NM, 500 mL, 1:1 HNO3	L2p
24K0161-04 B	VOA Vial, Clear, 40 mL, HCL	
24K0161-04 C	VOA Vial, Clear, 40 mL, HCL	
24K0161-04 D	VOA Vial, Clear, 40 mL, HCL	
24K0161-04 E	VOA Vial, Clear, 40 mL	
24K0161-04 F	VOA Vial, Clear, 40 mL	
24K0161-04 G	VOA Vial, Clear, 40 mL	



WORK ORDER

24K0161

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: 553-155-067

24K0161-05 A	HDPE NM, 500 mL, 1:1 HNO3	<i>LZP</i>
24K0161-05 B	VOA Vial, Clear, 40 mL, HCL	
24K0161-05 C	VOA Vial, Clear, 40 mL, HCL	
24K0161-05 D	VOA Vial, Clear, 40 mL, HCL	
24K0161-05 E	VOA Vial, Clear, 40 mL	
24K0161-05 F	VOA Vial, Clear, 40 mL	
24K0161-05 G	VOA Vial, Clear, 40 mL	
24K0161-06 A	VOA Vial, Clear, 40 mL, HCL	
24K0161-06 B	VOA Vial, Clear, 40 mL	

Preservation Confirmed By SA

Date 11/07/24



Cooler Receipt Form

ARI Client: Parametrix

Project Name: SP4 South Park Landfill

COC No(s): _____ NA

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

Assigned ARI Job No: 24K0161

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) Time 140 6:40 Temp Gun ID#: 50974

Was a temperature blank included in the cooler? YES NO

Were coolers received between 0°- 6° (°C) YES NO

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

Cooler Accepted by: MD Date: 11/04/24 Time: 1140

Complete custody forms and attach all shipping documents

Log-In Phase:

What kind of packing material was used? Bubble Wrap Wet Ice Gel Packs Baggies Foam Block N/A Other: _____

Are any samples that were out of temperature compliance documented in LIMS? 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: SA Date: 11/07/24 Time: 1453 Labels checked by: SA

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

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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SPL-GW-MW24-1124
24K0161-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Sampled: 11/06/2024 09:15
Instrument: NT3 Analyst: LH	Analyzed: 11/08/2024 00:44
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0161-01 D
Preparation Batch: BMK0181	Sample Size: 10 mL
Prepared: 11/07/2024	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
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	110	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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SPL-GW-MW24-1124
24K0161-01 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 11/06/2024 09:15
Instrument: NT16 Analyst: MN	Analyzed: 11/08/2024 14:15
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0161-01 H
Preparation Batch: BMK0197	Sample Size: 10 mL
Prepared: 11/08/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0524	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>101</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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SPL-GW-MW24-1124
24K0161-01 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: HAL	Sampled: 11/06/2024 09:15	Analyzed: 11/25/2024 18:03
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMK0480	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 11/19/2024		Extract ID: 24K0161-01 A 01	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	100	3.60	23.4	mg/L	D
Manganese	7439-96-5	50	0.0250	1.51	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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SPL-GW-MW26-1124
24K0161-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 11/06/2024 08:30
Instrument: NT3 Analyst: LH	Preparation Batch: BMK0181	Analyzed: 11/08/2024 01:06
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24K0161-02 D
	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
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>107</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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SPL-GW-MW26-1124
24K0161-02 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 11/06/2024 08:30
Instrument: NT16 Analyst: MN	Analyzed: 11/08/2024 14:35
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0161-02 E
Preparation Batch: BMK0197	Sample Size: 10 mL
Prepared: 11/08/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0264	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>104</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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SPL-GW-MW26-1124
24K0161-02 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: HAL	Sampled: 11/06/2024 08:30	Analyzed: 11/25/2024 17:47
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMK0480	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 11/19/2024		Extract ID: 24K0161-02 A 01	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	6.94	mg/L	D
Manganese	7439-96-5	10	0.00500	0.0945	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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SPL-GW-MW08-1124
24K0161-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Sampled: 11/06/2024 11:05
Instrument: NT3 Analyst: LH	Analyzed: 11/08/2024 01:28
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0161-03 B
Preparation Batch: BMK0181	Sample Size: 10 mL
Prepared: 11/07/2024	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
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>108</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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SPL-GW-MW08-1124
24K0161-03 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 11/06/2024 11:05
Instrument: NT16 Analyst: MN	Analyzed: 11/08/2024 14:56
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0161-03 E
Preparation Batch: BMK0197	Sample Size: 10 mL
Prepared: 11/08/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0545	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>101</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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SPL-GW-MW08-1124
24K0161-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: HAL	Sampled: 11/06/2024 11:05	Analyzed: 11/25/2024 17:51
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMK0480	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 11/19/2024		Extract ID: 24K0161-03 A 01	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	50	1.80	12.3	mg/L	D
Manganese	7439-96-5	20	0.0100	0.714	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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SPL-GW-MW27-1124
24K0161-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Sampled: 11/06/2024 10:25
Instrument: NT3 Analyst: LH	Analyzed: 11/08/2024 01:50
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0161-04 C
Preparation Batch: BMK0181	Sample Size: 10 mL
Prepared: 11/07/2024	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
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	113	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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SPL-GW-MW27-1124
24K0161-04 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 11/06/2024 10:25
Instrument: NT16 Analyst: MN	Analyzed: 11/08/2024 15:17
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0161-04 E
Preparation Batch: BMK0197	Sample Size: 10 mL
Prepared: 11/08/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0452	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>103</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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SPL-GW-MW27-1124
24K0161-04 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Sampled: 11/06/2024 10:25	
Instrument: ICPMS1 Analyst: HAL	Analyzed: 11/25/2024 17:55	
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Extract ID: 24K0161-04 A 01
	Preparation Batch: BMK0480	Sample Size: 25 mL
	Prepared: 11/19/2024	Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	50	1.80	21.3	mg/L	D
Manganese	7439-96-5	10	0.00500	0.530	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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SPL-GW-MW61-1124
24K0161-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Sampled: 11/06/2024 10:00
Instrument: NT3 Analyst: LH	Analyzed: 11/08/2024 02:12
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0161-05 C
Preparation Batch: BMK0181	Sample Size: 10 mL
Prepared: 11/07/2024	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
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>111</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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SPL-GW-MW61-1124
24K0161-05 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 11/06/2024 10:00
Instrument: NT16 Analyst: MN	Analyzed: 11/08/2024 15:37
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0161-05 E
Preparation Batch: BMK0197	Sample Size: 10 mL
Prepared: 11/08/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0544	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>103</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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SPL-GW-MW61-1124
24K0161-05 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: HAL	Sampled: 11/06/2024 10:00	Analyzed: 11/25/2024 17:59
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMK0480	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 11/19/2024		Extract ID: 24K0161-05 A 01	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	50	1.80	22.1	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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SPL-GW-MW61-1124
24K0161-05 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Sampled: 11/06/2024 10:00
Instrument: ICPMS2 Analyst: MCB	Analyzed: 11/27/2024 18:03
Sample Preparation: Preparation Method: REN - EPA 3010A M	Extract ID: 24K0161-05 A 01
Preparation Batch: BMK0480	Sample Size: 25 mL
Prepared: 11/19/2024	Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	50	0.0250	1.59	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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SPL-GW-MW81-1124
24K0161-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 11/06/2024 08:30
Instrument: NT3 Analyst: LH	Preparation Batch: BMK0181	Analyzed: 11/07/2024 19:56
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24K0161-06 A
	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
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	95.6	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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SPL-GW-MW81-1124
24K0161-06 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 11/06/2024 08:30
Instrument: NT16 Analyst: MN	Analyzed: 11/08/2024 13:54
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0161-06 B
Preparation Batch: BMK0197	Sample Size: 10 mL
Prepared: 11/08/2024	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
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>98.2</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMK0181 - EPA 8260D

Instrument: NT3 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMK0181-BLK1)					Prepared: 07-Nov-2024 Analyzed: 07-Nov-2024 18:49					
cis-1,2-Dichloroethene	ND	0.20	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	4.64		ug/L	5.00		92.7	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMK0181 - EPA 8260D

Instrument: NT3 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMK0181-BS1)					Prepared: 07-Nov-2024 Analyzed: 07-Nov-2024 17:43					
cis-1,2-Dichloroethene	9.99	0.20	ug/L	10.0		99.9	80-121			
Surrogate: 1,2-Dichloroethane-d4	4.81		ug/L	5.00		96.1	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMK0181 - EPA 8260D

Instrument: NT3 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMK0181-BSD1)					Prepared: 07-Nov-2024 Analyzed: 07-Nov-2024 18:05					
cis-1,2-Dichloroethene	9.65	0.20	ug/L	10.0		96.5	80-121	3.43	30	
Surrogate: 1,2-Dichloroethane-d4	4.89		ug/L	5.00		97.7	80-129			



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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMK0181 - EPA 8260D

Instrument: NT3 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BMK0181-MS1)		Source: 24K0161-01		Prepared: 07-Nov-2024		Analyzed: 08-Nov-2024 02:35				
cis-1,2-Dichloroethene	6.86	0.20	ug/L	10.0	ND	68.6	80-121			*
Surrogate: 1,2-Dichloroethane-d4	5.32		ug/L	5.00	5.51	106	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMK0181 - EPA 8260D

Instrument: NT3 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BMK0181-MSD1)		Source: 24K0161-01		Prepared: 07-Nov-2024		Analyzed: 08-Nov-2024 02:57				
cis-1,2-Dichloroethene	6.59	0.20	ug/L	10.0	ND	65.9	80-121	4.08	30	*
Surrogate: 1,2-Dichloroethane-d4	5.42		ug/L	5.00	5.51	108	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMK0197 - EPA 8260D-SIM

Instrument: NT16 Analyst: MN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMK0197-BLK1)					Prepared: 08-Nov-2024 Analyzed: 08-Nov-2024 12:31					
Vinyl chloride	ND	0.0200	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5070		ug/L	5000		101	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMK0197 - EPA 8260D-SIM

Instrument: NT16 Analyst: MN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMK0197-BS1)					Prepared: 08-Nov-2024 Analyzed: 08-Nov-2024 11:29					
Vinyl chloride	1.81	0.0200	ug/L	2.00		90.4	62-141			
Surrogate: 1,2-Dichloroethane-d4	5210		ug/L	5000		104	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMK0197 - EPA 8260D-SIM

Instrument: NT16 Analyst: MN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMK0197-BSD1)					Prepared: 08-Nov-2024 Analyzed: 08-Nov-2024 11:50					
Vinyl chloride	1.93	0.0200	ug/L	2.00		96.6	62-141	6.64	30	
Surrogate: 1,2-Dichloroethane-d4	5180		ug/L	5000		104	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMK0197 - EPA 8260D-SIM

Instrument: NT16 Analyst: MN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BMK0197-MS1)		Source: 24K0161-01		Prepared: 08-Nov-2024		Analyzed: 08-Nov-2024 15:58				
Vinyl chloride	1.96	0.0200	ug/L	2.00	0.0524	95.2	62-141			
Surrogate: 1,2-Dichloroethane-d4	5370		ug/L	5000	5040	107	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMK0197 - EPA 8260D-SIM

Instrument: NT16 Analyst: MN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BMK0197-MSD1)		Source: 24K0161-01		Prepared: 08-Nov-2024		Analyzed: 08-Nov-2024 16:19				
Vinyl chloride	1.94	0.0200	ug/L	2.00	0.0524	94.6	62-141	0.63	30	
Surrogate: 1,2-Dichloroethane-d4	5330		ug/L	5000	5040	107	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BMK0480 - 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 (BMK0480-BLK1)						Prepared: 19-Nov-2024 Analyzed: 22-Nov-2024 21:00					
Iron	54	ND	0.0360	mg/L							U
Manganese	55	ND	0.000500	mg/L							U
LCS (BMK0480-BS1)						Prepared: 19-Nov-2024 Analyzed: 22-Nov-2024 21:04					
Iron	54	5.25	0.0360	mg/L	5.00		105	80-120			
Manganese	55	0.0231	0.000500	mg/L	0.0250		92.4	80-120			
Duplicate (BMK0480-DUP2)						Source: 24K0161-01 Prepared: 19-Nov-2024 Analyzed: 25-Nov-2024 18:07					
Iron	54	22.2	3.60	mg/L		23.4			5.36	20	D
Duplicate (BMK0480-DUP3)						Source: 24K0161-01 Prepared: 19-Nov-2024 Analyzed: 26-Nov-2024 23:09					
Manganese	55	1.43	0.0250	mg/L		1.51			5.44	20	D
Matrix Spike (BMK0480-MS2)						Source: 24K0161-01 Prepared: 19-Nov-2024 Analyzed: 25-Nov-2024 18:11					
Iron	54	26.7	3.60	mg/L	5.00	23.4	64.3	75-125			*, D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike (BMK0480-MS3)						Source: 24K0161-01 Prepared: 19-Nov-2024 Analyzed: 26-Nov-2024 23:14					
Manganese	55	1.53	0.0250	mg/L	0.0250	1.51	91.6	75-125			D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BMK0480-MSD2)						Source: 24K0161-01 Prepared: 19-Nov-2024 Analyzed: 25-Nov-2024 18:15					
Iron	54	27.1	3.60	mg/L	5.00	23.4	72.1	75-125	1.46	20	*, D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BMK0480-MSD3)						Source: 24K0161-01 Prepared: 19-Nov-2024 Analyzed: 26-Nov-2024 23:19					
Manganese	55	1.54	0.0250	mg/L	0.0250	1.51	134	75-125	0.69	20	*, D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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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	05/12/2025
WADOE	WA Dept of Ecology	C558	06/30/2025
WA-DW	Ecology - Drinking Water	C558	06/30/2025



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

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
01-Dec-2024 13:25

Notes and Definitions

- * Flagged value is not within established control limits.
- D The reported value is from a dilution
- J Estimated concentration value detected below the reporting limit.
- U This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- [2C] Indicates this result was quantified on the second column on a dual column analysis.