

SENT VIA EMAIL

December 5, 2022
Parametrix No. 553-1550-067

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

Re: South Park Landfill Third Quarter 2022 Progress Report

Dear Julia:

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

General Activities During the 2022 Third Quarter

SRDS Property

- The old South Transfer Station seep area (compactor shed) is fenced off and locked and all safeguards are still in place.
- Solid Waste Operations and Household Hazardous Waste Collection continues on the SPU old South Transfer Station property.

CenterPoint Property (former SPPD owned property)

- SPPD sold this property during the third quarter of 2022. CenterPoint is the new property owner. An updated contact list was submitted to Ecology in November 2022.
- Remote monitoring of the landfill gas system blowers was installed in July. The current tenants First Student and Amazon vehicle parking are active on CenterPoint property.
- Conducted monthly inspections of the methane alarms in the on-site buildings.
- Conducted quarterly operation and maintenance of the landfill gas system.
- Seacon LLC completed cap maintenance identified in the 2022 annual cap inspection at location I.D. SPPD AC-6. The interface between the posts of the new electric fence and the asphalt were sealed. A maintenance form was completed and sent to the Site Coordinator.

Overall Settlement Parcels

- The 2022 third quarter compliance monitoring was completed in August. SPU staff conducted the gas monitoring and the Parametrix team performed the groundwater monitoring. Field sheets and lab data reports are attached.

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- Gas probe GP-33 was measured over 1.25% by volume during the third quarter monitoring event. SPPD was notified immediately. Farallon Consulting adjusted the SPPD gas system and took weekly measurements at GP-33 until measurements drop below 1.25% by volume.
- Reviewed field measurements and completed data management for the third quarter compliance monitoring events.
- The 2022 annual cap inspection was conducted on April 20, 2022. The report summarizing the inspection recommended actions was reviewed by the property owners. The final report was submitted to Ecology on July 22, 2022.

Deviations from Samples, Required Tasks, CAP, or Schedule

GP-33 was recorded at 3.3% by volume. The Cleanup Action Plan flow chart for triggers and contingent actions were followed. Because indoor air protectiveness had not previously been established in the adjacent off-site buildings GP-33 was monitored weekly until it returned below 1.25%. The last measurement was taken on August 26, 2022 at 0.1% by volume. No further action is required.

Data Summary

The perimeter gas probes were monitored on August 9, 2022. The results are included on the attached gas probe monitoring field form. All concentrations were less than the 5 percent by volume regulatory action limit. Low levels of methane were detected in probes GP-27 (0.2%) and GP-29 (0.7%). GP-33 was recorded at 3.3% by volume. Actions are recorded in the Deviations section above.

The groundwater wells were monitored August 22 and 23, 2022. The monitoring samples were analyzed by Analytical Resources, Incorporated. Data validation is complete and a concentration trigger assessment for vinyl chloride was performed. A draft data summary table, an updated time-series plots, and the final lab reports for the 2022 third quarter are included as attachments to this progress report.

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

Upcoming Activities

SRDS Property

- SPU has selected a new design team and plan to finalize the contract for the completion of the landfill closure design in late 2022. Final design work is anticipated to take one year.

CenterPoint Property

- Ongoing remote monitoring of the CenterPoint property landfill gas system blowers.
- Complete the fourth quarter operation and maintenance of the landfill gas system in November.

Overall Settlement Parcels

- Complete the fourth quarter compliance monitoring in November.

inspired people. inspired solutions. making a difference.

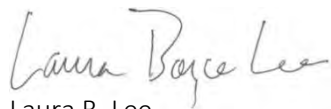
SENT VIA EMAIL

- Gas probe GP-09 and groundwater wells MW-10 and MW-25 are located in a right-of-way that is frequently occupied by urban campers creating an unsafe situation for compliance monitoring. SPU is working with SDOT to install fencing around this monitoring location.
- Complete a 6-month reinspection at areas of concern identified during the 2022 annual cap inspection.

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

Sincerely,

PARAMETRIX



Laura B. Lee
Project Manager

cc: Jeff Neuner, SPU Landfill Closure Business Area Manager
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
Anthony Grant, SPU Solid Waste Transfer Station Manager
Lucie Harpster, SPU Solid Waste Transfer Station Manager

Attachments

- 1 – Compliance Monitoring Field Sheets, Third Quarter 2022
- 2 – Groundwater Quality Data Summary, Third Quarter 2022
- 3 – Groundwater Quality Time Series Plots through Third Quarter 2022
- 4 – Third Quarter 2022 Groundwater Laboratory Data

Attachment 1

Compliance Monitoring Field Sheets
Third Quarter 2022



**South Park Landfill
Third Quarter 2022
Perimeter Gas Probe Monitoring Field Data**

| Well_Probe_ Name | Entry_Date | Responsible _Initials | CH4A ppm | O2 % | CO2 % | SP WC/In | blocked | BP_Start | Comment |
|-----------------------------|-------------------|----------------------------------|---------------------|-------------|--------------|-----------------|----------------|-----------------|----------------|
| GP03 | 8/9/2022 | WY, TS | 0 | 12.90 | 7.10 | 0.00 | N | 29.97 | |
| GP07 | 8/9/2022 | WY, TS | 0 | 18.20 | 3.00 | 0.10 | N | 29.97 | |
| GP09 | 8/9/2022 | WY, TS | 0 | 16.70 | 5.70 | 0.00 | N | 29.97 | |
| GP11 | 8/9/2022 | WY, TS | 0 | 20.50 | 0.70 | -7.40 | N | 29.97 | |
| GP13 | 8/9/2022 | WY, TS | 0 | 16.90 | 2.40 | -7.50 | Y | 29.97 | |
| GP15 | 8/9/2022 | WY, TS | 0 | 18.40 | 3.30 | -13.60 | Y | 29.97 | |
| GP16 | 8/9/2022 | WY, TS | 0 | 20.70 | 0.10 | 0.10 | N | 29.97 | |
| GP23 | 8/9/2022 | WY, TS | 0 | 13.70 | 7.50 | 0.10 | N | 29.97 | |
| GP26 | 8/9/2022 | WY, TS | 0 | 18.40 | 2.80 | 0.00 | N | 29.97 | |
| GP27 | 8/9/2022 | WY, TS | 2000 | 0.00 | 11.00 | 0.10 | N | 29.97 | |
| GP28 | 8/9/2022 | WY, TS | 0 | 8.20 | 6.90 | 0.10 | N | 29.97 | |
| GP29 | 8/9/2022 | WY, TS | 7000 | 0.00 | 18.60 | 0.00 | N | 29.97 | |
| GP31 | 8/9/2022 | WY, TS | 0 | 7.70 | 11.10 | 0.00 | N | 29.97 | |
| GP32 | 8/9/2022 | WY, TS | 0 | 17.80 | 2.50 | -3.70 | Y | 29.97 | |
| GP33 | 8/9/2022 | WY, TS | 33000 | 0.00 | 10.70 | 0.00 | N | 29.97 | |
| GP37 | 8/9/2022 | WY, TS | 0 | 8.60 | 12.70 | -0.10 | N | 29.97 | |

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: | | Turn-around Requested: 2 weeks | | | Date: 8/23/22 | | | | | | | | | | | | | | | |
| ARI Client Company: Jeff Neuner, Seattle Public Utility | | Phone: 206 684-7693 | | | Page: 1 of 2 pp | | | | | | | | | | | | | | | |
| Client Contact: Laura Lee, Parametrix | | Phone: 206 394-3665 | | | No. of Coolers: Cooler Temps: | | | | | | | | | | | | | | | |
| Client Project Name: SPU South Park Landfill | | | | | Analysis Requested | | | | | | | Notes/Comments | | | | | | | | |
| Client Project #: 553-1550-067 | | Samplers: Chris Bourgeois HWA | | | cis-1,2-DCE | cis-1,2-DCE, benzene | Vinyl Chloride | Total Fe, Mn | Dissolved As** | | | | | | | | | | | |
| Sample ID | Date | Time | Matrix | Number of Containers | | | | | | | | | | | | | | | | |
| SPL-GW-MW25-0822 | 8/22/22 | 1040 | water | 8 | | X | X | X | X | | | | | | | | | | | **Field-filtered |
| SPL-GW-MW30-0822 | | | water | 13 | X | | X | X | | | | | | | | | | | | MS/MSD |
| SPL-GW-MW31-0822 | | | water | 7 | X | | X | X | | | | | | | | | | | | |
| SPL-GW-MW24-0822 | 8/22/22 | 1315 | water | 8 | X | | X | X | X | | | | | | | | | | | |
| SPL-GW-MW26-0822 | 8/22/22 | 1440 | water | 8 | X | | X | X | X | | | | | | | | | | | |
| SPL-GW-MW08-0822 | | | water | 8 | X | | X | X | X | | | | | | | | | | | |
| SPL-GW-MW27-0822 | | | water | 8 | X | | X | X | X | | | | | | | | | | | |
| SPL-GW-MW61-0822 | | | water | 7 | X | | X | X | | | | | | | | | | | | |
| SPL-GW-MW81-0822 | | | water | 2 | | X | X | | | | | | | | | | | | | |
| Comments/Special Instructions | | | | | Relinquished by: (Signature) <i>AWY</i> | | | Received by: (Signature) <i>[Signature]</i> | | | Relinquished by: (Signature) | | | Received by: (Signature) | | | | | | |
| | | | | | Printed Name: Chris Bourgeois | | | Printed Name: Hannah Neuberger | | | Printed Name: | | | Printed Name: | | | | | | |
| | | | | | Company: HWA | | | Company: ARI | | | Company: | | | Company: | | | | | | |
| | | | | | Date & Time: 8/23/22 8:46 | | | Date & Time: 8/23/22 8:46 | | | 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: | Turn-around Requested: 2 weeks | Date: |
| ARI Client Company: Jeff Neuner, Seattle Public Utility | Phone: 206 684-7693 | Page: <u>24</u> of <u>24</u> |
| Client Contact: Laura Lee | Phone: 206 394-3665 | No. of Coolers: Cooler Temps: |

| Client Project Name: SPU South Park Landfill | | | | | Analysis Requested | | | | | | | | | | Notes/Comments | | | |
|--|---------------------------------|------|--------|----------------------|-----------------------------|----------------------|----------------|--------------|---------------------------------|--|--|--|-----------------------------|--|----------------|--|--|------------------|
| Samplers: Chris Bourgeois HWA | | | | | cis-1,2-DCE | cis-1,2-DCE; benzene | Vinyl Chloride | Total Fe, Mn | Dissolved As** | | | | | | | | | |
| Sample ID | Date | Time | Matrix | Number of Containers | | | | | | | | | | | | | | |
| SPL-GW-MW12-0822 | | | water | 8 | X | | X | X | X | | | | | | | | | **Field-filtered |
| SPL-GW-MW14-0822 | | | water | 13 | X | | X | X | | | | | | | | | | MS/MSD |
| SPL-GW-MW29-0822 | | | water | 7 | X | | X | X | | | | | | | | | | |
| SPL-GW-MW18-0822 | | | water | 8 | X | | X | X | X | | | | | | | | | |
| SPL-GW-MW32-0822 | 8/22/22 | 1550 | water | 8 | X | | X | X | X | | | | | | | | | |
| SPL-GW-MW33-0822 | 8/22/22 | 1645 | water | 8 | X | | X | X | X | | | | | | | | | |
| SPL-GW-MW10-0822 | 8/22/22 | 945 | water | 8 | X | | X | X | X | | | | | | | | | |
| SPL-GW-MW60-0822 | | | water | 7 | X | | X | X | | | | | | | | | | |
| SPL-GW-MW80-0822 | 8/23/22 | — | water | 2 | | X | X | | | | | | | | | | | |
| Comments/Special Instructions | Relinquished by: (Signature) | | | | Received by: (Signature) | | | | Relinquished by: (Signature) | | | | Received by: (Signature) | | | | | |
| | Printed Name: | | | | Printed Name: | | | | Printed Name: | | | | Printed Name: | | | | | |
| | Company: | | | | Company: | | | | Company: | | | | Company: | | | | | |
| | Date & Time: | | | | Date & Time: | | | | Date & Time: | | | | Date & Time: | | | | | |

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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.

Water Level Measurement Field Report

| | | | |
|--|---|----------------------------------|--|
| DATE <u>8/22/22</u> | | JOB NO. 553-1550-067 | |
| PROJECT: South Park Landfill | | CLIENT: Seattle Public Utilities | |
| LOCATION: Seattle, WA | | | |
| WEATHER <u>Sunny</u> | TEMP <u>mid-70's</u> ° at <u>800</u> <u>low 80's</u> ° at <u>1230</u> | AM PM | |
| PRESENT AT SITE <u>A. Thom & C. Bourgeois</u> | | | |

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 | <u>1100</u> | <u>6.46</u> | <u>PVC</u> | TOC | 15.3 | 10-15 | 1.52 |
| MW-14 | <u>1106</u> | <u>3.33</u> | <u>PVC</u> | TOC | 21.8 | 11.5-21.5 | 0.8 |
| MW-29 | <u>1117</u> | <u>8.10</u> | <u>PVC</u> | TOC | 30 | 20-30 | -0.29 |
| MW-18 | <u>1132</u> | <u>16.021</u> | <u>PVC</u> | TOC | 40.4 | 30-40 | 1.25 |
| MW-25 | <u>1007</u> | <u>14.50</u> | <u>PVC</u> | TOC | 27 | 22-27 | 2.79 |
| MW-32 | <u>1140</u> | <u>11.47</u> | <u>PVC</u> | TOC | 24 | 19-24 | -0.44 |
| MW-33 | <u>1147</u> | <u>11.64</u> | <u>PVC</u> | TOC | 25 | 20-25 | -0.47 |
| MW-26 | <u>#1214</u> | <u>10.34</u> | <u>PVC</u> | TOC | 25 | 15-25 | 2.39 |
| MW-27 | <u>1226</u> | <u>9.05</u> | <u>PVC</u> | TOC | 20 | 10-20 | 2.04 |
| MW-10 | <u>820</u> | <u>13.76'</u> | <u>PVC</u> | TOC | 45 | 35-45 | 1.65 |
| MW-24 | <u>1210</u> | <u>9.58</u> | <u>PVC</u> | TOC | 45.3 | 35-45 | 1.56 |
| MW-08 | <u>1200</u> | <u>10.89</u> | <u>PVC</u> | TOC | 45.6 | 35.5 - 45.5 | 1.88 |
| MW-30 | <u>1228</u> | <u>9.08</u> | <u>PVC</u> | TOC | 13 | 8-13 | -0.53 |
| MW-31 | <u>1202</u> | <u>11.65'</u> | <u>PVC</u> | TOC | 23 | 35.5-45.5 | -0.46 |

fresh to act



Comments:

TOC – top of PVC casing SG – staff gauge

SIGNED: *Chris*

South Park Landfill

Project No.: 553-1550-067

Date: 8/23/22

Well ID: MW-08

Sampling Organization: Parametrix

Samplers: C. Bourgeois & A. Thom

Purge Data Screened Interval (ft bgs): 5.0-20.0

Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): 9.0

Purge Water Disposal Method: O/WS

Purge Device: dedicated bladder pump

Pump Intake Depth: 10.5ft

Begin Purge

Time: 1700

End Purge Time: 1745

| Time | Depth to Water (feet below MP) | Pump Setting | Purge Rate | Cum. Vol. Purged | Temp (°C) | DO (mg/L) | Specific Conductance (mg/cm) | pH (units) | ORP (mv) | Turbidity (NTU) | Comments |
|------|--------------------------------|--------------|------------|------------------|-----------|-----------|------------------------------|------------|----------|-----------------|-----------------|
| 1705 | 9.0 | 2.6 | 260 | 1.0 | 16.1 | 1.44 | 0.601 | 6.92 | 46.2 | 4.03 | white turbid |
| 1710 | 9.0 | " | " | 1.4 | 15.5 | 0.45 | 0.603 | 6.94 | 21.2 | 3.60 | |
| 1715 | 9.0 | " | " | 1.75 | 15.1 | 0.30 | 0.604 | 6.95 | -15.4 | 3.90 | |
| 1720 | 9.0 | " | " | 2.0 | 14.8 | 0.24 | 0.606 | 6.96 | -14.3 | 4.77 | |
| 1725 | " | " | " | 2.3 | 14.8 | 0.21 | 0.612 | 6.96 | -41.7 | 3.75 | |
| 1730 | " | " | " | 2.6 | 14.4 | 0.20 | 0.613 | 6.96 | -59.2 | 4.38 | slightly turbid |
| 1735 | " | " | " | 3.0 | 14.5 | 0.17 | 0.613 | 6.97 | -67.4 | 4.05 | |
| 1740 | " | " | " | 3.25 | 14.5 | 0.17 | 0.614 | 6.98 | -72.2 | 4.09 | |
| 1745 | " | " | " | 3.5 | 14.5 | 0.17 | 0.614 | 6.98 | -75.7 | 3.98 | |

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

Sampling Data

Sample ID: SPL-GW-MW08-0822

Time Collected: 1750

Weather: Sunny, warm

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

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

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

MS/MSD Collected: Yes No

Additional Information/Comments

used peristaltic because bladder pump wasn't drawing water ... bladder pump working fine, it was the tubing we used to connect to the well head

South Park Landfill

Project No.: 553-1550-067

Date: 8/22/22

Well ID: MW-10

Sampling Organization: Parametrix

Samplers: C. Bourgeois & A. Thom

Purge Data Screened Interval (ft bgs): 35.0-44.0

Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): 13.76

Purge Water Disposal Method: O/WS

Purge Device: peristaltic

Pump Intake Depth: 30.0 ft dedicated

Begin Purge Time: 827

End Purge Time: 0945

| Time | Depth to Water (feet below MP) | Pump Setting | Purge Rate (mL/min) | Cum. Vol. Purged (gal.) | Temp (°C) | DO (mg/L) | Specific Conductance (mg/cm) | pH (units) | ORP (mv) | Turbidity (NTU) | Comments |
|------------------------|--------------------------------|--------------|---------------------|-------------------------|-----------|---------------|------------------------------|------------|----------|------------------|-------------------|
| 830 | 13.76 | 2.80 | 340 | 0.5 | 14.9 | 5.9 | 0.027 | 7.77 | -72.0 | | |
| 835 | 13.76 | 2.75 | 300 | | 14.7 | 4.27 | 0.031 | 7.35 | 152.0 | 1.6 | clear, odors |
| 840 | " | " | " | 0.9 | 14.7 | 3.11 | 0.040 | 6.95 | -30.7 | 9.66 | odor, clear |
| 845 | 13.76 | " | " | 1.5 | 14.8 | 3.85 | 0.036 | 6.72 | -64.4 | 6.75 | Pale yellow purge |
| 850 | 13.76 | " | " | 1.8 | 14.8 | 5.86 | 0.044 | 6.72 | -44.4 | 5.81 | |
| 855 | 13.76 | " | " | 2.2 | 14.8 | 6.11 | 0.044 | 6.68 | -49.2 | 2.2 | 6.99 |
| 900 | 13.76 | " | " | 2.5 | 14.9 | 2.95 | 0.047 | 6.60 | -42.2 | 6.03 | |
| 905 | 13.76 | " | " | 3.0 | 14.8 | 2.21 | 0.047 | 6.70 | 58.2 | 5.81 | |
| 910 | 13.76 | " | " | 3.3 | 14.9 | 4.47 | 0.049 | 6.66 | 38.8 | 6.18 | 48.2 ORP |
| 915 | 13.76 | " | " | 3.75 | 14.9 | 4.69 | 0.047 | 6.63 | 47.1 | 5.88 | |
| 920 | 13.76 | " | " | 4.5 | 14.8 | 4.99 | 0.050 | 6.61 | 56.2 | 4.15 | |
| 925 | 13.76 | " | " | 4.75 | 14.9 | 4.99 | 0.052 | 6.61 | 86.1 | 6.17 | |
| 930 | 13.76 | " | " | 5.0 | 15.0 | 4.68 | 0.057 | 6.62 | -42.8 | 4.28 | |
| 935 | 13.76 | " | " | 5.25 | 14.9 | 4.45 | 0.057 | 6.57 | 83.1 | 0.87 | Clear |
| 940 | 13.76 | " | " | 5.5 | 14.9 | 4.25 | 0.057 | 6.59 | 94.9 | 3.42 | ← collected later |
| 945 | 13.76 | " | " | 5.75 | 14.9 | 4.05 | 0.058 | 6.60 | 88.2 | 3.33 | |
| Stabilization Criteria | | | | | 3% | 10%, or 3<0.5 | 3% | ± 0.1 | ± 10 mv | 10% or 3 < 5 NTU | |

Sampling Data

Sample ID: SPL-GW-MW10-0822

Time Collected: 0945

Weather: Sunny, warm

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

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

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

MS/MSD Collected: Yes No

Additional Information/Comments

ORP jumps between large values, may not be working correctly

South Park Landfill

Project No.: 553-1550-067

Date: 8/23/22

Well ID: MW-12

Sampling Organization: Parametrix

Samplers: C. Bourgeois & A. Thom

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

Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): 6.46

Purge Water Disposal Method: O/WS

Purge Device: dedicated bladder pump

Pump Intake Depth: 12.5 ft

Begin Purge Time: 8:25

End Purge Time: 09:00

| Time | Depth to Water (feet below MP) | Pump Setting | Purge Rate | Cum. Vol. Purged | Temp (°C) | DO (mg/L) | Specific Conductance (mg/cm) | pH (units) | ORP (mv) | Turbidity (NTU) | Comments |
|-------|--------------------------------|--------------|------------|------------------|-----------|-----------|------------------------------|------------|----------|-----------------|----------|
| 08:30 | 6.48 | 5/5 | 2.90 | 0.75 | 15.0 | 1.29 | 0.319 | 6.47 | -3.6 | 30.0 | |
| 08:35 | 6.48 | " | " | 1.0 | 15.0 | 0.82 | 0.397 | 6.47 | -24.1 | 1.80 | |
| 08:40 | 6.48 | " | " | 1.25 | 15.0 | 0.62 | 0.397 | 6.47 | -36.2 | 0.28 | |
| 08:45 | 6.48 | " | " | 1.5 | 14.9 | 0.50 | 0.398 | 6.46 | -44.3 | 1.29 | |
| 08:50 | 6.49 | " | " | 1.85 | 15.0 | 0.43 | 0.399 | 6.46 | -50.2 | 0.02 | |
| 08:55 | 6.49 | " | " | 2.1 | 14.9 | 0.40 | 0.399 | 6.46 | -53.5 | 0.26 | |
| 09:00 | 6.49 | " | " | 2.6 | 15.0 | 0.36 | 0.399 | 6.46 | -56.5 | 0.64 | Clear |

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

Sampling Data

Sample ID: SPL-GW-MW12-0822

Time Collected: 09:05

Weather: Sunny, low 70's

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

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

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

MS/MSD Collected: Yes No

Additional Information/Comments

South Park Landfill

Project No.: 553-1550-067

Date: 8/23/22

Well ID: MW-18

Sampling Organization: Parametrix

Samplers: C. Bourgeois & A. Thom

Purge Data Screened Interval (ft bgs): 30.0-40.0

Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): 15.92

Purge Water Disposal Method: O/WS

Purge Device: dedicated bladder pump

Pump Intake Depth: 20.0 ft

Begin Purge Time: 1215

End Purge Time: 1240

| Time | Depth to Water (feet below MP) | Pump Setting | Purge Rate (ml/min) | Cum. Vol. Purged (gal) | Temp (°C) | DO (mg/L) | Specific Conductance (mg/cm) | pH (units) | ORP (mv) | Turbidity (NTU) | Comments |
|------|--------------------------------|--------------|---------------------|------------------------|-----------|-----------|------------------------------|------------|----------|-----------------|----------|
| 1220 | 15.92 | 7/7 | 250/min | 0.7 | 16.1 | 0.80 | 1.06 | 6.64 | -69.8 | 3.51 | clear |
| 1225 | " | " | " | 0.6 | 16.2 | 0.60 | 1.06 | 6.66 | -72.5 | 2.61 | " |
| 1230 | " | " | " | 0.8 | 16.2 | 0.53 | 1.06 | 6.65 | -83.6 | 1.36 | " |
| 1235 | " | " | " | 1.1 | 16.2 | 0.42 | 1.05 | 6.65 | -87.5 | 0.42 | " |
| 1240 | " | " | " | 1.5 | 16.2 | 0.31 | 1.05 | 6.65 | -85.4 | 0.02 | " |

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

Sampling Data

Sample ID: SPL-GW-MW18-0822

Time Collected: 1245

Weather: Sunny, warm.

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

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

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

MS/MSD Collected: Yes No

Additional Information/Comments: Dedicated tubing very dirty

South Park Landfill

Project No.: 553-1550-067 Date: 8/22/22 Well ID: MW-24

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

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

Initial Depth of Water (Ft below TOC): 9.58 Purge Water Disposal Method: O/WS

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

Begin Purge Time: 1246 End Purge Time: 1310

| Time | Depth to Water (feet below MP) | Pump Setting | Purge Rate | Cum. Vol. Purged | Temp (°C) | DO (mg/L) | Specific Conductance (mg/cm) | pH (units) | ORP (mv) | Turbidity (NTU) | Comments |
|------|--------------------------------|--------------|------------|------------------|-----------|-----------|------------------------------|------------|----------|-----------------|-------------|
| 1250 | 9.60 | 8/8 | 210 | 0.5 | 13.9 | 0.39 | 0.91 | 6.72 | -130.9 | 2.86 | pale yellow |
| 1255 | 9.61 | " | " | 0.75 | 13.6 | 0.35 | 0.91 | 6.71 | -136.0 | 0.02 | haz. |
| 1300 | 9.61 | " | " | 1.0 | 13.7 | 0.29 | 0.91 | 6.71 | -145.1 | 0.02 | " |
| 1305 | 9.61 | " | " | 1.25 | 13.6 | 0.24 | 0.91 | 6.70 | -149.3 | 0.02 | " |
| 1310 | 9.61 | " | " | 1.5 | 13.7 | 0.25 | 0.91 | 6.69 | -153.2 | 0.02 | " |

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

Sampling Data

Sample ID: SPL-GW-MW24-0822 Time Collected: 1315 Weather: Sunny 77°

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

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

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

MS/MSD Collected: Yes No

Additional Information/Comments

Plastic fittings are in bad shape, had to use Tygon

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067

Date:

22/22
8/2025

Well ID: MW-25

Sampling Organization: Parametrix

Samplers:

C. Bourgeois & A. Thom

Purge Data Screened Interval (ft bgs): 20.0-27.0

Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): 14.50

Purge Water Disposal Method: O/WS

Purge Device dedicated bladder pump

Pump Intake Depth: 24.5 ft

Begin Purge Time: 1009

End Purge Time: 10

| Time | Depth to Water (feet below MP) | Pump Setting | Purge Rate | Cum. Vol. Purged | Temp (°C) | DO (mg/L) | Specific Conductance (mg/cm) | pH (units) | ORP (mv) | Turbidity (NTU) | Comments |
|------|--------------------------------|--------------|------------|------------------|-----------|-----------|------------------------------|------------|----------|-----------------|------------|
| 1010 | 14.50 | 6/8 | 220 | 1.25 | 15.5 | 3.00 | 1.18 | 6.73 | -416.1 | 3.40 | yellow hue |
| 1015 | 14.50 | " | " | 1.5 | 15.3 | 0.89 | 1.19 | 6.75 | -503.1 | 0.61 | " |
| 1020 | 14.50 | " | " | 1.9 | 15.3 | 0.51 | 1.20 | 6.75 | -503.1 | 0.98 | " |
| 1025 | " | " | " | 2.25 | 15.1 | 0.36 | 1.20 | 6.75 | -507.2 | 0.92 | " |
| 1030 | " | " | " | 2.6 | 15.2 | 0.34 | 1.20 | 6.74 | -507.3 | 0.47 | " |
| 1035 | " | " | " | 2.8 | 15.1 | 0.28 | 1.20 | 6.75 | -508.5 | 0.47 | " |

ml/min from MW-10
gall.

MS/cm

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

Sampling Data

Sample ID: SPL-GW-MW25-0822

Time Collected: 1040

Weather: Sunny, warm

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

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

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: 8/22/22

Well ID: MW-26

Sampling Organization: Parametrix

Samplers: C. Bourgeois & A. Thom

Purge Data Screened Interval (ft bgs): 15.0-25.0

Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): 10.36

Purge Water Disposal Method: O/WS

Purge Device: dedicated bladder pump

Pump Intake Depth: 20.0 ft

Begin Purge Time: 1330

End Purge Time: 1435

| Time | Depth to Water (feet below MP) | Pump Setting | Purge Rate | Cum. Vol. Purged | Temp (°C) | DO (mg/L) | Specific Conductance (mg/cm) | pH (units) | ORP (mv) | Turbidity (NTU) | Comments |
|------|--------------------------------|--------------|------------|------------------|-----------|-----------|------------------------------|------------|----------|-----------------|----------|
| 1335 | 10.36 | 6/7 | 300 | ~2.5 | 12.9 | 1.02 | 3.245 | 6.21 | -35.6 | 0.02 | |
| 1340 | 10.36 | " | " | 3.0 | 13.0 | 0.57 | 0.219 | 6.21 | -70.0 | 0.02 | |
| 1345 | 10.36 | " | " | 3.3 | 12.8 | 0.48 | 0.216 | 6.20 | -88.5 | 0.02 | |
| 1350 | 10.36 | " | " | 3.6 | 12.7 | 0.50 | 0.214 | 6.20 | -110.5 | 0.63 | |
| 1355 | 10.36 | " | " | 3.8 | 12.7 | 0.44 | 0.212 | 6.20 | -129.1 | 1.57 | |
| 1400 | " | " | " | 4.0 | 12.7 | 0.42 | 0.213 | 6.20 | -143.5 | 2.76 | |
| 1405 | " | " | " | 4.23 | 12.7 | 0.57 | 0.212 | 6.19 | -155.1 | 1.00 | clear |
| 1410 | " | " | " | 4.5 | 12.7 | 0.36 | 0.212 | 6.19 | -163.9 | 0.68 | |
| 1415 | " | " | " | 4.75 | 12.8 | 0.33 | 0.213 | 6.19 | -171.2 | 1.22 | |
| 1420 | " | " | " | 5.13 | 12.7 | 0.30 | 0.213 | 6.19 | -176.2 | 1.62 | |
| 1425 | " | " | " | 5.25 | 12.7 | 0.28 | 0.211 | 6.19 | -186.7 | 1.62 | |
| 1430 | " | " | " | 5.8 | 12.6 | 0.28 | 0.213 | 6.19 | -191.8 | 0.02 | |
| 1435 | " | " | " | 6.2 | 12.6 | 0.25 | 0.212 | 6.19 | -192.9 | 0.02 | |

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

Sampling Data

Sample ID: SPL-GW-MW26-0822

Time Collected: 1440

Weather: Sunny 80°F

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

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

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

MS/MSD Collected: Yes No

Additional Information/Comments

South Park Landfill

Project No.: 553-1550-067

Date: 8/23/22

Well ID: MW-27

Sampling Organization: Parametrix

Samplers: C. Bourgeois & A. Thom

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

Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): 8.97

Purge Water Disposal Method: O/WS

Purge Device: dedicated bladder pump

Pump Intake Depth: 15.0 ft

Begin Purge Time: ~1526

End Purge Time: 1625

| Time | Depth to Water (feet below MP) | Pump Setting | Purge Rate | Cum. Vol. Purged | Temp (°C) | DO (mg/L) | Specific Conductance (mg/cm) | pH (units) | ORP (mv) | Turbidity (NTU) | Comments |
|------|--------------------------------|--------------|------------|------------------|-----------|-----------|------------------------------|------------|----------|-----------------|-----------------|
| 1530 | 8.97 | 6.5/6 | 240 | 0.4 | 14.6 | 2.23 | 0.506 | 6.69 | -78.5 | 42.7 | v. turbid |
| 1535 | 9.01 | " | " | 0.5 | 14.5 | 0.82 | 0.529 | 6.71 | -91.3 | 67.2 | " |
| 1540 | 9.04 | " | " | 0.9 | 14.5 | 0.5 | 0.538 | 6.71 | -104.5 | 33.1 | " |
| 1545 | " | " | " | 1.2 | 14.3 | 0.36 | 0.540 | 6.72 | -110.3 | 22.3 | " |
| 1550 | " | " | " | 1.6 | 14.4 | 0.31 | 0.541 | 6.72 | -115.8 | 15.4 | " |
| 1555 | " | " | " | 1.9 | 14.4 | 0.27 | 0.542 | 6.72 | -113.8 | 12.9 | white turbidity |
| 1600 | " | " | " | 2.2 | 14.3 | 0.39 | 0.541 | 6.71 | -114.9 | 10.5 | " |
| 1605 | " | " | " | 2.5 | 14.2 | 0.26 | 0.540 | 6.71 | -126.1 | 7.71 | " |
| 1610 | " | " | " | 2.8 | 14.2 | 0.24 | 0.540 | 6.71 | -122.5 | 7.59 | " |
| 1615 | " | " | " | 3.2 | 14.2 | 0.23 | 0.539 | 6.71 | -124.5 | 5.25 | " |
| 1620 | " | " | " | 3.5 | 14.2 | 0.21 | 0.538 | 6.71 | -125.3 | 5.49 | " |
| 1625 | " | " | " | 3.75 | 14.1 | 0.21 | 0.538 | 6.71 | -126.6 | 5.49 | " |

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

Sampling Data

Sample ID: SPL-GW-MW27-0822

Time Collected: 1630

Weather: Sunny, warm

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

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

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

MS/MSD Collected: Yes No

Additional Information/Comments

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067 Date: 8/23/22 Well ID: MW-29

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

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

Initial Depth of Water (Ft below TOC): ~~8.58~~ 8.81 Purge Water Disposal Method: O/WS

Purge Device peristaltic pump Pump Intake Depth: 25.0 ft

Begin Purge Time: 1058 End Purge Time: 1138

| ΔT | Time | Depth to Water (feet below MP) | Pump Setting | Purge Rate ^{ml} | Cum. Vol. Purged | Temp (°C) | DO (mg/L) | Specific Conductance (mg/cm) | pH (units) | ORP (mv) | Turbidity (NTU) | Comments |
|----|------|--------------------------------|--------------|--------------------------|------------------|------------------------|----------------|------------------------------|------------|----------|-----------------|--------------------|
| 5 | 1103 | 9.81 | 2.45 | 280/min | 0.4 | 13.5 | 3.5 | 0.85 | 6.81 | -96.3 | 13.8 | Slight yellow hue. |
| 10 | 1108 | 10.05 | " | " | 0.75 | 13.4 | 1.09 | 0.90 | 6.81 | -103.6 | 6.77 | |
| 15 | 1113 | 10.05 | " | " | 1.13 | 13.2 | 1.01 | 0.78 | 6.82 | -102.3 | 7.28 | |
| 20 | 1118 | 10.05 | " | " | 1.5 | 13.2 | 0.86 | 0.78 | 6.84 | -105.1 | 4.68 | |
| 25 | 1123 | " | " | " | 1.8 | 13.2 | 0.65 | 0.78 | 6.84 | -110.7 | 3.35 | |
| 30 | 1128 | " | " | " | 2.3 | 13.2 | 0.48 | 0.78 | 6.85 | -116.1 | 1.97 | |
| 35 | 1133 | " | " | " | 2.5 | 13.2 | 0.42 | 0.78 | 6.87 | -119.2 | 3.14 | clear |
| 40 | 1138 | " | " | " | 2.8 | 13.2 | 0.31 | 0.77 | 6.88 | -124.8 | 2.35 | - |
| | | | | | | Stabilization Criteria | | | | | | |
| | | | | | | 3% | 10% , or 3<0.5 | 3% | ± 0.1 | ± 10 mv | 10% or 3 <5 NTU | |

Sampling Data

Sample ID: SPL-GW-MW29-0822 Time Collected: 1145 Weather: _____

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

purged water in bucket has yellow/brown color. well 'exhausted' when plug removed.

South Park Landfill

Project No.: 553-1550-067

Date: 8/23/27

Well ID: MW-30

Sampling Organization: Parametrix

Samplers: C. Bourgeois & A. Thom

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

Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): 10.85

Purge Water Disposal Method: OWS

Purge Device peristaltic pump

Pump Intake Depth: 10.5 ft 12 ft

Begin Purge

Time: 1330

End Purge Time: 1355

| Time | Depth to Water (feet below MP) | Pump Setting | Purge Rate | Cum. Vol. Purged | Temp (°C) | DO (mg/L) | Specific Conductance (mg/cm) | pH (units) | ORP (mv) | Turbidity (NTU) | Comments |
|------|--------------------------------|--------------|------------|------------------|-----------|-----------|------------------------------|------------|----------|-----------------|----------|
| 1335 | 11.35 | 2:30 | 300/min | 0.3 | 16.0 | 0.46 | 0.385 | 6.52 | -55.7 | 6.71 | |
| 1340 | 11.51 | " | " | 0.75 | 15.9 | 0.29 | 0.383 | 6.50 | -62.0 | 5.41 | |
| 1345 | 11.55 | " | " | 1.0 | 16.1 | 0.29 | 0.382 | 6.48 | -62.9 | 4.25 | |
| 1350 | 11.55 | " | " | 1.83 | 15.4 | 0.26 | 0.382 | 6.47 | -66.0 | 4.98 | |
| 1355 | " | " | " | 1.75 | 15.9 | 0.25 | 0.382 | 6.47 | -68.5 | 4.05 | clear |

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

Sampling Data

Sample ID: SPL-GW-MW30-0822

Time Collected: 1400; 1430

Weather: Sunny, warm.

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

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

Duplicate Sample Collected: Yes No If yes, ID: SPL-GW-MW61-0822

MS/MSD Collected: Yes No

Additional Information/Comments

1 defective JOK cap

South Park Landfill

Project No.: 553-1550-067

Date: 8/23/22

Well ID: MW-31

Sampling Organization: Parametrix

Samplers: C. Bourgeois & A. Thom

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

Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): 11.62

Purge Water Disposal Method: OWS

Purge Device: dedicated bladder pump

Pump Intake Depth: 20.5ft

Begin Purge Time: 1412

End Purge Time: 1455

| Time | Depth to Water (feet below MP) | Pump Setting | Purge Rate | Cum. Vol. Purged | Temp (°C) | DO (mg/L) | Specific Conductance (mg/cm) | pH (units) | ORP (mv) | Turbidity (NTU) | Comments |
|---|--------------------------------|--------------|------------|------------------|-----------|-----------|------------------------------|------------|----------|-----------------|----------------|
| 1415 | 11.62 | 6/7 | | | 23.7 | 8.24 | 0.001 | 6.69 | -76.0 | | Pump shut off |
| 1420 | " | 6/7 | | | 17.0 | 6.73 | 0.399 | 6.50 | -81.5 | 37.5 | |
| 1425 | " | " | 300 | 0.4 | 21.6 | 0.45 | 0.413 | 6.51 | -81.0 | 30.5 | |
| 1430 | " | " | 300 | 0.5 | 17.2 | 0.31 | 0.424 | 6.49 | -87.4 | 21.1 | Clear, No odor |
| 1435 | " | " | 300 | 0.75 | 16.5 | 0.25 | 0.420 | 6.5 | -92.4 | 14.0 | " |
| 1440 | " | " | 300 | 1.0 | 16.4 | 0.21 | 0.420 | 6.52 | -97.1 | 8.39 | " |
| 1445 | " | " | " | 1.5 | 16.5 | 0.19 | 0.421 | 6.53 | -101.8 | 1.82 | " |
| 1450 | " | " | " | 1.75 | 16.3 | 0.19 | 0.421 | 6.53 | -104.2 | 3.87 | " |
| 1455 | " | " | " | 2.0 | 16.2 | 0.18 | 0.421 | 6.53 | -105.8 | 3.22 | " |
| Stabilization Criteria 3% 10%, or 3<0.5 3% ± 0.1 ± 10 mv 10% or 3 < 5 NTU | | | | | | | | | | | |

Sampling Data

Sample ID: SPL-GW-MW31-0822

Time Collected: 1500

Weather: Sunny, Warm

Sample Description (Color, Turbidity, Odor, Other): Sparse orange + black flecks

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 in purge bucket has gotten dull green/brown color, No odor

South Park Landfill

Project No.: 553-1550-067

Date: 8/22/22

Well ID: MW-32

Sampling Organization: Parametrix

Samplers: C. Bourgeois & A. Thom

Purge Data Screened Interval (ft bgs): 19.0-24.0

Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): 11.44

Purge Water Disposal Method: O/WS

Purge Device peristaltic pump

Pump Intake Depth: 21.5 ft

Begin Purge Time: 1511

End Purge Time: 1545

| Time | Depth to Water (feet below MP) | Pump Setting | Purge Rate | Cum. Vol. Purged | Temp (°C) | DO (mg/L) | Specific Conductance (mg/cm) | pH (units) | ORP (mv) | Turbidity (NTU) | Comments |
|------|--------------------------------|--------------|------------|------------------|-----------|-----------|------------------------------|------------|----------|-----------------|----------|
| | | | | | | | | | | | |
| 1515 | 11.44 | 2.5 | 230 | | 15.3 | 5.7 | 0.79 | 6.91 | -117.3 | 11.8 | |
| 1520 | 11.45 | " | " | 0.5 | 15.1 | 0.35 | 0.79 | 6.95 | -131.0 | 0.1 | |
| 1525 | 11.45 | " | " | 1.0 | 15.1 | 0.29 | 0.79 | 6.94 | -145.5 | 7.39 | |
| 1530 | " | " | " | 1.25 | 15.1 | 0.24 | 0.79 | 6.92 | -152.2 | 5.47 | |
| 1535 | " | " | " | 1.6 | 15.0 | 0.24 | 0.79 | 6.94 | -164.0 | 8.4.64 | |
| 1540 | " | " | " | 1.75 | 15.0 | 0.23 | 0.79 | 6.93 | -168.4 | 3.84 | |
| 1545 | " | " | " | 2.25 | 15.0 | 0.20 | 0.80 | 6.92 | -172.0 | 3.43 | |

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

Sampling Data

Sample ID: SPL-GW-MW32-0822

Time Collected: 1550

Weather: Sunny, Hot

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

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

Duplicate Sample Collected: Yes No

If yes, ID:

MS/MSD Collected: Yes No

Additional Information/Comments

South Park Landfill

Project No.: 553-1550-067 Date: 8/22/22 Well ID: MW-33
Sampling Organization: Parametrix Samplers: C. Bourgeois & A. Thom

Purge Data Screened Interval (ft bgs): 20.0-25.0 Well Casing/Diameter: PVC/2 in
Initial Depth of Water (Ft below TOC): 11.60 Purge Water Disposal Method: O/WS
Purge Device: peristaltic pump Pump Intake Depth: 22.5ft
Begin Purge Time: 1615 End Purge Time: 1640

| Time | Depth to Water (feet below MP) | Pump Setting | Purge Rate | Cum. Vol. Purged (gallons) | Temp (°C) | DO (mg/L) | Specific Conductance (mg/cm) | pH (units) | ORP (mv) | Turbidity (NTU) | Comments |
|------|--------------------------------|--------------|------------|----------------------------|-----------|-----------|------------------------------|------------|----------|-----------------|----------|
| 1620 | 11.6 | 2:30 | 270 | 0.25 | 16.5 | 0.50 | 1.34 | 6.85 | -116.0 | 1.50 | |
| 1625 | 11.6 | " | " | 0.6 | 16.5 | 0.30 | 1.34 | 6.85 | -132.5 | 2.0 | |
| 1630 | 11.6 | " | " | 0.8 | 16.6 | 0.25 | 1.34 | 6.85 | -139.5 | 4.26 | |
| 1635 | 11.6 | " | " | 1.4 | 16.5 | 0.22 | 1.32 | 6.85 | -142.8 | 3.25 | |
| 1640 | 11.6 | " | " | 1.6 | 16.5 | 0.20 | 1.3 | 6.85 | -146.9 | 3.85 | |

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

Sampling Data

Sample ID: SPL-GW-MW33-0822 Time Collected: 1645 Weather: Sunny, hot.
Sample Description (Color, Turbidity, Odor, Other): pale yellow, metal odor
Sample Analyses: cis-1,2-DCE, vinyl chloride, total iron, total manganese, dissolved arsenic
Duplicate Sample Collected: Yes No If yes, ID: _____
MS/MSD Collected: Yes No

Additional Information/Comments

Slimes (iron bacteria?) on purge water surface in bucket.



Attachment 2

Groundwater Quality Data Summary
Third Quarter 2022



Groundwater Quality Data Summary, Third Quarter 2022, 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-60 (MW-14 Dup) | MW-29 | MW-30 ¹ | MW-61 (MW-30 Dup) | MW-25 | MW-26 | MW-27 ² | MW-31 ¹ | MW-32 ³ | MW-33 ³ | MW-08 | MW-10 | MW-18 ³ | MW-24 | 8/22/22 | 8/23/22 | |
| Field Parameters | | | 8/23/22 | 8/23/22 | 8/23/22 | 8/23/22 | 8/23/22 | 8/23/22 | 8/22/22 | 8/22/22 | 8/23/22 | 8/23/22 | 8/22/22 | 8/22/22 | 8/23/22 | 8/22/22 | 8/23/22 | 8/22/22 | 8/22/22 | 8/22/22 | 8/23/22 |
| Temperature | C | | 15.0 | 16.5 | -- | 13.2 | 15.9 | -- | 15.1 | 12.6 | 14.1 | 16.2 | 15.0 | 16.5 | 14.5 | 14.9 | 16.2 | 13.7 | -- | -- | |
| Dissolved Oxygen | mg/L | | 0.36 | 0.35 | -- | 0.31 | 0.25 | -- | 0.28 | 0.25 | 0.21 | 0.18 | 0.20 | 0.20 | 0.17 | 4.05 | 0.31 | 0.25 | -- | -- | |
| Specific Conductivity | µS/cm | | 399 | 515 | -- | 770 | 382 | -- | 1200 | 212 | 538 | 421 | 800 | 1300 | 614 | 58 | 1050 | 910 | -- | -- | |
| pH | units | | 6.46 | 6.78 | -- | 6.88 | 6.47 | -- | 6.75 | 6.19 | 6.71 | 6.53 | 6.92 | 6.85 | 6.98 | 6.60 | 6.65 | 6.69 | -- | -- | |
| Redox | mv | | -55.5 | -91.7 | -- | -124.8 | -68.5 | -- | -508.5 | -192.9 | -126.6 | -105.8 | -172.0 | -146.9 | -75.7 | 88.2 | -85.4 | -153.2 | -- | -- | |
| Turbidity | NTU | | 0.64 | 3.06 | -- | 2.35 | 4.05 | -- | 0.47 | 0.02 | 5.49 | 3.22 | 3.43 | 3.85 | 3.48 | 3.33 | 0.02 | 0.02 | -- | -- | |
| Metals | | | | | | | | | | | | | | | | | | | | | |
| Arsenic, Dissolved | µg/L | 5.0 | 0.375 | -- | -- | -- | -- | -- | 0.311 | 0.801 | 8.06 | -- | 0.838 | 0.738 | 0.200 U | 0.200 U | 0.200 U | 0.200 U | -- | -- | |
| Iron, Total | mg/L | 27 A-Zone 31 B-Zone | 1.80 | 3.84 | 4.71 | 21.9 | 3.54 | 3.97 | 38.6 | 8.09 | 25.0 | 18.0 | 15.7 | 20.1 | -- | -- | -- | -- | -- | -- | |
| Manganese, Total | mg/L | 2.2 | 0.120 | 0.837 | 0.794 | 0.640 | 0.0978 | 0.105 | 3.08 | 0.0936 | 0.709 | 0.770 | 1.32 | 2.12 | 0.444 | 2.32 | 1.51 | 1.64 | -- | -- | |
| Volatile Organic Compounds | | | | | | | | | | | | | | | | | | | | | |
| Vinyl Chloride | µg/L | 0.29 | 0.0200 U | 0.0200 U | 0.0200 U | 0.0200 U | 0.379 ¹ | 0.547 ¹ | 0.430 | 0.0270 | 0.0954 | 0.574 ¹ | 0.443 | 0.159 | 0.0200 U | 0.168 | 0.0616 | 0.0479 | 0.0200 U | 0.0200 U | |
| Cis-1,2-Dichloroethene | µg/L | 16 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.84 | 0.89 | 0.35 | 0.26 | 0.20 U | 0.20 U | 0.57 | 0.20 U | 0.20 U | 0.98 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | |
| Benzene | µg/L | 5.0 | -- | -- | -- | -- | -- | -- | 3.73 | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.20 U | 0.20 U | |

Notes:

- ¹ MW-30 and MW-31 monitor the former Glitsa property and are not CPOC wells.
 - ² MW-27, a downgradient A-Zone well across SR 99 consistently has arsenic at concentrations greater than the CUL due to a cement kiln dust deposit that is across the street from the Settlement Area. MW-27 is not a CPOC well for arsenic.
 - ³ MW-18 is completed in refuse along the downgradient edge of the Landfill; MW-32 and MW-33 are completed beneath refuse along the downgradient edge.
- = Exceeds cleanup level for CPOC wells
 -- = Not analyzed
 U = The analyte was analyzed for but was not detected above the reported sample quantitation limit.

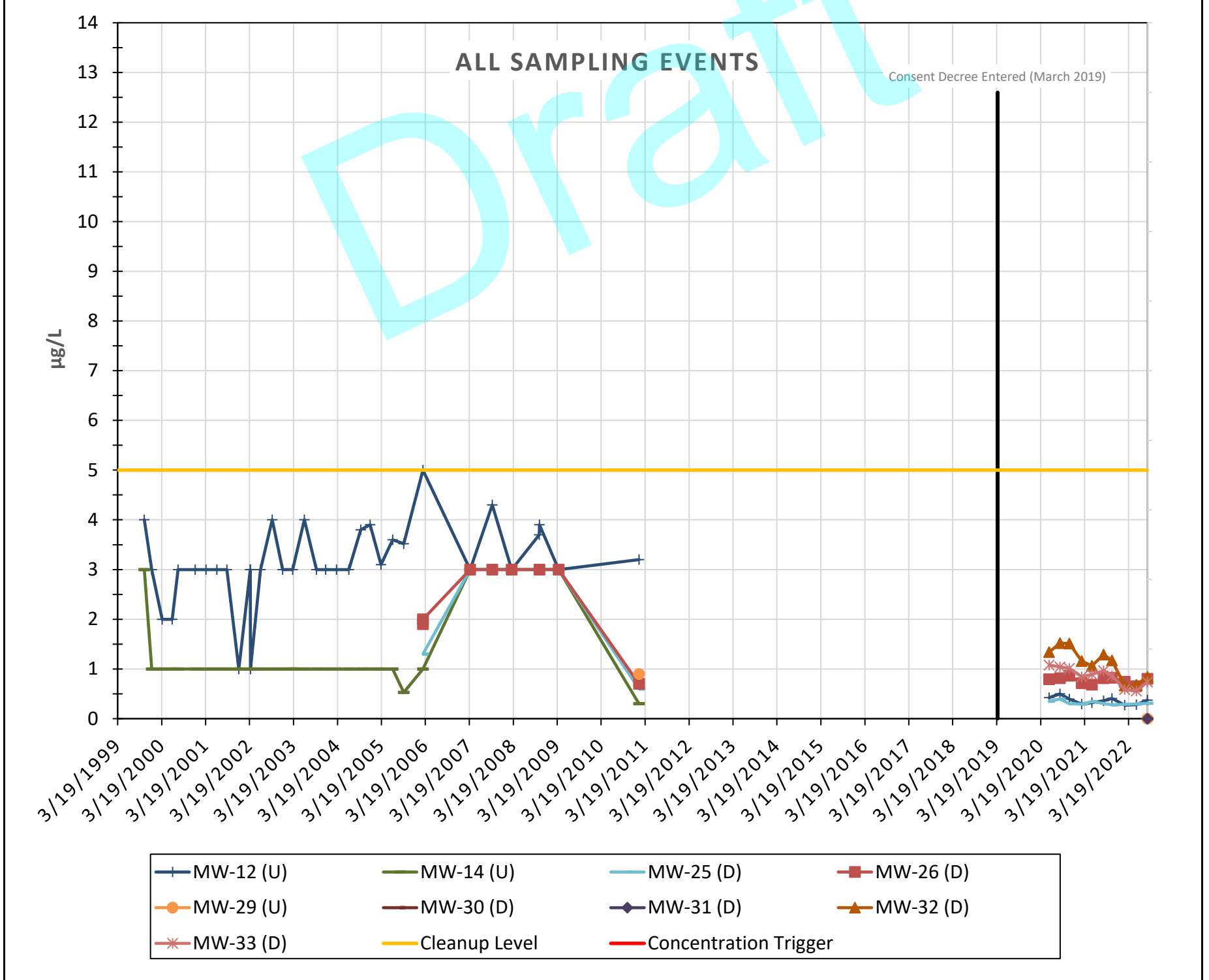
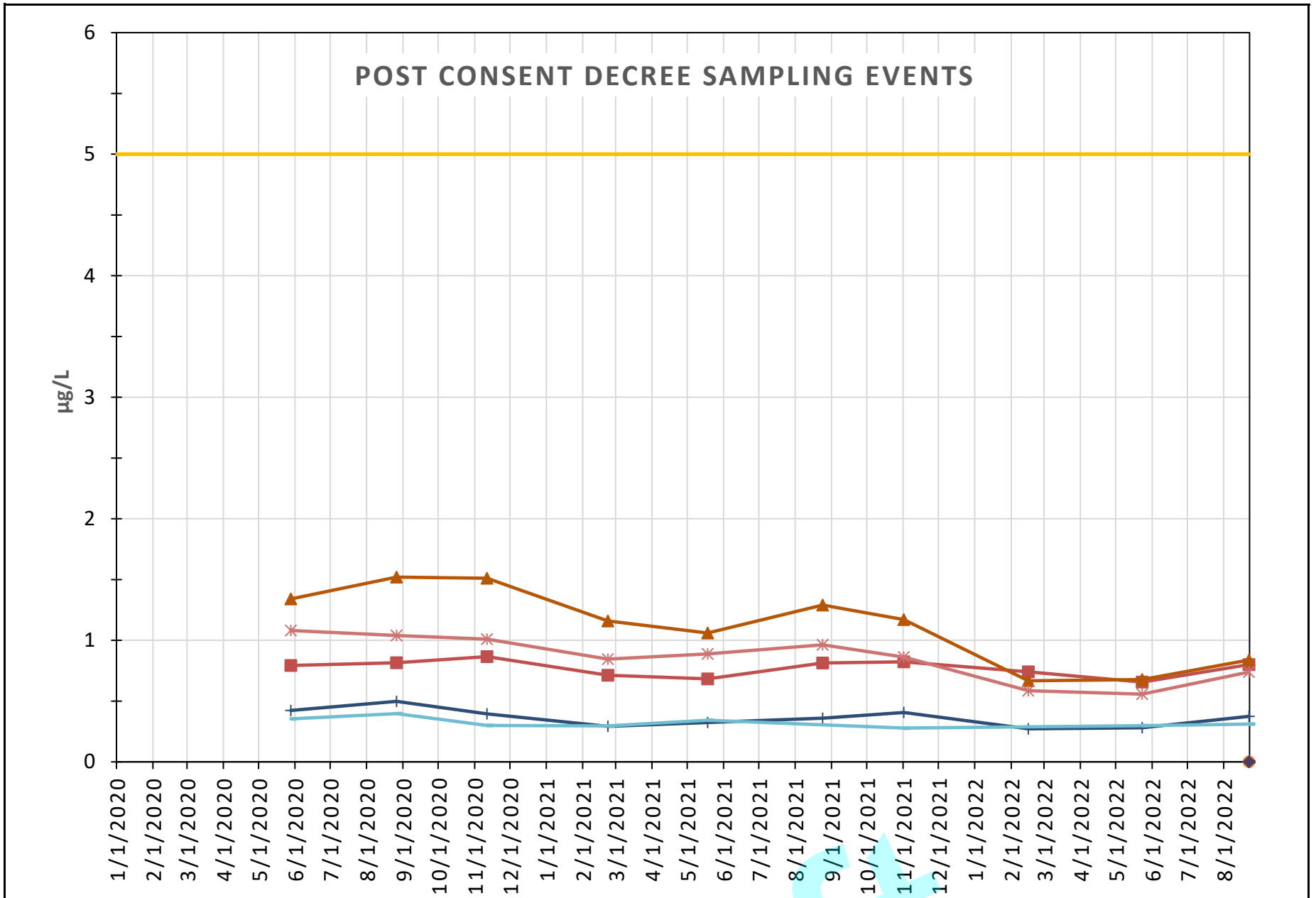
Abbreviations:

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

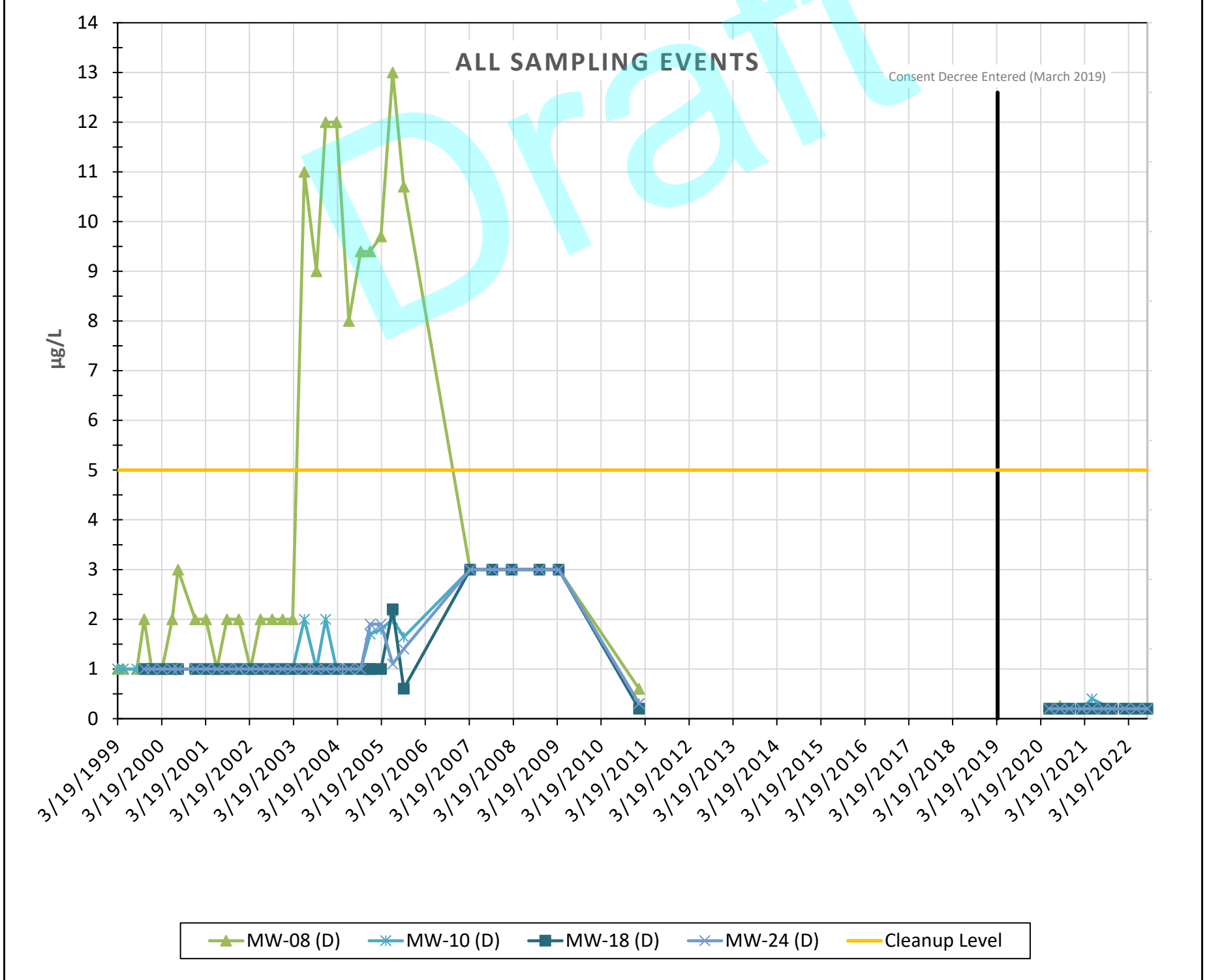
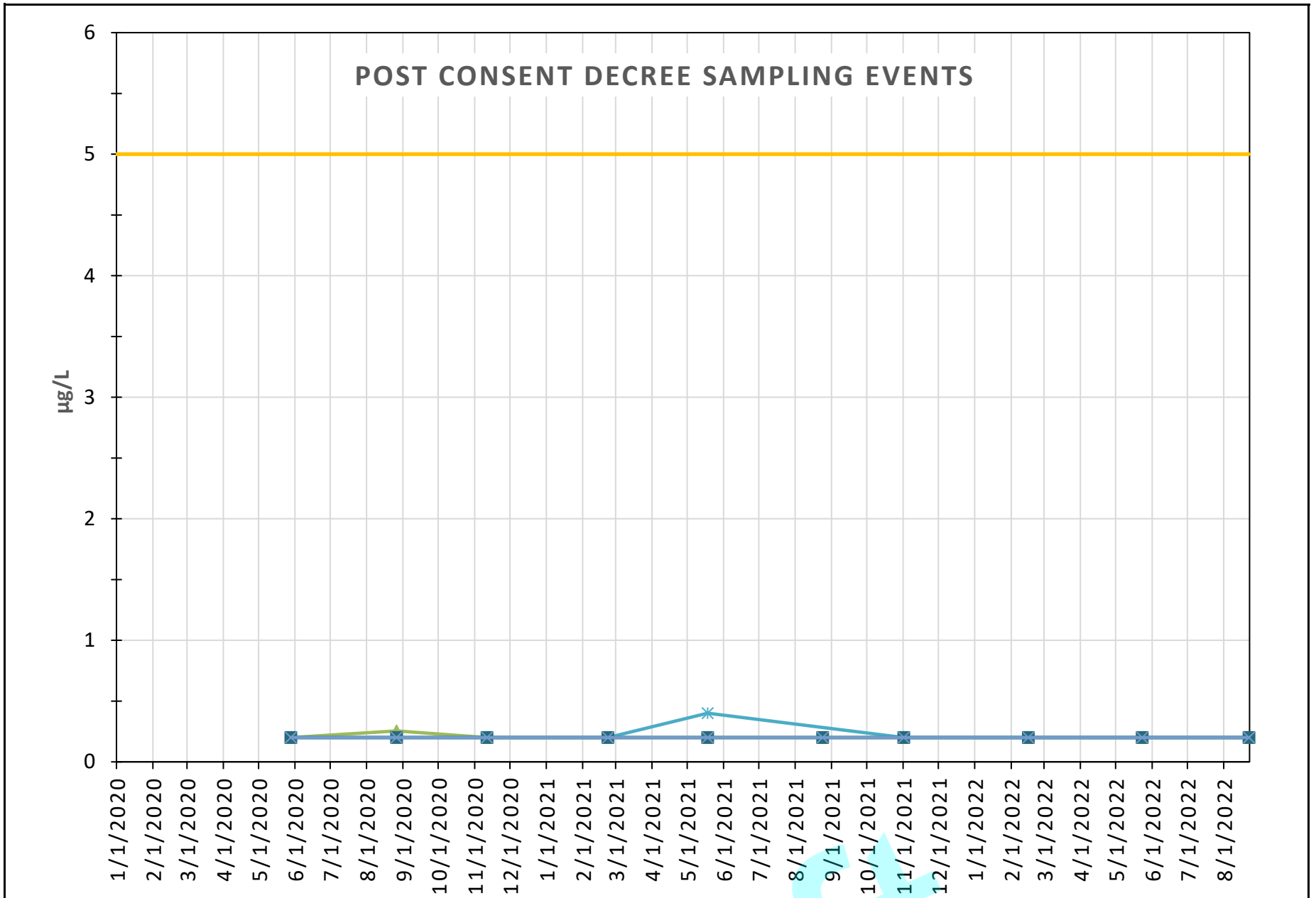
Attachment 3

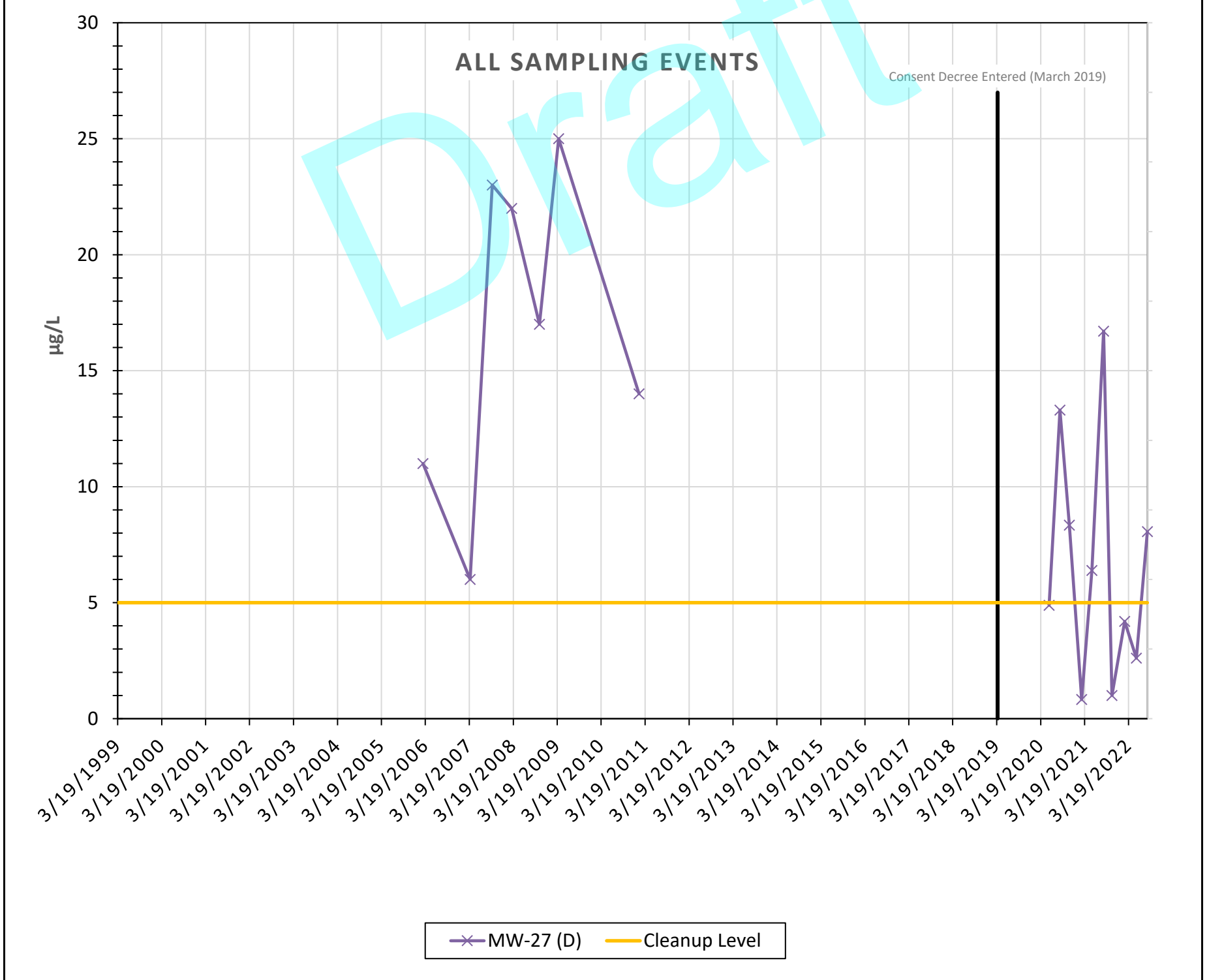
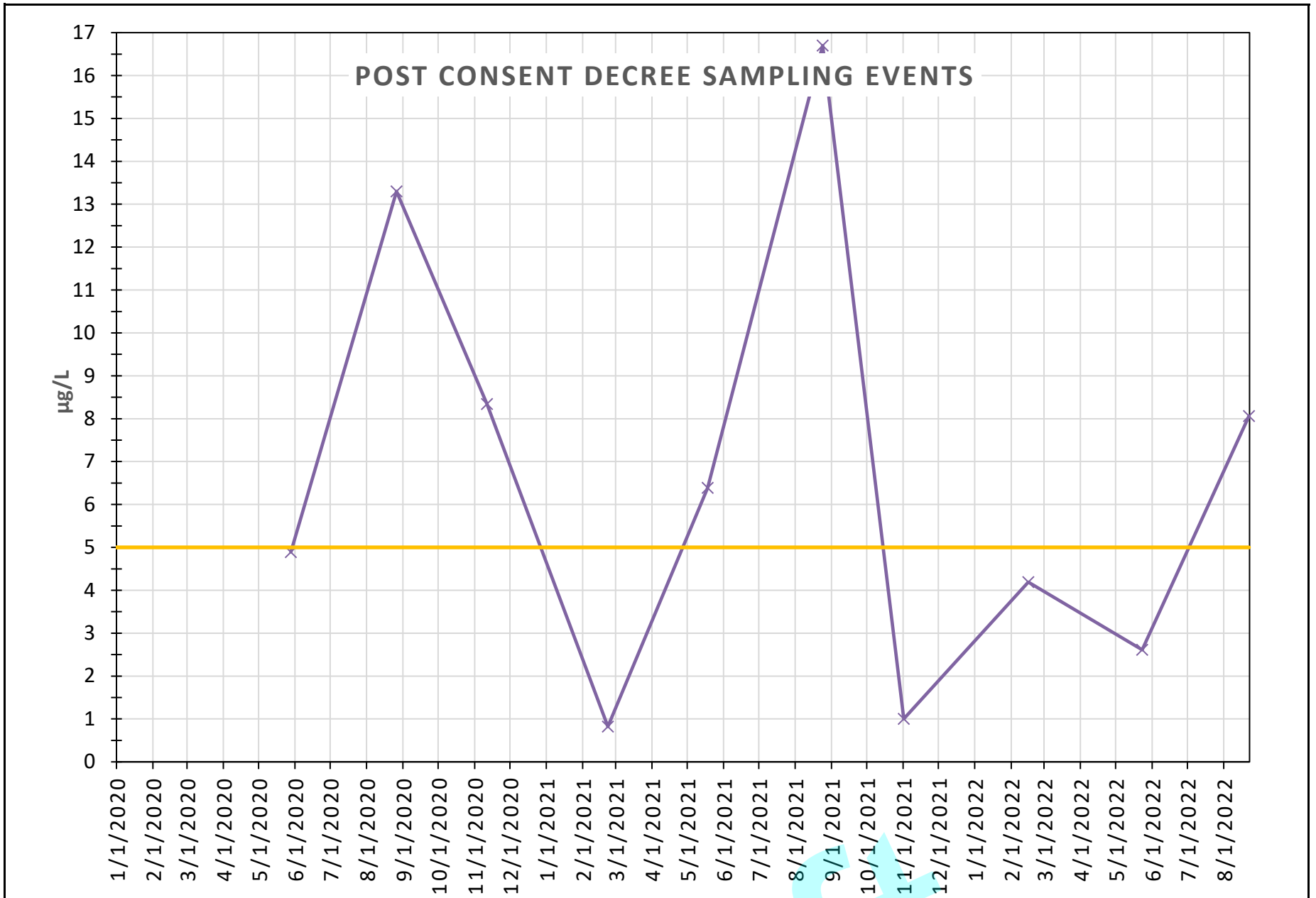
Groundwater Quality Time Series Plots
through Third Quarter 2022

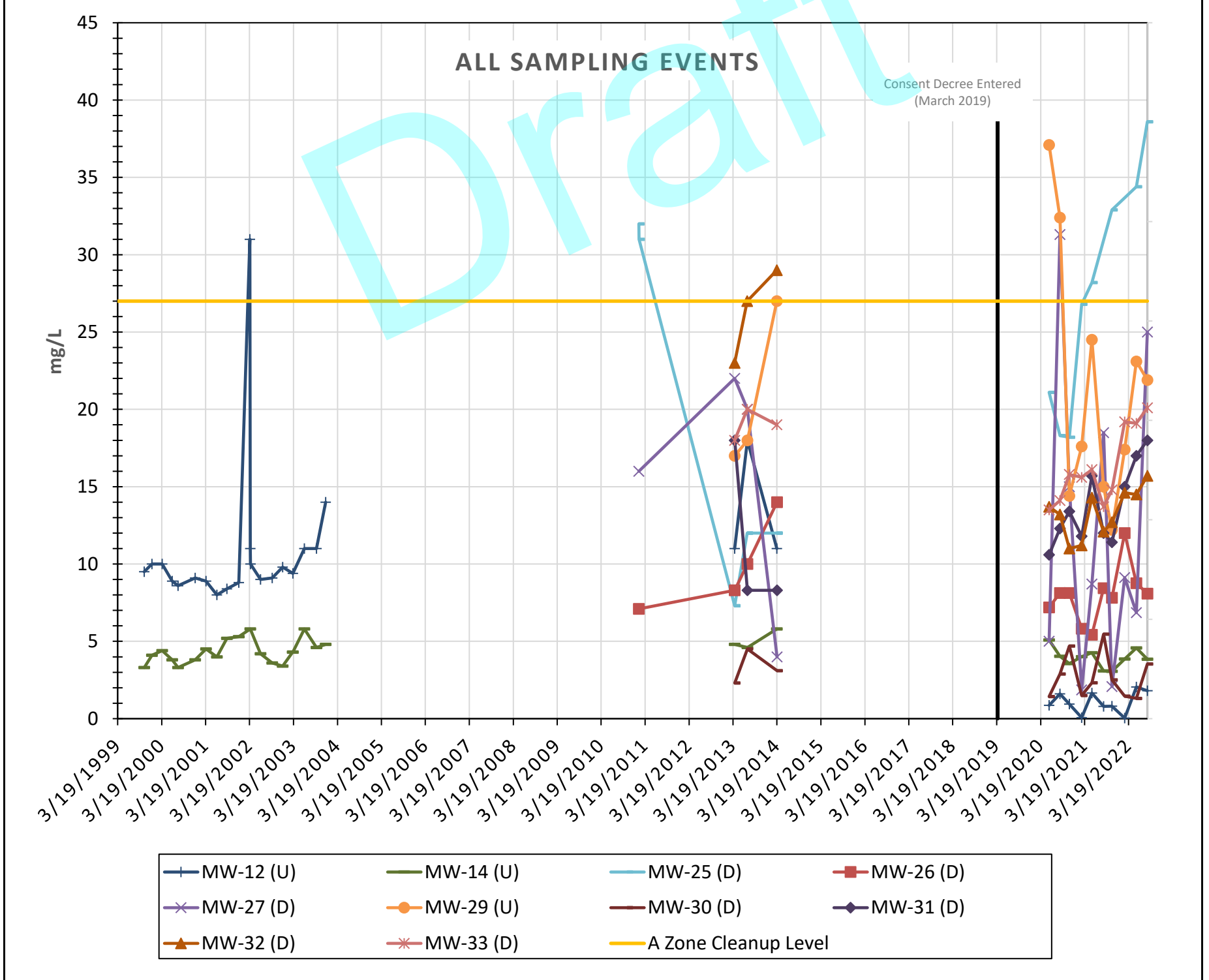
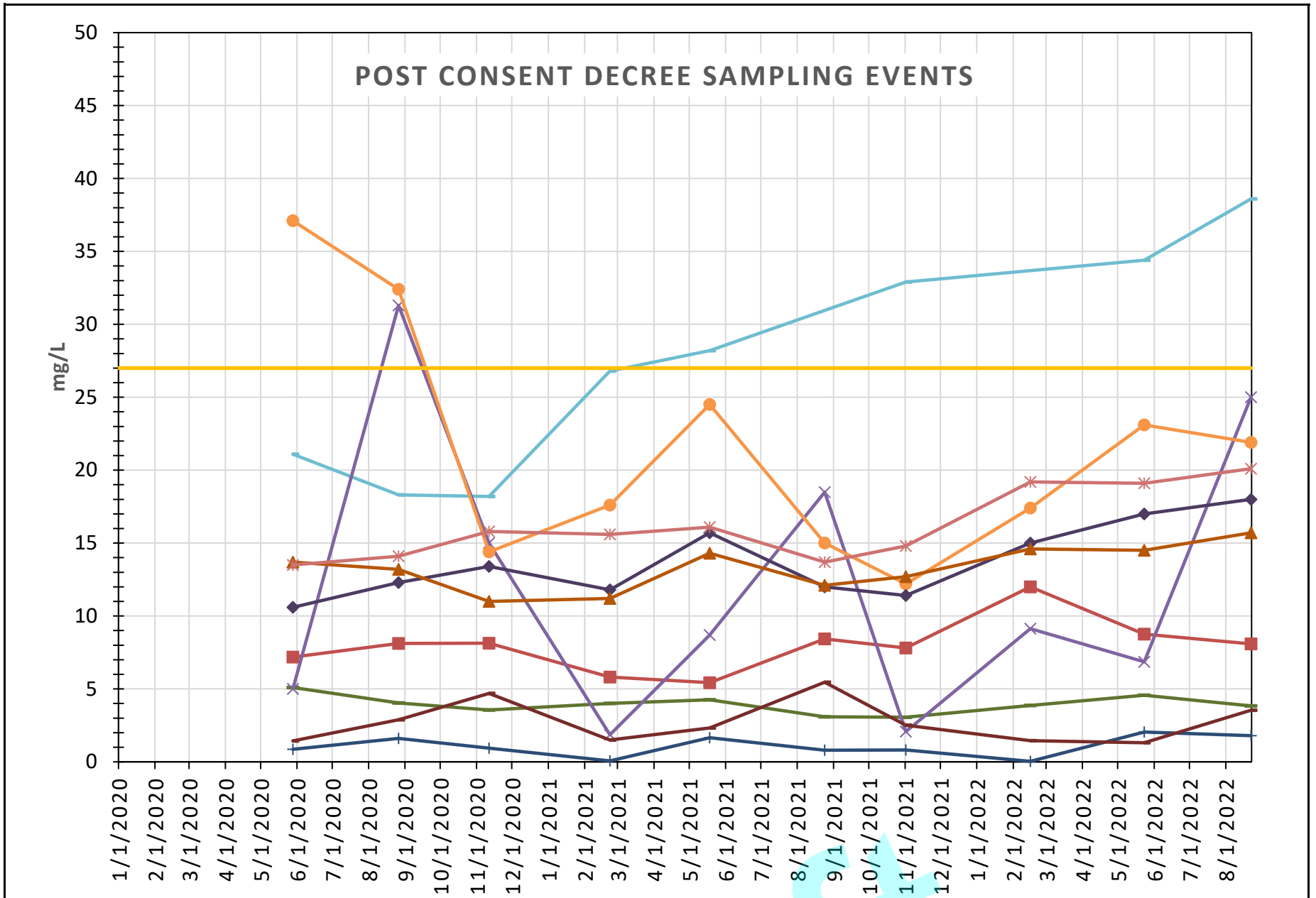




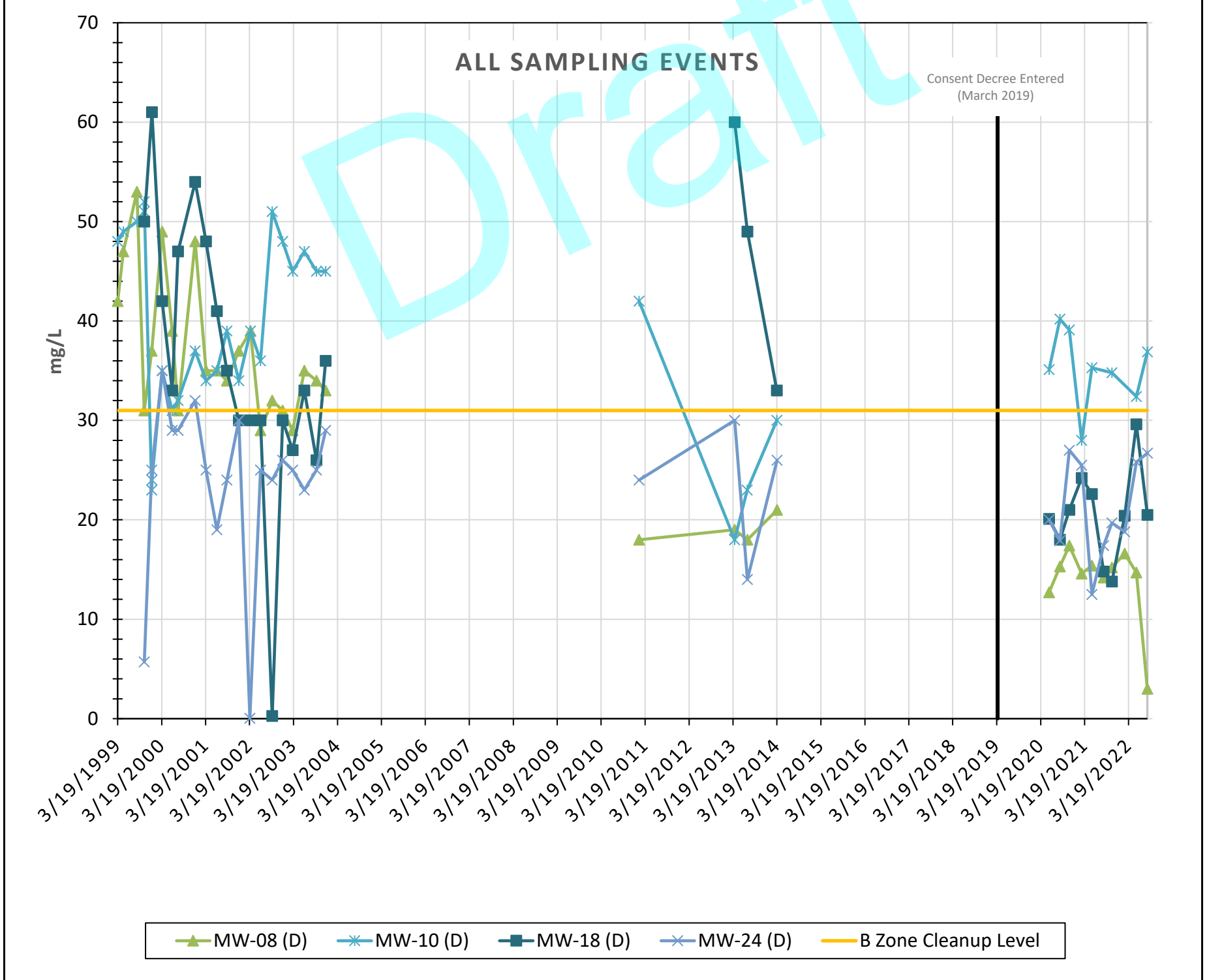
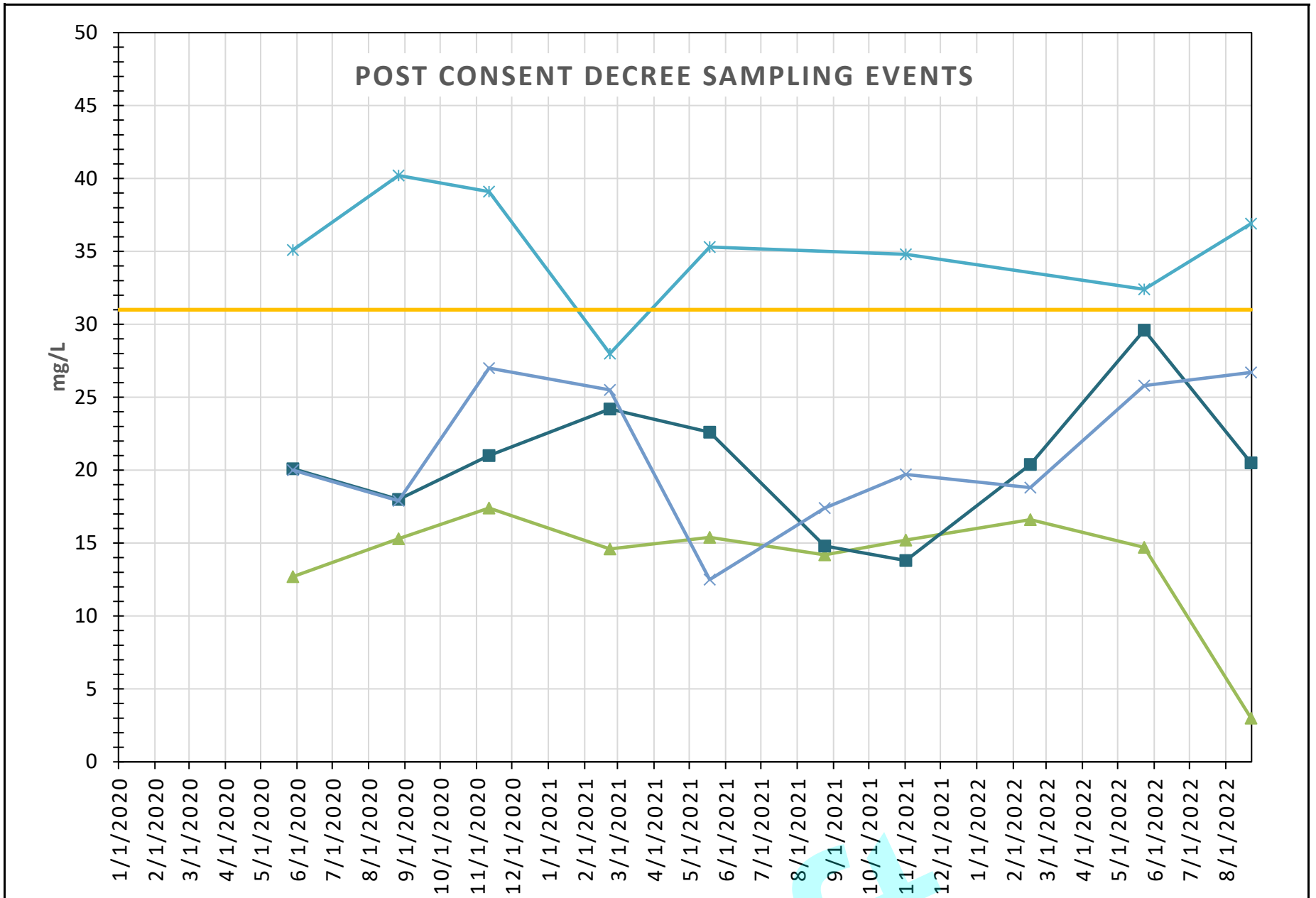
D = Downgradient
U = Upgradient

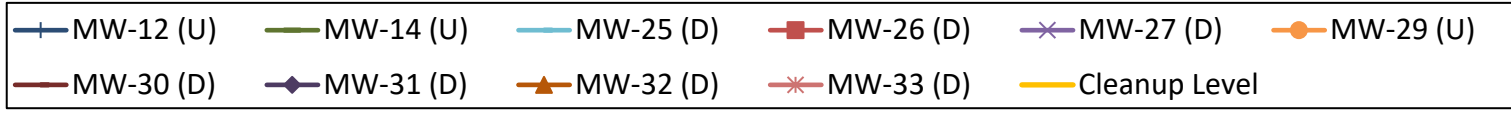
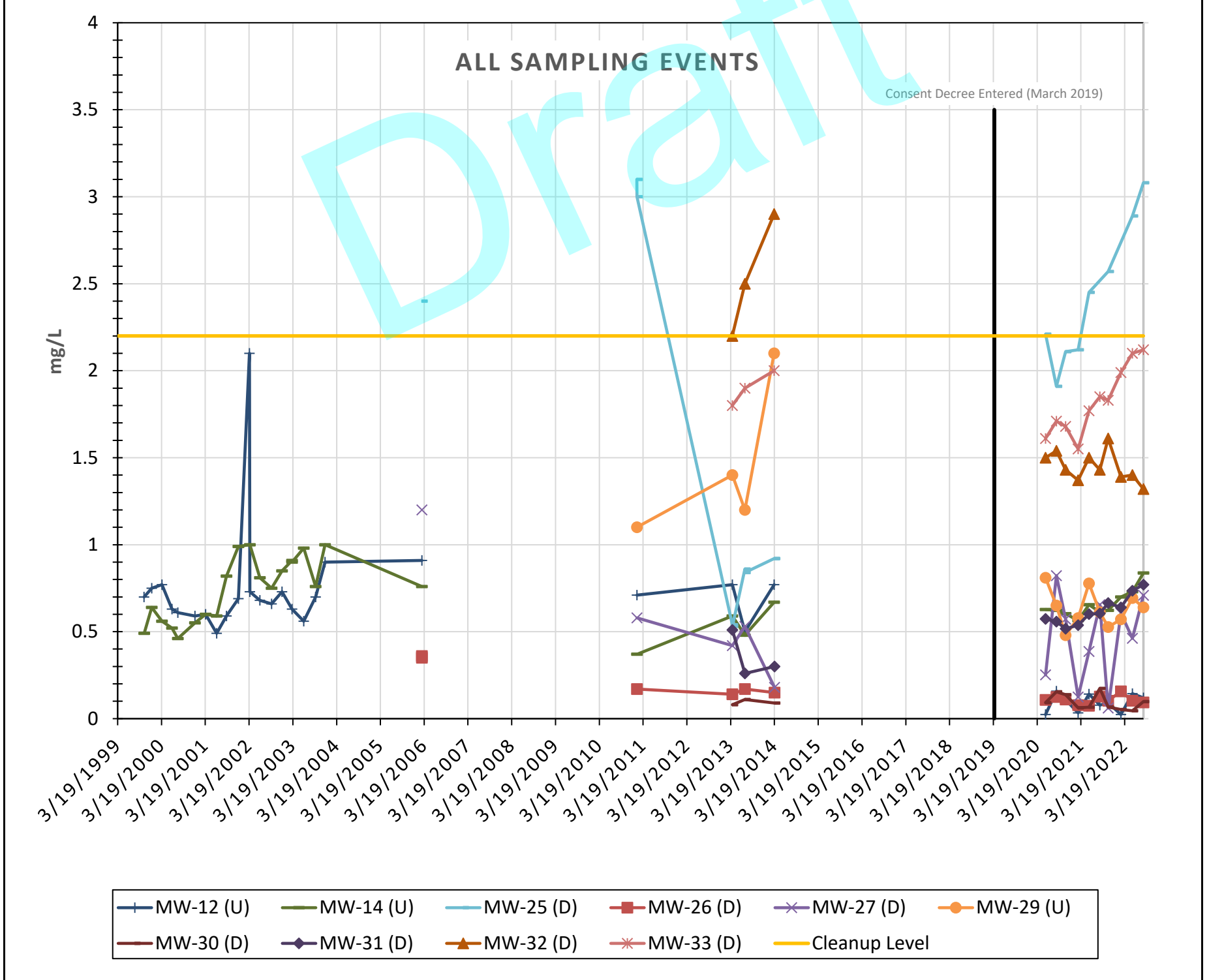
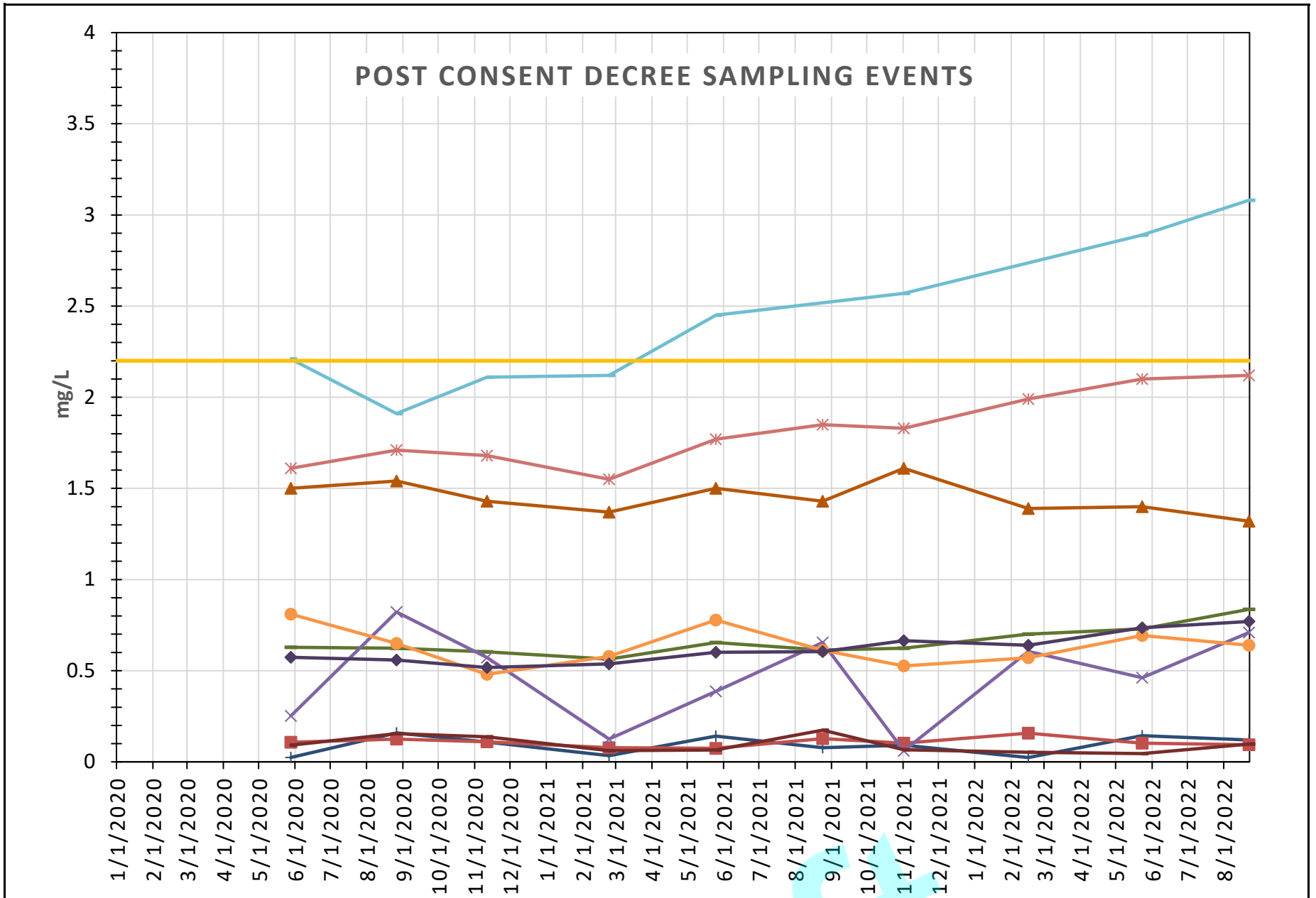


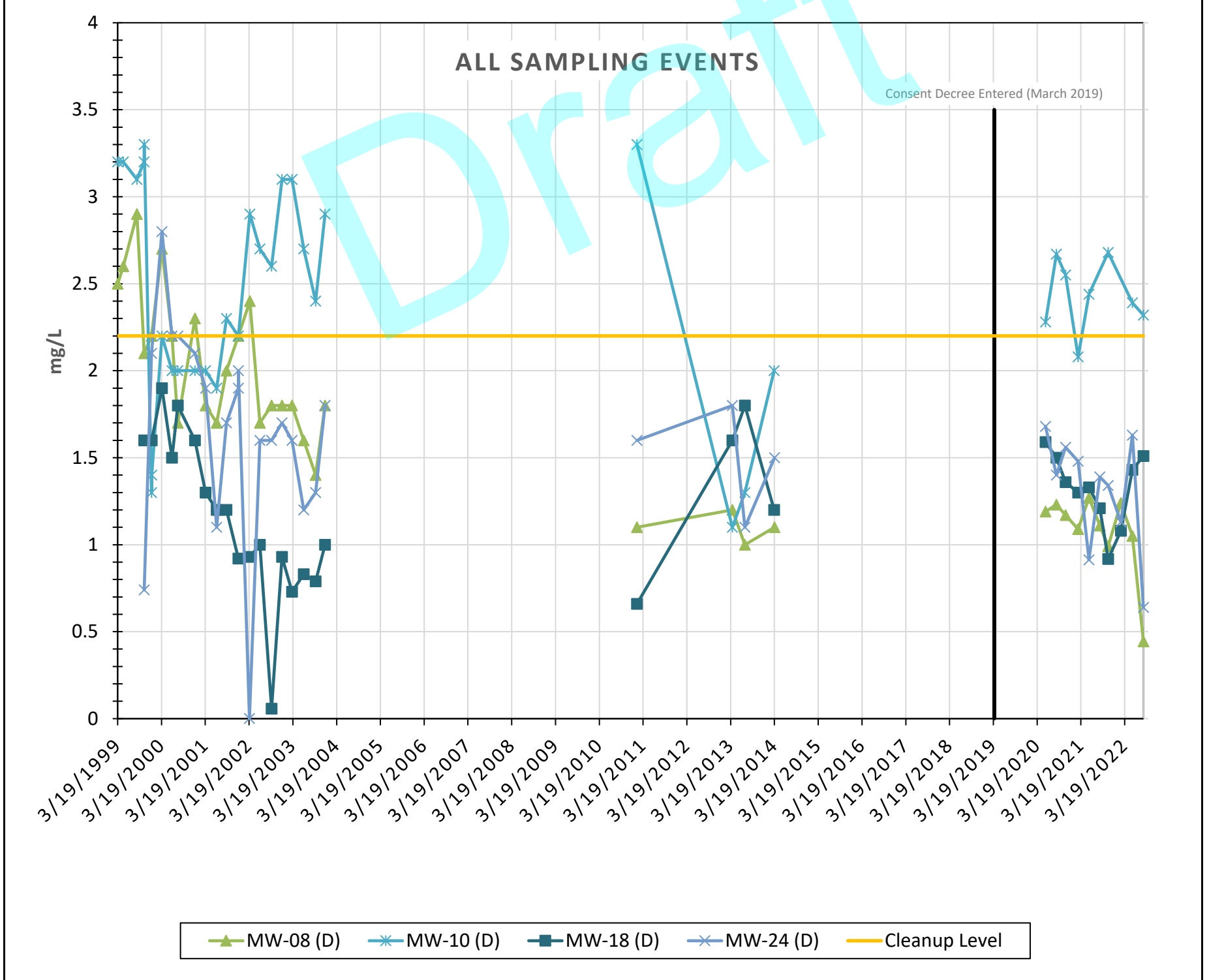
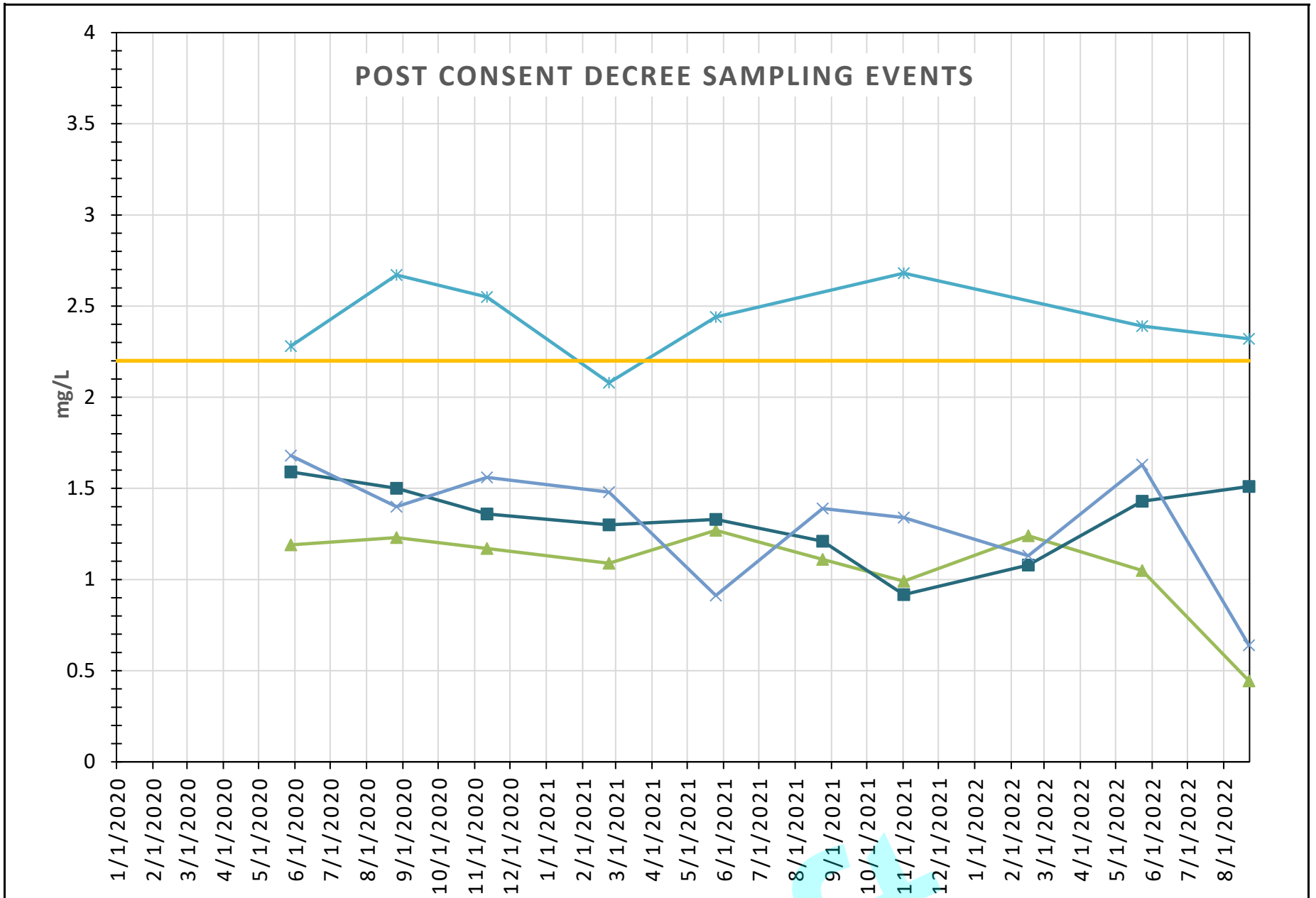




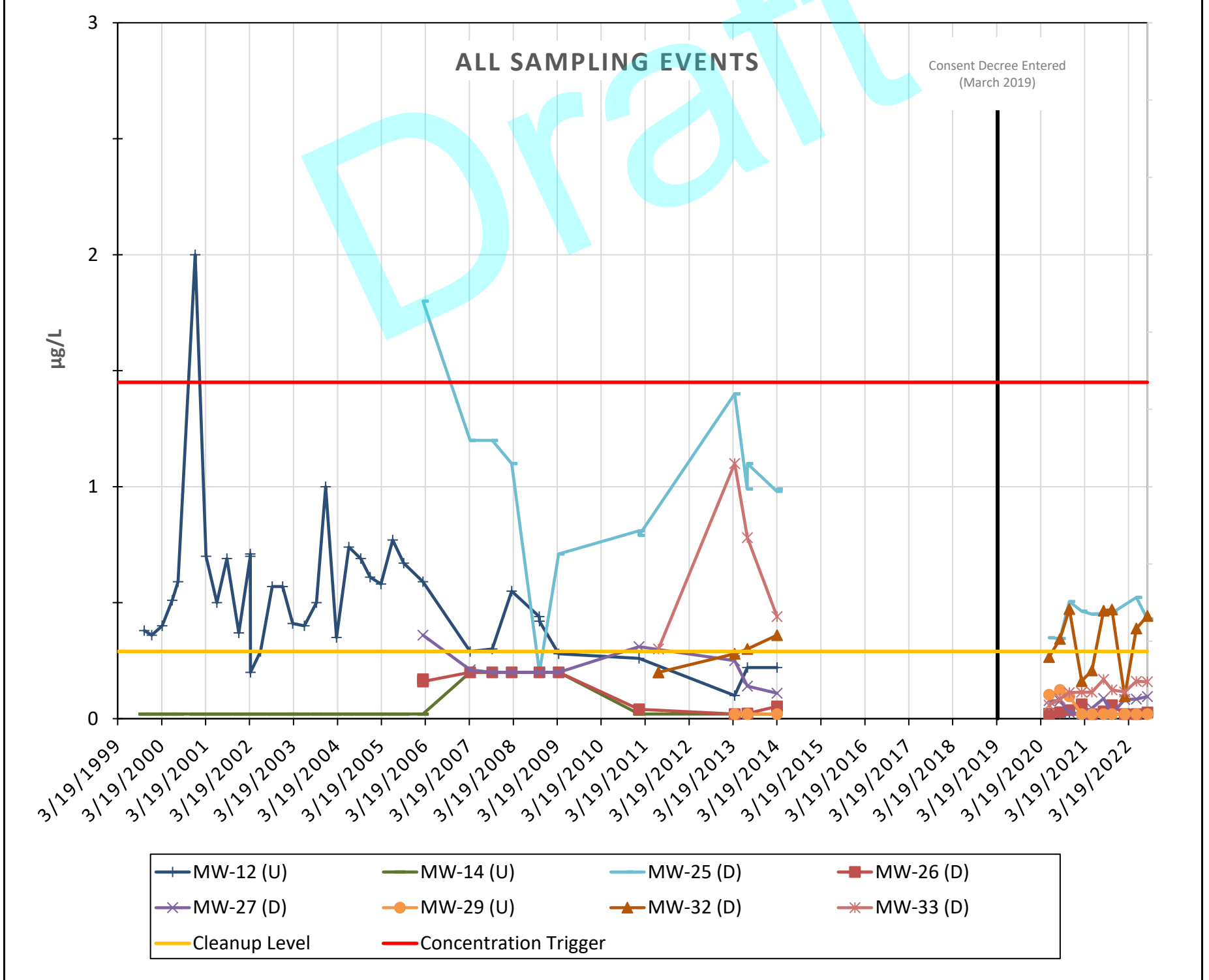
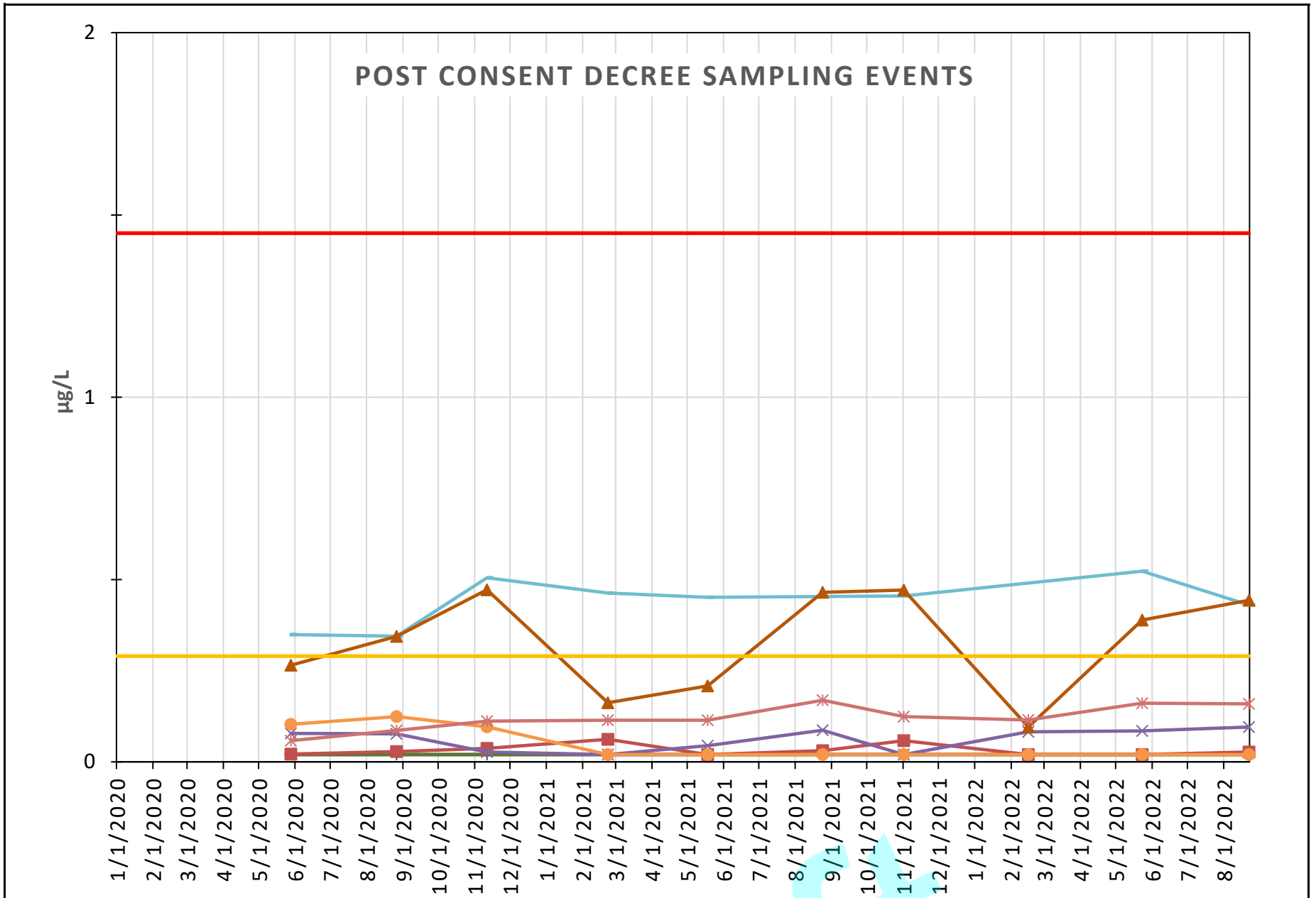
| | | | |
|-----------|-----------|----------------------|-----------|
| MW-12 (U) | MW-14 (U) | MW-25 (D) | MW-26 (D) |
| MW-27 (D) | MW-29 (U) | MW-30 (D) | MW-31 (D) |
| MW-32 (D) | MW-33 (D) | A Zone Cleanup Level | |

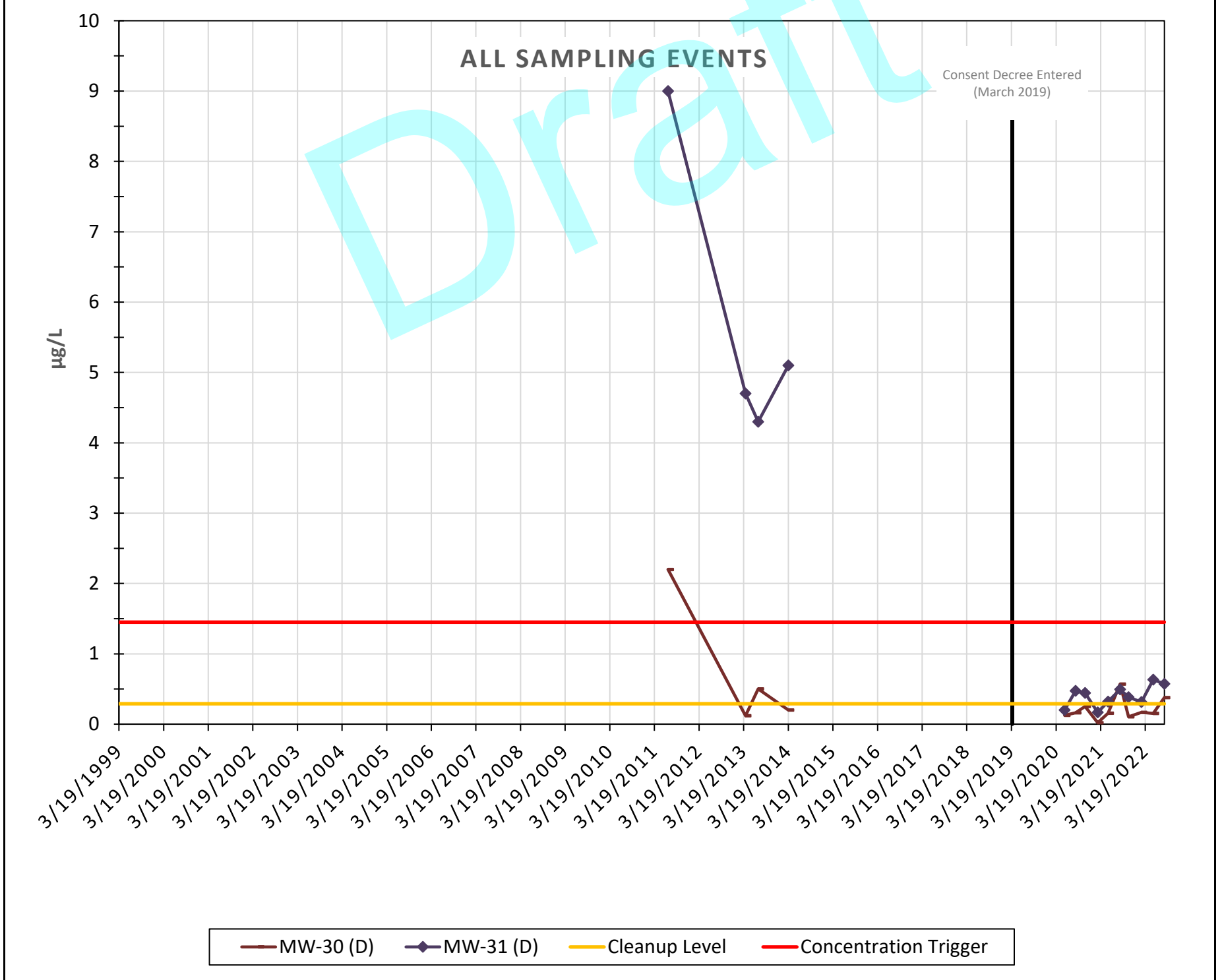
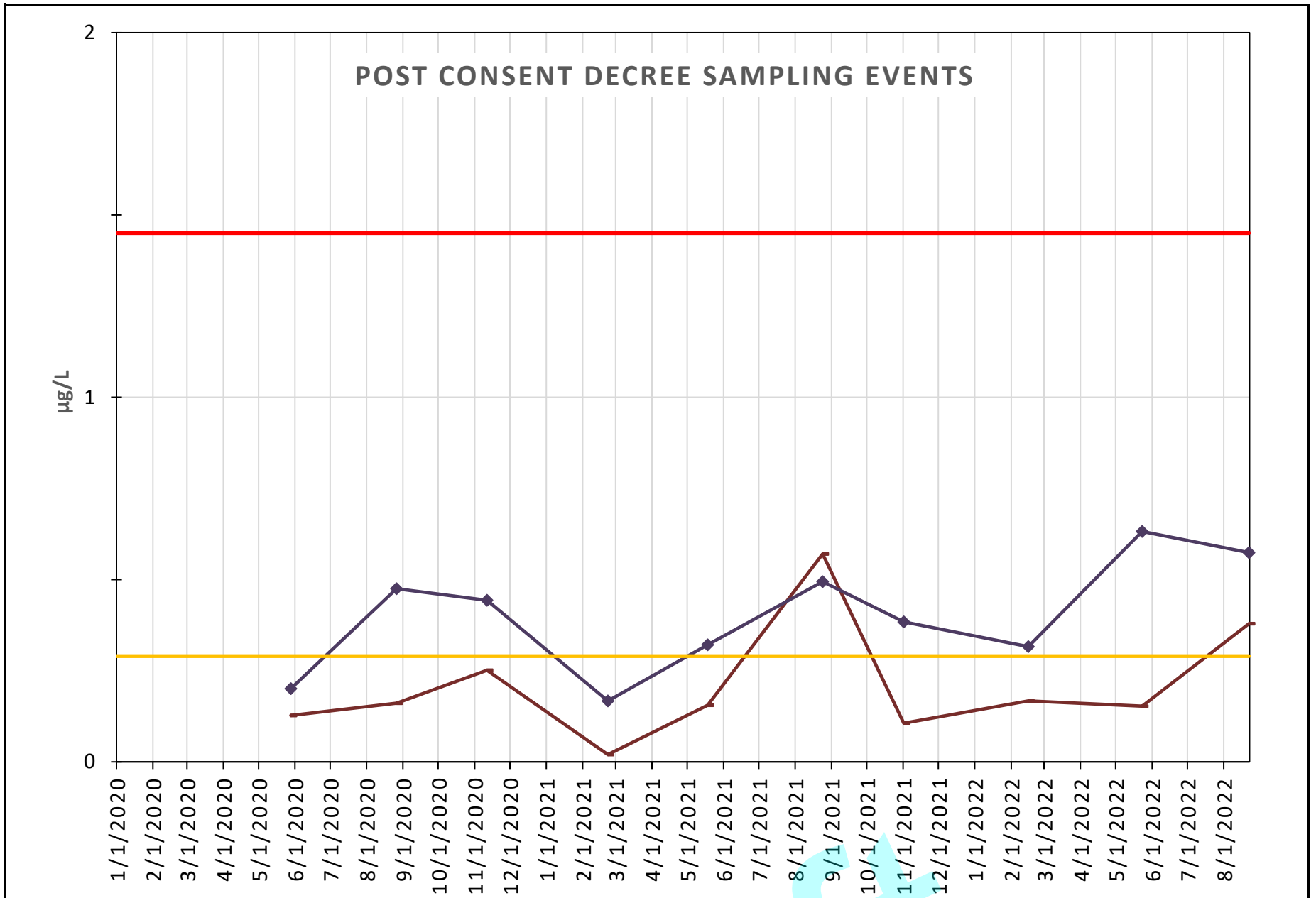




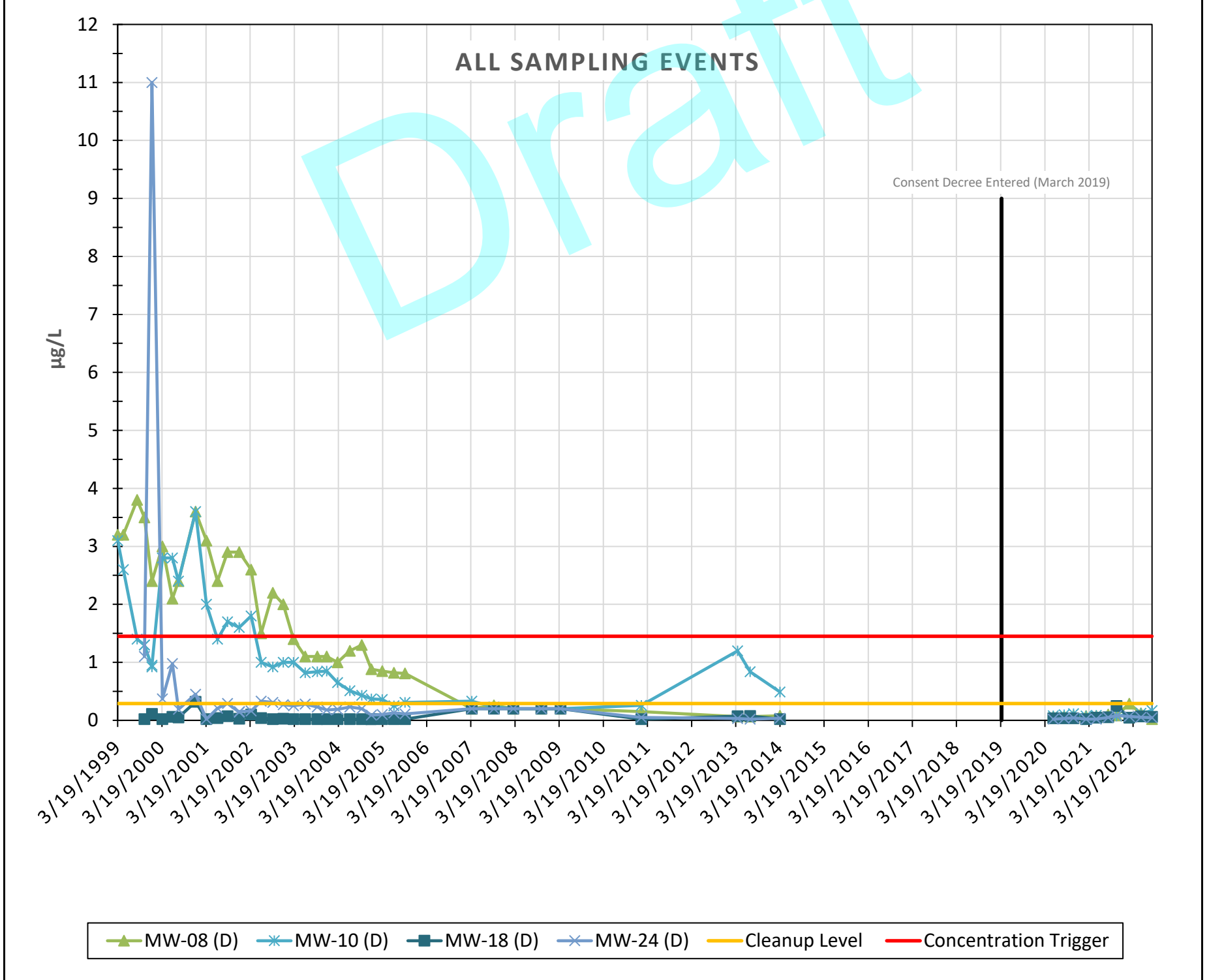
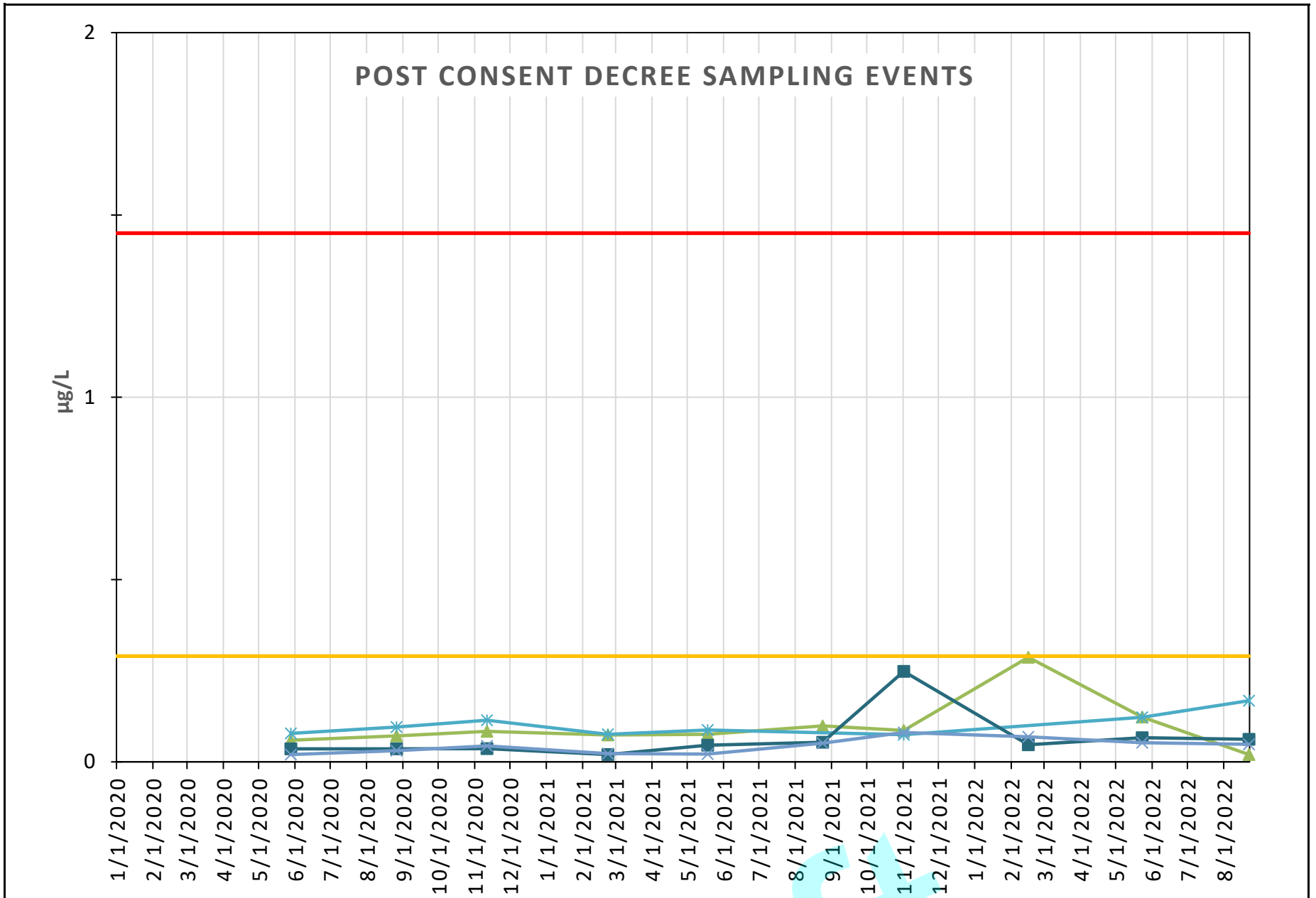


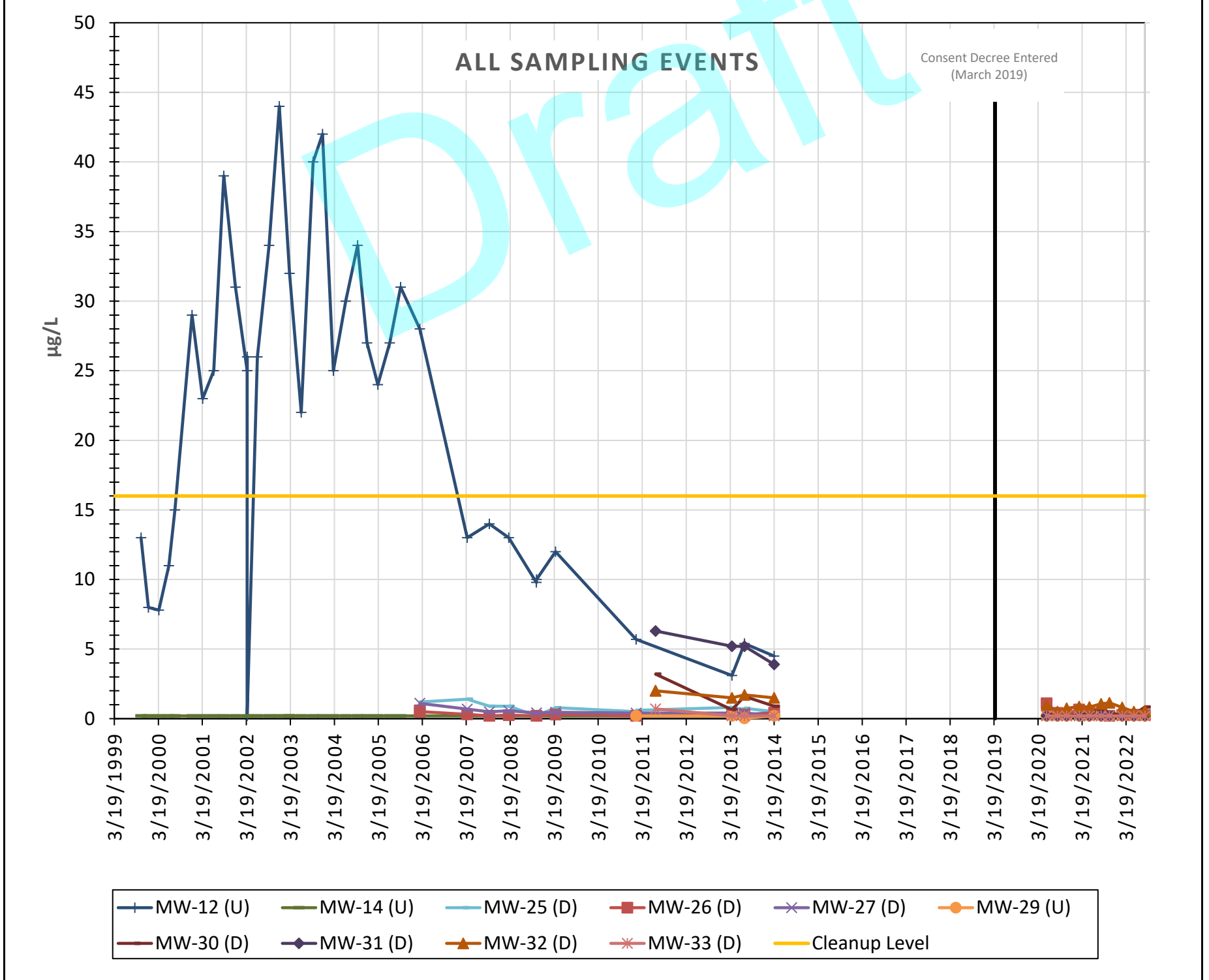
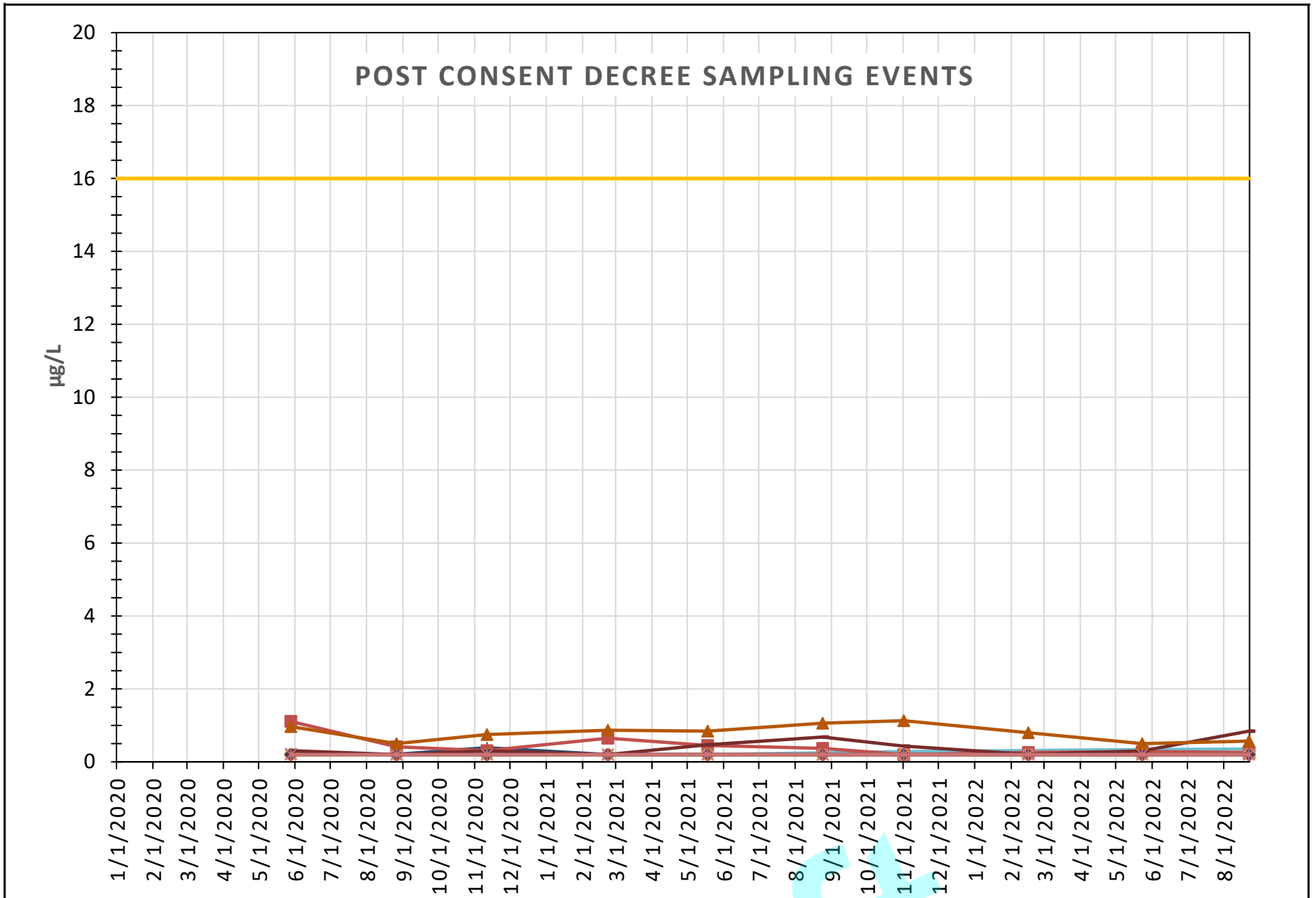
▲ MW-08 (D)
 ✱ MW-10 (D)
 ■ MW-18 (D)
 ✱ MW-24 (D)
 — Cleanup Level



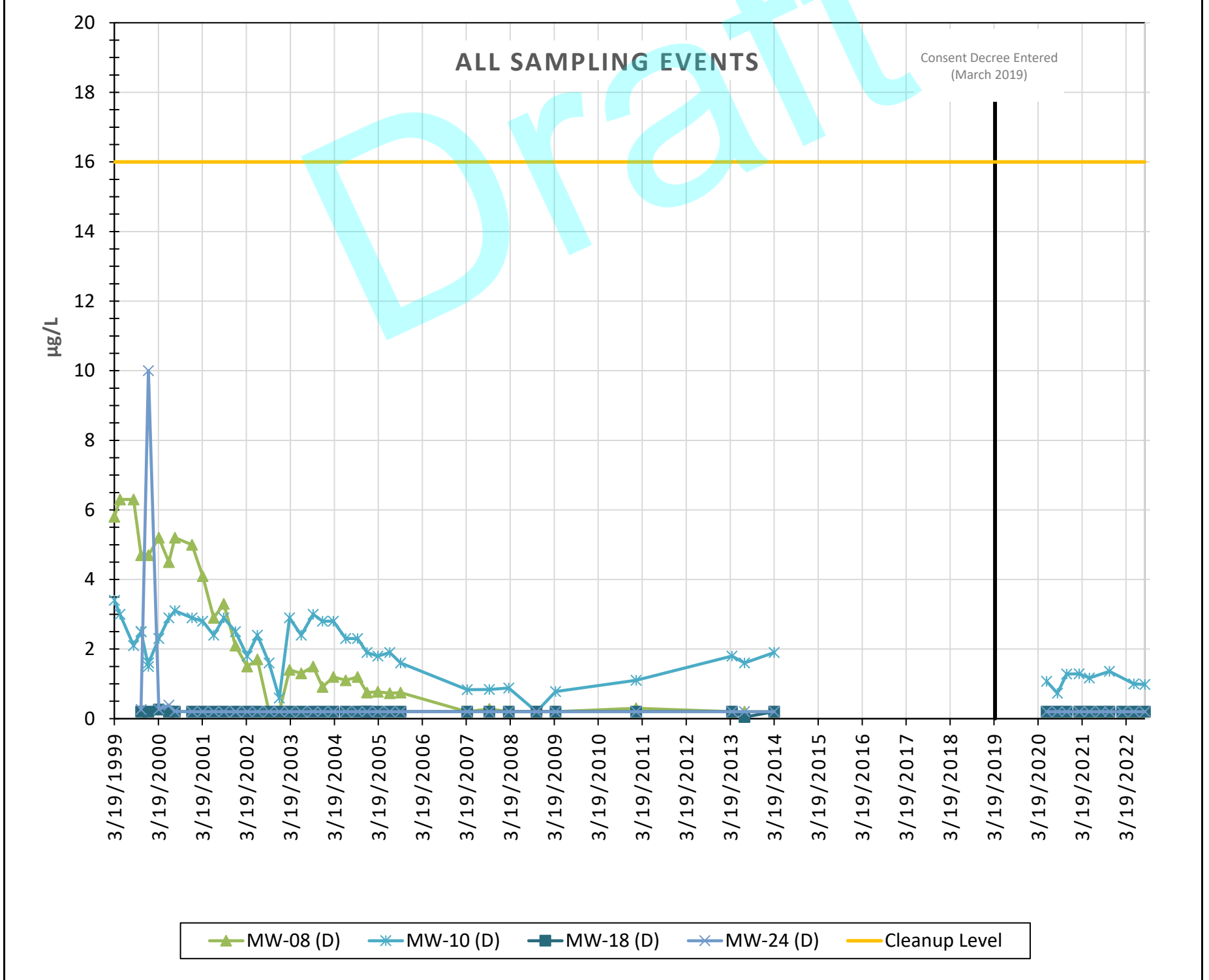
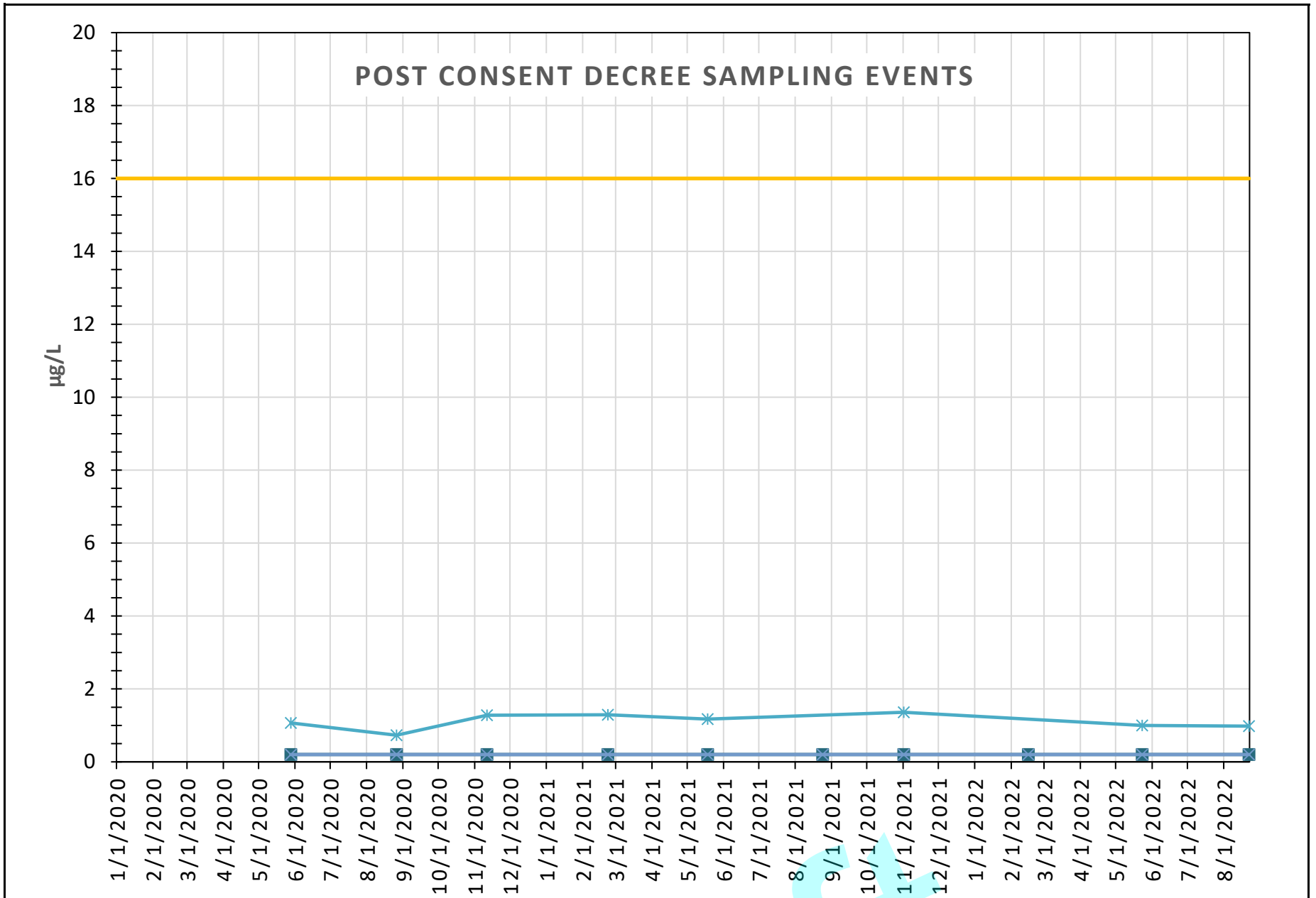


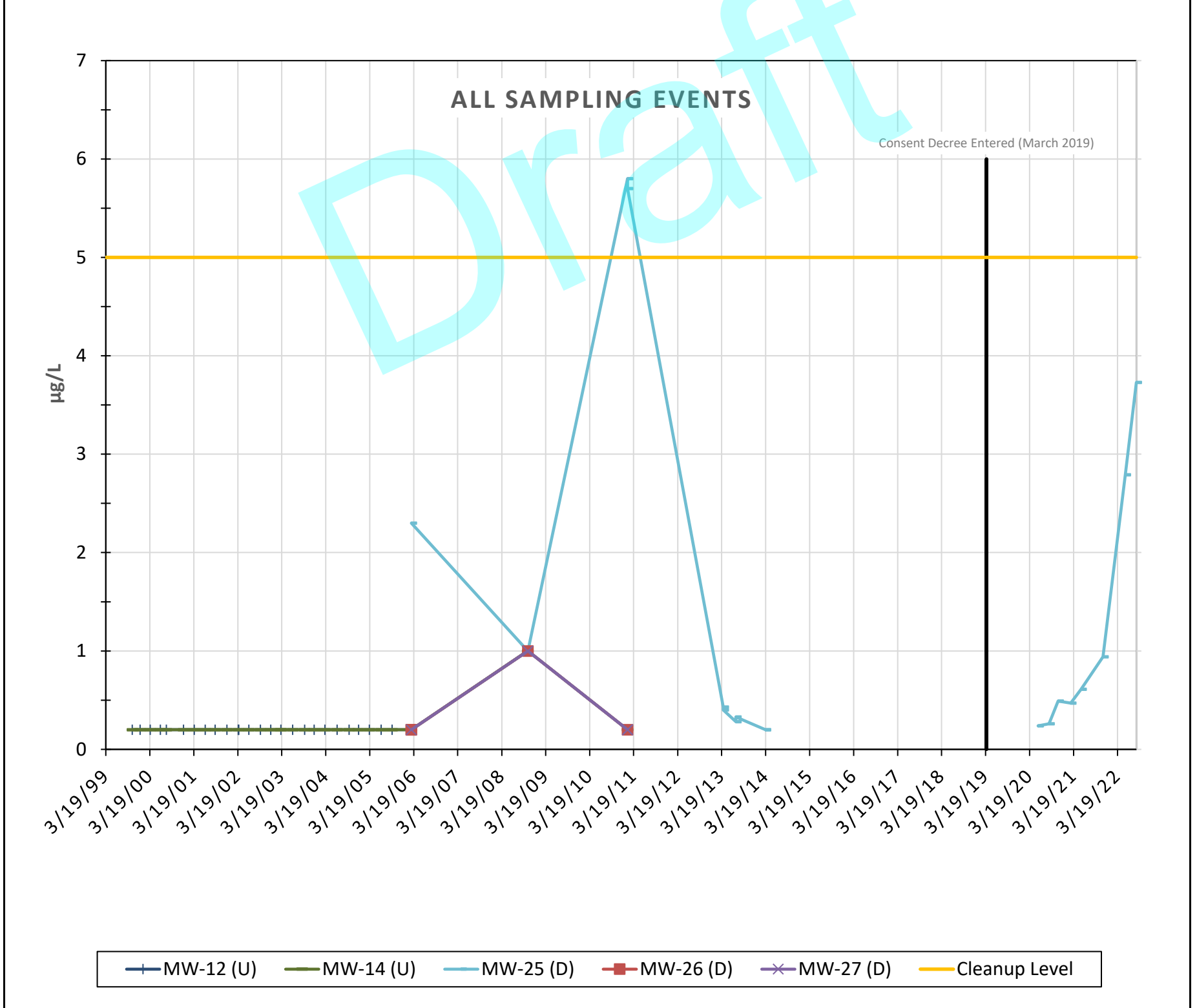
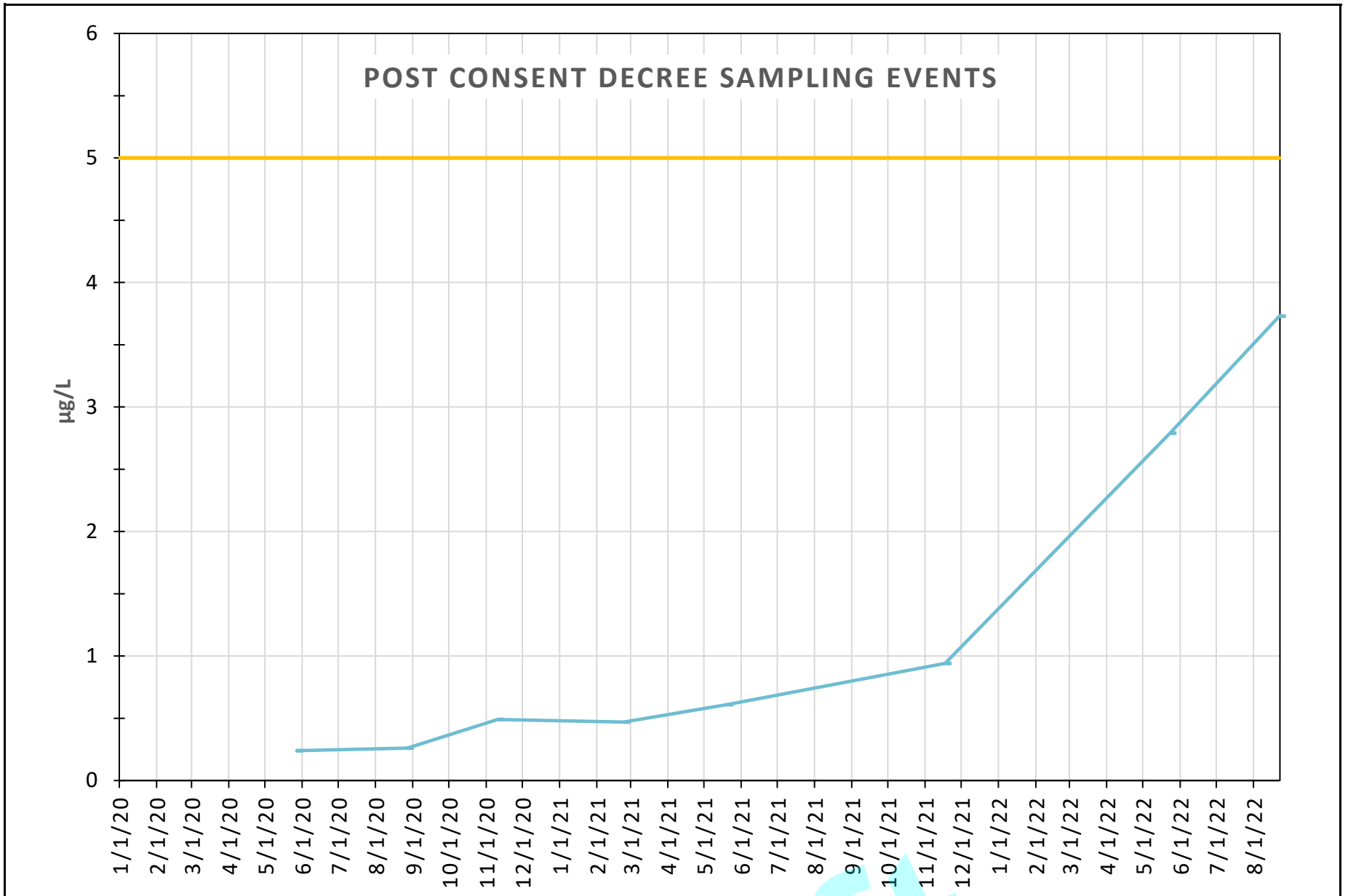
— MW-30 (D)
 —◆— MW-31 (D)
 — Cleanup Level
 — Concentration Trigger





D = Downgradient
U = Upgradient





D = Downgradient
U = Upgradient

Attachment 4

Third Quarter 2022 Groundwater
Laboratory Data





Analytical Resources, LLC
Analytical Chemists and Consultants

08 September 2022

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

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

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

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

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

Associated Work Order(s)
22H0431

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

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

Analytical Resources, LLC

Shelly Fishel, Project 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: 22H0431 | Turn-around Requested: 2 weeks | Date: 8/23/22 |
| ARI Client Company: Jeff Neuner, Seattle Public Utility | Phone: 206 684-7693 | Page: 1 of 21 |
| Client Contact: Laura Lee | Phone: 206 394-3665 | No. of Coolers: _____ Cooler Temps: _____ |

| Client Project Name: SPU South Park Landfill | | | | | Analysis Requested | | | | | | | | | | Notes/Comments | | | |
|--|--|------|--|----------------------|---------------------------------|----------------------|-----------------------------|--------------|----------------|--|--|--|--|--|----------------|--|--|------------------|
| Samplers: Chris Bourgeois HWA | | | | | cis-1,2-DCE | cis-1,2-DCE, benzene | Vinyl Chloride | Total Fe, Mn | Dissolved As** | | | | | | | | | |
| Sample ID | Date | Time | Matrix | Number of Containers | | | | | | | | | | | | | | |
| SPL-GW-MW12-0822 | 8/23/22 | 0905 | water | 8 | X | | X | X | X | | | | | | | | | **Field-filtered |
| SPL-GW-MW14-0822 | 8/23/22 | 1015 | water | 13 | X | | X | X | | | | | | | | | | MS/MSD |
| SPL-GW-MW29-0822 | 8/23/22 | 1145 | water | 7 | X | | X | X | | | | | | | | | | |
| SPL-GW-MW18-0822 | 8/23/22 | 1245 | water | 8 | X | | X | X | X | | | | | | | | | |
| SPL-GW-MW32-0822 | | | water | 8 | X | | X | X | X | | | | | | | | | |
| SPL-GW-MW33-0822 | | | water | 8 | X | | X | X | X | | | | | | | | | |
| SPL-GW-MW10-0822 | | | water | 8 | X | | X | X | X | | | | | | | | | |
| SPL-GW-MW60-0822 | 8/23/22 | 1030 | water | 7 | X | | X | X | | | | | | | | | | |
| SPL-GW-MW80-0822 | | | water | 2 | | X | X | | | | | | | | | | | |
| Comments/Special Instructions | Relinquished by: (Signature) <i>Chris Bourgeois</i> | | Received by: (Signature) <i>LB</i> | | Relinquished by: (Signature) | | Received by: (Signature) | | | | | | | | | | | |
| | Printed Name: <i>Chris Bourgeois</i> | | Printed Name: <i>Isabelle Brasley</i> | | Printed Name: | | Printed Name: | | | | | | | | | | | |
| | Company: <i>HWA</i> | | Company: <i>ARI</i> | | Company: | | Company: | | | | | | | | | | | |
| | Date & Time: <i>8/23/22 1908</i> | | Date & Time: <i>8/24/22 1305</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: 22H0431 | Turn-around Requested: 2 weeks | Date: |
| ARI Client Company: Jeff Neuner, Seattle Public Utility | Phone: 206 684-7693 | Page: 24 of 24 |
| Client Contact: Laura Lee, Parametrix | Phone: 206 394-3665 | No. of Coolers: 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 | cis-1,2-DCE, benzene | Vinyl Chloride | Total Fe, Mn | Dissolved As** | | | | | | | | **Field-filtered |
| Client Project #: 553-1550-067 | | | | | Samplers: Chris Bourgeois HWA | | | | | | | | | | | | | |
| SPL-GW-MW25-0822 | | | | water | 8 | | X | X | X | X | | | | | | | | |
| SPL-GW-MW30-0822 | | 8/23/22 | 1400 | water | 13 | X | | X | X | | | | | | | | | MS/MSD |
| SPL-GW-MW31-0822 | | 8/23/22 | 1500 | water | 7 | X | | X | X | | | | | | | | | |
| SPL-GW-MW24-0822 | | | | water | 8 | X | | X | X | X | | | | | | | | |
| SPL-GW-MW26-0822 | | | | water | 8 | X | | X | X | X | | | | | | | | |
| SPL-GW-MW08-0822 | | 8/23/22 | 1750 | water | 8 | X | | X | X | X | | | | | | | | |
| SPL-GW-MW27-0822 | | 8/23/22 | 1630 | water | 8 | X | | X | X | X | | | | | | | | |
| SPL-GW-MW61-0822 | | 8/23/22 | 1430 | water | 7 | X | | X | X | | | | | | | | | |
| SPL-GW-MW81-0822 | | 8/23/22 | — | water | 2 | | X | X | | | | | | | | | | |
| Comments/Special Instructions | Relinquished by: (Signature) | | | | Received by: (Signature) <i>LB</i> | | | | Relinquished by: (Signature) | | | | Received by: (Signature) | | | | | |
| | Printed Name: | | | | Printed Name: <i>Isabelle Brasly</i> | | | | Printed Name: | | | | Printed Name: | | | | | |
| | Company: | | | | Company: <i>ARI</i> | | | | Company: | | | | Company: | | | | | |
| | Date & Time: | | | | Date & Time: <i>8/24/22 1305</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.



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: Jeff Neuner

Reported:
08-Sep-2022 16:27

ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|------------------|---------------|--------|-------------------|-------------------|
| SPL-GW-MW12-0822 | 22H0431-01 | Water | 23-Aug-2022 09:05 | 24-Aug-2022 13:05 |
| SPL-GW-MW12-0822 | 22H0431-02 | Water | 23-Aug-2022 09:05 | 24-Aug-2022 13:05 |
| SPL-GW-MW14-0822 | 22H0431-03 | Water | 23-Aug-2022 10:15 | 24-Aug-2022 13:05 |
| SPL-GW-MW29-0822 | 22H0431-04 | Water | 23-Aug-2022 11:45 | 24-Aug-2022 13:05 |
| SPL-GW-MW18-0822 | 22H0431-05 | Water | 23-Aug-2022 12:45 | 24-Aug-2022 13:05 |
| SPL-GW-MW18-0822 | 22H0431-06 | Water | 23-Aug-2022 12:45 | 24-Aug-2022 13:05 |
| SPL-GW-MW60-0822 | 22H0431-07 | Water | 23-Aug-2022 10:30 | 24-Aug-2022 13:05 |
| SPL-GW-MW30-0822 | 22H0431-08 | Water | 23-Aug-2022 14:00 | 24-Aug-2022 13:05 |
| SPL-GW-MW31-0822 | 22H0431-09 | Water | 23-Aug-2022 15:00 | 24-Aug-2022 13:05 |
| SPL-GW-MW08-0822 | 22H0431-10 | Water | 23-Aug-2022 17:50 | 24-Aug-2022 13:05 |
| SPL-GW-MW08-0822 | 22H0431-11 | Water | 23-Aug-2022 17:50 | 24-Aug-2022 13:05 |
| SPL-GW-MW27-0822 | 22H0431-12 | Water | 23-Aug-2022 16:30 | 24-Aug-2022 13:05 |
| SPL-GW-MW27-0822 | 22H0431-13 | Water | 23-Aug-2022 16:30 | 24-Aug-2022 13:05 |
| SPL-GW-MW61-0822 | 22H0431-14 | Water | 23-Aug-2022 14:30 | 24-Aug-2022 13:05 |
| SPL-GW-MW80-0822 | 22H0431-15 | Water | 23-Aug-2022 09:05 | 24-Aug-2022 13:05 |
| SPL-GW-MW81-0822 | 22H0431-16 | Water | 23-Aug-2022 09:05 | 24-Aug-2022 13:05 |



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: Jeff Neuner

Reported:
08-Sep-2022 16:27

Work Order Case Narrative

Client: Seattle Public Utilities
Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Work Order: 22H0431

Sample receipt

Sample(s) as listed on the preceding page were received 24-Aug-2022 13:05 under ARI work order 22H0431. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Volatiles - EPA Method SW8260D

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

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

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

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

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

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



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

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Jeff Neuner

Reported:
08-Sep-2022 16:27

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 were within method requirements.

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

The blank spike (BS/LCS) percent recoveries were within control limits.

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



WORK ORDER

22H0431

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

Client: Seattle Public Utilities

Project Manager: Shelly Fishel

Project: South Park

Project Number: [none]

Preservation Confirmation

| Container ID | Container Type | pH |
|--------------|--------------------------------|---------|
| 22H0431-01 A | HDPE NM, 500 mL, 1:1 HNO3 | 12 pass |
| 22H0431-01 B | VOA Vial, Clear, 40 mL, HCL | |
| 22H0431-01 C | VOA Vial, Clear, 40 mL, HCL | |
| 22H0431-01 D | VOA Vial, Clear, 40 mL, HCL | |
| 22H0431-01 E | VOA Vial, Clear, 40 mL | |
| 22H0431-01 F | VOA Vial, Clear, 40 mL | |
| 22H0431-02 A | HDPE NM, 500 mL, 1:1 HNO3 (FF) | 12 pass |
| 22H0431-03 A | HDPE NM, 500 mL, 1:1 HNO3 | 12 pass |
| 22H0431-03 B | VOA Vial, Clear, 40 mL, HCL | Bubble |
| 22H0431-03 C | VOA Vial, Clear, 40 mL, HCL | |
| 22H0431-03 D | VOA Vial, Clear, 40 mL, HCL | |
| 22H0431-03 E | VOA Vial, Clear, 40 mL, HCL | |
| 22H0431-03 F | VOA Vial, Clear, 40 mL, HCL | |
| 22H0431-03 G | VOA Vial, Clear, 40 mL, HCL | |
| 22H0431-03 H | VOA Vial, Clear, 40 mL | |
| 22H0431-03 I | VOA Vial, Clear, 40 mL | |
| 22H0431-03 J | VOA Vial, Clear, 40 mL | |
| 22H0431-03 K | VOA Vial, Clear, 40 mL | |
| 22H0431-03 L | VOA Vial, Clear, 40 mL | |
| 22H0431-03 M | VOA Vial, Clear, 40 mL | |
| 22H0431-04 A | HDPE NM, 1000 mL, 1:1 HNO3 | 12 pass |
| 22H0431-04 B | VOA Vial, Clear, 40 mL, HCL | |
| 22H0431-04 C | VOA Vial, Clear, 40 mL, HCL | |
| 22H0431-04 D | VOA Vial, Clear, 40 mL, HCL | |
| 22H0431-04 E | VOA Vial, Clear, 40 mL | |
| 22H0431-04 F | VOA Vial, Clear, 40 mL | |
| 22H0431-04 G | VOA Vial, Clear, 40 mL | |
| 22H0431-05 A | HDPE NM, 1000 mL, 1:1 HNO3 | 12 pass |
| 22H0431-05 B | VOA Vial, Clear, 40 mL, HCL | |
| 22H0431-05 C | VOA Vial, Clear, 40 mL, HCL | |
| 22H0431-05 D | VOA Vial, Clear, 40 mL, HCL | |
| 22H0431-05 E | VOA Vial, Clear, 40 mL | |
| 22H0431-05 F | VOA Vial, Clear, 40 mL | |
| 22H0431-05 G | VOA Vial, Clear, 40 mL | |



WORK ORDER

22H0431

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

Client: Seattle Public Utilities

Project Manager: Shelly Fishel

Project: South Park

Project Number: [none]

| | | |
|--------------|--------------------------------|----------------|
| 22H0431-06 A | HDPE NM, 500 mL, 1:1 HNO3 (FF) | <i>L2 pass</i> |
| 22H0431-07 A | HDPE NM, 500 mL, 1:1 HNO3 | <i>L2 pass</i> |
| 22H0431-07 B | VOA Vial, Clear, 40 mL, HCL | |
| 22H0431-07 C | VOA Vial, Clear, 40 mL, HCL | |
| 22H0431-07 D | VOA Vial, Clear, 40 mL, HCL | |
| 22H0431-07 E | VOA Vial, Clear, 40 mL | |
| 22H0431-07 F | VOA Vial, Clear, 40 mL | |
| 22H0431-07 G | VOA Vial, Clear, 40 mL | |
| 22H0431-08 A | HDPE NM, 500 mL, 1:1 HNO3 | <i>L2 pass</i> |
| 22H0431-08 B | VOA Vial, Clear, 40 mL, HCL | <i>Bubble</i> |
| 22H0431-08 C | VOA Vial, Clear, 40 mL, HCL | |
| 22H0431-08 D | VOA Vial, Clear, 40 mL, HCL | |
| 22H0431-08 E | VOA Vial, Clear, 40 mL, HCL | |
| 22H0431-08 F | VOA Vial, Clear, 40 mL, HCL | |
| 22H0431-08 G | VOA Vial, Clear, 40 mL, HCL | |
| 22H0431-08 H | VOA Vial, Clear, 40 mL | |
| 22H0431-08 I | VOA Vial, Clear, 40 mL | |
| 22H0431-08 J | VOA Vial, Clear, 40 mL | |
| 22H0431-08 K | VOA Vial, Clear, 40 mL | |
| 22H0431-08 L | VOA Vial, Clear, 40 mL | |
| 22H0431-08 M | VOA Vial, Clear, 40 mL | |
| 22H0431-09 A | HDPE NM, 1000 mL, 1:1 HNO3 | <i>L2 pass</i> |
| 22H0431-09 B | VOA Vial, Clear, 40 mL, HCL | |
| 22H0431-09 C | VOA Vial, Clear, 40 mL, HCL | |
| 22H0431-09 D | VOA Vial, Clear, 40 mL, HCL | |
| 22H0431-09 E | VOA Vial, Clear, 40 mL | |
| 22H0431-09 F | VOA Vial, Clear, 40 mL | |
| 22H0431-09 G | VOA Vial, Clear, 40 mL | |
| 22H0431-10 A | HDPE NM, 500 mL, 1:1 HNO3 | <i>L2 pass</i> |
| 22H0431-10 B | VOA Vial, Clear, 40 mL, HCL | |
| 22H0431-10 C | VOA Vial, Clear, 40 mL, HCL | |
| 22H0431-10 D | VOA Vial, Clear, 40 mL, HCL | |
| 22H0431-10 E | VOA Vial, Clear, 40 mL | |
| 22H0431-10 F | VOA Vial, Clear, 40 mL | |
| 22H0431-10 G | VOA Vial, Clear, 40 mL | |
| 22H0431-11 A | HDPE NM, 500 mL, 1:1 HNO3 (FF) | <i>L2 pass</i> |



WORK ORDER

22H0431

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

Client: Seattle Public Utilities

Project Manager: Shelly Fishel

Project: South Park

Project Number: [none]

| | | |
|--------------|--------------------------------|-------------|
| 22H0431-12 A | HDPE NM, 1000 mL, 1:1 HNO3 | <i>pass</i> |
| 22H0431-12 B | VOA Vial, Clear, 40 mL, HCL | |
| 22H0431-12 C | VOA Vial, Clear, 40 mL, HCL | |
| 22H0431-12 D | VOA Vial, Clear, 40 mL, HCL | |
| 22H0431-12 E | VOA Vial, Clear, 40 mL | |
| 22H0431-12 F | VOA Vial, Clear, 40 mL | |
| 22H0431-12 G | VOA Vial, Clear, 40 mL | |
| 22H0431-13 A | HDPE NM, 500 mL, 1:1 HNO3 (FF) | <i>pass</i> |
| 22H0431-14 A | HDPE NM, 500 mL, 1:1 HNO3 | <i>pass</i> |
| 22H0431-14 B | VOA Vial, Clear, 40 mL, HCL | |
| 22H0431-14 C | VOA Vial, Clear, 40 mL, HCL | |
| 22H0431-14 D | VOA Vial, Clear, 40 mL, HCL | |
| 22H0431-14 E | VOA Vial, Clear, 40 mL | |
| 22H0431-14 F | VOA Vial, Clear, 40 mL | |
| 22H0431-14 G | VOA Vial, Clear, 40 mL | |
| 22H0431-15 A | VOA Vial, Clear, 40 mL, HCL | |
| 22H0431-15 B | VOA Vial, Clear, 40 mL | |

Preservation Confirmed By *SP*

Date *8/29/22*



Cooler Receipt Form

ARI Client: SPU
COC No(s): _____ NA
Assigned ARI Job No: 22H0431

Project Name: SPU South Park Landfill
Delivered by: Fed-Ex UPS Courier Hand Delivered Other: NIGHT BOX
Tracking No: _____ NA

Preliminary Examination Phase:

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

Were custody papers included with the cooler? YES NO

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

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 2.3 -0.3

Time 1340

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: J009708

Cooler Accepted by: LB Date: 8/24/22 Time: 1345

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES NO

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

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

How were bottles sealed in plastic bags? Individually Grouped Not

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

Were all bottle labels complete and legible? YES NO

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

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

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

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

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

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

Date VOC Trip Blank was made at ARI NA 8/17/22

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

Samples Logged by: LB Date: 8/24/22 Time: 15:00 Labels checked by: _____

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

| Sample ID on Bottle | Sample ID on COC | Sample ID on Bottle | Sample ID on COC |
|---------------------|------------------|---------------------|------------------|
| | | | |
| | | | |
| | | | |

Additional Notes, Discrepancies, & Resolutions:

* Received 2 bottles that were covered up Trip Blanks SPL-GW-MW80-0822 Preserved
 ↳ SPL-GW-MW81-0822 Unpreserved
 By: LB Date: 8/24/22 logged the two vials together

* SPL-GW-MW12-0822
 supplied 1 empty vial 7 samples

↳ called Trip Blanks

* Client forgot to cross out SPL-GW-MW24-0822



| | | |
|--|---|---------------------------------------|
| 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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW12-0822
22H0431-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 08/23/2022 09:05
Instrument: NT2 Analyst: LH Analyzed: 08/25/2022 14:54

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22H0431-01 D
Preparation Batch: BKH0664 Sample Size: 10 mL
Prepared: 08/25/2022 Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|------------|----------|-----------------|-------------|----------|-------|
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.20 | ND | ug/L | U |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | | | <i>80-129 %</i> | <i>96.6</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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW12-0822
22H0431-01 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM Sampled: 08/23/2022 09:05
Instrument: NT16 Analyst: KOTT Analyzed: 08/25/2022 13:03

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22H0431-01 F
Preparation Batch: BKH0662 Sample Size: 10 mL
Prepared: 08/25/2022 Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|------------|----------|-----------------|------------|----------|-------|
| Vinyl chloride | 75-01-4 | 1 | 0.0200 | ND | ug/L | U |
| <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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW12-0822
22H0431-01 (Water)

Metals and Metallic Compounds

Method: EPA 6020B Sampled: 08/23/2022 09:05
Instrument: ICPMS1 Analyst: MCB Analyzed: 09/05/2022 23:19

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22H0431-01 A 01
Preparation Batch: BK10071 Sample Size: 25 mL
Prepared: 09/05/2022 Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|-----------|------------|----------|-----------------|--------|-------|-------|
| Iron | 7439-89-6 | 1 | 0.0360 | 1.80 | mg/L | |
| Manganese | 7439-96-5 | 1 | 0.000500 | 0.120 | mg/L | |



| | | |
|--|---|---------------------------------------|
| 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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW12-0822
22H0431-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED Sampled: 08/23/2022 09:05
Instrument: ICPMS1 Analyst: MCB Analyzed: 08/31/2022 04:30

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22H0431-02 A 01
Preparation Batch: BKH0756 Sample Size: 25 mL
Prepared: 08/30/2022 Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|--------------------|------------|----------|-----------------|--------|-------|-------|
| Arsenic, Dissolved | 7440-38-2 | 1 | 0.200 | 0.375 | ug/L | |



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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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW14-0822
22H0431-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 08/23/2022 10:15
Instrument: NT2 Analyst: LH Analyzed: 08/25/2022 15:15

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22H0431-03 D
Preparation Batch: BKH0664 Sample Size: 10 mL
Prepared: 08/25/2022 Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|------------|----------|-----------------|--------|-------|-------|
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.20 | ND | ug/L | U |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | | | 80-129 % | 98.4 | % | |



| | | |
|--|---|---------------------------------------|
| 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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW14-0822
22H0431-03 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM Sampled: 08/23/2022 10:15
Instrument: NT16 Analyst: KOTT Analyzed: 08/25/2022 14:49

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22H0431-03 J
Preparation Batch: BKH0662 Sample Size: 10 mL
Prepared: 08/25/2022 Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|------------|----------|-----------------|------------|----------|-------|
| Vinyl chloride | 75-01-4 | 1 | 0.0200 | ND | ug/L | U |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | | | <i>80-129 %</i> | <i>106</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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW14-0822
22H0431-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020B Sampled: 08/23/2022 10:15
Instrument: ICPMS1 Analyst: MCB Analyzed: 09/05/2022 19:18

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22H0431-03 A 01
Preparation Batch: BKI0071 Sample Size: 25 mL
Prepared: 09/05/2022 Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---------|------------|----------|-----------------|--------|-------|-------|
| Iron | 7439-89-6 | 1 | 0.0360 | 3.84 | mg/L | |



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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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW14-0822
22H0431-03RE1 (Water)

Metals and Metallic Compounds

Method: EPA 6020B Sampled: 08/23/2022 10:15
Instrument: ICPMS1 Analyst: MCB Analyzed: 09/05/2022 22:45

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22H0431-03RE1 A 01
Preparation Batch: BKI0071 Sample Size: 25 mL
Prepared: 09/05/2022 Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|-----------|------------|----------|-----------------|--------|-------|-------|
| Manganese | 7439-96-5 | 10 | 0.00500 | 0.837 | 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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW29-0822
22H0431-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 08/23/2022 11:45
Instrument: NT2 Analyst: LH Analyzed: 08/25/2022 15:37

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22H0431-04 B
Preparation Batch: BKH0664 Sample Size: 10 mL
Prepared: 08/25/2022 Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|------------|----------|-----------------|--------|-------|-------|
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.20 | ND | ug/L | U |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | | | 80-129 % | 97.7 | % | |



| | | |
|--|---|---------------------------------------|
| 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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW29-0822
22H0431-04 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM Sampled: 08/23/2022 11:45
Instrument: NT16 Analyst: KOTT Analyzed: 08/25/2022 16:25

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22H0431-04 E
Preparation Batch: BKH0662 Sample Size: 10 mL
Prepared: 08/25/2022 Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|------------|----------|-----------------|------------|----------|-------|
| Vinyl chloride | 75-01-4 | 1 | 0.0200 | ND | ug/L | U |
| <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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW29-0822
22H0431-04 (Water)

Metals and Metallic Compounds

Method: EPA 6020B Sampled: 08/23/2022 11:45
Instrument: ICPMS1 Analyst: MCB Analyzed: 09/05/2022 21:35

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22H0431-04 A 01
Preparation Batch: BKI0071 Sample Size: 25 mL
Prepared: 09/05/2022 Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|-----------|------------|----------|-----------------|--------|-------|-------|
| Iron | 7439-89-6 | 10 | 0.360 | 21.9 | mg/L | D |
| Manganese | 7439-96-5 | 10 | 0.00500 | 0.640 | 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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW18-0822
22H0431-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 08/23/2022 12:45
Instrument: NT2 Analyst: LH Analyzed: 08/25/2022 15:59

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22H0431-05 D
Preparation Batch: BKH0664 Sample Size: 10 mL
Prepared: 08/25/2022 Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|------------|----------|-----------------|--------|-------|-------|
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.20 | ND | ug/L | U |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | | | 80-129 % | 97.7 | % | |



| | | |
|--|---|---------------------------------------|
| 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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW18-0822
22H0431-05 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM Sampled: 08/23/2022 12:45
Instrument: NT16 Analyst: KOTT Analyzed: 08/25/2022 16:47

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22H0431-05 C
Preparation Batch: BKH0662 Sample Size: 10 mL
Prepared: 08/25/2022 Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|------------|----------|-----------------|------------|----------|-------|
| Vinyl chloride | 75-01-4 | 1 | 0.0200 | 0.0616 | ug/L | |
| <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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW18-0822
22H0431-05 (Water)

Metals and Metallic Compounds

Method: EPA 6020B Sampled: 08/23/2022 12:45
Instrument: ICPMS1 Analyst: MCB Analyzed: 09/05/2022 22:33

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22H0431-05 A 01
Preparation Batch: BKI0071 Sample Size: 25 mL
Prepared: 09/05/2022 Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|-----------|------------|----------|-----------------|--------|-------|-------|
| Iron | 7439-89-6 | 10 | 0.360 | 20.5 | mg/L | D |
| Manganese | 7439-96-5 | 10 | 0.00500 | 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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW18-0822
22H0431-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED Sampled: 08/23/2022 12:45
Instrument: ICPMS1 Analyst: MCB Analyzed: 08/31/2022 05:01

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22H0431-06 A 01
Preparation Batch: BKH0756 Sample Size: 25 mL
Prepared: 08/30/2022 Final Volume: 25 mL

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



| | | |
|--|---|---------------------------------------|
| Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018 | Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW60-0822
22H0431-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 08/23/2022 10:30
Instrument: NT2 Analyst: LH Analyzed: 08/25/2022 16:20

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22H0431-07 C
Preparation Batch: BKH0664 Sample Size: 10 mL
Prepared: 08/25/2022 Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|------------|----------|-----------------|-------------|----------|-------|
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.20 | ND | ug/L | U |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | | | <i>80-129 %</i> | <i>96.6</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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW60-0822
22H0431-07 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM Sampled: 08/23/2022 10:30
Instrument: NT16 Analyst: KOTT Analyzed: 08/25/2022 17:10

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22H0431-07 B
Preparation Batch: BKH0662 Sample Size: 10 mL
Prepared: 08/25/2022 Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|------------|----------|-----------------|------------|----------|-------|
| Vinyl chloride | 75-01-4 | 1 | 0.0200 | ND | ug/L | U |
| <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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW60-0822
22H0431-07 (Water)

Metals and Metallic Compounds

Method: EPA 6020B Sampled: 08/23/2022 10:30
Instrument: ICPMS1 Analyst: MCB Analyzed: 09/05/2022 22:25

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22H0431-07 A 01
Preparation Batch: BKI0071 Sample Size: 25 mL
Prepared: 09/05/2022 Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|-----------|------------|----------|-----------------|--------|-------|-------|
| Iron | 7439-89-6 | 20 | 0.720 | 4.71 | mg/L | D |
| Manganese | 7439-96-5 | 20 | 0.0100 | 0.794 | 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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW30-0822
22H0431-08 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 08/23/2022 14:00
Instrument: NT2 Analyst: LH Analyzed: 08/25/2022 16:41

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22H0431-08 E
Preparation Batch: BKH0664 Sample Size: 10 mL
Prepared: 08/25/2022 Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|------------|----------|-----------------|------------|----------|-------|
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.20 | 0.84 | ug/L | |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | | | <i>80-129 %</i> | <i>101</i> | <i>%</i> | |



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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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW30-0822
22H0431-08 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM Sampled: 08/23/2022 14:00
Instrument: NT16 Analyst: KOTT Analyzed: 08/25/2022 13:25

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22H0431-08 C
Preparation Batch: BKH0662 Sample Size: 10 mL
Prepared: 08/25/2022 Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|------------|----------|-----------------|------------|----------|-------|
| Vinyl chloride | 75-01-4 | 1 | 0.0200 | 0.379 | ug/L | |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | | | <i>80-129 %</i> | <i>105</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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW30-0822
22H0431-08 (Water)

Metals and Metallic Compounds

Method: EPA 6020B Sampled: 08/23/2022 14:00
Instrument: ICPMS1 Analyst: MCB Analyzed: 09/05/2022 19:44

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22H0431-08 A 01
Preparation Batch: BK10071 Sample Size: 25 mL
Prepared: 09/05/2022 Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|-----------|------------|----------|-----------------|--------|-------|-------|
| Iron | 7439-89-6 | 1 | 0.0360 | 3.54 | mg/L | |
| Manganese | 7439-96-5 | 1 | 0.000500 | 0.0978 | mg/L | |



| | | |
|--|---|---------------------------------------|
| 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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW31-0822
22H0431-09 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 08/23/2022 15:00
Instrument: NT2 Analyst: LH Analyzed: 08/25/2022 17:03

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22H0431-09 D
Preparation Batch: BKH0664 Sample Size: 10 mL
Prepared: 08/25/2022 Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|------------|----------|-----------------|-------------|----------|-------|
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.20 | ND | ug/L | U |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | | | <i>80-129 %</i> | <i>98.9</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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW31-0822
22H0431-09 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM Sampled: 08/23/2022 15:00
Instrument: NT16 Analyst: KOTT Analyzed: 08/25/2022 17:33

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22H0431-09 B
Preparation Batch: BKH0662 Sample Size: 10 mL
Prepared: 08/25/2022 Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|------------|----------|-----------------|------------|----------|-------|
| Vinyl chloride | 75-01-4 | 1 | 0.0200 | 0.574 | ug/L | |
| <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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW31-0822
22H0431-09 (Water)

Metals and Metallic Compounds

Method: EPA 6020B Sampled: 08/23/2022 15:00
Instrument: ICPMS1 Analyst: MCB Analyzed: 09/05/2022 22:37

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22H0431-09 A 01
Preparation Batch: BKI0071 Sample Size: 25 mL
Prepared: 09/05/2022 Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|-----------|------------|----------|-----------------|--------|-------|-------|
| Iron | 7439-89-6 | 10 | 0.360 | 18.0 | mg/L | D |
| Manganese | 7439-96-5 | 10 | 0.00500 | 0.770 | 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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW08-0822
22H0431-10 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 08/23/2022 17:50
Instrument: NT2 Analyst: LH Analyzed: 08/25/2022 17:24

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22H0431-10 D
Preparation Batch: BKH0664 Sample Size: 10 mL
Prepared: 08/25/2022 Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|------------|----------|-----------------|--------|-------|-------|
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.20 | ND | ug/L | U |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | | | 80-129 % | 98.5 | % | |



| | | |
|--|---|---------------------------------------|
| 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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW08-0822
22H0431-10 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM Sampled: 08/23/2022 17:50
Instrument: NT16 Analyst: KOTT Analyzed: 08/25/2022 17:56

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22H0431-10 B
Preparation Batch: BKH0662 Sample Size: 10 mL
Prepared: 08/25/2022 Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|------------|----------|-----------------|------------|----------|-------|
| Vinyl chloride | 75-01-4 | 1 | 0.0200 | ND | ug/L | U |
| <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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW08-0822
22H0431-10 (Water)

Metals and Metallic Compounds

Method: EPA 6020B Sampled: 08/23/2022 17:50
Instrument: ICPMS1 Analyst: MCB Analyzed: 09/05/2022 22:29

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22H0431-10 A 01
Preparation Batch: BK10071 Sample Size: 25 mL
Prepared: 09/05/2022 Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|-----------|------------|----------|-----------------|--------|-------|-------|
| Iron | 7439-89-6 | 20 | 0.720 | 3.00 | mg/L | D |
| Manganese | 7439-96-5 | 20 | 0.0100 | 0.444 | 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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW08-0822
22H0431-11 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED Sampled: 08/23/2022 17:50
Instrument: ICPMS1 Analyst: MCB Analyzed: 08/31/2022 05:05

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22H0431-11 A 01
Preparation Batch: BKH0756 Sample Size: 25 mL
Prepared: 08/30/2022 Final Volume: 25 mL

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



| | | |
|--|---|---------------------------------------|
| Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018 | Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW27-0822
22H0431-12 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 08/23/2022 16:30
Instrument: NT2 Analyst: LH Analyzed: 08/25/2022 17:46

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22H0431-12 C
Preparation Batch: BKH0664 Sample Size: 10 mL
Prepared: 08/25/2022 Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|------------|----------|-----------------|--------|-------|-------|
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.20 | ND | ug/L | U |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | | | 80-129 % | 95.3 | % | |



| | | |
|--|---|---------------------------------------|
| 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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW27-0822
22H0431-12 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM Sampled: 08/23/2022 16:30
Instrument: NT16 Analyst: KOTT Analyzed: 08/25/2022 18:19

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22H0431-12 B
Preparation Batch: BKH0662 Sample Size: 10 mL
Prepared: 08/25/2022 Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|------------|----------|-----------------|------------|----------|-------|
| Vinyl chloride | 75-01-4 | 1 | 0.0200 | 0.0954 | ug/L | |
| <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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW27-0822
22H0431-12 (Water)

Metals and Metallic Compounds

Method: EPA 6020B Sampled: 08/23/2022 16:30
Instrument: ICPMS1 Analyst: MCB Analyzed: 09/05/2022 22:41

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22H0431-12 A 01
Preparation Batch: BKI0071 Sample Size: 25 mL
Prepared: 09/05/2022 Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|-----------|------------|----------|-----------------|--------|-------|-------|
| Iron | 7439-89-6 | 10 | 0.360 | 25.0 | mg/L | D |
| Manganese | 7439-96-5 | 10 | 0.00500 | 0.709 | 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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW27-0822
22H0431-13 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED Sampled: 08/23/2022 16:30
Instrument: ICPMS1 Analyst: MCB Analyzed: 08/31/2022 05:08

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22H0431-13 A 01
Preparation Batch: BKH0756 Sample Size: 25 mL
Prepared: 08/30/2022 Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|--------------------|------------|----------|-----------------|--------|-------|-------|
| Arsenic, Dissolved | 7440-38-2 | 1 | 0.200 | 8.06 | ug/L | |



| | | |
|--|---|---------------------------------------|
| 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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW61-0822
22H0431-14 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 08/23/2022 14:30
Instrument: NT2 Analyst: LH Analyzed: 08/25/2022 18:07

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22H0431-14 D
Preparation Batch: BKH0664 Sample Size: 10 mL
Prepared: 08/25/2022 Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|------------|----------|-----------------|--------|-------|-------|
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.20 | 0.89 | ug/L | |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | | | 80-129 % | 97.9 | % | |



| | | |
|--|---|---------------------------------------|
| 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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW61-0822
22H0431-14 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM Sampled: 08/23/2022 14:30
Instrument: NT16 Analyst: KOTT Analyzed: 08/25/2022 18:42

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22H0431-14 C
Preparation Batch: BKH0662 Sample Size: 10 mL
Prepared: 08/25/2022 Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|------------|----------|-----------------|------------|----------|-------|
| Vinyl chloride | 75-01-4 | 1 | 0.0200 | 0.547 | ug/L | |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | | | <i>80-129 %</i> | <i>110</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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW61-0822
22H0431-14 (Water)

Metals and Metallic Compounds

Method: EPA 6020B Sampled: 08/23/2022 14:30
Instrument: ICPMS1 Analyst: MCB Analyzed: 09/05/2022 23:15

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22H0431-14 A 01
Preparation Batch: BK10071 Sample Size: 25 mL
Prepared: 09/05/2022 Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|-----------|------------|----------|-----------------|--------|-------|-------|
| Iron | 7439-89-6 | 10 | 0.360 | 3.97 | mg/L | D |
| Manganese | 7439-96-5 | 10 | 0.00500 | 0.105 | 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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW80-0822
22H0431-15 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 08/23/2022 09:05
Instrument: NT2 Analyst: LH Analyzed: 08/25/2022 14:33

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22H0431-15 A
Preparation Batch: BKH0664 Sample Size: 10 mL
Prepared: 08/25/2022 Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|------------|----------|-----------------|--------|-------|-------|
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.20 | ND | ug/L | U |
| Benzene | 71-43-2 | 1 | 0.20 | ND | ug/L | U |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | | | 80-129 % | 97.3 | % | |
| <i>Surrogate: Toluene-d8</i> | | | 80-120 % | 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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

SPL-GW-MW81-0822
22H0431-16 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM Sampled: 08/23/2022 09:05
Instrument: NT16 Analyst: KOTT Analyzed: 08/25/2022 19:05

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22H0431-16 B
Preparation Batch: BKH0662 Sample Size: 10 mL
Prepared: 08/25/2022 Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|------------|----------|-----------------|------------|----------|-------|
| Vinyl chloride | 75-01-4 | 1 | 0.0200 | ND | ug/L | U |
| <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: Jeff Neuner

Reported:
08-Sep-2022 16:27

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKH0664 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: LH

| QC Sample/Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|--------|---|-------|---|---------------|------|-------------|------|-----------|-------|
| Blank (BKH0664-BLK1) | | Prepared: 25-Aug-2022 Analyzed: 25-Aug-2022 14:11 | | | | | | | | |
| cis-1,2-Dichloroethene | ND | 0.20 | ug/L | | | | | | | U |
| Benzene | ND | 0.20 | ug/L | | | | | | | U |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | 4.75 | | ug/L | 5.00 | | 95.0 | 80-129 | | | |
| <i>Surrogate: Toluene-d8</i> | 4.98 | | ug/L | 5.00 | | 99.6 | 80-120 | | | |
| LCS (BKH0664-BS1) | | Prepared: 25-Aug-2022 Analyzed: 25-Aug-2022 13:07 | | | | | | | | |
| cis-1,2-Dichloroethene | 9.96 | 0.20 | ug/L | 10.0 | | 99.6 | 80-121 | | | |
| Benzene | 10.4 | 0.20 | ug/L | 10.0 | | 104 | 80-120 | | | |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | 4.81 | | ug/L | 5.00 | | 96.2 | 80-129 | | | |
| <i>Surrogate: Toluene-d8</i> | 4.91 | | ug/L | 5.00 | | 98.3 | 80-120 | | | |
| LCS Dup (BKH0664-BSD1) | | Prepared: 25-Aug-2022 Analyzed: 25-Aug-2022 13:29 | | | | | | | | |
| cis-1,2-Dichloroethene | 10.3 | 0.20 | ug/L | 10.0 | | 103 | 80-121 | 3.80 | 30 | |
| Benzene | 10.9 | 0.20 | ug/L | 10.0 | | 109 | 80-120 | 4.50 | 30 | |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | 4.79 | | ug/L | 5.00 | | 95.7 | 80-129 | | | |
| <i>Surrogate: Toluene-d8</i> | 5.03 | | ug/L | 5.00 | | 101 | 80-120 | | | |
| 22H0431-03MS (BKH0664-MS1) | | Source: 22H0431-03 | | Prepared: 25-Aug-2022 Analyzed: 25-Aug-2022 20:57 | | | | | | |
| cis-1,2-Dichloroethene | 9.95 | 0.20 | ug/L | 10.0 | ND | 99.5 | 80-121 | | | |
| Benzene | 10.3 | 0.20 | ug/L | 10.0 | ND | 103 | 80-120 | | | |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | 4.81 | | ug/L | 5.00 | 4.92 | 96.1 | 80-129 | | | |
| <i>Surrogate: Toluene-d8</i> | 4.96 | | ug/L | 5.00 | | 99.1 | 80-120 | | | |
| Recovery limits for target analytes in MS/MSD QC samples are advisory only. | | | | | | | | | | |
| 22H0431-08MS (BKH0664-MS2) | | Source: 22H0431-08 | | Prepared: 25-Aug-2022 Analyzed: 25-Aug-2022 21:38 | | | | | | |
| cis-1,2-Dichloroethene | 11.0 | 0.20 | ug/L | 10.0 | 0.84 | 102 | 80-121 | | | |
| Benzene | 10.3 | 0.20 | ug/L | 10.0 | ND | 103 | 80-120 | | | |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | 4.69 | | ug/L | 5.00 | 5.04 | 93.8 | 80-129 | | | |
| <i>Surrogate: Toluene-d8</i> | 4.99 | | ug/L | 5.00 | | 99.8 | 80-120 | | | |
| Recovery limits for target analytes in MS/MSD QC samples are advisory only. | | | | | | | | | | |
| 22H0431-03MSD (BKH0664-MSD1) | | Source: 22H0431-03 | | Prepared: 25-Aug-2022 Analyzed: 25-Aug-2022 21:17 | | | | | | |
| cis-1,2-Dichloroethene | 10.4 | 0.20 | ug/L | 10.0 | ND | 104 | 80-121 | 4.34 | 30 | |
| Benzene | 10.4 | 0.20 | ug/L | 10.0 | ND | 104 | 80-120 | 0.90 | 30 | |



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: Jeff Neuner

Reported:
08-Sep-2022 16:27

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKH0664 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: LH

| QC Sample/Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|--------|---------------------------|-------|-----------------------|---------------|-----------------------------|-------------|-----|-----------|-------|
| 22H0431-03MSD (BKH0664-MSD1) | | Source: 22H0431-03 | | Prepared: 25-Aug-2022 | | Analyzed: 25-Aug-2022 21:17 | | | | |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | 4.88 | | ug/L | 5.00 | 4.92 | 97.5 | 80-129 | | | |
| <i>Surrogate: Toluene-d8</i> | 4.91 | | ug/L | 5.00 | | 98.2 | 80-120 | | | |

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

| | | | | | | | | | | |
|---|------|---------------------------|------|-----------------------|------|-----------------------------|--------|------|----|--|
| 22H0431-08MSD (BKH0664-MSD2) | | Source: 22H0431-08 | | Prepared: 25-Aug-2022 | | Analyzed: 25-Aug-2022 21:58 | | | | |
| cis-1,2-Dichloroethene | 10.9 | 0.20 | ug/L | 10.0 | 0.84 | 100 | 80-121 | 1.33 | 30 | |
| Benzene | 10.7 | 0.20 | ug/L | 10.0 | ND | 107 | 80-120 | 3.66 | 30 | |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | 4.65 | | ug/L | 5.00 | 5.04 | 93.0 | 80-129 | | | |
| <i>Surrogate: Toluene-d8</i> | 5.02 | | ug/L | 5.00 | | 100 | 80-120 | | | |

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



Seattle Public Utilities
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Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Jeff Neuner

Reported:
08-Sep-2022 16:27

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BKH0662 - EPA 5030C (Purge and Trap)

Instrument: NT16 Analyst: KOTT

| QC Sample/Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|--------|---------------------------|-------|---|---------------|------|-------------|------|-----------|-------|
| Blank (BKH0662-BLK1) | | | | Prepared: 25-Aug-2022 Analyzed: 25-Aug-2022 12:26 | | | | | | |
| Vinyl chloride | ND | 0.0200 | ug/L | | | | | | | U |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | 5170 | | ug/L | 5000 | | 103 | 80-129 | | | |
| LCS (BKH0662-BS1) | | | | Prepared: 25-Aug-2022 Analyzed: 25-Aug-2022 10:55 | | | | | | |
| Vinyl chloride | 2.20 | 0.0200 | ug/L | 2.00 | | 110 | 62-141 | | | |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | 5290 | | ug/L | 5000 | | 106 | 80-129 | | | |
| LCS Dup (BKH0662-BSD1) | | | | Prepared: 25-Aug-2022 Analyzed: 25-Aug-2022 11:47 | | | | | | |
| Vinyl chloride | 2.01 | 0.0200 | ug/L | 2.00 | | 100 | 62-141 | 9.26 | 30 | |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | 5270 | | ug/L | 5000 | | 105 | 80-129 | | | |
| Matrix Spike (BKH0662-MS1) | | Source: 22H0431-03 | | Prepared: 25-Aug-2022 Analyzed: 25-Aug-2022 15:12 | | | | | | |
| Vinyl chloride | 1.91 | 0.0200 | ug/L | 2.00 | ND | 95.6 | 62-141 | | | |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | 5110 | | ug/L | 5000 | 5290 | 102 | 80-129 | | | |
| Recovery limits for target analytes in MS/MSD QC samples are advisory only. | | | | | | | | | | |
| Matrix Spike (BKH0662-MS2) | | Source: 22H0431-08 | | Prepared: 25-Aug-2022 Analyzed: 25-Aug-2022 13:47 | | | | | | |
| Vinyl chloride | 2.49 | 0.0200 | ug/L | 2.00 | 0.379 | 106 | 62-141 | | | |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | 5150 | | ug/L | 5000 | 5240 | 103 | 80-129 | | | |
| Recovery limits for target analytes in MS/MSD QC samples are advisory only. | | | | | | | | | | |
| Matrix Spike Dup (BKH0662-MSD1) | | Source: 22H0431-03 | | Prepared: 25-Aug-2022 Analyzed: 25-Aug-2022 15:35 | | | | | | |
| Vinyl chloride | 1.97 | 0.0200 | ug/L | 2.00 | ND | 98.7 | 62-141 | 3.24 | 30 | |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | 5170 | | ug/L | 5000 | 5290 | 103 | 80-129 | | | |
| Recovery limits for target analytes in MS/MSD QC samples are advisory only. | | | | | | | | | | |
| Matrix Spike Dup (BKH0662-MSD2) | | Source: 22H0431-08 | | Prepared: 25-Aug-2022 Analyzed: 25-Aug-2022 14:10 | | | | | | |
| Vinyl chloride | 2.42 | 0.0200 | ug/L | 2.00 | 0.379 | 102 | 62-141 | 2.81 | 30 | |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | 5130 | | ug/L | 5000 | 5240 | 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: Jeff Neuner

Reported:
08-Sep-2022 16:27

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BKI0071 - REN - EPA 3010A M

Instrument: ICPMS1 Analyst: MCB

| QC Sample/Analyte | Isotope | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---------|--------|-----------------|-------|---|---------------|-------|-------------|------|-----------|-------|
| Blank (BK10071-BLK1) | | | | | Prepared: 05-Sep-2022 Analyzed: 05-Sep-2022 18:00 | | | | | | |
| 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 (BK10071-BS1) | | | | | Prepared: 05-Sep-2022 Analyzed: 05-Sep-2022 18:05 | | | | | | |
| Iron | 54 | 4.91 | 0.0360 | mg/L | 5.00 | | 98.1 | 80-120 | | | |
| Iron | 57 | 4.90 | 0.0360 | mg/L | 5.00 | | 98.0 | 80-120 | | | |
| Manganese | 55 | 0.0243 | 0.000500 | mg/L | 0.0250 | | 97.2 | 80-120 | | | |
| Duplicate (BK10071-DUP1) | | | | | Source: 22H0431-03 Prepared: 05-Sep-2022 Analyzed: 05-Sep-2022 19:24 | | | | | | |
| Iron | 54 | 3.76 | 0.0360 | mg/L | | 3.84 | | | 2.03 | 20 | |
| Duplicate (BK10071-DUP2) | | | | | Source: 22H0431-08 Prepared: 05-Sep-2022 Analyzed: 05-Sep-2022 19:49 | | | | | | |
| Iron | 54 | 3.45 | 0.0360 | mg/L | | 3.54 | | | 2.43 | 20 | |
| Manganese | 55 | 0.0969 | 0.000500 | mg/L | | 0.0978 | | | 0.91 | 20 | |
| Duplicate (BK10071-DUP3) | | | | | Source: 22H0431-03RE1 Prepared: 05-Sep-2022 Analyzed: 05-Sep-2022 22:49 | | | | | | |
| Manganese | 55 | 0.825 | 0.00500 | mg/L | | 0.837 | | | 1.37 | 20 | D |
| Matrix Spike (BK10071-MS1) | | | | | Source: 22H0431-03 Prepared: 05-Sep-2022 Analyzed: 05-Sep-2022 19:29 | | | | | | |
| Iron | 54 | 8.16 | 0.0360 | mg/L | 5.00 | 3.84 | 86.4 | 75-125 | | | |
| Recovery limits for target analytes in MS/MSD QC samples are advisory only. | | | | | | | | | | | |
| Matrix Spike (BK10071-MS2) | | | | | Source: 22H0431-08 Prepared: 05-Sep-2022 Analyzed: 05-Sep-2022 19:54 | | | | | | |
| Iron | 54 | 7.84 | 0.0360 | mg/L | 5.00 | 3.54 | 86.2 | 75-125 | | | |
| Manganese | 55 | 0.124 | 0.000500 | mg/L | 0.0250 | 0.0978 | 104 | 75-125 | | | |
| Recovery limits for target analytes in MS/MSD QC samples are advisory only. | | | | | | | | | | | |
| Matrix Spike (BK10071-MS3) | | | | | Source: 22H0431-03RE1 Prepared: 05-Sep-2022 Analyzed: 05-Sep-2022 22:53 | | | | | | |
| Manganese | 55 | 0.833 | 0.00500 | mg/L | 0.0250 | 0.837 | -13.9 | 75-125 | | | HC, D |
| Recovery limits for target analytes in MS/MSD QC samples are advisory only. | | | | | | | | | | | |
| Matrix Spike Dup (BK10071-MSD1) | | | | | Source: 22H0431-03 Prepared: 05-Sep-2022 Analyzed: 05-Sep-2022 19:34 | | | | | | |
| Iron | 54 | 8.13 | 0.0360 | mg/L | 5.00 | 3.84 | 85.8 | 75-125 | 0.36 | 20 | |
| Recovery limits for target analytes in MS/MSD QC samples are advisory only. | | | | | | | | | | | |



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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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BK10071 - REN - EPA 3010A M

Instrument: ICPMS1 Analyst: MCB

| QC Sample/Analyte | Isotope | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|--|---------|--------|---------------------------|-------|---|---------------|------|-------------|------|-----------|-------|
| Matrix Spike Dup (BK10071-MSD2) | | | Source: 22H0431-08 | | Prepared: 05-Sep-2022 Analyzed: 05-Sep-2022 19:59 | | | | | | |
| Iron | 54 | 7.58 | 0.0360 | mg/L | 5.00 | 3.54 | 80.9 | 75-125 | 3.40 | 20 | |
| Manganese | 55 | 0.118 | 0.000500 | mg/L | 0.0250 | 0.0978 | 81.8 | 75-125 | 4.68 | 20 | |

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

| | | | | | | | | | | | |
|--|----|-------|------------------------------|------|---|-------|------|--------|------|----|-------|
| Matrix Spike Dup (BK10071-MSD3) | | | Source: 22H0431-03RE1 | | Prepared: 05-Sep-2022 Analyzed: 05-Sep-2022 22:57 | | | | | | |
| Manganese | 55 | 0.857 | 0.00500 | mg/L | 0.0250 | 0.837 | 80.1 | 75-125 | 2.78 | 20 | HC, 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: Jeff Neuner

Reported:
08-Sep-2022 16:27

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BKH0756 - REN - EPA 3010A M

Instrument: ICPMS1 Analyst: MCB

| QC Sample/Analyte | Isotope | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---------|--------|-----------------|-------|-------------|--|------|-------------|------|-----------|-------|
| Blank (BKH0756-BLK1) | | | | | | Prepared: 30-Aug-2022 Analyzed: 30-Aug-2022 18:27 | | | | | |
| Arsenic, Dissolved | 75a | ND | 0.200 | ug/L | | | | | | | U |
| LCS (BKH0756-BS1) | | | | | | Prepared: 30-Aug-2022 Analyzed: 30-Aug-2022 18:32 | | | | | |
| Arsenic, Dissolved | 75a | 24.4 | 0.200 | ug/L | 25.0 | | 97.7 | 80-120 | | | |
| Duplicate (BKH0756-DUP1) | | | | | | Source: 22H0431-02 Prepared: 30-Aug-2022 Analyzed: 31-Aug-2022 04:34 | | | | | |
| Arsenic, Dissolved | 75a | 0.367 | 0.200 | ug/L | | 0.375 | | | 2.16 | 20 | |
| Matrix Spike (BKH0756-MS1) | | | | | | Source: 22H0431-02 Prepared: 30-Aug-2022 Analyzed: 31-Aug-2022 04:38 | | | | | |
| Arsenic, Dissolved | 75a | 25.7 | 0.200 | ug/L | 25.0 | 0.375 | 101 | 75-125 | | | |
| Recovery limits for target analytes in MS/MSD QC samples are advisory only. | | | | | | | | | | | |
| Matrix Spike Dup (BKH0756-MSD1) | | | | | | Source: 22H0431-02 Prepared: 30-Aug-2022 Analyzed: 31-Aug-2022 04:42 | | | | | |
| Arsenic, Dissolved | 75a | 25.8 | 0.200 | ug/L | 25.0 | 0.375 | 102 | 75-125 | 0.53 | 20 | |

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: Jeff Neuner

Reported:
08-Sep-2022 16:27

Certified Analyses included in this Report

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



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

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Jeff Neuner

Reported:
08-Sep-2022 16:27

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



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|--|---|---------------------------------------|
| 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: Jeff Neuner | Reported: 08-Sep-2022 16:27 |
|--|---|---------------------------------------|

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

EPA 8260D-SIM in Water

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

| Code | Description | Number | Expires |
|-------|--|--------------|------------|
| ADEC | Alaska Dept of Environmental Conservation | 17-015 | 03/28/2023 |
| NELAP | ORELAP - Oregon Laboratory Accreditation Program | WA100006-012 | 05/12/2023 |



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: Jeff Neuner

Reported:
08-Sep-2022 16:27

Notes and Definitions

- D The reported value is from a dilution
- HC The natural concentration of the spiked analyte is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
- J Estimated concentration value detected below the reporting limit.
- Q Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20% RSD, <20% drift or minimum RRF)
- U This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- [2C] Indicates this result was quantified on the second column on a dual column analysis.



Analytical Resources, LLC
Analytical Chemists and Consultants

08 September 2022

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

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

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

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

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

Associated Work Order(s)
22H0434

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

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

Analytical Resources, LLC

Shelly Fishel, Project 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

| | | |
|--|--------------------------------|---|
| ARI Assigned Number: 22H0434 | Turn-around Requested: 2 weeks | Date: 8/23/22 |
| ARI Client Company: Jeff Neuner, Seattle Public Utility | Phone: 206 684-7693 | Page: 1 of 2 |
| Client Contact: Laura Lee, Parametrix | Phone: 206 394-3665 | No. of Coolers: 50 Cooler Temps: 5.0 |

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

| | | | | | | | | | |
|--|-------------------------------|--|--|--|--|--|--|--|----------------|
| Client Project Name: SPU South Park Landfill | Analysis Requested | | | | | | | | Notes/Comments |
| Client Project #: 553-1550-067 | Samplers: Chris Bourgeois HWA | | | | | | | | |

| Sample ID | Date | Time | Matrix | Number of Containers | cis-1,2-DCE | cis-1,2-DCE, benzene | Vinyl Chloride | Total Fe, Mn | Dissolved As** | | | | | | | | | **Field-filtered |
|------------------|---------|------|--------|----------------------|-------------|----------------------|----------------|--------------|----------------|--|--|--|--|--|--|--|--|------------------|
| SPL-GW-MW25-0822 | 8/22/22 | 1070 | water | 8 | | X | X | X | X | | | | | | | | | |
| SPL-GW-MW30-0822 | | | water | 13 | X | | X | X | | | | | | | | | | MS/MSD |
| SPL-GW-MW31-0822 | | | water | 7 | X | | X | X | | | | | | | | | | |
| SPL-GW-MW24-0822 | 8/22/22 | 1315 | water | 8 | X | | X | X | X | | | | | | | | | |
| SPL-GW-MW26-0822 | 8/22/22 | 1440 | water | 8 | X | | X | X | X | | | | | | | | | |
| SPL-GW-MW08-0822 | | | water | 8 | X | | X | X | X | | | | | | | | | |
| SPL-GW-MW27-0822 | | | water | 8 | X | | X | X | X | | | | | | | | | |
| SPL-GW-MW61-0822 | | | water | 7 | X | | X | X | | | | | | | | | | |
| SPL-GW-MW81-0822 | | | water | 2 | | X | X | | | | | | | | | | | |

| | | | | |
|-------------------------------|---|--|---------------------------------|-----------------------------|
| Comments/Special Instructions | Relinquished by: (Signature) <i>CB</i> | Received by: (Signature) <i>HN</i> | Relinquished by: (Signature) | Received by: (Signature) |
| | Printed Name: <i>Chris Bourgeois</i> | Printed Name: <i>Hannah Neuberger</i> | Printed Name: | Printed Name: |
| | Company: <i>HWA</i> | Company: <i>ARI</i> | Company: | Company: |
| | Date & Time: <i>8/23/22 8:46</i> | Date & Time: <i>8/23/22 8:46</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: 22H0434 | Turn-around Requested: 2 weeks | Date: |
| ARI Client Company: Jeff Neuner, Seattle Public Utility | Phone: 206 684-7693 | Page: 24 of 24 |
| Client Contact: Laura Lee | Phone: 206 394-3665 | No. of Coolers: 5 Cooler Temps: 5.0 |

| | | |
|--|--------------------|----------------|
| Client Project Name: SPU South Park Landfill | Analysis Requested | Notes/Comments |
| Samplers: Chris Bourgeois HWA | | |

| Sample ID | Date | Time | Matrix | Number of Containers | cis-1,2-DCE | cis-1,2-DCE, benzene | Vinyl Chloride | Total Fe, Mn | Dissolved As** | | | | | | | **Field-filtered |
|------------------|---------|------|--------|----------------------|-------------|----------------------|----------------|--------------|----------------|--|--|--|--|--|--|------------------|
| SPL-GW-MW12-0822 | | | water | 8 | X | | X | X | X | | | | | | | |
| SPL-GW-MW14-0822 | | | water | 13 | X | | X | X | | | | | | | | MS/MSD |
| SPL-GW-MW29-0822 | | | water | 7 | X | | X | X | | | | | | | | |
| SPL-GW-MW18-0822 | | | water | 8 | X | | X | X | X | | | | | | | |
| SPL-GW-MW32-0822 | 8/22/22 | 1950 | water | 8 | X | | X | X | X | | | | | | | |
| SPL-GW-MW33-0822 | 8/22/22 | 1645 | water | 8 | X | | X | X | X | | | | | | | |
| SPL-GW-MW10-0822 | 8/22/22 | 945 | water | 8 | X | | X | X | X | | | | | | | |
| SPL-GW-MW60-0822 | | | water | 7 | X | | X | X | | | | | | | | |
| SPL-GW-MW80-0822 | 8/23/22 | — | water | 2 | | X | X | | | | | | | | | |

| | | | | |
|-------------------------------|---------------------------------|--|---------------------------------|-----------------------------|
| Comments/Special Instructions | Relinquished by: (Signature) | Received by: (Signature)  | Relinquished by: (Signature) | Received by: (Signature) |
| | Printed Name: | Printed Name: <i>Hannah Neuker</i> | Printed Name: | Printed Name: |
| | Company: | Company: <i>ARI</i> | Company: | Company: |
| | Date & Time: | Date & Time: <i>8/23/22 8:46</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.



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

Project: South Park Landfill -Parametrix Water
Project Number: 553-1550-067
Project Manager: Jeff Neuner

Reported:
08-Sep-2022 15:29

ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|------------------|---------------|--------|-------------------|-------------------|
| SPL-GW-MW25-0822 | 22H0434-01 | Water | 22-Aug-2022 10:40 | 23-Aug-2022 08:46 |
| SPL-GW-MW25-0822 | 22H0434-02 | Water | 22-Aug-2022 10:40 | 23-Aug-2022 08:46 |
| SPL-GW-MW24-0822 | 22H0434-03 | Water | 22-Aug-2022 13:15 | 23-Aug-2022 08:46 |
| SPL-GW-MW24-0822 | 22H0434-04 | Water | 22-Aug-2022 13:15 | 23-Aug-2022 08:46 |
| SPL-GW-MW26-0822 | 22H0434-05 | Water | 22-Aug-2022 14:40 | 23-Aug-2022 08:46 |
| SPL-GW-MW26-0822 | 22H0434-06 | Water | 22-Aug-2022 14:40 | 23-Aug-2022 08:46 |
| SPL-GW-MW32-0822 | 22H0434-07 | Water | 22-Aug-2022 15:50 | 23-Aug-2022 08:46 |
| SPL-GW-MW32-0822 | 22H0434-08 | Water | 22-Aug-2022 15:50 | 23-Aug-2022 08:46 |
| SPL-GW-MW33-0822 | 22H0434-09 | Water | 22-Aug-2022 16:45 | 23-Aug-2022 08:46 |
| SPL-GW-MW33-0822 | 22H0434-10 | Water | 22-Aug-2022 16:45 | 23-Aug-2022 08:46 |
| SPL-GW-MW10-0822 | 22H0434-11 | Water | 22-Aug-2022 09:45 | 23-Aug-2022 08:46 |
| SPL-GW-MW10-0822 | 22H0434-12 | Water | 22-Aug-2022 09:45 | 23-Aug-2022 08:46 |
| SPL-GW-MW80-0822 | 22H0434-13 | Water | 23-Aug-2022 00:00 | 23-Aug-2022 08:46 |



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

Project: South Park Landfill -Parametrix Water
Project Number: 553-1550-067
Project Manager: Jeff Neuner

Reported:
08-Sep-2022 15:29

Work Order Case Narrative

Client: Seattle Public Utilities
Project: South Park Landfill -Parametrix Water
Project Number: 553-1550-067
Work Order: 22H0434

Sample receipt

Sample(s) as listed on the preceding page were received 23-Aug-2022 08:46 under ARI work order 22H0434. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Volatiles - EPA Method SW8260D

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

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

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

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

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

Total and Dissolved Metals - EPA Method 6020B



Seattle Public Utilities

700-5th Ave, Ste 4900, Box 34018

Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water

Project Number: 553-1550-067

Project Manager: Jeff Neuner

Reported:

08-Sep-2022 15:29

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

Initial and continuing calibrations were within method requirements.

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

The blank spike (BS/LCS) percent recoveries were within control limits.



Cooler Receipt Form

ARI Client: SPU

Project Name: S. Park Landfill

COC No(s): _____ NA

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

Assigned ARI Job No: 22H0434

Tracking No: _____ NA

Preliminary Examination Phase:

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

Were custody papers included with the cooler? YES NO

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

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

Time 0846 _____ 50 _____

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

Cooler Accepted by: HW Date: 08/23/22 Time: 8:46

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES NO

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

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

How were bottles sealed in plastic bags? Individually Grouped Not

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

Were all bottle labels complete and legible? YES NO

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

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

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

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

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

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

Date VOC Trip Blank was made at ARI NA

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

Samples Logged by: HW Date: 08/25/22 Time: 8:38 Labels checked by: _____

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

| Sample ID on Bottle | Sample ID on COC | Sample ID on Bottle | Sample ID on COC |
|---------------------|------------------|---------------------|------------------|
| | | | |
| | | | |
| | | | |
| | | | |

Additional Notes, Discrepancies, & Resolutions:

Only samples w/ date and time on COC present, others next crossed off.

By: HW Date: 08/25/22



WORK ORDER

22H0434

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

Client: Seattle Public Utilities

Project Manager: Shelly Fishel

Project: South Park Landfill -Parametrix Water

Project Number: 553-1550-067

Preservation Confirmation

| Container ID | Container Type | pH |
|--------------|--------------------------------|---------|
| 22H0434-01 A | HDPE NM, 500 mL, 1:1 HNO3 | <2 pass |
| 22H0434-01 B | VOA Vial, Clear, 40 mL, HCL | |
| 22H0434-01 C | VOA Vial, Clear, 40 mL, HCL | |
| 22H0434-01 D | VOA Vial, Clear, 40 mL, HCL | |
| 22H0434-01 E | VOA Vial, Clear, 40 mL | |
| 22H0434-01 F | VOA Vial, Clear, 40 mL | |
| 22H0434-01 G | VOA Vial, Clear, 40 mL | |
| 22H0434-02 A | HDPE NM, 500 mL, 1:1 HNO3 (FF) | <2 pass |
| 22H0434-03 A | HDPE NM, 500 mL, 1:1 HNO3 | <2 pass |
| 22H0434-03 B | VOA Vial, Clear, 40 mL, HCL | |
| 22H0434-03 C | VOA Vial, Clear, 40 mL, HCL | |
| 22H0434-03 D | VOA Vial, Clear, 40 mL, HCL | |
| 22H0434-03 E | VOA Vial, Clear, 40 mL | |
| 22H0434-03 F | VOA Vial, Clear, 40 mL | |
| 22H0434-03 G | VOA Vial, Clear, 40 mL | |
| 22H0434-04 A | HDPE NM, 500 mL, 1:1 HNO3 (FF) | <2 pass |
| 22H0434-05 A | HDPE NM, 500 mL, 1:1 HNO3 | <2 pass |
| 22H0434-05 B | VOA Vial, Clear, 40 mL, HCL | |
| 22H0434-05 C | VOA Vial, Clear, 40 mL, HCL | |
| 22H0434-05 D | VOA Vial, Clear, 40 mL, HCL | |
| 22H0434-05 E | VOA Vial, Clear, 40 mL | |
| 22H0434-05 F | VOA Vial, Clear, 40 mL | |
| 22H0434-05 G | VOA Vial, Clear, 40 mL | |
| 22H0434-06 A | HDPE NM, 500 mL, 1:1 HNO3 (FF) | <2 pass |
| 22H0434-07 A | HDPE NM, 500 mL, 1:1 HNO3 | <2 pass |
| 22H0434-07 B | VOA Vial, Clear, 40 mL, HCL | |
| 22H0434-07 C | VOA Vial, Clear, 40 mL, HCL | |
| 22H0434-07 D | VOA Vial, Clear, 40 mL, HCL | |
| 22H0434-07 E | VOA Vial, Clear, 40 mL | |
| 22H0434-07 F | VOA Vial, Clear, 40 mL | |
| 22H0434-07 G | VOA Vial, Clear, 40 mL | |
| 22H0434-08 A | HDPE NM, 500 mL, 1:1 HNO3 (FF) | <2 pass |
| 22H0434-09 A | HDPE NM, 500 mL, 1:1 HNO3 | >2 fail |
| 22H0434-09 B | VOA Vial, Clear, 40 mL, HCL | |



WORK ORDER

22H0434

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

| | |
|--|--------------------------------|
| Client: Seattle Public Utilities | Project Manager: Shelly Fishel |
| Project: South Park Landfill -Parametrix Water | Project Number: 553-1550-067 |

| | | |
|--------------|--------------------------------|--------|
| 22H0434-09 C | VOA Vial, Clear, 40 mL, HCL | |
| 22H0434-09 D | VOA Vial, Clear, 40 mL, HCL | |
| 22H0434-09 E | VOA Vial, Clear, 40 mL | |
| 22H0434-09 F | VOA Vial, Clear, 40 mL | |
| 22H0434-09 G | VOA Vial, Clear, 40 mL | |
| 22H0434-10 A | HDPE NM, 500 mL, 1:1 HNO3 (FF) | 2 pass |
| 22H0434-11 A | HDPE NM, 500 mL, 1:1 HNO3 | 2 pass |
| 22H0434-11 B | VOA Vial, Clear, 40 mL, HCL | |
| 22H0434-11 C | VOA Vial, Clear, 40 mL, HCL | |
| 22H0434-11 D | VOA Vial, Clear, 40 mL, HCL | |
| 22H0434-11 E | VOA Vial, Clear, 40 mL | |
| 22H0434-11 F | VOA Vial, Clear, 40 mL | |
| 22H0434-11 G | VOA Vial, Clear, 40 mL | |
| 22H0434-12 A | HDPE NM, 500 mL, 1:1 HNO3 (FF) | 2 pass |
| 22H0434-13 A | VOA Vial, Clear, 40 mL, HCL | |
| 22H0434-13 B | VOA Vial, Clear, 40 mL | |

HW

Preservation Confirmed By

08/25/22

Date



WORK ORDER

22H0434

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

Client: Seattle Public Utilities

Project Manager: Shelly Fishel

Project: South Park Landfill -Parametrix Water

Project Number: 553-1550-067

Preservation Confirmation

| Container ID | Container Type | pH |
|--------------|--------------------------------|--------------|
| 22H0434-01 A | HDPE NM, 500 mL, 1:1 HNO3 | < 2 pass |
| 22H0434-01 B | VOA Vial, Clear, 40 mL, HCL | |
| 22H0434-01 C | VOA Vial, Clear, 40 mL, HCL | |
| 22H0434-01 D | VOA Vial, Clear, 40 mL, HCL | |
| 22H0434-01 E | VOA Vial, Clear, 40 mL | |
| 22H0434-01 F | VOA Vial, Clear, 40 mL | |
| 22H0434-01 G | VOA Vial, Clear, 40 mL | |
| 22H0434-02 A | HDPE NM, 500 mL, 1:1 HNO3 (FF) | < 2 pass |
| 22H0434-03 A | HDPE NM, 500 mL, 1:1 HNO3 | < 2 pass |
| 22H0434-03 B | VOA Vial, Clear, 40 mL, HCL | |
| 22H0434-03 C | VOA Vial, Clear, 40 mL, HCL | |
| 22H0434-03 D | VOA Vial, Clear, 40 mL, HCL | |
| 22H0434-03 E | VOA Vial, Clear, 40 mL | |
| 22H0434-03 F | VOA Vial, Clear, 40 mL | |
| 22H0434-03 G | VOA Vial, Clear, 40 mL | |
| 22H0434-04 A | HDPE NM, 500 mL, 1:1 HNO3 (FF) | < 2 pass |
| 22H0434-05 A | HDPE NM, 500 mL, 1:1 HNO3 | < 2 pass |
| 22H0434-05 B | VOA Vial, Clear, 40 mL, HCL | |
| 22H0434-05 C | VOA Vial, Clear, 40 mL, HCL | |
| 22H0434-05 D | VOA Vial, Clear, 40 mL, HCL | |
| 22H0434-05 E | VOA Vial, Clear, 40 mL | |
| 22H0434-05 F | VOA Vial, Clear, 40 mL | |
| 22H0434-05 G | VOA Vial, Clear, 40 mL | |
| 22H0434-06 A | HDPE NM, 500 mL, 1:1 HNO3 (FF) | < 2 pass |
| 22H0434-07 A | HDPE NM, 500 mL, 1:1 HNO3 | < 2 pass |
| 22H0434-07 B | VOA Vial, Clear, 40 mL, HCL | |
| 22H0434-07 C | VOA Vial, Clear, 40 mL, HCL | |
| 22H0434-07 D | VOA Vial, Clear, 40 mL, HCL | |
| 22H0434-07 E | VOA Vial, Clear, 40 mL | |
| 22H0434-07 F | VOA Vial, Clear, 40 mL | |
| 22H0434-07 G | VOA Vial, Clear, 40 mL | |
| 22H0434-08 A | HDPE NM, 500 mL, 1:1 HNO3 (FF) | < 2 pass |
| 22H0434-09 A | HDPE NM, 500 mL, 1:1 HNO3 | > 2 fail (1) |
| 22H0434-09 B | VOA Vial, Clear, 40 mL, HCL | |

① Preserved to pH < 2.0
with 0.75mL conc HNO₃

Reviewed By

Date



| | | |
|--|--|---------------------------------------|
| Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018 | Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Jeff Neuner | Reported: 08-Sep-2022 15:29 |
|--|--|---------------------------------------|

SPL-GW-MW25-0822
22H0434-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 08/22/2022 10:40
Instrument: NT2 Analyst: LH Analyzed: 08/25/2022 18:50

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22H0434-01 C
Preparation Batch: BKH0664 Sample Size: 10 mL
Prepared: 08/25/2022 Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|------------|----------|-----------------|-------------|----------|-------|
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.20 | 0.35 | ug/L | |
| Benzene | 71-43-2 | 1 | 0.20 | 3.73 | ug/L | |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | | | <i>80-129 %</i> | <i>96.0</i> | <i>%</i> | |
| <i>Surrogate: Toluene-d8</i> | | | <i>80-120 %</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: 553-1550-067 Project Manager: Jeff Neuner | Reported: 08-Sep-2022 15:29 |
|--|--|---------------------------------------|

SPL-GW-MW25-0822
22H0434-01 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM Sampled: 08/22/2022 10:40
Instrument: NT16 Analyst: PB Analyzed: 08/26/2022 20:51

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22H0434-01 E
Preparation Batch: BKH0696 Sample Size: 10 mL
Prepared: 08/26/2022 Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|------------|----------|-----------------|------------|----------|-------|
| Vinyl chloride | 75-01-4 | 1 | 0.0200 | 0.430 | ug/L | M |
| <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: 553-1550-067 Project Manager: Jeff Neuner | Reported: 08-Sep-2022 15:29 |
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SPL-GW-MW25-0822
22H0434-01 (Water)

Metals and Metallic Compounds

Method: EPA 6020B Sampled: 08/22/2022 10:40
Instrument: ICPMS1 Analyst: MCB Analyzed: 09/05/2022 21:43

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22H0434-01 A 02
Preparation Batch: BKI0011 Sample Size: 25 mL
Prepared: 09/01/2022 Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|-----------|------------|----------|-----------------|--------|-------|-------|
| Iron | 7439-89-6 | 20 | 0.720 | 38.6 | mg/L | D |
| Manganese | 7439-96-5 | 20 | 0.0100 | 3.08 | mg/L | D |



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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: 553-1550-067 Project Manager: Jeff Neuner | Reported: 08-Sep-2022 15:29 |
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SPL-GW-MW25-0822
22H0434-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED Sampled: 08/22/2022 10:40
Instrument: ICPMS1 Analyst: MCB Analyzed: 08/31/2022 05:12

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22H0434-02 A 01
Preparation Batch: BKH0756 Sample Size: 25 mL
Prepared: 08/30/2022 Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|--------------------|------------|----------|-----------------|--------|-------|-------|
| Arsenic, Dissolved | 7440-38-2 | 1 | 0.200 | 0.311 | ug/L | |



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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: 553-1550-067 Project Manager: Jeff Neuner | Reported: 08-Sep-2022 15:29 |
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SPL-GW-MW24-0822
22H0434-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 08/22/2022 13:15
Instrument: NT2 Analyst: LH Analyzed: 08/25/2022 19:11

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22H0434-03 D
Preparation Batch: BKH0664 Sample Size: 10 mL
Prepared: 08/25/2022 Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|------------|----------|-----------------|--------|-------|-------|
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.20 | ND | ug/L | U |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | | | 80-129 % | 95.8 | % | |



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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: 553-1550-067 Project Manager: Jeff Neuner | Reported: 08-Sep-2022 15:29 |
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SPL-GW-MW24-0822
22H0434-03 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM Sampled: 08/22/2022 13:15
Instrument: NT16 Analyst: PB Analyzed: 08/26/2022 21:12

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22H0434-03 C
Preparation Batch: BKH0696 Sample Size: 10 mL
Prepared: 08/26/2022 Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|------------|----------|-----------------|------------|----------|-------|
| Vinyl chloride | 75-01-4 | 1 | 0.0200 | 0.0479 | ug/L | M |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | | | <i>80-129 %</i> | <i>109</i> | <i>%</i> | |



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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: 553-1550-067 Project Manager: Jeff Neuner | Reported: 08-Sep-2022 15:29 |
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SPL-GW-MW24-0822
22H0434-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020B Sampled: 08/22/2022 13:15
Instrument: ICPMS1 Analyst: MCB Analyzed: 09/05/2022 21:47

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22H0434-03 A 02
Preparation Batch: BKI0011 Sample Size: 25 mL
Prepared: 09/01/2022 Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|-----------|------------|----------|-----------------|--------|-------|-------|
| Iron | 7439-89-6 | 20 | 0.720 | 26.7 | mg/L | D |
| Manganese | 7439-96-5 | 20 | 0.0100 | 1.64 | mg/L | D |



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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: 553-1550-067 Project Manager: Jeff Neuner | Reported: 08-Sep-2022 15:29 |
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SPL-GW-MW24-0822
22H0434-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED Sampled: 08/22/2022 13:15
Instrument: ICPMS1 Analyst: MCB Analyzed: 08/31/2022 05:16

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22H0434-04 A 01
Preparation Batch: BKH0756 Sample Size: 25 mL
Prepared: 08/30/2022 Final Volume: 25 mL

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



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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: 553-1550-067 Project Manager: Jeff Neuner | Reported: 08-Sep-2022 15:29 |
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SPL-GW-MW26-0822
22H0434-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 08/22/2022 14:40
Instrument: NT2 Analyst: LH Analyzed: 08/25/2022 19:33

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22H0434-05 C
Preparation Batch: BKH0664 Sample Size: 10 mL
Prepared: 08/25/2022 Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|------------|----------|-----------------|--------|-------|-------|
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.20 | 0.26 | ug/L | |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | | | 80-129 % | 98.6 | % | |



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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: 553-1550-067 Project Manager: Jeff Neuner | Reported: 08-Sep-2022 15:29 |
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SPL-GW-MW26-0822
22H0434-05 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM Sampled: 08/22/2022 14:40
Instrument: NT16 Analyst: PB Analyzed: 08/26/2022 21:33

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22H0434-05 E
Preparation Batch: BKH0696 Sample Size: 10 mL
Prepared: 08/26/2022 Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|------------|----------|-----------------|------------|----------|-------|
| Vinyl chloride | 75-01-4 | 1 | 0.0200 | 0.0270 | ug/L | M |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | | | <i>80-129 %</i> | <i>109</i> | <i>%</i> | |



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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: 553-1550-067 Project Manager: Jeff Neuner | Reported: 08-Sep-2022 15:29 |
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SPL-GW-MW26-0822
22H0434-05 (Water)

Metals and Metallic Compounds

Method: EPA 6020B Sampled: 08/22/2022 14:40
Instrument: ICPMS1 Analyst: MCB Analyzed: 09/05/2022 21:59

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22H0434-05 A 02
Preparation Batch: BKI0011 Sample Size: 25 mL
Prepared: 09/01/2022 Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|-----------|------------|----------|-----------------|--------|-------|-------|
| Iron | 7439-89-6 | 2 | 0.0720 | 8.09 | mg/L | D |
| Manganese | 7439-96-5 | 2 | 0.00100 | 0.0936 | mg/L | D |



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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: 553-1550-067 Project Manager: Jeff Neuner | Reported: 08-Sep-2022 15:29 |
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SPL-GW-MW26-0822
22H0434-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED Sampled: 08/22/2022 14:40
Instrument: ICPMS1 Analyst: MCB Analyzed: 08/31/2022 05:20

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22H0434-06 A 01
Preparation Batch: BKH0756 Sample Size: 25 mL
Prepared: 08/30/2022 Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|--------------------|------------|----------|-----------------|--------|-------|-------|
| Arsenic, Dissolved | 7440-38-2 | 1 | 0.200 | 0.801 | ug/L | |



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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: 553-1550-067 Project Manager: Jeff Neuner | Reported: 08-Sep-2022 15:29 |
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SPL-GW-MW32-0822
22H0434-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 08/22/2022 15:50
Instrument: NT2 Analyst: LH Analyzed: 08/25/2022 19:54

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22H0434-07 B
Preparation Batch: BKH0664 Sample Size: 10 mL
Prepared: 08/25/2022 Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|------------|----------|-----------------|--------|-------|-------|
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.20 | 0.57 | ug/L | |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | | | 80-129 % | 96.8 | % | |



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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: 553-1550-067 Project Manager: Jeff Neuner | Reported: 08-Sep-2022 15:29 |
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SPL-GW-MW32-0822
22H0434-07 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM Sampled: 08/22/2022 15:50
Instrument: NT16 Analyst: PB Analyzed: 08/26/2022 21:55

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22H0434-07 C
Preparation Batch: BKH0696 Sample Size: 10 mL
Prepared: 08/26/2022 Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|------------|----------|-----------------|------------|----------|-------|
| Vinyl chloride | 75-01-4 | 1 | 0.0200 | 0.443 | ug/L | M |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | | | <i>80-129 %</i> | <i>108</i> | <i>%</i> | |



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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: 553-1550-067 Project Manager: Jeff Neuner | Reported: 08-Sep-2022 15:29 |
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SPL-GW-MW32-0822
22H0434-07 (Water)

Metals and Metallic Compounds

Method: EPA 6020B Sampled: 08/22/2022 15:50
Instrument: ICPMS1 Analyst: MCB Analyzed: 09/05/2022 21:51

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22H0434-07 A 02
Preparation Batch: BKI0011 Sample Size: 25 mL
Prepared: 09/01/2022 Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|-----------|------------|----------|-----------------|--------|-------|-------|
| Iron | 7439-89-6 | 20 | 0.720 | 15.7 | mg/L | D |
| Manganese | 7439-96-5 | 20 | 0.0100 | 1.32 | mg/L | D |



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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: 553-1550-067 Project Manager: Jeff Neuner | Reported: 08-Sep-2022 15:29 |
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SPL-GW-MW32-0822
22H0434-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED Sampled: 08/22/2022 15:50
Instrument: ICPMS1 Analyst: MCB Analyzed: 08/31/2022 05:24

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22H0434-08 A 01
Preparation Batch: BKH0756 Sample Size: 25 mL
Prepared: 08/30/2022 Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|--------------------|------------|----------|-----------------|--------|-------|-------|
| Arsenic, Dissolved | 7440-38-2 | 1 | 0.200 | 0.838 | ug/L | |



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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: 553-1550-067 Project Manager: Jeff Neuner | Reported: 08-Sep-2022 15:29 |
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SPL-GW-MW33-0822
22H0434-09 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 08/22/2022 16:45
Instrument: NT2 Analyst: LH Analyzed: 08/25/2022 20:15

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22H0434-09 C
Preparation Batch: BKH0664 Sample Size: 10 mL
Prepared: 08/25/2022 Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|------------|----------|-----------------|--------|-------|-------|
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.20 | ND | ug/L | U |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | | | 80-129 % | 96.6 | % | |



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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: 553-1550-067 Project Manager: Jeff Neuner | Reported: 08-Sep-2022 15:29 |
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SPL-GW-MW33-0822
22H0434-09 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM Sampled: 08/22/2022 16:45
Instrument: NT16 Analyst: PB Analyzed: 08/26/2022 22:16

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22H0434-09 D
Preparation Batch: BKH0696 Sample Size: 10 mL
Prepared: 08/26/2022 Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|------------|----------|-----------------|------------|----------|-------|
| Vinyl chloride | 75-01-4 | 1 | 0.0200 | 0.159 | ug/L | M |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | | | <i>80-129 %</i> | <i>117</i> | <i>%</i> | |



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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: 553-1550-067 Project Manager: Jeff Neuner | Reported: 08-Sep-2022 15:29 |
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SPL-GW-MW33-0822
22H0434-09 (Water)

Metals and Metallic Compounds

Method: EPA 6020B Sampled: 08/22/2022 16:45
Instrument: ICPMS1 Analyst: MCB Analyzed: 09/05/2022 21:55

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22H0434-09 A 02
Preparation Batch: BKI0011 Sample Size: 25 mL
Prepared: 09/01/2022 Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|-----------|------------|----------|-----------------|--------|-------|-------|
| Iron | 7439-89-6 | 20 | 0.720 | 20.1 | mg/L | D |
| Manganese | 7439-96-5 | 20 | 0.0100 | 2.12 | mg/L | D |



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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: 553-1550-067 Project Manager: Jeff Neuner | Reported: 08-Sep-2022 15:29 |
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SPL-GW-MW33-0822
22H0434-10 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED Sampled: 08/22/2022 16:45
Instrument: ICPMS1 Analyst: MCB Analyzed: 08/31/2022 05:28

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22H0434-10 A 01
Preparation Batch: BKH0756 Sample Size: 25 mL
Prepared: 08/30/2022 Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|--------------------|------------|----------|-----------------|--------|-------|-------|
| Arsenic, Dissolved | 7440-38-2 | 1 | 0.200 | 0.738 | ug/L | |



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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: 553-1550-067 Project Manager: Jeff Neuner | Reported: 08-Sep-2022 15:29 |
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SPL-GW-MW10-0822
22H0434-11 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 08/22/2022 09:45
Instrument: NT2 Analyst: LH Analyzed: 08/25/2022 20:36

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22H0434-11 C
Preparation Batch: BKH0664 Sample Size: 10 mL
Prepared: 08/25/2022 Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|------------|----------|-----------------|--------|-------|-------|
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.20 | 0.98 | ug/L | |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | | | 80-129 % | 97.5 | % | |



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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: 553-1550-067 Project Manager: Jeff Neuner | Reported: 08-Sep-2022 15:29 |
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SPL-GW-MW10-0822
22H0434-11 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM Sampled: 08/22/2022 09:45
Instrument: NT16 Analyst: PB Analyzed: 08/26/2022 22:37

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22H0434-11 D
Preparation Batch: BKH0696 Sample Size: 10 mL
Prepared: 08/26/2022 Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|------------|----------|-----------------|------------|----------|-------|
| Vinyl chloride | 75-01-4 | 1 | 0.0200 | 0.168 | ug/L | M |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | | | <i>80-129 %</i> | <i>109</i> | <i>%</i> | |



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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: 553-1550-067 Project Manager: Jeff Neuner | Reported: 08-Sep-2022 15:29 |
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SPL-GW-MW10-0822
22H0434-11 (Water)

Metals and Metallic Compounds

Method: EPA 6020B Sampled: 08/22/2022 09:45
Instrument: ICPMS1 Analyst: MCB Analyzed: 09/05/2022 21:39

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22H0434-11 A 02
Preparation Batch: BKI0011 Sample Size: 25 mL
Prepared: 09/01/2022 Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|-----------|------------|----------|-----------------|--------|-------|-------|
| Iron | 7439-89-6 | 50 | 1.80 | 36.9 | mg/L | D |
| Manganese | 7439-96-5 | 50 | 0.0250 | 2.32 | mg/L | D |



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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: 553-1550-067 Project Manager: Jeff Neuner | Reported: 08-Sep-2022 15:29 |
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SPL-GW-MW10-0822
22H0434-12 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED Sampled: 08/22/2022 09:45
Instrument: ICPMS1 Analyst: MCB Analyzed: 08/31/2022 05:34

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22H0434-12 A 01
Preparation Batch: BKH0756 Sample Size: 25 mL
Prepared: 08/30/2022 Final Volume: 25 mL

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



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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: 553-1550-067 Project Manager: Jeff Neuner | Reported: 08-Sep-2022 15:29 |
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SPL-GW-MW80-0822
22H0434-13 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 08/23/2022 00:00
Instrument: NT2 Analyst: LH Analyzed: 08/25/2022 18:29

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22H0434-13 A
Preparation Batch: BKH0664 Sample Size: 10 mL
Prepared: 08/25/2022 Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|------------|----------|-----------------|-------------|----------|-------|
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.20 | ND | ug/L | U |
| Benzene | 71-43-2 | 1 | 0.20 | ND | ug/L | U |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | | | <i>80-129 %</i> | <i>96.4</i> | <i>%</i> | |
| <i>Surrogate: Toluene-d8</i> | | | <i>80-120 %</i> | <i>98.7</i> | <i>%</i> | |



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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: 553-1550-067 Project Manager: Jeff Neuner | Reported: 08-Sep-2022 15:29 |
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SPL-GW-MW80-0822
22H0434-13 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM Sampled: 08/23/2022 00:00
Instrument: NT16 Analyst: PB Analyzed: 08/26/2022 22:59

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22H0434-13 B
Preparation Batch: BKH0696 Sample Size: 10 mL
Prepared: 08/26/2022 Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|------------|----------|-----------------|------------|----------|-------|
| Vinyl chloride | 75-01-4 | 1 | 0.0200 | ND | ug/L | U |
| <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: 553-1550-067
Project Manager: Jeff Neuner

Reported:
08-Sep-2022 15:29

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKH0664 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: LH

| QC Sample/Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|--------|---|-------|-------------|---------------|------|-------------|------|-----------|-------|
| Blank (BKH0664-BLK1) | | Prepared: 25-Aug-2022 Analyzed: 25-Aug-2022 14:11 | | | | | | | | |
| cis-1,2-Dichloroethene | ND | 0.20 | ug/L | | | | | | | U |
| Benzene | ND | 0.20 | ug/L | | | | | | | U |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | 4.75 | | ug/L | 5.00 | | 95.0 | 80-129 | | | |
| <i>Surrogate: Toluene-d8</i> | 4.98 | | ug/L | 5.00 | | 99.6 | 80-120 | | | |
| LCS (BKH0664-BS1) | | Prepared: 25-Aug-2022 Analyzed: 25-Aug-2022 13:07 | | | | | | | | |
| cis-1,2-Dichloroethene | 9.96 | 0.20 | ug/L | 10.0 | | 99.6 | 80-121 | | | |
| Benzene | 10.4 | 0.20 | ug/L | 10.0 | | 104 | 80-120 | | | |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | 4.81 | | ug/L | 5.00 | | 96.2 | 80-129 | | | |
| <i>Surrogate: Toluene-d8</i> | 4.91 | | ug/L | 5.00 | | 98.3 | 80-120 | | | |
| LCS Dup (BKH0664-BSD1) | | Prepared: 25-Aug-2022 Analyzed: 25-Aug-2022 13:29 | | | | | | | | |
| cis-1,2-Dichloroethene | 10.3 | 0.20 | ug/L | 10.0 | | 103 | 80-121 | 3.80 | 30 | |
| Benzene | 10.9 | 0.20 | ug/L | 10.0 | | 109 | 80-120 | 4.50 | 30 | |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | 4.79 | | ug/L | 5.00 | | 95.7 | 80-129 | | | |
| <i>Surrogate: Toluene-d8</i> | 5.03 | | ug/L | 5.00 | | 101 | 80-120 | | | |



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Reported:
08-Sep-2022 15:29

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BKH0696 - EPA 5030C (Purge and Trap)

Instrument: NT16 Analyst: PB

| QC Sample/Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|--------|-----------------|-------|---|---------------|------|-------------|------|-----------|-------|
| Blank (BKH0696-BLK1) | | | | Prepared: 26-Aug-2022 Analyzed: 26-Aug-2022 15:51 | | | | | | |
| Vinyl chloride | ND | 0.0200 | ug/L | | | | | | | U |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | 5510 | | ug/L | 5000 | 110 | | 80-129 | | | |
| LCS (BKH0696-BS1) | | | | Prepared: 26-Aug-2022 Analyzed: 26-Aug-2022 14:39 | | | | | | |
| Vinyl chloride | 2.26 | 0.0200 | ug/L | 2.00 | | 113 | 62-141 | | | |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | 5310 | | ug/L | 5000 | 106 | | 80-129 | | | |
| LCS Dup (BKH0696-BSD1) | | | | Prepared: 26-Aug-2022 Analyzed: 26-Aug-2022 15:30 | | | | | | |
| Vinyl chloride | 2.32 | 0.0200 | ug/L | 2.00 | | 116 | 62-141 | 2.45 | 30 | |
| <i>Surrogate: 1,2-Dichloroethane-d4</i> | 5350 | | ug/L | 5000 | 107 | | 80-129 | | | |



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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: 553-1550-067 Project Manager: Jeff Neuner | Reported: 08-Sep-2022 15:29 |
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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BKI0011 - REN - EPA 3010A M

Instrument: ICPMS1 Analyst: MCB

| QC Sample/Analyte | Isotope | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|-----------------------------|---------|--------|---|-------|-------------|---------------|------|-------------|-----|-----------|-------|
| Blank (BKI0011-BLK1) | | | Prepared: 01-Sep-2022 Analyzed: 01-Sep-2022 18:10 | | | | | | | | |
| 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 (BKI0011-BS1) | | | Prepared: 01-Sep-2022 Analyzed: 01-Sep-2022 18:14 | | | | | | | | |
| Iron | 54 | 4.84 | 0.0360 | mg/L | 5.00 | | 96.7 | 80-120 | | | |
| Iron | 57 | 4.77 | 0.0360 | mg/L | 5.00 | | 95.4 | 80-120 | | | |
| Manganese | 55 | 0.0230 | 0.000500 | mg/L | 0.0250 | | 92.1 | 80-120 | | | |



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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: 553-1550-067 Project Manager: Jeff Neuner | Reported: 08-Sep-2022 15:29 |
|--|--|---------------------------------------|

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BKH0756 - REN - EPA 3010A M

Instrument: ICPMS1 Analyst: MCB

| QC Sample/Analyte | Isotope | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|-----------------------------|---------|--------|-----------------|-------|-------------|---|------|-------------|-----|-----------|-------|
| Blank (BKH0756-BLK1) | | | | | | Prepared: 30-Aug-2022 Analyzed: 30-Aug-2022 18:27 | | | | | |
| Arsenic, Dissolved | 75a | ND | 0.200 | ug/L | | | | | | | U |
| LCS (BKH0756-BS1) | | | | | | Prepared: 30-Aug-2022 Analyzed: 30-Aug-2022 18:32 | | | | | |
| Arsenic, Dissolved | 75a | 24.4 | 0.200 | ug/L | 25.0 | | 97.7 | 80-120 | | | |



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Reported:
08-Sep-2022 15:29

Certified Analyses included in this Report

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



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



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|--|--|---------------------------------------|

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

EPA 8260D-SIM in Water

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

| Code | Description | Number | Expires |
|-------|--|--------------|------------|
| ADEC | Alaska Dept of Environmental Conservation | 17-015 | 03/28/2023 |
| NELAP | ORELAP - Oregon Laboratory Accreditation Program | WA100006-012 | 05/12/2023 |



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Notes and Definitions

- D The reported value is from a dilution
- HC The natural concentration of the spiked analyte is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
- J Estimated concentration value detected below the reporting limit.
- L Analyte concentration is ≤ 5 times the reporting limit and the replicate control limit defaults to \pm RL instead of 20% RPD
- M Estimated value for a GC/MS analyte detected and confirmed by an analyst but with low spectral match parameters.
- Q Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria ($< 20\%$ RSD, $< 20\%$ drift or minimum RRF)
- U This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- [2C] Indicates this result was quantified on the second column on a dual column analysis.