

2021 ANNUAL MONITORING REPORT

OLALLA LANDFILL

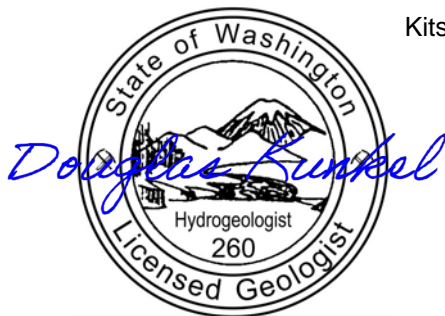
KITSAP COUNTY, WASHINGTON

MARCH 2022



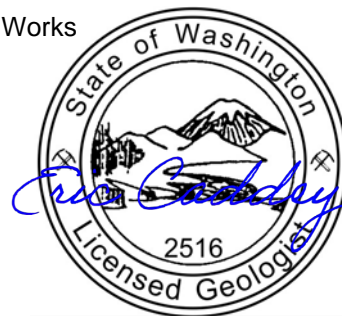
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Attachment 2 2021 Quarterly Monitoring Analytical Data Sheets (provided on attached CD-ROM)

INTRODUCTION

The Olalla Landfill (Landfill) is located approximately 0.75 miles east of Highway 16 on Burley-Olalla Road in Kitsap County, Washington. The Landfill was closed in 1989 in accordance with the Olalla Final Closure Plan (Parametrix 1988). Post-closure activities have consisted primarily of quarterly monitoring and maintenance per Washington Administrative Code (WAC) 173-304-407 (Minimum Functional Standards for Solid Waste Handling [MFS]), “General Closure and Post Closure Requirements” Kitsap County Board of Health Ordinance 2010-01 “Solid Waste Regulations” and Solid Waste Handling Permits (the Permit) issued by the Kitsap Public Health District (KPHD).

A Remedial Investigation/Feasibility Study (RI/FS; Parametrix 2014a) was performed at the Landfill starting in May 2010 and ending May 2014 when the RI/FS was submitted to the Washington State Department of Ecology (Ecology) and KPHD. Upon approval of the RI/FS, the Kitsap County Solid Waste Division (SWD) prepared a Cleanup Action Plan (CAP; Parametrix 2014b) to summarize the RI/FS activities and present the preferred cleanup action, which was selected based on the results of the RI/FS. Ecology and KPHD approved the CAP in December 2014.

The approved cleanup action, monitored natural attenuation (MNA) and land use controls, is based on a continuation of ongoing groundwater, surface water, and landfill gas monitoring in accordance with the SWHP. Quarterly monitoring results will be used to evaluate the effectiveness of the cleanup action and to verify that natural attenuation continues to occur at the Landfill. The overall effectiveness of the cleanup action will be evaluated at 5-year intervals as part of the periodic review process.

Specific groundwater, surface water, and landfill gas monitoring methods and procedures that are performed under the requirements of MFS, the SWHP, and the CAP are documented in a Compliance Monitoring Plan (CMP; EPI 2015). The CMP integrates all the previously noted monitoring program requirements into one document that contains a site-specific Sampling and Analysis Plan (SAP), Quality Assurance Plan (QAP), and Health and Safety Plan (HASP).

Results of the December 2021 quarterly groundwater and landfill gas monitoring event performed under the SWHP, CAP, and CMP are documented in this report. December 2021 analytical and field data were uploaded to Ecology’s Electronic Information Management (EIM) system on January 28, 2022.

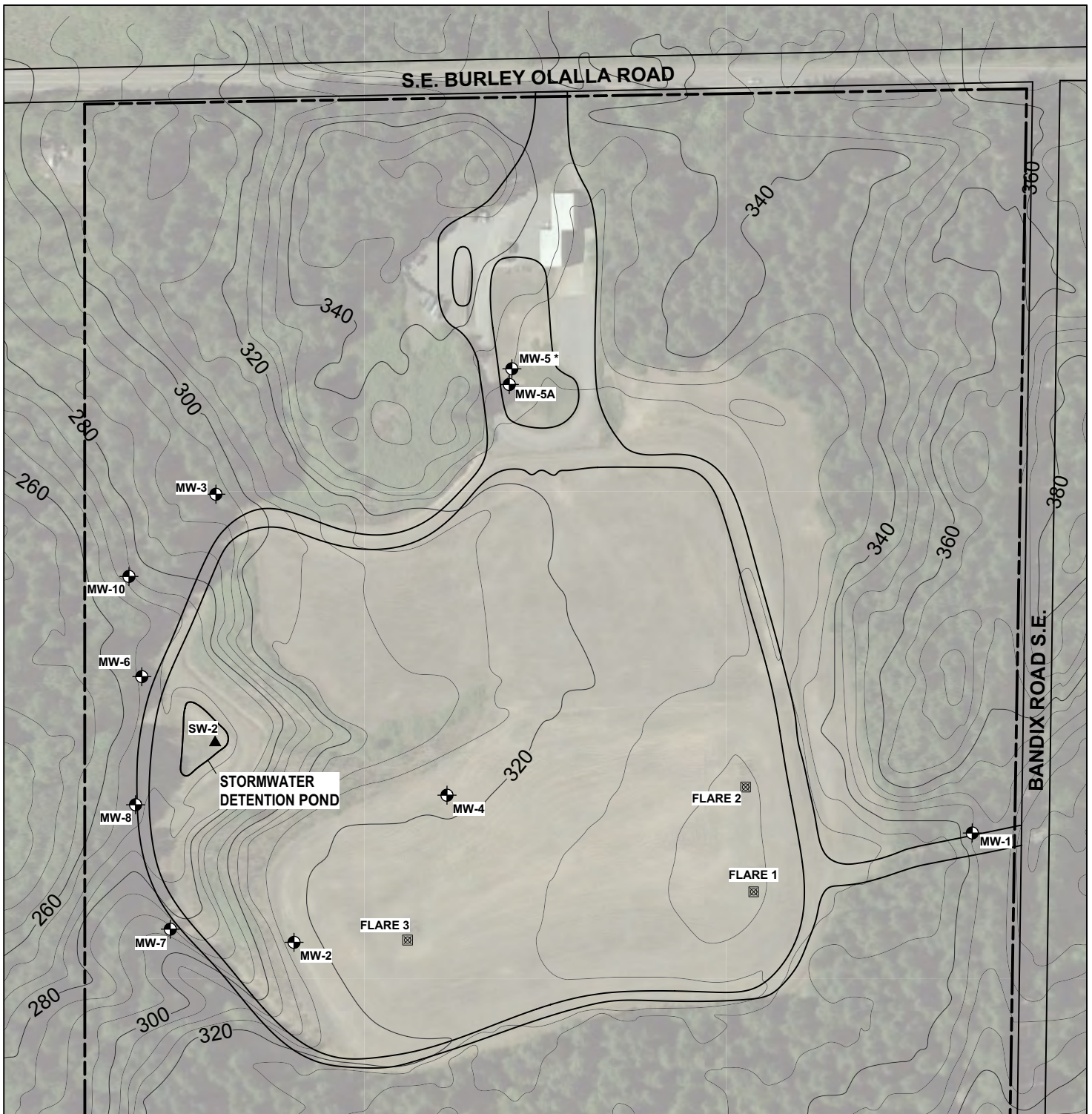
This Annual Report documents the results of the fourth quarter 2021 groundwater, surface water, and landfill gas monitoring event and summarizes the results of the previous quarterly monitoring and reporting events completed at the Landfill in 2021, in accordance with WAC 173-304-405(4), CAP, CMP, and the 2021–2025 SWHP issued by KPHD on February 10, 2021.

In addition to this Introduction, the 2021 Annual Monitoring Report consists of four main sections: Monitoring Program Description, Monitoring Results, Statistical Analysis, and Conclusions. The Monitoring Program Description summarizes the monitoring well network and laboratory analyses. Landfill gas field measurement data, groundwater elevations, and groundwater analytical results are presented in the Monitoring Results section. The statistical data evaluation methods used in this report are consistent with recommended methods found in the 2009 *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities* (Unified Guidance; USEPA 2009). Results of statistical and non-statistical evaluations of the 2021 monitoring data are summarized in the Conclusions section.

MONITORING PROGRAM DESCRIPTION

The sampling locations, analytical parameters, and frequency of sample collection for groundwater, surface water, and landfill gas monitoring at the Landfill are specified in the 2021–2025 Permit issued by KPHD and dated February 10, 2021, the 2014 CAP, and the 2015 CMP. Monitoring well, landfill gas flare locations, and the surface water sampling location (SW-2, which is sampled annually) are shown on Figure 1. Specific information pertaining to this monitoring event is summarized in the following bullets:

- TRC performed groundwater sampling activities and measured landfill gas parameters at each of the three on-site passive landfill gas flares on December 14, 2021.
- Depth-to-water measurements were performed at all on-site monitoring wells on December 14, 2021. TRC field staff also measured the depth to water in well MW-5, which is screened in a discontinuous shallow perched groundwater zone that is not hydraulically connected to the uppermost aquifer beneath the Landfill.
- Groundwater samples were collected from the upgradient monitoring well MW-1, crossgradient monitoring wells MW-5A and MW-7, and downgradient monitoring wells MW-3, MW-6, MW-8, and MW-10. One field duplicate sample was collected from downgradient monitoring well MW-10 and was assigned the identifier MW-13.
- Groundwater samples were hand-delivered to Analytical Resources, Inc. in Tukwila, Washington, for analysis on December 14, 2021.
- The surface water sample location, SW-2, was dry during the December 14, 2021, monitoring event. A surface water sample was collected on January 20, 2022, following several days of consistent rainfall.
- Samples were analyzed within their respective holding times, except total coliform and laboratory-measured pH samples. The holding time for total coliform is 6 hours and the pH holding time is 15 minutes. These short holding times cannot be achieved at the laboratory, but the pH holding times are achieved by the field-measured pH data. Both field- and laboratory-measured pH data are included in data tables and statistical evaluations presented in this report for comparison; however, field-measured pH data represent the dataset and statistical evaluations that should be considered for demonstrations of regulatory compliance.
- Data evaluations, statistical tests, and data reporting were performed by TRC in accordance with methods described in the Unified Guidance (USEPA 2004 [draft] and 2009 [final]) and developed with input and direction from KPHD and Ecology and in accordance with procedures documented in the CAP and CMP.



NOTES:

BASE MAP SOURCE:
GOOGLE EARTH

TOPOGRAPHIC CONTOUR SOURCE:
KITSAP COUNTY PARCEL VIEWER

*MW-5 IS COMPLETED IN A SHALLOW PERCHED GROUNDWATER ZONE

MW-2 MONITORING WELL LOCATION

SW-2 SURFACE WATER SAMPLING LOCATION

LANDFILL GAS FLARE

--- APPROXIMATE PROPERTY BOUNDARY

PERIMETER ACCESS ROAD

0 50 100 200

SCALE: 1" = 200'



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FIGURE 1
OLALLA LANDFILL MONITORING WELL LOCATIONS

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LOCATION OLALLA LANDFILL KITSAP COUNTY, WASHINGTON	PROJECT NUMBER 429487
	DATE1/28/21
	DRAWN BYJYT/AM
	REVIEWED BYDCK

MONITORING RESULTS

Results for 2021 quarterly monitoring events consist of landfill gas composition, groundwater elevations, calculated groundwater gradients and velocities, and groundwater quality data. A surface water sample was obtained during a separate mobilization following the December 2021 sampling event. The surface water sampling was performed on January 20, 2022, following several days of heavy precipitation. These data are summarized in this section and in Appendix A. Monitoring field notes associated with the four quarterly monitoring events and laboratory analytical data reports for 2021 are provided in electronic format in Attachments 1 and 2, respectively, on the CD-ROM submitted with this report.

Landfill Gas Data

Field measurements of landfill gas were taken from the three passive flares at the Landfill on March 18, June 18, September 16, and December 14, 2021. Landfill gas field measurement data summary tables are included in Appendix A. Data from the four quarterly landfill gas monitoring events performed in 2021 are summarized in the following sections.

March 18, 2021 – First Quarter

- Methane was detected in all three flares at concentrations of 5.8%, 9.8%, and 9.4% by volume in Flares 1, 2, and 3, respectively.
- Calculated Lower Explosive Limit (LEL) values were 116%, 196%, and 188% of the LEL for Flares 1, 2, and 3, respectively.
- Oxygen concentrations were 1.7%, 0.2%, and 3.4% by volume in Flares 1, 2, and 3, respectively.
- Carbon dioxide concentrations were 14.2%, 14.1%, and 11.9% by volume in Flares 1, 2, and 3, respectively.
- Gas pressure measurements were 0.02 inches of water in Flare 1 and 0.0 inches of water in Flares 2 and 3.

June 18, 2021 – Second Quarter

- Methane was not detected in Flare 1 but was detected in Flares 2 and 3 at concentrations of 1.0% and 3.7% by volume, respectively.
- Instrument-measured Lower Explosive Limit (LEL) values were 0%, 20%, and 70% of the LEL for Flares 1, 2, and 3, respectively.
- Oxygen concentrations were 8.0%, 5.4%, and 0.8% by volume in Flares 1, 2, and 3, respectively.
- Carbon dioxide concentrations were 7.5%, 8.0%, and 11.7% by volume in Flares 1, 2, and 3, respectively.
- Gas pressure measurements were 0.00 inches of water in all three flares.

September 16, 2021 – Third Quarter

- Methane was not detected in any of the three flares; all had measured methane concentrations of 0.0 percent by volume.
- Instrument-measured Lower Explosive Limit (LEL) values were 0 percent for all three flares.
- Oxygen concentrations were 8.7, 11.3, and 4.9 percent by volume in Flares 1, 2, and 3, respectively.
- Carbon dioxide concentrations were 8.4, 6.7, and 10.9 percent by volume in Flares 1, 2, and 3, respectively.
- Gas pressure measurements were 0.01 inches of water in all three flares.

December 14, 2021 – Fourth Quarter

- Methane was not detected in any of the three flares; all had measured methane concentrations of 0.0 percent by volume.
- Instrument-measured Lower Explosive Limit (LEL) values were 0 percent for all three flares.
- Oxygen concentrations were 18.3%, 21.1%, and 21.0% by volume in Flares 1, 2, and 3, respectively.
- Carbon dioxide concentrations were 3.2%, 0%, and 0% by volume in Flares 1, 2, and 3, respectively.
- Pressure measurements were 0.00 inches of water in all three flares.

Groundwater Elevation, Flow Direction, Gradient, and Velocity

All monitoring wells installed at the Landfill, except for MW-5, are screened in a laterally continuous sand and gravel unit that has been interpreted as belonging to the same aquifer unit (Parametrix 1988). Monitoring well MW-5 is screened in a shallow perched groundwater zone. Replacement monitoring well MW-5A was drilled at a location near MW-5 and is screened in the same aquifer as the other monitoring wells at the Landfill.

The Permit and CAP do not require water level or water quality data to be collected from MW-5 as part of the monitoring program for the Landfill because the shallow perched groundwater zone in which MW-5 is completed is not hydraulically connected to the uppermost continuous aquifer in which the other Landfill monitoring wells are completed. SWD has elected to measure the depth to water in MW-5 as additional information and depth-to-water measurements for MW-5 are included in the field notes presented in Attachment 1. The Permit and CAP specify annual monitoring of crossgradient monitoring wells MW-5A and MW-7. Quarterly groundwater level measurements are made at MW-5A and MW-7 to provide a more comprehensive dataset for the groundwater elevation contour map and hydrograph.

The groundwater flow direction beneath the Landfill during the December 2021 monitoring event was generally toward the northwest as depicted on Figure 2. Based on the groundwater elevation contours the groundwater flow direction at the Landfill is consistently toward the northwest, with potentially a western component near MW-3 and MW-10, as demonstrated by the quarterly groundwater elevation contour maps for all four quarters of 2021, which are presented in Appendix A.

Groundwater elevation contour patterns and flow directions have been consistent throughout all four seasons and over many years of quarterly water level measurements. The groundwater flow direction maps demonstrate that well MW-1 is consistently upgradient of the Landfill, wells MW-3, MW-6, MW-8, and MW-10 are consistently downgradient of the Landfill, and wells MW-5A and MW-7 are consistently crossgradient to the Landfill.

Groundwater elevation data from 1991 through the fourth quarter of 2021 for each of the on-site MFS monitoring wells (except MW-5) are plotted and shown on the water level elevation time-series graph in Appendix A. December 2021 groundwater elevations were higher than December 2020 elevations in eight of the nine wells, with differences ranging from 0.61 feet higher in upgradient well MW-1 to 1.26 feet higher in interior well MW-4. The December 2021 groundwater elevation was 2.27 feet lower than December 2020 in downgradient well MW-3.

Precipitation data from the Bremerton National Airport Weather Station (KPWT) indicate that during the 2021 water year (November 2020 to October 2021) the area near the Landfill received 42.08 inches of precipitation, which is greater than the 37.88 inches of precipitation for the 2020 water year (Weather Underground, Station KPWT, 2021). The greater rainfall total for the 2021 water year is consistent with higher groundwater elevations in eight of the nine monitoring wells.

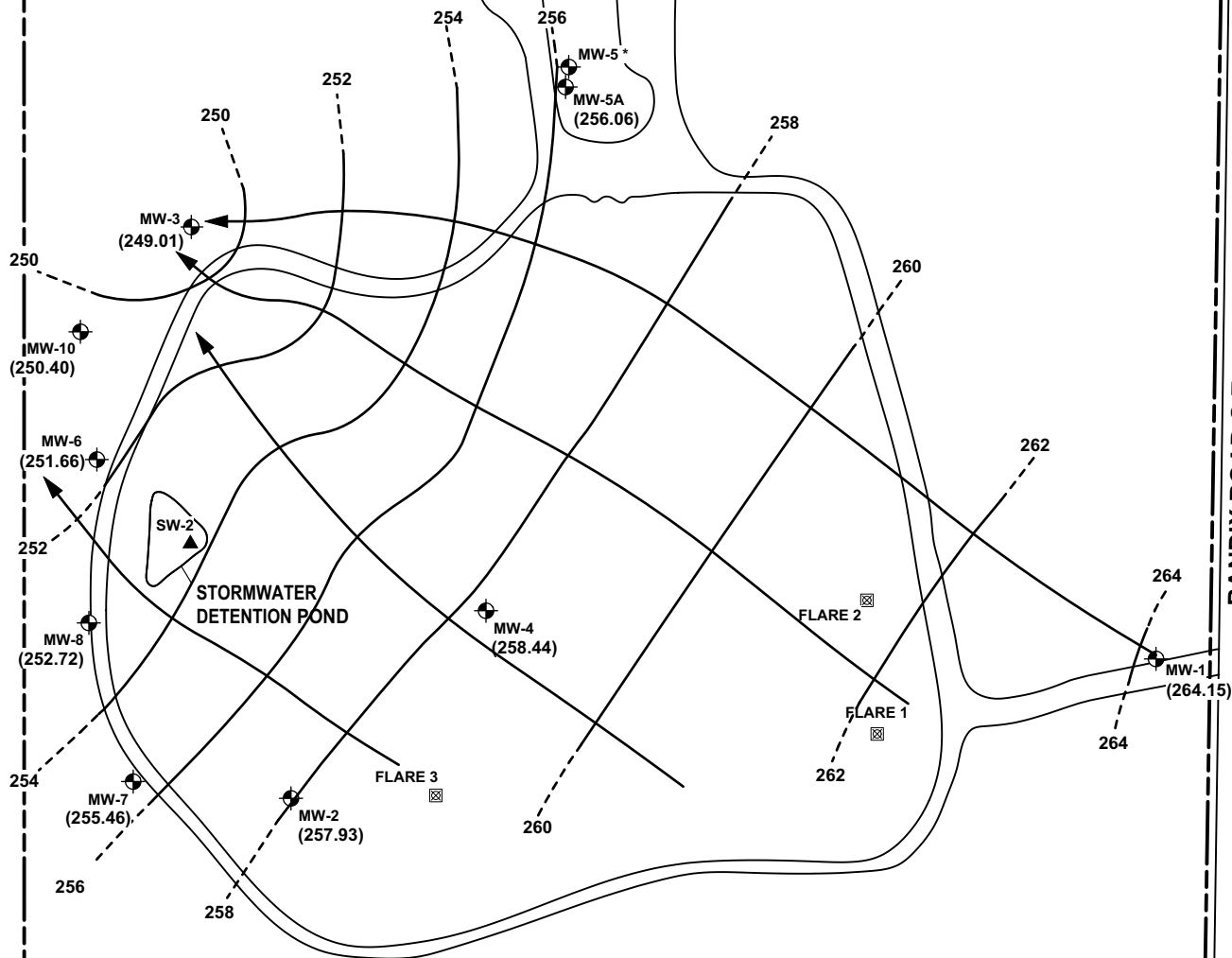
Groundwater flow rates based on the quarterly groundwater elevation contour maps have been calculated based on a modified form of Darcy's Law:

$$V = KI/n$$

Where: V = average linear velocity (L/T)
 K = hydraulic conductivity (L/T)
 I = hydraulic gradient (L/L [dimensionless])
 n = effective porosity (percent expressed as a decimal)

The hydraulic conductivity "K" of the aquifer was calculated from single well aquifer tests performed in monitoring wells MW-1, MW-2, MW-3, and MW-4. The range of values obtained from these tests indicated that the hydraulic conductivity of the uppermost aquifer at the Landfill is approximately 7×10^{-3} to 3×10^{-2} centimeters per second (cm/sec), with a mean value of 2.2×10^{-2} cm/sec (62.4 feet/day) (Parametrix 1988). This mean value correlates with the hydraulic conductivity values calculated using the Hazen equation for soil samples collected from the screened intervals from the boreholes for MW-8 and MW-10. Hazen equation calculated hydraulic conductivity values for soil at MW-8 and MW-10 are 1.2×10^{-2} cm/sec (34 feet/day) and 1.4×10^{-2} cm/sec (40 feet/day), respectively. The mean hydraulic conductivity value from the single well aquifer tests of 2.2×10^{-2} cm/sec (62.4 feet/day) is used for groundwater velocity calculations presented below.

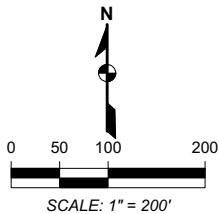
The hydraulic gradients "I" of the aquifer for each monitoring event are calculated from quarterly groundwater elevation contour maps presented in Appendix A. Average hydraulic gradients calculated for the four 2021 quarterly events at the Landfill range from 0.0139 in March and December to 0.0146 in June and September. The effective porosity "n" of the aquifer is estimated to be 0.40, which is a typical value for fine to medium sand (Freeze and Cherry 1979).



NOTES:

* MW-5 IS COMPLETED IN A SHALLOW PERCHED GROUNDWATER ZONE.

- MW-2 MONITORING WELL LOCATION
- SW-2 SURFACE WATER SAMPLING LOCATION
- LANDFILL GAS FLARE
- GROUNDWATER ELEVATION CONTOUR
- INFERRED GROUNDWATER FLOW PATH
- APPROXIMATE PROPERTY BOUNDARY
- PERIMETER ACCESS ROAD



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FIGURE 2

OLALLA LANDFILL GROUNDWATER ELEVATION
 CONTOUR MAP - DECEMBER 14, 2021

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 2021 ANNUAL
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PREPARED FOR
 KITSAP COUNTY

PROJECT NUMBER
 429487

LOCATION
 OLALLA LANDFILL
 KITSAP COUNTY, WASHINGTON

DATE 1/28/22
DRAWN BY DCK/AM
REVIEWED BY DCK

The resulting groundwater flow velocities “V” calculated from 2021 quarterly data range from 2.17 feet/day in December to 2.27 feet/day in June and September. The calculated groundwater gradients and flow velocities are summarized in Table 1.

Table 1
2021 Olalla Landfill Calculated Groundwater Flow Velocities

Measurement Date	Calculated Hydraulic Gradient (L/L)	Calculated Groundwater Flow Velocity (feet/day)
March 18, 2021	0.0139	2.18
June 18, 2021	0.0146	2.27
September 16, 2021	0.0146	2.27
December 14, 2021	0.0139	2.18

Surface Water Quality Data

Section IV.D.3.a of the KPHD-issued 2021–2025 SWHP for the Landfill states that surface water samples shall be collected at location SW-2 (see Figure 1) between January and March or between November and December if there is enough water for a sample. Surface water station SW-2 was dry during the December 14, 2021, sampling event. Samplers returned to the landfill on January 20, 2022, after several days of heavy rain, and collected a surface water sample. The following results were noted in surface water data:

- The laboratory-measured pH value for SW-2 surface water sample was 6.7 standard pH units, which is within the acceptable range of the Washington State Surface Water Standard (WAC 173-201A-200) of 6.5 to 8.5 standard pH units.
- Nitrate-nitrogen was detected at a concentration of 0.178 milligrams per liter (mg/L), which is less than the Washington State Drinking Water and Groundwater Primary Standard of 10 mg/L.
- Nitrite-nitrogen was detected at a concentration of 0.017 mg/L, which is less than the Washington State Drinking Water Primary Standard of 1.0 mg/L.
- Fecal coliform was not detected in the surface water sample obtained from SW-2.

Surface water quality data are presented in Appendix A. Analytical results (laboratory data sheets) are provided as an electronic file (a PDF file) in Attachment 1 on the CD-ROM for this report to reduce the amount of paper required to produce this report.

Groundwater Quality Data

A summary of the groundwater quality data for the four quarterly events of 2021 is presented in Appendix A. Laboratory data sheets for all field samples, duplicates, and laboratory quality control samples reported by ARI are provided as an electronic file in Attachment 2 of the CD-ROM for this report.

Exceedances of Primary Regulatory Standards

Constituent concentrations in groundwater that exceeded Washington State Drinking Water Primary Standards (WAC 246-290-310) or Washington State Groundwater Primary Standards (WAC 173-300-040) are summarized in Table 2.

Table 2
2021 Water Quality Constituent Concentrations
Exceeding Washington State Primary Standards

Constituent	Drinking Water Standards ^a	Groundwater Quality Standards ^b	Site-Specific CUL ^c	March	June	Sept.	Dec.
MW-1 (upgradient)							
Arsenic	10 µg/L	0.05 µg/L	1.29 µg/L	0.10	0.10	0.09	0.10
MW-3 (downgradient)							
Arsenic	10 µg/L	0.05 µg/L	1.29 µg/L	0.09	0.11	0.11	0.13
Arsenic FD	10 µg/L	0.05 µg/L	1.29 µg/L	0.09	NA	NA	NA
MW-5A (crossgradient)							
Arsenic	10 µg/L	0.05 µg/L	1.29 µg/L	NA	NA	NA	0.15
MW-6 (downgradient)							
Arsenic	10 µg/L	0.05 µg/L	1.29 µg/L	0.27	0.30	0.37	0.22
Arsenic FD	10 µg/L	0.05 µg/L	1.29 µg/L	NA	0.32	NA	NA
MW-7 (crossgradient)							
Arsenic	10 µg/L	0.05 µg/L	1.29 µg/L	NA	NA	NA	0.35
MW-8 (downgradient)							
Arsenic	10 µg/L	0.05 µg/L	1.29 µg/L	0.92	0.70	0.57	1.06
Arsenic FD	10 µg/L	0.05 µg/L	1.29 µg/L	NA	NA	0.55	NA
Vinyl Chloride	2.0 µg/L	0.02 µg/L	0.29 µg/L	--	--	--	0.04
MW-10 (downgradient)							
Arsenic	10 µg/L	0.05 µg/L	1.29 µg/L	1.75	1.84	2.14	1.74
Arsenic FD	10 µg/L	0.05 µg/L	1.29 µg/L	NA	NA	NA	1.78

Notes:

Values are reported in the same units as the regulatory standards.

µg/L = Micrograms per liter.

FD = Field Duplicate.

NA = Not Applicable or Not Analyzed per the SWHP.

^a WAC 246-290-310.

^b WAC 173-200-040.

^cSite-Specific Cleanup Level

Exceedances of Secondary Regulatory Standards

Constituent concentrations in groundwater that exceeded Washington State Drinking Water Secondary Standards (WAC 246-290-310) and Washington State Groundwater Secondary Standards (WAC 173-300-040) are summarized in Table 3.

Table 3
2021 Water Quality Constituent Concentrations
Exceeding Washington State Secondary Standards

Constituent	Drinking Water Standards ^a	Groundwater Quality Standards ^b	March	June	Sept.	Dec.
MW-1 (upgradient)						
pH (lab)	NA	6.5 – 8.5	6.1 H	6.2 J	6.3 J	6.4 H
MW-3 (downgradient)						
Manganese	50 µg/L	50 µg/L	3,560	5,110	5,750	5,300
Manganese FD	50 µg/L	50 µg/L	3,490	NA	NA	NA
pH (field)	NA	6.5 – 8.5	6.2	6.2	6.3	6.4
pH (lab)	NA	6.5 – 8.5	6.1 H	6.1 J	6.2 J	6.4 H
pH (lab) FD	NA	6.5 – 8.5	6.2 H	NA	NA	NA
MW-5A (crossgradient)						
none	NA	NA	NA	NA	NA	--
MW-6 (downgradient)						
Manganese	50 µg/L	50 µg/L	162	424	332	330
Manganese FD	50 µg/L	50 µg/L	NA	423	NA	NA
MW-7 (crossgradient)						
none	NA	NA	NA	NA	NA	--
MW-8 (downgradient)						
Iron	300 µg/L	300 µg/L	--	--	--	920
Iron FD	300 µg/L	300 µg/L	NA	NA	--	NA
Manganese	50 µg/L	50 µg/L	2,230	1,580	1,840	2,260
Manganese FD	50 µg/L	50 µg/L	NA	NA	1,900	NA
MW-10 (downgradient)						
Manganese	50 µg/L	50 µg/L	3,890	4,770	4,070	3,280
Manganese FD	50 µg/L	50 µg/L	NA	NA	NA	3,260

Notes:
Values are reported in the same units as the regulatory standards
FD = Field Duplicate
J = Estimated value, holding time exceeded
H = Holding time exceeded
NA = Not Applicable or Not Analyzed per the SWHP
-- = Analyzed with no regulatory exceedance
^a WAC 246-290-310 and Site-Specific Cleanup Level
^b WAC 173-200-040

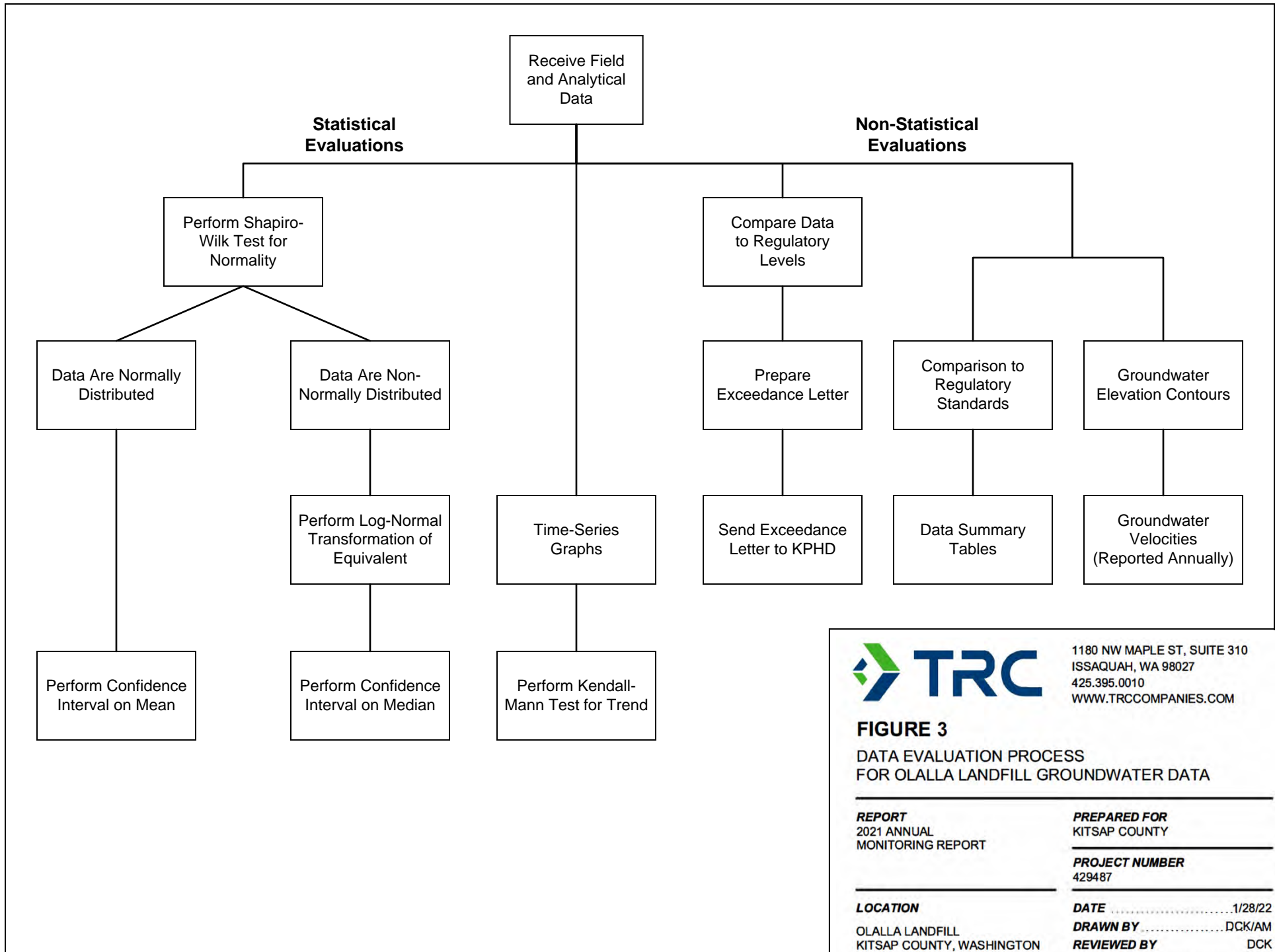
STATISTICAL ANALYSIS

SWD and TRC developed the current statistical evaluation process used in this report with input and direction from KPHD and Ecology. KPHD and Ecology referenced the EPA 2004 Unified Guidance as the basis for evaluating appropriate statistical methods for Landfill groundwater data. The statistical methods used in this report are consistent with recommended methods found in the Unified Guidance, which was updated in 2009 (USEPA 2009).

Statistical analysis of groundwater data for the Landfill uses four tools: time-series plots, Mann-Kendall test for trend, Shapiro-Wilk test for normality, and confidence intervals (parametric and non-parametric). Application of these tools is based on statistical methods identified in the Unified Guidance and is documented in the CAP. These four statistical tools, along with non-statistical data evaluation tools, are applied to the data following the process shown on Figure 3.

Statistical analyses are performed on a dataset consisting of a moving window of the 20 most recent sampling events (as one new data point is added the oldest data point is dropped). For most wells, this is a 5-year moving window of data. Wells MW-5A and MW-7 are on an annual sampling schedule and SWD has defined the window of data used for the Mann-Kendall, Shapiro-Wilk and 95% Confidence Interval statistical analyses as 20 sampling events rather than 5 years of data. The moving window of 20 sampling events provides enough data points for adequate statistical power while focusing the statistical evaluations on the most recent and most relevant data. Statistical analyses for the Landfill groundwater monitoring data are performed using the following criteria:

- Dissolved metals, volatile organic compounds (VOCs), conventional water quality parameters, and field parameters required for groundwater analysis under the current Section IV.D.2 Solid Waste Handling Permit for Olalla Landfill are presented in time-series plots (Appendix B), and tables showing summary results of the Mann-Kendall trend test, Shapiro-Wilk test for normality, and 95% confidence intervals.
- Statistical tests are not automatically performed for every constituent or parameter measured. Some constituents have not been detected in samples collected during the past 5 years (20 events) or do not have enough detections to support one or more of the statistical analyses. Datasets that are all non-detects, or do not have enough detections for statistical analysis, are temporarily dropped from the specific statistical evaluations that are not amenable to those datasets.
- VOC and metals detections include values at concentrations less than laboratory specified reporting limits (i.e., J-qualified), but do not include values where the constituent was also detected in the method blank (i.e., values qualified with a "B").
- Beginning in 2012, wells MW-5A and MW-7 are sampled at a reduced (annual) frequency and for a reduced list of constituents relative to the other Olalla Landfill monitoring wells. Thus, the statistical evaluations at MW-5A and MW-7 ended in 2012 for some constituents that were no longer analyzed but will continue at a reduced frequency for other constituents that are analyzed annually in samples from these two crossgradient wells.



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FIGURE 3
 DATA EVALUATION PROCESS
 FOR OLALLA LANDFILL GROUNDWATER DATA

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- Non-detections are managed by assigning them a uniform value that is less than the reporting limit for that constituent as prescribed in Section 14.4.2.2 of the Unified Guidance. Guidance from the United States Geological Survey (USGS 2008) suggests that censoring values that are less than the detection limit (non-detects) provides more accurate statistical results compared to substituting a value, commonly one half of the reporting limit. The SWD assigns a value of zero to non-detected results as recommended by the USGS and KPHD. J-qualified analytical results are reported as individual detected values as recommended by the USGS guidance.

The following subsections briefly describe the tools used in the statistical evaluation and summarize analytical results for the current year.

Time-Series Plots

Time-series plots are used to compare field measurements or analytical results from a well or a set of wells over time. The plots provide a convenient graphical means of delineating seasonal trends and large differences in concentration between upgradient and downgradient wells and can be used to readily identify data that exceed regulatory levels. Time-series plots are presented by individual constituents for upgradient well MW-1, crossgradient wells MW-5A and MW-7, and downgradient wells MW-3, MW-6, MW-8, and MW-10.

Historical data are presented as two time-series plots. The first time-series plot presents all quarterly data from 1992, when groundwater monitoring was initiated at the Landfill, to the present quarter. This time-series plot is useful to graphically demonstrate that groundwater quality has improved over time. Because MW-8 and MW-10 were installed in 2010, their datasets are smaller than other wells in the full time-series plots. The second time-series plot presents the most recent 5 years of data and provides a greater level of detail than is more readily seen at the scale required for full time-series plots that graph all historical results. Washington State drinking water and groundwater regulatory levels and site-specific cleanup levels (CULs) are shown graphically on time-series plots when applicable.

Mann-Kendall Trend Test

The Mann-Kendall trend test is a non-parametric statistical method recommended in the Unified Guidance for sites in the compliance assessment and corrective action monitoring phases and is appropriately paired with time-series plots. For this report, the Mann-Kendall trend test is used to determine if upward or downward data trends graphically presented in time-series plots are statistically significant. The Mann-Kendall test is applied to the same five-year moving window of data described in the Time-Series Plots section. December 2021 Mann-Kendall Trend Test results are presented in Table 4 and are summarized in the following bullets. Tabulated Mann-Kendall trend test results for all four quarters of 2021 are presented in Appendix B.

As described in the 2021–2025 SWHP, crossgradient wells MW-5A and MW-7 are sampled annually, during the fourth quarter, for a reduced list of constituents relative to the other Olalla Landfill monitoring wells.

**Table 4
December 2021 Mann-Kendall Statistically Significant Trend Test Results**

Constituent or Parameter	MW-1	MW-3	MW-5A	MW-6	MW-7	MW-8	MW-10
Ammonia (N)	NO TREND	NO TREND	NA	UP	NA	DOWN	NO TREND
Arsenic - Dissolved	DOWN	NO TREND	NO TREND	DOWN	NO TREND	DOWN	UP
Barium - Dissolved	NO TREND	DOWN	NA	NO TREND	NA	DOWN	NO TREND
Bicarbonate	UP	DOWN	NA	NO TREND	NA	DOWN	NO TREND
Calcium	UP	DOWN	NA	NO TREND	NA	DOWN	NO TREND
Carbonate	NO TREND	NO TREND	NA	NO TREND	NA	NO TREND	NO TREND
COD	NO TREND	NO TREND	NA	NO TREND	NA	NO TREND	NO TREND
Chloride	UP	UP	NA	DOWN	NA	DOWN	DOWN
Dissolved Oxygen	DOWN	NO TREND	NO TREND	NO TREND	NO TREND	NO TREND	NO TREND
Iron - Dissolved	NO TREND	NO TREND	NO TREND	DOWN	NO TREND	DOWN	NO TREND
Manganese - Dissolved	NO TREND	DOWN	NO TREND	DOWN	NO TREND	DOWN	DOWN
Nitrate	DOWN	NO TREND	NA	NO TREND	NA	DOWN	NO TREND
Nitrite	NO TREND	NO TREND	NA	UP	NA	NO TREND	NO TREND
Oxidation Reduction Potential	DOWN	NO TREND	NO TREND	UP	NO TREND	NO TREND	NO TREND
pH - Field	NO TREND	NO TREND	NO TREND	UP	NO TREND	NO TREND	UP
pH - Laboratory	DOWN	NO TREND		NO TREND		NO TREND	NO TREND
Potassium	UP	NO TREND	NA	UP	NA	NO TREND	UP
Sodium	UP	DOWN	NA	UP	NA	NO TREND	UP
Specific Conductance	UP	NO TREND	NO TREND	NO TREND	NO TREND	NO TREND	NO TREND
Sulfate	UP	NO TREND	NA	NO TREND	NA	NO TREND	NO TREND
Temperature	UP	NO TREND	UP	UP	NO TREND	UP	NO TREND
Total Coliform	NO TREND	NO TREND	NA	NO TREND	NA	NO TREND	NO TREND
TOC	NO TREND	DOWN	NA	NO TREND	NA	DOWN	DOWN
Vinyl Chloride	NO TREND	NO TREND	NO TREND	DOWN	NO TREND	DOWN	DOWN
Zinc - Dissolved	NO TREND	NO TREND	NA	NO TREND	NA	NO TREND	NO TREND

Notes:

- NO TREND No statistically significant trend or dataset has four or fewer detections and cannot be evaluated.
- UP Statistically significant upward trend.
- DOWN Statistically significant downward trend.
- NA Not analyzed per the SWHP.

- Thirty-one well-constituent combinations have statistically significant downward concentration trends. The downward well-constituent combination trends are:
 - Ammonia: MW-8
 - Arsenic: MW-1, MW-6, and MW-8
 - Barium: MW-3 and MW-8
 - Bicarbonate: MW-3 and MW-8
 - Calcium: MW-3 and MW-8
 - Chloride: MW-6, MW-8, and MW-10
 - Dissolved Oxygen: MW-1
 - Iron: MW-6 and MW-8
 - Manganese: MW-3, MW-6, MW-8, and MW-10
 - Nitrate: MW-1 and MW-8
 - Oxidation Reduction Potential: MW-1
 - pH (laboratory): MW-1
 - Sodium: MW-3
 - Total Organic Carbon: MW-3, MW-8, and MW-10
 - Vinyl Chloride: MW-6, MW-8, and MW-10

- Ten of the well-constituent combinations with statistically significant downward concentration trends also have regulatory standard exceedances in December 2021 data. The well-constituent combinations with downward trends and current regulatory exceedances are:
 - Arsenic: MW-1, MW-6, and MW-8
 - Iron: MW-8
 - Manganese: MW-3, MW-6, MW-8, and MW-10
 - pH (laboratory): MW-1
 - Vinyl Chloride: MW-8

- Twenty-two well-constituent combinations have statistically significant upward concentration trends. The upward well-constituent combination trends are:
 - Ammonia: MW-6
 - Arsenic: MW-10
 - Bicarbonate: MW-1
 - Calcium: MW-1
 - Chloride: MW-1 and MW-3
 - Nitrite: MW-6
 - Oxidation Reduction Potential: MW-6
 - pH (field): MW-6 and MW-10
 - Potassium: MW-1, MW-6, and MW-10
 - Sodium: MW-1, MW-6, and MW-1
 - Specific Conductance: MW-1
 - Sulfate: MW-1
 - Temperature: MW-1, MW-5A, MW-6, and MW-8

- One well-constituent combination, arsenic at MW-1, has a statistically significant upward concentration trend and a regulatory standard exceedance in December 2021 data.
- There are 122 well-constituent combinations that have no statistically significant concentration trend, or the constituents are no longer analyzed in wells MW-5A and MW-7 per the SWHP. Of the well-constituent combinations with no statistically significant trends, the following five well-constituent combinations exceed regulatory levels.
 - Arsenic: MW-3, MW-5A, and MW-7
 - pH (field): MW-3
 - pH (laboratory): MW-3

Shapiro-Wilk Test for Normality

The Shapiro-Wilk Test for Normality is a method recommended in the Unified Guidance for evaluating if datasets are normally distributed. The Shapiro-Wilk Test for Normality is applied annually to the 5-year moving window of analytical data for each well-constituent pair that has enough data points to apply this statistical method. Shapiro-Wilk results for the current monitoring event are summarized in Table 5 and in the following bullets. Shapiro-Wilk result summary tables for all four quarters of 2021 are presented in Appendix B.

As described in the Mann-Kendall Trend Test section, MW-5A and MW-7 are sampled annually and for a reduced list of constituents relative to the other Olalla Landfill monitoring wells and the Shapiro-Wilk statistical evaluations of the reduced list of constituents are included in Table 5.

- There are 175 well-constituent combinations presented in Table 5 and 66 well-constituent combinations had fewer than four detections and could not be tested for normality or the constituents are no longer analyzed in wells MW-5A and MW-7 per the SWHP; the remaining 108 well-constituent combinations were tested for normality.
- Normal data distributions were noted in 46 of the well-constituent combinations that were tested for normality.
- Non-normal data distributions were noted in 63 of the well-constituent combinations tested for normality.

Data that are normally distributed are evaluated using the 95% confidence interval around the mean (a parametric statistical test). Data that are not normally distributed are adjusted by log-normal transformation prior to being evaluated using the 95% confidence interval around the median (a non-parametric statistical test).

**Table 5
December 2021 Shapiro-Wilk Test for Normality Results**

Constituent or Parameter	MW-1	MW-3	MW-5A	MW-6	MW-7	MW-8	MW-10
Ammonia (N)	ND	ND	NA	Non-normal	NA	Non-normal	Normal
Arsenic - Dissolved	Non-normal	Non-normal	Non-normal	Non-normal	Normal	Normal	Normal
Barium - Dissolved	Non-normal	Non-normal	Non-normal	Non-normal	ND	Normal	Non-normal
Bicarbonate	Non-normal	Non-normal	NA	Non-normal	NA	Non-normal	Non-normal
Calcium	Normal	Normal	NA	Non-normal	NA	Normal	Normal
Carbonate	ND	ND	NA	ND	NA	ND	ND
COD	ND	Non-normal	NA	ND	NA	ND	Non-normal
Chloride	Normal	Non-normal	NA	Normal	NA	Non-normal	Normal
Dissolved Oxygen	Normal	Non-normal	Normal	Non-normal	Normal	Non-normal	Non-normal
Iron - Dissolved	ND	ND	ND	Normal	ND	Non-normal	Non-normal
Manganese - Dissolved	ND	Normal	ND	Normal	ND	Non-normal	Normal
Nitrate	Non-normal	Non-normal	NA	Non-normal	NA	Non-normal	Non-normal
Nitrite	ND	ND	NA	ND	NA	ND	ND
Oxidation-Reduction Potential	Normal	Non-normal	Normal	Non-normal	Non-normal	Non-normal	Non-normal
pH - Field	Non-normal	Non-normal	Normal	Normal	Normal	Non-normal	Normal
pH - Laboratory	Non-normal	Non-normal	Normal	Non-normal	Non-normal	Non-normal	Non-normal
Potassium	Non-normal	Non-normal	NA	Normal	NA	Non-normal	Normal
Sodium	Normal	Normal	NA	Normal	NA	Normal	Non-normal
Specific Conductance	Non-normal	Normal	Normal	Normal	Non-normal	Normal	Normal
Sulfate	Normal	Non-normal	NA	Non-normal	NA	Normal	Non-normal
Temperature	Non-normal	Normal	Normal	Normal	Normal	Normal	Non-normal
Total Coliform	ND	ND	NA	ND	NA	ND	ND
TOC	ND	Normal	NA	Non-normal	NA	Normal	Non-normal
Vinyl Chloride	ND	ND	ND	Non-normal	ND	Non-normal	Non-normal
Zinc - Dissolved	ND	ND	ND	ND	ND	ND	ND

Notes:

ND Dataset has four or fewer quarters with detects and statistical tests cannot be performed.

NA Not analyzed per the SWHP.

Confidence Interval

The statistical test for confidence interval is recommended in the Unified Guidance and is appropriate for compliance assessment and corrective action monitoring phases. In addition, evaluation of the confidence interval is appropriate when analytical data are compared to a fixed limit such as a regulatory standard. Confidence intervals are a common and statistically defensible way to assess compliance with a fixed numerical limit.

The moving window of 20 data points was evaluated for the 95% confidence interval for each well-constituent pair that had enough data points to apply this statistical method. The moving window of 20 data points adds new data with each successive sampling event and drops data from the oldest sampling event to maintain a consistent sample population of the most current 20 data points.

Confidence intervals for December 2021 are compared to Washington State Drinking Water Standards, Groundwater Quality Standards, and, in the cases of arsenic and vinyl chloride, to Site-Specific CULs. The results of these comparisons are summarized in Table 6. Confidence interval summary tables for all four quarters of 2021 are presented in Appendix B.

Exceedance of a regulatory standard is triggered when the lower 95% confidence interval is greater than the regulatory standard; these cases are highlighted in red on Table 6. Successful remediation is attained if the upper 95% confidence limit does not exceed the regulatory standard, which is highlighted in green. In some cases, the upper 95% confidence interval exceeds the regulatory standard, but the lower 95% confidence interval does not. This condition is not an exceedance but should be monitored for changes and these cases are highlighted in yellow.

Observations regarding the 95% confidence interval results are summarized in the following bullets:

- There are 27 constituents and parameters in samples from 7 wells that are tracked in Table 6 for a total of 189 well-constituent combinations. Arsenic and vinyl chloride are each presented twice on Table 6 to allow comparisons of their confidence intervals to Washington State Primary Groundwater Standards and to their Site-Specific Cleanup Levels.
- Seventy-eight of the well-constituent combinations evaluated had an insufficient number of detections in the moving 5-year window of data to perform the statistical analysis or the constituents were not analyzed in samples from wells MW-5A and MW-7 per the SWHP. These well-constituent combinations were not evaluated statistically and are represented as ND (not detected) or NA (not analyzed) in Table 6. Confidence intervals were evaluated for remaining well-constituent combinations.
- Eighty-nine of the well-constituent combinations that were statistically evaluated had 95% confidence intervals that did not exceed applicable regulatory standards or have no applicable regulatory standards.

Table 6
December 2021 Results of 95% Confidence Interval Evaluations

Constituent or Parameter	MW-1	MW-3	MW-5A	MW-6	MW-7	MW-8	MW-10	Regulatory Level	Basis for Comparison
Ammonia (N)	ND	ND	NA	ND to 42	NA	ND	83 to 90	None	
Arsenic - Dissolved	0.09 to 0.10	0.11 to 0.12	0.15 to 0.21	0.44 to 1.08	0.29 to 0.37	1.23 to 1.70	1.71 to 1.96	0.05 µg/L	Primary GW Standard
Arsenic - Dissolved	0.09 to 0.10	0.11 to 0.12	0.15 to 0.21	0.44 to 1.08	0.29 to 0.37	1.23 to 1.70	1.71 to 1.96	1.29 µg/L	Site-Specific Cleanup Level
Barium - Dissolved	ND to 3.9	14.2 to 15.5	NA	11.9 to 16.4	NA	4.68 to 7.11	14.50 to 17.60	1000 µg/L	Primary GW Standard
Bicarbonate (mg of CaCO ₃ /L)	42.6 to 54.9	186 to 238	NA	162 to 183	NA	97 to 173	192 to 227	None	
Calcium	10,281 to 11,167	37,722 to 46,137	NA	32,200 to 36,900	NA	20,683 to 25,875	38,047 to 42,070	None	
Carbonate (mg of CaCO ₃ /L)	ND	ND	NA	ND	NA	ND	ND	None	
COD	ND	ND	NA	ND	NA	ND	ND to 10.2	None	
Chloride	3,612 to 4,257	2,450 to 3,380	NA	2,482 to 3,364	NA	2,270 to 2,660	5,245 to 7,836	250,000 µg/L	Secondary GW and DW Standard
Dissolved Oxygen (mg/L)	9.73 to 10.10	0.22 to 0.65	9.86 to 10.40	0.20 to 0.38	6.99 to 7.59	0.35 to 1.67	0.18 to 0.42	None	
Iron - Dissolved	ND	ND	ND	471 to 766	ND	280 to 799	ND to 22.1	300 µg/L	Secondary GW and DW Standard
Manganese - Dissolved	ND	5,230 to 6,451	ND	547 to 734	ND	2,280 to 2,650	4,204 to 4,734	50 µg/L	Secondary GW and DW Standard
Nitrate	297 to 703	ND to 24.0	NA	ND to 32.0	NA	38.0 to 106	ND	10,000 µg/L	Primary GW and DW Standard
Nitrite	ND	ND	NA	ND to 10	NA	ND	ND	1,000 µg/L	Primary DW Standard
Oxidation-Reduction Potential	206 to 248	221 to 255	160 to 267	20.8 to 69.9	115.5 to 351	51.8 to 79.8	114 to 136	None	
pH - Field	6.3 to 6.5	6.1 to 6.3	6.4 to 6.9	6.6 to 6.7	6.6 to 6.8	6.5 to 6.7	6.5 to 6.6	6.5 - 8.5	Secondary GW Standard
pH - Laboratory	6.2 to 6.4	6.1 to 6.3	6.4 to 6.8	6.5 to 6.6	6.4 to 6.7	6.5 to 6.6	6.5 to 6.6	6.5 - 8.5	Secondary GW Standard
Potassium	620 to 650	713 to 859	NA	1,258 to 1,478	NA	960 to 999	1,194 to 1,285	None	
Sodium	4,294 to 4,562	8,081 to 9,274	NA	7,865 to 9,388	NA	7,340 to 8,293	10,300 to 15,500	20,000 µg/L	Secondary DW Standard
Specific Conductance (µmhos/cm)	110 to 125	313 to 408	75.1 to 194.0	280 to 350	NA*	210 to 278	403 to 440	700 µmhos/cm	Secondary DW Standard
Sulfate	3,916 to 4,341	12,900 to 19,100	NA	6,490 to 8,470	NA	4,314 to 4,934	8,050 to 11,200	250,000 µg/L	Secondary GW and DW Standard
Temperature (°C)	10.8 to 11.0	11.8 to 11.9	11.5 to 12.9	11.2 to 11.6	10.9 to 11.3	10.6 to 11.0	11.2 to 11.4	None	
Total Coliform (count)	ND	ND	NA	ND	NA	ND	ND	1/100mL	Primary GW and DW Standard
TOC	ND	2,248 to 2,693	NA	1,870 to 2,140	NA	707 to 1,043	2,790 to 3,430	None	
Vinyl Chloride	ND	ND	ND	ND	ND	ND to 0.02	ND	0.02 µg/L	Primary GW Standard
Vinyl Chloride	ND	ND	ND	ND	ND	ND to 0.02	ND	0.29 µg/L	Site-Specific Cleanup Level
Zinc - Dissolved	ND	ND	NA	ND	NA	ND	ND	5,000 µg/L	Secondary GW and DW Standard

Notes:

All concentrations reported as micrograms per liter (µg/L) unless otherwise noted.

NA = Not analyzed per the SWHP.

ND = Data all non-detects or 4 or fewer detections.

NA* = Insufficient number of measurements for 95% Confidence Comparison. Minimum of 6 is required for Non-normal data.

 = 95% Lower CI Exceeds Regulatory Level (Exceedence).

 = 95% Upper CI Exceeds Regulatory Level but Lower CI Does Not (No Exceedence, No Compliance).

 = 95% Upper CI Does not Exceed Regulatory Level (No Exceedence).

 = No Regulatory Level.

Normally Distributed Data - Parametric Confidence Interval - Data not Transformed

Non-Normally Distributed Data - Non-Parametric Confidence Interval - Log Base-10 Transformed Data

Non-Detects treated as 0

- Sixteen of the well-constituent combinations that were statistically evaluated had lower 95% confidence intervals that were greater than applicable regulatory levels (are exceedances). The exceedances are highlighted red in Table 6 and are summarized in the following bullets:
 - Arsenic: MW-1, MW-3, MW-5A, MW-6, MW-7, MW-8, and MW-10 (WA State Primary Groundwater Standard)
 - Arsenic: MW-10 (Site-Specific Cleanup Level)
 - Iron: MW-6
 - Manganese: MW-3, MW-6, MW-8, and MW-10
 - pH (field): MW-3
 - pH (laboratory): MW-1 and MW-3

- Six well-constituent combinations have upper 95% confidence intervals that were greater than (less than in the case of pH) applicable regulatory levels but have lower 95% confidence intervals that are less than applicable regulatory levels. These are not statistical exceedances, but they should be monitored for changes. The well-constituent combinations are highlighted yellow in Table 6 and are summarized in the following bullets:
 - Arsenic: MW-8
 - Iron: MW-8
 - pH (field): MW-1 and MW-5A
 - pH (laboratory): MW-5A and MW-7

CONCLUSIONS

Quarterly monitoring data collected during 2021 at the Olalla Landfill are summarized in the following sections.

Landfill Gas Data

Landfill gas field measurements were performed at the three on-site passive flares during the four quarterly monitoring events in 2021. Landfill gas data for all four quarterly monitoring events are included in Appendix A and are summarized in the following sections.

March 18, 2021 – First Quarter

Flares 1, 2, and 3 had indicators of landfill gas including the measurable presence of methane (5.8%, 9.8%, and 9.4% by volume, respectively) and carbon dioxide (14.2%, 14.1%, and 11.9% by volume, respectively). In addition, Flares 1, 2, and 3 had significantly depressed oxygen concentrations of 1.7%, 0.2%, and 3.4% by volume, respectively. These measurements are consistent with the byproducts of anaerobic degradation of organics.

Gas pressure measurements were 0.02 inches of water in Flare 1 and 0.0 inches of water in Flares 2 and 3. The consistently low gas pressure readings indicate a low potential for landfill gas flow from the flares.

Weather station data from the Bremerton National Airport indicate that barometric pressure decreased from a mean of 29.57 inches of mercury on March 17, 2021, the day before the monitoring event, to a mean of 29.39 inches of mercury on March 18, 2021, the day the flares were measured (Weather Underground, Station KPWT, 2021). This decreasing trend in barometric pressure likely contributed to the presence of measurable landfill gas indicators in the three flares. All three flares had low to zero gas pressure measurements, which indicates a low potential for the flow of landfill gas from the flares.

June 18, 2021 – Second Quarter

Flares 1, 2, and 3 had indicators of landfill gas including the measurable presence of carbon dioxide, 7.5%, 8.0%, and 11.7% by volume, respectively, and depressed oxygen concentrations of 8.0%, 5.4%, and 0.8% by volume, respectively. In addition, Flares 2 and 3 had measurable concentrations of methane at 1.0% and 3.7% by volume, respectively. These measurements are consistent with the byproducts of anaerobic degradation of organics.

Gas pressure measurements were 0.00 inches of water in Flares 1, 2, and 3, respectively. The consistently and unmeasurably low gas pressure readings indicate a low potential for landfill gas flow from any of the flares.

Weather station data from the Bremerton National Airport indicate that barometric pressure decreased from a mean of 29.69 inches of mercury on June 17, 2021, the day before the monitoring event, to a mean of 29.62 inches of mercury on June 18, 2021, the day the flares were measured (Weather Underground, Station KPWT, 2021). This decreasing trend in barometric pressure likely contributed to the presence of measurable landfill gas indicators in the three flares.

September 16, 2021 – Third Quarter

Flares 1, 2, and 3 had some indicators of landfill gas including the measurable presence of carbon dioxide, 8.4, 6.7, and 10.9 percent by volume, respectively, and depressed oxygen concentrations of 8.7, 11.3, and 4.9 percent by volume, respectively. However, none of the flares had measurable concentrations of

methane. The elevated carbon dioxide, depressed oxygen and lack of methane measurements are consistent with the byproducts of aerobic degradation of organics.

Gas pressure measurements were 0.01 inches of water in all three flares. The consistently and unmeasurably low gas pressure readings indicate a low potential for landfill gas flow from any of the flares.

Weather station data from the Bremerton National Airport indicate that barometric pressure increased from a mean of 29.65 inches of mercury on September 15, 2021, the day before the monitoring event, to a mean of 29.71 inches of mercury on September 16, 2021, the day the flares were measured (Weather Underground, Station KPWT, 2021). This increasing trend in barometric pressure potentially mitigated the presence of measurable landfill gas indicators in the three flares.

December 14, 2021 – Fourth Quarter

Flares 2 and 3 had no indication of landfill gas and had oxygen concentrations of 21.1 and 21.0 percent by volume, respectively. These oxygen concentrations are consistent with atmospheric conditions. In addition, there was no measurable methane or carbon dioxide in either flare. Flare 1 had no measurable methane but had depressed oxygen at 18.3 percent by volume and carbon dioxide at 3.2 percent by volume indicating a slight presence of Landfill gas indicator parameters in Flare 1 only.

Gas pressure measurements were 0.00 inches of water in all three flares. The zero gas pressure measurements indicate a low potential for landfill gas flow from the flares.

Weather station data from the Bremerton National Airport indicate that barometric pressure increased from 29.07 inches of mercury on December 13, 2021, the day before the monitoring event, to 29.30 inches of mercury on December 14, 2021, the day the flares were measured (Weather Underground, Station KPWT 2021). This increasing trend in barometric pressure likely contributed to the absence of measurable landfill gas indicators in Flares 2 and 3, the low concentration of carbon dioxide in Flare 1, and no measurable gas pressure in any of the flares.

Groundwater Elevation and Flow Direction Data

The groundwater flow direction beneath the Landfill is generally toward the northwest, with groundwater from beneath the Landfill flowing toward downgradient wells MW-3, MW-6, MW-8, and MW-10 as depicted in the quarterly groundwater elevation contour and flow direction figures presented in Appendix A. The groundwater flow directions and elevation contour patterns are consistent with historical groundwater elevation data from the Landfill.

The lowest calculated groundwater gradients during 2021 occurred in March and December with mean horizontal gradients of 0.0139. The resulting calculated groundwater flow velocities are 2.18 feet/day. Groundwater gradients and calculated groundwater velocities were greatest during June and September, which had mean horizontal gradients of 0.0146 and calculated flow velocities of 2.27 feet/day.

Exceedances of Primary Regulatory Standards

Upgradient Well (MW-1)

Arsenic

- Groundwater samples collected from MW-1 had arsenic concentrations of 0.10 µg/L, 0.10 µg/L, 0.09 µg/L, and 0.10 µg/L in March, June, September, and December, respectively. The four quarterly arsenic concentrations exceed the Washington State Groundwater Primary Standard of 0.05 µg/L but are significantly less than both the Washington State Drinking Water Primary Standard of 10 µg/L and the site-specific CUL of 1.29 µg/L.
- The upper and lower 95% confidence intervals for arsenic in samples from MW-1 exceed the Washington State Groundwater Primary Standard of 0.05 µg/L, which represents a statistically significant exceedance of that standard.
- The upper and lower 95% confidence intervals for arsenic in samples from MW-1 are less than the Site-Specific CUL of 1.29 µg/L, which represents statistically significant compliance with the Site-Specific CUL.
- The presence of arsenic at concentrations greater than the Washington State Groundwater Primary Standard in samples from upgradient well MW-1 is an indication that dissolution of naturally occurring arsenic in soil contributes to the arsenic concentrations noted in groundwater data from other wells at the Landfill.

Crossgradient Wells (MW-5A and MW-7)

Arsenic

MW-5A and MW-7

- Per the SWHP and CMP, crossgradient wells MW-5A and MW-7 are sampled only during the fourth quarter monitoring event. Groundwater samples collected from MW-5A and MW-7 had arsenic concentrations of 0.15 µg/L and 0.35 µg/L, respectively. Both concentrations exceed the Washington State Groundwater Primary Standard of 0.05 µg/L but are less than both the Washington State Drinking Water Primary Standard of 10 µg/L and the Site-Specific CUL of 1.29 µg/L.
- The upper and lower 95% confidence intervals for arsenic in samples from MW-5A and MW-7 exceed the Washington State Groundwater Primary Standard of 0.05 µg/L, which represents a statistically significant exceedance of that standard.
- The upper and lower 95% confidence intervals for arsenic in samples from MW-5A and MW-7 are less than the Site-Specific CUL of 1.29 µg/L, which represents statistically significant compliance with the Site-Specific CUL.
- The presence of arsenic at concentrations greater than the Washington State Groundwater Primary Standard in samples from crossgradient wells MW-5A and MW-7 is an indication that dissolution of naturally occurring arsenic in soil contributes to the arsenic concentrations noted in groundwater data from other wells at the Landfill.

Downgradient Wells (MW-3, MW-6, MW-8, and MW-10)

Arsenic

MW-3, MW-6, MW-8, and MW-10

- Groundwater samples from downgradient monitoring wells had arsenic concentrations exceeding the Washington State Groundwater Primary Standard of 0.05 µg/L during the four quarterly events in 2021. None of the arsenic concentrations exceed the Washington State Drinking Water Primary Standard of 10 µg/L. Samples from MW-10 exceeded the site-specific CUL during the four quarters of 2021. Arsenic concentrations for downgradient wells are summarized in the following bullets:
 - MW-3 had arsenic concentrations of 0.09 µg/L, 0.11 µg/L, 0.11 µg/L, and 0.13 µg/L in March, June, September, and December, respectively.
 - MW-6 had arsenic concentrations of 0.27 µg/L, 0.30 µg/L, 0.37 µg/L, and 0.22 µg/L in March, June, September, and December, respectively.
 - MW-8 had arsenic concentrations of 0.92 µg/L, 0.70 µg/L, 0.57 µg/L, and 1.06 µg/L in March, June, September, and December, respectively.
 - MW-10 had arsenic concentrations of 1.75 µg/L, 1.84 µg/L, 2.14 µg/L, and 1.74 µg/L in March, June, September, and December, respectively.
- Upper and lower 95% confidence intervals for arsenic in samples from the four downgradient wells exceed the Washington State Groundwater Primary Standard of 0.05 µg/L. This represents statistically significant exceedances of that standard in the downgradient wells. The upper and lower 95% confidence intervals for MW-8 and MW-10 also exceed the Site-Specific CUL of 1.29 µg/L, indicating statistically significant exceedance of the CUL for MW-8 and MW-10.
- Upper and lower 95% confidence intervals for arsenic in samples from MW-3 and MW-6 are less than the Site-Specific CUL of 1.29 µg/L, which represents statistically significant compliance with the Site-Specific CUL.
- Upper and lower 95% confidence intervals for arsenic in samples from MW-10 exceed the Site-Specific CUL of 1.29 µg/L, which represent statistically significant exceedances of the Site-Specific CUL.
- The upper 95% confidence limit for arsenic data from MW-8 exceeds the Site-Specific CUL of 1.29 µg/L but the lower confidence limit does not. This does not represent statistical exceedance or compliance but indicates that continued monitoring and evaluation is warranted.

Vinyl Chloride

MW-8

- The December 2021 groundwater sample from downgradient monitoring well MW-8 had a vinyl chloride concentration of 0.04 µg/L, which exceeds the Washington State Groundwater Primary Standard of 0.02 µg/L. This detected concentration does not exceed the Washington State Drinking Water Standard of 2.0 µg/L or the Site-Specific CUL of 0.29 µg/L.

- The upper and lower 95% confidence intervals for vinyl chloride in samples from MW-8 are less than the Washington State Groundwater Primary Standard of 0.02 µg/L, which represents a statistically significant exceedance of that standard.
- The upper and lower 95% confidence intervals for vinyl chloride in samples from MW-8 are less than the Site-Specific CUL of 0.29 µg/L, which represents statistically significant compliance with the Site-Specific CUL.

Exceedances of Secondary Regulatory Standards

Upgradient Well (MW-1)

pH (lab-measured)

- Groundwater purged from well MW-1 had lab-measured pH values of 6.1, 6.2, 6.3, and 6.4 during the March, June, September, and December monitoring events. These values are lower than the lower limit of the 6.5 for the Washington State Groundwater Secondary Standard.
- The upper and lower 95% confidence limits for lab-measured pH in purge water from MW-1 are less than Washington State Secondary Groundwater Standard range of 6.5 to 8.5, which represents a statistically significant exceedance of the Washington State Groundwater Secondary Standard.

Crossgradient Wells (MW-5A and MW-7)

None.

Downgradient Wells (MW-3, MW-6, MW-8, and MW-10)

Iron

MW-6 and MW-8

- Iron is a common constituent in landfill leachate and iron concentrations in the December 2021 groundwater sample from downgradient well MW-8 had an iron concentration of 920 µg/L, which exceeds the Washington State Drinking Water Secondary Standard and Groundwater Secondary Standard of 300 µg/L.
- The upper 95% confidence limit for iron in samples from MW-8 exceeds the Washington State Secondary Groundwater Standard of 300 µg/L but the lower 95% confidence limit does not. This is not a statistical exceedance or compliance but indicates that continued monitoring and evaluation is warranted.
- The December 2021 groundwater sample from downgradient well MW-6 had an iron concentration of 39.9 µg/L, which does not exceed the Washington State Drinking Water Secondary Standard and Groundwater Secondary Standard of 300 µg/L. However, the upper and lower 95% confidence intervals for iron data from MW-6 exceed the standard indicating a statistical exceedance of the Washington State Drinking Water and Groundwater Secondary Standards in iron data from MW-6.

Manganese

MW-3, MW-6, MW-8, and MW-10

- Manganese is a common constituent of landfill leachate and manganese concentrations in groundwater samples from downgradient wells MW-3, MW-6, MW-8, and MW-10 exceeded the Washington State Drinking Water Secondary Standard and Groundwater Secondary Standard of 50 µg/L during the four quarterly monitoring events of 2021 as summarized below.
 - MW-3 had manganese concentrations of 3,560 µg/L, 5,110 µg/L, 5,750 µg/L, and 5,300 µg/L for the March, June, September, and December sampling events, respectively.
 - MW-6 had manganese concentrations of 162 µg/L, 424 µg/L, 332 µg/L, and 330 µg/L for the March, June, September, and December sampling events, respectively.
 - MW-8 had manganese concentrations of 2,230 µg/L, 1,580 µg/L, 1,840 µg/L, and 2,260 µg/L for the March, June, September, and December sampling events, respectively.
 - MW-10 had manganese concentrations of 3,890 µg/L, 4,770 µg/L, 4,070 µg/L, and 3,280 µg/L for the March, June, September, and December sampling events, respectively.
- Upper and lower 95% confidence limits for manganese in samples from all four downgradient wells exceed the Washington State Secondary Groundwater Standard of 50 µg/L indicating statistically significant exceedances for manganese in downgradient wells.

pH (field-measured)

MW-3

- Purge water from downgradient monitoring well MW-3 had field-measured pH values of 6.2, 6.2, 6.3, and 6.4 standard pH units in March, June, September, and December, respectively. These values are less than the lower limit of the 6.5 to 8.5 range of the Washington State Groundwater Secondary Standard.
- Both the upper and lower 95% confidence limits for field-measured pH in purge water from MW-3 are outside of (less than) the Washington State Secondary Groundwater Standard range of 6.5 to 8.5, indicating a statistically significant exceedance of that standard.

pH (laboratory-measured)

MW-3

- Purge water from downgradient monitoring well MW-3 had laboratory-measured pH values of 6.1, 6.1, 6.2, and 6.4 standard pH units in March, June, September, and December, respectively. These values are less than the lower limit of the 6.5 to 8.5 range of the Washington State Groundwater Secondary Standard.
- Both the upper and lower 95% confidence limits for laboratory-measured pH in samples from MW-3 are lower than the Washington State Secondary Groundwater Standard range of 6.5 to 8.5, indicating a statistically significant exceedance of that standard.

Analytical Tests for Volatile Organic Compounds

This section lists and describes detections of additional VOC constituents in groundwater samples from the Landfill monitoring well network. The VOC detections listed in this section are at concentrations less than applicable Washington State Drinking Water Standards or Washington State Groundwater Quality Standards or are for VOCs that do not have applicable groundwater standards.

- During the December 2021 sampling event acetone was detected in the samples from MW-1, MW-8, MW-10, and MW-13 (field duplicate of MW-10) at concentrations of 9.96 µg/L, 11.3 µg/L, 11.7 µg/L, and 7.46 µg/L, respectively. Acetone was also detected in the trip blank sample at a concentration of 10.9 µg/L indicating an ambient-contamination issue with the acetone detections rather than the presence of acetone in groundwater. There are no Washington State Groundwater or Drinking Water Standards for acetone.
- Chlorobenzene was detected in the samples from MW-6 at concentrations of 1.52 µg/L, 1.68 µg/L, 1.62 µg/L, and 2.09 µg/L in March, June, September, and December, respectively. These concentrations are less than the Washington State Primary Drinking Water Standard of 100 µg/L.
- cis-1,2-Dichloroethene was detected in the sample from MW-8 at a concentration of 0.27 µg/L in December. This concentration is less than the Washington State Primary Drinking Water Standard of 70 µg/L.

Inspection and Maintenance Summary for 2021 and Activities Planned for 2022

A summary of the inspection, maintenance, and engineering work performed at the Olalla Landfill in 2021 is presented in Appendix C. Activities planned for 2022 are summarized in Appendix D.

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Appendix A:
2021 Quarterly Monitoring Data

Landfill Gas Data
Groundwater Elevations and Contour Maps
Groundwater Quality Data

**Olalla Landfill
2021 Landfill Gas Data**

March 18, 2021	Flare #1	Flare #2	Flare #3
METHANE, (% LEL) ^a	116	196	188
METHANE, (% Volume)	5.8	9.8	9.4
OXYGEN, (% Volume)	1.7	0.2	3.4
CARBON DIOXIDE, (% Volume)	14.2	14.1	11.9
TEMPERATURE (°F)	55	55	54
PRESSURE (inches of water column)	0.02	0.00	0.00
AMBIENT TEMPERATURE, (°F)	54		

June 18, 2021	Flare #1	Flare #2	Flare #3
METHANE, (% Volume)	0.0	1.0	3.7
METHANE, (% LEL) ^a	0	20	70
OXYGEN, (% Volume)	8.0	5.4	0.8
CARBON DIOXIDE, (% Volume)	7.5	8.0	11.7
TEMPERATURE (°F)	70	70	70
PRESSURE (inches of water column)	0.00	0.00	0.00
AMBIENT TEMPERATURE, (°F)	68		

September 16, 2021	Flare #1	Flare #2	Flare #3
METHANE, (% Volume)	0.0	0.0	0.0
METHANE, (% LEL) ^a	0	0	0
OXYGEN, (% Volume)	8.7	11.3	4.9
CARBON DIOXIDE, (% Volume)	8.4	6.7	10.9
TEMPERATURE (°F)	66	66	66
PRESSURE (inches of water column)	0.01	0.01	0.01
AMBIENT TEMPERATURE, (°F)	66		

December 14, 2021	Flare #1	Flare #2	Flare #3
METHANE, (% Volume)	0.0	0.0	0.0
METHANE, (% LEL) ^a	0	0	0
OXYGEN, (% Volume)	18.3	21.1	21.0
CARBON DIOXIDE, (% Volume)	3.2	0.0	0.0
TEMPERATURE (°F)	36	36	36
PRESSURE (inches of water column)	0.00	0.00	0.00
AMBIENT TEMPERATURE, (°F)	36		

Note:

^a LEL values are directly taken from the GEM 2000 at the time of measurement.

**Olalla Landfill
2021 Groundwater Elevations**

Station	Reference Elevation ¹	Depth to Water (feet)	Groundwater Elevation ¹
March 18, 2021			
MW-1	343.79	79.55	264.24
MW-2	323.25	65.10	258.15
MW-3	296.95	44.13	252.82
MW-4	320.93	62.71	258.22
MW-5A	332.53	75.83	256.70
MW-6	271.17	20.04	251.13
MW-7	280.43	24.99	255.44
MW-8	272.85	20.58	252.27
MW-10	279.21	29.07	250.14

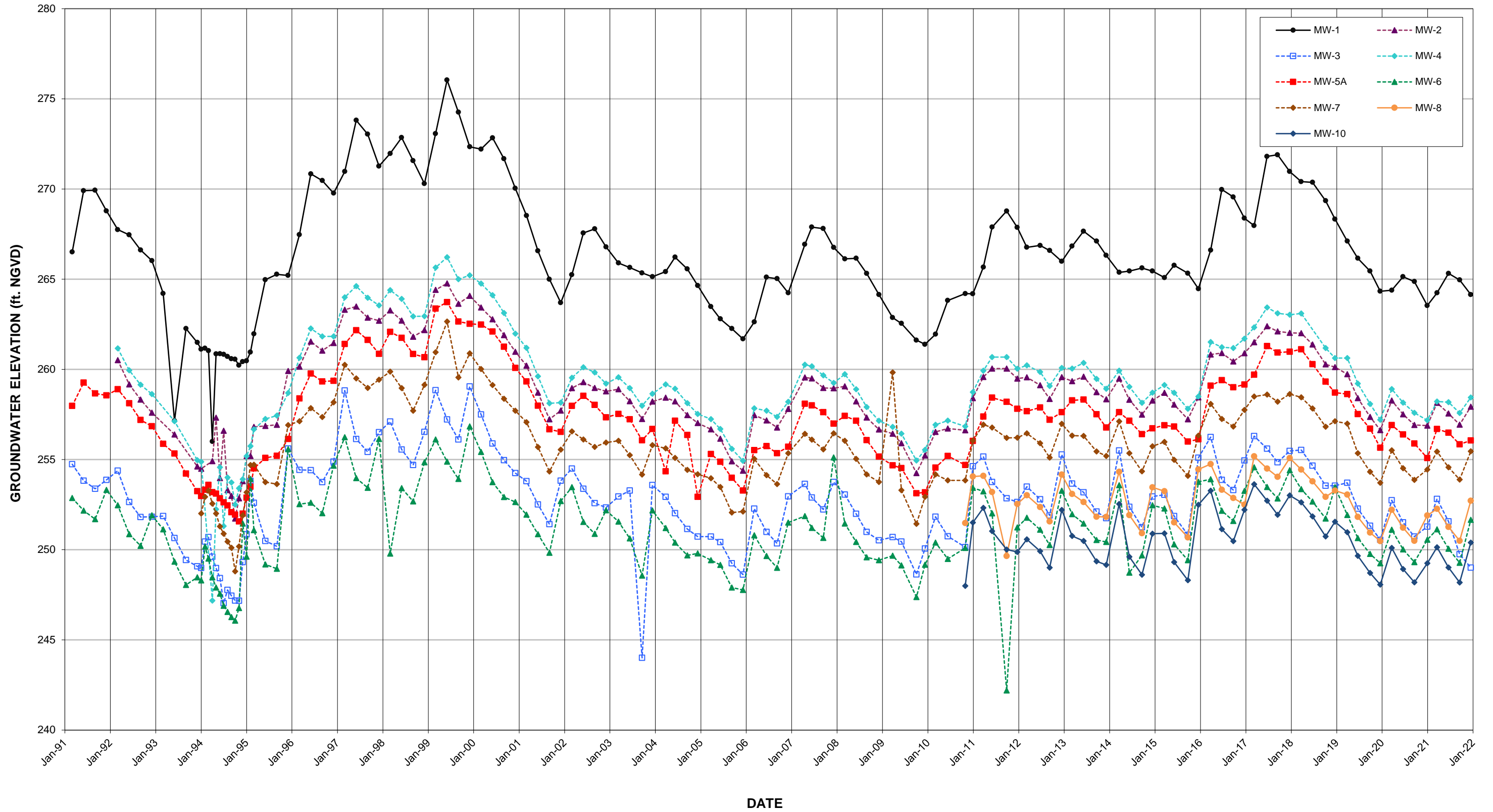
June 18, 2021			
MW-1	343.79	78.47	265.32
MW-2	323.25	65.69	257.56
MW-3	296.95	45.38	251.57
MW-4	320.93	62.75	258.18
MW-5A	332.53	76.04	256.49
MW-6	271.17	21.11	250.06
MW-7	280.43	25.86	254.57
MW-8	272.85	21.58	251.27
MW-10	279.21	30.19	249.02

September 16, 2021			
MW-1	343.79	78.83	264.96
MW-2	323.25	66.31	256.94
MW-3	296.95	47.20	249.75
MW-4	320.93	63.35	257.58
MW-5A	332.53	76.69	255.84
MW-6	271.17	21.89	249.28
MW-7	280.43	26.54	253.89
MW-8	272.85	22.35	250.50
MW-10	279.21	31.03	248.18

December 14, 2021			
MW-1	343.79	79.64	264.15
MW-2	323.25	65.32	257.93
MW-3	296.95	47.94	249.01
MW-4	320.93	62.49	258.44
MW-5A	332.53	76.47	256.06
MW-6	271.17	19.51	251.66
MW-7	280.43	24.97	255.46
MW-8	272.85	20.13	252.72
MW-10	279.21	28.81	250.40

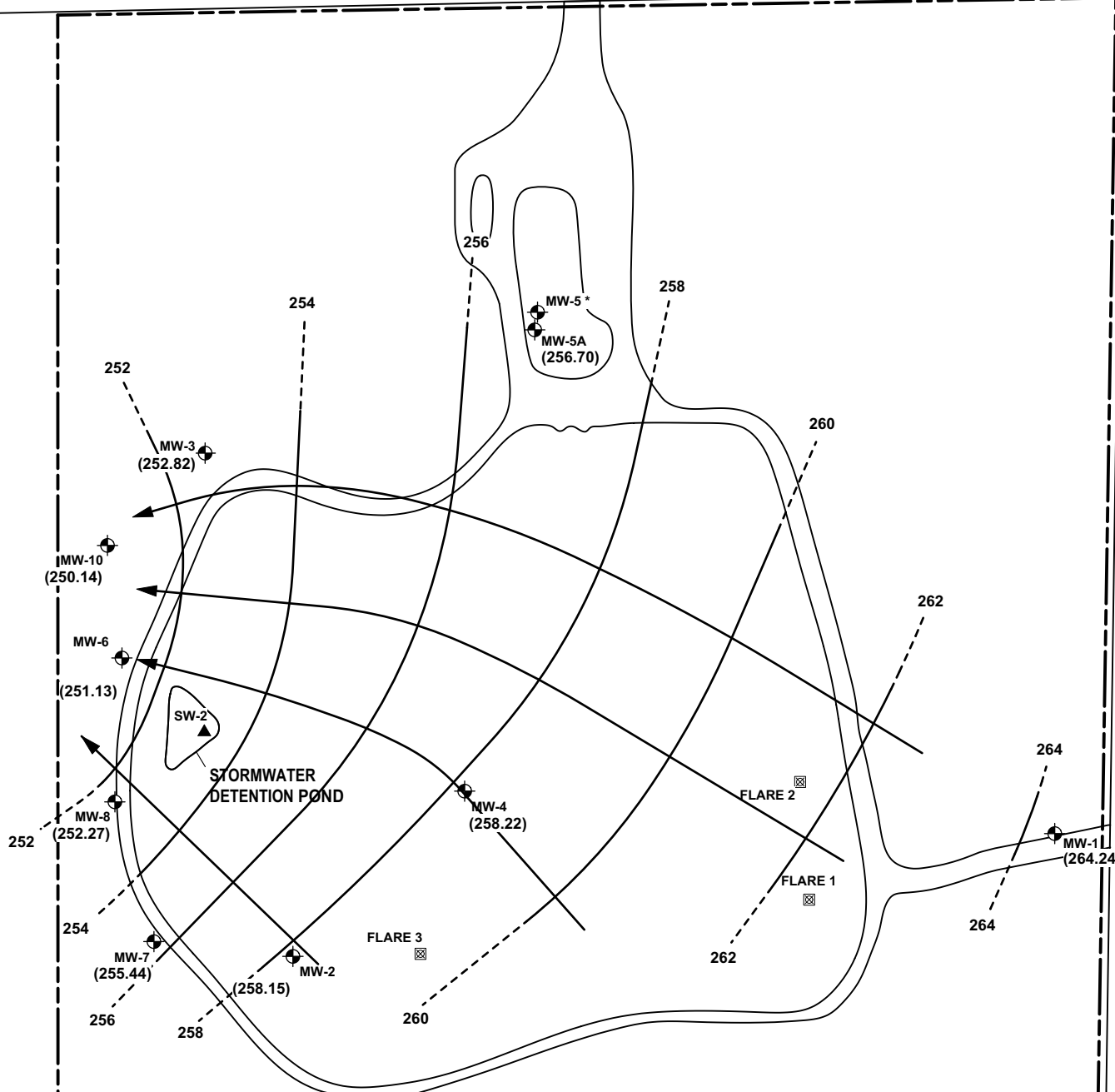
¹Elevations in Feet NGVD, 29

OLALLA LANDFILL Groundwater Elevations

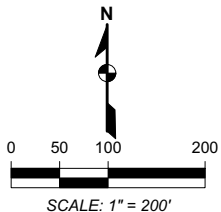


S.E. BURLEY OLALLA ROAD

BANDIX ROAD S.E.



- NOTES:**
 * MW-5 IS COMPLETED IN A SHALLOW PERCHED GROUNDWATER ZONE.
- MW-2 MONITORING WELL LOCATION
 - SW-2 SURFACE WATER SAMPLING LOCATION
 - LANDFILL GAS FLARE
 - GROUNDWATER ELEVATION CONTOUR
 - INFERRED GROUNDWATER FLOW PATH
 - APPROXIMATE PROPERTY BOUNDARY
 - PERIMETER ACCESS ROAD



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OLALLA LANDFILL GROUNDWATER ELEVATION CONTOUR MAP - MARCH 18, 2021

REPORT
 2021 ANNUAL MONITORING REPORT

PREPARED FOR
 KITSAP COUNTY

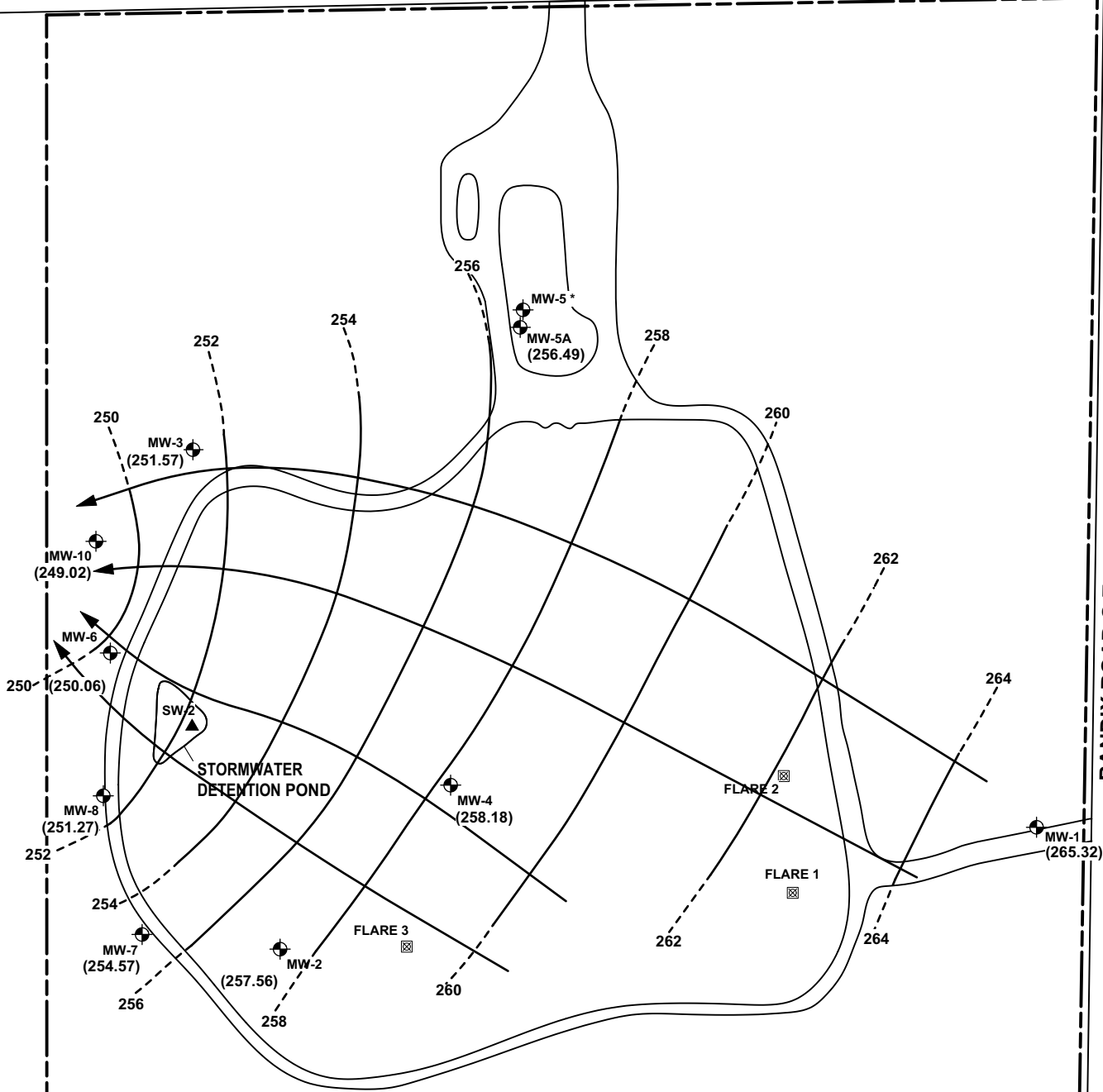
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 KITSAP COUNTY, WASHINGTON

PROJECT NUMBER
 429487

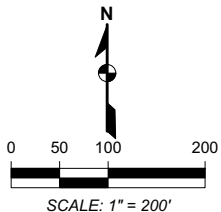
DATE 1/28/22
DRAWN BY DCK/AM
REVIEWED BY DCK

S.E. BURLEY OLALLA ROAD

BANDIX ROAD S.E.



- NOTES:**
 * MW-5 IS COMPLETED IN A SHALLOW PERCHED GROUNDWATER ZONE.
- MW-2 MONITORING WELL LOCATION
 - SW-2 SURFACE WATER SAMPLING LOCATION
 - LANDFILL GAS FLARE
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 - INFERRED GROUNDWATER FLOW PATH
 - APPROXIMATE PROPERTY BOUNDARY
 - PERIMETER ACCESS ROAD



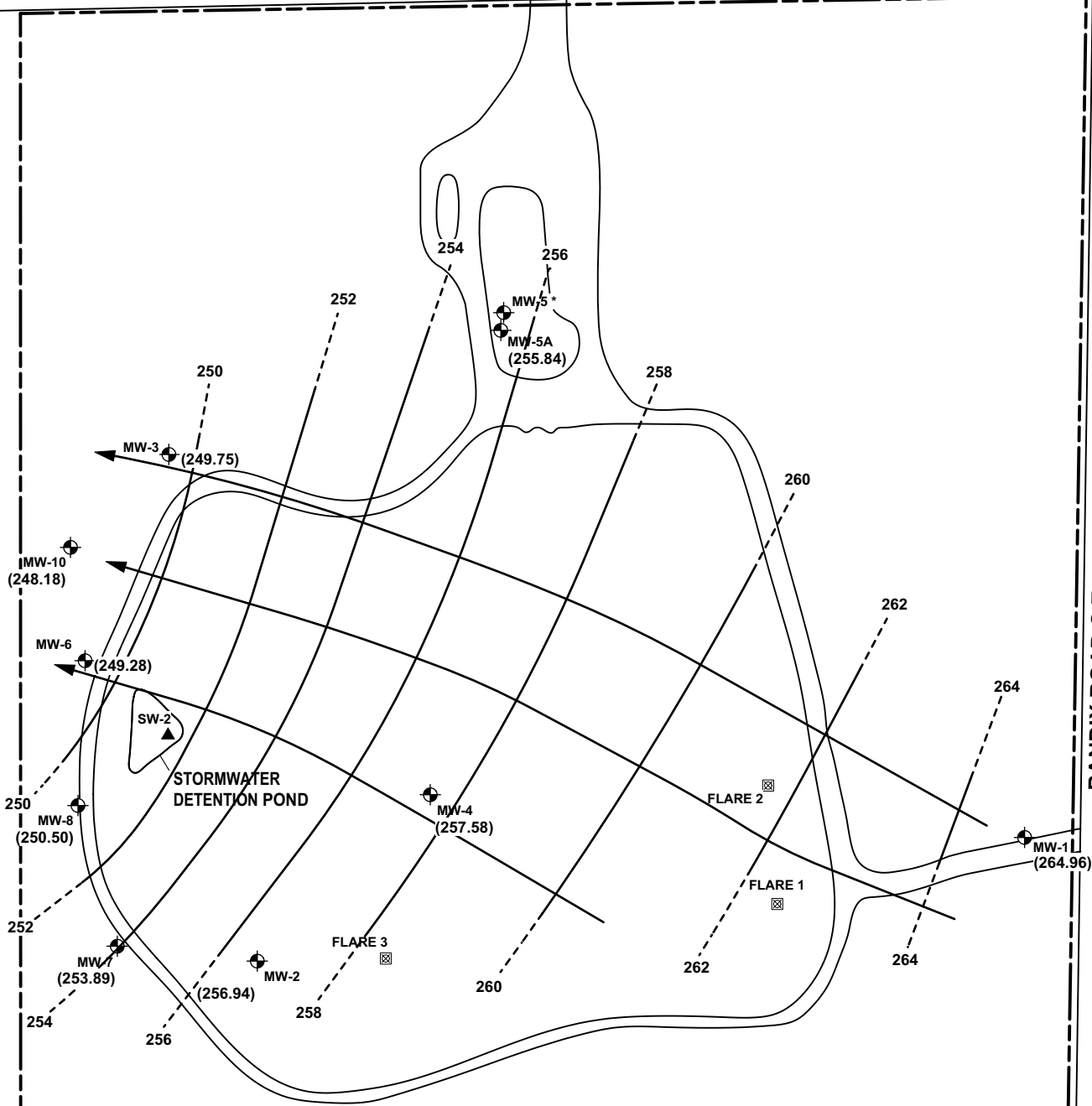
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OLALLA LANDFILL GROUNDWATER ELEVATION CONTOUR MAP - JUNE 18, 2021

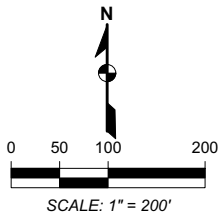
REPORT 2021 ANNUAL MONITORING REPORT	PREPARED FOR KITSAP COUNTY
LOCATION OLALLA LANDFILL KITSAP COUNTY, WASHINGTON	PROJECT NUMBER 429487
	DATE 1/28/22
	DRAWN BY DCK/JAM
	REVIEWED BY DCK

S.E. BURLEY OLALLA ROAD

BANDIX ROAD S.E.



- NOTES:**
 * MW-5 IS COMPLETED IN A SHALLOW PERCHED GROUNDWATER ZONE.
- MW-2 MONITORING WELL LOCATION
 - SW-2 SURFACE WATER SAMPLING LOCATION
 - LANDFILL GAS FLARE
 - GROUNDWATER ELEVATION CONTOUR
 - INFERRED GROUNDWATER FLOW PATH
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OLALLA LANDFILL GROUNDWATER ELEVATION CONTOUR MAP - SEPTEMBER 16, 2021

REPORT
 2021 ANNUAL MONITORING REPORT

PREPARED FOR
 KITSAP COUNTY

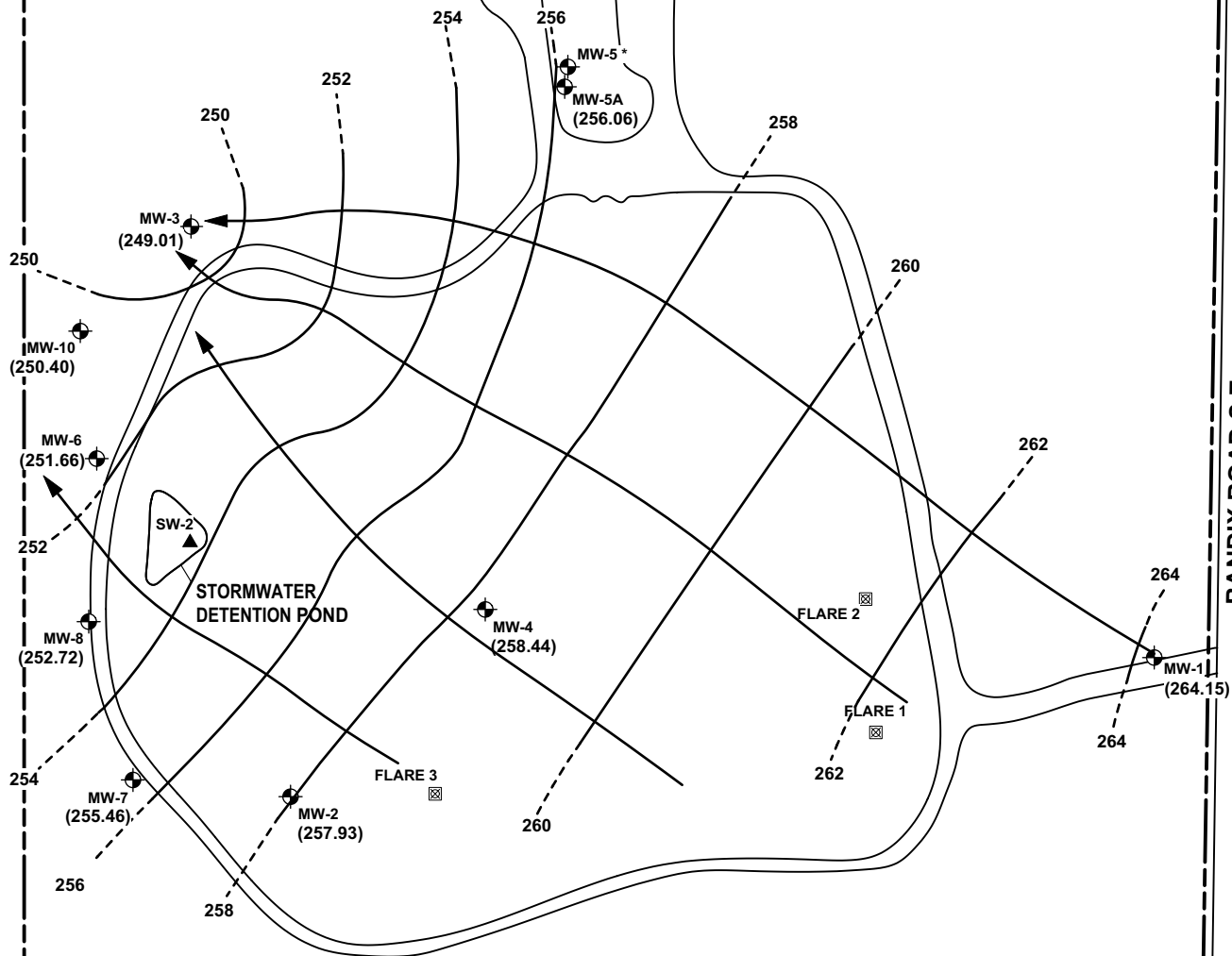
LOCATION
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 KITSAP COUNTY, WASHINGTON

PROJECT NUMBER
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


S.E. BURLEY OLALLA ROAD

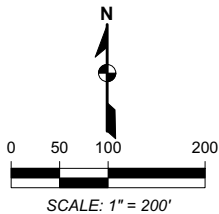
BANDIX ROAD S.E.



NOTES:

* MW-5 IS COMPLETED IN A SHALLOW PERCHED GROUNDWATER ZONE.

- MW-2  MONITORING WELL LOCATION
- SW-2  SURFACE WATER SAMPLING LOCATION
-  LANDFILL GAS FLARE
-  GROUNDWATER ELEVATION CONTOUR
-  INFERRED GROUNDWATER FLOW PATH
-  APPROXIMATE PROPERTY BOUNDARY
-  PERIMETER ACCESS ROAD



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OLALLA LANDFILL GROUNDWATER ELEVATION CONTOUR MAP - DECEMBER 14, 2021

REPORT
 2021 ANNUAL
 MONITORING REPORT

PREPARED FOR
 KITSAP COUNTY

PROJECT NUMBER
 429487

LOCATION
 OLALLA LANDFILL
 KITSAP COUNTY, WASHINGTON

DATE 1/28/22
DRAWN BY DCK/AM
REVIEWED BY DCK

Groundwater Quality Data
March 2021 Quarterly Monitoring Event

Page 1 of 3

	State Drinking Water Standard (a)	State Ground- water Standard (b)	Site- Specific Cleanup Level (c)	Units	MW-1	MW-3	MW-6	MW-8	MW-10	MW-9 (FD)
CONVENTIONALS										
ALKALINITY	----	----	----	mg/L	109	53.9	42.5	117	219	108
AMMONIA NITROGEN	----	----	----	mg/L	0.040 U	0.040 U	0.040 U	0.040 U	0.100	0.040 U
BICARBONATE	----	----	----	mg/L	109	53.9	42.5	117	219	108
CARBONATE	----	----	----	mg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
CHEMICAL OXYGEN DEMAND (COD)	----	----	----	mg/L	10.0 U	10.0 U	10.0 U	10.0 U	10.2	10.0 U
CHLORIDE	250**	250**	----	mg/L	4.15	4.75	1.02	1.88	7.89	4.78
DISSOLVED OXYGEN	----	----	----	mg/L	9.41	1.29	0.20	1.92	0.10	NA
NITRATE NITROGEN	10*	10*	----	mg/L	0.45	2.02	0.58	0.11	0.02 U	2.02
NITRITE NITROGEN	1*	----	----	mg/L	0.01 U	0.01 U	0.12	0.10 U	0.01 U	0.01 U
OXIDATION REDUCTION POTENTIAL (ORP)	----	----	----	mV	206.3	228.1	107.1	93.4	122.1	NA
pH (field)	----	6.5-8.5**	----	-log H+	6.5	6.2	7.0	6.7	6.6	NA
pH (laboratory)	----	6.5-8.5**	----	-log H+	6.1 H	6.1 H	6.8 H	6.6 H	6.5 H	6.2 H
SPECIFIC CONDUCTANCE	700**	----	----	umhos/cm	126	306	88	226	430	NA
SULFATE	250**	250**	----	mg/L	4.46	39.3 D	2.28	5.21	11.0	40.2 D
TEMPERATURE	----	----	----	°C	11.8	11.8	12.4	11.4	11.5	NA
TOTAL COLIFORM	1/100 mL*	1/100 mL*	----	cfu/100 mL	1 HU	1 U	1 U	1 U	1 U	1 U
TOTAL ORGANIC CARBON (TOC)	----	----	----	mg/L	0.5 U	1.71	2.56	0.69	2.52	1.70
TURBIDITY	----	----	----	NTU	0.90	1.20	5.00	2.80	0.20	NA
DISSOLVED METALS										
ARSENIC	10*	0.05*	1.29	µg/L	0.10	0.09	0.27	0.92	1.75	0.09
BARIUM	2,000*	1,000*	----	µg/L	6.0 U	8.5	6.0 U	6.0 U	15.8	8.5
CALCIUM	----	----	----	mg/L	10.6	30.9	6.99	19.9	39.2	30.5
IRON	300**	300**	300	µg/L	159	20.0 U	31.7	152	20.0 U	20.0 U
MANGANESE	50**	50**	50	µg/L	4.0 U	3,560	162	2,230	3,890	3,490
POTASSIUM	----	----	----	mg/L	0.57	0.62	0.68	0.87	1.36	0.57
SODIUM	20***	----	----	mg/L	4.47	6.66	4.84	7.04	19.5	6.58
ZINC	5,000**	5,000**	----	µg/L	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
VOLATILE ORGANIC COMPOUNDS										
VINYL CHLORIDE	2*	0.02*	0.29	µg/L	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U

Notes:

Concentration exceeds Washington State Drinking Water or Groundwater Standards

FD = Field Duplicate of MW-3 was labeled MW-9.

NA = Not Analyzed

Regulatory Standards:

(a) WAC 246-290-310

(b) WAC 173-200-040

(c) Site-specific Cleanup Levels per Olalla Landfill Cleanup Action Plan, December 2014

* Primary Standard

** Secondary Standard

*** Recommended level of concern for consumers with restricted daily sodium intake.

Data Qualifiers:

D = The reported value is from a dilution.

H = Analyzed outside of holding time.

U = Indicates compound was analyzed for, but not detected at the specified detection limit.

Groundwater Quality Data
March 2021 Quarterly Monitoring Event

Page 2 of 3

VOLATILE ORGANIC COMPOUNDS	State Drinking Water Standards	State Ground- water Standards	Units	MW-1	MW-3	MW-6	MW-8	MW-10	MW-9 (FD)
	(a)	(b)							
1,1,1,2-TETRACHLOROETHANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,1-TRICHLOROETHANE	200	200	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,2,2-TETRACHLOROETHANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,2-TRICHLOROETHANE	5	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1-DICHLOROETHANE	----	1	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1-DICHLOROETHENE	7	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1-DICHLOROPROPENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2,3-TRICHLOROBENZENE	----	----	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-TRICHLOROPROPANE	----	----	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-TRICHLOROBENZENE	70	----	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-TRIMETHYLBENZENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2-DIBROMO-3-CHLOROPROPANE	----	----	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-DICHLOROBENZENE	600	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2-DICHLOROETHANE	5	0.5	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2-DICHLOROPROPANE	5	0.6	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,3,5-TRIMETHYLBENZENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,3-DICHLOROBENZENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,3-DICHLOROPROPANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,4-DICHLOROBENZENE	75	4	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
2,2-DICHLOROPROPANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
2-BUTANONE	----	----	µg/L	5 U	5 U	5 U	5 U	5 U	5 U
2-CHLOROETHYLVINYLETHER	----	----	µg/L	1 U	1 U	1 U	1 U	1 U	1 U
2-CHLOROTOLUENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
2-HEXANONE	----	----	µg/L	5 U	5 U	5 U	5 U	5 U	5 U
4-CHLOROTOLUENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
4-ISOPROPYLTOLUENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
4-METHYL-2-PANTANONE	----	----	µg/L	5 U	5 U	5 U	5 U	5 U	5 U
ACETONE	----	----	µg/L	5 U	5 U	5 U	5 U	5 U	5 U
ACROLEIN	----	----	µg/L	5 U	5 U	5 U	5 U	5 U	5 U
ACRYLONITRILE	----	----	µg/L	1 U	1 U	1 U	1 U	1 U	1 U
BENZENE	5	1	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BROMOBENZENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BROMOCHLOROMETHANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BROMOETHANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BROMOFORM	----	5	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BROMOMETHANE	----	----	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
CARBON DISULFIDE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CARBON TETRACHLORIDE	5	0.3	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CFC-113	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CHLOROBENZENE	100	----	µg/L	0.2 U	0.2 U	1.52	0.2 U	0.2 U	0.2 U
CHLOROBROMOMETHANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CHLORODIBROMOMETHANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CHLOROETHANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CHLOROFORM	----	7	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CHLOROMETHANE	----	----	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CIS-1,2-DICHLOROETHENE	70	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U

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March 2021 Quarterly Monitoring Event
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VOLATILE ORGANIC COMPOUNDS	State	State	Units	MW-1	MW-3	MW-6	MW-8	MW-10	MW-9 (FD)
	Drinking Water Standards (a)	Ground-water Standards (b)							
CIS-1,3-DICHLOROPROPENE	----	0.2	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
DIBROMOETHANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
DICHLOROBROMOMETHANE	----	0.5	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
ETHYLBENZENE	700	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
ETHYLENE DIBROMIDE	----	0.001	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
HEXACHLOROBUTADIENE	----	----	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
IODOMETHANE	----	----	µg/L	1 U	1 U	1 U	1 U	1 U	1 U
ISOPROPYLBENZENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
METHYLENE CHLORIDE	5	5	µg/L	1 U	1 U	1 U	1 U	1 U	1 U
M & P-XYLENE	10	----	µg/L	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
NAPHTHALENE	----	----	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
N-BUTYLBENZENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
N-PROPYLBENZENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
O-XYLENE	10	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
SEC-BUTYLBENZENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
STYRENE	100	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TERT-BUTYLBENZENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TETRACHLOROETHENE	5	0.8	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TOLUENE	1000	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TRANS-1,2-DICHLOROETHENE	100	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TRANS-1,3-DICHLOROPROPENE	----	0.2	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TRANS-1,4-DICHLORO-2-BUTENE			µg/L	1 U	1 U	1 U	1 U	1 U	1 U
TRICHLOROETHENE	5	3	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TRICHLOROFLUOROMETHANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
VINYL ACETATE			µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
VINYL CHLORIDE	2	0.02	µg/L	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U

Notes:

FD = Field Duplicate of MW-3 was labeled MW-9.

Regulatory Standards:

All regulatory standards listed for VOCs are Primary Regulatory Standards

(a) WAC 246-290-310

(b) WAC 173-200-040

Data Qualifiers:

U = Indicates compound was analyzed for but was not detected at the specified detection limit.

Groundwater Quality Data
June 2021 Quarterly Monitoring Event
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	State Drinking Water Standard (a)	State Ground- water Standard (b)	Site- Specific Cleanup Level (c)	Units	MW-1	MW-3	MW-6	MW-8	MW-10	MW-17 (FD)
CONVENTIONALS										
ALKALINITY	----	----	----	mg/L	54.9	158	183	82.9	241	183
AMMONIA NITROGEN	----	----	----	mg/L	0.040 U	0.040 U	0.052	0.040 U	0.105	0.049
BICARBONATE	----	----	----	mg/L	54.9	158	183	82.9	241	183
CARBONATE	----	----	----	mg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
CHEMICAL OXYGEN DEMAND (COD)	----	----	----	mg/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
CHLORIDE	250**	250**	----	mg/L	4.91	6.30	2.76	2.16	6.14	2.67
DISSOLVED OXYGEN	----	----	----	mg/L	9.59	0.18	0.19	0.13	0.11	NA
NITRATE NITROGEN	10*	10*	----	mg/L	0.182	0.069	0.260	0.021	0.450	0.253
NITRITE NITROGEN	1*	----	----	mg/L	0.010 U	0.010 U	0.025	0.100 U	0.010 U	0.024
OXIDATION REDUCTION POTENTIAL (ORP)	----	----	----	mV	226.1	255.1	71.8	78.2	147.3	NA
pH (field)	----	6.5-8.5**	----	-log H+	6.5	6.2	6.7	6.6	6.7	NA
pH (laboratory)	----	6.5-8.5**	----	-log H+	6.2 J	6.1 J	6.6 J	6.5 J	6.5 J	6.6 J
SPECIFIC CONDUCTANCE	700**	----	----	umhos/cm	125	329	345	163	462	NA
SULFATE	250**	250**	----	mg/L	4.66	13.4	8.03	4.03	23.2	8.09
TEMPERATURE	----	----	----	°C	11.7	12.3	11.8	11.3	11.4	NA
TOTAL COLIFORM	1/100 mL*	1/100 mL*	----	cfu/100 mL	1 U	1 U	1 U	1 U	1 U	1 U
TOTAL ORGANIC CARBON (TOC)	----	----	----	mg/L	0.50 U	2.13	1.61	0.50	2.67	1.63
TURBIDITY	----	----	----	NTU	0.74	0.83	1.44	2.04	0.74	NA
DISSOLVED METALS										
ARSENIC	10*	0.05*	1.29	µg/L	0.10	0.11	0.30	0.70	1.84	0.32
BARIUM	2,000*	1,000*	----	µg/L	6.0 U	10.1	14.2	6.0 U	16.9	14.4
CALCIUM	----	----	----	mg/L	11.8	35.5	36.9	15.6	47.8	36.5
IRON	300**	300**	300	µg/L	20.0 U	20.0 U	195	124	20.0 U	164
MANGANESE	50**	50**	50	µg/L	20.0 U	5,110	424	1,580	4,770	423
POTASSIUM	----	----	----	mg/L	0.71	0.74	1.38	0.96	1.41	1.37
SODIUM	20***	----	----	mg/L	4.14	6.68	9.46	5.20	20.8	9.35
ZINC	5,000**	5,000**	----	µg/L	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U
VOLATILE ORGANIC COMPOUNDS										
VINYL CHLORIDE	2*	0.02*	0.29	µg/L	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U

Notes:

Concentration exceeds Washington State Drinking Water or Groundwater Standards

FD = Field Duplicate of MW-6 was labeled MW-17.

NA = Not Analyzed

Regulatory Standards:

(a) WAC 246-290-310

(b) WAC 173-200-040

(c) Site-specific Cleanup Levels per Olalla Landfill Cleanup Action Plan, December 2014

* Primary Standard

** Secondary Standard

*** Recommended level of concern for consumers with restricted daily sodium intake.

Data Qualifiers:

D = The reported value is from a dilution.

H = Analyzed outside of holding time.

U = Indicates compound was analyzed for, but not detected at the specified detection limit.

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VOLATILE ORGANIC COMPOUNDS	State	State	Units	MW-1	MW-3	MW-6	MW-8	MW-10	MW-17 (FD)
	Drinking	Ground-							
	Water	water							
	Standards	Standards							
	(a)	(b)							
1,1,1,2-TETRACHLOROETHANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,1-TRICHLOROETHANE	200	200	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,2,2-TETRACHLOROETHANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,2-TRICHLOROETHANE	5	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1-DICHLOROETHANE	----	1	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1-DICHLOROETHENE	7	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1-DICHLOROPROPENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2,3-TRICHLOROBENZENE	----	----	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-TRICHLOROPROPANE	----	----	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-TRICHLOROBENZENE	70	----	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-TRIMETHYLBENZENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2-DIBROMO-3-CHLOROPROPANE	----	----	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-DICHLOROBENZENE	600	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2-DICHLOROETHANE	5	0.5	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2-DICHLOROPROPANE	5	0.6	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,3,5-TRIMETHYLBENZENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,3-DICHLOROBENZENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,3-DICHLOROPROPANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,4-DICHLOROBENZENE	75	4	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
2,2-DICHLOROPROPANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
2-BUTANONE	----	----	µg/L	5 U	5 U	5 U	5 U	5 U	5 U
2-CHLOROETHYLVINYLETHER	----	----	µg/L	1 U	1 U	1 U	1 U	1 U	1 U
2-CHLOROTOLUENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
2-HEXANONE	----	----	µg/L	5 U	5 U	5 U	5 U	5 U	5 U
4-CHLOROTOLUENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
4-ISOPROPYLTOLUENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
4-METHYL-2-PANTANONE	----	----	µg/L	5 U	5 U	5 U	5 U	5 U	5 U
ACETONE	----	----	µg/L	5 U	5 U	5 U	5 U	5 U	5 U
ACROLEIN	----	----	µg/L	5 U	5 U	5 U	5 U	5 U	5 U
ACRYLONITRILE	----	----	µg/L	1 U	1 U	1 U	1 U	1 U	1 U
BENZENE	5	1	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BROMOBENZENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BROMOCHLOROMETHANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BROMOETHANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BROMOFORM	----	5	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BROMOMETHANE	----	----	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
CARBON DISULFIDE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CARBON TETRACHLORIDE	5	0.3	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CFC-113	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CHLOROBENZENE	100	----	µg/L	0.2 U	0.2 U	1.68	0.2 U	0.2 U	1.73
CHLOROBROMOMETHANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CHLORODIBROMOMETHANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CHLOROETHANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CHLOROFORM	----	7	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CHLOROMETHANE	----	----	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CIS-1,2-DICHLOROETHENE	70	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U

Groundwater Quality Data
June 2021 Quarterly Monitoring Event
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VOLATILE ORGANIC COMPOUNDS	State	State	Units	MW-1	MW-3	MW-6	MW-8	MW-10	MW-17 (FD)
	Drinking Water Standards (a)	Ground-water Standards (b)							
CIS-1,3-DICHLOROPROPENE	----	0.2	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
DIBROMOETHANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
DICHLOROBROMOMETHANE	----	0.5	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
ETHYLBENZENE	700	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
ETHYLENE DIBROMIDE	----	0.001	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
HEXACHLOROBUTADIENE	----	----	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
IODOMETHANE	----	----	µg/L	1 U	1 U	1 U	1 U	1 U	1 U
ISOPROPYLBENZENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
METHYLENE CHLORIDE	5	5	µg/L	1 U	1 U	1 U	1 U	1 U	1 U
M & P-XYLENE	10	----	µg/L	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
NAPHTHALENE	----	----	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
N-BUTYLBENZENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
N-PROPYLBENZENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
O-XYLENE	10	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
SEC-BUTYLBENZENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
STYRENE	100	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TERT-BUTYLBENZENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TETRACHLOROETHENE	5	0.8	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TOLUENE	1000	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TRANS-1,2-DICHLOROETHENE	100	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TRANS-1,3-DICHLOROPROPENE	----	0.2	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TRANS-1,4-DICHLORO-2-BUTENE			µg/L	1 U	1 U	1 U	1 U	1 U	1 U
TRICHLOROETHENE	5	3	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TRICHLOROFLUOROMETHANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
VINYL ACETATE			µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
VINYL CHLORIDE	2	0.02	µg/L	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U

Notes:

FD = Field Duplicate of MW-6 was labeled MW-17.

Regulatory Standards:

All regulatory standards listed for VOCs are Primary Regulatory Standards

(a) WAC 246-290-310

(b) WAC 173-200-040

Data Qualifiers:

U = Indicates compound was analyzed for but was not detected at the specified detection limit.

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	State Drinking Water Standard (a)	State Ground- water Standard (b)	Site- Specific Cleanup Level (c)	Units	MW-1	MW-3	MW-6	MW-8	MW-10	MW-12 (FD)
CONVENTIONALS										
ALKALINITY	----	----	----	mg/L	59.9	208	211	75.9	227	75.6
AMMONIA NITROGEN	----	----	----	mg/L	0.040 U	0.040 U	0.113	0.040 U	0.086	0.040 U
BICARBONATE	----	----	----	mg/L	59.9	208	211	75.9	227	75.6
CARBONATE	----	----	----	mg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
CHEMICAL OXYGEN DEMAND (COD)	----	----	----	mg/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
CHLORIDE	250**	250**	----	mg/L	5.77	4.25	1.86	2.23	6.30	2.24
DISSOLVED OXYGEN	----	----	----	mg/L	8.87	0.68	0.38	0.30	0.31	NA
NITRATE NITROGEN	10*	10*	----	mg/L	0.314	0.020 U	0.020 U	0.024	0.020 U	0.020
NITRITE NITROGEN	1*	----	----	mg/L	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
OXIDATION REDUCTION POTENTIAL (ORP)	----	----	----	mV	170.9	206.9	73.9	94.8	135.5	NA
pH (field)	----	6.5-8.5**	----	-log H+	6.5	6.3	6.7	6.8	6.8	NA
pH (laboratory)	----	6.5-8.5**	----	-log H+	6.3 J	6.2 J	6.6 J	6.7 J	6.6 J	6.6 J
SPECIFIC CONDUCTANCE	700**	----	----	umhos/cm	332	532	517	334	599	NA
SULFATE	250**	250**	----	mg/L	4.38	16.5	11.3	3.72	15.5	3.49
TEMPERATURE	----	----	----	°C	12.5	12.2	13.0	11.9	11.7	NA
TOTAL COLIFORM	1/100 mL*	1/100 mL*	----	cfu/100 mL	1 U	1 U	1 U	1 U	1 U	1 U
TOTAL ORGANIC CARBON (TOC)	----	----	----	mg/L	0.59	2.26	1.87	0.50 U	2.49	0.50 U
TURBIDITY	----	----	----	NTU	10.5	1.01	4.95	3.88	1.76	NA
DISSOLVED METALS										
ARSENIC	10*	0.05*	1.29	µg/L	0.09	0.11	0.37	0.57	2.14	0.55
BARIUM	2,000*	1,000*	----	µg/L	6.0 U	13.6	21.0	6.0 U	17.7	6.0 U
CALCIUM	----	----	----	mg/L	13.4	46.5	42.9	13.4	42.6	12.7
IRON	300**	300**	300	µg/L	20.0 U	20.0 U	219	46.7	20.0 U	46.6
MANGANESE	50**	50**	50	µg/L	4.0 U	5,750	332	1,840	4,070	1,900
POTASSIUM	----	----	----	mg/L	0.857	0.856	2.15	0.974	1.41	0.997
SODIUM	20***	----	----	mg/L	5.31	9.08	10.6	6.05	20.0	5.86
ZINC	5,000**	5,000**	----	µg/L	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U
VOLATILE ORGANIC COMPOUNDS										
VINYL CHLORIDE	2*	0.02*	0.29	µg/L	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U

Notes:

Concentration exceeds Washington State Drinking Water or Groundwater Standards

FD = Field Duplicate of MW-8 was labeled MW-12.

NA = Not Analyzed

Regulatory Standards:

(a) WAC 246-290-310

(b) WAC 173-200-040

(c) Site-specific Cleanup Levels per Olalla Landfill Cleanup Action Plan, December 2014

* Primary Standard

** Secondary Standard

*** Recommended level of concern for consumers with restricted daily sodium intake.

Data Qualifiers:

J = Estimated Value. Laboratory-measured pH exceeded its 15-minute holding time.

NA = Not Analyzed

U = Indicates compound was analyzed for, but not detected at the specified detection limit.

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VOLATILE ORGANIC COMPOUNDS	State	State	Units	MW-1	MW-3	MW-6	MW-8	MW-10	MW-12 (FD)
	Drinking Water Standards (a)	Ground-water Standards (b)							
1,1,1,2-TETRACHLOROETHANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,1-TRICHLOROETHANE	200	200	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,2,2-TETRACHLOROETHANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,2-TRICHLOROETHANE	5	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1-DICHLOROETHANE	----	1	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1-DICHLOROETHENE	7	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1-DICHLOROPROPENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2,3-TRICHLOROBENZENE	----	----	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-TRICHLOROPROPANE	----	----	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-TRICHLOROBENZENE	70	----	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-TRIMETHYLBENZENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2-DIBROMO-3-CHLOROPROPANE	----	----	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-DICHLOROBENZENE	600	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2-DICHLOROETHANE	5	0.5	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2-DICHLOROPROPANE	5	0.6	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,3,5-TRIMETHYLBENZENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,3-DICHLOROBENZENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,3-DICHLOROPROPANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,4-DICHLOROBENZENE	75	4	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
2,2-DICHLOROPROPANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
2-BUTANONE	----	----	µg/L	5 U	5 U	5 U	5 U	5 U	5 U
2-CHLOROETHYLVINYLETHER	----	----	µg/L	1 U	1 U	1 U	1 U	1 U	1 U
2-CHLOROTOLUENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
2-HEXANONE	----	----	µg/L	5 U	5 U	5 U	5 U	5 U	5 U
4-CHLOROTOLUENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
4-ISOPROPYLTOLUENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
4-METHYL-2-PANTANONE	----	----	µg/L	5 U	5 U	5 U	5 U	5 U	5 U
ACETONE	----	----	µg/L	5 U	5 U	5 U	5 U	5 U	5 U
ACROLEIN	----	----	µg/L	5 U	5 U	5 U	5 U	5 U	5 U
ACRYLONITRILE	----	----	µg/L	1 U	1 U	1 U	1 U	1 U	1 U
BENZENE	5	1	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BROMOBENZENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BROMOCHLOROMETHANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BROMOETHANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BROMOFORM	----	5	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BROMOMETHANE	----	----	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
CARBON DISULFIDE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CARBON TETRACHLORIDE	5	0.3	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CFC-113	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CHLOROBENZENE	100	----	µg/L	0.2 U	0.2 U	1.62	0.2 U	0.2 U	0.2 U
CHLOROBROMOMETHANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CHLORODIBROMOMETHANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CHLOROETHANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CHLOROFORM	----	7	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CHLOROMETHANE	----	----	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CIS-1,2-DICHLOROETHENE	70	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U

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VOLATILE ORGANIC COMPOUNDS	State Drinking Water Standards	State Ground- water Standards	Units	MW-1	MW-3	MW-6	MW-8	MW-10	MW-12 (FD)
	(a)	(b)							
CIS-1,3-DICHLOROPROPENE	----	0.2	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
DIBROMOETHANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
DICHLOROBROMOMETHANE	----	0.5	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
ETHYLBENZENE	700	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
ETHYLENE DIBROMIDE	----	0.001	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
HEXACHLOROBUTADIENE	----	----	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
IODOMETHANE	----	----	µg/L	1 U	1 U	1 U	1 U	1 U	1 U
ISOPROPYLBENZENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
METHYLENE CHLORIDE	5	5	µg/L	1 U	1 U	1 U	1 U	1 U	1 U
M & P-XYLENE	10	----	µg/L	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
NAPHTHALENE	----	----	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
N-BUTYLBENZENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
N-PROPYLBENZENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
O-XYLENE	10	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
SEC-BUTYLBENZENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
STYRENE	100	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TERT-BUTYLBENZENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TETRACHLOROETHENE	5	0.8	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TOLUENE	1000	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TRANS-1,2-DICHLOROETHENE	100	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TRANS-1,3-DICHLOROPROPENE	----	0.2	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TRANS-1,4-DICHLORO-2-BUTENE			µg/L	1 U	1 U	1 U	1 U	1 U	1 U
TRICHLOROETHENE	5	3	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TRICHLOROFLUOROMETHANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
VINYL ACETATE			µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
VINYL CHLORIDE	2	0.02	µg/L	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U

Notes:

FD = Field Duplicate of MW-8 was labeled MW-12.

Regulatory Standards:

All regulatory standards listed for VOCs are Primary Regulatory Standards

(a) WAC 246-290-310

(b) WAC 173-200-040

Data Qualifiers:

U = Indicates compound was analyzed for but was not detected at the specified detection limit.

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	State Drinking Water Standard (a)	State Ground- water Standard (b)	Site- Specific Cleanup Level (c)	Units	MW-1	MW-3	MW-5A	MW-6	MW-7	MW-8	MW-10	SW-2	MW-13 (FD)
CONVENTIONALS													
ALKALINITY	----	----	----	mg/L	59.3	199	NA	164	NA	131	191	NA	192
AMMONIA NITROGEN	----	----	----	mg/L	0.040 U	0.040 U	NA	0.068	NA	0.040 U	0.076	NA	0.078
BICARBONATE	----	----	----	mg/L	59.3	199	NA	164	NA	131	191	NA	192
CARBONATE	----	----	----	mg/L	1.0 U	1.0 U	NA	1.0 U	NA	1.0 U	1.0 U	NA	1.0 U
CHEMICAL OXYGEN DEMAND (COD)	----	----	----	mg/L	10.0 U	10.0 U	NA	10.0 U	NA	10.0 U	10.0 U	NA	12.1
CHLORIDE	250**	250**	----	mg/L	5.46	5.58	NA	1.65	NA	2.18	2.11	NA	1.96
DISSOLVED OXYGEN	----	----	----	mg/L	9.62	0.44	9.77	0.28	7.02	2.67	0.21	NA	NA
NITRATE NITROGEN	10*	10*	----	mg/L	0.192	0.020 U	NA	0.570	NA	0.117	0.020 U	0.178	0.020 U
NITRITE NITROGEN	1*	----	----	mg/L	0.010 U	0.010 U	NA	0.051	NA	0.010 U	0.010 U	0.017	0.010 U
OXIDATION REDUCTION POTENTIAL (ORP)	----	----	----	mV	150.9	187.3	140.6	124.4	161.5	44.6	115.4	NA	NA
pH (field)	----	6.5-8.5**	----	-log H+	6.5	6.4	6.9	6.7	6.9	6.7	6.8	NA	NA
pH (laboratory)	----	6.5-8.5**	----	-log H+	6.4 H	6.4 H	NA	6.7 H	NA	6.7 H	6.8 H	6.7 H	6.8 H
SPECIFIC CONDUCTANCE	700**	----	----	umhos/cm	132	394	94	309	104	273	347	35.7	NA
SULFATE	250**	250**	----	mg/L	4.52	11.3	NA	11.3	NA	6.31	11.2	NA	11.1
TEMPERATURE	----	----	----	°C	10.9	12.2	13.8	12.1	11.2	11.7	11.4	10.0	NA
FECAL COLIFORM	----	----	----	cfu/100 mL	NA	NA	NA	NA	NA	NA	NA	2 U	NA
TOTAL COLIFORM	1/100 mL*	1/100 mL*	----	cfu/100 mL	1 JU	1 U	NA	1 U	NA	1 U	1 U	NA	1 U
TOTAL ORGANIC CARBON (TOC)	----	----	----	mg/L	0.83	3.00	NA	3.60	NA	1.80	3.40	NA	4.40
TURBIDITY	----	----	----	NTU	45.5	1.69	4.86	4.33	4.52	2.70	1.86	NA	NA
DISSOLVED METALS													
ARSENIC	10*	0.05*	1.29	µg/L	0.10	0.13	0.15	0.22	0.35	1.06	1.74	NA	1.78
BARIUM	2,000*	1,000*	----	µg/L	6.0 U	14.2	NA	16.2	NA	6.8	14.6	NA	15.3
CALCIUM	----	----	----	mg/L	12.9	45.6	NA	32.3	NA	27.3	33.4	NA	43.0
IRON	300**	300**	300	µg/L	20.0 U	20.0 U	40 U	39.9	20 U	920	20.0 U	NA	20.0 U
MANGANESE	50**	50**	50	µg/L	4.0 U	5,300	4.0 U	330	4.0 U	2,260	3,280	NA	3,260
POTASSIUM	----	----	----	mg/L	0.726	0.811	NA	1.77	NA	0.994	1.23	NA	0.798
SODIUM	20***	----	----	mg/L	5.02	8.57	NA	10.9	NA	7.95	17.8	NA	8.02
ZINC	5,000**	5,000**	----	µg/L	6.0 U	6.0 U	NA	6.0 U	NA	6.0 U	6.0 U	NA	6.0 U
VOLATILE ORGANIC COMPOUNDS													
VINYL CHLORIDE	2*	0.02*	0.29	µg/L	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.04	0.02 U	NA	0.02 U

Notes:

Concentration exceeds Washington State Drinking Water or Groundwater Standards

FD = Field Duplicate of MW-10 was labeled MW-13.

NA = Not Analyzed

Regulatory Standards:

(a) WAC 246-290-310

(b) WAC 173-200-040

(c) Site-specific Cleanup Levels per Olalla Landfill Cleanup Action Plan, December 2014

* Primary Standard

** Secondary Standard

*** Recommended level of concern for consumers with restricted daily sodium intake.

Data Qualifiers:

H = Estimated Value. Laboratory-measured pH exceeded its holding time.

NA = Not Analyzed

U = Indicates compound was analyzed for, but not detected at the specified detection limit.

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VOLATILE ORGANIC COMPOUNDS	State	State	Units	MW-1	MW-3	MW-6	MW-8	MW-10	MW-13 (FD)
	Drinking Water Standards (a)	Ground-water Standards (b)							
1,1,1,2-TETRACHLOROETHANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,1-TRICHLOROETHANE	200	200	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,2,2-TETRACHLOROETHANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,2-TRICHLOROETHANE	5	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1-DICHLOROETHANE	----	1	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1-DICHLOROETHENE	7	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1-DICHLOROPROPENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2,3-TRICHLOROBENZENE	----	----	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-TRICHLOROPROPANE	----	----	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-TRICHLOROBENZENE	70	----	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-TRIMETHYLBENZENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2-DIBROMO-3-CHLOROPROPANE	----	----	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-DICHLOROBENZENE	600	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2-DICHLOROETHANE	5	0.5	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2-DICHLOROPROPANE	5	0.6	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,3,5-TRIMETHYLBENZENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,3-DICHLOROBENZENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,3-DICHLOROPROPANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,4-DICHLOROBENZENE	75	4	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
2,2-DICHLOROPROPANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
2-BUTANONE	----	----	µg/L	5 U	5 U	5 U	5 U	5 U	5 U
2-CHLOROETHYLVINYLETHER	----	----	µg/L	1 U	1 U	1 U	1 U	1 U	1 U
2-CHLOROTOLUENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
2-HEXANONE	----	----	µg/L	5 U	5 U	5 U	5 U	5 U	5 U
4-CHLOROTOLUENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
4-ISOPROPYLTOLUENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
4-METHYL-2-PANTANONE	----	----	µg/L	5 U	5 U	5 U	5 U	5 U	5 U
ACETONE	----	----	µg/L	9.96	5 U	5 U	11.3	11.7	7.46
ACROLEIN	----	----	µg/L	5 U	5 U	5 U	5 U	5 U	5 U
ACRYLONITRILE	----	----	µg/L	1 U	1 U	1 U	1 U	1 U	1 U
BENZENE	5	1	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BROMOBENZENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BROMOCHLOROMETHANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BROMOETHANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BROMOFORM	----	5	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BROMOMETHANE	----	----	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
CARBON DISULFIDE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CARBON TETRACHLORIDE	5	0.3	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CFC-113	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CHLOROBENZENE	100	----	µg/L	0.2 U	0.2 U	2.09	0.2 U	0.2 U	0.2 U
CHLOROBROMOMETHANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CHLORODIBROMOMETHANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CHLOROETHANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CHLOROFORM	----	7	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CHLOROMETHANE	----	----	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CIS-1,2-DICHLOROETHENE	70	----	µg/L	0.2 U	0.2 U	0.2 U	0.27	0.2 U	0.2 U

Groundwater Quality Data
December 2021 Quarterly Monitoring Event
Page 3 of 3

VOLATILE ORGANIC COMPOUNDS	State Drinking Water Standards	State Ground- water Standards	Units	MW-1	MW-3	MW-6	MW-8	MW-10	MW-13 (FD)
	(a)	(b)							
CIS-1,3-DICHLOROPROPENE	----	0.2	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
DIBROMOETHANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
DICHLOROBROMOMETHANE	----	0.5	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
ETHYLBENZENE	700	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
ETHYLENE DIBROMIDE	----	0.001	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
HEXACHLOROBUTADIENE	----	----	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
IODOMETHANE	----	----	µg/L	1 U	1 U	1 U	1 U	1 U	1 U
ISOPROPYLBENZENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
METHYLENE CHLORIDE	5	5	µg/L	1 U	1 U	1 U	1 U	1 U	1 U
M & P-XYLENE	10	----	µg/L	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
NAPHTHALENE	----	----	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
N-BUTYLBENZENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
N-PROPYLBENZENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
O-XYLENE	10	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
SEC-BUTYLBENZENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
STYRENE	100	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TERT-BUTYLBENZENE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TETRACHLOROETHENE	5	0.8	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TOLUENE	1000	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TRANS-1,2-DICHLOROETHENE	100	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TRANS-1,3-DICHLOROPROPENE	----	0.2	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TRANS-1,4-DICHLORO-2-BUTENE			µg/L	1 U	1 U	1 U	1 U	1 U	1 U
TRICHLOROETHENE	5	3	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TRICHLOROFLUOROMETHANE	----	----	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
VINYL ACETATE			µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
VINYL CHLORIDE	2	0.02	µg/L	0.02 U	0.02 U	0.02 U	0.04	0.02 U	0.02 U

Notes:

FD = Field Duplicate of MW-10 was labeled MW-13.

Regulatory Standards:

All regulatory standards listed for VOCs are Primary Regulatory Standards

(a) WAC 246-290-310

(b) WAC 173-200-040

Data Qualifiers:

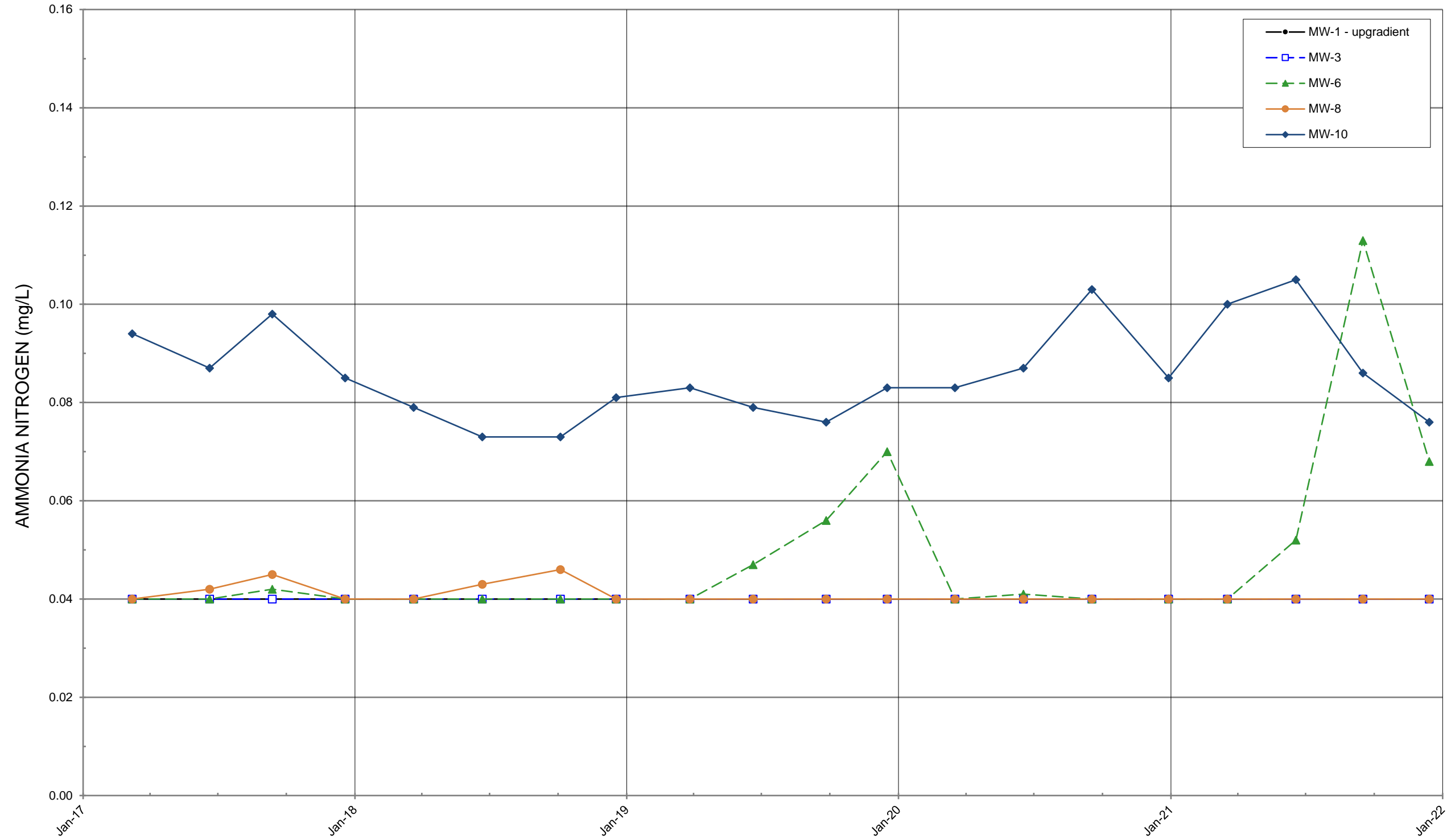
U = Indicates compound was analyzed for but was not detected at the specified detection limit.

Appendix B:
2021 Statistical Summaries

Time-Series Plots through December 2021
Mann-Kendall Statistically Significant Trend Test Summary Tables
Shapiro-Wilk Test for Normality Summary Tables
Confidence Interval Summary Tables

OLALLA LANDFILL

Quarterly Monitoring Data (most recent five years)

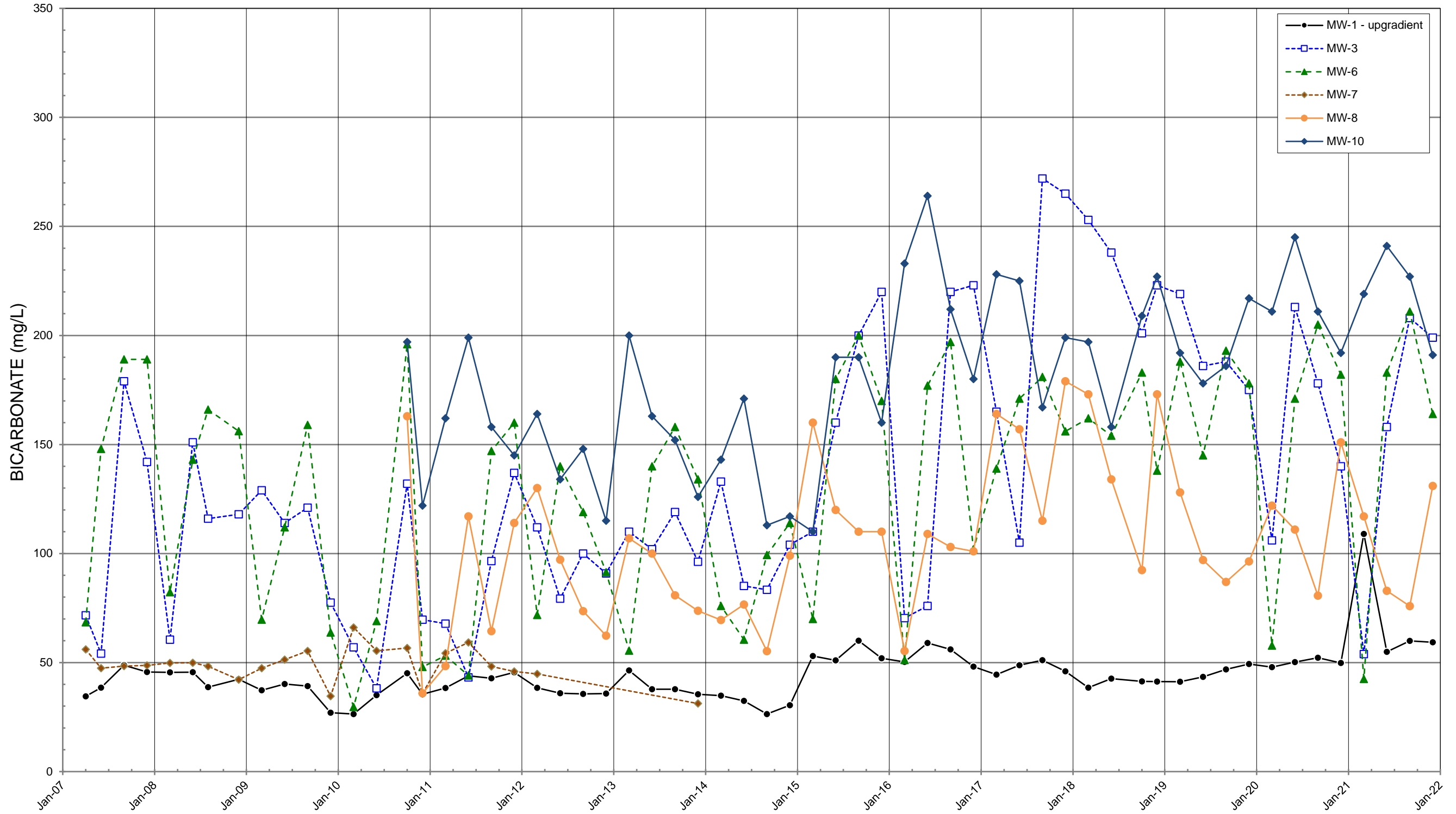


No Primary or Secondary Drinking Water Standard (DWS) Exists
No Primary or Secondary Groundwater Standard (GWS) Exists

DATE

AMMONIA NITROGEN
(RECENT)

OLALLA LANDFILL Quarterly Monitoring Data



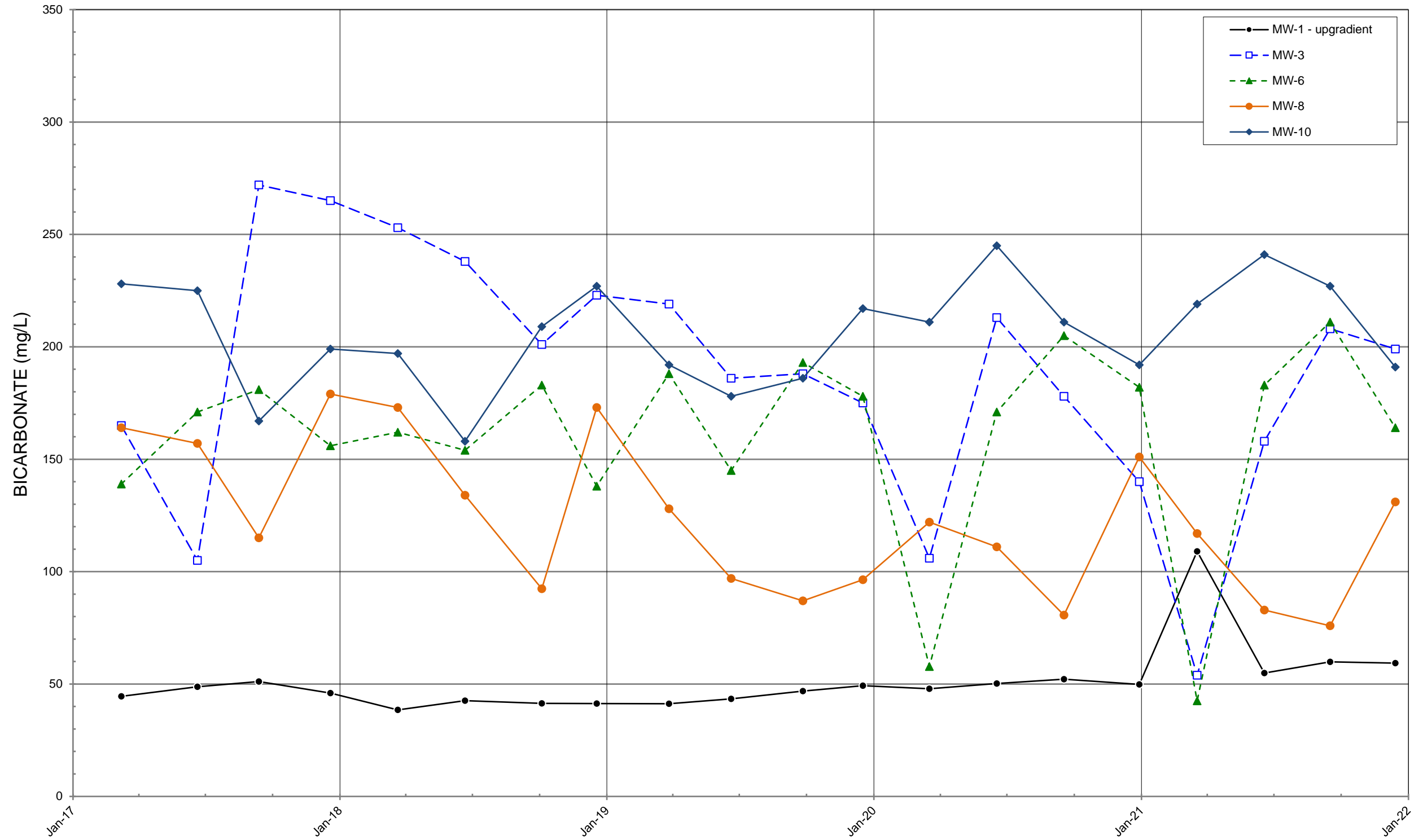
No Primary or Secondary Drinking Water Standard (DWS) Exists
No Primary or Secondary Groundwater Standard (GWS) Exists

DATE

BICARBONATE
(Analysis started in 2007)

OLALLA LANDFILL

Quarterly Monitoring Data (most recent five years)

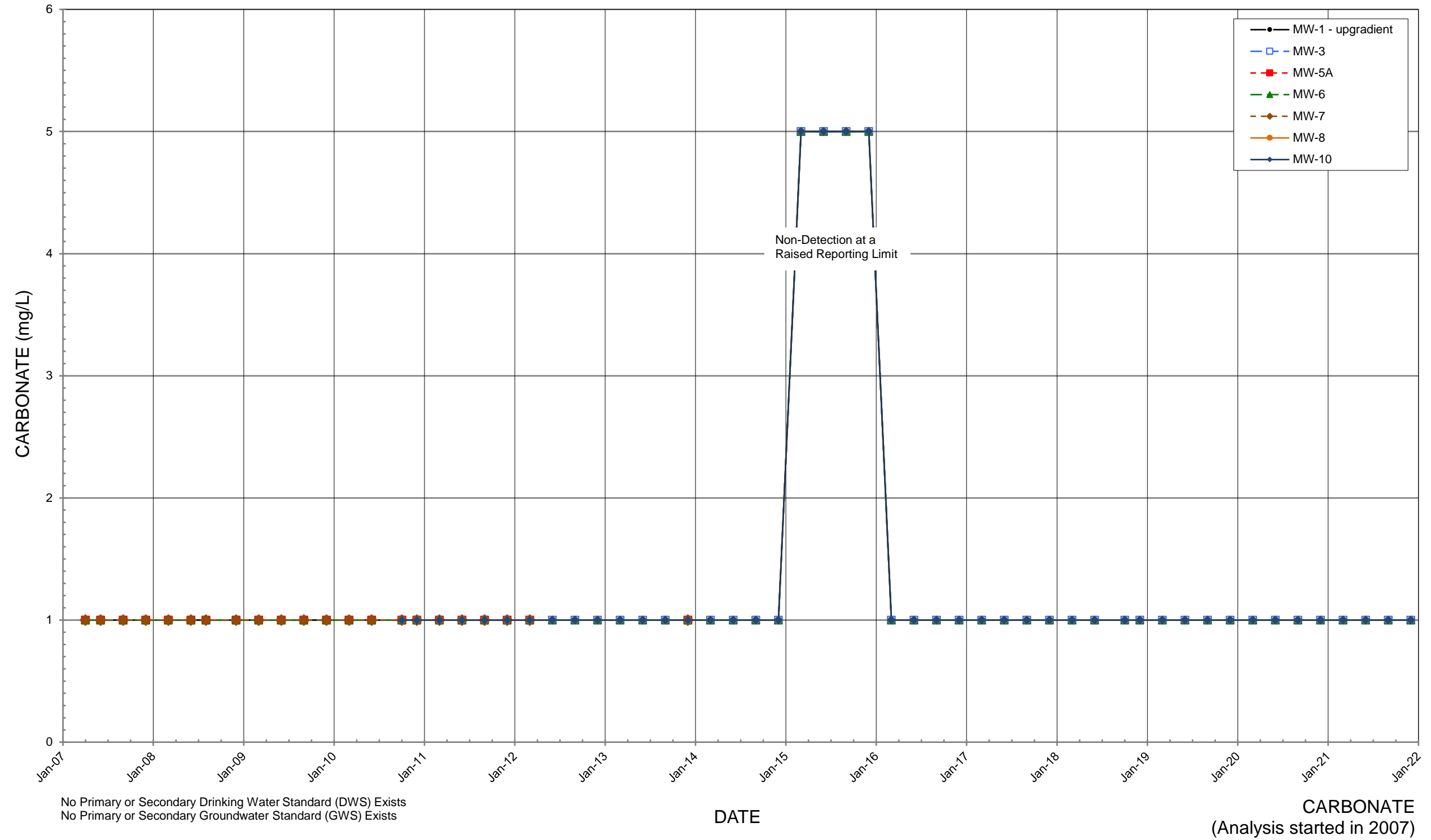


No Primary or Secondary Drinking Water Standard (DWS) Exists
 No Primary or Secondary Groundwater Standard (GWS) Exists

DATE

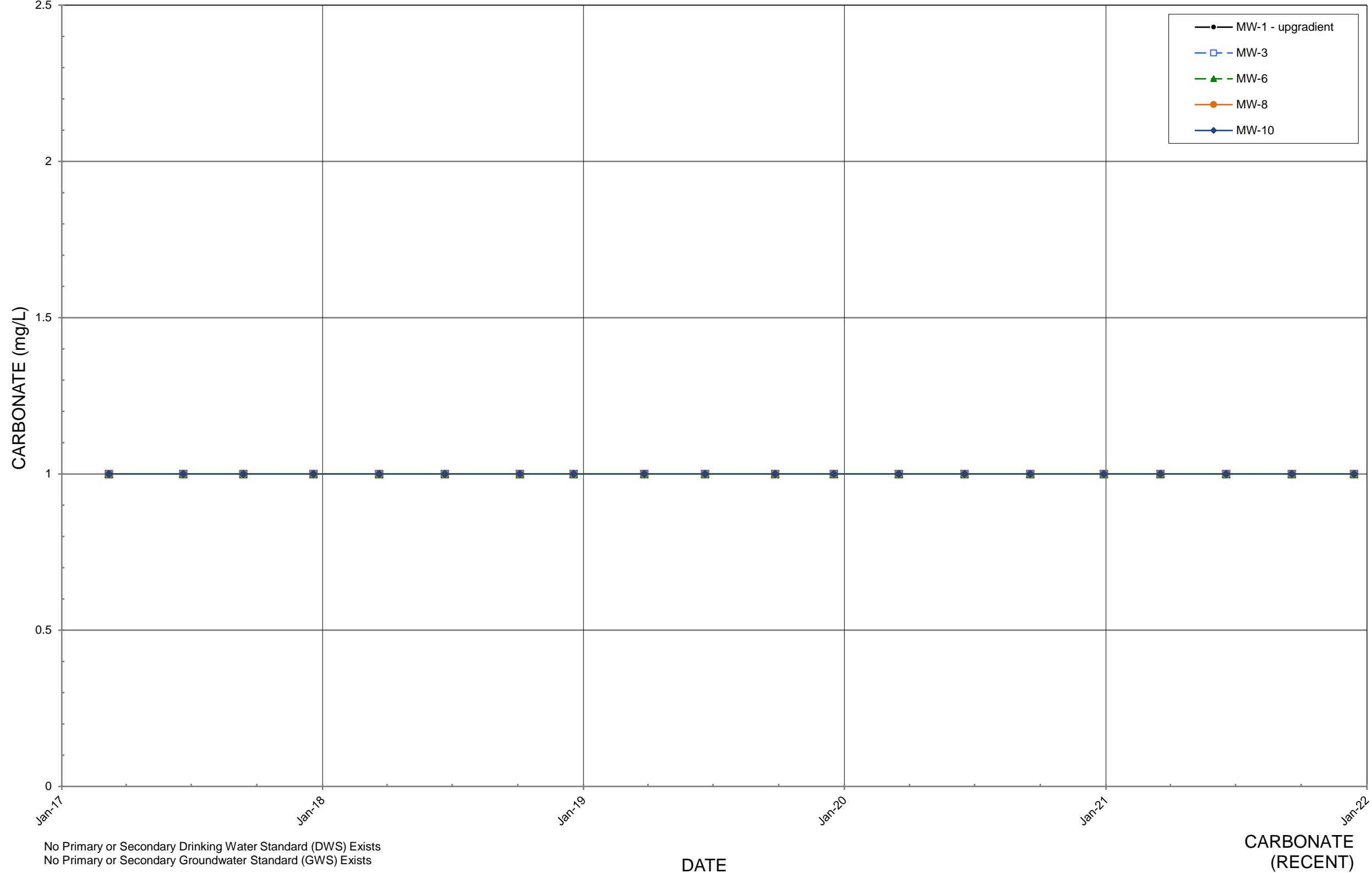
BICARBONATE
(RECENT)

OLALLA LANDFILL Quarterly Monitoring Data

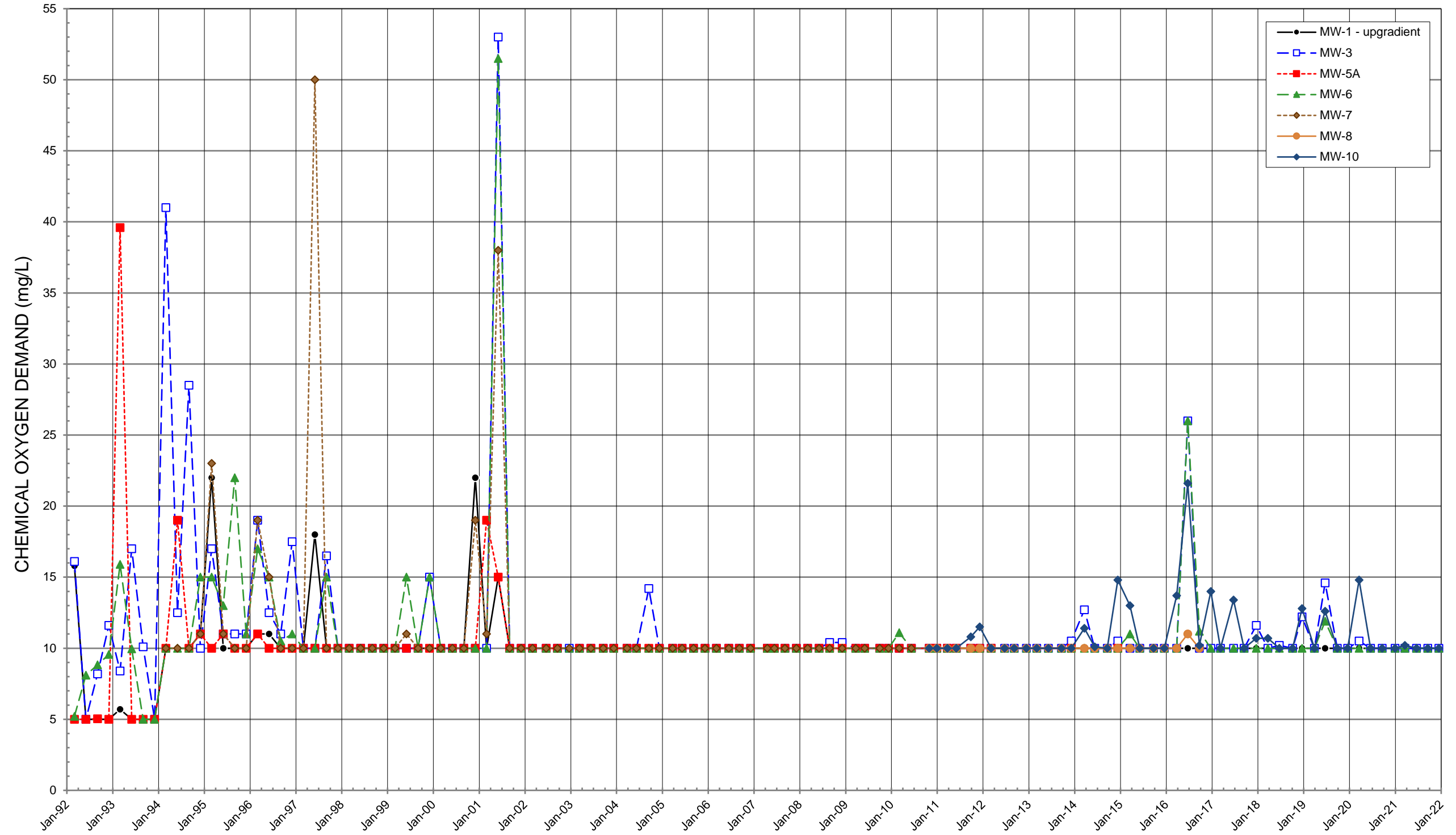


OLALLA LANDFILL

Quarterly Monitoring Data (most recent five years)



OLALLA LANDFILL Quarterly Monitoring Data



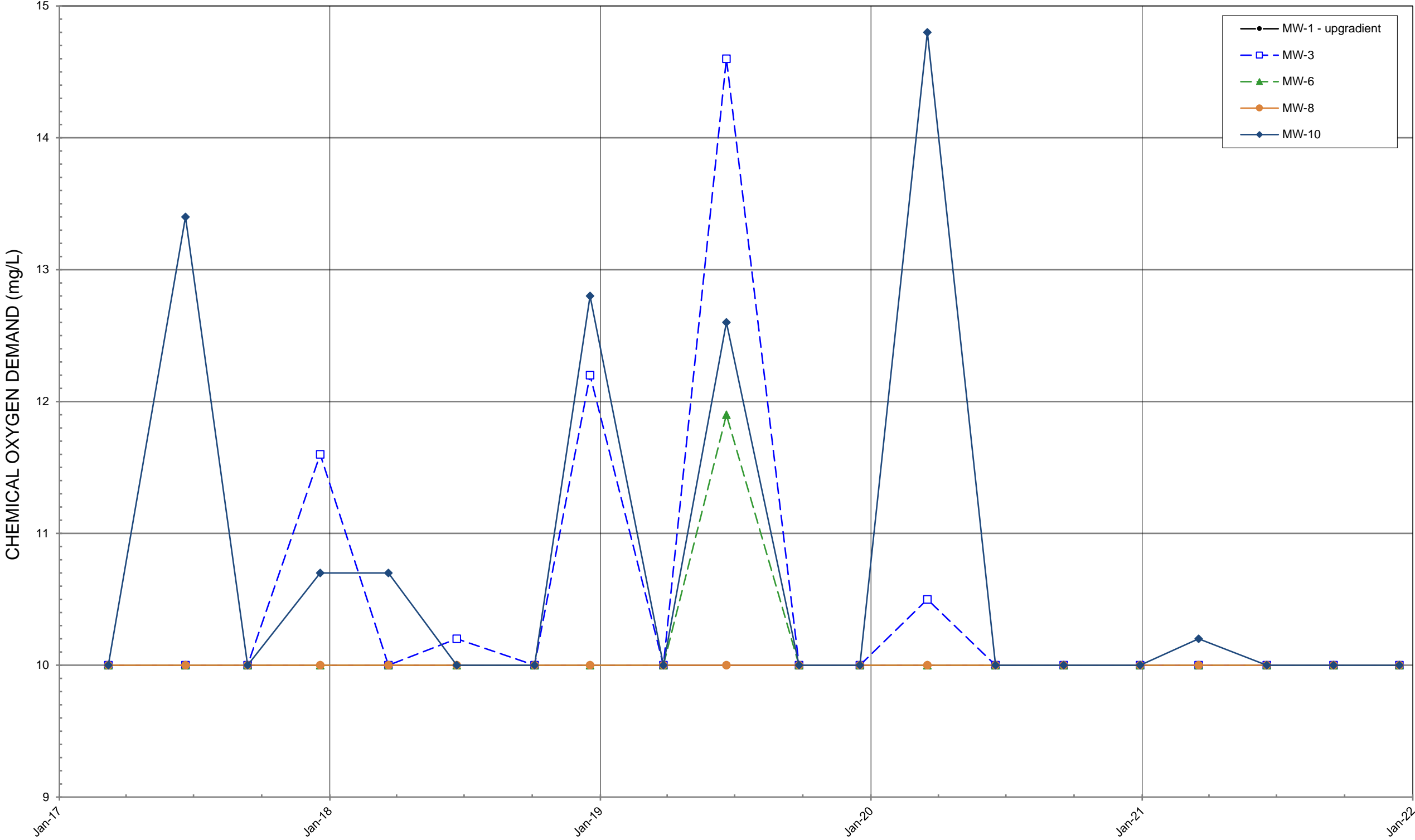
No Primary or Secondary Drinking Water Standard (DWS) Exists
No Primary or Secondary Groundwater Standard (GWS) Exists

DATE

CHEMICAL OXYGEN DEMAND

OLALLA LANDFILL

Quarterly Monitoring Data (most recent five years)

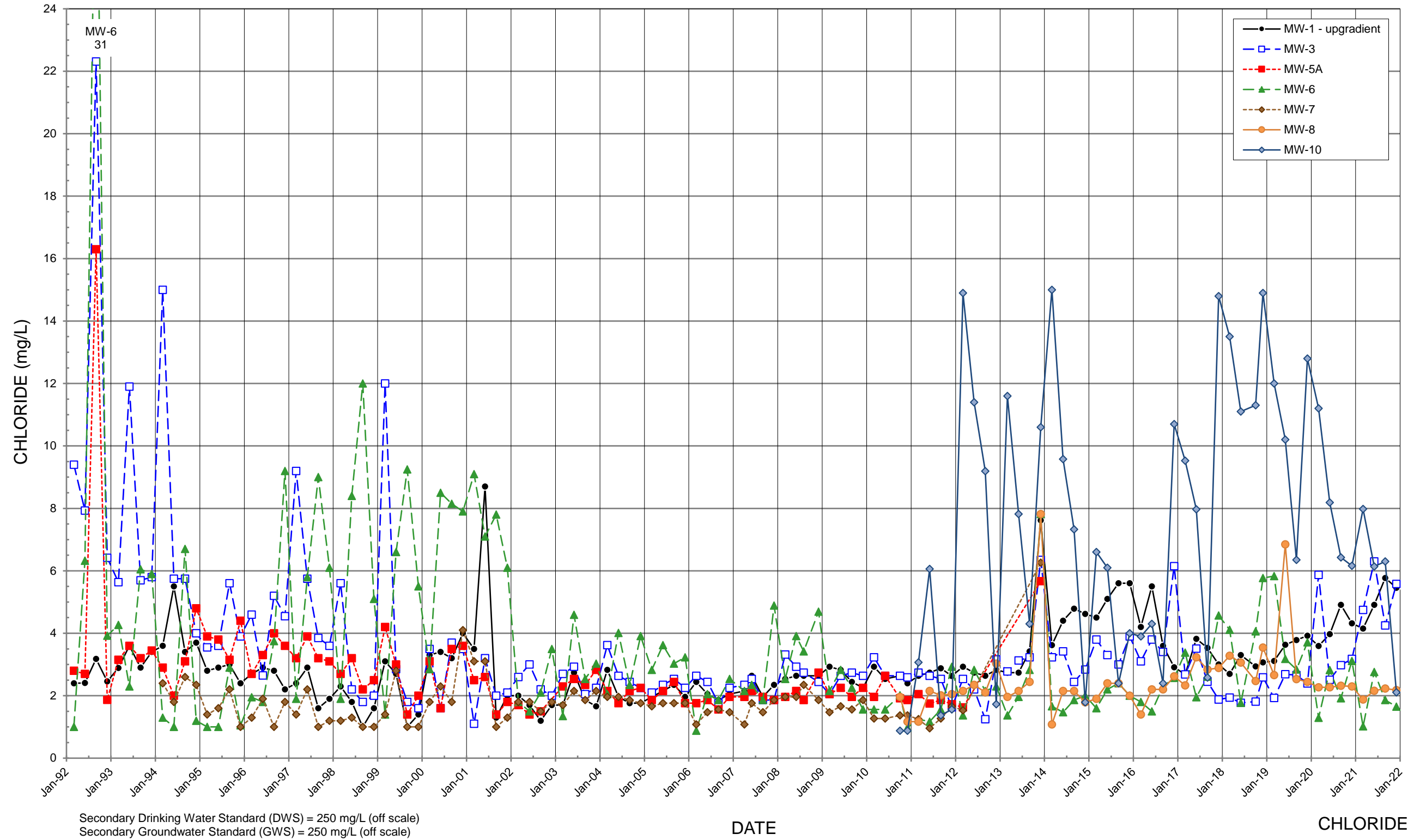


No Primary or Secondary Drinking Water Standard (DWS) Exists
No Primary or Secondary Groundwater Standard (GWS) Exists

DATE

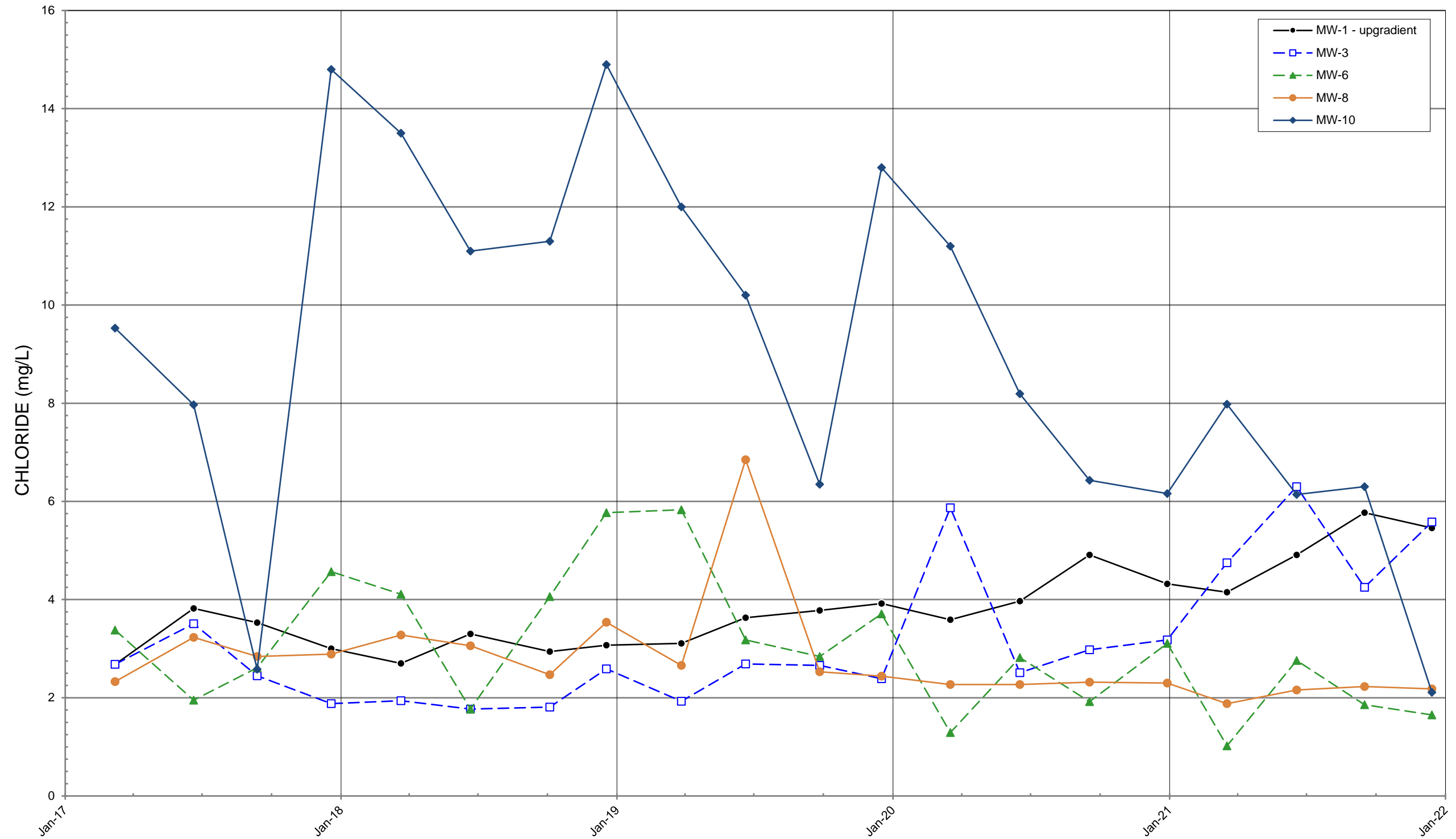
CHEMICAL OXYGEN DEMAND (RECENT)

OLALLA LANDFILL Quarterly Monitoring Data



OLALLA LANDFILL

Quarterly Monitoring Data (most recent five years)

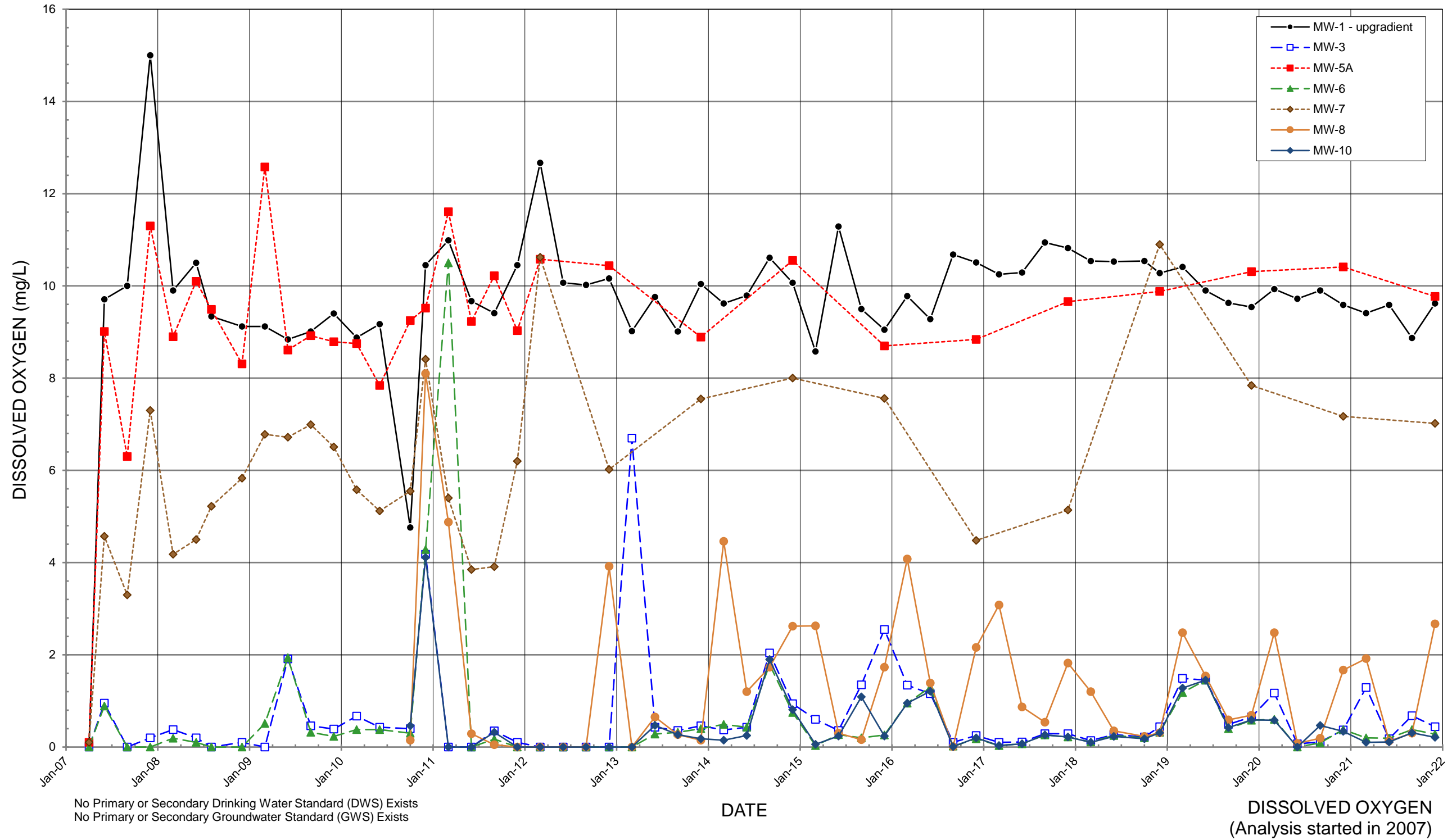


Secondary Drinking Water Standard (DWS) = 250 mg/L (off scale)
Secondary Groundwater Standard (GWS) = 250 mg/L (off scale)

DATE

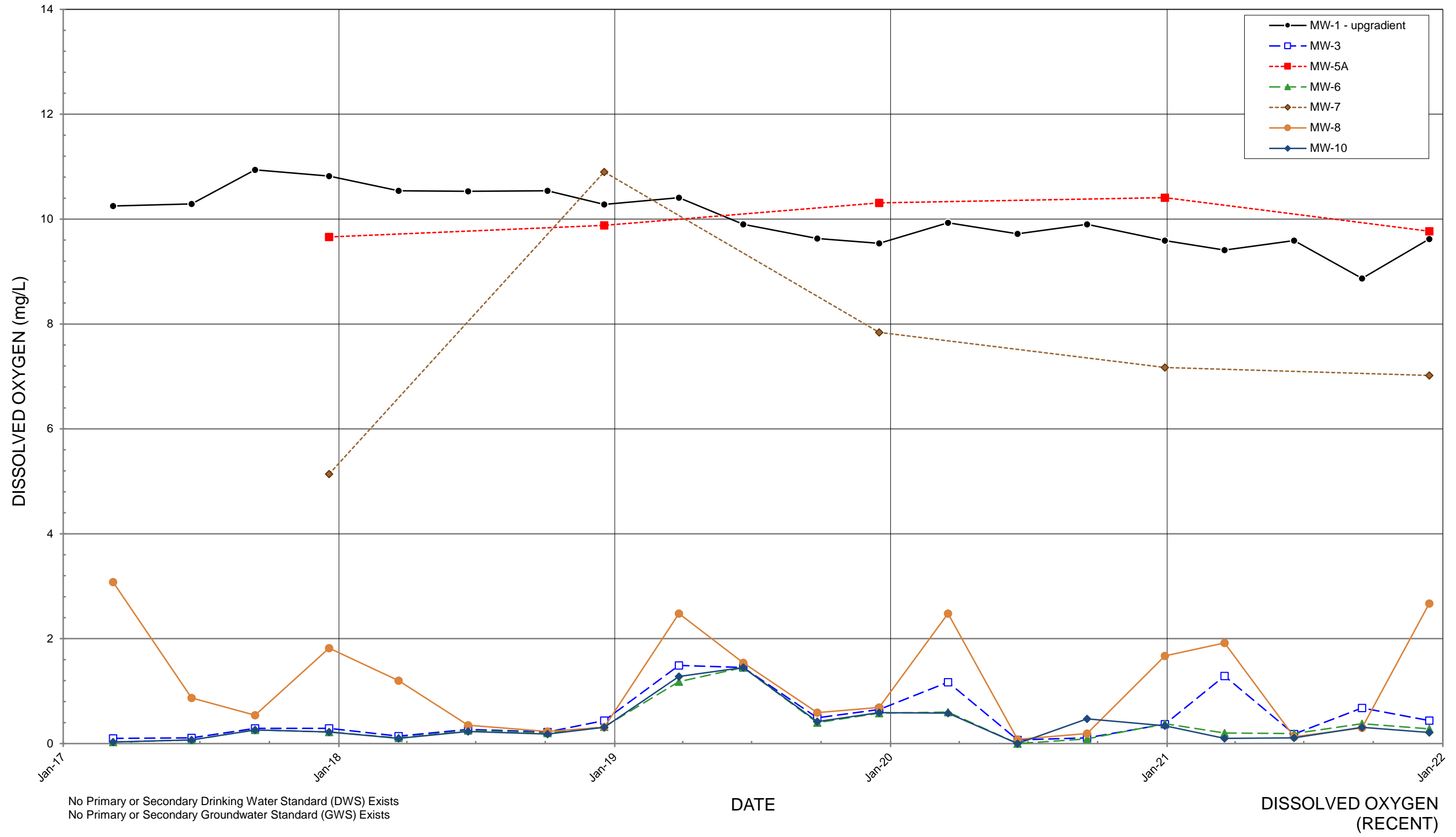
CHLORIDE
(RECENT)

OLALLA LANDFILL Quarterly Monitoring Data

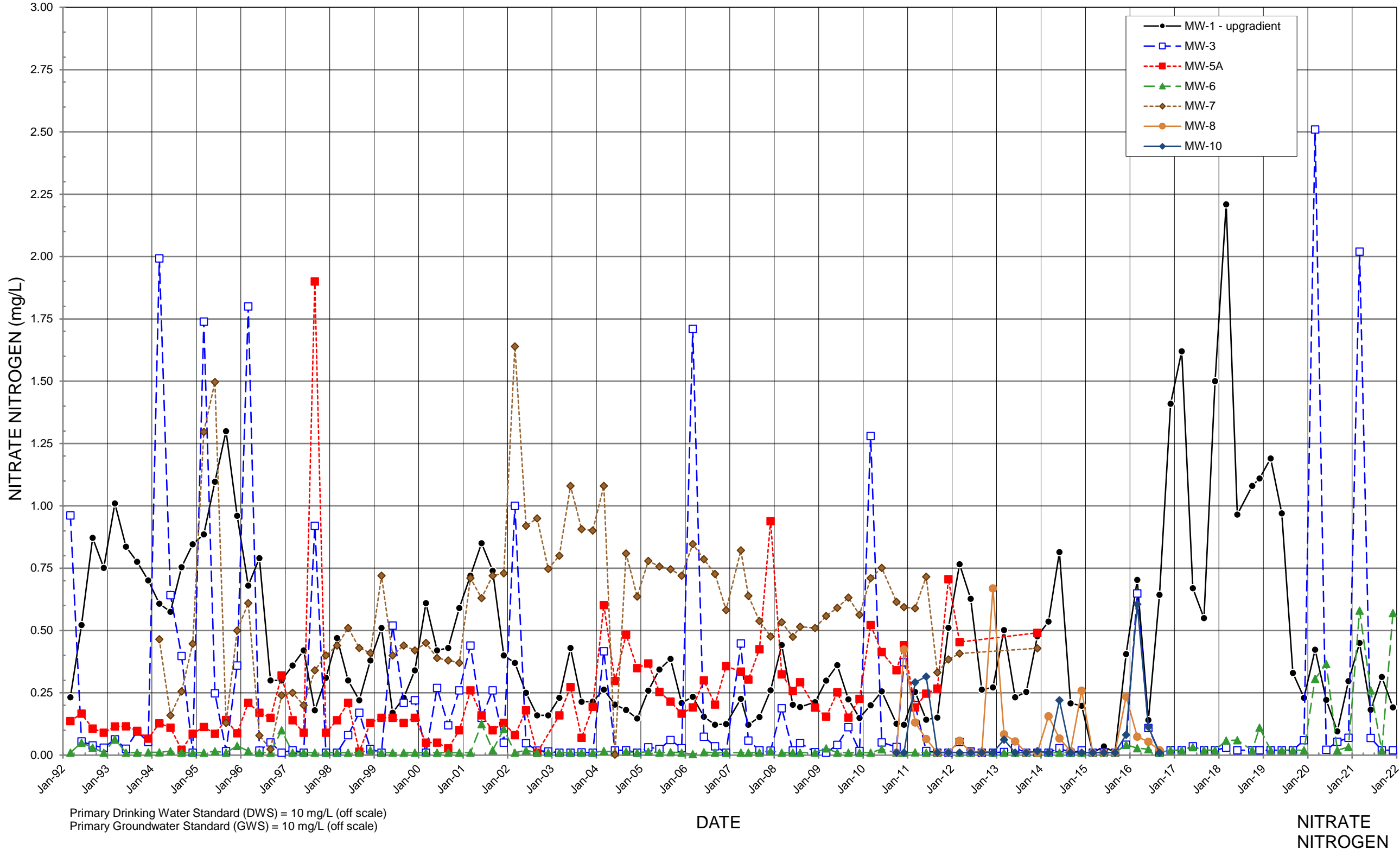


OLALLA LANDFILL

Quarterly Monitoring Data (most recent five years)

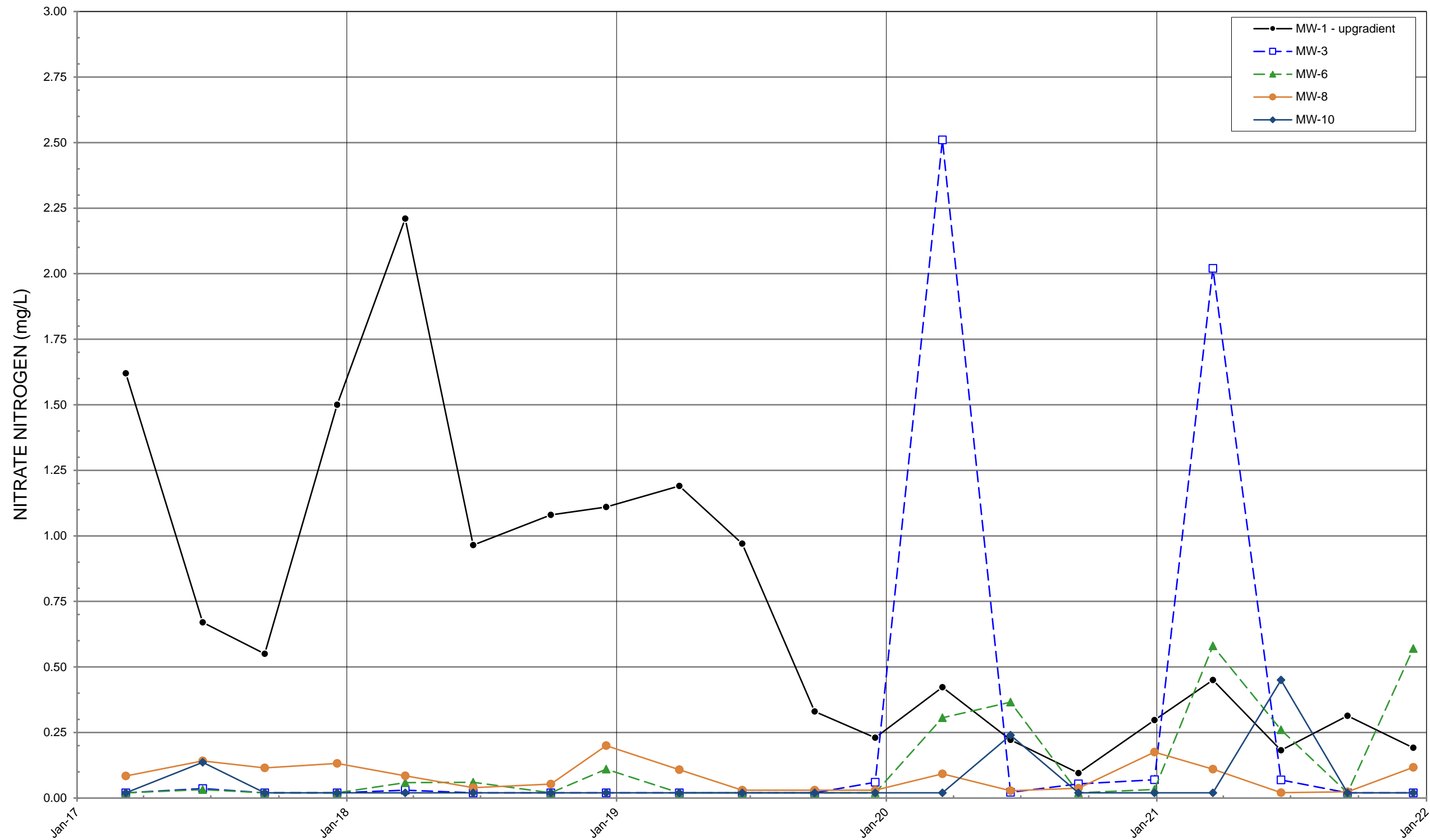


OLALLA LANDFILL Quarterly Monitoring Data



OLALLA LANDFILL

Quarterly Monitoring Data (most recent five years)

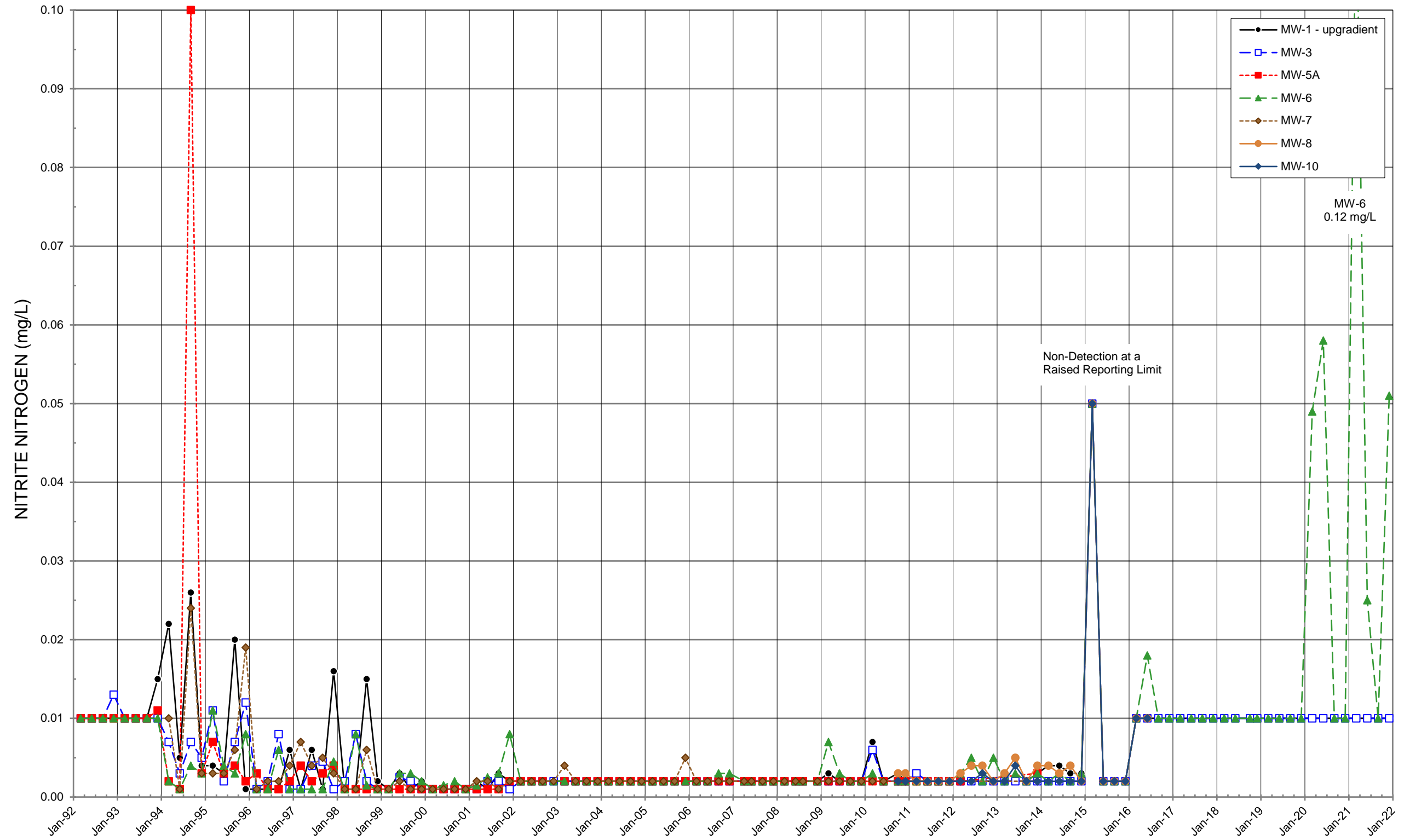


Primary Drinking Water Standard (DWS) = 10 mg/L (off scale)
Primary Groundwater Standard (GWS) = 10 mg/L (off scale)

DATE

NITRATE NITROGEN
(RECENT)

OLALLA LANDFILL Quarterly Monitoring Data



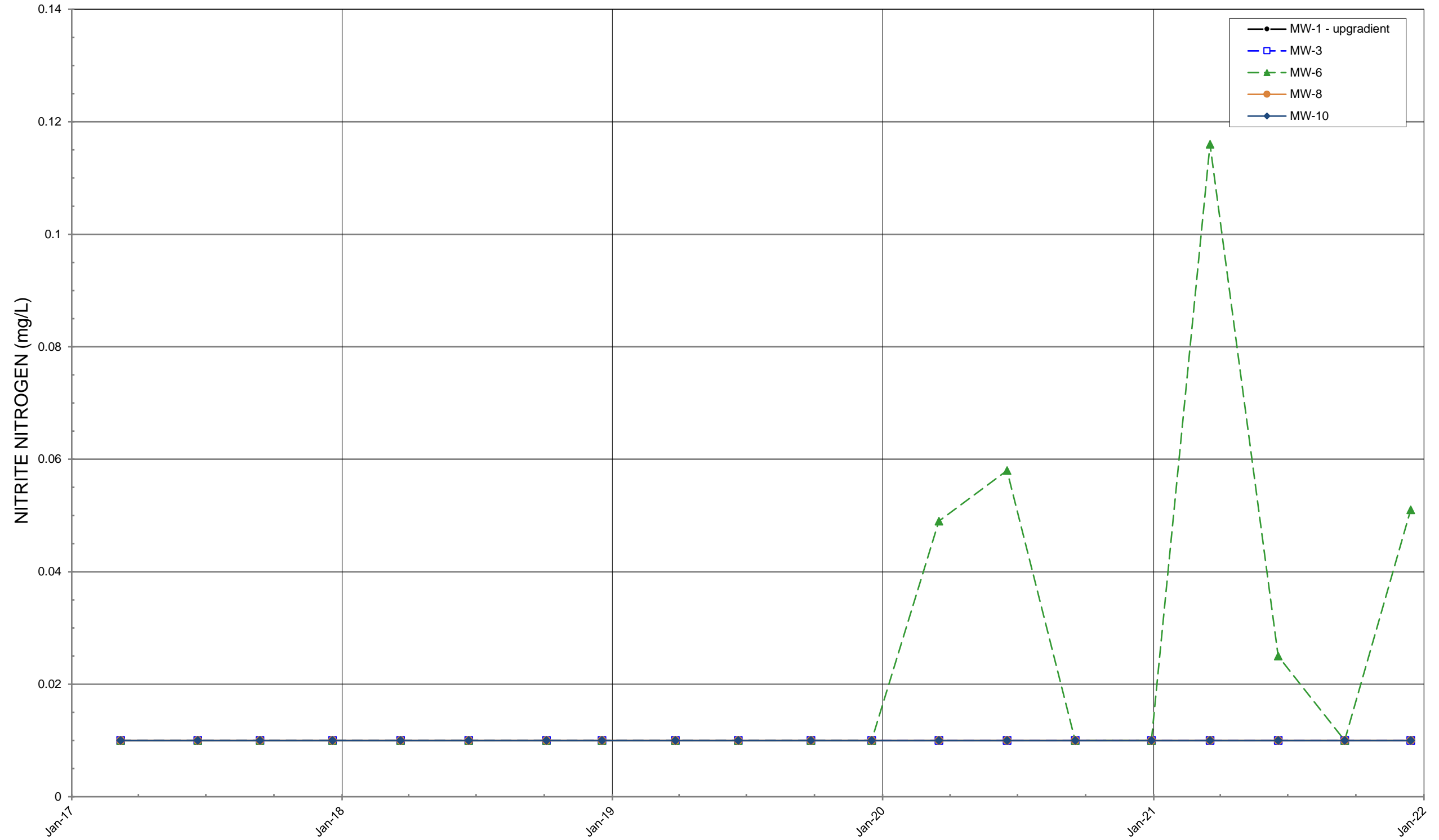
Primary Drinking Water Standard (DWS) =1 mg/L (off scale)
No Primary or Secondary Groundwater Standard (GWS) Exists

DATE

NITRITE NITROGEN

OLALLA LANDFILL

Quarterly Monitoring Data (most recent five years)



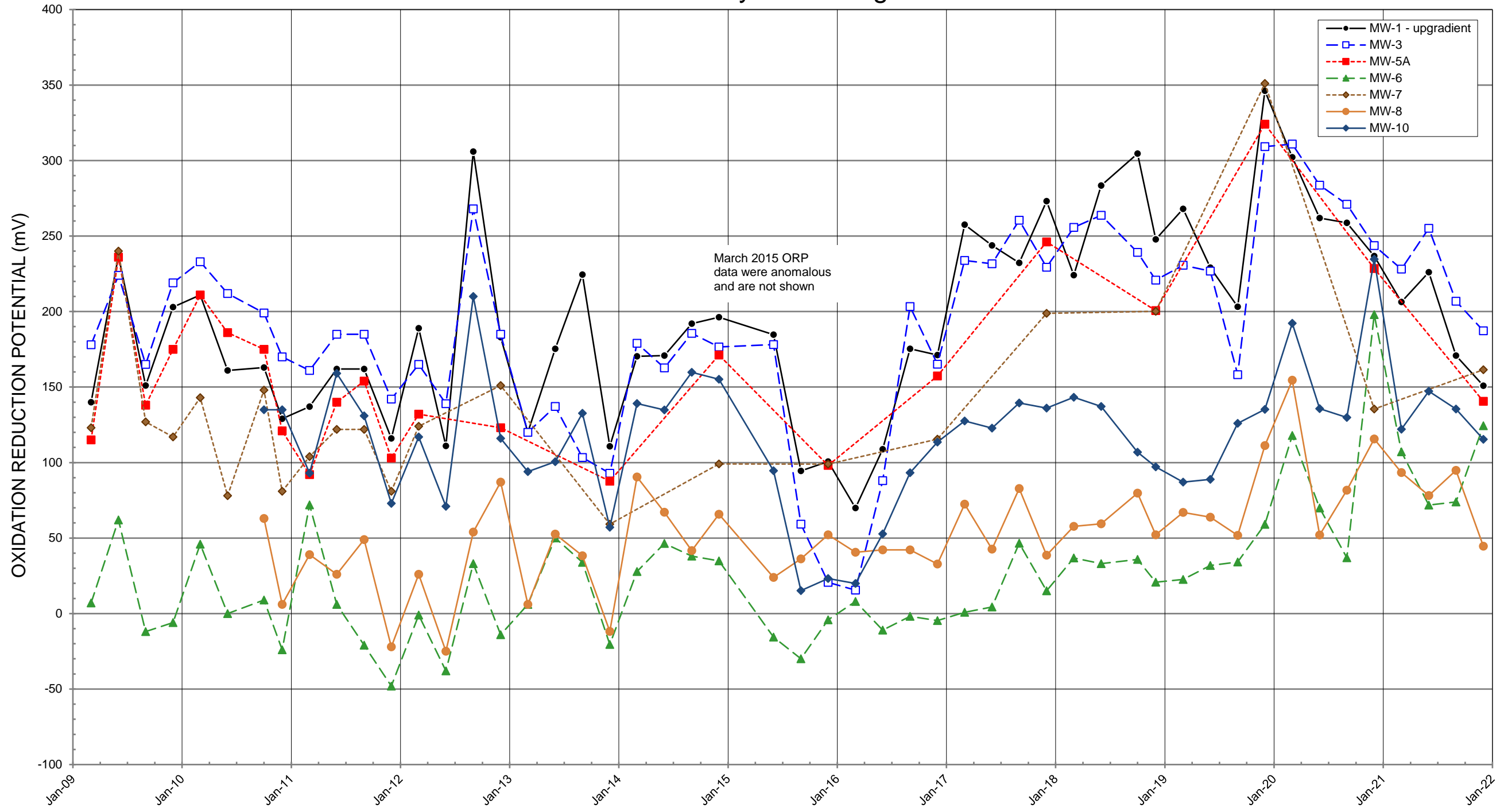
Primary Drinking Water Standard (DWS) =1 mg/L (off scale)
No Primary or Secondary Groundwater Standard (GWS) Exists

DATE

NITRITE NITROGEN
(RECENT)

OLALLA LANDFILL

Quarterly Monitoring Data



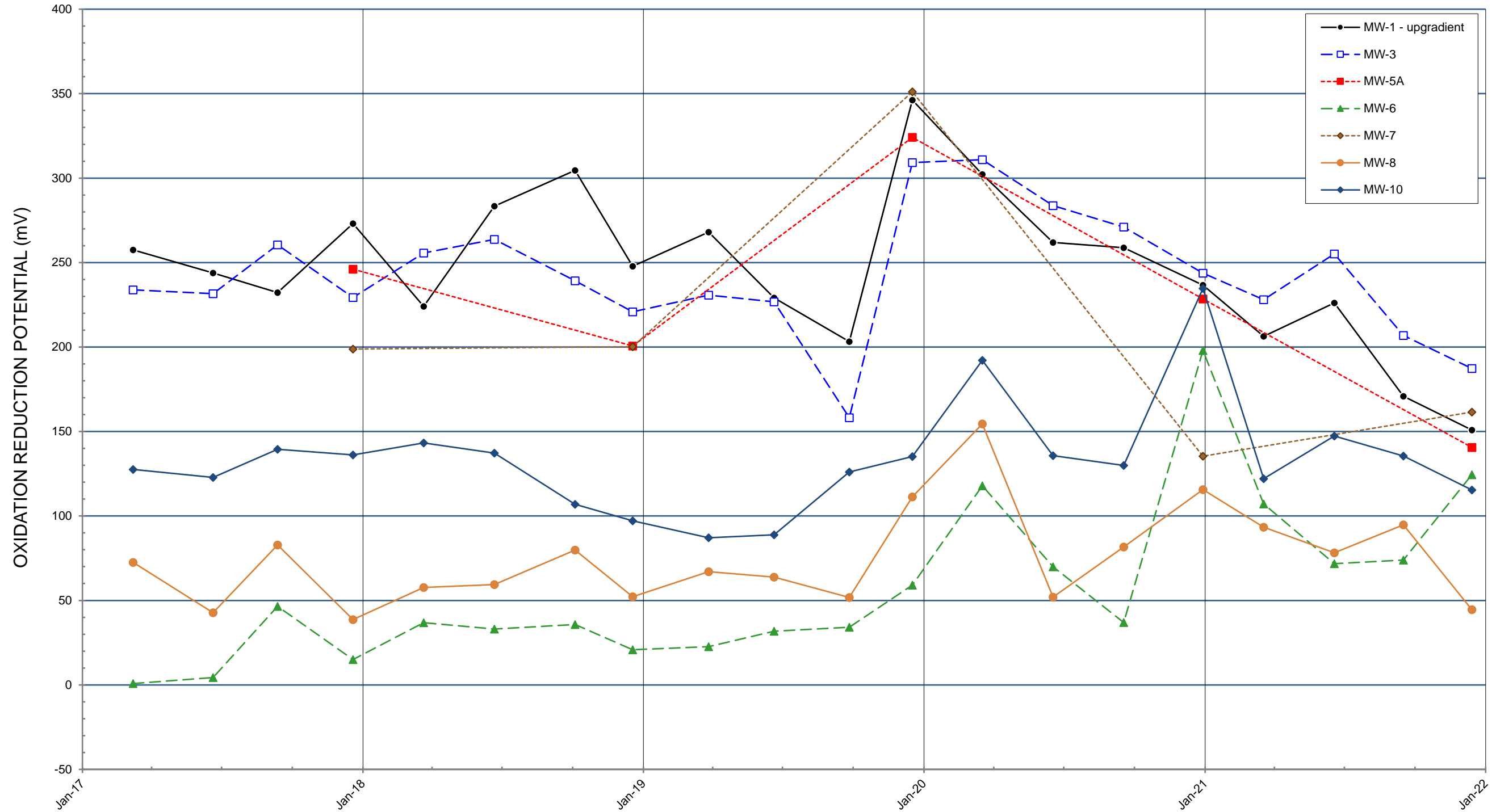
No Primary or Secondary Drinking Water Standard (DWS) Exists
 No Primary or Secondary Groundwater Standard (GWS) Exists

DATE

OXIDATION REDUCTION POTENTIAL
 (Analysis started in 2009)

OLALLA LANDFILL

Quarterly Monitoring Data (most recent five years)

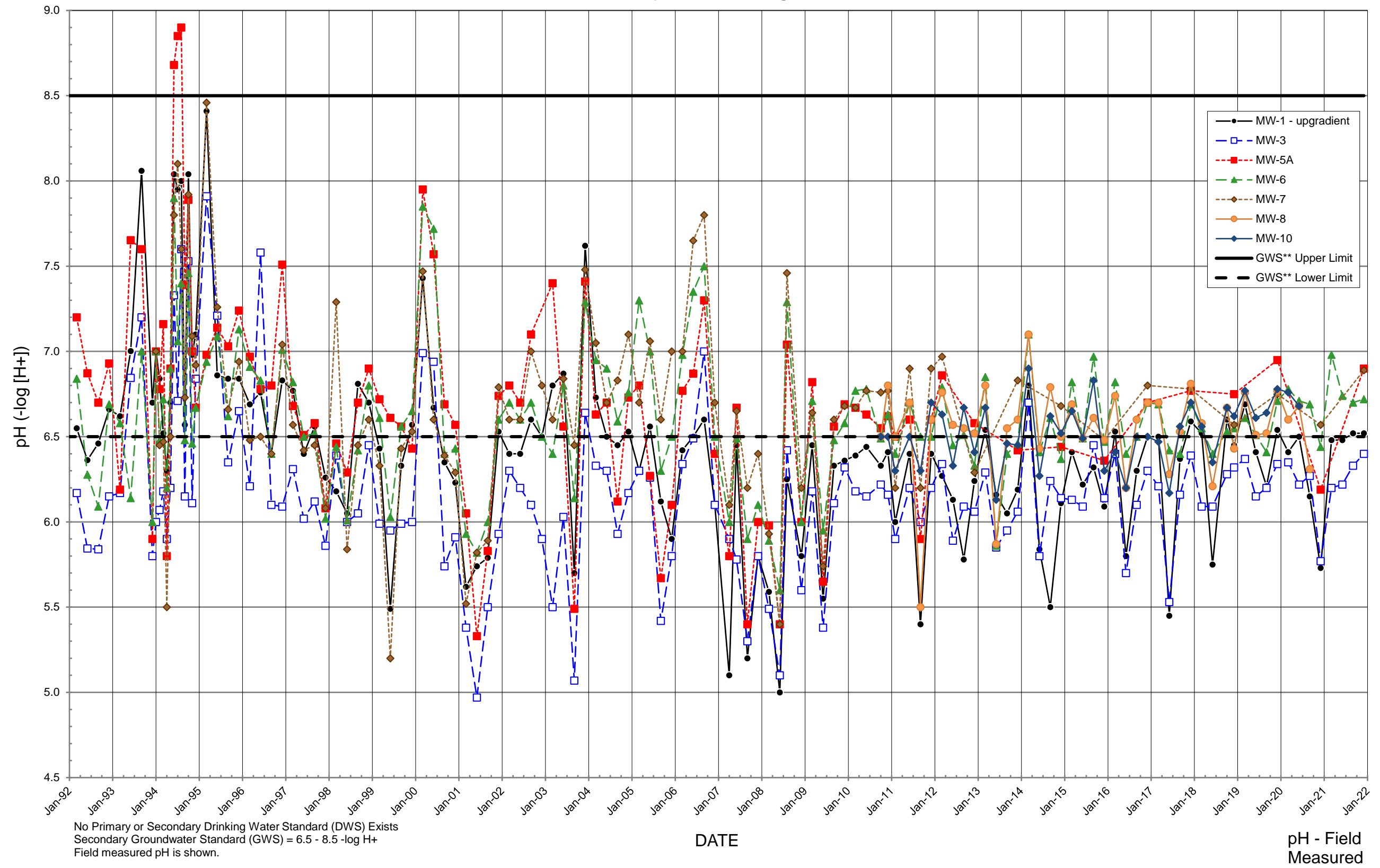


No Primary or Secondary Drinking Water Standard (DWS) Exists
 No Primary or Secondary Groundwater Standard (GWS) Exists

DATE

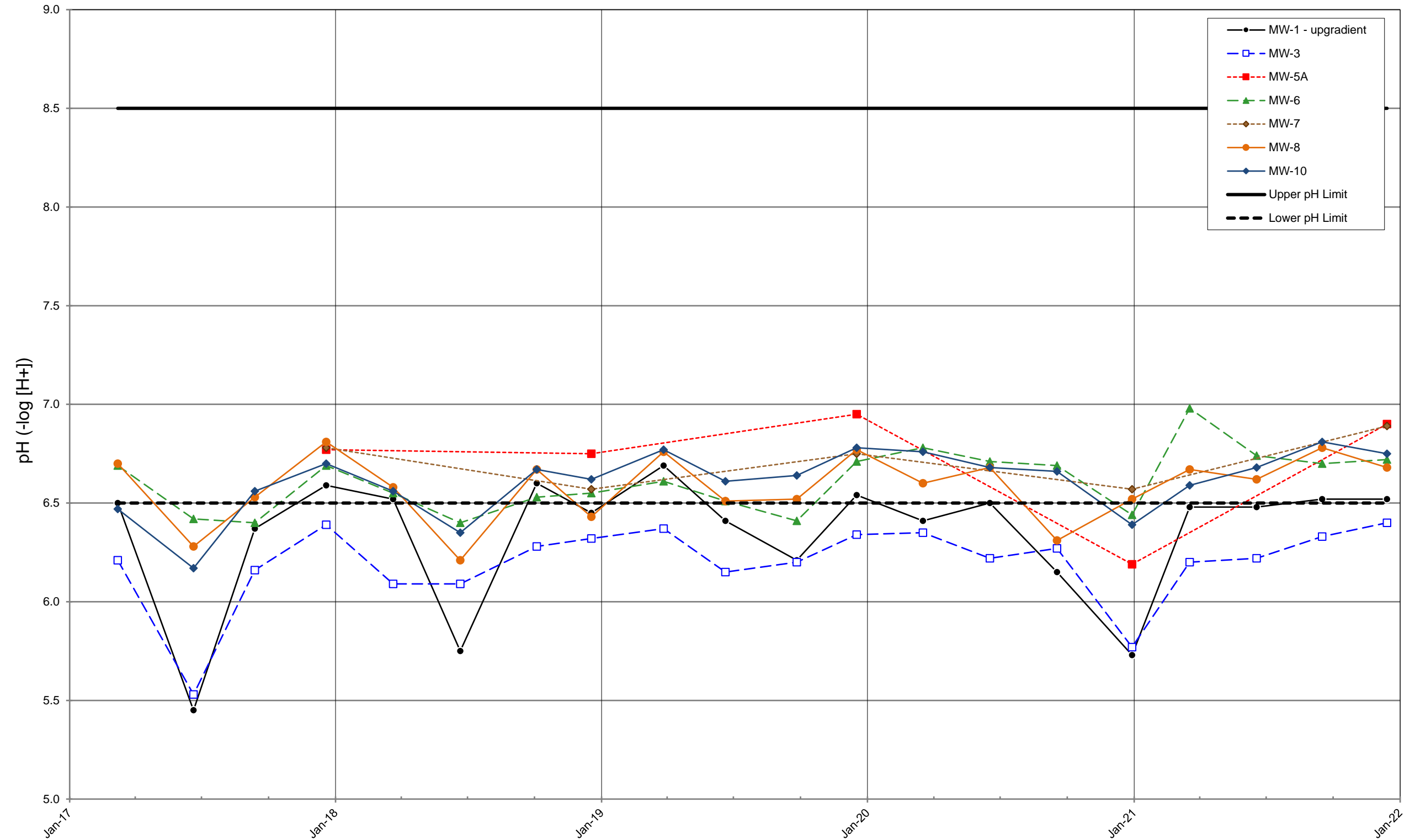
OXIDATION REDUCTION
 POTENTIAL (RECENT)

OLALLA LANDFILL Quarterly Monitoring Data



OLALLA LANDFILL

Quarterly Monitoring Data (most recent five years)

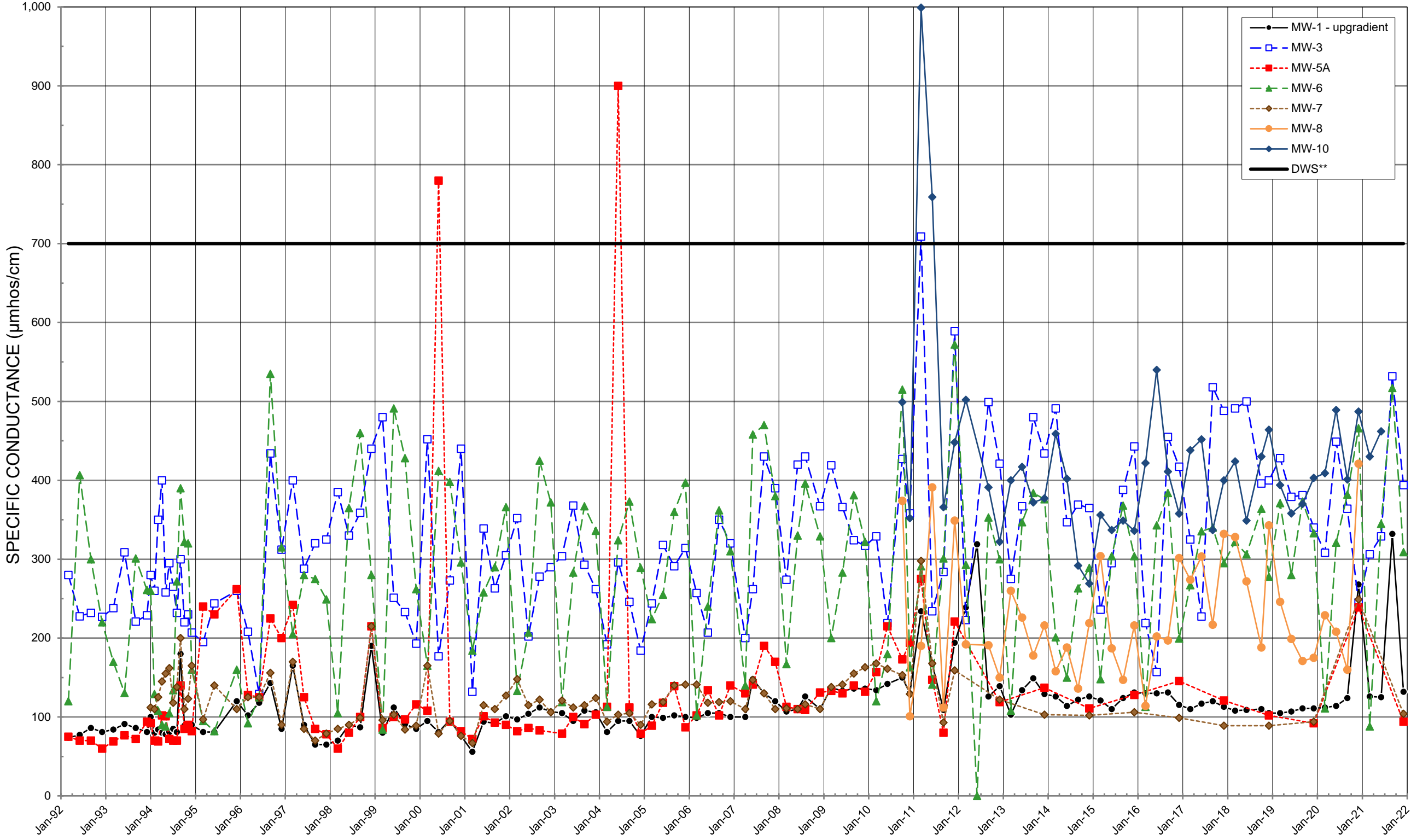


No Primary or Secondary Drinking Water Standard (DWS) Exists
 Secondary Groundwater Standard (GWS) = 6.5 - 8.5 -log H+
 Field measured pH is shown.

DATE

pH - Field Measured
 (RECENT)

OLALLA LANDFILL Quarterly Monitoring Data



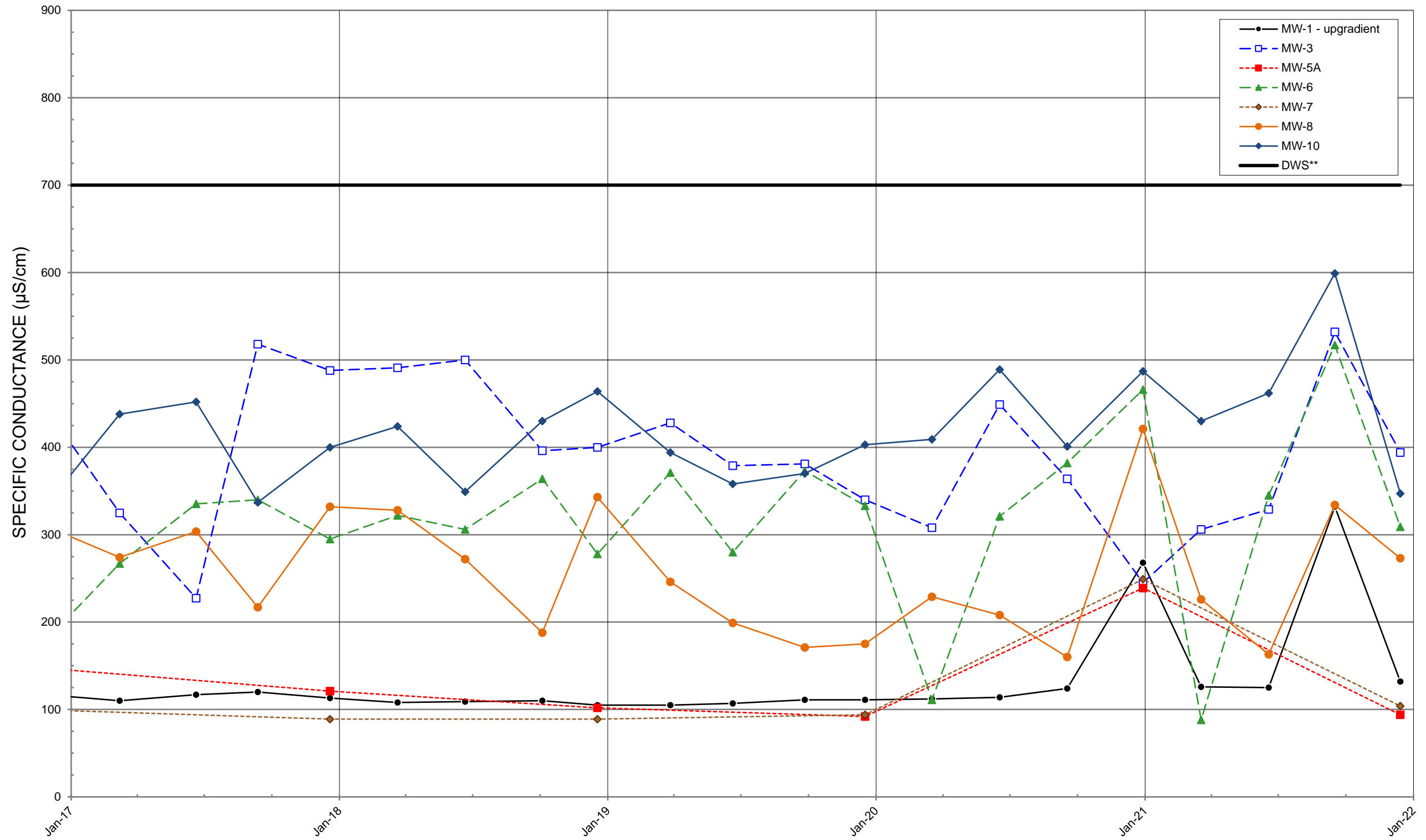
Secondary Drinking Water Standard (DWS) = 700 µmhos/cm
No Primary or Secondary Groundwater Standard (GWS) Exists

DATE

SPECIFIC CONDUCTANCE

OLALLA LANDFILL

Quarterly Monitoring Data (most recent five years)

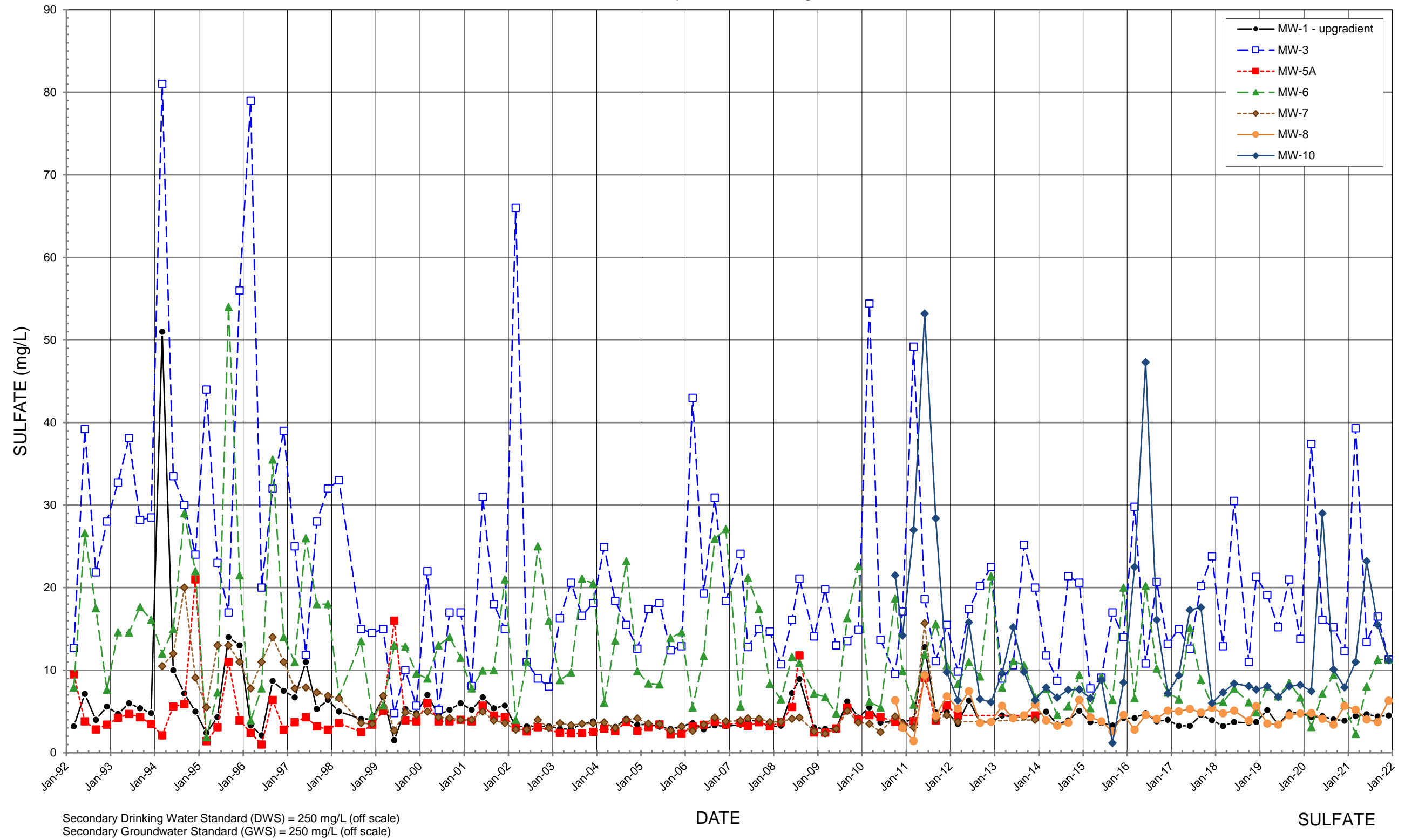


Secondary Drinking Water Standard (DWS) = 700 µS/cm
 No Primary or Secondary Groundwater Standard (GWS) Exists

DATE

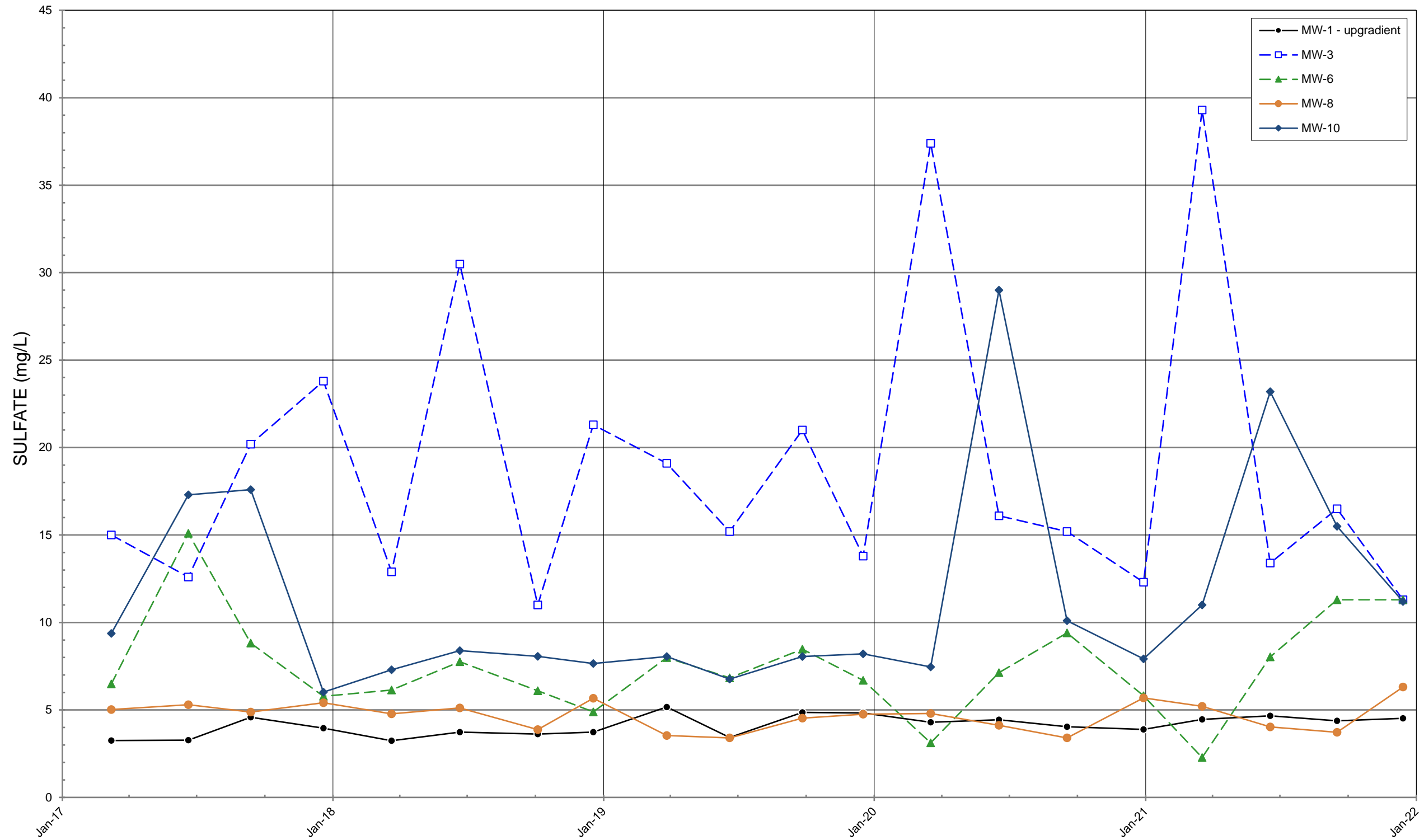
SPECIFIC CONDUCTANCE (RECENT)

OLALLA LANDFILL Quarterly Monitoring Data



OLALLA LANDFILL

Quarterly Monitoring Data (most recent five years)

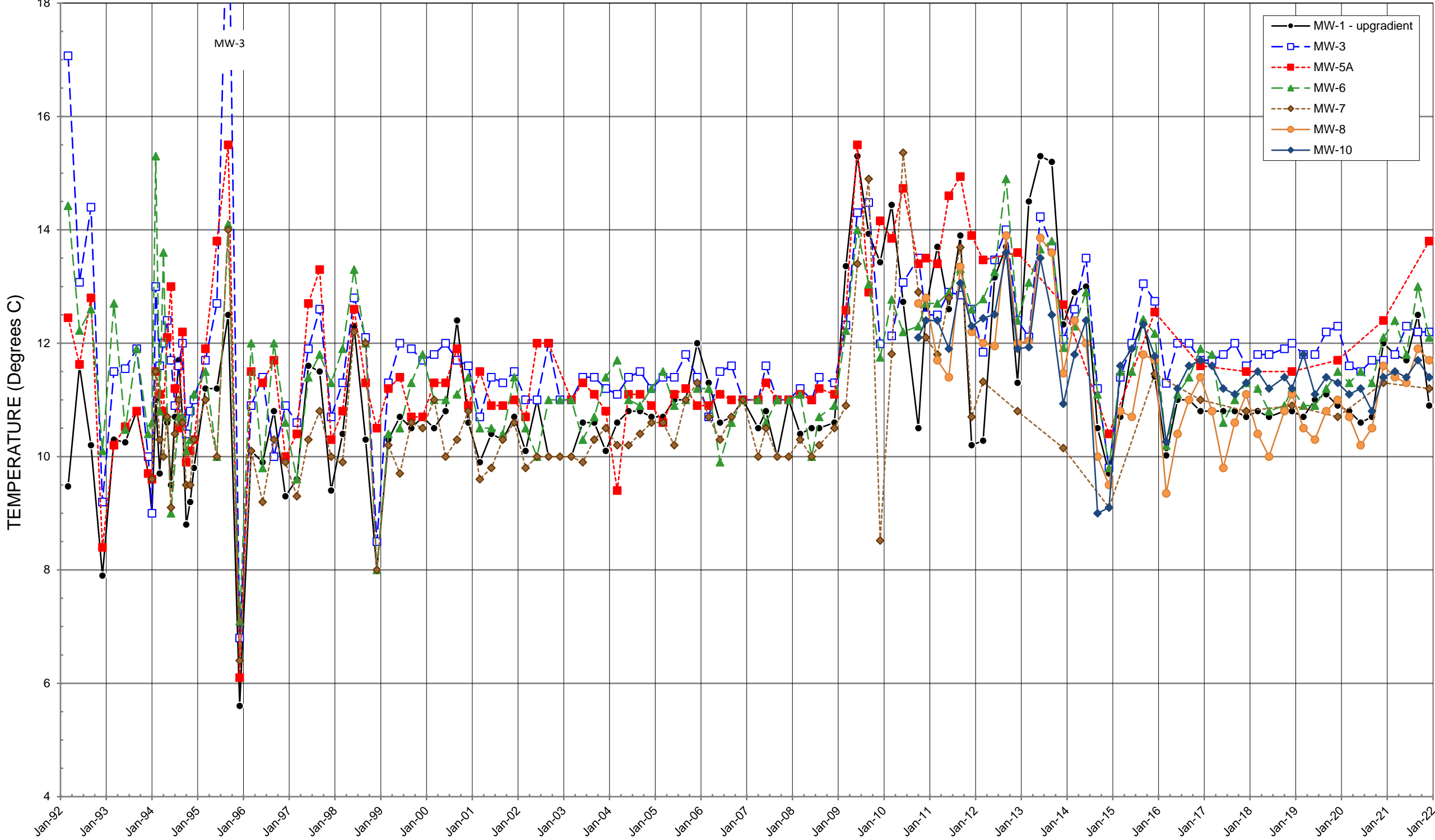


Secondary Drinking Water Standard (DWS) = 250 mg/L (off scale)
 Secondary Groundwater Standard (GWS) = 250 mg/L (off scale)

DATE

SULFATE
(RECENT)

OLALLA LANDFILL Quarterly Monitoring Data



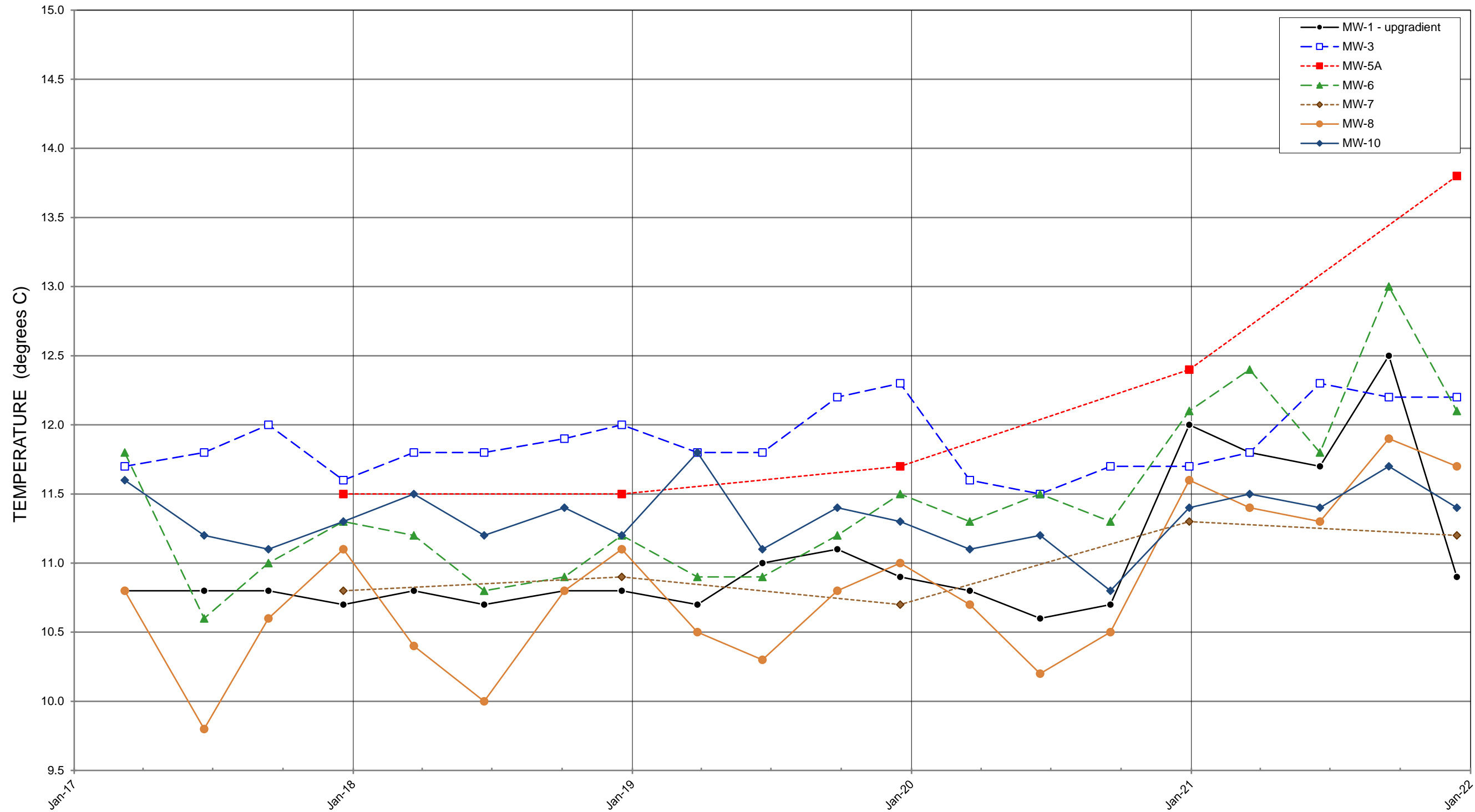
No Primary or Secondary Drinking Water Standard (DWS) Exists
No Primary or Secondary Groundwater Standard (GWS) Exists

DATE

TEMPERATURE

OLALLA LANDFILL

Quarterly Monitoring Data (most recent five years)

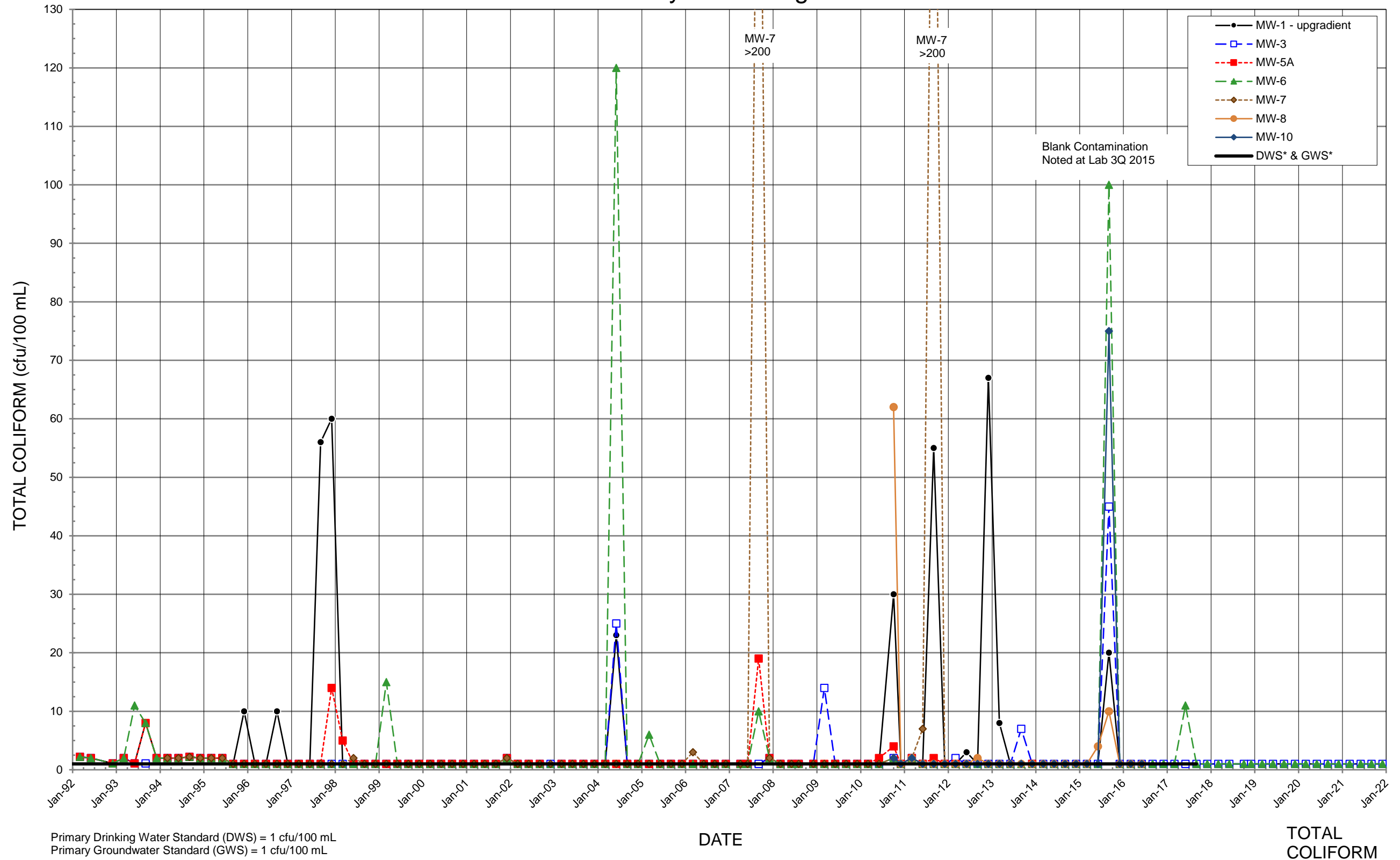


No Primary or Secondary Drinking Water Standard (DWS) Exists
 No Primary or Secondary Groundwater Standard (GWS) Exists

DATE

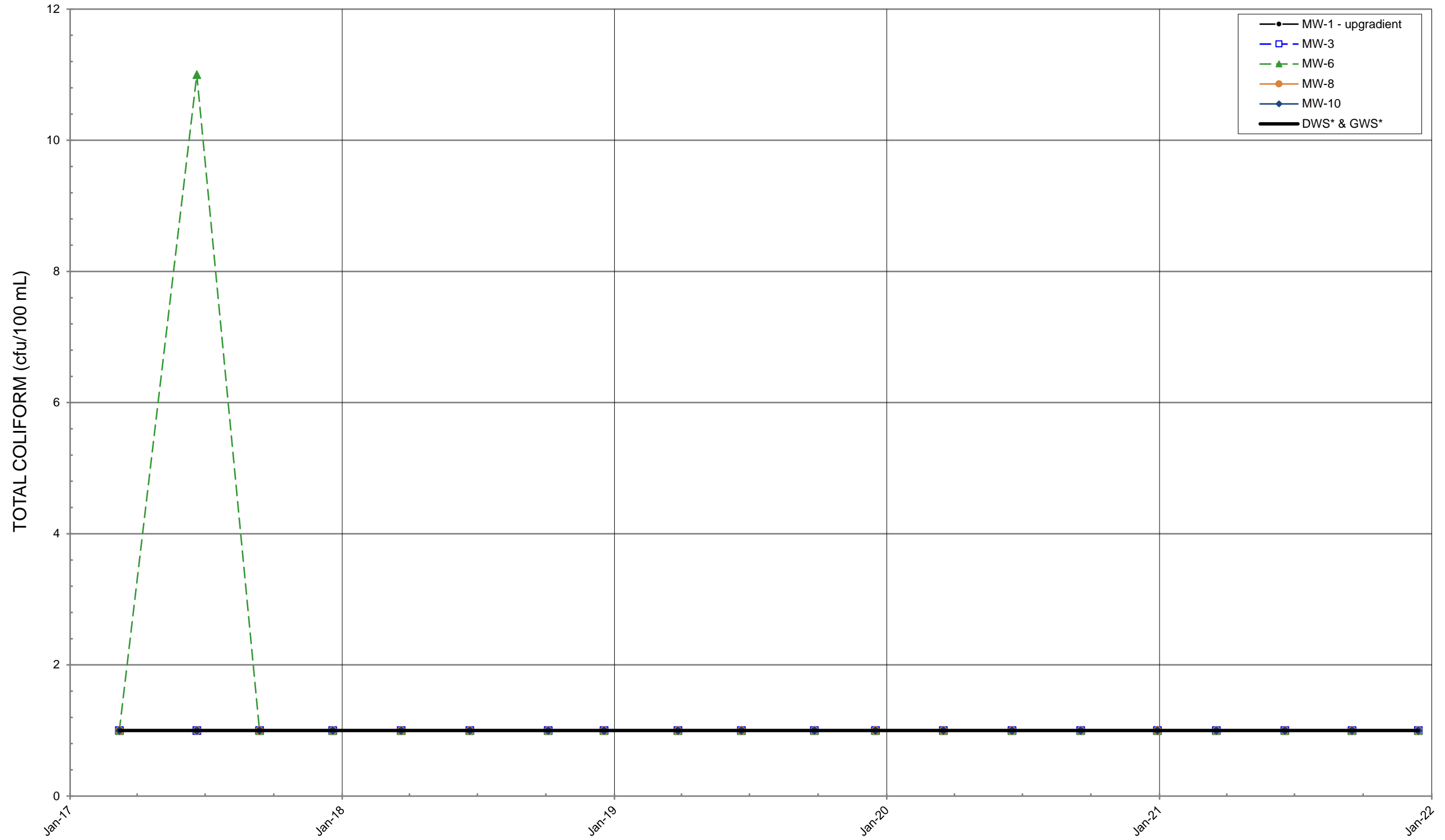
TEMPERATURE
(RECENT)

OLALLA LANDFILL Quarterly Monitoring Data



OLALLA LANDFILL

Quarterly Monitoring Data (most recent five years)



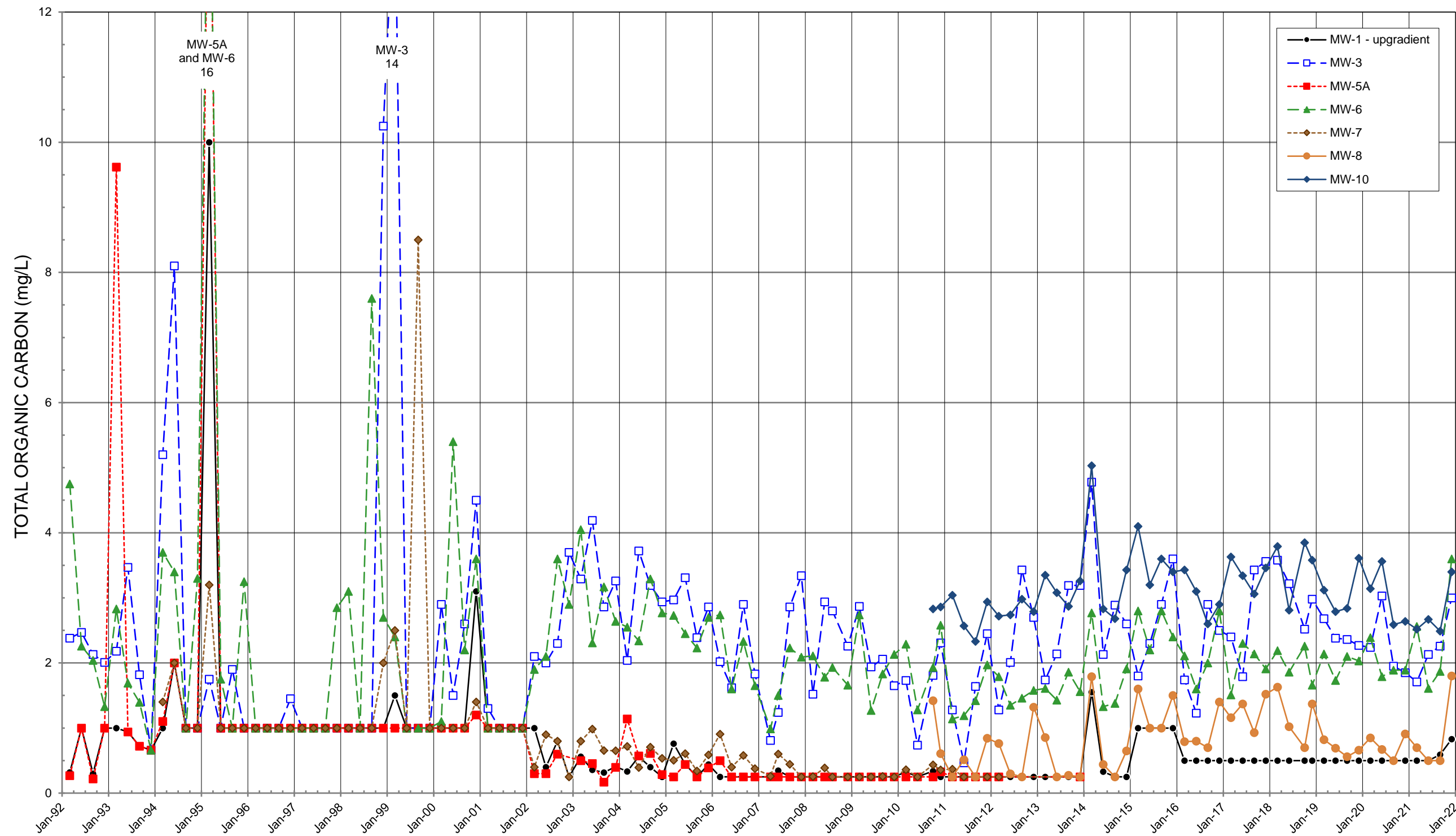
Primary Drinking Water Standard (DWS) = 1 cfu/100 mL
Primary Groundwater Standard (GWS) = 1 cfu/100 mL

DATE

TOTAL COLIFORM
(RECENT)

OLALLA LANDFILL

Quarterly Monitoring Data



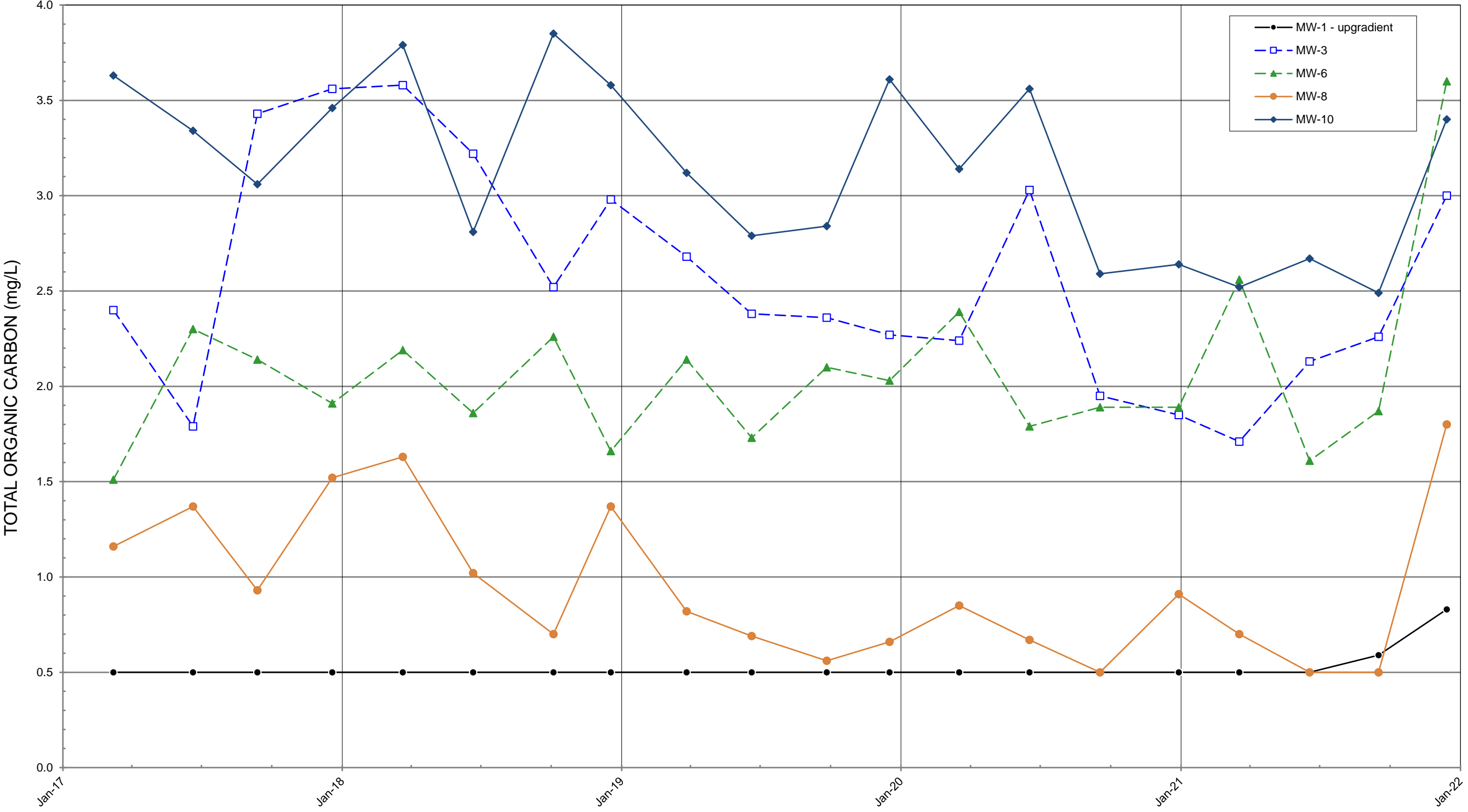
Data split (beginning 12/01) is due to a change in the Method Detection Limit
 No Primary or Secondary Drinking Water Standard (DWS) Exists
 No Primary or Secondary Groundwater Standard (GWS) Exists

DATE

TOTAL ORGANIC CARBON

OLALLA LANDFILL

Quarterly Monitoring Data (most recent five years)

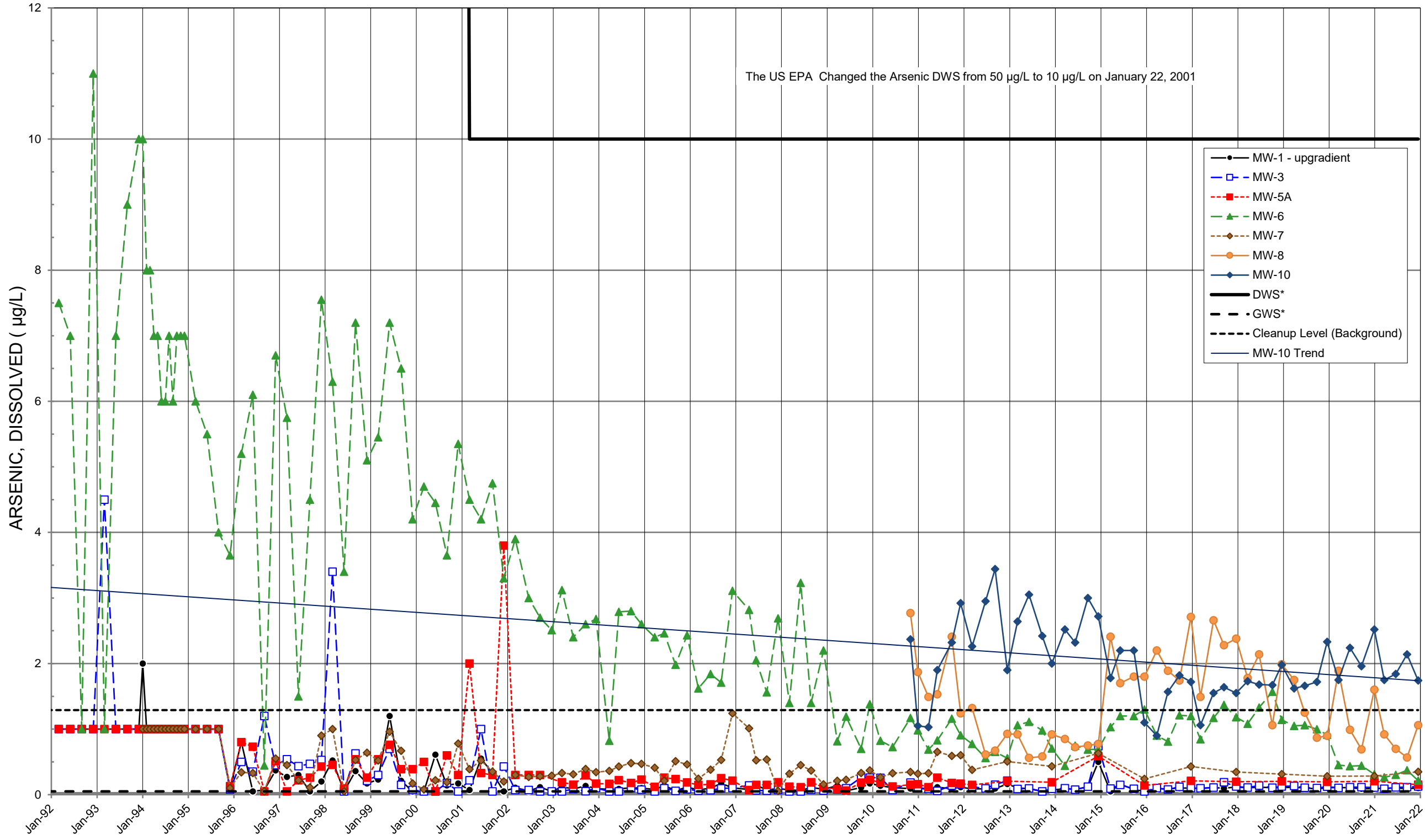


No Primary or Secondary Drinking Water Standard (DWS) Exists
No Primary or Secondary Groundwater Standard (GWS) Exists

DATE

TOTAL ORGANIC CARBON (RECENT)

OLALLA LANDFILL Quarterly Monitoring Data



The US EPA Changed the Arsenic DWS from 50 µg/L to 10 µg/L on January 22, 2001

- MW-1 - upgradient
- MW-3
- MW-5A
- ▲ MW-6
- ◆ MW-7
- MW-8
- ◆ MW-10
- DWS*
- - - GWS*
- - - Cleanup Level (Background)
- MW-10 Trend

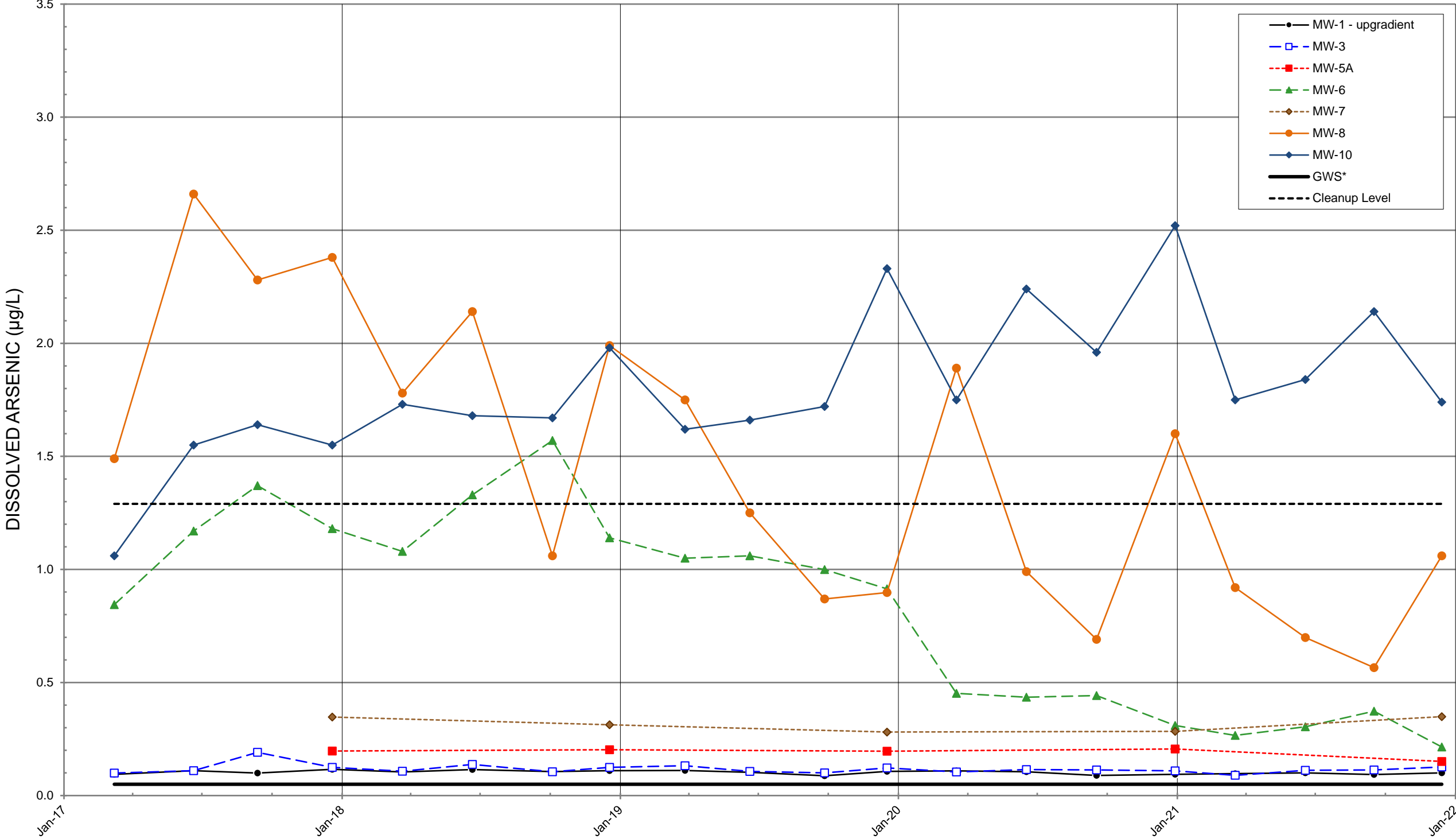
Cleanup Level (Background) = 1.29 µg/L
 Primary Drinking Water Standard (DWS) = 10 µg/L
 Primary Groundwater Standard (GWS) = 0.05 µg/L

DATE

DISSOLVED
ARSENIC

OLALLA LANDFILL

Quarterly Monitoring Data (most recent five years)

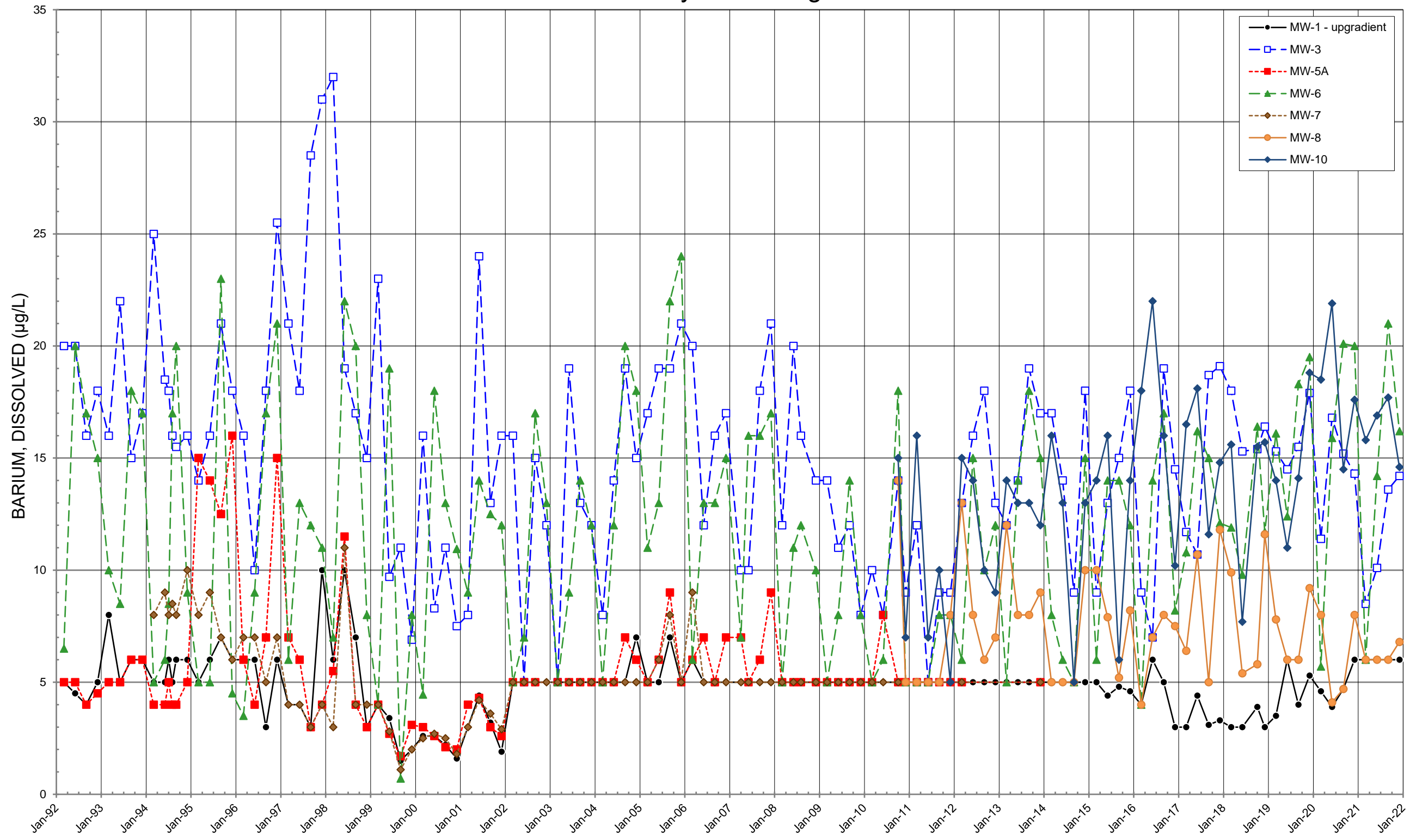


Site Specific Cleanup Level (background) = 1.29 µg/L
 Primary Drinking Water Standard (DWS) = 10 µg/L (off scale)
 Primary Groundwater Standard (GWS) = 0.05 µg/L

DATE

DISSOLVED ARSENIC
(RECENT)

OLALLA LANDFILL Quarterly Monitoring Data



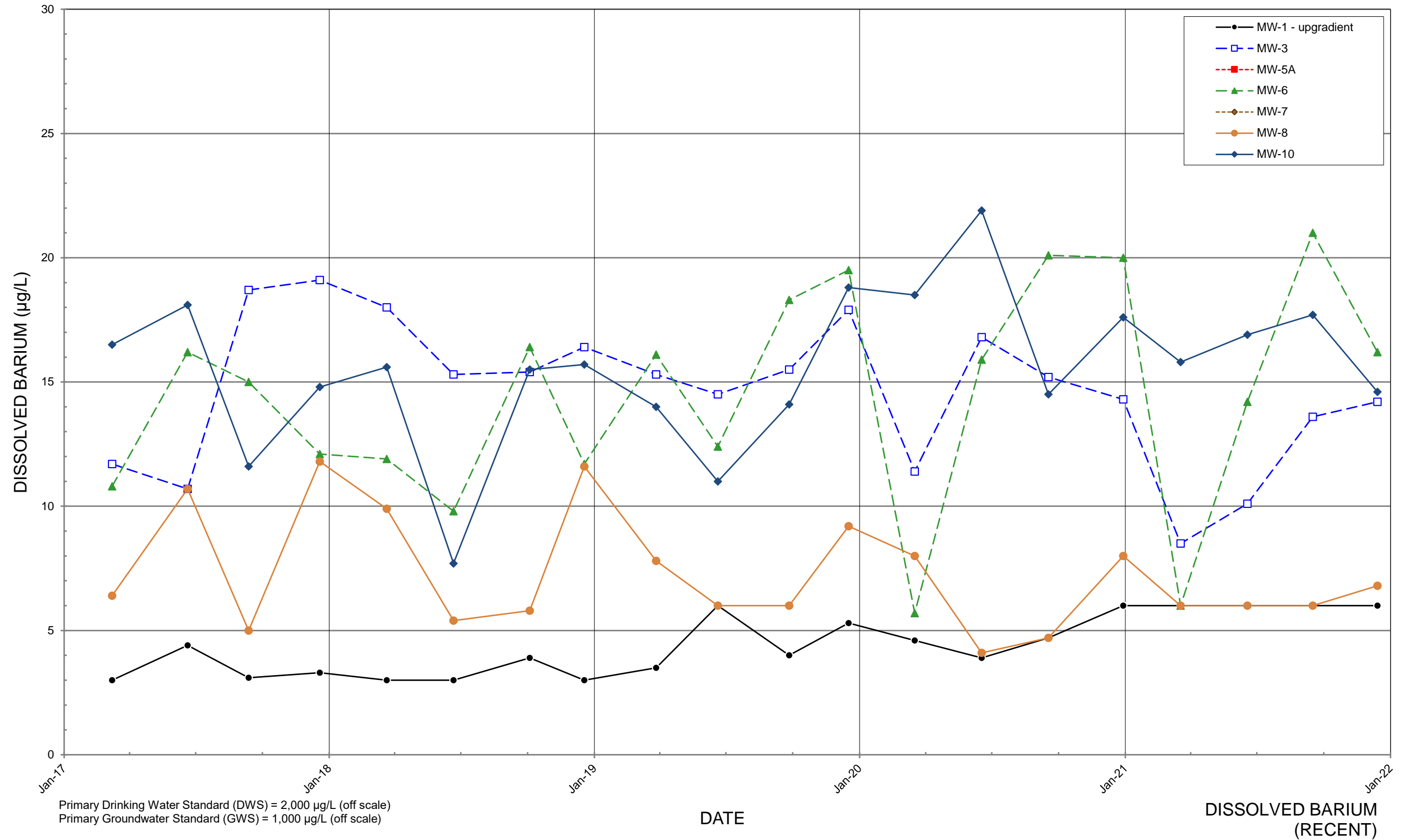
Primary Drinking Water Standard (DWS) = 2000 µg/L (off scale)
 Primary Groundwater Standard (GWS) = 1000 µg/L (off scale)

DATE

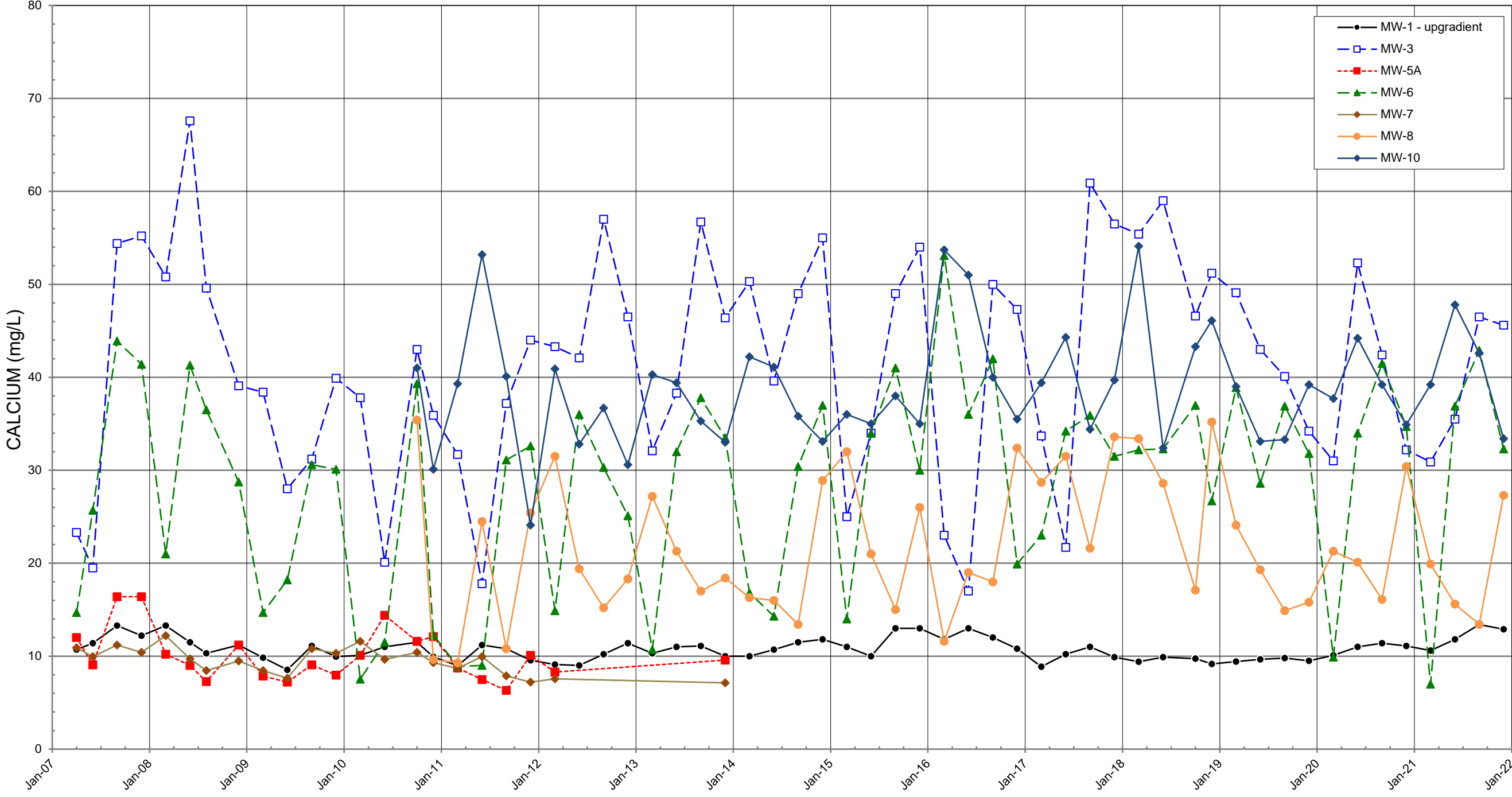
DISSOLVED
BARIUM

OLALLA LANDFILL

Quarterly Monitoring Data (most recent five years)



OLALLA LANDFILL Quarterly Monitoring Data



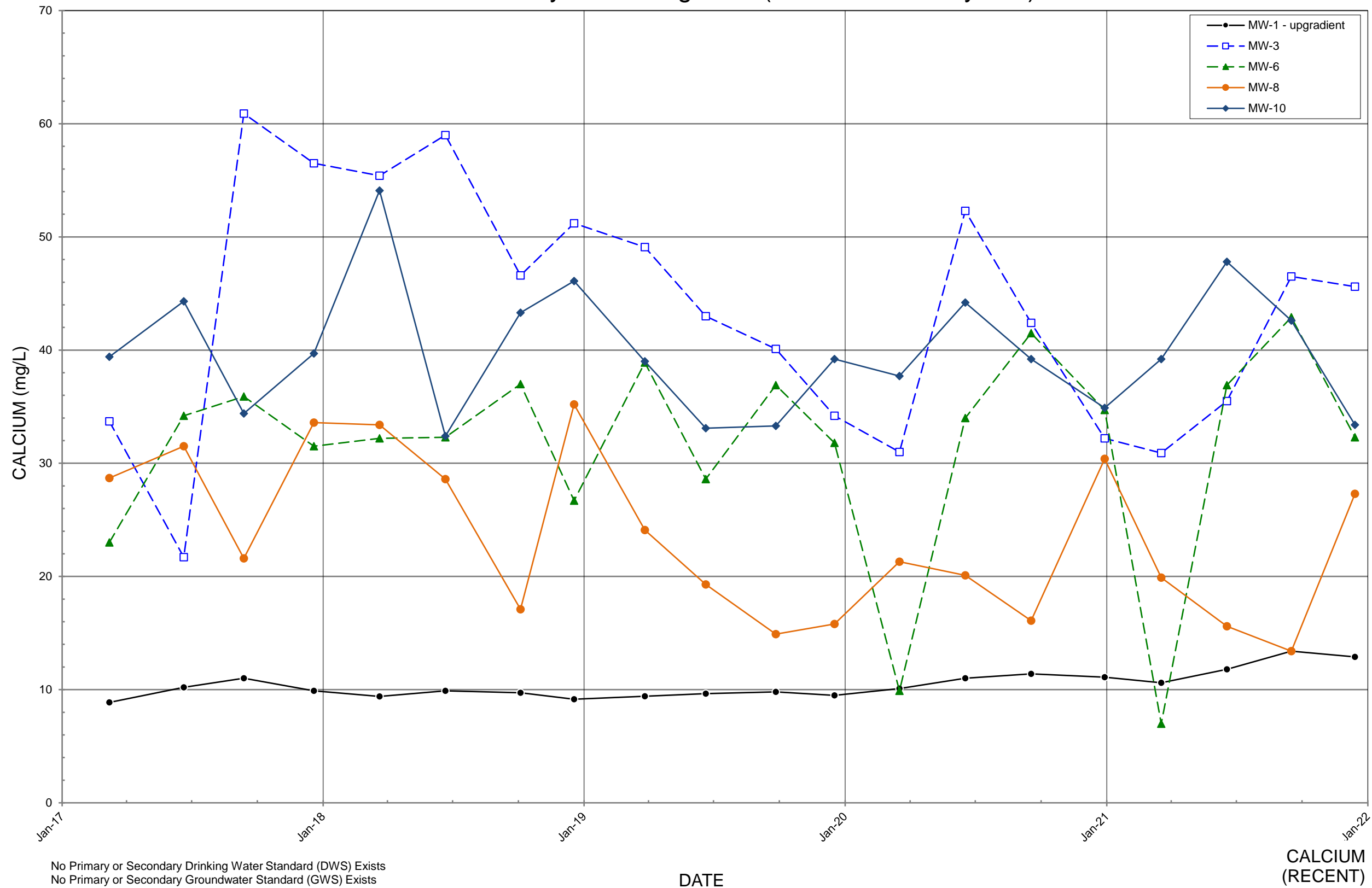
No Primary or Secondary Drinking Water Standard (DWS) Exists
 No Primary or Secondary Groundwater Standard (GWS) Exists

DATE

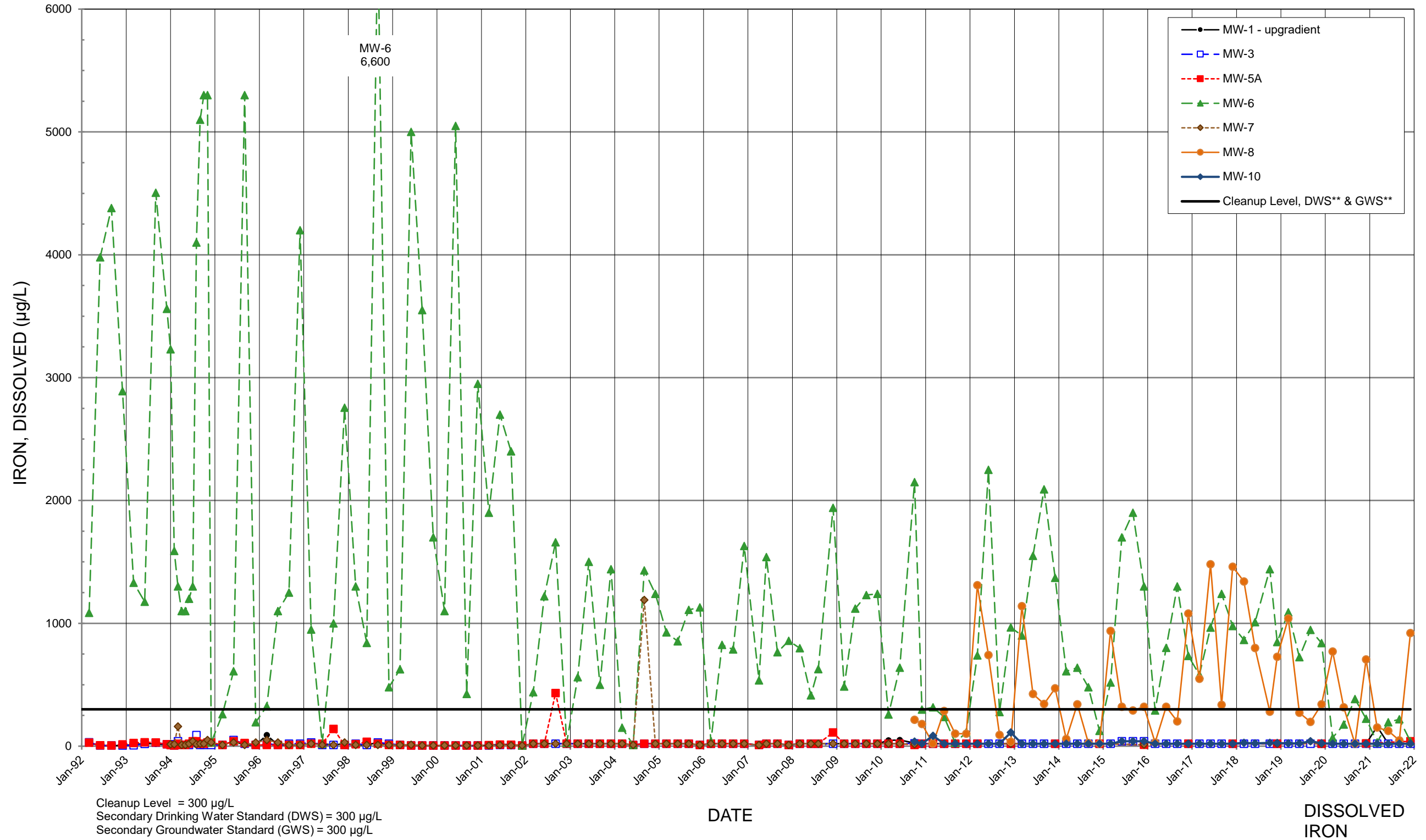
CALCIUM
 (Analysis started in 2007)

OLALLA LANDFILL

Quarterly Monitoring Data (most recent five years)

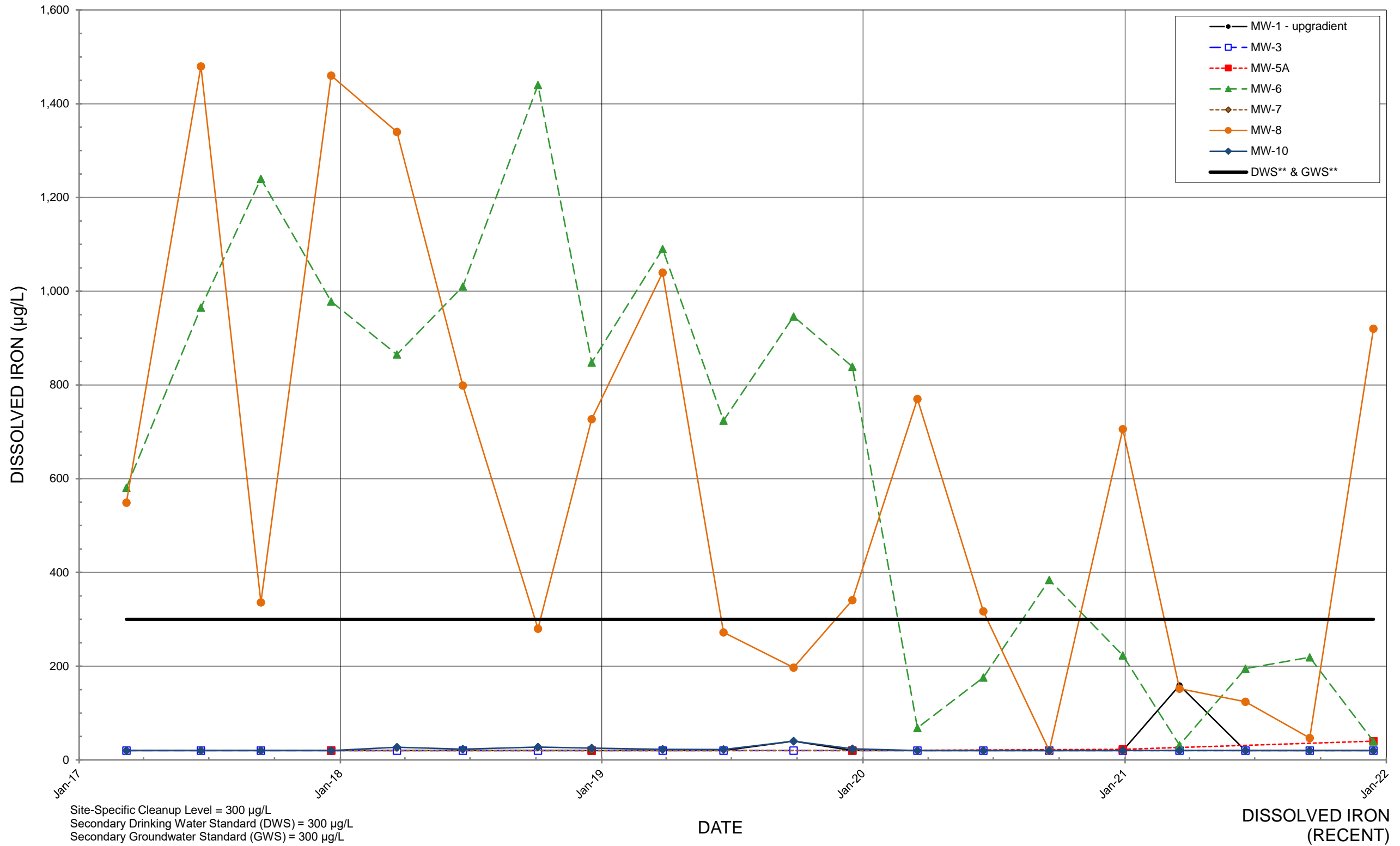


OLALLA LANDFILL Quarterly Monitoring Data

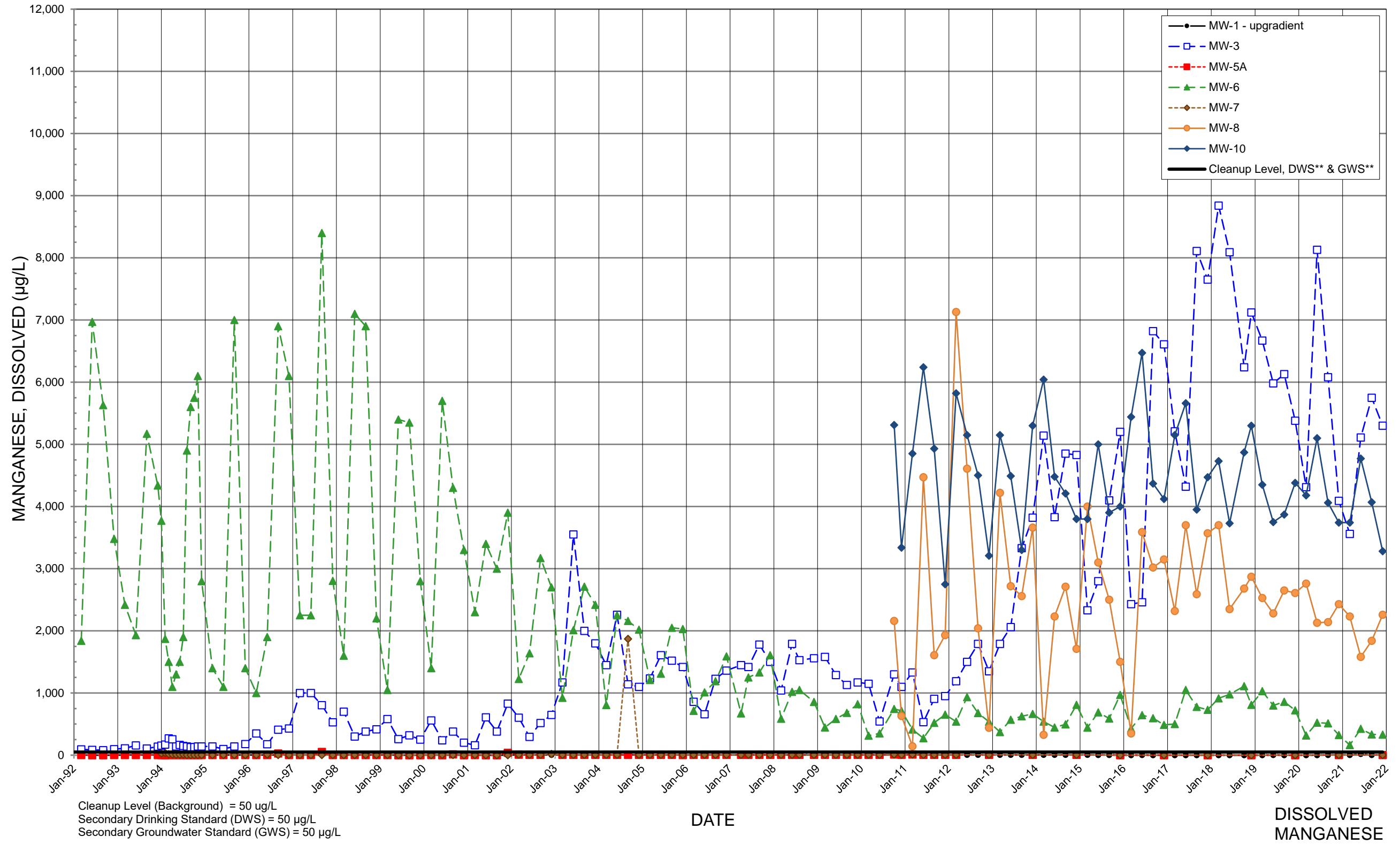


OLALLA LANDFILL

Quarterly Monitoring Data (most recent five years)

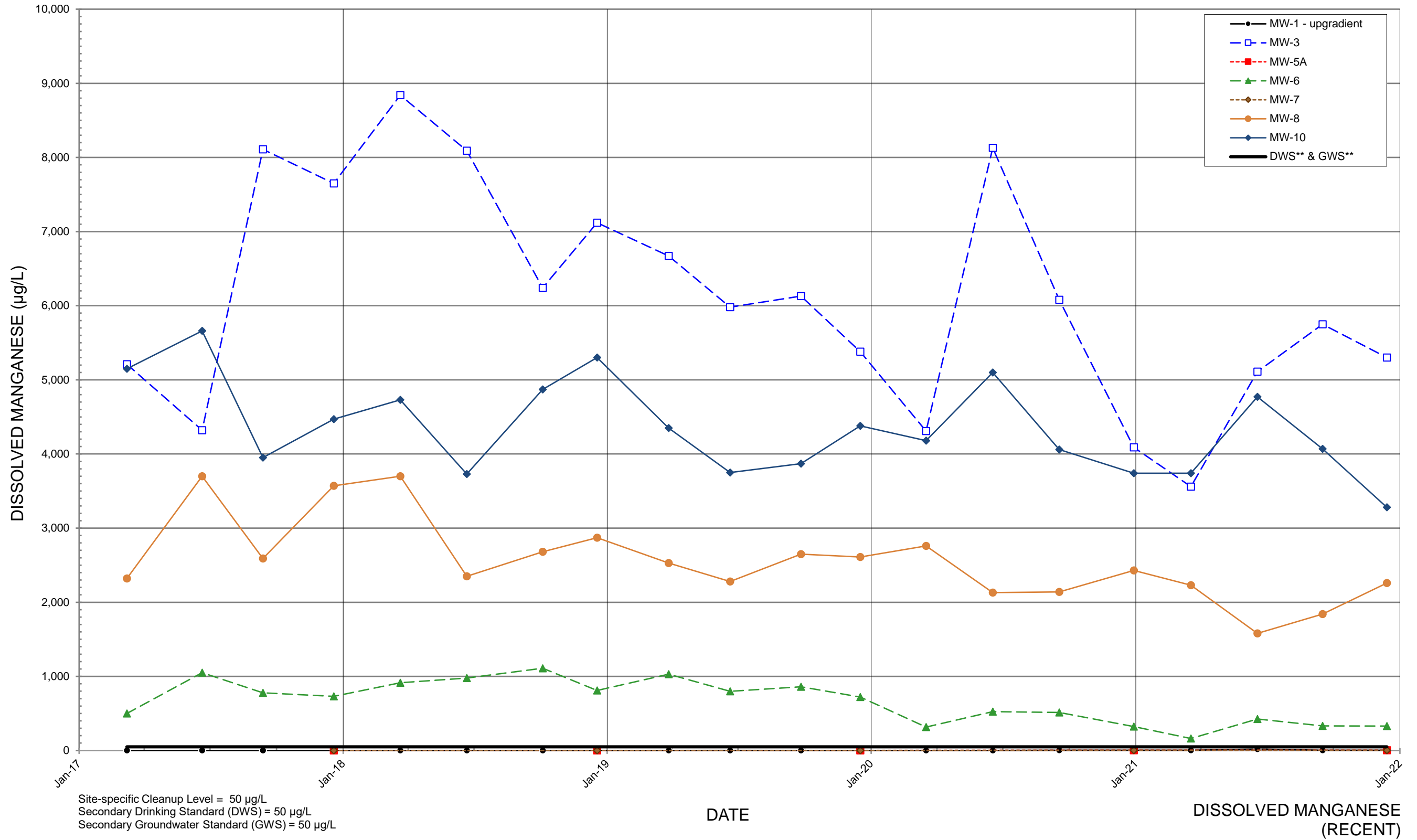


OLALLA LANDFILL Quarterly Monitoring Data

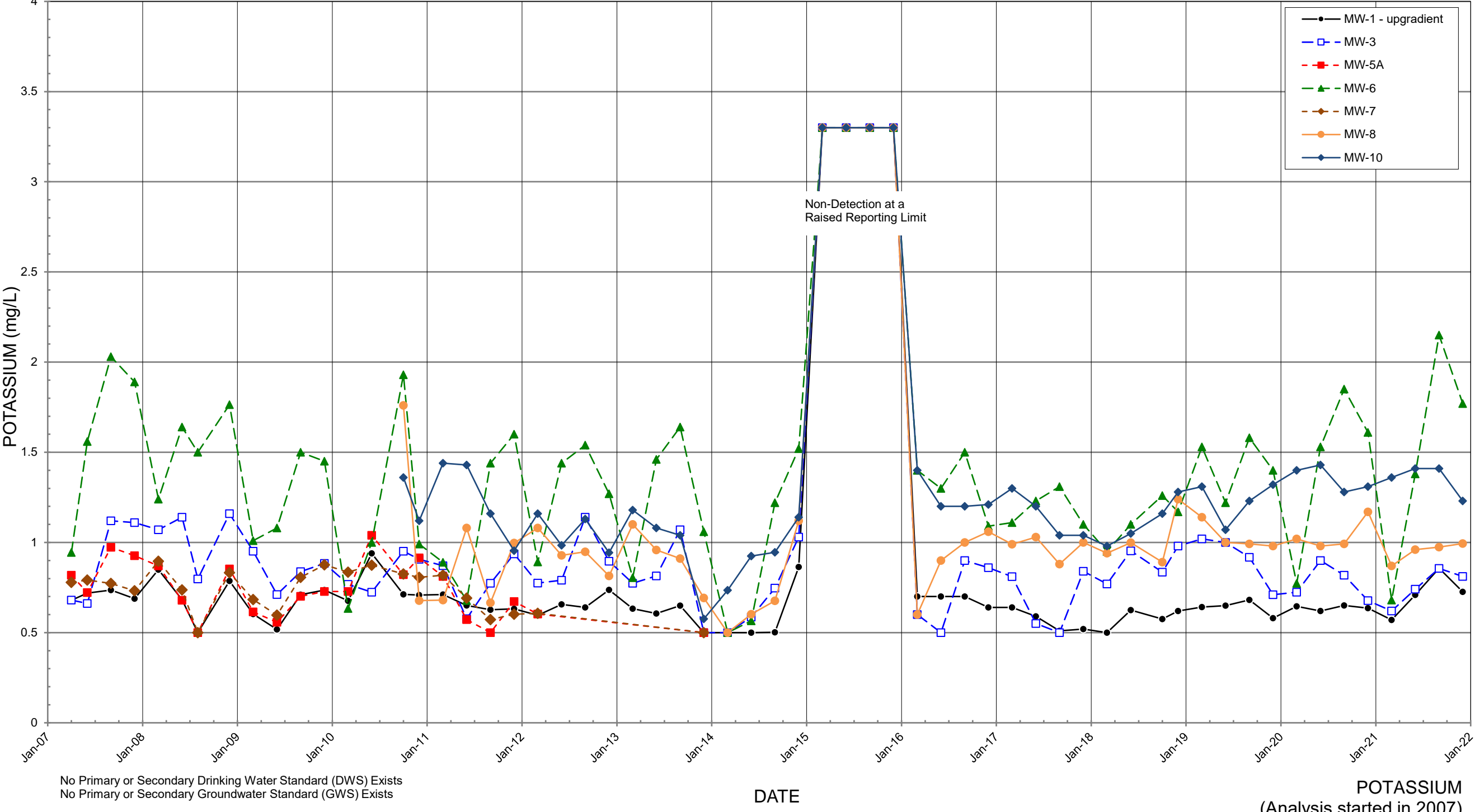


OLALLA LANDFILL

Quarterly Monitoring Data (most recent five years)

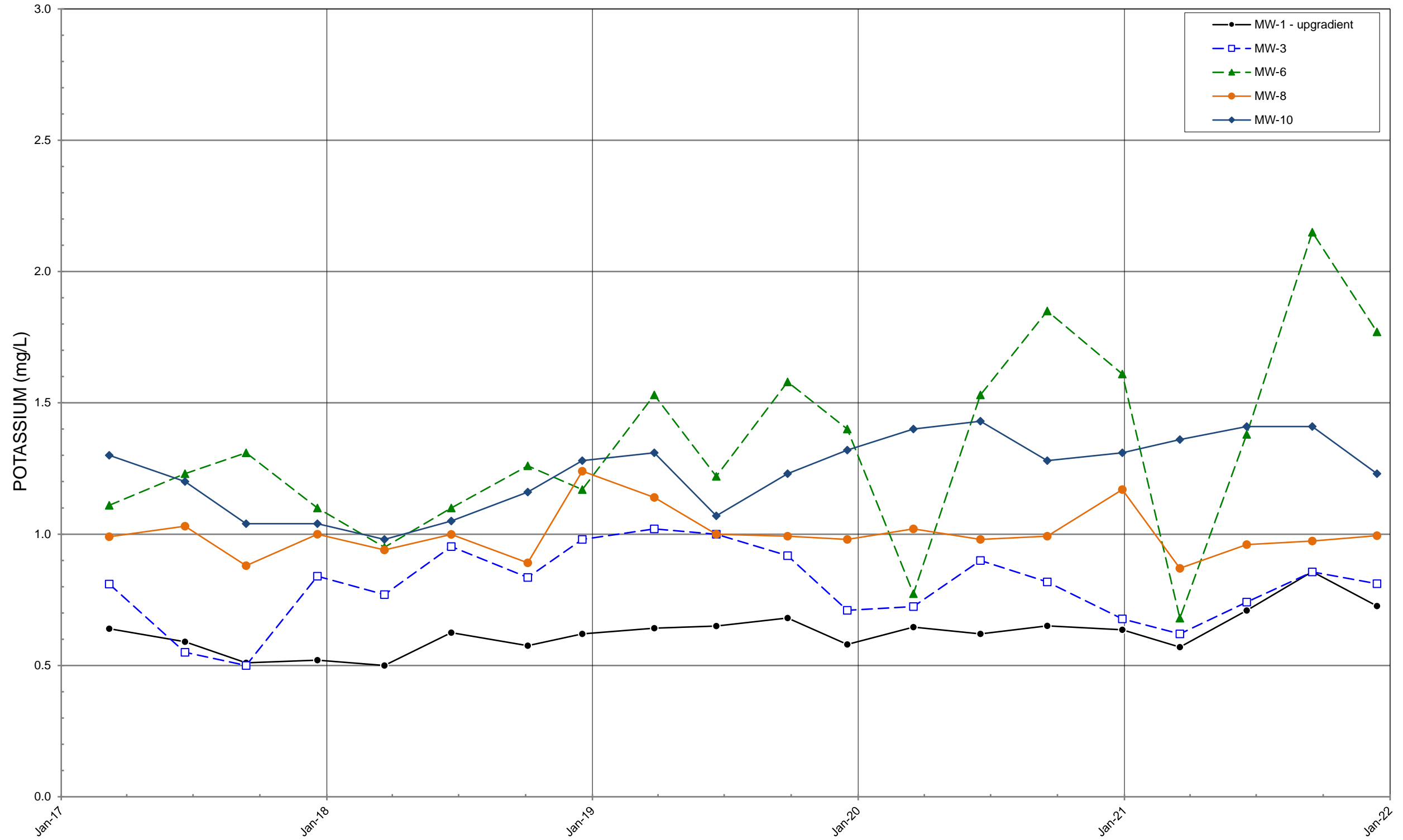


OLALLA LANDFILL Quarterly Monitoring Data



OLALLA LANDFILL

Quarterly Monitoring Data (most recent five years)

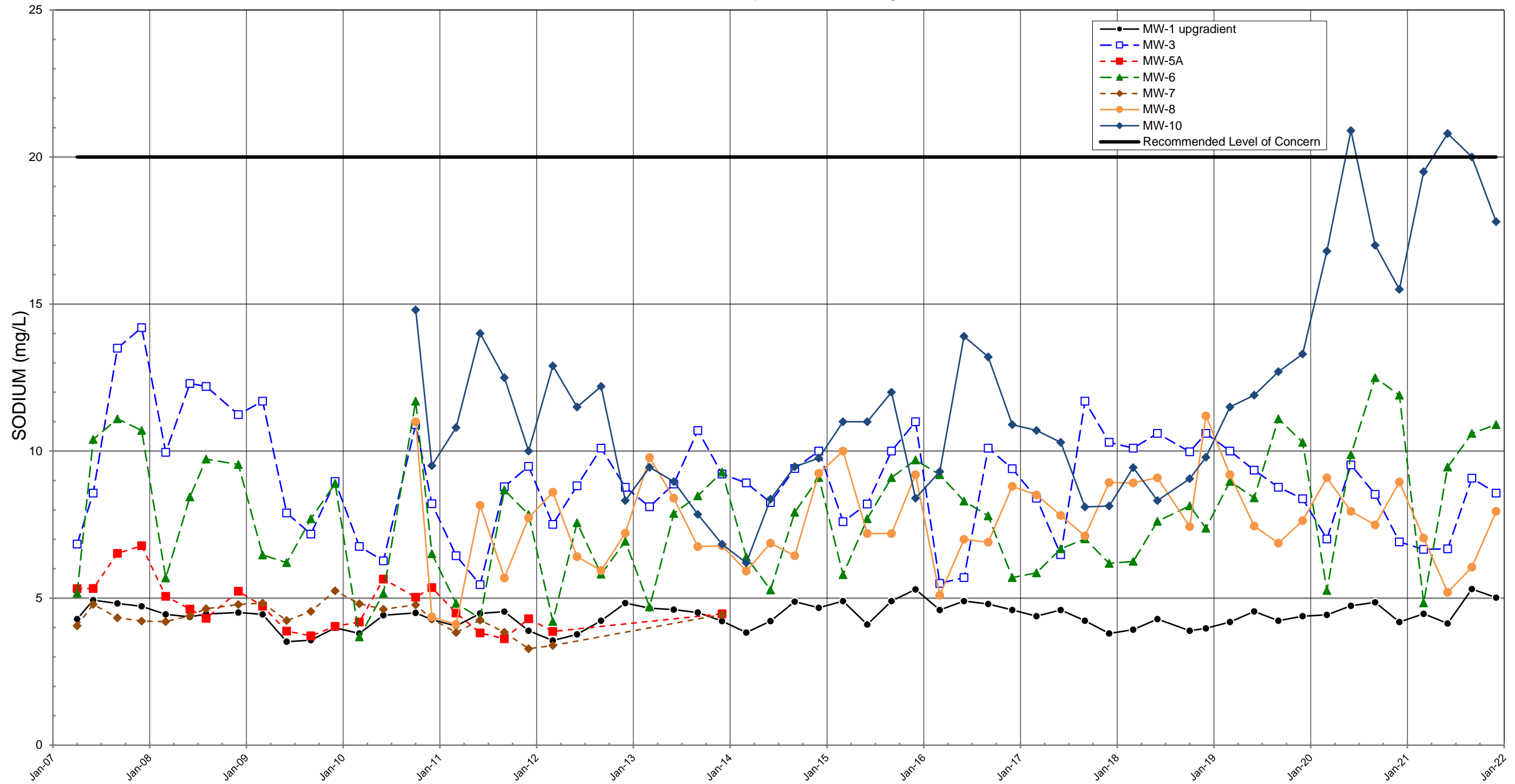


No Primary or Secondary Drinking Water Standard (DWS) Exists
No Primary or Secondary Groundwater Standard (GWS) Exists

DATE

POTASSIUM
(RECENT)

OLALLA LANDFILL Quarterly Monitoring Data



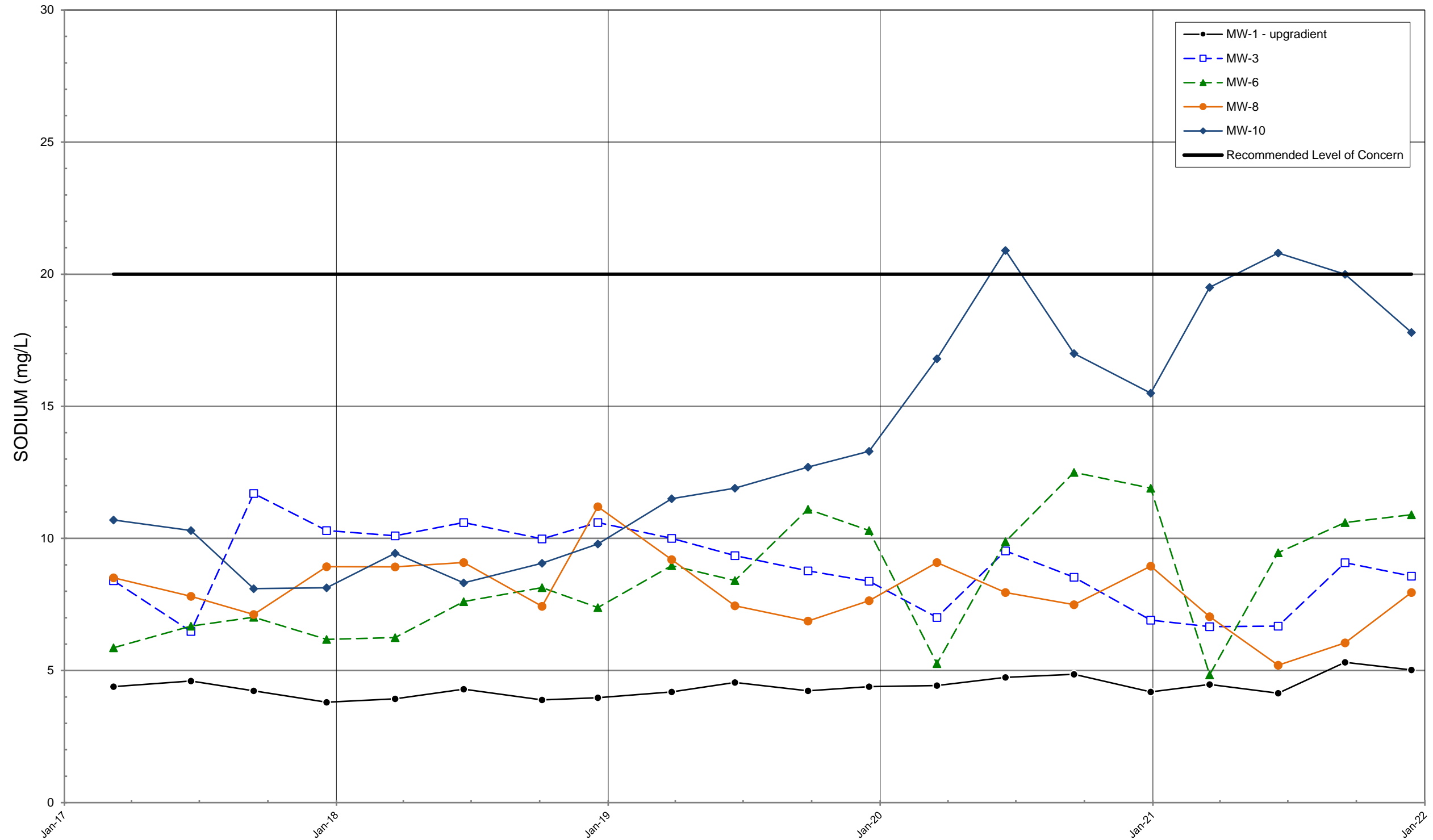
No Primary or Secondary Drinking Water Standard (DWS) Exists
 No Primary or Secondary Groundwater Standard (GWS) Exists.
 Recommended level of concern for consumers with restricted daily sodium intake is 20 mg/L.

DATE

SODIUM
 (Analysis started in 2007)

OLALLA LANDFILL

Quarterly Monitoring Data (most recent five years)

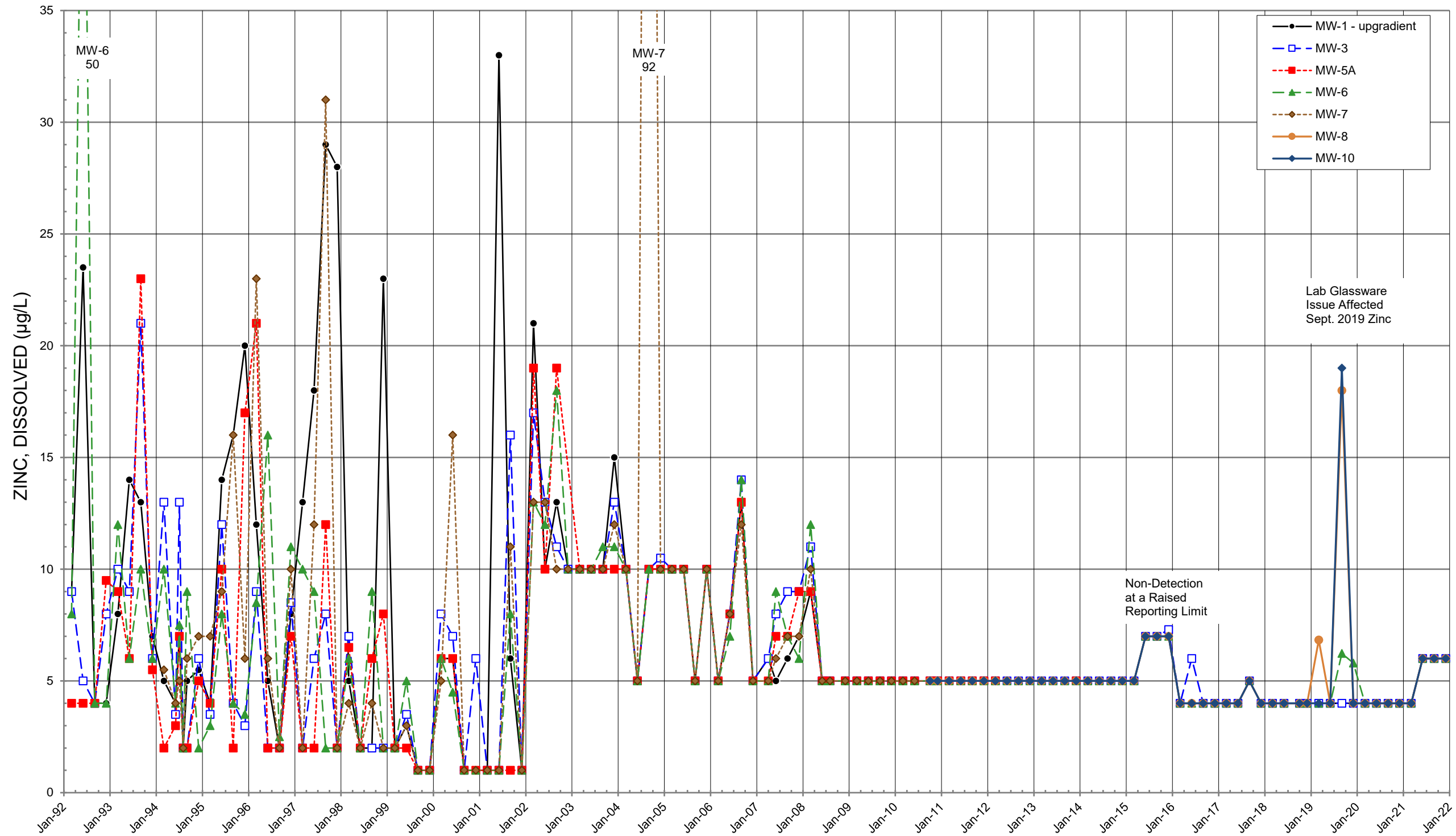


No Primary or Secondary Drinking Water Standard (DWS) Exists. Recommended level of concern for consumers with restricted daily sodium intake is 20 mg/L
 No Primary or Secondary Groundwater Standard (GWS) Exists

DATE

SODIUM (RECENT)

OLALLA LANDFILL Quarterly Monitoring Data

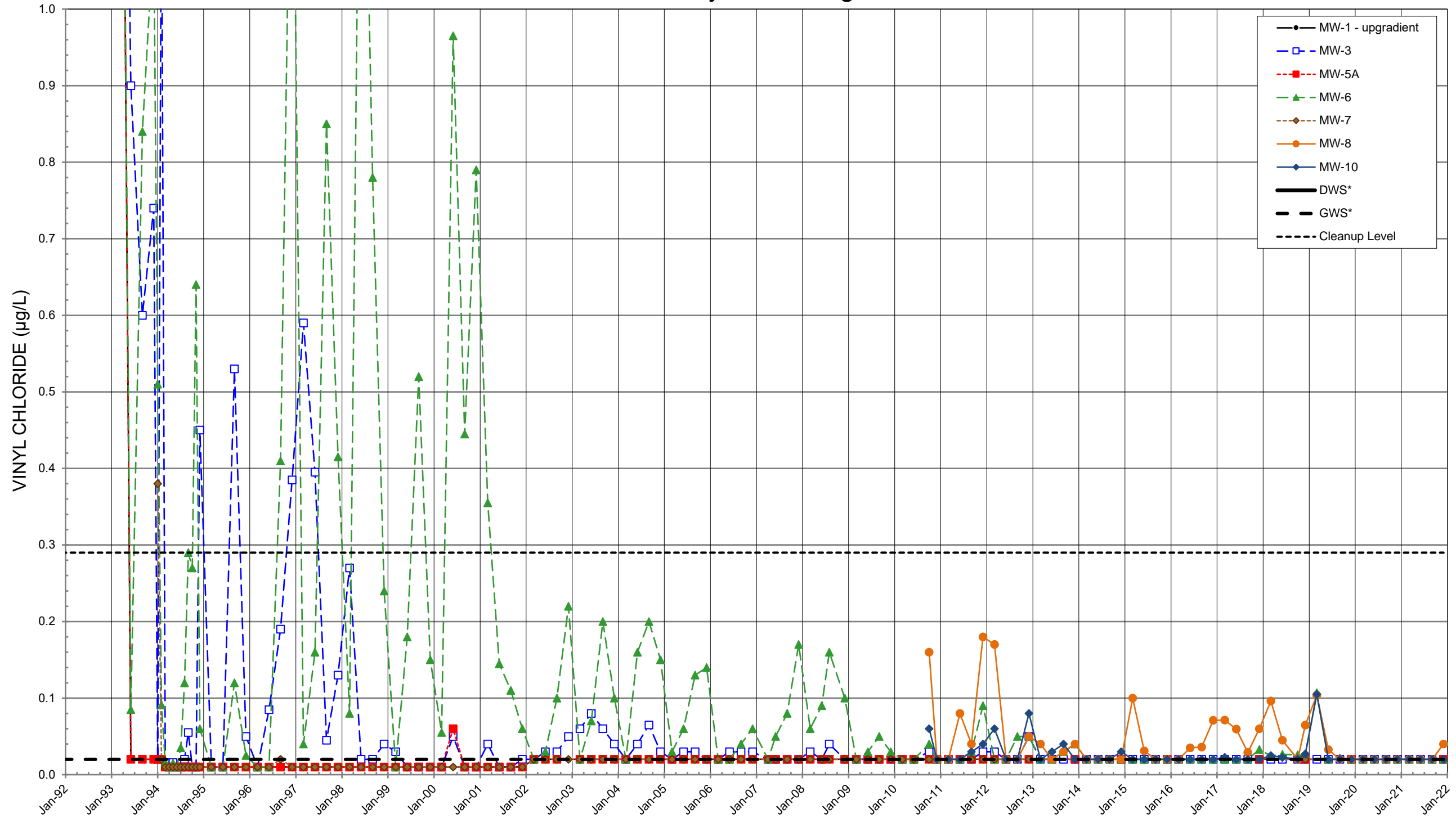


Secondary Drinking Water Standard (DWS) = 5000 µg/L (off scale)
 Secondary Groundwater Standard (GWS) = 5000 µg/L (off scale)

DATE

DISSOLVED
ZINC

OLALLA LANDFILL Quarterly Monitoring Data



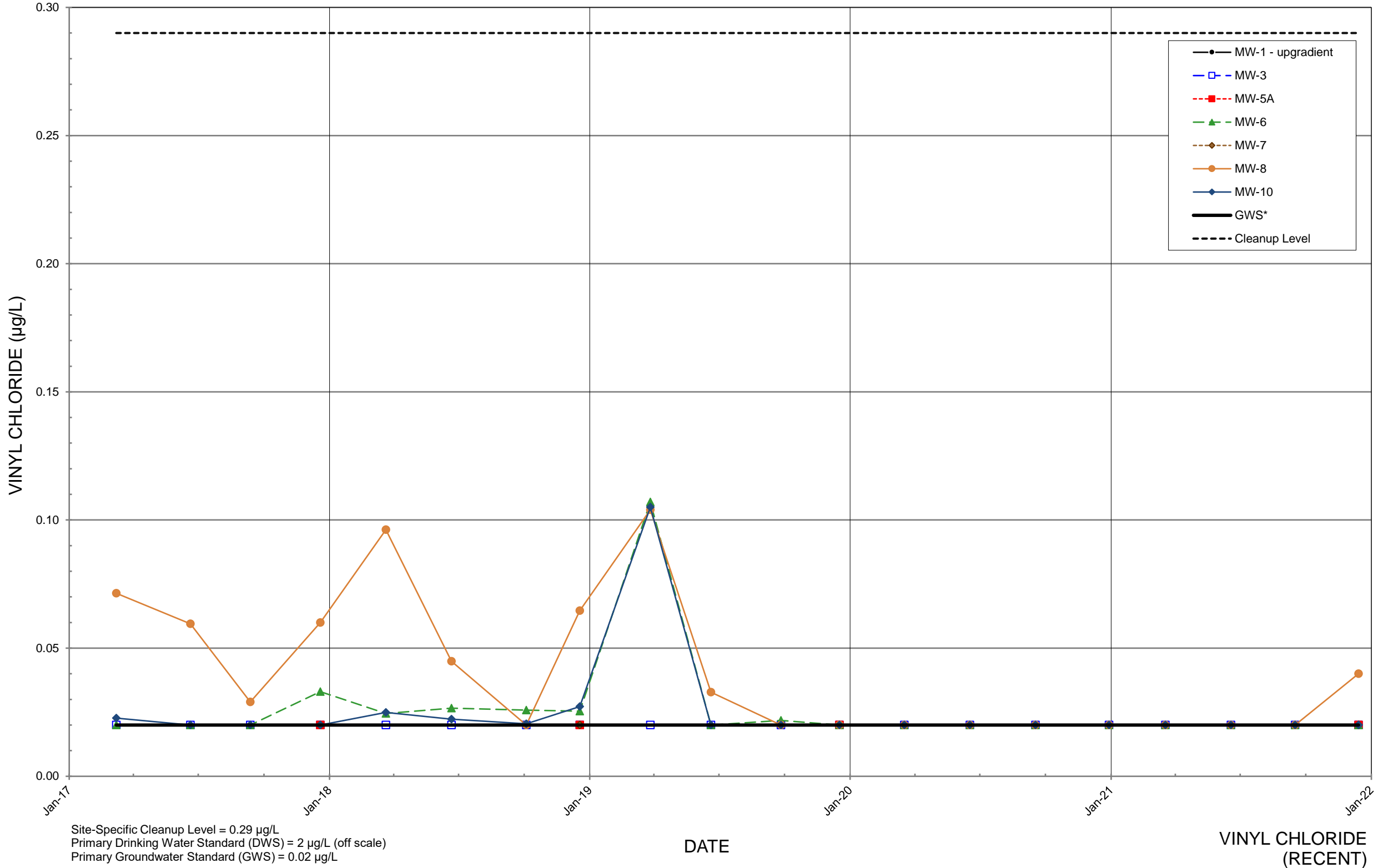
Site-Specific Cleanup Level = 0.29 µg/L
Primary Drinking Water Standard (DWS) = 2 µg/L (off scale)
Primary Groundwater Standard (GWS) = 0.02 µg/L

DATE

VINYL
CHLORIDE

OLALLA LANDFILL

Quarterly Monitoring Data (most recent five years)



VINYL CHLORIDE
(RECENT)

March 2021 Mann-Kendall Statistically Significant Trend Test Results

Constituent or Parameter	MW-1	MW-3	MW-6	MW-8	MW-10
Ammonia (N)	NO TREND	NO TREND	NO TREND	NO TREND	NO TREND
Arsenic - Dissolved	NO TREND	NO TREND	DOWN	DOWN	UP
Barium - Dissolved	NO TREND	NO TREND	NO TREND	NO TREND	NO TREND
Bicarbonate	NO TREND	DOWN	NO TREND	NO TREND	NO TREND
Calcium	NO TREND	NO TREND	NO TREND	NO TREND	NO TREND
Carbonate	NO TREND	NO TREND	NO TREND	NO TREND	NO TREND
COD	NO TREND	NO TREND	NO TREND	NO TREND	DOWN
Chloride	UP	NO TREND	NO TREND	NO TREND	NO TREND
Dissolved Oxygen	DOWN	UP	NO TREND	NO TREND	NO TREND
Iron - Dissolved	NO TREND	NO TREND	DOWN	DOWN	NO TREND
Manganese - Dissolved	NO TREND	NO TREND	NO TREND	DOWN	DOWN
Nitrate	DOWN	UP	NO TREND	NO TREND	NO TREND
Nitrite	NO TREND	NO TREND	NO TREND	NO TREND	NO TREND
Oxidation Reduction Potential	NO TREND	UP	UP	UP	NO TREND
pH - Field	NO TREND	NO TREND	UP	NO TREND	UP
pH - Laboratory	DOWN	NO TREND	NO TREND	NO TREND	NO TREND
Potassium	NO TREND	NO TREND	NO TREND	NO TREND	UP
Sodium	NO TREND	NO TREND	UP	NO TREND	UP
Specific Conductance	NO TREND	NO TREND	NO TREND	NO TREND	NO TREND
Sulfate	NO TREND	NO TREND	DOWN	NO TREND	NO TREND
Temperature	NO TREND	NO TREND	NO TREND	NO TREND	NO TREND
Total Coliform	NO TREND	NO TREND	NO TREND	NO TREND	NO TREND
TOC	NO TREND	DOWN	NO TREND	DOWN	NO TREND
Vinyl Chloride	NO TREND	NO TREND	NO TREND	DOWN	NO TREND
Zinc - Dissolved	NO TREND	NO TREND	NO TREND	NO TREND	NO TREND

NO TREND = No statistically significant trend or dataset has four or fewer detections and cannot be evaluated.

UP = Statistically significant upward trend.

DOWN = Statistically significant downward trend.

June 2021 Mann-Kendall Statistically Significant Trend Test Results

Constituent or Parameter	MW-1	MW-3	MW-6	MW-8	MW-10
Ammonia (N)	NO TREND	NO TREND	NO TREND	DOWN	NO TREND
Arsenic - Dissolved	NO TREND	NO TREND	DOWN	DOWN	UP
Barium - Dissolved	NO TREND	DOWN	NO TREND	DOWN	NO TREND
Bicarbonate	NO TREND	DOWN	NO TREND	DOWN	NO TREND
Calcium	NO TREND	DOWN	NO TREND	DOWN	NO TREND
Carbonate	NO TREND	NO TREND	NO TREND	NO TREND	NO TREND
COD	NO TREND	NO TREND	NO TREND	NO TREND	NO TREND
Chloride	UP	NO TREND	NO TREND	DOWN	NO TREND
Dissolved Oxygen	DOWN	UP	NO TREND	NO TREND	NO TREND
Iron - Dissolved	NO TREND	NO TREND	DOWN	DOWN	NO TREND
Manganese - Dissolved	NO TREND	DOWN	DOWN	DOWN	NO TREND
Nitrate	DOWN	UP	NO TREND	DOWN	NO TREND
Nitrite	NO TREND	NO TREND	UP	NO TREND	NO TREND
Oxidation Reduction Potential	NO TREND	NO TREND	UP	UP	NO TREND
pH - Field	NO TREND	NO TREND	UP	NO TREND	UP
pH - Laboratory	DOWN	NO TREND	NO TREND	NO TREND	NO TREND
Potassium	NO TREND	NO TREND	NO TREND	NO TREND	UP
Sodium	NO TREND	DOWN	UP	NO TREND	UP
Specific Conductance	NO TREND	DOWN	NO TREND	NO TREND	NO TREND
Sulfate	UP	NO TREND	NO TREND	NO TREND	NO TREND
Temperature	NO TREND	NO TREND	NO TREND	NO TREND	NO TREND
Total Coliform	NO TREND	NO TREND	NO TREND	NO TREND	NO TREND
TOC	NO TREND	DOWN	NO TREND	DOWN	NO TREND
Vinyl Chloride	NO TREND	NO TREND	NO TREND	DOWN	NO TREND
Zinc - Dissolved	NO TREND	NO TREND	NO TREND	NO TREND	NO TREND

NO TREND = No statistically significant trend or dataset has four or fewer detections and cannot be evaluated.

UP = Statistically significant upward trend.

DOWN = Statistically significant downward trend.

September 2021 Mann-Kendall Statistically Significant Trend Test Results

Constituent or Parameter	MW-1	MW-3	MW-6	MW-8	MW-10
Ammonia (N)	NO TREND	NO TREND	UP	NO TREND	NO TREND
Arsenic - Dissolved	NO TREND	NO TREND	DOWN	DOWN	UP
Barium - Dissolved	NO TREND	DOWN	UP	DOWN	UP
Bicarbonate	UP	DOWN	UP	DOWN	NO TREND
Calcium	UP	DOWN	NO TREND	DOWN	NO TREND
Carbonate	NO TREND	NO TREND	NO TREND	NO TREND	NO TREND
COD	NO TREND	NO TREND	NO TREND	NO TREND	NO TREND
Chloride	UP	UP	NO TREND	DOWN	DOWN
Dissolved Oxygen	DOWN	NO TREND	UP	NO TREND	NO TREND
Iron - Dissolved	NO TREND	NO TREND	DOWN	DOWN	NO TREND
Manganese - Dissolved	NO TREND	DOWN	DOWN	DOWN	NO TREND
Nitrate	DOWN	UP	NO TREND	DOWN	NO TREND
Nitrite	NO TREND	NO TREND	UP	NO TREND	NO TREND
Oxidation Reduction Potential	NO TREND	NO TREND	UP	UP	NO TREND
pH - Field	NO TREND	NO TREND	UP	NO TREND	UP
pH - Laboratory	DOWN	NO TREND	NO TREND	NO TREND	NO TREND
Potassium	UP	NO TREND	UP	NO TREND	UP
Sodium	NO TREND	DOWN	UP	NO TREND	UP
Specific Conductance	UP	NO TREND	UP	NO TREND	UP
Sulfate	UP	NO TREND	NO TREND	NO TREND	NO TREND
Temperature	UP	NO TREND	UP	NO TREND	NO TREND
Total Coliform	NO TREND	NO TREND	NO TREND	NO TREND	NO TREND
TOC	NO TREND	DOWN	NO TREND	DOWN	DOWN
Vinyl Chloride	NO TREND	NO TREND	NO TREND	DOWN	NO TREND
Zinc - Dissolved	NO TREND	NO TREND	NO TREND	NO TREND	NO TREND

NO TREND = No statistically significant trend or dataset has four or fewer detections and cannot be evaluated.

UP = Statistically significant upward trend.

DOWN = Statistically significant downward trend.

December 2021 Mann-Kendall Statistically Significant Trend Test Results

Constituent or Parameter	MW-1	MW-3	MW-5A	MW-6	MW-7	MW-8	MW-10
Ammonia (N)	NO TREND	NO TREND	NA	UP	NA	DOWN	NO TREND
Arsenic - Dissolved	DOWN	NO TREND	NO TREND	DOWN	NO TREND	DOWN	UP
Barium - Dissolved	NO TREND	DOWN	NA	NO TREND	NA	DOWN	NO TREND
Bicarbonate	UP	DOWN	NA	NO TREND	NA	DOWN	NO TREND
Calcium	UP	DOWN	NA	NO TREND	NA	DOWN	NO TREND
Carbonate	NO TREND	NO TREND	NA	NO TREND	NA	NO TREND	NO TREND
COD	NO TREND	NO TREND	NA	NO TREND	NA	NO TREND	NO TREND
Chloride	UP	UP	NA	DOWN	NA	DOWN	DOWN
Dissolved Oxygen	DOWN	NO TREND	NO TREND	NO TREND	NO TREND	NO TREND	NO TREND
Iron - Dissolved	NO TREND	NO TREND	NO TREND	DOWN	NO TREND	DOWN	NO TREND
Manganese - Dissolved	NO TREND	DOWN	NO TREND	DOWN	NO TREND	DOWN	DOWN
Nitrate	DOWN	NO TREND	NA	NO TREND	NA	DOWN	NO TREND
Nitrite	NO TREND	NO TREND	NA	UP	NA	NO TREND	NO TREND
Oxidation Reduction Potential	DOWN	NO TREND	NO TREND	UP	NO TREND	NO TREND	NO TREND
pH - Field	NO TREND	NO TREND	NO TREND	UP	NO TREND	NO TREND	UP
pH - Laboratory	DOWN	NO TREND		NO TREND		NO TREND	NO TREND
Potassium	UP	NO TREND	NA	UP	NA	NO TREND	UP
Sodium	UP	DOWN	NA	UP	NA	NO TREND	UP
Specific Conductance	UP	NO TREND	NO TREND	NO TREND	NO TREND	NO TREND	NO TREND
Sulfate	UP	NO TREND	NA	NO TREND	NA	NO TREND	NO TREND
Temperature	UP	NO TREND	UP	UP	NO TREND	UP	NO TREND
Total Coliform	NO TREND	NO TREND	NA	NO TREND	NA	NO TREND	NO TREND
TOC	NO TREND	DOWN	NA	NO TREND	NA	DOWN	DOWN
Vinyl Chloride	NO TREND	NO TREND	NO TREND	DOWN	NO TREND	DOWN	DOWN
Zinc - Dissolved	NO TREND	NO TREND	NA	NO TREND	NA	NO TREND	NO TREND

NO TREND = No statistically significant trend or dataset has four or fewer detections and cannot be evaluated.

UP = Statistically significant upward trend.

DOWN = Statistically significant downward trend.

NA = Not analyzed per the SWHP

March 2021 Shapiro-Wilk Test for Normality Results

Constituent or Parameter	MW-1	MW-3	MW-6	MW-8	MW-10
Ammonia (N)	ND	ND	Non-normal	Non-normal	Normal
Arsenic - Dissolved	Normal	Non-normal	Normal	Normal	Normal
Barium - Dissolved	Non-normal	Normal	Normal	Normal	Normal
Bicarbonate	Non-normal	Non-normal	Non-normal	Non-normal	Non-normal
Calcium	Normal	Normal	Normal	Normal	Normal
Carbonate	ND	ND	ND	ND	ND
COD	ND	Non-normal	ND	ND	Non-normal
Chloride	Normal	Non-normal	Normal	Non-normal	Normal
Dissolved Oxygen	Normal	Non-normal	Non-normal	Normal	Non-normal
Iron - Dissolved	ND	ND	Normal	Non-normal	Non-normal
Manganese - Dissolved	ND	Normal	Normal	Non-normal	Non-normal
Nitrate	Non-normal	Non-normal	Non-normal	Non-normal	Non-normal
Nitrite	ND	ND	ND	ND	ND
Oxidation-Reduction Potential	Normal	Non-normal	Non-normal	Non-normal	Non-normal
pH - Field	Non-normal	Non-normal	Non-normal	Non-normal	Normal
pH - Laboratory	Non-normal	Non-normal	Non-normal	Non-normal	Non-normal
Potassium	Non-normal	Non-normal	Normal	Non-normal	Normal
Sodium	Normal	Normal	Normal	Normal	Normal
Specific Conductance	Non-normal	Normal	Normal	Normal	Normal
Sulfate	Normal	Non-normal	Non-normal	Normal	Non-normal
Temperature	Non-normal	Normal	Normal	Normal	Non-normal
Total Coliform	ND	ND	ND	ND	ND
TOC	ND	Normal	Normal	Normal	Normal
Vinyl Chloride	ND	ND	Non-normal	Non-normal	Non-normal
Zinc - Dissolved	ND	ND	ND	ND	ND

Notes:

ND = Dataset has four or fewer quarters with detects and statistical tests cannot be performed.

June 2021 Shapiro-Wilk Test for Normality Results

Constituent or Parameter	MW-1	MW-3	MW-6	MW-8	MW-10
Ammonia (N)	ND	ND	Non-normal	Non-normal	Normal
Arsenic - Dissolved	Normal	Non-normal	Non-normal	Normal	Normal
Barium - Dissolved	Non-normal	Non-normal	Non-normal	Normal	Non-normal
Bicarbonate	Non-normal	Non-normal	Non-normal	Non-normal	Non-normal
Calcium	Normal	Normal	Non-normal	Normal	Normal
Carbonate	ND	ND	ND	ND	ND
COD	ND	Non-normal	ND	ND	Non-normal
Chloride	Normal	Non-normal	Normal	Non-normal	Normal
Dissolved Oxygen	Normal	Non-normal	Non-normal	Normal	Non-normal
Iron - Dissolved	ND	ND	Normal	Non-normal	Non-normal
Manganese - Dissolved	ND	Normal	Normal	Non-normal	Normal
Nitrate	Non-normal	Non-normal	Non-normal	Non-normal	Non-normal
Nitrite	ND	ND	ND	ND	ND
Oxidation-Reduction Potential	Normal	Non-normal	Non-normal	Non-normal	Non-normal
pH - Field	Non-normal	Non-normal	Non-normal	Non-normal	Normal
pH - Laboratory	Non-normal	Non-normal	Non-normal	Non-normal	Non-normal
Potassium	Non-normal	Non-normal	Normal	Non-normal	Normal
Sodium	Normal	Normal	Normal	Normal	Non-normal
Specific Conductance	Non-normal	Normal	Normal	Normal	Normal
Sulfate	Normal	Non-normal	Non-normal	Normal	Non-normal
Temperature	Non-normal	Normal	Normal	Normal	Non-normal
Total Coliform	ND	ND	ND	ND	ND
TOC	ND	Normal	Normal	Normal	Normal
Vinyl Chloride	ND	ND	Non-normal	Non-normal	Non-normal
Zinc - Dissolved	ND	ND	ND	ND	ND

Notes:

ND = Data set has four or fewer quarters with detects and statistical tests cannot be performed.

September 2021 Shapiro-Wilk Test for Normality Results

Constituent or Parameter	MW-1	MW-3	MW-6	MW-8	MW-10
Ammonia (N)	ND	ND	Non-normal	Non-normal	Normal
Arsenic - Dissolved	Normal	Non-normal	Non-normal	Normal	Normal
Barium - Dissolved	Non-normal	Non-normal	Non-normal	Normal	Non-normal
Bicarbonate	Non-normal	Non-normal	Non-normal	Non-normal	Non-normal
Calcium	Normal	Normal	Normal	Non-normal	Normal
Carbonate	ND	ND	ND	ND	ND
COD	ND	Non-normal	ND	ND	Non-normal
Chloride	Normal	Non-normal	Normal	Non-normal	Normal
Dissolved Oxygen	Normal	Non-normal	Non-normal	Non-normal	Non-normal
Iron - Dissolved	ND	ND	Normal	Non-normal	Non-normal
Manganese - Dissolved	ND	Normal	Normal	Normal	Non-normal
Nitrate	Non-normal	Non-normal	Non-normal	Non-normal	Non-normal
Nitrite	ND	ND	ND	ND	ND
Oxidation-Reduction Potential	Normal	Non-normal	Non-normal	Non-normal	Non-normal
pH - Field	Non-normal	Non-normal	Non-normal	Non-normal	Normal
pH - Laboratory	Non-normal	Non-normal	Non-normal	Non-normal	Non-normal
Potassium	Non-normal	Non-normal	Normal	Non-normal	Normal
Sodium	Normal	Normal	Normal	Normal	Non-normal
Specific Conductance	Non-normal	Normal	Normal	Normal	Normal
Sulfate	Normal	Non-normal	Non-normal	Normal	Non-normal
Temperature	Non-normal	Normal	Normal	Normal	Non-normal
Total Coliform	ND	ND	ND	ND	ND
TOC	ND	Normal	Normal	Normal	Non-normal
Vinyl Chloride	ND	ND	Non-normal	Non-normal	Non-normal
Zinc - Dissolved	ND	ND	ND	ND	ND

Notes:

ND = Data set has four or fewer quarters with detects and statistical tests cannot be performed.

December 2021 Shapiro-Wilk Test for Normality Results

Constituent or Parameter	MW-1	MW-3	MW-5A	MW-6	MW-7	MW-8	MW-10
Ammonia (N)	ND	ND	NA	Non-normal	NA	Non-normal	Normal
Arsenic - Dissolved	Non-normal	Non-normal	Non-normal	Non-normal	Normal	Normal	Normal
Barium - Dissolved	Non-normal	Non-normal	Non-normal	Non-normal	ND	Normal	Non-normal
Bicarbonate	Non-normal	Non-normal	NA	Non-normal	NA	Non-normal	Non-normal
Calcium	Normal	Normal	NA	Non-normal	NA	Normal	Normal
Carbonate	ND	ND	NA	ND	NA	ND	ND
COD	ND	Non-normal	NA	ND	NA	ND	Non-normal
Chloride	Normal	Non-normal	NA	Normal	NA	Non-normal	Normal
Dissolved Oxygen	Normal	Non-normal	Normal	Non-normal	Normal	Non-normal	Non-normal
Iron - Dissolved	ND	ND	ND	Normal	ND	Non-normal	Non-normal
Manganese - Dissolved	ND	Normal	ND	Normal	ND	Non-normal	Normal
Nitrate	Non-normal	Non-normal	NA	Non-normal	NA	Non-normal	Non-normal
Nitrite	ND	ND	NA	ND	NA	ND	ND
Oxidation-Reduction Potential	Normal	Non-normal	Normal	Non-normal	Non-normal	Non-normal	Non-normal
pH - Field	Non-normal	Non-normal	Normal	Normal	Normal	Non-normal	Normal
pH - Laboratory	Non-normal	Non-normal	Normal	Non-normal	Non-normal	Non-normal	Non-normal
Potassium	Non-normal	Non-normal	NA	Normal	NA	Non-normal	Normal
Sodium	Normal	Normal	NA	Normal	NA	Normal	Non-normal
Specific Conductance	Non-normal	Normal	Normal	Normal	Non-normal	Normal	Normal
Sulfate	Normal	Non-normal	NA	Non-normal	NA	Normal	Non-normal
Temperature	Non-normal	Normal	Normal	Normal	Normal	Normal	Non-normal
Total Coliform	ND	ND	NA	ND	NA	ND	ND
TOC	ND	Normal	NA	Non-normal	NA	Normal	Non-normal
Vinyl Chloride	ND	ND	ND	Non-normal	ND	Non-normal	Non-normal
Zinc - Dissolved	ND	ND	ND	ND	ND	ND	ND

Notes:

ND = Data set has four or fewer quarters with detects and statistical tests cannot be performed.





NA = Not analyzed per the SWHP

March 2021 Results of 95% Confidence Interval Evaluations

Constituent or Parameter	MW-1	MW-3	MW-6	MW-8	MW-10	Regulatory Level	Basis for Comparison
Ammonia (N)	ND	ND	ND to 40	ND to 18	83 to 90	None	
Arsenic - Dissolved	0.10 to 0.11	0.10 to 0.12	0.760 to 1.07	1.33 to 1.84	1.68 to 1.97	0.05 µg/L	Primary GW Standard
Arsenic - Dissolved	0.10 to 0.11	0.10 to 0.12	0.760 to 1.07	1.33 to 1.84	1.68 to 1.97	1.29 µg/L	Site-Specific Cleanup Level
Barium - Dissolved	ND to 4.0	13.3 to 15.9	11.8 to 15.8	5.26 to 7.62	14.3 to 16.9	1000 µg/L	Primary GW Standard
Bicarbonate	41.3 to 49.8	175 to 253	154 to 183	97 to 173	192 to 227	None	
Calcium	10,046 to 10,837	37,044 to 46,641	29,519 to 36,376	21,152 to 26,696	37,741 to 42,030	None	
Carbonate	ND	ND	ND	ND	ND	None	
COD (mg/L)	ND	ND	ND	ND	ND to 10.7	None	
Chloride	3,433 to 4,002	2,390 to 3,180	2,555 to 3,529	2,300 to 2,840	5,418 to 8,388	250,000 µg/L	Secondary GW and DW Standard
Dissolved Oxygen (mg/L)	9.86 to 10.2	0.219 to 6.50	0.20 to 0.40	9.06 to 17.6	0.178 to 0.470	None	
Iron - Dissolved	ND	ND	547 to 862	280 to 799	ND to 22.5	300 µg/L	Secondary GW and DW Standard
Manganese - Dissolved	ND	5,205 to 6,605	581 to 779	2,320 to 3,020	3,950 to 4,870	50 µg/L	Secondary GW and DW Standard
Nitrate	332 to 964	ND to 36.0	ND to 28.0	40.0 to 106	ND	10,000 µg/L	Primary GW and DW Standard
Nitrite	ND	ND	ND	ND	ND	1,000 µg/L	Primary DW Standard
Oxidation-Reduction Potential	210 to 256	224 to 256	15.0 to 46.5	51.8 to 79.8	107 to 136	None	
pH - Field	6.2 to 6.5	6.1 to 6.3	6.4 to 6.7	6.5 to 6.7	6.5 to 6.6	6.5 - 8.5	Secondary GW Standard
pH - Laboratory	6.2 to 6.4	6.1 to 6.2	6.5 to 6.6	6.4 to 6.6	6.5 to 6.6	6.5 - 8.5	Secondary GW Standard
Potassium	590 to 642	677 to 898	1,210 to 1,411	939 to 1,000	1,176 to 1,272	None	
Sodium	4,250 to 4,494	8,093 to 9,425	7,552 to 9,217	7,544 to 8,493	10,958 to 13,707	20,000 µg/L	Secondary DW Standard
Specific Conductance (µmhos/cm)	108 to 120	284 to 426	261 to 331	219 to 288	387 to 438	700 µmhos/cm	Secondary DW Standard
Sulfate	3,828 to 4,305	12,900 to 20,200	6,140 to 7,990	4,300 to 4,932	7,920 to 11,000	250,000 µg/L	Secondary GW and DW Standard
Temperature (°C)	10.8 to 11.0	11.7 to 11.9	11.1 to 11.5	10.5 to 10.9	11.2 to 11.4	None	
Total Coliform (Colony Forming Units/100 mL)	ND	ND	ND	ND	ND	1/100mL	Primary GW and DW Standard
TOC	ND	2,220 to 2,722	1,900 to 2,130	771 to 1,058	2,971 to 3,301	None	
Vinyl Chloride	ND	ND	ND	ND to 0.04	ND	0.02 µg/L	Primary GW Standard
Vinyl Chloride	ND	ND	ND	ND to 0.04	ND	0.29 µg/L	Site-Specific Cleanup Level
Zinc - Dissolved	ND	ND	ND	ND	ND	5,000 µg/L	Secondary GW and DW Standard

Notes:

All concentrations reported as µg/L unless otherwise noted.

ND	= Data all non-detects or 4 or fewer detections
	= 95% Lower CI Exceeds Regulatory Level (Exceedence)
	= 95% Upper CI Exceeds Regulatory Level but Lower CI Does Not (No Exceedence, No Compliance)
	= 95% Upper CI Does not Exceed Regulatory Level (No Exceedence)
	= No Regulatory Level

Normally Distributed Data - Parametric Confidence Interval - Data not Transformed

Non-Normally Distributed Data - Non-Parametric Confidence Interval - Log Base-10 Transformed Data




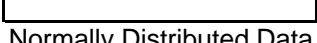
Non-Detects treated as 0

June 2021 Results of 95% Confidence Interval Evaluations

Constituent or Parameter	MW-1	MW-3	MW-6	MW-8	MW-10	Regulatory Level	Basis for Comparison
Ammonia (N)	ND	ND	ND to 41	ND to 18	83 to 91	None	
Arsenic - Dissolved	0.10 to 0.10	0.10 to 0.12	0.442 to 1.17	1.28 to 1.80	1.69 to 1.96	0.05 µg/L	Primary GW Standard
Arsenic - Dissolved	0.10 to 0.10	0.10 to 0.12	0.442 to 1.17	1.28 to 1.80	1.69 to 1.96	1.29 µg/L	Site-Specific Cleanup Level
Barium - Dissolved	ND to 4.0	14.3 to 16.4	11.7 to 16.4	4.9 to 7.37	14.1 to 17.6	1000 µg/L	Primary GW Standard
Bicarbonate	41.4 to 49.8	175 to 238	156 to 183	97 to 173	192 to 227	None	
Calcium	10,112 to 10,895	36,963 to 46,146	31,800 to 36,900	20,829 to 26,262	38,114 to 42,377	None	
Carbonate	ND	ND	ND	ND	ND	None	
COD (mg/L)	ND	ND	ND	ND	ND to 10.7	None	
Chloride	3,488 to 4,061	2,390 to 3,180	2,565 to 3,493	2,300 to 2,840	5,474 to 8,230	250,000 µg/L	Secondary GW and DW Standard
Dissolved Oxygen (mg/L)	9.84 to 10.19	0.180 to 0.65	0.20 to .380	0.86 to 1.7	0.110 to 0.470	None	
Iron - Dissolved	ND	ND	525 to 836	272 to 799	ND to 22	300 µg/L	Secondary GW and DW Standard
Manganese - Dissolved	ND	5,201 to 6,538	572 to 765	2,320 to 2,680	4,270 to 4,813	50 µg/L	Secondary GW and DW Standard
Nitrate	297 to 703	ND to 54	ND to 28	40 to 106	ND	10,000 µg/L	Primary GW and DW Standard
Nitrite	ND	ND	ND	ND	ND	1,000 µg/L	Primary DW Standard
Oxidation-Reduction Potential	211 to 255	227 to 255	21 to 46	52 to 80	114 to 136	None	
pH - Field	6.3 to 6.5	6.1 to 6.3	6.5 to 6.7	6.5 to 6.7	6.5 to 6.6	6.5 - 8.5	Secondary GW Standard
pH - Laboratory	6.2 to 6.4	6.1 to 6.2	6.5 to 6.6	6.4 to 6.6	6.4 to 6.6	6.5 - 8.5	Secondary GW Standard
Potassium	590 to 650	677 to 898	1,218 to 1,410	939 to 1,000	1,184 to 1,280	None	
Sodium	4,244 to 4,478	8,011 to 9,318	7,637 to 9,230	7,387 to 8,393	9,790 to 13,900	20,000 µg/L	Secondary DW Standard
Specific Conductance (µmhos/cm)	108 to 120	284 to 426	261 to 331	219 to 288	387 to 438	700 µmhos/cm	Secondary DW Standard
Sulfate	3,865 to 4,328	12,900 to 20,200	6,140 to 8,030	4,285 to 4,893	7,920 to 11,000	250,000 µg/L	Secondary GW and DW Standard
Temperature (°C)	10.8 to 11.0	11.7 to 11.9	11.1 to 11.5	10.5 to 10.9	11.2 to 11.4	None	
Total Coliform (Colony Forming Units/100 mL)	ND	ND	ND	ND	ND	1/100mL	Primary GW and DW Standard
TOC	ND	2,216 to 2,696	1,883 to 2,111	719 to 1,027	2,954 to 3,276	None	
Vinyl Chloride	ND	ND	ND	ND to 0.02	ND	0.02 µg/L	Primary GW Standard
Vinyl Chloride	ND	ND	ND	ND to 0.02	ND	0.29 µg/L	Site-Specific Cleanup Level
Zinc - Dissolved	ND	ND	ND	ND	ND	5,000 µg/L	Secondary GW and DW Standard

Notes:

All concentrations reported as µg/L unless otherwise noted.

ND	= All non-detects, 4 or fewer detections, or LCL and UCL are both less than laboratory reporting limit.
	= 95% Lower CI Exceeds Regulatory Level (Exceedence)
	= 95% Upper CI Exceeds Regulatory Level but Lower CI Does Not (No Exceedence, No Compliance)
	= 95% Upper CI Does not Exceed Regulatory Level (No Exceedence)
	= No Regulatory Level

Normally Distributed Data - Parametric Confidence Interval - Data not Transformed

Non-Normally Distributed Data - Non-Parametric Confidence Interval - Log Base-10 Transformed Data

Non-Detects treated as 0

September 2021 Results of 95% Confidence Interval Evaluations

Constituent or Parameter	MW-1	MW-3	MW-6	MW-8	MW-10	Regulatory Level	Basis for Comparison
Ammonia (N)	ND	ND	ND to 41	ND	84 to 91	None	
Arsenic - Dissolved	0.10 to 0.10	0.11 to 0.12	0.44 to 1.14	1.23 to 1.75	1.70 to 1.97	0.05 µg/L	Primary GW Standard
Arsenic - Dissolved	0.10 to 0.10	0.11 to 0.12	0.44 to 1.14	1.23 to 1.75	1.70 to 1.97	1.29 µg/L	Site-Specific Cleanup Level
Barium - Dissolved	ND to 3.9	14.3 to 15.5	11.9 to 16.4	4.90 to 7.37	14.5 to 17.6	1000 µg/L	Primary GW Standard
Bicarbonate	41.4 to 49.8	175 to 223	156 to 183	92 to 151	192 to 227	None	
Calcium	10,198 to 11,060	37,376 to 46,163	30,344 to 36,760	18,400 to 28,700	36,308 to 42,388	None	
Carbonate	ND	ND	ND	ND	ND	None	
COD (mg/L)	ND	ND	ND	ND	ND to 10.2	None	
Chloride	3,551 to 4,179	2,450 to 3,180	2,527 to 3,429	2,300 to 2,660	5,533 to 8,102	250,000 µg/L	Secondary GW and DW Standard
Dissolved Oxygen (mg/L)	9.77 to 10.15	0.22 to 0.65	0.20 to 0.38	0.31 to 1.7	0.18 to 0.42	None	
Iron - Dissolved	ND	ND	508 to 812	272 to 705	ND to 22	300 µg/L	Secondary GW and DW Standard
Manganese - Dissolved	ND	5,226 to 6,501	559 to 749	2,269 to 2,820	4,060 to 4,770	50 µg/L	Secondary GW and DW Standard
Nitrate	314 to 703	ND to 36	ND to 28	38 to 85	ND	10,000 µg/L	Primary GW and DW Standard
Nitrite	ND	ND	ND	ND	ND	1,000 µg/L	Primary DW Standard
Oxidation-Reduction Potential	209 to 252	224 to 255	21 to 59	52 to 80	114 to 136	None	
pH - Field	6.3 to 6.5	6.2 to 6.3	6.5 to 6.7	6.5 to 6.7	6.5 to 6.6	6.5 - 8.5	Secondary GW Standard
pH - Laboratory	6.2 to 6.3	6.1 to 6.2	6.5 to 6.6	6.4 to 6.6	6.5 to 6.6	6.5 - 8.5	Secondary GW Standard
Potassium	620 to 650	713 to 859	1,240 to 1,461	960 to 999	1,192 to 1,287	None	
Sodium	4,270 to 4,535	8,058 to 9,307	7,751 to 9,304	7,312 to 8,309	10,300 to 13,900	20,000 µg/L	Secondary DW Standard
Specific Conductance (µmhos/cm)	110 to 117	320 to 424	284 to 358	215 to 295	400 to 451	700 µmhos/cm	Secondary DW Standard
Sulfate	3,889 to 4,331	13,200 to 19,100	6,489 to 8,030	4,254 to 4,848	7,920 to 15,500	250,000 µg/L	Secondary GW and DW Standard
Temperature (°C)	10.8 to 11.0	11.8 to 11.9	11.2 to 11.6	10.6 to 11.0	11.2 to 11.4	None	
Total Coliform (Colony Forming Units/100 mL)	ND	ND	ND	ND	ND	1/100mL	Primary GW and DW Standard
TOC	ND	2,218 to 2,677	1,882 to 2,100	674 to 995	2,790 to 3,430	None	
Vinyl Chloride	ND	ND	ND	ND to 0.02	ND	0.02 µg/L	Primary GW Standard
Vinyl Chloride	ND	ND	ND	ND to 0.02	ND	0.29 µg/L	Site-Specific Cleanup Level
Zinc - Dissolved	ND	ND	ND	ND	ND	5,000 µg/L	Secondary GW and DW Standard

Notes:

All concentrations reported as µg/L unless otherwise noted.

- ND = Data all non-detects or 4 or fewer detections
- = 95% Lower CI Exceeds Regulatory Level (Exceedence)
- = 95% Upper CI Exceeds Regulatory Level but Lower CI Does Not (No Exceedence, No Compliance)
- = 95% Upper CI Does not Exceed Regulatory Level (No Exceedence)
- = No Regulatory Level

Normally Distributed Data - Parametric Confidence Interval - Data not Transformed

Non-Normally Distributed Data - Non-Parametric Confidence Interval - Log Base-10 Transformed Data

Non-Detects treated as 0

December 2021 Results of 95% Confidence Interval Evaluations

Constituent or Parameter	MW-1	MW-3	MW-5A	MW-6	MW-7	MW-8	MW-10	Regulatory Level	Basis for Comparison
Ammonia (N)	ND	ND	NA	ND to 42	NA	ND	83 to 90	None	
Arsenic - Dissolved	0.09 to 0.10	0.11 to 0.12	0.15 to 0.21	0.44 to 1.08	0.29 to 0.37	1.23 to 1.70	1.71 to 1.96	0.05 µg/L	Primary GW Standard
Arsenic - Dissolved	0.09 to 0.10	0.11 to 0.12	0.15 to 0.21	0.44 to 1.08	0.29 to 0.37	1.23 to 1.70	1.71 to 1.96	1.29 µg/L	Site-Specific Cleanup Level
Barium - Dissolved	ND to 3.9	14.2 to 15.5	NA	11.9 to 16.4	NA	4.68 to 7.11	14.50 to 17.60	1000 µg/L	Primary GW Standard
Bicarbonate (mg of CaCO ₃ /L)	42.6 to 54.9	186 to 238	NA	162 to 183	NA	97 to 173	192 to 227	None	
Calcium	10,281 to 11,167	37,722 to 46,137	NA	32,200 to 36,900	NA	20,683 to 25,875	38,047 to 42,070	None	
Carbonate (mg of CaCO ₃ /L)	ND	ND	NA	ND	NA	ND	ND	None	
COD	ND	ND	NA	ND	NA	ND	ND to 10.2	None	
Chloride	3,612 to 4,257	2,450 to 3,380	NA	2,482 to 3,364	NA	2,270 to 2,660	5,245 to 7,836	250,000 µg/L	Secondary GW and DW Standard
Dissolved Oxygen (mg/L)	9.73 to 10.10	0.22 to 0.65	9.86 to 10.40	0.20 to 0.38	6.99 to 7.59	0.35 to 1.67	0.18 to 0.42	None	
Iron - Dissolved	ND	ND	ND	471 to 766	ND	280 to 799	ND to 22.1	300 µg/L	Secondary GW and DW Standard
Manganese - Dissolved	ND	5,230 to 6,451	ND	547 to 734	ND	2,280 to 2,650	4,204 to 4,734	50 µg/L	Secondary GW and DW Standard
Nitrate	297 to 703	ND to 24.0	NA	ND to 32.0	NA	38.0 to 106	ND	10,000 µg/L	Primary GW and DW Standard
Nitrite	ND	ND	NA	ND to 10	NA	ND	ND	1,000 µg/L	Primary DW Standard
Oxidation-Reduction Potential	206 to 248	221 to 255	160 to 267	20.8 to 69.9	115.5 to 351	51.8 to 79.8	114 to 136	None	
pH - Field	6.3 to 6.5	6.1 to 6.3	6.4 to 6.9	6.6 to 6.7	6.6 to 6.8	6.5 to 6.7	6.5 to 6.6	6.5 - 8.5	Secondary GW Standard
pH - Laboratory	6.2 to 6.4	6.1 to 6.3	6.4 to 6.8	6.5 to 6.6	6.4 to 6.7	6.5 to 6.6	6.5 to 6.6	6.5 - 8.5	Secondary GW Standard
Potassium	620 to 650	713 to 859	NA	1,258 to 1,478	NA	960 to 999	1,194 to 1,285	None	
Sodium	4,294 to 4,562	8,081 to 9,274	NA	7,865 to 9,388	NA	7,340 to 8,293	10,300 to 15,500	20,000 µg/L	Secondary DW Standard
Specific Conductance (µmhos/cm)	110 to 125	313 to 408	75.1 to 194.0	280 to 350	NA*	210 to 278	403 to 440	700 µmhos/cm	Secondary DW Standard
Sulfate	3,916 to 4,341	12,900 to 19,100	NA	6,490 to 8,470	NA	4,314 to 4,934	8,050 to 11,200	250,000 µg/L	Secondary GW and DW Standard
Temperature (°C)	10.8 to 11.0	11.8 to 11.9	11.5 to 12.9	11.2 to 11.6	10.9 to 11.3	10.6 to 11.0	11.2 to 11.4	None	
Total Coliform (count)	ND	ND	NA	ND	NA	ND	ND	1/100mL	Primary GW and DW Standard
TOC	ND	2,248 to 2,693	NA	1,870 to 2,140	NA	707 to 1,043	2,790 to 3,430	None	
Vinyl Chloride	ND	ND	ND	ND	ND	ND to 0.02	ND	0.02 µg/L	Primary GW Standard
Vinyl Chloride	ND	ND	ND	ND	ND	ND to 0.02	ND	0.29 µg/L	Site-Specific Cleanup Level
Zinc - Dissolved	ND	ND	NA	ND	NA	ND	ND	5,000 µg/L	Secondary GW and DW Standard


Notes:


All concentrations reported as µg/L unless otherwise noted.


NA = Not analyzed per the SWHP

ND = Data all non-detects or 4 or fewer detections

NA* = Insufficient number of measurements for 95% Confidence Comparison. Minimum of 6 is required for Non-normal data

 = 95% Lower CI Exceeds Regulatory Level (Exceedence)

 = 95% Upper CI Exceeds Regulatory Level but Lower CI Does Not (No Exceedence, No Compliance)

 = 95% Upper CI Does not Exceed Regulatory Level (No Exceedence)

 = No Regulatory Level

Normally Distributed Data - Parametric Confidence Interval - Data not Transformed

Non-Normally Distributed Data - Non-Parametric Confidence Interval - Log Base-10 Transformed Data

Non-Detects treated as 0

Appendix C:
Inspection, Maintenance, and Engineering Summary for 2021

Inspection, Maintenance, and Engineering Summary for 2021

The bulleted items below present a summary of the inspection, maintenance, and engineering tasks that were performed by SWD during 2021 at the Olalla Landfill.

- TRC conducted groundwater and landfill gas monitoring activities in all four quarters of 2021. The results are discussed in this report.
- TRC continued reporting and data analysis in accordance with Section IV of the SWHP and the CAP. The results are discussed in this report.
- SWD supported KPHD in quarterly inspections conducted at the Landfill. After the inspections, KPHD stated that no problems were noted during the inspections.
- SWD conducted regular inspections of the Landfill and its engineered systems including evaluation of the drainage systems and potential erosion areas. During 2021, all systems were operating as designed.
- SWD worked with other divisions in KCPW to maintain the systems at the Landfill including maintenance of the cap, stormwater drainage systems, and the stormwater detention pond. During 2021, routine maintenance was required including mowing of the cap and removal of vegetation.
- The Kitsap County Department of Public Works, Roads Engineering survey group established permanent monitoring points, designated FM1 through FM25, on the surface of the closed Olalla Landfill in 2019. The purpose of the permanent points is to monitor possible movement of the surface of the closed landfill and Kitsap County inspects these permanent monitoring points at least annually. In December 2020, Kitsap County surveyors re-surveyed the permanent monitoring points at Olalla Landfill. Differences between the original 2019 survey coordinates and elevations relative to the 2020 survey coordinates and elevations were within the precision of the survey instrumentation and operators. This finding demonstrates no evidence of measurable movement of the surface of the closed Olalla Landfill.

**Appendix D:
Activities Planned for 2022**

Activities Planned for 2022

The bulleted items below present a summary of the planned inspections, maintenance and engineering activities planned for 2022 by SWD at the Olalla Landfill.

- Quarterly monitoring, sampling, and reporting will continue in accordance with Section IV of the SWHP and the CAP. SWD will continue to contract with TRC (formerly EPI) for monitoring and sampling activities for 2022.
- TRC will continue to conduct the reporting and data analysis in accordance with Section IV of the SWHP and the CAP.
- TRC conducted a bar hole survey on January 20-21, 2022. Bar hole soil gas measurements were performed on the perimeter of the landfill and on the Phase II Area of the landfill at the request of Ecology to support the 5-year review. TRC will finalize the draft 5-year Remediation Assessment Status Report submitted to Ecology in 2021 including January 2022 bar hole survey data.
- Regular inspections of the Landfill and its engineered systems will be conducted.
- SWD will continue to support KPHD in their quarterly inspections of the Landfill.
- SWD will continue to work with other divisions in the KCPW to maintain the systems at the Landfill including maintenance of the cap, stormwater drainage systems and the stormwater detention pond.

Attachment 1:
2021 Quarterly Monitoring Field Data Sheets

Olalla Landfill Quarterly Monitoring Field Book March 2021



**Olalla Landfill
Kitsap County, Washington
Project Number: 429487.0000.**

**TRC Environmental Corporation
1180 NW Maple Street, Suite 310
Issaquah, Washington 98027
(425) 395-0010**

Table 3-1: Monitoring Well Construction Data Summary
Olalla Landfill, Kitsap County, WA

Well	Total Well Depth (ft bgs)	Measuring Point Elevation (ft NGVD 29)	Surface Elevation (ft NGVD 29)	Screened Interval (ft bgs)	Northing	Easting	Measuring Point Description
MW-1	87	343.79	342.53	82-87	161858.133	560525.840	Pump wellhead
MW-2	73	323.25	318.95	68-73	161704.534	559572.839	Top of PVC casing
MW-3	55.5	296.95	294.95	50.5-55.5	162333.903	559463.060	Pump wellhead
MW-4	68	320.93	317.35	63-68	161911.192	559787.735	Top of PVC casing
MW-5	35.5	334.17	332.78	25-35	162510.115	559878.901	Top of PVC casing
MW-5A	98	332.53	331.43	86-96	162487.878	559875.742	Pump wellhead
MW-6	35	271.17	269.14	28-33	162077.699	559358.970	Pump wellhead
MW-7	33	280.43	278.21	21-31	161723.016	559398.979	Pump wellhead
MW-8	38	272.85	270.73	25-35	161897.813	559350.147	Pump wellhead
MW-10	47	279.21	276.84	37-47	162218.490	559340.899	Pump wellhead

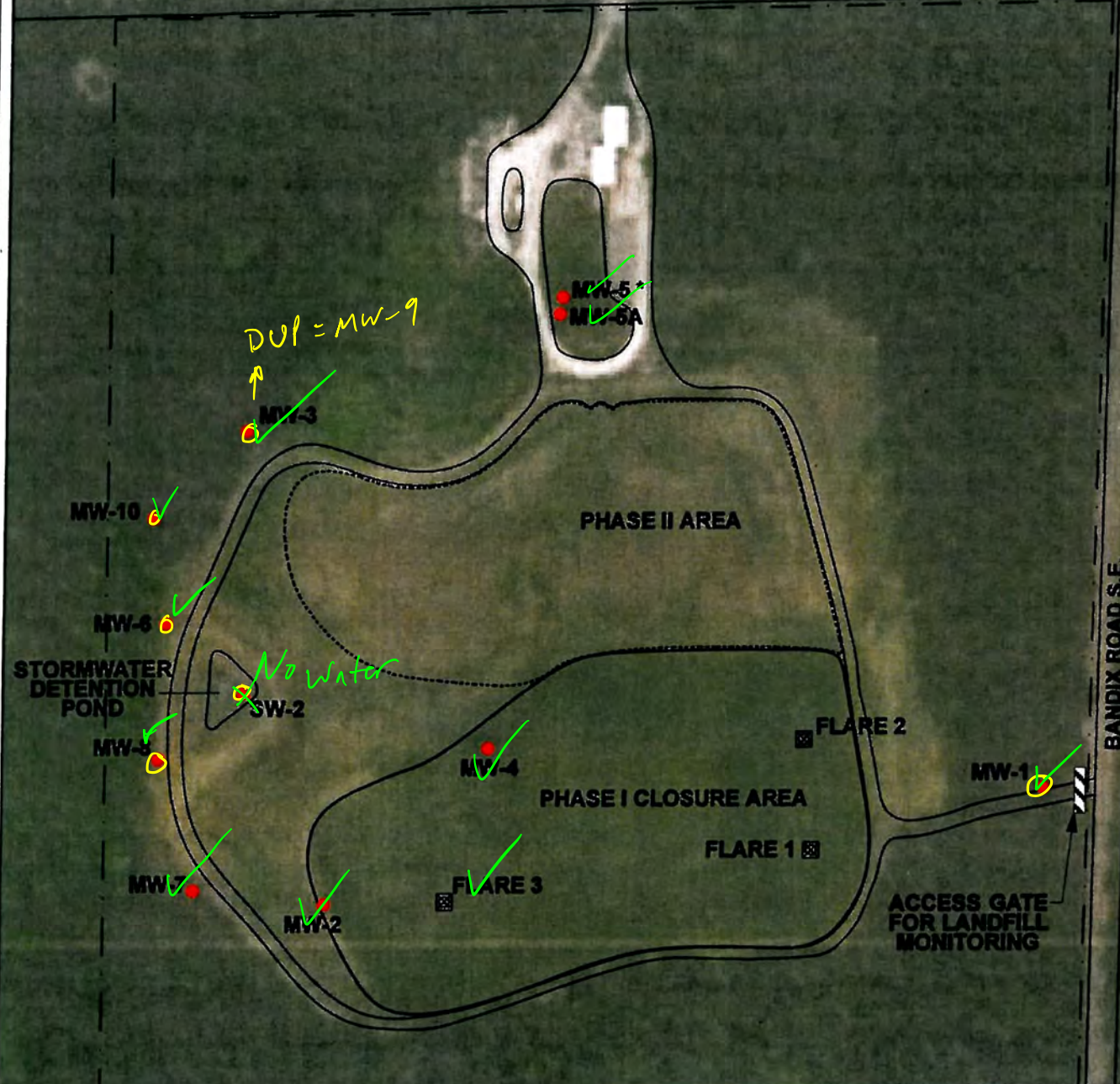
Notes:

NGVD 29 = National Geodetic Vertical Datum (1929)

bgs = below ground surface

S.E. BURLEY OLALLA ROAD

BANDIX ROAD S.E.



BASE MAP SOURCE - Google Earth
 TOPOGRAPHIC CONTOUR SOURCE - KITSAP COUNTY PARCEL VIEWER
 MW-8 is completed in a shallow fractured groundwater zone.

NOTES:

	APPROXIMATE PROPERTY BOUNDARY
	PERIMETER ACCESS ROAD
	MONITORING WELL
	SURFACE WATER SAMPLING LOCATION
	LANDFILL GAS FLARE

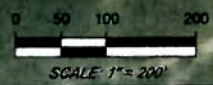


FIGURE 1-2 OLALLA LANDFILL MONITORING WELL, FLARE, AND SURFACE WATER SAMPLING LOCATIONS KITSAP COUNTY, WASHINGTON			
PREPARED BY ENVIRONMENTAL PARTNERS INC			
PROJECT OLALLA LANDFILL QAPP/45403.0			
LOCATION 2850 SE BURLEY-OLALLA ROAD OLALLA, WASHINGTON			
PREPARED FOR KITSAP COUNTY			
DATE 2/25/15	DRAWN BY ALW/CLM	REVIEWED BY ALW/CLM	PROJECT NUMBER 45403.0

**Table 2-1: CAP and SWHP Monitoring Schedule
Olalla Landfill, Kitsap County, WA**

Sample Location	First Quarter								Second and Third Quarters								Fourth Quarter													
	Water Level	Field Parameters	VOCs	T & D Metals	Total Coliform	Fecal Coliform	Geochemical	TOC / COD	Landfill Gas Parameters	Water Level	Field Parameters	VOCs	T & D Metals	Total Coliform	Geochemical	TOC / COD	Landfill Gas Parameters	Water Level	Field Parameters	VOCs	T & D Metals	Total Coliform	Fecal Coliform	Geochemical	TOC / COD	D. Metals - COC list	pH (field and lab)	Vinyl Chloride	Landfill Gas Parameters	
MW-1	■	■	■	■	■	■	■	■		■	■	■	■	■	■	■		■	■	■	■	■	■	■	■	■				
MW-2	■									■								■												
MW-3	■	■	■	■	■	■	■	■		■	■	■	■	■	■	■		■	■	■	■	■	■	■	■	■				
MW-4	■									■								■												
MW-5	■									■								■												
MW-5A	■									■								■												
MW-6	■	■	■	■	■	■	■	■		■	■	■	■	■	■	■		■	■	■	■	■	■	■	■	■	■	■	■	■
MW-7	■									■								■												
MW-8	■	■	■	■	■	■	■	■		■	■	■	■	■	■	■		■	■	■	■	■	■	■	■	■	■	■	■	■
MW-10	■	■	■	■	■	■	■	■		■	■	■	■	■	■	■		■	■	■	■	■	■	■	■	■	■	■	■	■
SW-2 ¹		■																					■							
Flares 1, 2, 3																														■

Notes:

¹ Surface water sample from SW-2 collected during first quarter or fourth quarter, not both quarters.

Field Parameters = pH, specific conductance, temperature, ORP, and DO

VOCs = Volatile organic compounds by EPA Method 8260C standard list, vinyl chloride by selective ion monitoring (SIM)

T (total) Metals = calcium, potassium, sodium

D (dissolved) Metals = arsenic, barium, iron, manganese, zinc

Geochemical = alkalinity, ammonia, bicarbonate, carbonate, chloride, sulfate, nitrate, nitrite, pH

TOC / COD = total organic carbon / chemical oxygen demand

Dissolved Metals - COC list = arsenic, iron, manganese

Landfill gas parameters = methane (%LEL), oxygen(% vol), carbon dioxide (% vol), and gas pressure

tiparameter Probe Calibration Log - Olalla Landfill Groundwater Monitoring

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution

Calibration Solution Manufacturer _____ Lot Number _____ Exp. Date _____

pH = _____ Turbidity = _____ Temperature = _____

Conductivity = _____ Dissolved Oxygen = _____ ORP = _____

Comments:

See Cal Sheet : Equipco

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution

Calibration Solution Manufacturer _____ Lot Number _____ Exp. Date _____

pH = _____ Turbidity = _____ Temperature = _____

Conductivity = _____ Dissolved Oxygen = _____ ORP = _____

Comments:

See Cal sheet : Egupeco

Instrument Calibration Log - Olalla Landfill Monitoring

Calibrated By: _____ Date: _____

Meter Type	Manufacturer	Model Number	Manufacturer Serial #	Rental Co. Serial #	Time
pH					
pH Electrode					

Calibrated: _____ to 4.00 buffer _____ to 7.00 buffer _____ to 10.00 buffer at _____ °C

Slope = _____ Comments: _____

Meter Type	Manufacturer	Model Number	Manufacturer Serial #	Rental Co. Serial #	Time
Specific Cond.					

Specific Conductance: Calibrated _____ μS/cm to _____ μS/cm calibration sta

Electrical Conductivity: Calibrated _____ μS/cm to _____ μS/cm calibration standard at _____

Comments: _____

Meter Type	Manufacturer	Model Number	Manufacturer Serial #	Rental Co. Serial #	Time
ORP Meter					
ORP Electrode					

Electrode measured _____ millivolts at _____ °C using Zobell prepared on / /

Table value for Zobell solution at this temperature is _____ mV.

Meter Type	Manufacturer	Model Number	Manufacturer Serial #	Rental Co. Serial #	Time
Turbidity					

Meter reads _____ NTUs using _____ NTUs star

Meter reads _____ NTUs using _____ NTUs star

Comments: _____

Meter Type	Manufacturer	Model Number	Manufacturer Serial #	Rental Co. Serial #	Time
DO Meter					

Air-Calibration: Measured temperature _____ °C corresponds to _____ mg/L DO (from Table I)

Atmospheric pressure / elevation correction factor _____ (from Table II)

Corrected calibration value _____ mg/L DO (Table I value multiplied by Table II value)

Comments: _____

Depth to Water Measurement Field Data - Olalla Landfill Monitoring

Well	Time	Measuring Point Elevation (ft. NGVD ¹)	Depth to Water (ft.)	Comments and Well Inspection ² Notes
MW-1	0845	343.79	79.55	Locked
MW-2	0950	323.25	65.10	Locked
MW-3	1045	296.95	44.13	Locked
MW-4	0958	320.93	62.71	Added Flush Cap/No lock
MW-5	1013	334.17	9.00	Locked
MW-5A	1015	332.53	75.83	Locked
MW-6	1255	271.17	20.04	Locked
MW-7	1006	280.43	24.99	Locked
MW-8	1351	272.85	20.58	Locked
MW-10	1133	279.21	29.07	Locked

Notes:

¹NGVD = National Geodetic Vertical Datum (1929)

²Observations regarding the condition of the well and surrounding area (e.g., protective casing, surface seal, cap, lock, bollards, soil conditions near the well such as depressions, ponded surface water, or other subsidence features, and any installed sampling equipment).

3/18/21

Field conditions: overcast 41°F

Project 429487

Scope: Q1-2021 GW Sampling / Flare check

0800 W. Weisberg + N. Dorfner, TRC on-site.

0815 HASP meeting.

0825 Setting up on MW-1. Opening wells.

0915 Sampled MW-1.

0940 Mobilizing to gauge wells. No flowing surface water.

0955 MW-4 not locked, broken I-ring and no way to lock. Added flush cap as had no cap.

1030 Setting up on MW-3. DUP = MW-9

1120 Completed MW-3. Mobilizing to MW-10.

1155 D. Kuntze, TRC, PM, on-site.

1210 Completed MW-10. Mobilizing to MW-6.

1255 Setup on MW-6.

1330 Sampled MW-6.

3/18/21

Project 429487

1345 Setting up on MW-8.

1430 Client, PM, and Ecology visit MW-8 while we were sampling.

1440 Completed MW-8. Prepare to gauge Flares.

1445 Checking Flare - 3.

1455 PM & Clients off-site

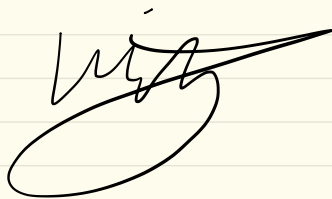
1457 Mob to Flare - 2.

1520 Mob to Flare - 1.

1530 Cleaning up site.

1535 TRC off-site. To Lab.

NFE

A handwritten signature in black ink, consisting of a stylized, cursive name that is partially obscured by a large, circular scribble below it.

Groundwater Sampling Field Data

TRC Project No./Site: 489487/Kitsap County - Olalla Landfill

Station	MW-1	Date	3/18/21
Sample ID	MW-1	Field Team: (Initials)	WW + ND
Field Conditions	Overcast 41°F		

Purge Information

Well Diameter (in.)	2'	Purge Method	Submersible pump
Well Depth (ft.)			Peristaltic Pump
Initial Depth to Water (ft.)	79.55		Bladder Pump
Depth of Water Column			Other: _____
1 Casing Volume		Start Time	0851
Controller Setting (Hz)	210	End Time	0920
		Total Gallons Purged	10 gal

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
0852	0.5	8.90	0.127	9.6	9.27	9.9	216.1	Clear
0855	1.5	7.34	0.125	9.7	9.44	11.5	194.1	" "
0859	2.5	7.00	0.126	2.5	9.43	11.6	195.3	" "
0901	4.5	6.70	0.126	1.7	9.42	11.8	198.3	" "
0904	5.6	6.61	0.126	1.5	9.42	11.8	200.3	" "
0907	6.8	6.56	0.126	1.3	9.41	11.8	202.1	" "
0916	7.9	6.56	0.126	1.1	9.41	11.8	204.1	" "
0913	8.9	6.48	0.126	0.9	9.41	11.8	206.3	" "
								N/FE

Sample Information

Sample Method(s) : Submersible pump / Peristaltic pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	0915	(5) 40-ml VOA	HCL, ice	
Total Coliform		300-ml sterile AG or poly	Na2S2O3	
Geochemical Parameters		Sm OJ	ice	
Nitrate/Cl/Nitrite/SO4/pH		Lg OJ	ice	
TOC/COD/NH3		250-ml AG	H2SO4	
Total Metals		500-ml HDPE	HNO3 to ph<2, ice	
Dissolved Metals		500-ml HDPE	HNO3 to ph<2, ice. Field filter	

End Time 0920

Comments / Exceptions:

Groundwater Sampling Field Data

TRC Project No./Site: 489487/Kitsap County - Olalla Landfill

Station	MW-3	Date	3/18/21
Sample ID	MW-3	Field Team: (Initials)	WW + RD
Field Conditions	Rain ~48°F		

Purge Information

Well Diameter (in.)	2"	Purge Method	Submersible pump
Well Depth (ft.)			Peristaltic Pump
Initial Depth to Water (ft.)	44.13		Bladder Pump
Depth of Water Column			Other: _____
1 Casing Volume		Start Time	1049
Controller Setting (Hz)	155	End Time	1120
		Total Gallons Purged	9.3 gal

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
1049	0.5	6.59	0.304	1.7	3.18	10.3	234.4	Black Floating Particulates
1052	1.9	6.25	0.305	1.8	1.38	11.5	231.1	" "
1055	3.8	6.21	0.306	1.5	1.33	11.8	229.3	Clear
1058	4.7	6.20	0.306	1.2	1.29	11.8	228.1	" "
<div style="position: relative; width: 100%; height: 100%;"> NFE </div>								

Sample Information

Sample Method(s): Submersible pump / Peristaltic pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	1100	(5) 40-ml VOA	HCL, ice	
Total Coliform		300-ml sterile AG or poly	Na2S2O3	
Geochemical Parameters		Sm OJ	ice	
Nitrate/Cl/Nitrite/SO4/pH		Lg OJ	ice	
TOC/COD/NH3		250-ml AG	H2SO4	
Total Metals		500-ml HDPE	HNO3 to ph<2, ice	
Dissolved Metals		500-ml HDPE	HNO3 to ph<2, ice. Field filter	
End Time		1120		

Comments / Exceptions:

* DUP = MW-9 *

Groundwater Sampling Field Data

TRC Project No./Site: 489487/Kitsap County - Olalla Landfill

Station	<u>MW-10</u>	Date	<u>3/10/21</u>
Sample ID	<u>MW-10</u>	Field Team: (Initials)	<u>WW + ND</u>
Field Conditions	<u>overcast 45°F</u>		

Purge Information

Well Diameter (in.)	<u>2"</u>	Purge Method	<u>Submersible pump</u>
Well Depth (ft.)		Peristaltic Pump	
Initial Depth to Water (ft.)	<u>29.07</u>	Bladder Pump	
Depth of Water Column		Other: _____	
1 Casing Volume		Start Time	<u>1136</u>
Controller Setting (Hz)	<u>140.7</u>	End Time	<u>1205</u>
		Total Gallons Purged	<u>9.8 gal</u>

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
<u>1136</u>	<u>0.5</u>	<u>6.47</u>	<u>0.433</u>	<u>10.0</u>	<u>1.43</u>	<u>10.5</u>	<u>219.7</u>	<u>Clear</u>
<u>1139</u>	<u>1.2</u>	<u>6.55</u>	<u>0.430</u>	<u>3.4</u>	<u>0.38</u>	<u>11.1</u>	<u>174.5</u>	<u>" "</u>
<u>1142</u>	<u>4.0</u>	<u>6.56</u>	<u>0.432</u>	<u>1.1</u>	<u>0.21</u>	<u>11.4</u>	<u>148.4</u>	<u>" "</u>
<u>1145</u>	<u>5.5</u>	<u>6.58</u>	<u>0.429</u>	<u>1.0</u>	<u>0.15</u>	<u>11.5</u>	<u>134.9</u>	<u>" "</u>
<u>1148</u>	<u>6.8</u>	<u>6.58</u>	<u>0.426</u>	<u>0.9</u>	<u>0.12</u>	<u>11.5</u>	<u>126.1</u>	<u>" "</u>
<u>1151</u>	<u>7.9</u>	<u>6.59</u>	<u>0.430</u>	<u>0.2</u>	<u>0.10</u>	<u>11.5</u>	<u>122.1</u>	<u>" "</u>
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="font-size: 2em; font-family: cursive;">[Signature]</div> <div style="font-size: 2em; font-family: cursive;">NFE</div> </div>								

Sample Information

Sample Method(s) Submersible pump / Peristaltic pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	<u>1155</u>	(5) 40-ml VOA	HCL, ice	
Total Coliform		300-ml sterile AG or poly	Na2S2O3	
Geochemical Parameters		Sm OJ	ice	
Nitrate/Cl/Nitrite/SO4/pH		Lg OJ	ice	
TOC/COD/NH3		250-ml AG	H2SO4	
Total Metals		500-ml HDPE	HNO3 to ph<2, ice	
Dissolved Metals		500-ml HDPE	HNO3 to ph<2, ice. Field filter	

End Time 1205

Comments / Exceptions:

Groundwater Sampling Field Data

TRC Project No./Site: 489487/Kitsap County - Olalla Landfill

Station	<u>MW-6</u>	Date	<u>3/18/21</u>
Sample ID	<u>MW-6</u>	Field Team: (Initials)	<u>KW/ FAD</u>
Field Conditions	<u>Overcast 58°F</u>		

Purge Information

Well Diameter (in.)	<u>2.0"</u>	Purge Method:	<u>Submersible pump</u>
Well Depth (ft.)			Peristaltic Pump
Initial Depth to Water (ft.)	<u>20.04</u>		Bladder Pump
Depth of Water Column			Other: _____
1 Casing Volume		Start Time	<u>1300</u>
Controller Setting (Hz)	<u>107</u>	End Time	<u>1340</u>
		Total Gallons Purged	<u>10.0 gal</u>

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
<u>1301</u>	<u>0.5</u>	<u>7.45</u>	<u>0.082</u>	<u>57.7</u>	<u>6.89</u>	<u>11.4</u>	<u>166.3</u>	<u>Cloudy</u>
<u>1304</u>	<u>1.2</u>	<u>7.27</u>	<u>0.084</u>	<u>28.2</u>	<u>0.52</u>	<u>11.9</u>	<u>155.1</u>	<u>" "</u>
<u>1307</u>	<u>1.5</u>	<u>7.13</u>	<u>0.085</u>	<u>12.8</u>	<u>0.34</u>	<u>12.2</u>	<u>139.5</u>	<u>clear</u>
<u>1310</u>	<u>2.9</u>	<u>7.07</u>	<u>0.087</u>	<u>9.3</u>	<u>0.27</u>	<u>12.3</u>	<u>129.8</u>	<u>" "</u>
<u>1313</u>	<u>4.5</u>	<u>7.04</u>	<u>0.087</u>	<u>8.3</u>	<u>0.24</u>	<u>12.3</u>	<u>123.8</u>	<u>" "</u>
<u>1316</u>	<u>5.1</u>	<u>7.03</u>	<u>0.087</u>	<u>7.7</u>	<u>0.24</u>	<u>12.3</u>	<u>120.2</u>	<u>" "</u>
<u>1319</u>	<u>6.2</u>	<u>7.01</u>	<u>0.087</u>	<u>7.1</u>	<u>0.24</u>	<u>12.3</u>	<u>115.3</u>	<u>" "</u>
<u>1323</u>	<u>7.0</u>	<u>7.00</u>	<u>0.088</u>	<u>6.3</u>	<u>0.23</u>	<u>12.3</u>	<u>110.9</u>	<u>" "</u>
<u>1326</u>	<u>8.0</u>	<u>6.99</u>	<u>0.088</u>	<u>5.5</u>	<u>0.22</u>	<u>12.3</u>	<u>109.1</u>	<u>" "</u>
<u>1329</u>	<u>9.0</u>	<u>6.98</u>	<u>0.088</u>	<u>5.0</u>	<u>0.20</u>	<u>12.4</u>	<u>107.1</u>	<u>" "</u>
								<u>NFE</u>

Sample Information

Sample Method(s) : Submersible pump / Peristaltic pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	<u>1330</u>	(5) 40-ml VOA	HCL, ice	
Total Coliform		300-ml sterile AG or poly	Na2S2O3	
Geochemical Parameters		Sm OJ	ice	
Nitrate/Cl/Nitrite/SO4/pH		Lg OJ	ice	
TOC/COD/NH3		250-ml AG	H2SO4	
Total Metals		500-ml HDPE	HNO3 to ph<2, ice	
Dissolved Metals		500-ml HDPE	HNO3 to ph<2, ice. Field filter	

End Time 1340

Comments / Exceptions:

Groundwater Sampling Field Data

TRC Project No./Site: 489487/Kitsap County - Olalla Landfill

Station	<u>MW-8</u>	Date	<u>3/18/21</u>
Sample ID	<u>MW-8</u>	Field Team: (Initials)	<u>WW + ND</u>
Field Conditions	<u>Sunny 55°F</u>		

Purge Information

Well Diameter (in.)	<u>2"</u>	Purge Method	<u>Submersible pump</u>
Well Depth (ft.)			Peristaltic Pump
Initial Depth to Water (ft.)	<u>20.58</u>		Bladder Pump
Depth of Water Column			Other: _____
1 Casing Volume		Start Time	<u>1355</u>
Controller Setting (Hz)	<u>108</u>	End Time	<u>1430</u>
		Total Gallons Purged	<u>9.7 gal</u>

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
<u>1355</u>	<u>0.3</u>	<u>6.70</u>	<u>0.274</u>	<u>17.1</u>	<u>1.21</u>	<u>10.5</u>	<u>172.2</u>	<u>Clear</u>
<u>1358</u>	<u>0.9</u>	<u>6.65</u>	<u>0.274</u>	<u>13.1</u>	<u>0.83</u>	<u>11.0</u>	<u>134.2</u>	" "
<u>1401</u>	<u>1.4</u>	<u>6.65</u>	<u>0.253</u>	<u>10.7</u>	<u>1.24</u>	<u>11.3</u>	<u>120.5</u>	" "
<u>1404</u>	<u>2.1</u>	<u>6.66</u>	<u>0.243</u>	<u>8.4</u>	<u>1.46</u>	<u>11.4</u>	<u>115.3</u>	" "
<u>1407</u>	<u>3.5</u>	<u>6.66</u>	<u>0.244</u>	<u>5.5</u>	<u>1.61</u>	<u>11.4</u>	<u>107.3</u>	" "
<u>1410</u>	<u>4.5</u>	<u>6.67</u>	<u>0.237</u>	<u>4.1</u>	<u>1.74</u>	<u>11.4</u>	<u>102.3</u>	" "
<u>1413</u>	<u>5.2</u>	<u>6.67</u>	<u>0.233</u>	<u>4.0</u>	<u>1.83</u>	<u>11.4</u>	<u>97.1</u>	" "
<u>1416</u>	<u>6.3</u>	<u>6.67</u>	<u>0.231</u>	<u>3.0</u>	<u>1.89</u>	<u>11.4</u>	<u>93.8</u>	" "
<u>1419</u>	<u>7.4</u>	<u>6.67</u>	<u>0.226</u>	<u>2.8</u>	<u>1.92</u>	<u>11.4</u>	<u>93.4</u>	" "
<u>[Signature]</u>								<u>[Signature]</u>

Sample Information

Sample Method(s) : Submersible pump / Peristaltic pump / Bladder Pump / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	<u>1420</u>	(5) 40-ml VOA	HCL, ice	
Total Coliform	<u> </u>	300-ml sterile AG or poly	Na2S2O3	
Geochemical Parameters		Sm OJ	ice	
Nitrate/Cl/Nitrite/SO4/pH		Lg OJ	ice	
TOC/COD/NH3		250-ml AG	H2SO4	
Total Metals		500-ml HDPE	HNO3 to ph<2, ice	
Dissolved Metals		500-ml HDPE	HNO3 to ph<2, ice. Field filter	

End Time 1430

Comments / Exceptions:

Landfill Gas Monitoring Field Data - Olalla Landfill Monitoring

Instrument Used:	Geom 2000	Date and Time:	3/18/21 1445
Ambient Temperature:	54°F	Field Team:	WW + ND
Field Conditions:	Overcast 29.83 "Hg ↓		

Landfill Gas Data

Flare #	Time	Methane (% vol.)	% LEL	Oxygen (% vol.)	Carbon Dioxide (% vol.)	Temperatur e (°C)	Gas Pressure ("H ₂ O)
3	1451	9.4	0	3.4	11.9	54	0.0
2	1508	9.8	0	0.2	14.1	55	0.0
1	1515	5.8	0	1.7	14.2	55	0.02

Comments / Inspection Results¹

¹Inspect the following: lock and gate operation, tightness of bolts and clamps, differential settlement, valve operation, debris or breaks in hose barb.

EQUIPCO

CES LANDTECH MODEL: GEM 2000 CALIBRATION CERTIFICATE

SERVICE TECHNICIAN: SM

DATE: 3/17/21

INSTRUMENT INFORMATION

RENTAL ID: GEM2000.11

SERIAL NUMBER: GM07638/04

CALIBRATION INFORMATION

1. CALIBRATION GAS: 35 % CO₂

LOT #: 573162

GAS RESPONSE: 35 % CO₂ ±2%

2. CALIBRATION GAS: 50 % Vol. Methane

LOT #: 573162

GAS RESPONSE: 50 % Vol. Methane ±2%

OXYGEN RESPONSE IN FRESH AIR ENVIRONMENT: 20.9% ✓

OXYGEN DOWNSCALE RESPONSE CHECKED: 0% WITH 99.9% Nitrogen ✓

THIS INSTRUMENT HAS BEEN CALIBRATED TO STANDARDS SET FORTH BY THE
MANUFACTURER

YSI ProDSS RENTAL CALIBRATION CERTIFICATE

SERVICE TECHNICIAN: DM

DATE: 3/17/21

RENTAL CUSTOMER: TRC

INSTRUMENT INFORMATION

RENTAL I.D. NUMBER: YSIPRODSS. 07

SERIAL NUMBER: 16F104825

CALIBRATION INFORMATION

PARAMETER:	STANDARD:	PASS ()	LOT #
1. CONDUCTIVITY	1,000 μ Mhos	<u>X</u>	<u>55029</u>
2. pH ZERO	pH 7	<u>X</u>	<u>031274</u>
pH SLOPE	pH 4	<u>X</u>	<u>031273</u>
pH SLOPE	pH 10	<u>X</u>	<u>031275</u>
3. DISSOLVED OXYGEN	Air Calibration Barometric pressure = 760mmHg	<u>X</u>	N/A
4. TURBIDITY ZERO	0.0 NTU's	—	N/A
TURBIDITY SPAN	20 NTU's	—	—
5. REDOX (ORP)	231mV (YSI Zobell solution)	<u>X</u>	<u>121719</u>

Olalla Landfill Quarterly Monitoring Field Book June 2021



**Olalla Landfill
Kitsap County, Washington
Project Number: 429487.0000. Task 1**

**TRC Environmental Corporation
1180 NW Maple Street, Suite 310
Issaquah, Washington 98027
(425) 395-0016**

Project Instructions - Olalla Landfill Quarterly Monitoring

- Access the landfill from the Bandix Road gate. Lock the gate behind you when you're in the gated area because you see the gate from most of the locations.
- Inspect each well and pump head and note any repairs that are needed.
- Collect depth to water measurements at all wells including interior landfill wells MW-2 and MW-4 and shallow well MW-5 (next to MW-5A).
- Collect groundwater samples from MW-1, MW-3, MW-6, MW-8, and MW-10. There are no samples from interior wells MW-2 and MW-4 or from cross-gradient wells MW-5A and MW-7. Use the lowest sustainable flowrate for sample collection. Purge water can be poured on the ground away from the wells.
- The dissolved metals samples for each location get field filtered through single use 0.45 micron in-line filters.
- Take a field duplicate at MW-6 and label it as MW-17. Note it as the field duplicate in the field book.
- Measure landfill gas at all three flares using the GEM 2000. Call me if the measurements look odd or if you're having trouble with the GEM 2000.
- Make sure all wells, flare gates, and Bandix Road gate are locked before you leave.

Depth to Water Measurement Field Data - Olalla Landfill Monitoring

Well	Time	Measuring Point Elevation (ft. NGVD ¹)	Depth to Water (ft.)	Comments and Well Inspection ² Notes
MW-1	1010	343.79	78.47	Locked
MW-2	1114	323.25	65.69	Locked
MW-3	1157	296.95	45.38	Locked
MW-4	1120	320.93	62.75	Locked
MW-5	1138	334.17	10.47	Locked
MW-5A	1135	332.53	76.04	Locked
MW-6	1348	271.17	21.11	Locked
MW-7	1128	280.43	25.86	Locked
MW-8	1432	272.85	21.58	Locked
MW-10	1304	279.21	30.19	Locked

Notes:

¹NGVD = National Geodetic Vertical Datum (1929)

²Observations regarding the condition of the well and surrounding area (e.g., protective casing, surface seal, cap, lock, bollards, soil conditions near the well such as depressions, ponded surface water, or other subsidence features, and any installed sampling equipment).

Multiparameter Probe Calibration Log - Olalla Landfill Groundwater Monitoring

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution

Calibration Solution Manufacturer _____ Lot Number _____ Exp. Date _____

pH = _____ Turbidity = _____ Temperature = _____

Conductivity = _____ Dissolved Oxygen = _____ ORP = _____

Comments:

See cal sheet from Equipco

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution

Calibration Solution Manufacturer _____ Lot Number _____ Exp. Date _____

pH = _____ Turbidity = _____ Temperature = _____

Conductivity = _____ Dissolved Oxygen = _____ ORP = _____

Comments:

Groundwater Sampling Field Data - Olalla Landfill Monitoring

Station	MW-1	Date	6/18/21
Sample: ID	MW-1	Field Team: (Initials)	W.W. + E.S.
Field Conditions	Sunny 65°F		

Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method :	Submersible pump
Well Depth (ft.)		Other :	
Depth to Water (ft.)	78.47	Start Time	1034
Depth of Water Column		End Time	1100
1 Casing Volume (gal.)		Total Gallons Purged	16
Controller setting (Hz)	210.0		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
1035	0.2	8.51	0.117	11.7	9.28	10.1	233.1	clear
1038	2.5	7.14	0.125	5.65	9.61	11.3	216.9	clear
1041	4.0	6.89	0.125	1.11	9.61	11.6	215.6	clear
1044	6.2	6.70	0.125	0.95	9.61	11.6	217.6	" "
1047	8.5	6.60	0.125	6.86	9.60	11.7	220.6	" "
1050	9.9	6.55	0.125	0.75	9.60	11.7	222.3	" "
1053	11.5	6.51	0.125	0.74	9.59	11.7	226.1	" "

Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	1055	(3) 40-mL VOA	HCl, cool to <4°C	
Total Coliform	1055	300-mL sterile AG or poly	Cool to <4°C	
Geochemical Parameters	1055	500-mL HDPE	Cool to <4°C	
Nitrate/Nitrite	1055	500-mL HDPE	Cool to <4°C	
TOC	1055	250-mL AG	H ₂ SO ₄ to pH <2, cool to <4°C	
COD	1055	250-mL HDPE	H ₂ SO ₄ to pH <2, cool to <4°C	
Total Metals	1055	250-mL HDPE	HNO ₃ to pH <2, cool to <4°C	
Dissolved Metals	1055	250-mL HDPE	Field filter, HNO ₃ to pH <2, cool to <4°C	FF

Sample End Time 1100

Comments / Exceptions:

No odor.

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

Groundwater Sampling Field Data - Olalla Landfill Monitoring

Station	MW-3	Date	6/18/21
Sample: ID	MW-3	Field Team: (Initials)	WW + ES
Field Conditions	Sunny 68°F		

Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method :	Submersible pump
Well Depth (ft.)		Other :	
Depth to Water (ft.)	45.38	Start Time	1201
Depth of Water Column		End Time	1230
1 Casing Volume (gal.)		Total Gallons Purged	15
Controller setting (Hz)	155		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
1201	0.1	7.25	0.342	0.90	1.17	11.0	274.4	Clear
1204	2.5	6.55	0.340	0.84	0.46	11.8	266.3	" "
1207	3.5	6.33	0.335	0.88	0.30	12.1	262.1	" "
1210	6.0	6.27	0.331	0.58	0.24	12.2	260.1	" "
1213	8.5	6.22	0.329	0.83	0.18	12.3	255.1	" "

Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	1226	(3) 40-mL VOA	HCl, cool to <4°C	
Total Coliform		300-mL sterile AG or poly	Cool to <4°C	
Geochemical Parameters		500-mL HDPE	Cool to <4°C	
Nitrate/Nitrite		500-mL HDPE	Cool to <4°C	
TOC		250-mL AG	H ₂ SO ₄ to pH <2, cool to <4°C	
COD		250-mL HDPE	H ₂ SO ₄ to pH <2, cool to <4°C	
Total Metals		250-mL HDPE	HNO ₃ to pH <2, cool to <4°C	
Dissolved Metals		250-mL HDPE	Field filter, HNO ₃ to pH <2, cool to <4°C	FF

Sample End Time 1230

Comments / Exceptions:

No odor.

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

Groundwater Sampling Field Data - Olalla Landfill Monitoring

Station	MW-10	Date	6/18/21
Sample: ID	MW-10	Field Team: (Initials)	W.W. + E.S.
Field Conditions	Sunny 65°F		

Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method : <u>Submersible pump</u>	Other: :
Well Depth (ft.)		Start Time	1311
Depth to Water (ft.)	30.19	End Time	1330
Depth of Water Column		Total Gallons Purged	12.5
1 Casing Volume (gal.)			
Controller setting (Hz)			

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
1312	0.5	7.14	0.470	2.44	0.90	10.7	221.1	Clear
1315	2.0	6.83	0.460	1.25	0.28	11.2	186.2	" "
1318	4.0	6.75	0.463	0.98	0.18	11.3	167.2	" "
1321	5.2	6.71	0.459	0.71	0.13	11.4	153.4	" "
1324	7.3	6.68	0.462	0.74	0.11	11.4	147.3	" "
<div style="font-size: 2em; font-family: cursive;"> [Signature] NFE </div>								

Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	1325	(3) 40-mL VOA	HCl, cool to <4°C	
Total Coliform		300-mL sterile AG or poly	Cool to <4°C	
Geochemical Parameters		500-mL HDPE	Cool to <4°C	
Nitrate/Nitrite		500-mL HDPE	Cool to <4°C	
TOC		250-mL AG	H ₂ SO ₄ to pH <2, cool to <4°C	
COD		250-mL HDPE	H ₂ SO ₄ to pH <2, cool to <4°C	
Total Metals		250-mL HDPE	HNO ₃ to pH <2, cool to <4°C	
Dissolved Metals		250-mL HDPE	Field filter, HNO ₃ to pH <2, cool to <4°C	FF

Sample End Time 1330

Comments / Exceptions:

No odor.

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

Groundwater Sampling Field Data - Olalla Landfill Monitoring

Station	MW-6	Date	6/18/21
Sample: ID	MW-6	Field Team: (Initials)	W.W. + E.S.
Field Conditions	Sunny ~68°F		

Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method : <u>Submersible pump</u>	Other: :
Well Depth (ft.)		Start Time	1350
Depth to Water (ft.)	21.11	End Time	1425
Depth of Water Column		Total Gallons Purged	8.0
1 Casing Volume (gal.)			
Controller setting (Hz)	107		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
1351	0.5	7.10	0.317	67.0	17.3	11.1	95.9	Stained Br.
1353	1.0	7.00	0.332	26.0	0.86	11.4	91.8	↓
1356	2.0	6.98	0.339	9.39	0.47	11.7	84.1	clear
1359	3.0	6.80	0.343	2.66	0.32	11.8	77.3	↓
1402	4.0	6.76	0.344	2.03	0.25	11.8	74.6	↓
1405	5.0	6.74	0.345	1.44	0.19	11.8	71.8	clear
								WFE

Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	1409	(3) 40-mL VOA	HCl, cool to <4°C	
Total Coliform	1409	300-mL sterile AG or poly	Cool to <4°C	
Geochemical Parameters	1409	500-mL HDPE	Cool to <4°C	
Nitrate/Nitrite	1409	500-mL HDPE	Cool to <4°C	
TOC	1409	250-mL AG	H ₂ SO ₄ to pH <2, cool to <4°C	
COD	1409	250-mL HDPE	H ₂ SO ₄ to pH <2, cool to <4°C	
Total Metals	1409	250-mL HDPE	HNO ₃ to pH <2, cool to <4°C	
Dissolved Metals	1409	250-mL HDPE	Field filter, HNO ₃ to pH <2, cool to <4°C	FF

Sample End Time 1425

Comments / Exceptions:

Dup: MW-17 @ 1420

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

Groundwater Sampling Field Data - Olalla Landfill Monitoring

Station	<u>MW-8</u>	Date	<u>6/18/21</u>
Sample: ID	<u>MW-8</u>	Field Team: (Initials)	<u>WW + E.S.</u>
Field Conditions	<u>Sunny ~65°F</u>		

Low-Flow Purge Information

Well Diameter (in.)	<u>2"</u>	Purge Method : <u>Submersible pump</u>	Other: _____
Well Depth (ft.)	_____	Start Time	<u>1439</u>
Depth to Water (ft.)	<u>21.58</u>	End Time	<u>1515</u>
Depth of Water Column	_____	Total Gallons Purged	<u>72</u>
1 Casing Volume (gal.)	_____		
Controller setting (Hz)	<u>108</u>		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
<u>1440</u>	<u>0.3</u>	<u>7.38</u>	<u>0.104</u>	<u>40.2</u>	<u>2.71</u>	<u>10.9</u>	<u>199.8</u>	<u>cloudy</u>
<u>1443</u>	<u>1.0</u>	<u>6.97</u>	<u>0.108</u>	<u>7.39</u>	<u>0.42</u>	<u>10.7</u>	<u>111.1</u>	<u>Clear</u>
<u>1446</u>	<u>2.0</u>	<u>6.81</u>	<u>0.129</u>	<u>4.15</u>	<u>0.26</u>	<u>11.1</u>	<u>90.3</u>	<u>" "</u>
<u>1449</u>	<u>3.0</u>	<u>6.74</u>	<u>0.155</u>	<u>5.88</u>	<u>0.17</u>	<u>11.2</u>	<u>86.3</u>	<u>" "</u>
<u>1452</u>	<u>4.0</u>	<u>6.71</u>	<u>0.152</u>	<u>3.69</u>	<u>0.13</u>	<u>11.3</u>	<u>81.4</u>	<u>" "</u>
<u>1455</u>	<u>5.2</u>	<u>6.69</u>	<u>0.163</u>	<u>2.73</u>	<u>0.12</u>	<u>11.4</u>	<u>83.2</u>	<u>" "</u>
<u>generator shut down</u>								
<u>1457</u>	<u>6.0</u>	<u>6.90</u>	<u>0.169</u>	<u>2.71</u>	<u>0.56</u>	<u>11.3</u>	<u>108.3</u>	<u>clear</u>
<u>1500</u>	<u>7.0</u>	<u>6.67</u>	<u>0.160</u>	<u>2.35</u>	<u>0.15</u>	<u>11.4</u>	<u>89.2</u>	<u>" "</u>
<u>1503</u>	<u>8.0</u>	<u>6.63</u>	<u>0.160</u>	<u>2.04</u>	<u>0.13</u>	<u>11.4</u>	<u>83.0</u>	<u>" "</u>
<u>1506</u>	<u>9.0</u>	<u>6.62</u>	<u>0.163</u>	_____	<u>0.13</u>	<u>11.3</u>	<u>78.2</u>	<u>" "</u>
<u>NFE</u>								

Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	<u>1516</u>	(3) 40-mL VOA	HCl, cool to <4°C	
Total Coliform	<u> </u>	300-mL sterile AG or poly	Cool to <4°C	
Geochemical Parameters		500-mL HDPE	Cool to <4°C	
Nitrate/Nitrite		500-mL HDPE	Cool to <4°C	
TOC		250-mL AG	H ₂ SO ₄ to pH <2, cool to <4°C	
COD		250-mL HDPE	H ₂ SO ₄ to pH <2, cool to <4°C	
Total Metals		250-mL HDPE	HNO ₃ to pH <2, cool to <4°C	
Dissolved Metals		250-mL HDPE	Field filter, HNO ₃ to pH <2, cool to <4°C	<u>FF</u>

Sample End Time 1515

Comments / Exceptions:

no odor.

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

Landfill Gas Monitoring Field Data - Olalla Landfill Monitoring

Instrument Used:	Gem 2600	Date and Time:	6/18/21 1500
Ambient Temperature:	68° F	Field Team:	WW + ES
Field Conditions:	Sunny, Hot		

Landfill Gas Data

Flare #	Time	Methane (% vol.)	% LEL	Oxygen (% vol.)	Carbon Dioxide (% vol.)	Temperatur e (°C)	Gas Pressure ("H ₂ O)
3	1529	3.7	70	0.8	11.7	70°F	-0.11
2	1537	1.0	20	5.4	8.0	70°F	-0.11
1	1542	0	0	8.0	7.5	70°F	-0.11

Magnehelix

0

0

0

Comments / Inspection Results¹

¹Inspect the following: lock and gate operation, tightness of bolts and clamps, differential settlement, valve operation, debris or breaks in hose barb.

Attachment B: Olalla Landfill MFS Monitoring Recommended Equipment List

Field Instruments Provided by Consultant:	Example
Multi-parameter meter or individual meters as noted:	YSI 556
pH meter	Orion 250A
Specific conductance meter	YSI Pro 30
Dissolved oxygen meter	YSI Model 50B
ORP meter	YSI ORP15
Turbidity meter	LaMott 2020
Flow-through cell for field parameter instruments	
Landfill gas meter (rented)	Landtech GEM 5000, or equivalent
Water Level Indicator	Solinst, Heron, Slope Indicator

Equipment to Obtain from the County:

Keys to Bandix Road Gate, wells, and gates to flares
 Grundfos Rediflow II pump controller and electrical cables

Equipment Provided by Consultant:

Appropriate gas powered generator (Honda eu2000i or equivalent)
 Power cord for generator
 Extra fuel for generator in DOT-approved container(s)
 Field logbook with appropriate field data forms
 Pens
 Sample bottles and coolers
 Spray bottles
 Appropriate PPE (see HASP)
 5-gallon purge water buckets
 Watch or phone for sample times
 Utility knife or equivalent
 Cell Phone

Expendible Supplies:

0.45 micron in-line filters for dissolved metals samples
 Nitrile gloves
 Garbage bags
 Ziploc-type bags
 Paper towels
 Ice
 Distilled or deionized water
 Liquinox™ or equivalent non-phosphate detergent
 Chain of custody forms
 Strapping tape (if shipping sample coolers)
 Clear packing tape (if shipping sample coolers)
 Calibration fluids for pH, specific conductance, DO, and ORP
 Calibration gases (methane, oxygen, CO₂) and appropriate regulators and hoses
 Extra batteries or charging cords for meters and water level indicator

Notes:

DOT = Department of Transportation
 CO₂ = Carbon dioxide
 HASP = Health and safety plan
 ORP = Oxidation reduction potential
 PPE = Personal protective equipment
 YSI = Yellow Springs Instruments

June 2021 Quarterly Event Bottle Order Form

Project Name	Olalla Landfill Monitoring	Date of Bottle Request	
Project Number	429487 Task 2	Date Bottle are Needed	
Client:	TRC 1180 NW Maple St. Suite 310 Issaquah, WA 98027	Estimated Date Samples will Return:	
Client Contact:			
Lab PM:	Kelly Bottem	Order completed by:	
# of Coolers:	as needed		Include LOOSE Labels
Trip Blanks	1 set (3 VOAs)		Include COC's

Number of Samples	Analysis Requested	Bottles Per Sample	Typical Bottle Size and Type	Preservation	Total Bottles
Groundwater Samples					
7	Volatiles	3	40mL VOA	HCL	21
7	Vinyl chloride by SIM or Low Level	2	40mL VOA	HCL	14
7	Dissolved metals (As, Fe, Zn, Ba, Mn)	1	500 mL HDPE	Field Filtered/HNO ₃	7
7	Total metals (K, Na, Ca)	1	500 mL HDPE	HNO ₃	7
7	Alkalinity, carbonate, bicarbonate	1	Small OJ	-	7
7	Nitrate, nitrite, chloride, sulfate, pH	1	Large OJ	-	7
7	TOC, COD, ammonia	1	250 mL AG	H ₂ SO ₄	7
7	Total coliform	1	Corning	Na ₂ S ₂ O ₃	7
Surface Water Sample (Sampled in March or December)					
0	pH	1	500 mL poly		0
0	Nitrate-Nitrogen	1			0
0	Fecal coliform	1	glass or poly	-	0
Total Bottles:					77

YSI ProDSS RENTAL CALIBRATION CERTIFICATE

SERVICE TECHNICIAN: EM

DATE: 6/17/21

RENTAL CUSTOMER: TRC

INSTRUMENT INFORMATION

RENTAL I.D. NUMBER: YSI PRODSS. 07

SERIAL NUMBER: 16F104825

CALIBRATION INFORMATION

PARAMETER:	STANDARD:	PASS ()	LOT #
1. CONDUCTIVITY	1,000 μ Mhos	<u>X</u>	<u>SS029</u>
2. pH ZERO	pH 7	<u>X</u>	<u>031274</u>
pH SLOPE	pH 4	<u>X</u>	<u>031273</u>
pH SLOPE	pH 10	<u>X</u>	<u>031275</u>
3. DISSOLVED OXYGEN	Air Calibration Barometric pressure = 760mmHg	<u>X</u>	N/A
4. TURBIDITY ZERO	0.0 NTU's	<u>X</u>	N/A
TURBIDITY SPAN	20 NTU's	<u>N/A</u>	<u>N/A</u>
5. REDOX (ORP)	231mV (YSI Zobell solution)	<u>X</u>	<u>121719</u>



CES LANDTECH MODEL: GEM 2000
CALIBRATION CERTIFICATE

SERVICE TECHNICIAN: SM

DATE: 6/17/21

INSTRUMENT INFORMATION

RENTAL ID: GEM2000. 08

SERIAL NUMBER: 6M67210/03

CALIBRATION INFORMATION

1. CALIBRATION GAS: 35 % CO₂

LOT #: 573162

GAS RESPONSE: 35 % CO₂ ±2%

2. CALIBRATION GAS: 50 % Vol. Methane

LOT #: 573162

GAS RESPONSE: 50 % Vol. Methane ±2%

OXYGEN RESPONSE IN FRESH AIR ENVIRONMENT: 20.9% ✓

OXYGEN DOWNSCALE RESPONSE CHECKED: 0% WITH 99.9% Nitrogen ✓

THIS INSTRUMENT HAS BEEN CALIBRATED TO STANDARDS SET FORTH BY THE
MANUFACTURER

382595 Olalla June Quarterly G&W Sampling

Fieldnotes

Logged by: W. Weisberg

6/18/21



6/18/21

382595

①

Field conditions: Sunny ~65°F

Project: O/alla

Scope: June Quarterly GW Sampling & Flare Check.
DUP → @ MW-6 Label MW-17

0930 W. Wastey & E. Stata, TRC, on-site.

0940 Entered into side gate.

0950 HASP meeting.

1000 Setup on MW-1. Setup bottles.

1034 Begm purge MW-1.

1105 Completed MW-1. Mobing to collect BTW in
Not sampled wells.

1149 Completed gauging non-sampled wells. Mob to MW-3.

1230 completed MW-3. MoS to MW-10.

1240 Lunch

1300 Setup on MW-10.

1330 Completed MW-10. Mob to MW-6.

★ DUP ★
MW-17

1409 Sampled MW-6.

6/18/21

1430 Mob to MW-8.

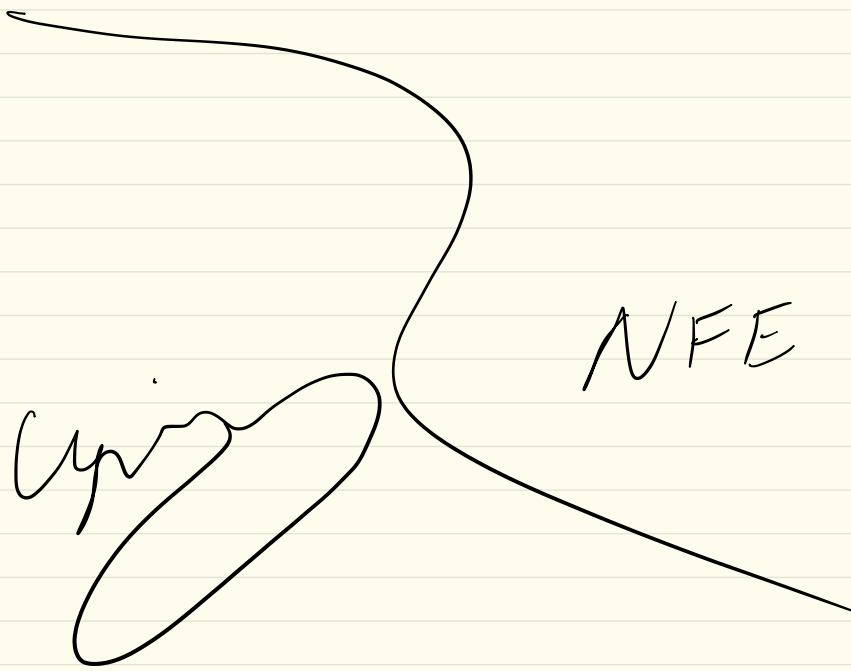
1515 Sampled MW-8. Mob to gas flares.
Sulfur smell/odor.

1522 Mob to Flare 3.

1528 Mob to Flare 2.

1540 Mob to Flare 1.

1545 Flare check complete TRC off-site.



Olalla Landfill Quarterly Monitoring Field Book September 2021

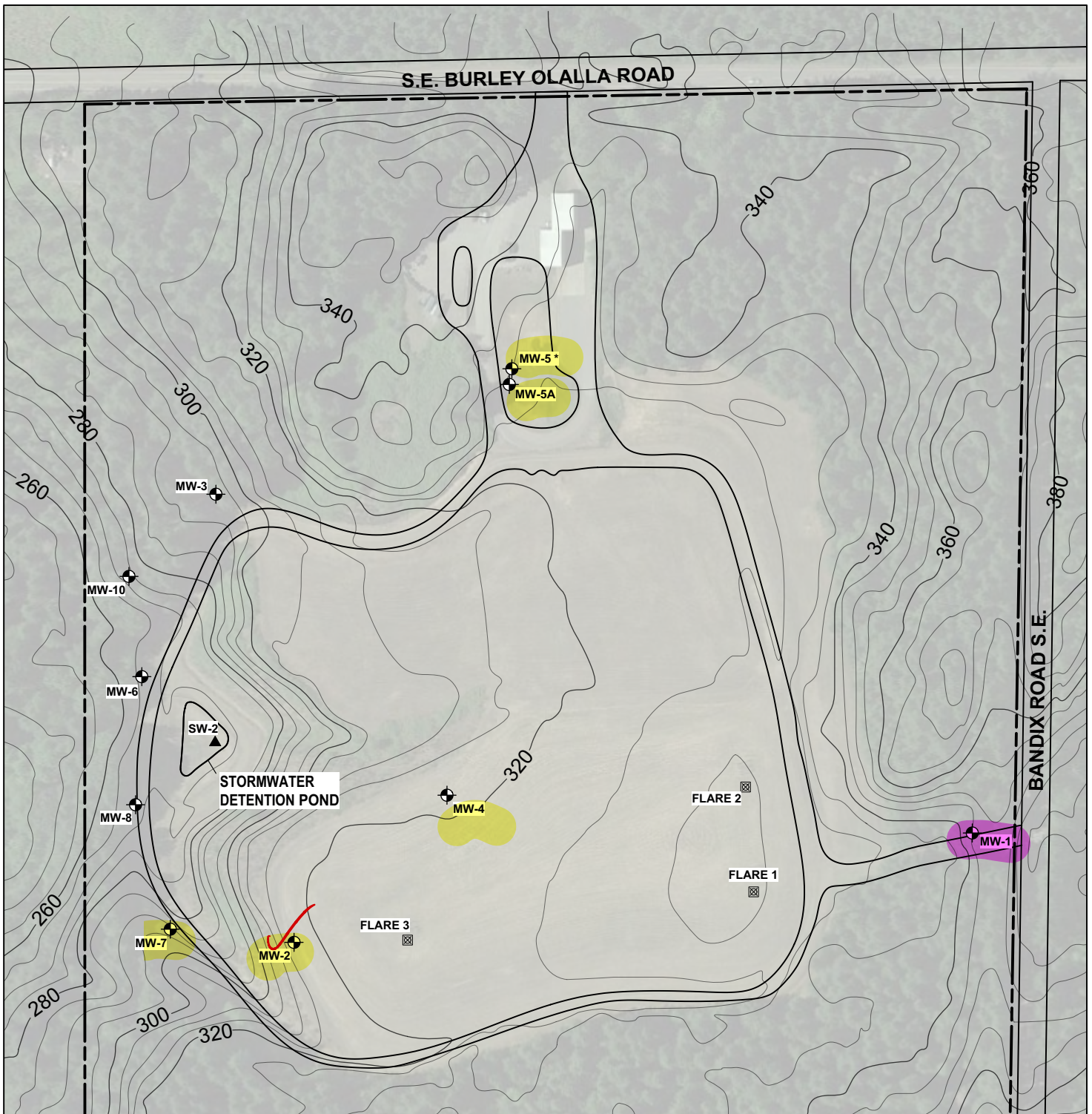


**Olalla Landfill
Kitsap County, Washington
Project Number: 429487.0000. Task 1**

**TRC Environmental Corporation
1180 NW Maple Street, Suite 310
Issaquah, Washington 98027
(425) 395-0016**

Project Instructions - Olalla Landfill Quarterly Monitoring

- Access the landfill from the Bandix Road gate. Lock the gate behind you when you're in the gated area because you see the gate from most of the locations.
- Inspect each well and pump head and note any repairs that are needed.
- Collect depth to water measurements at all wells including interior landfill wells MW-2 and MW-4 and shallow well MW-5 (next to MW-5A).
- Collect groundwater samples from MW-1, MW-3, MW-6, MW-8, and MW-10. There are no samples from interior wells MW-2 and MW-4 or from cross-gradient wells MW-5A and MW-7. Use the lowest sustainable flowrate for sample collection. Purge water can be poured on the ground away from the wells.
- The dissolved metals samples for each location get field filtered through single use 0.45 micron in-line filters.
- Take a field duplicate at MW-6 and label it as MW-17. Note it as the field duplicate in the field book.
- Measure landfill gas at all three flares using the GEM 2000. Call me if the measurements look odd or if you're having trouble with the GEM 2000.
- Make sure all wells, flare gates, and Bandix Road gate are locked before you leave.



NOTES:

BASE MAP SOURCE:
GOOGLE EARTH

TOPOGRAPHIC CONTOUR SOURCE:
KITSAP COUNTY PARCEL VIEWER

*MW-5 IS COMPLETED IN A SHALLOW PERCHED GROUNDWATER ZONE

MW-2 MONITORING WELL LOCATION

SW-2 SURFACE WATER SAMPLING LOCATION

LANDFILL GAS FLARE

TOPOGRAPHIC ELEVATION CONTOUR

APPROXIMATE PROPERTY BOUNDARY

PERIMETER ACCESS ROAD

0 50 100 200

SCALE: 1" = 200'



1180 NW MAPLE ST, SUITE 310
ISSAQUAH, WA 98027
425.395.0010
WWW.TRCCOMPANIES.COM

FIGURE 1
OLALLA LANDFILL MONITORING WELL LOCATIONS

REPORT
QUARTERLY MONITORING REPORT
3RD QUARTER (SEPTEMBER, 2020)

PREPARED FOR
KITSAP COUNTY

PROJECT NUMBER
382595

LOCATION
OLALLA LANDFILL
KITSAP COUNTY, WASHINGTON

DATE 9/28/20
DRAWN BY JYT
REVIEWED BY DCK

Depth to Water Measurement Field Data - Olalla Landfill Monitoring

Well	Time	Measuring Point Elevation (ft. NGVD ¹)	Depth to Water (ft.)	Comments and Well Inspection ² Notes
MW-1	0843	343.79	78.53	well locked
MW-2	1021	323.25	66.31	well locked
MW-3	1114	296.95	47.20	well locked
MW-4	1028	320.93	63.35	well cap - lock
MW-5	1049	334.17	12.33	lock rusted, needs repaired
MW-5A	1056	332.53	78.69	well locked
MW-6	1325	271.17	21.89	well locked
MW-7	1036	280.43	26.54	well locked
MW-8	2217	272.85	22.35	well locked
MW-10	1215	279.21	31.03	well locked

Notes:

¹NGVD = National Geodetic Vertical Datum (1929)

²Observations regarding the condition of the well and surrounding area (e.g., protective casing, surface seal, cap, lock, bollards, soil conditions near the well such as depressions, ponded surface water, or other subsidence features, and any installed sampling equipment).

Multiparameter Probe Calibration Log - Olalla Landfill Groundwater Monitoring

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution

Calibration Solution Manufacturer _____ Lot Number _____ Exp. Date _____

pH = _____ Turbidity = _____ Temperature = _____

Conductivity = _____ Dissolved Oxygen = _____ ORP = _____

Comments:

See Equip Co cal sheet

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution

Calibration Solution Manufacturer _____ Lot Number _____ Exp. Date _____

pH = _____ Turbidity = _____ Temperature = _____

Conductivity = _____ Dissolved Oxygen = _____ ORP = _____

Comments:

1.1.1 Field Duplicate Sample Identification

A field duplicate sample is collected from one of the four downgradient monitoring wells, (MW-3, MW-6, MW-8, or MW-10) during the quarterly monitoring events as described in Section 3.7.1. Duplicate sample locations will be rotated throughout the year such that each of the four downgradient monitoring wells will have one duplicate sample collected every year. Duplicate samples will be assigned fictitious sample identifiers using the following duplicate sample identification system:

- First quarter: MW-9 is the field duplicate of MW-3
- Second quarter: MW-17 is the field duplicate of MW-6
- Third quarter: MW-12 is the field duplicate of MW-8
- Fourth quarter: MW-13 is the field duplicate of MW-10

Multiparameter Probe Calibration Log - Olalla Landfill Groundwater Monitoring

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time
YSI Pro	YSI	YSI Pro 055.05	16F102616	YSI Pro 055.05	9-16-21	0830

Calibrated to Autocal Solution

Calibration Solution Manufacturer EquipCO Lot Number 051142
054276 010621
051157
051140 Exp. Date N/A

pH = Pass: 4.7 ± 10 Turbidity = N/A Temperature = N/A

Conductivity = Pass 1,000 uMhos Dissolved Oxygen = Pass 0.760 ORP = Pass

Comments:

Please see attached calibration sheets

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution

Calibration Solution Manufacturer _____ Lot Number _____ Exp. Date _____

pH = _____ Turbidity = _____ Temperature = _____

Conductivity = _____ Dissolved Oxygen = _____ ORP = _____

Comments:

GEM 2000

EQUIPCO

CES LANDTECH MODEL: GEM 2000 CALIBRATION CERTIFICATE

SERVICE TECHNICIAN: SM

DATE: 9/15/21

INSTRUMENT INFORMATION

RENTAL ID: GEM2000. 11

SERIAL NUMBER: 6M07638/04

CALIBRATION INFORMATION

1..CALIBRATION GAS: 35 % CO₂

LOT #: 573162

GAS RESPONSE: 35 % CO₂ ±2%

2. CALIBRATION GAS: 50 % Vol. Methane

LOT #: 573162

GAS RESPONSE: 50 % Vol. Methane ±2%

OXYGEN RESPONSE IN FRESH AIR ENVIRONMENT: 20.9% ✓

OXYGEN DOWNSCALE RESPONSE CHECKED: 0% WITH 99.9% Nitrogen ✓

THIS INSTRUMENT HAS BEEN CALIBRATED TO STANDARDS SET FORTH BY THE
MANUFACTURER

YSI ProDSS RENTAL CALIBRATION CERTIFICATE

DATE: 9/15/21

SERVICE TECHNICIAN: DM

RENTAL CUSTOMER: TRC

INSTRUMENT INFORMATION

RENTAL I.D. NUMBER: YSIPRODSS. 05

SERIAL NUMBER: 16F102616

CALIBRATION INFORMATION

PARAMETER:	STANDARD:	PASS ()	LOT #
1. CONDUCTIVITY	1,000 μ Mhos	<u>X</u>	<u>051142</u>
2. pH ZERO	pH 7	<u>X</u>	<u>054276</u>
pH SLOPE	pH 4	<u>X</u>	<u>051137</u>
pH SLOPE	pH 10	<u>X</u>	<u>051140</u>
3. DISSOLVED OXYGEN	Air Calibration Barometric pressure = 760mmHg	<u>X</u>	N/A
4. TURBIDITY ZERO	0.0 NTU's	—	N/A
TURBIDITY SPAN	20 NTU's	—	—
5. REDOX (ORP)	231mV (YSI Zobell solution)	<u>X</u>	<u>040621</u>

Groundwater Sampling Field Data - Olalla Landfill Monitoring

Station	MW-1	Date	9-16-2021
Sample: ID	MW-1	Field Team: (Initials)	UB, ES
Field Conditions	Sunny 64°F		

Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method : Submersible pump	Other: :
Well Depth (ft.)	87	Start Time	0905
Depth to Water (ft.)	78.93	End Time	0930
Depth of Water Column	8.17	Total Gallons Purged	1.5
1 Casing Volume (gal.)	1.33171		
Controller setting (Hz)	195		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
0910	0.2	6.62	0.330	6.85	7.44	13.6	99.0	Clear
0913	0.4	6.56	0.330	6.54	7.32	13.4	120.0	Clear
0916	0.6	6.53	0.331	6.99	7.42	12.9	144.9	Clear
0919	0.8	6.52	0.332	7.04	8.02	12.6	155.3	Clear
0922	1.0	6.52	0.332	10.8	8.81	12.6	163.0	Clear
0925	1.2	6.52	0.332	11.1	8.84	12.5	164.1	Clear
0928	1.4	6.52	0.332	10.5	8.87	12.5	170.9	Clear

Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	0935	(3) 40-mL VOA	HCl, cool to <4°C	
Total Coliform	0935	300-mL sterile AG or poly	Cool to <4°C	
Geochemical Parameters	0935	500-mL HDPE	Cool to <4°C	
Nitrate/Nitrite	0935	500-mL HDPE	Cool to <4°C	
TOC	0935	250-mL AG	H ₂ SO ₄ to pH <2, cool to <4°C	
COD	0935	250-mL HDPE	H ₂ SO ₄ to pH <2, cool to <4°C	
Total Metals	0935	250-mL HDPE	HNO ₃ to pH <2, cool to <4°C	
Dissolved Metals	0935	250-mL HDPE	Field filter, HNO ₃ to pH <2, cool to <4°C	

Sample End Time 0950

Comments / Exceptions:

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

Groundwater Sampling Field Data - Olalla Landfill Monitoring

Station	MW-3	Date	9-16-21
Sample: ID	MW-3	Field Team: (Initials)	UB, ES
Field Conditions	Sunny, 63°F		

Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method : Submersible pump	Other: :
Well Depth (ft.)	55.50	Start Time	1123
Depth to Water (ft.)	43.20	End Time	1145
Depth of Water Column	12.3	Total Gallons Purged	1.2
1 Casing Volume (gal.)	2.0049		
Controller setting (Hz)	142.6		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
1126	0.2	6.31	0.529	3.58	1.07	11.9	223.1	Clear
1129	0.4	6.31	0.531	1.29	0.85	12.0	221.3	Clear
1132	0.6	6.32	0.530	1.09	0.73	12.1	218.1	Clear
1135	0.8	6.32	0.530	1.03	0.69	12.2	213.1	Clear
1138	1.0	6.33	0.532	1.01	0.68	12.2	206.9	Clear

Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	1145	(3) 40-mL VOA	HCl, cool to <4°C	
Total Coliform	1145	300-mL sterile AG or poly	Cool to <4°C	
Geochemical Parameters	1145	500-mL HDPE	Cool to <4°C	
Nitrate/Nitrite	1145	500-mL HDPE	Cool to <4°C	
TOC	1145	250-mL AG	H ₂ SO ₄ to pH <2, cool to <4°C	
COD	1145	250-mL HDPE	H ₂ SO ₄ to pH <2, cool to <4°C	
Total Metals	1145	250-mL HDPE	HNO ₃ to pH <2, cool to <4°C	
Dissolved Metals	1145	250-mL HDPE	Field filter, HNO ₃ to pH <2, cool to <4°C	

Sample End Time 1200

Comments / Exceptions:

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

Groundwater Sampling Field Data - Olalla Landfill Monitoring

Station	MW-10	Date	9-16-21
Sample: ID	MW-10	Field Team: (Initials)	LB, ES
Field Conditions	Sunny, 65°F		

Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method : Submersible pump	Other: :
Well Depth (ft.)	47.00	Start Time	1220
Depth to Water (ft.)	31.03	End Time	1240
Depth of Water Column	15.97	Total Gallons Purged	1.2
1 Casing Volume (gal.)	2.60311		
Controller setting (Hz)	130		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
1222	0.2	6.83	0.608	7.72	1.04	11.0	184.1	Clear
1225	0.4	6.83	0.600	3.12	0.52	11.0	165.0	Clear
1228	0.6	6.82	0.597	2.21	0.44	11.6	151.3	Clear
1231	0.8	6.81	0.598	4.68	0.35	11.7	143.7	Clear
1234	1.0	6.81	0.599	1.76	0.31	11.7	135.5	Clear

Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	1240	(3) 40-mL VOA	HCl, cool to <4°C	
Total Coliform	1240	300-mL sterile AG or poly	Cool to <4°C	
Geochemical Parameters	1240	500-mL HDPE	Cool to <4°C	
Nitrate/Nitrite	1240	500-mL HDPE	Cool to <4°C	
TOC	1240	250-mL AG	H ₂ SO ₄ to pH <2, cool to <4°C	
COD	1240	250-mL HDPE	H ₂ SO ₄ to pH <2, cool to <4°C	
Total Metals	1240	250-mL HDPE	HNO ₃ to pH <2, cool to <4°C	
Dissolved Metals	1240	250-mL HDPE	Field filter, HNO ₃ to pH <2, cool to <4°C	

Sample End Time 1255

Comments / Exceptions:

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

Groundwater Sampling Field Data - Olalla Landfill Monitoring

Station	MW-6	Date	9-16-21
Sample: ID	MW-6	Field Team: (Initials)	LB, ES
Field Conditions	Sunny, 66°F		

Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method : Submersible pump	Other: :
Well Depth (ft.)	35	Start Time	1325
Depth to Water (ft.)	21.89	End Time	1350
Depth of Water Column	13.11	Total Gallons Purged	1.5
1 Casing Volume (gal.)	2.1369		
Controller setting (Hz)	110		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
1325	0.2	6.84	0.470	60.3	2.20	12.0	109.3	Clear
1332	0.4	6.76	0.485	37.2	1.00	11.9	103.0	Clear
1335	0.6	6.71	0.517	21.7	0.69	12.6	91.0	Clear
1338	0.8	6.71	0.517	6.08	0.54	12.9	81.6	Clear
1341	1.0	6.70	0.514	5.80	0.44	13.0	80.3	Clear
1344	1.2	6.70	0.518	4.89	0.42	13.0	76.4	Clear
1347	1.4	6.70	0.517	4.95	0.38	13.0	73.9	Clear

Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	1350	(3) 40-mL VOA	HCl, cool to <4°C	
Total Coliform	1350	300-mL sterile AG or poly	Cool to <4°C	
Geochemical Parameters	1350	500-mL HDPE	Cool to <4°C	
Nitrate/Nitrite	1350	500-mL HDPE	Cool to <4°C	
TOC	1350	250-mL AG	H ₂ SO ₄ to pH <2, cool to <4°C	
COD	1350	250-mL HDPE	H ₂ SO ₄ to pH <2, cool to <4°C	
Total Metals	1350	250-mL HDPE	HNO ₃ to pH <2, cool to <4°C	
Dissolved Metals	1350	250-mL HDPE	Field filter, HNO ₃ to pH <2, cool to <4°C	

Sample End Time 1400

Comments / Exceptions:

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

Groundwater Sampling Field Data - Olalla Landfill Monitoring

Station	MW-8	Date	9-16-21
Sample: ID	MW-8	Field Team: (Initials)	LB/ES
Field Conditions	Sunny, 67°F		

Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method : Submersible pump	Other : _____
Well Depth (ft.)	38	Start Time	1420
Depth to Water (ft.)	22.35	End Time	1509
Depth of Water Column	15.65	Total Gallons Purged	2.2
1 Casing Volume (gal.)	2.5509		
Controller setting (Hz)	109		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
1421	0.2	6.90	0.305	84.5	1.00	10.9	220.8	Clear
1424	0.4	6.86	0.298	49.9	0.66	11.2	160.8	Clear
1427	0.6	6.84	0.308	23.3	0.47	11.6	129.1	Clear
1430	0.8	6.80	0.320	18.1	0.37	11.7	113.0	clear
1433	1.0	6.78	0.333	13.8	0.32	11.8	107.9	clear
1436	1.2	6.78	0.332	9.44	0.31	11.8	103.0	clear
1439	1.4	6.77	0.336	4.65	0.29	11.8	99.1	clear
1442	1.6	6.78	0.334	3.88	0.30	11.9	94.8	Clear

Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	1450	(3) 40-mL VOA	HCl, cool to <4°C	
Total Coliform	1450	300-mL sterile AG or poly	Cool to <4°C	
Geochemical Parameters	1450	500-mL HDPE	Cool to <4°C	
Nitrate/Nitrite	1450	500-mL HDPE	Cool to <4°C	
TOC	1450	250-mL AG	H ₂ SO ₄ to pH <2, cool to <4°C	
COD	1450	250-mL HDPE	H ₂ SO ₄ to pH <2, cool to <4°C	
Total Metals	1450	250-mL HDPE	HNO ₃ to pH <2, cool to <4°C	
Dissolved Metals	1450	250-mL HDPE	Field filter, HNO ₃ to pH <2, cool to <4°C	

Sample End Time 1500

Comments / Exceptions:

Dup taken. "MW-12"

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

Landfill Gas Monitoring Field Data - Olalla Landfill Monitoring

Instrument Used:	GEM 2000	Date and Time:	9/16/21 1518
Ambient Temperature:	19 °C	Field Team:	STAFF/BRIANT
Field Conditions:	clear, breezy		

Landfill Gas Data

Flare #	Time	Methane (% vol.)	% LEL	Oxygen (% vol.)	Carbon Dioxide (% vol.)	Temperatur e (°C)	Gas Pressure ("H ₂ O)
3	1536	0.00	0	4.9	10.9	19	0.01
2	1545	0.00	0	11.3	6.7	19	0.01
1	1554	0.00	0	8.7	8.4	19	0.01

Comments / Inspection Results¹

3. Valve blocked, cleared.
2. Valve blocked, cleared
1. enclosure filled w/ blackberries

¹Inspect the following: lock and gate operation, tightness of bolts and clamps, differential settlement, valve operation, debris or breaks in hose barb.

Attachment B: Olalla Landfill MFS Monitoring Recommended Equipment List

Field Instruments Provided by Consultant:	Example
Multi-parameter meter or individual meters as noted:	YSI 556
pH meter	Orion 250A
Specific conductance meter	YSI Pro 30
Dissolved oxygen meter	YSI Model 50B
ORP meter	YSI ORP15
Turbidity meter	LaMott 2020
Flow-through cell for field parameter instruments	
Landfill gas meter (rented)	Landtech GEM 5000, or equivalent
Water Level Indicator	Solinst, Heron, Slope Indicator

Equipment to Obtain from the County:

Keys to Bandix Road Gate, wells, and gates to flares
 Grundfos Rediflow II pump controller and electrical cables

Equipment Provided by Consultant:

Appropriate gas powered generator (Honda eu2000i or equivalent)
 Power cord for generator
 Extra fuel for generator in DOT-approved container(s)
 Field logbook with appropriate field data forms
 Pens
 Sample bottles and coolers
 Spray bottles
 Appropriate PPE (see HASP)
 5-gallon purge water buckets
 Watch or phone for sample times
 Utility knife or equivalent
 Cell Phone

Expendible Supplies:

0.45 micron in-line filters for dissolved metals samples
 Nitrile gloves
 Garbage bags
 Ziploc-type bags
 Paper towels
 Ice
 Distilled or deionized water
 Liquinox™ or equivalent non-phosphate detergent
 Chain of custody forms
 Strapping tape (if shipping sample coolers)
 Clear packing tape (if shipping sample coolers)
 Calibration fluids for pH, specific conductance, DO, and ORP
 Calibration gases (methane, oxygen, CO₂) and appropriate regulators and hoses
 Extra batteries or charging cords for meters and water level indicator

Notes:

DOT = Department of Transportation
 CO₂ = Carbon dioxide
 HASP = Health and safety plan
 ORP = Oxidation reduction potential
 PPE = Personal protective equipment
 YSI = Yellow Springs Instruments

Example Quarterly Event Bottle Order Form

Project Name	Olalla Landfill Monitoring	Date of Bottle Request	8/25/2021		
Project Number	429487 Task 0002	Date Bottles are Needed	9/10/2021		
Client:	TRC Environmental Corporation 1180 NW Maple St. Suite 310 Issaquah, WA 98027	Estimated Date Samples will be Submitted	9/16/2021 and 9/17/2021		
Client Contact:	Doug Kunkel 425-241-8170				
Lab PM:	Kelly Bottem	Order completed by:	Doug Kunkel		
# of Coolers:	as needed	YES	Include LOOSE Labels		
Trip Blanks	1 set (3 VOAs)	YES	Include COC's		
Number of Samples	Analysis Requested	Bottles Per Sample	Bottle Size and Type	Preservation	Total Bottles
Groundwater Samples					
6	Volatiles	3	40mL VOA	HCL	18
6	Vinyl chloride by SIM	2	40mL VOA	HCL	12
6	Dissolved metals (As, Fe, Zn, Ba, Mn)	1	500 mL HDPE	Field Filtered/HNO ₃	6
6	Total metals (K, Na, Ca)	1	500 mL HDPE	HNO ₃	6
6	alkalinity, carbonate, bicarbonate	1	Small OJ	-	6
6	Nitrate, nitrite, chloride, sulfate, pH	1	Large OJ	-	6
6	TOC, COD, ammonia	1	250 mL HDPE	H ₂ SO ₄	6
6	Total coliform	1	300 mL sterile amber glass or poly	Tablet	6
Off-Site Well and Seep Samples (In a separate cooler please)					
9	Vinyl chloride by SIM	2	40mL VOA	HCL	18
9	Total metals (As, Fe, Mn)	1	500 mL HDPE	HNO ₃	9
Total Bottles:					93

Olalla Landfill Sept 16 2021

- 0810 onsite
- 0815 opened gate, move to MW-1
- 0820 Safety meeting w/L. Briant
- 1000 finish sampling MW-1
- 1020 move to MW-2, 4, 7
- 1045 move to MW-5, 5A
- 1100 move to MW-3
- 1200 move to MW-10

well	DTW	time	
MW-1	78.83	0843	locked
MW-2	66.31	1021	locked
MW-4	63.35	1028	locking cap
MW-7	26.54	1036	locked
MW-5	12.33	1040	locked - needs new la
MW-5A	26.69	1056	locked
MW-3	47.20	1114	locked
MW-10	31.03	1215	locked
MW-6	21.89	1325	locked
MW-8	22.35	1417	locked

Olalla Landfill Sept 16 2021

1315 move to MW-6

1350 Sample MW-6

1350 Call From D. Kunkel

1410 move to MW-8

Dupe on MW-8:

MW-12

1510 MW-8 done

move to flares.

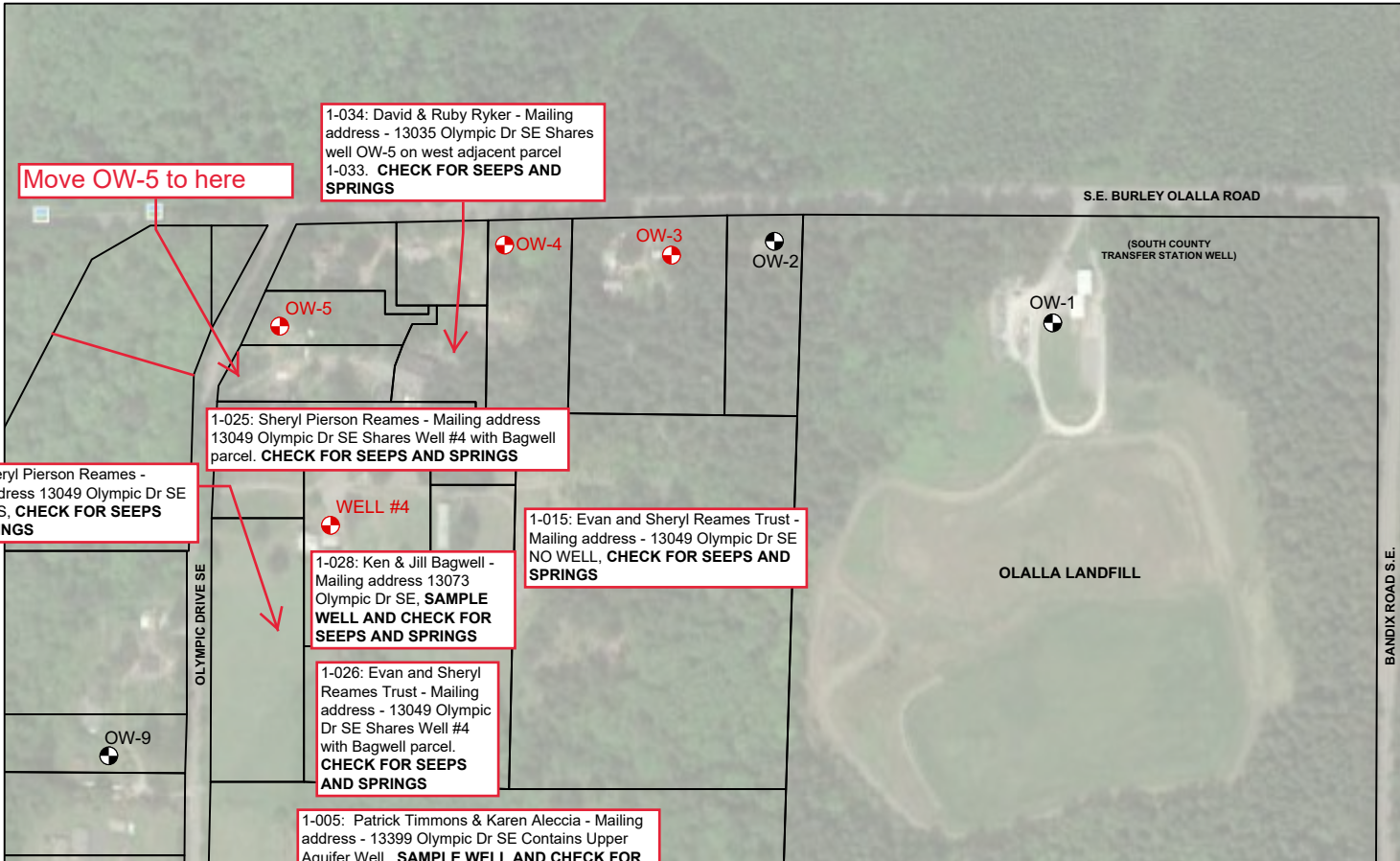
1530 - NO Δ on magnetic
Flare 3

1539 - NO Δ magnetic
Flare 2

1547 - NO Δ magnetic
Flare 1

1559 - offsite, all wells, flares, gate locked.

ES -



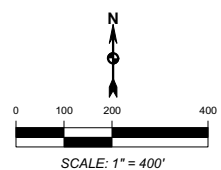
Well ID	Name on Well Log	Street Address	Well Depth (feet)	Date Sampled	Arsenic	Iron	Manganese	Vinyl Chloride
OW-1	South County Transfer Station	Olalla Landfill	159	12/28/2010	0.719	<20	<5	<0.002
				7/29/2020	0.84	<20	1.2	<0.002
OW-2	Leo Pierson	2752 Burley-Olalla Rd SE	107*	4/25/1995	0.48	<10	<2	<0.01
				9/24/1997	0.16	<10	<2	<0.01
				1/27/2011	0.215	<20	<5	<0.002
				7/29/2020	0.28	<20	6.5	<0.002
OW-3	Leo Pierson	2650 Burley-Olalla Rd SE	274	4/25/1995	1.5	10	37	<0.01
				9/24/1997	1.7	<10	18	<0.01
				1/27/2011	7.04	572	59	<0.002
				7/29/2020	2.36	43.2	59	<0.002
OW-4	Brian Hickman	2590 Burley-Olalla Rd SE	300*	4/25/1995	2.77	60	52	<0.01
				9/24/1997	1.8	300	15	<0.01
				12/29/2010	1.68	106	32	<0.002
				7/29/2020	1.95	132	51.5	<0.002
Well #4	Sheryl Pierson-Reames	13049 Olympic Drive SE	210	4/25/1995	3.56	50	46	<0.01
				9/24/1997	2.4	10	9	<0.01
OW-5	Gene Ryker	13041 Olympic Drive SE	279	1/27/2011	0.535	54	38	<0.002
				7/29/2020	0.798	<20	46.4	<0.002
OW-9	Gerald Schumacher	13320 Olympic Drive SE	61	12/29/2010	0.253	71	<5	<0.002
				7/29/2020	0.37	<20	5.2	<0.002

- NOTES:**
- OFF-SITE WELL LOCATION (UPPER AQUIFER)
 - OFF-SITE WELL LOCATION (DEEPER AQUIFER)
 - PARCEL BOUNDARY

- TABLE NOTES:**
- * WELL LOG NOT AVAILABLE. TOTAL DEPTH REPORTED BY HOMEOWNER.
 - BOLD** CONCENTRATION EXCEEDS THE LABORATORY REPORTING LIMIT.
 - BOLD** CONCENTRATION EXCEEDS WASHINGTON STATE DRINKING WATER STANDARD.
 - AR ARSENIC
 - FE IRON
 - MN MANGANESE
 - VC VINYL CHLORIDE

SOURCES:

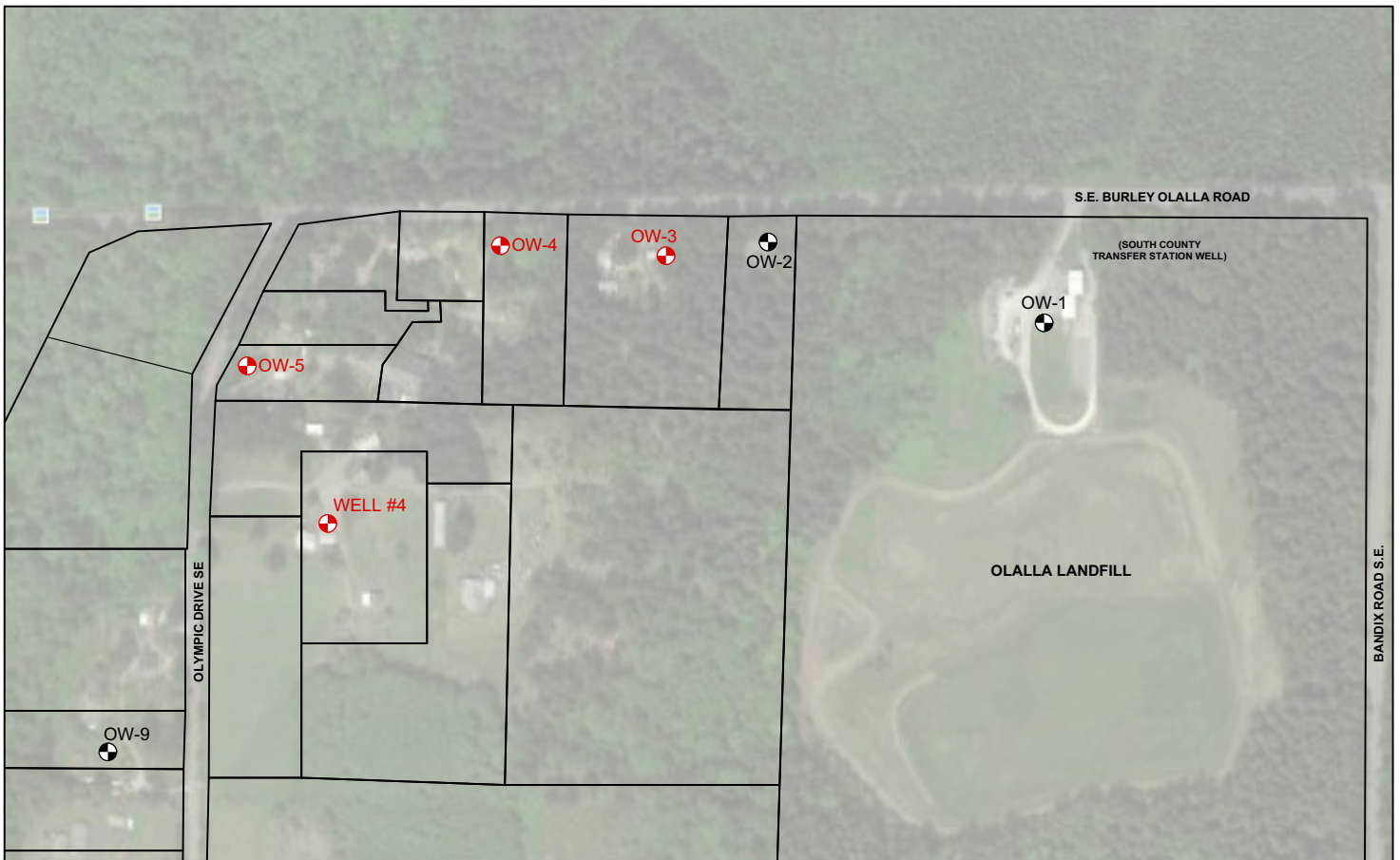
- BREMERTON-KITSAP COUNTY HEALTH DISTRICT MEMORANDUM TITLED "OLALLA LANDFILL DOMESTIC WELL SURVEY INFORMATION" OCTOBER 23, 1995
- ECOLOGY WELL LOG DATABASE (WEBSITE)
- KITSAP COUNTY PARCEL LOCATOR (WEBSITE)
- GOOGLE EARTH



1180 NW MAPLE ST, SUITE 310
 ISSAQUAH, WA 98027
 425.395.0010
 WWW.TRCCOMPANIES.COM

FIGURE 5
 OFF-SITE WATER SUPPLY WELL SAMPLING LOCATIONS AND RESULTS

REPORT REMEDIAL ACTION STATUS REPORT	PREPARED FOR KITSAP COUNTY
<hr/>	
PROJECT NUMBER 382595	
<hr/>	
LOCATION OLALLA LANDFILL KITSAP COUNTY, WASHINGTON	DATE6/7/21 DRAWN BYVPB REVIEWED BYDCK



Assigned Well ID	Current Well Owner	Street Address	Well Depth (feet)	Date Sampled	Arsenic	Iron	Manganese	Vinyl Chloride
OW-1	South County Transfer Station	Olalla Landfill	159	12/28/2010	0.719	<20	<5	<0.002
				7/29/2020	0.84	<20	1.2	<0.002
OW-2	Leo Pierson	2752 SE Burley-Olalla Rd	107*	4/25/1995	0.48	<10	<2	<0.01
				9/24/1997	0.16	<10	<2	<0.01
				1/27/2011	0.215	<20	<5	<0.002
				7/29/2020	0.28	<20	6.5	<0.002
OW-3	Leo Pierson	2650 SE Burley-Olalla Rd	274	4/25/1995	1.5	10	37	<0.01
				9/24/1997	1.7	<10	18	<0.01
				1/27/2011	7.04	572	59	<0.002
				7/29/2020	2.36	43.2	59	<0.002
OW-4	Brian Hickman	2590 SE Burley-Olalla Rd	300*	4/25/1995	2.77	60	52	<0.01
				9/24/1997	1.8	300	15	<0.01
				12/29/2010	1.68	106	32	<0.002
				7/29/2020	1.95	132	51.5	<0.002
Well #4	Ken Bagwell	13073 Olympic Drive SE	210	4/25/1995	3.56	50	46	<0.01
				9/24/1997	2.4	10	9	<0.01
OW-5	Gene Ryker	13025 Olympic Drive SE	279	1/27/2011	0.535	54	38	<0.002
				7/29/2020	0.798	<20	46.4	<0.002
OW-9	Cynthia Eriksen	13320 Olympic Drive SE	61	12/29/2010	0.253	71	<5	<0.002
				7/29/2020	0.37	<20	5.2	<0.002

NOTES:

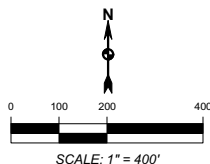
- OFF-SITE WELL LOCATION (UPPER AQUIFER)
- OFF-SITE WELL LOCATION (DEEPER AQUIFER)
- PARCEL BOUNDARY

TABLE NOTES:

- * WELL LOG NOT AVAILABLE. TOTAL DEPTH REPORTED BY HOMEOWNER.
- BOLD** CONCENTRATION EXCEEDS THE LABORATORY REPORTING LIMIT.
- BOLD** CONCENTRATION EXCEEDS WASHINGTON STATE DRINKING WATER STANDARD.

SOURCES:

- BREMERTON-KITSAP COUNTY HEALTH DISTRICT MEMORANDUM TITLED "OLALLA LANDFILL DOMESTIC WELL SURVEY INFORMATION" OCTOBER 23, 1995
- ECOLOGY WELL LOG DATABASE (WEBSITE)
- KITSAP COUNTY PARCEL SEARCH (WEBSITE)
- GOOGLE EARTH



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FIGURE 5

OFF-SITE WATER SUPPLY WELL SAMPLING LOCATIONS AND RESULTS

REPORT
 REMEDIAL ACTION STATUS
 REPORT

PREPARED FOR
 KITSAP COUNTY

PROJECT NUMBER
 429487

LOCATION
 OLALLA LANDFILL
 KITSAP COUNTY, WASHINGTON

DATE 8/18/21
DRAWN BY VPB
REVIEWED BY DCK

Offsite Well / Seep Sampling Field Data

TRC Project No.	429487 Task 7
Property Address	13399 OLYMPIC DR SE
Property Owner	Timmons
Sample Date	9-17-21
Sample ID	OW-10
Field Team	E. SPAN
Field Conditions	12°C, RAIN

Field Data (Stabilization Not Required)

Well Diameter (in.) reported by owner	Unknown	Start Time	0835
Well Depth (ft.) reported by owner	30 ft	End Time	0900
Seep Location	N/A	Total Gallons Purged	~12 gal
Approximate Well or Seep Flow Rate	> 1 gpm		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
838	3	6.94	0.298	0.89	8.50	14.2	150.9	clear
841	5	6.89	0.299	1.27	8.44	13.7	202.9	clear
850	10	6.87	0.300	1.00	8.37	13.7	221.0	clear

Sample Information

Sample Method(s) Direct from well tap

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Vinyl Chloride by SIM	0900	(2) 40-ml VOA	HCL, ice	
Total Metals (As, Fe, Mn)	0900	500-ml HDPE	HNO ₃ to pH<2, ice	

End Time 0900

Comments / Exceptions:

sampled directly from hose bib in backyard,
clear, no odor.

Offsite Well / Seep Sampling Field Data

TRC Project No.	429487 Task 7
Property Address	13399 OLYMPIC DR SE
Property Owner	Timmons
Sample Date	9-17-21
Sample ID	OS-01
Field Team	E. STATA
Field Conditions	12 °C, RAIN

Field Data (Stabilization Not Required)

Well Diameter (in.) reported by owner	—	Start Time	0930
Well Depth (ft.) reported by owner	—	End Time	0941
Seep Location	Approx 70' N of gate	Total Gallons Purged	N/A
Approximate Well or Seep Flow Rate	unknown		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
0935	—	6.82	0.315	81.6	3.85	12.3	38.9	

Sample Information

Sample Method(s) BAILED FROM SEEP

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Vinyl Chloride by SIM	0939	(2) 40-ml VOA	HCL, ice	
Total Metals (As, Fe, Mn)	0939	500-ml HDPE	HNO ₃ to pH<2, ice	

End Time 0941

Comments / Exceptions:

Sample location approved by A. McKinnon
 Kitsap County. Sampled from gw-fed
 seep at location approx 70' north of access
 gate at Timmons property.

Staller landfill offsite samp.

2021-09-17 - RAN, R^c
Timmons / Alecia 13399 Olympic Dr SE

well: OW-10 (Do not see it they

Seep: OS-01 have been sampled)

KITSAP CO: Alex Mckinnon

251-458-4606

0800 - onsite, call with A.M. (K.CO)

- checked at well head, park

to Spring.

0810 - A.M. onsite

0835 - START A OW-10

0900 - OW-10 sampled.

- A.M. found a park to seep

0910 - Bush whacked to find seep

0930 - found sample location
approved by A. mckinnon

0939 - sampled OS-01

1010 - offsite to lab

ES

Olalla Landfill Quarterly Monitoring Field Book December 2021



**Olalla Landfill
Kitsap County, Washington
Project Number: 429487.0000. Task 1**

**TRC Environmental Corporation
1180 NW Maple Street, Suite 310
Issaquah, Washington 98027
(425) 395-0016
(425) 241-8170**

Project Instructions - Olalla Landfill Annual Monitoring

- Access the landfill from the Bandix Road gate. Lock the gate behind you when you're in the gated area because you see the gate from most of the locations.
- Inspect each well and pump head and note any repairs that are needed.
- Collect depth to water measurements at all wells including interior landfill wells MW-2 and MW-4 and shallow well MW-5 (next to MW-5A).
- Collect groundwater samples from MW-1, MW-3, MW-5A, MW-6, MW-7, MW-8, and MW-10. There are no samples from interior wells MW-2 and MW-4.
- Samples from the regular quarterly sampling wells (MW-1, MW-3, MW-6, MW-8, and MW-10) are analyzed for all Olalla analytes:
 - VOCs and vinyl chloride by SIM
 - dissolved metals (As, Fe, Zn, Ba, Mn),
 - total metals (K, Na, Ca)
 - alkalinity
 - carbonate
 - bicarbonate
 - nitrate
 - nitrite
 - chloride
 - sulfate
 - pH
 - TOC
 - COD
 - ammonia
 - total coliform
- Samples from cross-gradient wells MW-5A and MW-7 are only analyzed for vinyl chloride by SIM and dissolved metals (As, Fe, and Mn).
- Use the lowest sustainable flowrate for sample collection. Purge water can be poured on the ground away from the wells.
- The **dissolved metals** samples for each location **get field filtered** through single use 0.45 micron in-line filters.
- Take a field duplicate at MW-10 and label it as MW-13. Note it as the field duplicate in the field book.

Flares

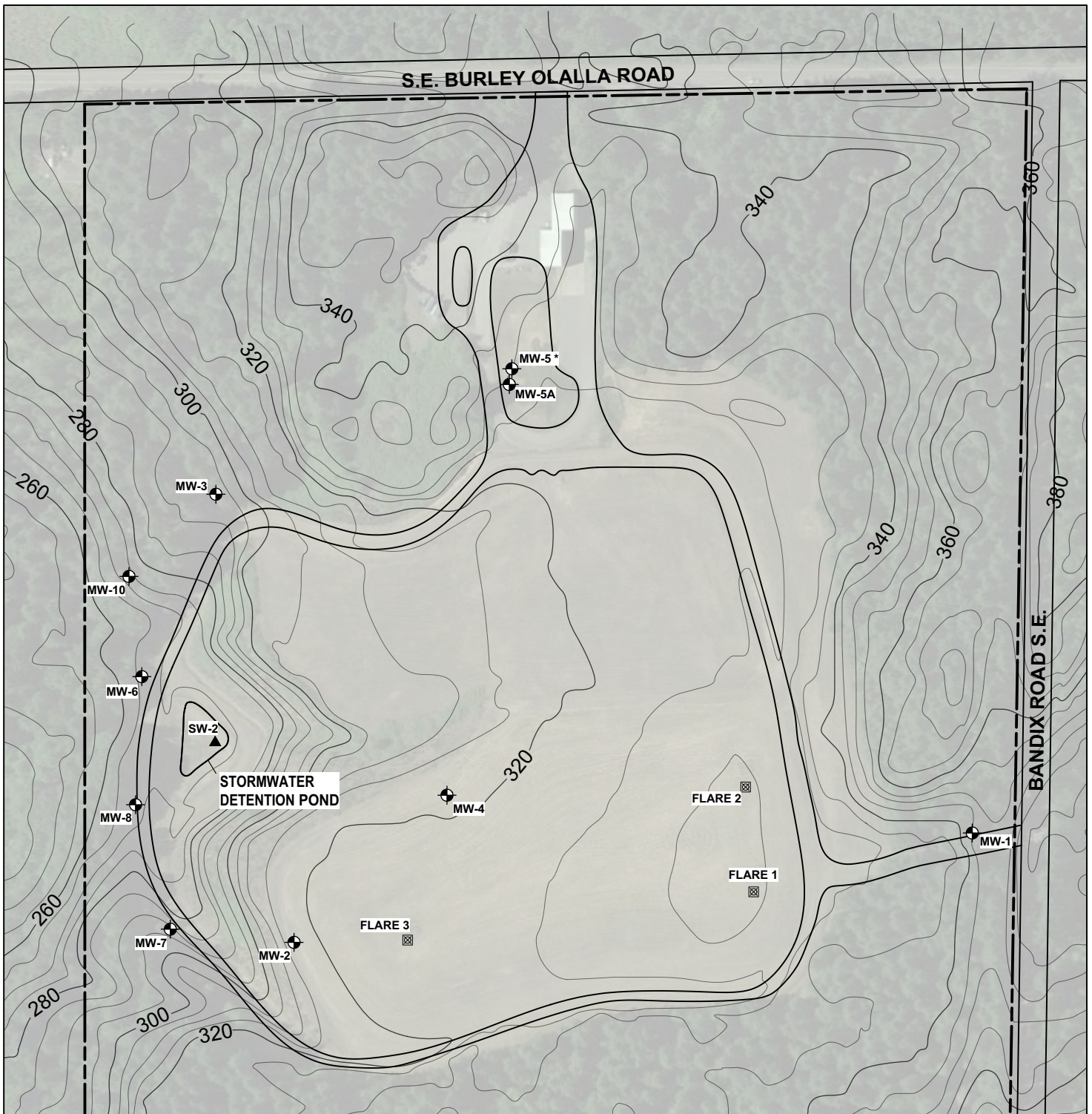
- Measure landfill gas at all three flares using the GEM 2000. Call me if the measurements look odd or if you're having trouble with the GEM 2000.
- Make sure all wells, flare gates, and Bandix Road gate are locked before you leave.

Surface Water Sample

- Collect a surface water sample (SW-2) from the water retention pond (if water is present). Ideally take water flowing from the pipe feeding into the pond. If water is present in the pond but not the pipe take the sample from the pond.
- The surface water sample is analyzed for pH, nitrate-nitrogen, and fecal coliform only.
- If there isn't water present at the surface water station (SW-2) watch the weather and return to Olalla to collect it at a later date during a significant rain event.

Offsite Well / Seep

- Use the same sample IDs as you did in September (OW-10 for the well sample and OS-01 for the seep sample).
- The sample from the offsite water supply well will be analyzed for:
 - Field parameters
 - Vinyl chloride by SIM
 - Total metals (As, Fe, Mn)
- Seep sample(s) will be analyzed for:
 - Field parameters
 - Vinyl chloride by SIM
 - Dissolved metals (As, Fe, Mn)



NOTES:

BASE MAP SOURCE:
GOOGLE EARTH

TOPOGRAPHIC CONTOUR SOURCE:
KITSAP COUNTY PARCEL VIEWER

*MW-5 IS COMPLETED IN A SHALLOW PERCHED GROUNDWATER ZONE

MW-2 MONITORING WELL LOCATION

SW-2 SURFACE WATER SAMPLING LOCATION

LANDFILL GAS FLARE

TOPOGRAPHIC ELEVATION CONTOUR

APPROXIMATE PROPERTY BOUNDARY

PERIMETER ACCESS ROAD

N

0 50 100 200

SCALE: 1" = 200'



1180 NW MAPLE ST, SUITE 310
 ISSAQUAH, WA 98027
 425.395.0010
 WWW.TRCCOMPANIES.COM

FIGURE 1
 OLALLA LANDFILL MONITORING WELL LOCATIONS

REPORT QUARTERLY MONITORING REPORT 3RD QUARTER (SEPTEMBER, 2020)	PREPARED FOR KITSAP COUNTY
LOCATION OLALLA LANDFILL KITSAP COUNTY, WASHINGTON	PROJECT NUMBER 382595
	DATE 9/28/20
	DRAWN BY JYT
	REVIEWED BY DCK

December 2021 Annual (4th Quarter) Event Bottle Order Form

Project Name	Olalla Landfill Monitoring	Date of Bottle Request	12/6/2021		
Project Number		Date Bottles are Needed	12/10/2021		
Client:	TRC Environmental Corporation 1180 NW Maple St. Suite 310 Issaquah, WA 98027	Estimated Date Samples will Return:	12/16/2021		
Client Contact:	Doug Kunkel 425-241-8170				
Lab PM:	Kelly Bottem	Order completed by:			
# of Coolers:	as needed	YES	Include LOOSE Labels		
Trip Blanks	1 set (3 VOAs)	YES	Include COC's		
Number of Samples	Analysis Requested	Bottles Per Sample	Bottle Size and Type	Preservation	Total Bottles
Groundwater Samples					
6	Volatiles	3	40mL VOA	HCL	18
8	Vinyl chloride by SIM	2	40mL VOA	HCL	16
6	Dissolved metals (As, Fe, Zn, Ba, Mn)	1	500 mL HDPE	Field Filtered/HNO ₃	6
2	MW-5A and MW-7 Dissolved metals (As, Fe, Mn)	1	500 mL HDPE	Field Filtered/HNO ₃	2
6	Total metals (K, Na, Ca)	1	500 mL HDPE	HNO ₃	6
6	alkalinity, carbonate, bicarbonate	1	Small OJ	-	6
6	Nitrate, nitrite, chloride, sulfate, pH	1	Large OJ	-	6
6	TOC, COD, ammonia	1	250 mL HDPE	H ₂ SO ₄	6
6	Total coliform	1	300 mL sterile amber glass or poly	Tablet	6
Surface Water Sample (Sampled in March or December)					
1	pH	1	500 mL poly	-	1
1	Nitrate-Nitrogen	1	500 mL poly	-	1
1	Fecal coliform	1	300 mL sterile amber glass or poly	Tablet	1
Offsite Well/Seep Water Samples					
4	Vinyl chloride by SIM	2	40mL VOA	HCL	8
2	Total metals (As, Fe, Mn) WELL SAMPLE	1	500 mL HDPE	HNO ₃	2
2	Dissolved metals (As, Fe, Mn) SEEP SAMPLE	1	500 mL HDPE	Field Filtered/HNO ₃	2
Total Bottles:					87

Depth to Water Measurement Field Data - Olalla Landfill Monitoring

Well	Time	Measuring Point Elevation (ft. NGVD ¹)	Depth to Water (ft.)	Comments and Well Inspection ² Notes
MW-1	0825	343.79	79.64	Lock replaced
MW-2	0935	323.25	65.32	↓
MW-3	1046	296.95	47.94	
MW-4	0941	320.93	62.49	
MW-5	0956	334.17	8.74	
MW-5A	1004	332.53	76.47	
MW-6	1216	271.17	19.51	
MW-7	1416	280.43	24.97	
MW-8	1330	272.85	20.13	
MW-10	1134	279.21	24.81	

Notes:

¹NGVD = National Geodetic Vertical Datum (1929)

²Observations regarding the condition of the well and surrounding area (e.g., protective casing, surface seal, cap, lock, bollards, soil conditions near the well such as depressions, ponded surface water, or other subsidence features, and any installed sampling equipment).

Multiparameter Probe Calibration Log - Olalla Landfill Groundwater Monitoring

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution

Calibration Solution Manufacturer _____ Lot Number _____ Exp. Date _____

pH = _____ Turbidity = _____ Temperature = _____

Conductivity = _____ Dissolved Oxygen = _____ ORP = _____

Comments:

See Attachments

Meter Type	Manufacturer	Model Number	Mfg. Serial#	Rental Co. Serial #	Date	Time

Calibrated to Autocal Solution

Calibration Solution Manufacturer _____ Lot Number _____ Exp. Date _____

pH = _____ Turbidity = _____ Temperature = _____

Conductivity = _____ Dissolved Oxygen = _____ ORP = _____

Comments:

1.1.1 Field Duplicate Sample Identification

A field duplicate sample is collected from one of the four downgradient monitoring wells, (MW-3, MW-6, MW-8, or MW-10) during the quarterly monitoring events as described in Section 3.7.1. Duplicate sample locations will be rotated throughout the year such that each of the four downgradient monitoring wells will have one duplicate sample collected every year. Duplicate samples will be assigned fictitious sample identifiers using the following duplicate sample identification system:

- First quarter: MW-9 is the field duplicate of MW-3
- Second quarter: MW-17 is the field duplicate of MW-6
- Third quarter: MW-12 is the field duplicate of MW-8
- Fourth quarter: MW-13 is the field duplicate of MW-10

Groundwater Sampling Field Data - Olalla Landfill Monitoring

Station	MW-1	Date	12.14.21
Sample: ID	MW-1 21L0200-01, -09	Field Team: (Initials)	UM & ES
Field Conditions	clear, 36°F		

Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method : Submersible pump	Other :
Well Depth (ft.)	87	Start Time	0842
Depth to Water (ft.)	79.64	End Time	0917
Depth of Water Column	7.36	Total Gallons Purged	20
1 Casing Volume (gal.)	1.199		
Controller setting (Hz)	196.5		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
0845	.2	6.46	.132	24.6	10.04	9.9	176.9	clear
0846	.4	6.46	.132	27.3	9.69	10.3	163.0	
0851	.6	6.52	.132	30.0	9.47	10.3	129.8	
0854	.8	6.49	.133	49.3	9.84	10.4	139.8	
0857	1.0	6.46	.130	46.3	9.71	10.7	143.6	
0900	1.2	6.47	.132	48.8	9.66	11.2	140.5	
0903	1.4	6.47	.132	45.5	9.62	10.9	150.9	

Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	905	(3) 40-mL VOA	HCl, cool to <4°C	
Total Coliform	↓	300-mL sterile AG or poly	Cool to <4°C	
Geochemical Parameters		500-mL HDPE	Cool to <4°C	
Nitrate/Nitrite		500-mL HDPE	Cool to <4°C	
TOC		250-mL AG	H ₂ SO ₄ to pH <2, cool to <4°C	
COD		250-mL HDPE	H ₂ SO ₄ to pH <2, cool to <4°C	
Total Metals		250-mL HDPE	HNO ₃ to pH <2, cool to <4°C	
Dissolved Metals		250-mL HDPE	Field filter, HNO ₃ to pH <2, cool to <4°C	

Sample End Time 0917

Comments / Exceptions:

Pump Grounding error - needs service

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

Groundwater Sampling Field Data - Olalla Landfill Monitoring

Station	MW-SA	Date	12.14.21
Sample: ID	MW-SA 21L0200-02	Field Team: (Initials)	UB FES
Field Conditions	Clear 39°F		

Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method : Submersible pump	Other :
Well Depth (ft.)		Start Time	1015
Depth to Water (ft.)	76.47	End Time	1055
Depth of Water Column		Total Gallons Purged	4.0
1 Casing Volume (gal.)			
Controller setting (Hz)	140.6		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
1015	.2	6.86	.093	44.5	9.89	10.6	166.5	Clean, no odor
1016	.4	6.95	.092	43.4	9.99	11.0	144.3	
1020	.6	6.93	.093	22.4	9.94	11.8	132.4	
1024	.8	6.92	.094	16.9	9.90	12.0	131.4	
1027	1.0	6.93	.094	14.2	9.99	12.6	132.4	
1030	1.2	6.92	.094	11.0	9.87	12.6	133.7	
1033	1.4	6.90	.094	8.29	9.82	13.2	135.4	
1036	1.6	6.90	.094	6.37	9.78	13.4	137.1	
1039	1.8	6.90	.094	5.41	9.77	13.6	139.2	
1042	2.0	6.90	.094	4.86	9.77	13.6	140.6	

Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	1045	(3) 40-mL VOA	HCl, cool to <4°C	
Total Coliform	↓	300-mL sterile AG or poly	Cool to <4°C	
Geochemical Parameters		500-mL HDPE	Cool to <4°C	
Nitrate/Nitrite		500-mL HDPE	Cool to <4°C	
TOC		250-mL AG	H ₂ SO ₄ to pH <2, cool to <4°C	
COD		250-mL HDPE	H ₂ SO ₄ to pH <2, cool to <4°C	
Total Metals		250-mL HDPE	HNO ₃ to pH <2, cool to <4°C	
Dissolved Metals		250-mL HDPE	Field filter, HNO ₃ to pH <2, cool to <4°C	

Sample End Time

Comments / Exceptions:

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

Groundwater Sampling Field Data - Olalla Landfill Monitoring

Station	MW-3	Date	12.14.21
Sample: ID	MW-3 21L0200-03, -10	Field Team: (Initials)	LB FES
Field Conditions	cloudy, 36°F		

Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method : Submersible pump	Other: :
Well Depth (ft.)	55.50	Start Time	1049
Depth to Water (ft.)	47.94	End Time	1120
Depth of Water Column	7.56	Total Gallons Purged	3.0
1 Casing Volume (gal.)	1.232		
Controller setting (Hz)	143.0		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
1049	.3	6.40	.383	2.21	0.69	10.9	205.3	clear, no odor
1102	.6	6.40	.389	2.31	0.51	11.3	199.1	↓ ✓
1105	.9	6.40	.393	2.14	0.49	11.6	195.6	
1108	1.2	6.40	.393	2.05	0.47	12.0	191.4	
1111	1.5	6.40	.394	1.69	0.41	12.2	187.3	

Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	1115 ↓	(3) 40-mL VOA	HCl, cool to <4°C	
Total Coliform		300-mL sterile AG or poly	Cool to <4°C	
Geochemical Parameters		500-mL HDPE	Cool to <4°C	
Nitrate/Nitrite		500-mL HDPE	Cool to <4°C	
TOC		250-mL AG	H ₂ SO ₄ to pH <2, cool to <4°C	
COD		250-mL HDPE	H ₂ SO ₄ to pH <2, cool to <4°C	
Total Metals		250-mL HDPE	HNO ₃ to pH <2, cool to <4°C	
Dissolved Metals		250-mL HDPE	Field filter, HNO ₃ to pH <2, cool to <4°C	

Sample End Time

Comments / Exceptions:

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

Groundwater Sampling Field Data - Olalla Landfill Monitoring

Station	MW-10	Date	12-14-21
Sample: ID	MW-10 21L0200-04, -11	Field Team: (Initials)	UD F E J
Field Conditions	cloudy, 38°f		

Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method : Submersible pump	Other: _____
Well Depth (ft.)	47.00	Start Time	11:35
Depth to Water (ft.)	28.81	End Time	12:05
Depth of Water Column	18.19	Total Gallons Purged	5.0
1 Casing Volume (gal.)	2.965		
Controller setting (Hz)	144.0		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
1136	.3	6.76	.346	2.10	0.65	11.1	147.9	Clear, no odor
1141	.6	6.76	.347	2.15	0.42	11.2	138.2	↓
1143	.9	6.75	.347	2.02	0.32	11.3	126.4	
1146	1.2	6.75	.346	1.85	0.23	11.4	144.4	
1149	1.5	6.75	.347	1.86	0.21	11.4	115.4	

Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	1155	(3) 40-mL VOA	HCl, cool to <4°C	
Total Coliform	↓	300-mL sterile AG or poly	Cool to <4°C	
Geochemical Parameters		500-mL HDPE	Cool to <4°C	
Nitrate/Nitrite		500-mL HDPE	Cool to <4°C	
TOC		250-mL AG	H ₂ SO ₄ to pH <2, cool to <4°C	
COD		250-mL HDPE	H ₂ SO ₄ to pH <2, cool to <4°C	
Total Metals		250-mL HDPE	HNO ₃ to pH <2, cool to <4°C	
Dissolved Metals		250-mL HDPE	Field filter, HNO ₃ to pH <2, cool to <4°C	

Sample End Time 12:05

Comments / Exceptions:

DUP (MW-13) Ticker	21L0200-05, -12

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

Groundwater Sampling Field Data - Olalla Landfill Monitoring

Station	MW-6	Date	12.14.21
Sample: ID	MW-6 21L0200-06, -13	Field Team: (Initials)	UD FES
Field Conditions	Clear, 40°F		

Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method	: Submersible pump
Well Depth (ft.)	35.0	Other:	
Depth to Water (ft.)	19.5	Start Time	1219
Depth of Water Column	16.49	End Time	1250
1 Casing Volume (gal.)	2649	Total Gallons Purged	5.0
Controller setting (Hz)	1049		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
1219	.3	6.75	.329	64.1	1.49	11.2	161.2	Clear, no odor
1222	.6	6.73	.315	46.0	0.71	11.7	153.7	
1225	.9	6.72	.304	19.0	0.41	12.0	141.0	
1228	1.2	6.72	.304	8.14	0.41	12.2	136.9	
1231	1.5	6.72	.307	5.91	0.33	12.1	132.8	
1234	1.8	6.72	.309	4.33	0.26	12.1	124.4	

Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	1240	(3) 40-mL VOA	HCl, cool to <4°C	
Total Coliform	↓	300-mL sterile AG or poly	Cool to <4°C	
Geochemical Parameters		500-mL HDPE	Cool to <4°C	
Nitrate/Nitrite		500-mL HDPE	Cool to <4°C	
TOC		250-mL AG	H ₂ SO ₄ to pH <2, cool to <4°C	
COD		250-mL HDPE	H ₂ SO ₄ to pH <2, cool to <4°C	
Total Metals		250-mL HDPE	HNO ₃ to pH <2, cool to <4°C	
Dissolved Metals		250-mL HDPE	Field filter, HNO ₃ to pH <2, cool to <4°C	

Sample End Time 1250

Comments / Exceptions:

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

Groundwater Sampling Field Data - Olalla Landfill Monitoring

Station	MW-9	Date	12/21
Sample: ID	MW-9 21L0200-07, -14	Field Team: (Initials)	W + ES
Field Conditions	Rain, 37° F		

Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method : Submersible pump	Other: :
Well Depth (ft.)	38.0	Start Time	1333
Depth to Water (ft.)	20.17	End Time	1410
Depth of Water Column	17.87	Total Gallons Purged	5
1 Casing Volume (gal.)			
Controller setting (Hz)	105.0		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
1335	.3	6.76	.1466	15.1	7.03	10.7	50.6	clear, no color
1338	.6	6.72	.248	6.92	4.26	11.1	39.4	↓
1341	.9	6.71	.249	4.89	4.01	11.3	45.7	
1344	1.2	6.70	.254	4.99	3.70	11.5	46.2	
1347	1.5	6.69	.266	3.93	3.08	11.6	47.7	
1350	1.8	6.68	.272	3.74	2.74	11.6	45.5	
1353	2.1	6.67	.270	3.73	2.71	11.7	48.0	
1356	2.4	6.68	2.73	2.70	2.67	11.7	44.6	

Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	1400	(3) 40-mL VOA	HCl, cool to <4°C	
Total Coliform	↓	300-mL sterile AG or poly	Cool to <4°C	
Geochemical Parameters		500-mL HDPE	Cool to <4°C	
Nitrate/Nitrite		500-mL HDPE	Cool to <4°C	
TOC		250-mL AG	H ₂ SO ₄ to pH <2, cool to <4°C	
COD		250-mL HDPE	H ₂ SO ₄ to pH <2, cool to <4°C	
Total Metals		250-mL HDPE	HNO ₃ to pH <2, cool to <4°C	
Dissolved Metals		250-mL HDPE	Field filter, HNO ₃ to pH <2, cool to <4°C	

Sample End Time 1410

Comments / Exceptions:

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

Groundwater Sampling Field Data - Olalla Landfill Monitoring

Station	MW-7	Date	12-14-21
Sample: ID	MW-7 21L0200-08	Field Team: (Initials)	W FES
Field Conditions	Snow/rain, 36°F		

Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method : Submersible pump	Other: :
Well Depth (ft.)		Start Time	1419
Depth to Water (ft.)	2497	End Time	1450
Depth of Water Column		Total Gallons Purged	5.0
1 Casing Volume (gal.)			
Controller setting (Hz)	113.5		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
1420	.3	7.10	.101	49.4	9.16	8.1	112.0	Clear, no odor
1423	.6	6.94	.101	65.4	7.52	10.0	111.5	
1426	.9	6.91	.103	42.4	7.23	10.6	112.6	
1429	1.2	6.90	.104	30.5	7.07	11.0	122.6	
1432	1.5	6.89	.104	14.8	7.08	11.1	135.6	
1435	1.8	6.89	.104	9.80	7.06	11.1	144.2	
1438	2.1	6.89	.104	5.72	7.04	11.2	150.2	
1441	2.5	6.88	.104	5.46	7.03	11.2	155.8	
1443	3.0	6.87	.104	4.52	7.02	11.2	161.5	

Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC -	1445	(3) 40-mL VOA	HCl, cool to <4°C	
Total Coliform		300-mL sterile AG or poly	Cool to <4°C	
Geochemical Parameters		500-mL HDPE	Cool to <4°C	
Nitrate/Nitrite		500-mL HDPE	Cool to <4°C	
TOC		250-mL AG	H ₂ SO ₄ to pH <2, cool to <4°C	
COD		250-mL HDPE	H ₂ SO ₄ to pH <2, cool to <4°C	
Total Metals		250-mL HDPE	HNO ₃ to pH <2, cool to <4°C	
Dissolved Metals -	1445	250-mL HDPE	Field filter, HNO ₃ to pH <2, cool to <4°C	

Sample End Time 1450

Comments / Exceptions:

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

Landfill Gas Monitoring Field Data - Olalla Landfill Monitoring

Instrument Used:	GEM 2000	Date and Time:	12-14-21 1530
Ambient Temperature:	2°C	Field Team:	LB/ES
Field Conditions:	Rain/Snow mix		

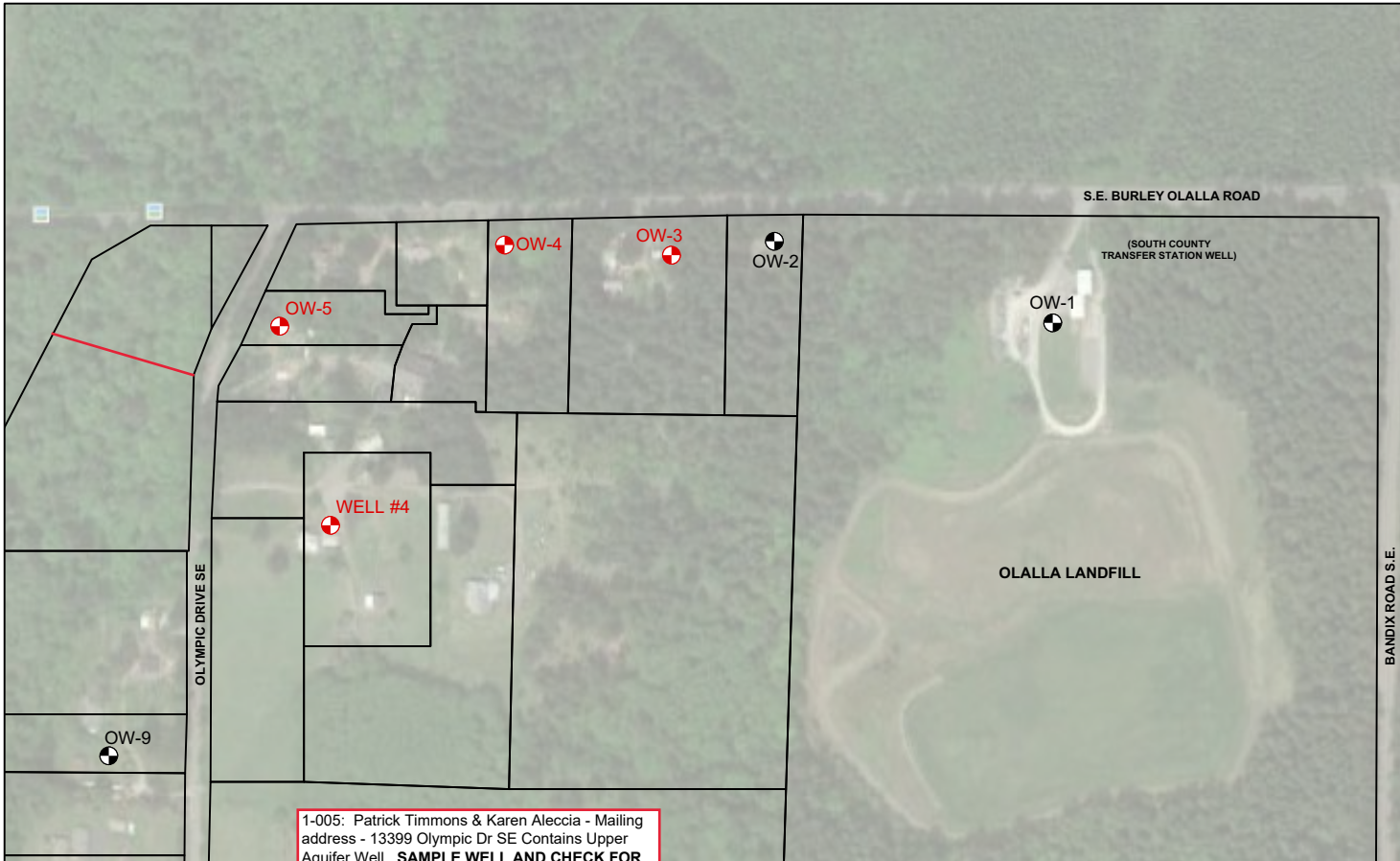
Landfill Gas Data

Flare #	Time	Methane (% vol.)	% LEL	Oxygen (% vol.)	Carbon Dioxide (% vol.)	Temperatur e (°C)	Gas Pressure ("H ₂ O)
3	1520	0.0	0.00	21.0	0.00	2	0.00
2	1530	0.0	0.00	21.1	0.0	2°	0.0
1	1535	2.1	0.00	19.3	3.2	2	0.0

Comments / Inspection Results¹

locks changed to common
key with wells.

¹Inspect the following: lock and gate operation, tightness of bolts and clamps, differential settlement, valve operation, debris or breaks in hose barb.



1-005: Patrick Timmons & Karen Aleccia - Mailing address - 13399 Olympic Dr SE Contains Upper Aquifer Well. **SAMPLE WELL AND CHECK FOR SEEPS AND SPRINGS**

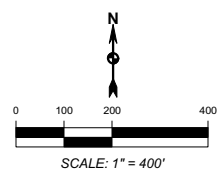
Well ID	Name on Well Log	Street Address	Well Depth (feet)	Date Sampled	Arsenic	Iron	Manganese	Vinyl Chloride
OW-1	South County Transfer Station	Olalla Landfill	159	12/28/2010	0.719	<20	<5	<0.002
				7/29/2020	0.84	<20	1.2	<0.002
OW-2	Leo Pierson	2752 Burley-Olalla Rd SE	107*	4/25/1995	0.48	<10	<2	<0.01
				9/24/1997	0.16	<10	<2	<0.01
				1/27/2011	0.215	<20	<5	<0.002
				7/29/2020	0.28	<20	6.5	<0.002
OW-3	Leo Pierson	2650 Burley-Olalla Rd SE	274	4/25/1995	1.5	10	37	<0.01
				9/24/1997	1.7	<10	18	<0.01
				1/27/2011	7.04	572	59	<0.002
				7/29/2020	2.36	43.2	59	<0.002
OW-4	Brian Hickman	2590 Burley-Olalla Rd SE	300*	4/25/1995	2.77	60	52	<0.01
				9/24/1997	1.8	300	15	<0.01
				12/29/2010	1.68	106	32	<0.002
				7/29/2020	1.95	132	51.5	<0.002
Well #4	Sheryl Pierson-Reames	13049 Olympic Drive SE	210	4/25/1995	3.56	50	46	<0.01
OW-5	Gene Ryker	13041 Olympic Drive SE	279	9/24/1997	2.4	10	9	<0.01
				1/27/2011	0.535	54	38	<0.002
OW-9	Gerald Schumacher	13320 Olympic Drive SE	61	7/29/2020	0.798	<20	46.4	<0.002
				12/29/2010	0.253	71	<5	<0.002
OW-9	Gerald Schumacher	13320 Olympic Drive SE	61	7/29/2020	0.37	<20	5.2	<0.002

- NOTES:**
- OFF-SITE WELL LOCATION (UPPER AQUIFER)
 - OFF-SITE WELL LOCATION (DEEPER AQUIFER)
 - PARCEL BOUNDARY

- TABLE NOTES:**
- * WELL LOG NOT AVAILABLE. TOTAL DEPTH REPORTED BY HOMEOWNER.
 - BOLD** CONCENTRATION EXCEEDS THE LABORATORY REPORTING LIMIT.
 - BOLD** CONCENTRATION EXCEEDS WASHINGTON STATE DRINKING WATER STANDARD.
 - AR ARSENIC
 - FE IRON
 - MN MANGANESE
 - VC VINYL CHLORIDE

SOURCES:

- BREMERTON-KITSAP COUNTY HEALTH DISTRICT MEMORANDUM TITLED "OLALLA LANDFILL DOMESTIC WELL SURVEY INFORMATION" OCTOBER 23, 1995
- ECOLOGY WELL LOG DATABASE (WEBSITE)
- KITSAP COUNTY PARCEL LOCATOR (WEBSITE)
- GOOGLE EARTH



1180 NW MAPLE ST, SUITE 310
 ISSAQUAH, WA 98027
 425.395.0010
 WWW.TRCCOMPANIES.COM

FIGURE 5
 OFF-SITE WATER SUPPLY WELL SAMPLING LOCATIONS AND RESULTS

REPORT REMEDIAL ACTION STATUS REPORT	PREPARED FOR KITSAP COUNTY
PROJECT NUMBER 382595	DATE6/7/21
LOCATION OLALLA LANDFILL KITSAP COUNTY, WASHINGTON	DRAWN BYVPB REVIEWED BYDCK

Offsite Well / Seep Sampling Field Data

TRC Project No.	429487 Task 7
Property Address	13399 Olympic Dr. SE, Atlanta
Property Owner	TIMMONS/ALECCIA
Sample Date	12-15-2021
Sample ID	DW-10
Field Team	E. STARA
Field Conditions	38°F - overcast

Field Data (Stabilization Not Required)

Well Diameter (in.) reported by owner		Start Time	0935
Well Depth (ft.) reported by owner	~50 ft	End Time	
Seep Location		Total Gallons Purged	
Approximate Well or Seep Flow Rate			

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
936	5	6.76	0.088	4.52	8.77	7.9	193.6	clear
939	7.5	6.74	0.089	1.64	8.34	7.9	184.4	clear
942	10	6.73	0.088	1.38	8.22	10.0	177.8	
945	12.5	6.71	0.088	1.77	8.21	10.1	176.1	

Sample Information

Sample Method(s) DIRECT FROM OUTDOOR FAUCET ADJACENT TO WELL

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Vinyl Chloride by SIM	0945	(2) 40-ml VOA	HCL, ice	
Total Metals (As, Fe, Mn)	0945	500-ml HDPE	HNO ₃ to pH<2, ice	

End Time

Comments / Exceptions:

Offsite Well / Seep Sampling Field Data

TRC Project No.	429487 Task 7
Property Address	13399 Olympic Dr. SE. Atlanta
Property Owner	Timmons / Adellia
Sample Date	12-15-21
Sample ID	OS-01
Field Team	E-STAR
Field Conditions	38°F - overcast / showers

Field Data (Stabilization Not Required)

Well Diameter (in.) reported by owner		Start Time	10:08
Well Depth (ft.) reported by owner		End Time	10:25
Seep Location		Total Gallons Purged	0.4
Approximate Well or Seep Flow Rate			

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
10:11	0.1	6.76	0.088	5.95	8.70	6.4	180.5	turbid
10:14	0.2	6.75	0.088	4.84	69.1	6.4	176.4	"
10:17	0.3	6.74	0.088	4.96	68.7	6.5	172.5	"

Sample Information

Sample Method(s) Peri-pump, 0.45 micron field filter

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Vinyl Chloride by SIM	1025	(2) 40-ml VOA	HCL, ice	
Total Metals (As, Fe, Mn) Dissolved	1025	500-ml HDPE	HNO ₃ to pH<2, ice	

End Time 1026

Comments / Exceptions:

metals sample field filtered.

EQUIPCO

CES LANDTECH MODEL: GEM 2000 CALIBRATION CERTIFICATE

SERVICE TECHNICIAN: SM

DATE: 12/13/21

INSTRUMENT INFORMATION

RENTAL ID: GEM2000. 11

SERIAL NUMBER: GM07638/04

CALIBRATION INFORMATION

1. CALIBRATION GAS: 35 % CO₂

LOT #: 573162

GAS RESPONSE: 35 % CO₂ ±2%

2. CALIBRATION GAS: 50 % Vol. Methane

LOT #: 573162

GAS RESPONSE: 50 % Vol. Methane ±2%

OXYGEN RESPONSE IN FRESH AIR ENVIRONMENT: 20.9% ✓

OXYGEN DOWNSCALE RESPONSE CHECKED: 0% WITH 99.9% Nitrogen ✓

THIS INSTRUMENT HAS BEEN CALIBRATED TO STANDARDS SET FORTH BY THE
MANUFACTURER

YSI ProDSS RENTAL CALIBRATION CERTIFICATE

SERVICE TECHNICIAN: CM

DATE: 12/13/21

RENTAL CUSTOMER: TRC

INSTRUMENT INFORMATION

RENTAL I.D. NUMBER: YSIPRODSS. 07

SERIAL NUMBER: 16F104825


CALIBRATION INFORMATION

PARAMETER:	STANDARD:	PASS ()	LOT #
1. CONDUCTIVITY	1,000 μ Mhos	<u>X</u>	<u>051142</u>
2. pH ZERO	pH 7	<u>X</u>	<u>054275</u>
pH SLOPE	pH 4	<u>X</u>	<u>051137</u>
pH SLOPE	pH 10	<u>X</u>	<u>051140</u>
3. DISSOLVED OXYGEN	Air Calibration Barometric pressure = 760mmHg	<u>X</u>	N/A
4. TURBIDITY ZERO	0.0 NTU's	—	N/A
TURBIDITY SPAN	20 NTU's	—	—
5. REDOX (ORP)	231mV (YSI Zobell solution)	<u>X</u>	<u>040624</u>


Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: **Standard** Turn-around Requested: _____
 ARI Client Company: **TRC** Phone: **425-395-0010**
 Client Contact: **Doug Yankel**
 Client Project Name: **Galva Landfill**

Page: **1** of **1**
 Date: **12-14-21** ICS Present?
 No. of Coolers: _____ Cooler Temp: _____


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

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested										Notes/Comments	
					VOC 8260	Ve-8260	SEM	metals to diss. ^{As}	Heavy Metals	Total metals	Alk, Carb + bicarb	Nitrate Nitrite Chloride	sup. pH	loc, LOD		PH3
MW-1	12-14-21	0905	H2O	11	X	X	X	X	X	X	X	X	X	X	X	
MW-5A		1045		3	X	X	X	X	X	X	X	X	X	X	X	
MW-3		1115		11	X	X	X	X	X	X	X	X	X	X	X	
MW-10		1155		11	X	X	X	X	X	X	X	X	X	X	X	
MW-13		1230		11	X	X	X	X	X	X	X	X	X	X	X	
MW-6		1240		11	X	X	X	X	X	X	X	X	X	X	X	
MW-8		1400		11	X	X	X	X	X	X	X	X	X	X	X	
MW-7		1445		3	X	X	X	X	X	X	X	X	X	X	X	

Comments/Special Instructions: _____
 Requisitioned by:  (Signature)
 Printed Name: **Leathan Brent**
 Company: **TRC**
 Date & Time: **12-14-21 @ 1653**

Received by: _____ (Signature)
 Printed Name: _____
 Company: _____
 Date & Time: _____

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

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Attachment 2:
2021 Quarterly Monitoring Analytical Data Sheets



08 April 2021

Doug Kunkel
Environmental Partners, Inc.
1180 NW Maple St., Suite 310
Issaquah, WA 98027

RE: Olalla Landfill

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.

<u>Associated Work Order(s)</u>	<u>Associated SDG ID(s)</u>
21C0263	N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

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

Analytical Resources, Inc.

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)
 www.arilabs.com

ARI Assigned Number: <i>21C0263</i>	Turn-around Requested: <i>Standard</i>	Page: <i>1</i> of <i>1</i>
ARI Client Company: <i>TRC</i>	Phone: <i>425-395-0010</i>	Date: <i>3/18/21</i>
Client Contact: <i>Doug Kunkel</i>	No. of Coolers: <i>1</i>	Ice Present? <i>Yes</i>
Client Project Name: <i>Dalla Landfill</i>	Sampler: <i>Wesley Weisberg</i>	Cooler Temps: <i>4.0</i>

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested								Notes/Comments
					Volatiles	Vinyl Chloride by SIMC	Disolved Metals As, Fe, Zn, Cu, Mn	Total Metals (K, Na, Ca)	Alkalinity, including Bicarbonate	Nitrate Nitrite chloride, sulfate & H	TOC, COD, Ammonia	Total Coliform	
MW-1	3/18/21	0915	Water	11	X	X	X	X	X	X	X	X	
MW-3		1100		11	X	X	X	X	X	X	X	X	
MW-10		1155		11	X	X	X	X	X	X	X	X	
MW-6		1330		11	X	X	X	X	X	X	X	X	
MW-8		1420		11	X	X	X	X	X	X	X	X	
MW-9		1400		11	X	X	X	X	X	X	X	X	

Comments/Special Instructions	Relinquished by: (Signature) <i>[Signature]</i>	Received by: (Signature) <i>[Signature]</i>	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: <i>Wesley Weisberg</i>	Printed Name: <i>Jacob Walter</i>	Printed Name:	Printed Name:
	Company: <i>TRC</i>	Company: <i>ARZ</i>	Company:	Company:
	Date & Time: <i>3/18/21 1620</i>	Date & Time: <i>03/18/2021 1620</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: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.



Environmental Partners, Inc.
1180 NW Maple St., Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
08-Apr-2021 10:32

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	21C0263-01	Water	18-Mar-2021 09:15	18-Mar-2021 16:20
MW-3	21C0263-02	Water	18-Mar-2021 11:00	18-Mar-2021 16:20
MW-10	21C0263-03	Water	18-Mar-2021 11:55	18-Mar-2021 16:20
MW-6	21C0263-04	Water	18-Mar-2021 13:30	18-Mar-2021 16:20
MW-8	21C0263-05	Water	18-Mar-2021 14:20	18-Mar-2021 16:20
MW-9	21C0263-06	Water	18-Mar-2021 14:00	18-Mar-2021 16:20
MW-1	21C0263-07	Water	18-Mar-2021 09:15	18-Mar-2021 16:20
MW-3	21C0263-08	Water	18-Mar-2021 11:00	18-Mar-2021 16:20
MW-10	21C0263-09	Water	18-Mar-2021 11:55	18-Mar-2021 16:20
MW-6	21C0263-10	Water	18-Mar-2021 13:30	18-Mar-2021 16:20
MW-8	21C0263-11	Water	18-Mar-2021 14:20	18-Mar-2021 16:20
MW-9	21C0263-12	Water	18-Mar-2021 14:00	18-Mar-2021 16:20
Trip Blanks	21C0263-13	Water	18-Mar-2021 09:15	18-Mar-2021 16:20



Environmental Partners, Inc.
1180 NW Maple St., Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
08-Apr-2021 10:32

Work Order Case Narrative

Volatiles - EPA Method SW8260D

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

Initial and continuing calibrations were within method requirements with the exception of all associated "Q" flagged analytes which are out of control low in the CCAL. All associated samples that contain analyte have been flagged with a "Q" qualifier.

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 6010D and 200.8

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.



Environmental Partners, Inc.
1180 NW Maple St., Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
08-Apr-2021 10:32

The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits with the exception of analytes flagged on the associated forms.

Wet Chemistry

The sample(s) were prepared and analyzed within the recommended holding times with the exception of pH and select total coliforms. Samples that were analyzed out of hold have been flagged with an "H" qualifier.

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 reference material (SRM) percent recoveries were within control limits.

The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits with the exception of analytes flagged on the associated forms.



WORK ORDER

21C0263

Client: Environmental Partners, Inc.	Project Manager: Kelly Bottem
Project: Olalla Landfill	Project Number: 429487

Preservation Confirmation

Container ID	Container Type	pH	
21C0263-01 A	Large OJ, 1000 mL		
21C0263-01 B	Corning Plastic, 125 mL, Na2S2O3		
21C0263-01 C	Small OJ, 500 mL		
21C0263-01 D	Glass NM, Amber, 250 mL, 9N H2SO4	<2	Pass
21C0263-01 E	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21C0263-01 F	VOA Vial, Clear, 40 mL, HCL		
21C0263-01 G	VOA Vial, Clear, 40 mL, HCL		
21C0263-01 H	VOA Vial, Clear, 40 mL, HCL		
21C0263-01 I	VOA Vial, Clear, 40 mL, HCL		
21C0263-01 J	VOA Vial, Clear, 40 mL, HCL		
21C0263-02 A	Large OJ, 1000 mL		
21C0263-02 B	Corning Plastic, 125 mL, Na2S2O3		
21C0263-02 C	Small OJ, 500 mL		
21C0263-02 D	Glass NM, Amber, 250 mL, 9N H2SO4	<2	Pass
21C0263-02 E	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21C0263-02 F	VOA Vial, Clear, 40 mL, HCL	Bubble	
21C0263-02 G	VOA Vial, Clear, 40 mL, HCL		
21C0263-02 H	VOA Vial, Clear, 40 mL, HCL		
21C0263-02 I	VOA Vial, Clear, 40 mL, HCL		
21C0263-02 J	VOA Vial, Clear, 40 mL, HCL		
21C0263-03 A	Large OJ, 1000 mL		
21C0263-03 B	Corning Plastic, 125 mL, Na2S2O3		
21C0263-03 C	Small OJ, 500 mL		
21C0263-03 D	Glass NM, Amber, 250 mL, 9N H2SO4	<2	Pass
21C0263-03 E	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21C0263-03 F	VOA Vial, Clear, 40 mL, HCL		
21C0263-03 G	VOA Vial, Clear, 40 mL, HCL		
21C0263-03 H	VOA Vial, Clear, 40 mL, HCL		
21C0263-03 I	VOA Vial, Clear, 40 mL, HCL		
21C0263-03 J	VOA Vial, Clear, 40 mL, HCL		
21C0263-04 A	Large OJ, 1000 mL		
21C0263-04 B	Corning Plastic, 125 mL, Na2S2O3		
21C0263-04 C	Small OJ, 500 mL		
21C0263-04 D	Glass NM, Amber, 250 mL, 9N H2SO4	<2	Pass
21C0263-04 E	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass



WORK ORDER

21C0263

Client: Environmental Partners, Inc.	Project Manager: Kelly Bottem
Project: Olalla Landfill	Project Number: 429487

21C0263-04 F	VOA Vial, Clear, 40 mL, HCL		
21C0263-04 G	VOA Vial, Clear, 40 mL, HCL		
21C0263-04 H	VOA Vial, Clear, 40 mL, HCL		
21C0263-04 I	VOA Vial, Clear, 40 mL, HCL		
21C0263-04 J	VOA Vial, Clear, 40 mL, HCL		
21C0263-05 A	Large OJ, 1000 mL		
21C0263-05 B	Corning Plastic, 125 mL, Na2S2O3		
21C0263-05 C	Small OJ, 500 mL		
21C0263-05 D	Glass NM, Amber, 250 mL, 9N H2SO4	<2	Pass
21C0263-05 E	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21C0263-05 F	VOA Vial, Clear, 40 mL, HCL		
21C0263-05 G	VOA Vial, Clear, 40 mL, HCL		
21C0263-05 H	VOA Vial, Clear, 40 mL, HCL		
21C0263-05 I	VOA Vial, Clear, 40 mL, HCL		
21C0263-05 J	VOA Vial, Clear, 40 mL, HCL		
21C0263-06 A	Large OJ, 1000 mL		
21C0263-06 B	Corning Plastic, 125 mL, Na2S2O3		
21C0263-06 C	Small OJ, 500 mL		
21C0263-06 D	Glass NM, Amber, 250 mL, 9N H2SO4	<2	Pass
21C0263-06 E	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21C0263-06 F	VOA Vial, Clear, 40 mL, HCL		
21C0263-06 G	VOA Vial, Clear, 40 mL, HCL		
21C0263-06 H	VOA Vial, Clear, 40 mL, HCL		
21C0263-06 I	VOA Vial, Clear, 40 mL, HCL		
21C0263-06 J	VOA Vial, Clear, 40 mL, HCL		
21C0263-07 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	Pass
21C0263-08 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	Pass
21C0263-09 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	Pass
21C0263-10 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	Pass
21C0263-11 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	Pass
21C0263-12 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	Pass
21C0263-13 A	VOA Vial, Clear, 40 mL, HCL	N. 564	
21C0263-13 B	VOA Vial, Clear, 40 mL, HCL		
21C0263-13 C	VOA Vial, Clear, 40 mL, HCL		

JSB
Preservation Confirmed By

03/18/2021 JSB
Date 03/19/2021

Reviewed By _____ Date _____



Cooler Receipt Form

ARI Client: TRC

Project Name: Olalla Landfill

COC No(s): _____ (NA)

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

Assigned ARI Job No: 2110263

Tracking No: _____ (NA)

Preliminary Examination Phase:

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

Were custody papers included with the cooler? YES NO

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

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

Time 1620 4.0

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: DOO 206

Cooler Accepted by: JSW Date: 03/18/2001 Time: 1620

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? JSW 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 02/15/2001

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

Samples Logged by: JSW Date: 03/19/2001 Time: 0842 Labels checked by: JSW

**** 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:

vials w/ air bubbles marked on preservation sheet, lab to determine sizes. Client did not list TBs on their COC, logged as final sample in work order.

By: JSW Date: 03/19/2001



Environmental Partners, Inc.
1180 NW Maple St., Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
08-Apr-2021 10:32

MW-1
21C0263-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/18/2021 09:15

Instrument: NT2 Analyst: PKC

Analyzed: 03/30/2021 18:35

Sample Preparation:

Preparation Method: EPA 5030C (Purge and Trap)

Extract ID: 21C0263-01 G

Preparation Batch: BJC0833

Sample Size: 10 mL

Prepared: 03/30/2021

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



Environmental Partners, Inc.
1180 NW Maple St., Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
08-Apr-2021 10:32

MW-1
21C0263-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/18/2021 09:15

Instrument: NT2 Analyst: PKC

Analyzed: 03/30/2021 18:35

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.50	ND	ug/L	U



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Reported:
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MW-1
21C0263-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/18/2021 09:15

Instrument: NT2 Analyst: PKC

Analyzed: 03/30/2021 18:35

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Pentanone	107-87-9	1	5.00	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	108	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	95.4	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	97.8	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	96.8	%	



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Reported:
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MW-1
21C0263-01 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 03/18/2021 09:15
Instrument: NT16 Analyst: PB	Analyzed: 03/30/2021 13:03
Sample Preparation:	Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 21C0263-01 H
	Preparation Batch: BJC0841 Sample Size: 10 mL
	Prepared: 03/30/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	ND	ng/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>90.0</i>	<i>%</i>	



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Reported:
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MW-1
21C0263-01 (Water)

Metals and Metallic Compounds

Method: EPA 6010D Sampled: 03/18/2021 09:15
Instrument: ICP2 Analyst: SKD Analyzed: 03/31/2021 21:12

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 21C0263-01 E 01
Preparation Batch: BJC0863 Sample Size: 25 mL
Prepared: 03/31/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	10.6	mg/L	
Potassium	7440-09-7	1	0.500	0.574	mg/L	
Sodium	7440-23-5	1	0.500	4.47	mg/L	



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MW-1
21C0263-01 (Water)

Wet Chemistry

Method: EPA 325.2 Sampled: 03/18/2021 09:15
Instrument: LACHAT1 Analyst: LRB Analyzed: 04/01/2021 17:16
Sample Preparation: Preparation Method: No Prep - Volatiles Extract ID: 21C0263-01 C
Preparation Batch: BJD0038 Sample Size: 10 mL
Prepared: 04/01/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	4.15	mg/L	



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MW-1
21C0263-01 (Water)

Wet Chemistry

Method: EPA 353.2 Sampled: 03/18/2021 09:15
Instrument: [CALC] Analyst: LRB Analyzed: 03/31/2021 19:30

Sample Preparation: Preparation Method: [CALC] Extract ID: 21C0263-01
Preparation Batch: [CALC]
Prepared: 03/31/2021 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.0200	0.453	mg/L	

Instrument: LACHAT2 Analyst: LRB Analyzed: 03/19/2021 17:14

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21C0263-01 A
Preparation Batch: BJC0554 Sample Size: 10 mL
Prepared: 03/19/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.010	0.010	ND	mg/L	U

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21C0263-01 D
Preparation Batch: BJC0897 Sample Size: 10 mL
Prepared: 03/31/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		1	0.010	0.010	0.453	mg/L	



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MW-1
21C0263-01 (Water)

Wet Chemistry

Method: EPA 375.2	Instrument: LACHAT1	Analyst: LRB	Sampled: 03/18/2021 09:15	Analyzed: 03/30/2021 14:28
Sample Preparation:	Preparation Method: No Prep Wet Chem	Preparation Batch: BJC0843	Sample Size: 10 mL	Final Volume: 10 mL
	Prepared: 03/30/2021		Extract ID: 21C0263-01 A	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	4.46	mg/L	



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MW-1
21C0263-01 (Water)

Wet Chemistry

Method: EPA 410.4	Instrument: UV1800-2	Analyst: BF	Sampled: 03/18/2021 09:15	Analyzed: 04/02/2021 10:22
Sample Preparation:	Preparation Method: No Prep Wet Chem	Preparation Batch: BJD0026	Sample Size: 2 mL	Final Volume: 2 mL
	Prepared: 04/01/2021			Extract ID: 21C0263-01 D

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
COD		1	10.0	10.0	ND	mg/L	U



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MW-1
21C0263-01 (Water)

Wet Chemistry

Method: EPA 9060A	Sampled: 03/18/2021 09:15
Instrument: TOC-LCSH Analyst: WCW	Analyzed: 03/22/2021 21:15
Sample Preparation:	Preparation Method: No Prep Wet Chem
	Preparation Batch: BJC0586
	Prepared: 03/22/2021
	Sample Size: 20 mL
	Final Volume: 20 mL
	Extract ID: 21C0263-01 D

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	ND	mg/L	U



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MW-1
21C0263-01 (Water)

Wet Chemistry

Method: SM 2320 B-97	Sampled: 03/18/2021 09:15
Instrument: Accumet AB150 Analyst: UW	Analyzed: 03/23/2021 14:00
Sample Preparation: Preparation Method: No Prep Wet Chem	Extract ID: 21C0263-01 C
Preparation Batch: BJC0624	Sample Size: 100 mL
Prepared: 03/23/2021	Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	109	mg/L CaCO3	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Carbonate		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Hydroxide		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Total		1	1.00	1.00	109	mg/L CaCO3	



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1180 NW Maple St., Suite 310
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Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
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MW-1
21C0263-01 (Water)

Wet Chemistry

Method: SM 4500-H+ B-00 Sampled: 03/18/2021 09:15
Instrument: Accumet AB150 Analyst: BF Analyzed: 03/18/2021 17:30

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21C0263-01 A
Preparation Batch: BJC0512 Sample Size: 50 mL
Prepared: 03/18/2021 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.05	pH Units	H



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Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
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MW-1
21C0263-01 (Water)

Wet Chemistry

Method: SM 4500-NH3 H-97 Sampled: 03/18/2021 09:15
Instrument: LCHAT2 Analyst: KOTT Analyzed: 04/01/2021 16:40

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21C0263-01 A
Preparation Batch: BJD0027 Sample Size: 10 mL
Prepared: 04/01/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.040	ND	mg/L	U



Environmental Partners, Inc. 1180 NW Maple St., Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 429487 Project Manager: Doug Kunkel	Reported: 08-Apr-2021 10:32
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MW-1
21C0263-01 (Water)

Microbiology

Method: SM 9222B	Preparation Method: No Prep Wet Chem	Sampled: 03/18/2021 09:15
Instrument: N/A Analyst: WCW	Preparation Batch: BJC0511	Analyzed: 03/19/2021 15:55
Sample Preparation:	Prepared: 03/18/2021	Extract ID: 21C0263-01
	Sample Size: 100 mL	
	Final Volume: 100 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Coliforms		1	1	1	ND	CFU/100 ml	H, U



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Project Manager: Doug Kunkel

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MW-3
21C0263-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 03/18/2021 11:00
Instrument: NT2 Analyst: PKC Analyzed: 03/30/2021 18:56

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 21C0263-02 G
Preparation Batch: BJC0833 Sample Size: 10 mL
Prepared: 03/30/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



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Project Manager: Doug Kunkel

Reported:
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MW-3
21C0263-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/18/2021 11:00

Instrument: NT2 Analyst: PKC

Analyzed: 03/30/2021 18:56

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.50	ND	ug/L	U



Environmental Partners, Inc.
1180 NW Maple St., Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
08-Apr-2021 10:32

MW-3
21C0263-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/18/2021 11:00

Instrument: NT2 Analyst: PKC

Analyzed: 03/30/2021 18:56

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Pentanone	107-87-9	1	5.00	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	109	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	93.8	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	96.8	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	98.3	%	



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Reported:
08-Apr-2021 10:32

MW-3
21C0263-02 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 03/18/2021 11:00
Instrument: NT16 Analyst: PB	Analyzed: 03/30/2021 13:23
Sample Preparation:	Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 21C0263-02 H
Preparation Batch: BJC0841	Sample Size: 10 mL
Prepared: 03/30/2021	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	ND	ng/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>104</i>	<i>%</i>	



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Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
08-Apr-2021 10:32

MW-3
21C0263-02 (Water)

Metals and Metallic Compounds

Method: EPA 6010D Sampled: 03/18/2021 11:00
Instrument: ICP2 Analyst: SKD Analyzed: 03/31/2021 20:55

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 21C0263-02 E 01
Preparation Batch: BJC0863 Sample Size: 25 mL
Prepared: 03/31/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	30.9	mg/L	
Potassium	7440-09-7	1	0.500	0.621	mg/L	
Sodium	7440-23-5	1	0.500	6.66	mg/L	



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Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
08-Apr-2021 10:32

MW-3
21C0263-02 (Water)

Wet Chemistry

Method: EPA 325.2

Sampled: 03/18/2021 11:00

Instrument: LACHAT1 Analyst: LRB

Analyzed: 04/01/2021 17:28

Sample Preparation:

Preparation Method: No Prep - Volatiles

Extract ID: 21C0263-02 C

Preparation Batch: BJD0038

Sample Size: 10 mL

Prepared: 04/01/2021

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	4.75	mg/L	



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Project Number: 429487
Project Manager: Doug Kunkel

Reported:
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MW-3
21C0263-02 (Water)

Wet Chemistry

Method: EPA 353.2 Sampled: 03/18/2021 11:00
Instrument: [CALC] Analyst: KOTT Analyzed: 03/31/2021 20:35

Sample Preparation: Preparation Method: [CALC] Extract ID: 21C0263-02
Preparation Batch: [CALC]
Prepared: 03/31/2021 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	10	0.110	2.02	mg/L	

Instrument: LACHAT2 Analyst: LRB Analyzed: 03/19/2021 17:19

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21C0263-02 A
Preparation Batch: BJC0554 Sample Size: 10 mL
Prepared: 03/19/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.010	0.010	ND	mg/L	U



Environmental Partners, Inc. 1180 NW Maple St., Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 429487 Project Manager: Doug Kunkel	Reported: 08-Apr-2021 10:32
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MW-3
21C0263-02 (Water)

Wet Chemistry

Method: EPA 410.4	Preparation Method: No Prep Wet Chem		Sampled: 03/18/2021 11:00
Instrument: UV1800-2 Analyst: BF	Preparation Batch: BJD0026	Sample Size: 2 mL	Analyzed: 04/02/2021 10:23
Sample Preparation:	Prepared: 04/01/2021	Final Volume: 2 mL	Extract ID: 21C0263-02 D

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
COD		1	10.0	10.0	ND	mg/L	U



Environmental Partners, Inc. 1180 NW Maple St., Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 429487 Project Manager: Doug Kunkel	Reported: 08-Apr-2021 10:32
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MW-3
21C0263-02 (Water)

Wet Chemistry

Method: EPA 9060A	Sampled: 03/18/2021 11:00	
Instrument: TOC-LCSH Analyst: WCW	Analyzed: 03/22/2021 22:40	
Sample Preparation:	Preparation Method: No Prep Wet Chem	Extract ID: 21C0263-02 D
	Preparation Batch: BJC0586	Sample Size: 20 mL
	Prepared: 03/22/2021	Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	1.71	mg/L	



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Project Manager: Doug Kunkel

Reported:
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MW-3
21C0263-02 (Water)

Wet Chemistry

Method: SM 2320 B-97 Sampled: 03/18/2021 11:00
Instrument: Accumet AB150 Analyst: UW Analyzed: 03/23/2021 14:00

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21C0263-02 C
Preparation Batch: BJC0624 Sample Size: 100 mL
Prepared: 03/23/2021 Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	53.9	mg/L CaCO3	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Carbonate		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Hydroxide		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Total		1	1.00	1.00	53.9	mg/L CaCO3	



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MW-3
21C0263-02 (Water)

Wet Chemistry

Method: SM 4500-H+ B-00	Instrument: Accumet AB150	Analyst: BF	Sampled: 03/18/2021 11:00	Analyzed: 03/18/2021 17:30
Sample Preparation:	Preparation Method: No Prep Wet Chem	Preparation Batch: BJC0512	Sample Size: 50 mL	Final Volume: 50 mL
	Prepared: 03/18/2021			Extract ID: 21C0263-02 A

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.13	pH Units	H



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MW-3
21C0263-02 (Water)

Wet Chemistry

Method: SM 4500-NH3 H-97	Sampled: 03/18/2021 11:00
Instrument: LACHAT2 Analyst: KOTT	Analyzed: 04/01/2021 16:41
Sample Preparation:	Preparation Method: No Prep Wet Chem
	Preparation Batch: BJD0027
	Prepared: 04/01/2021
	Sample Size: 10 mL
	Final Volume: 10 mL
	Extract ID: 21C0263-02 A

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.040	ND	mg/L	U



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MW-3
21C0263-02 (Water)

Microbiology

Method: SM 9222B	Preparation Method: No Prep Wet Chem	Sampled: 03/18/2021 11:00
Instrument: N/A Analyst: WCW	Preparation Batch: BJC0511	Analyzed: 03/19/2021 15:55
Sample Preparation:	Prepared: 03/18/2021	Extract ID: 21C0263-02
	Sample Size: 100 mL	
	Final Volume: 100 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Coliforms		1	1	1	ND	CFU/100 ml	U



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MW-3
21C0263-02RE1 (Water)

Wet Chemistry

Method: EPA 353.2	Instrument: LACHAT2	Analyst: KOTT	Sampled: 03/18/2021 11:00	Analyzed: 03/31/2021 20:35
Sample Preparation:	Preparation Method: No Prep Wet Chem	Preparation Batch: BJC0897	Sample Size: 10 mL	Final Volume: 10 mL
	Prepared: 03/31/2021		Extract ID: 21C0263-02RE1 D	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		10	0.100	0.100	2.02	mg/L	D



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MW-3
21C0263-02RE1 (Water)

Wet Chemistry

Method: EPA 375.2

Sampled: 03/18/2021 11:00

Instrument: LACHAT1 Analyst: LRB

Analyzed: 03/30/2021 15:38

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 21C0263-02RE1 A

Preparation Batch: BJC0843

Sample Size: 10 mL

Prepared: 03/30/2021

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	5	10.0	10.0	39.3	mg/L	D



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Project Manager: Doug Kunkel

Reported:
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MW-10
21C0263-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/18/2021 11:55

Instrument: NT2 Analyst: PKC

Analyzed: 03/30/2021 19:17

Sample Preparation:

Preparation Method: EPA 5030C (Purge and Trap)

Extract ID: 21C0263-03 G

Preparation Batch: BJC0833

Sample Size: 10 mL

Prepared: 03/30/2021

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



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MW-10
21C0263-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/18/2021 11:55

Instrument: NT2 Analyst: PKC

Analyzed: 03/30/2021 19:17

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.50	ND	ug/L	U



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Reported:
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MW-10
21C0263-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/18/2021 11:55

Instrument: NT2 Analyst: PKC

Analyzed: 03/30/2021 19:17

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Pentanone	107-87-9	1	5.00	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	111	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	94.1	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	97.2	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	99.5	%	



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MW-10
21C0263-03 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 03/18/2021 11:55
Instrument: NT16 Analyst: PB	Analyzed: 03/30/2021 13:44
Sample Preparation:	Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 21C0263-03 I
Preparation Batch: BJC0841	Sample Size: 10 mL
Prepared: 03/30/2021	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	ND	ng/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>106</i>	<i>%</i>	



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Reported:
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MW-10
21C0263-03 (Water)

Metals and Metallic Compounds

Method: EPA 6010D Sampled: 03/18/2021 11:55
Instrument: ICP2 Analyst: SKD Analyzed: 03/31/2021 20:58

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 21C0263-03 E 01
Preparation Batch: BJC0863 Sample Size: 25 mL
Prepared: 03/31/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	39.2	mg/L	
Potassium	7440-09-7	1	0.500	1.36	mg/L	
Sodium	7440-23-5	1	0.500	19.5	mg/L	



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MW-10
21C0263-03 (Water)

Wet Chemistry

Method: EPA 325.2	Instrument: LACHAT1	Analyst: LRB	Sampled: 03/18/2021 11:55
Sample Preparation:	Preparation Method: No Prep - Volatiles	Preparation Batch: BJD0038	Analyzed: 04/01/2021 17:29
	Prepared: 04/01/2021	Sample Size: 10 mL	Extract ID: 21C0263-03 C
		Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	7.89	mg/L	



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Project Number: 429487
Project Manager: Doug Kunkel

Reported:
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MW-10
21C0263-03 (Water)

Wet Chemistry

Method: EPA 353.2 Sampled: 03/18/2021 11:55
Instrument: [CALC] Analyst: KOTT Analyzed: 03/31/2021 20:39

Sample Preparation: Preparation Method: [CALC] Extract ID: 21C0263-03
Preparation Batch: [CALC]
Prepared: 03/31/2021 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.0200	ND	mg/L	U

Instrument: LACHAT2 Analyst: LRB Analyzed: 03/19/2021 17:20

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21C0263-03 A
Preparation Batch: BJC0554 Sample Size: 10 mL
Prepared: 03/19/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.010	0.010	ND	mg/L	U



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MW-10
21C0263-03 (Water)

Wet Chemistry

Method: EPA 375.2 Sampled: 03/18/2021 11:55
Instrument: LACHAT1 Analyst: LRB Analyzed: 03/30/2021 14:34

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21C0263-03 A
Preparation Batch: BJC0843 Sample Size: 10 mL
Prepared: 03/30/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	11.0	mg/L	



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MW-10
21C0263-03 (Water)

Wet Chemistry

Method: EPA 410.4	Instrument: UV1800-2	Analyst: BF	Sampled: 03/18/2021 11:55	Analyzed: 04/02/2021 10:23
Sample Preparation:	Preparation Method: No Prep Wet Chem	Preparation Batch: BJD0026	Sample Size: 2 mL	Extract ID: 21C0263-03 D
	Prepared: 04/01/2021		Final Volume: 2 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
COD		1	10.0	10.0	10.2	mg/L	



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MW-10
21C0263-03 (Water)

Wet Chemistry

Method: EPA 9060A	Sampled: 03/18/2021 11:55
Instrument: TOC-LCSH Analyst: WCW	Analyzed: 03/22/2021 23:42
Sample Preparation:	Preparation Method: No Prep Wet Chem
	Preparation Batch: BJC0586
	Prepared: 03/22/2021
	Sample Size: 20 mL
	Final Volume: 20 mL
	Extract ID: 21C0263-03 D

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	2.52	mg/L	



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MW-10
21C0263-03 (Water)

Wet Chemistry

Method: SM 2320 B-97 Sampled: 03/18/2021 11:55
Instrument: Accumet AB150 Analyst: UW Analyzed: 03/23/2021 11:24

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21C0263-03 C
Preparation Batch: BJC0624 Sample Size: 100 mL
Prepared: 03/23/2021 Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	219	mg/L CaCO3	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Carbonate		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Hydroxide		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Total		1	1.00	1.00	219	mg/L CaCO3	



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MW-10
21C0263-03 (Water)

Wet Chemistry

Method: SM 4500-H+ B-00	Instrument: Accumet AB150	Analyst: BF	Sampled: 03/18/2021 11:55	Analyzed: 03/18/2021 17:30
Sample Preparation:	Preparation Method: No Prep Wet Chem	Preparation Batch: BJC0512	Sample Size: 50 mL	Final Volume: 50 mL
	Prepared: 03/18/2021		Extract ID: 21C0263-03 A	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.50	pH Units	H



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MW-10
21C0263-03 (Water)

Wet Chemistry

Method: SM 4500-NH3 H-97	Sampled: 03/18/2021 11:55
Instrument: LACHAT2 Analyst: KOTT	Analyzed: 04/01/2021 16:46
Sample Preparation:	Preparation Method: No Prep Wet Chem
	Preparation Batch: BJD0027
	Prepared: 04/01/2021
	Sample Size: 10 mL
	Final Volume: 10 mL
	Extract ID: 21C0263-03 A

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.040	0.100	mg/L	



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MW-10
21C0263-03 (Water)

Microbiology

Method: SM 9222B	Preparation Method: No Prep Wet Chem	Sample Size: 100 mL	Sampled: 03/18/2021 11:55
Instrument: N/A Analyst: WCW	Preparation Batch: BJC0511	Final Volume: 100 mL	Analyzed: 03/19/2021 15:55
Sample Preparation:	Prepared: 03/18/2021		Extract ID: 21C0263-03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Coliforms		1	1	1	ND	CFU/100 ml	U



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MW-10
21C0263-03RE1 (Water)

Wet Chemistry

Method: EPA 353.2 Sampled: 03/18/2021 11:55
Instrument: LACHAT2 Analyst: KOTT Analyzed: 03/31/2021 20:39

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21C0263-03RE1 D
Preparation Batch: BJC0897 Sample Size: 10 mL
Prepared: 03/31/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		1	0.010	0.010	ND	mg/L	U



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MW-6
21C0263-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/18/2021 13:30

Instrument: NT2 Analyst: PKC

Analyzed: 03/30/2021 19:38

Sample Preparation:

Preparation Method: EPA 5030C (Purge and Trap)

Extract ID: 21C0263-04 G

Preparation Batch: BJC0833

Sample Size: 10 mL

Prepared: 03/30/2021

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



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MW-6
21C0263-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/18/2021 13:30

Instrument: NT2 Analyst: PKC

Analyzed: 03/30/2021 19:38

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	1.52	ug/L	
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.50	ND	ug/L	U



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MW-6
21C0263-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/18/2021 13:30

Instrument: NT2 Analyst: PKC

Analyzed: 03/30/2021 19:38

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Pentanone	107-87-9	1	5.00	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	113	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	93.9	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	94.8	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	97.7	%	



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MW-6
21C0263-04 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 03/18/2021 13:30
Instrument: NT16 Analyst: PB	Analyzed: 03/30/2021 14:04
Sample Preparation:	Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 21C0263-04 I
	Preparation Batch: BJC0841 Sample Size: 10 mL
	Prepared: 03/30/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	ND	ng/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>94.0</i>	<i>%</i>	



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MW-6
21C0263-04 (Water)

Metals and Metallic Compounds

Method: EPA 6010D Sampled: 03/18/2021 13:30
Instrument: ICP2 Analyst: SKD Analyzed: 03/31/2021 21:01

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 21C0263-04 E 01
Preparation Batch: BJC0863 Sample Size: 25 mL
Prepared: 03/31/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	6.99	mg/L	
Potassium	7440-09-7	1	0.500	0.684	mg/L	
Sodium	7440-23-5	1	0.500	4.84	mg/L	



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MW-6
21C0263-04 (Water)

Wet Chemistry

Method: EPA 325.2	Instrument: LACHAT1	Analyst: LRB	Sampled: 03/18/2021 13:30
Sample Preparation:	Preparation Method: No Prep - Volatiles	Preparation Batch: BJD0038	Analyzed: 04/01/2021 17:31
	Prepared: 04/01/2021	Sample Size: 10 mL	Extract ID: 21C0263-04 C
		Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	1.02	mg/L	



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MW-6
21C0263-04 (Water)

Wet Chemistry

Method: EPA 353.2 Sampled: 03/18/2021 13:30
Instrument: [CALC] Analyst: LRB Analyzed: 03/31/2021 19:43

Sample Preparation: Preparation Method: [CALC] Extract ID: 21C0263-04
Preparation Batch: [CALC]
Prepared: 03/31/2021 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	5	0.0600	0.579	mg/L	

Instrument: LACHAT2 Analyst: LRB Analyzed: 03/19/2021 17:22

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21C0263-04 A
Preparation Batch: BJC0554 Sample Size: 10 mL
Prepared: 03/19/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.010	0.010	0.116	mg/L	

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21C0263-04 D
Preparation Batch: BJC0897 Sample Size: 10 mL
Prepared: 03/31/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		5	0.050	0.050	0.695	mg/L	D



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MW-6
21C0263-04 (Water)

Wet Chemistry

Method: EPA 375.2 Sampled: 03/18/2021 13:30
Instrument: LACHAT1 Analyst: LRB Analyzed: 03/30/2021 14:35

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21C0263-04 A
Preparation Batch: BJC0843 Sample Size: 10 mL
Prepared: 03/30/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	2.28	mg/L	



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MW-6
21C0263-04 (Water)

Wet Chemistry

Method: EPA 410.4 Sampled: 03/18/2021 13:30
Instrument: UV1800-2 Analyst: BF Analyzed: 04/02/2021 10:26

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21C0263-04 D
Preparation Batch: BJD0026 Sample Size: 2 mL
Prepared: 04/01/2021 Final Volume: 2 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
COD		1	10.0	10.0	ND	mg/L	U



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MW-6
21C0263-04 (Water)

Wet Chemistry

Method: EPA 9060A	Sampled: 03/18/2021 13:30
Instrument: TOC-LCSH Analyst: WCW	Analyzed: 03/23/2021 00:01
Sample Preparation:	Preparation Method: No Prep Wet Chem
	Preparation Batch: BJC0586
	Prepared: 03/22/2021
	Sample Size: 20 mL
	Final Volume: 20 mL
	Extract ID: 21C0263-04 D

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	2.56	mg/L	



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MW-6
21C0263-04 (Water)

Wet Chemistry

Method: SM 2320 B-97	Sampled: 03/18/2021 13:30
Instrument: Accumet AB150 Analyst: UW	Analyzed: 03/23/2021 14:00
Sample Preparation: Preparation Method: No Prep Wet Chem	Extract ID: 21C0263-04 C
Preparation Batch: BJC0624	Sample Size: 100 mL
Prepared: 03/23/2021	Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	42.5	mg/L CaCO3	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Carbonate		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Hydroxide		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Total		1	1.00	1.00	42.5	mg/L CaCO3	



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MW-6
21C0263-04 (Water)

Wet Chemistry

Method: SM 4500-H+ B-00 Sampled: 03/18/2021 13:30
Instrument: Accumet AB150 Analyst: BF Analyzed: 03/18/2021 17:30

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21C0263-04 A
Preparation Batch: BJC0512 Sample Size: 50 mL
Prepared: 03/18/2021 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.76	pH Units	H



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MW-6
21C0263-04 (Water)

Wet Chemistry

Method: SM 4500-NH3 H-97 Sampled: 03/18/2021 13:30
Instrument: LACHAT2 Analyst: KOTT Analyzed: 04/01/2021 16:48

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21C0263-04 A
Preparation Batch: BJD0027 Sample Size: 10 mL
Prepared: 04/01/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.040	ND	mg/L	U



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MW-6
21C0263-04 (Water)

Microbiology

Method: SM 9222B	Preparation Method: No Prep Wet Chem	Sampled: 03/18/2021 13:30
Instrument: N/A Analyst: WCW	Preparation Batch: BJC0511	Analyzed: 03/19/2021 15:55
Sample Preparation:	Prepared: 03/18/2021	Extract ID: 21C0263-04
	Sample Size: 100 mL	
	Final Volume: 100 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Coliforms		1	1	1	ND	CFU/100 ml	U



Environmental Partners, Inc.
1180 NW Maple St., Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
08-Apr-2021 10:32

MW-8
21C0263-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 03/18/2021 14:20
Instrument: NT2 Analyst: PKC Analyzed: 03/30/2021 19:59

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 21C0263-05 G
Preparation Batch: BJC0833 Sample Size: 10 mL
Prepared: 03/30/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



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MW-8
21C0263-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/18/2021 14:20

Instrument: NT2 Analyst: PKC

Analyzed: 03/30/2021 19:59

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.50	ND	ug/L	U



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MW-8
21C0263-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/18/2021 14:20

Instrument: NT2 Analyst: PKC

Analyzed: 03/30/2021 19:59

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Pentanone	107-87-9	1	5.00	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	114	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	91.9	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	86.0	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	100	%	



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MW-8
21C0263-05 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 03/18/2021 14:20
Instrument: NT16 Analyst: PB	Analyzed: 03/30/2021 14:24
Sample Preparation:	Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 21C0263-05 I
	Preparation Batch: BJC0841 Sample Size: 10 mL
	Prepared: 03/30/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	ND	ng/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>86.0</i>	<i>%</i>	



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MW-8
21C0263-05 (Water)

Metals and Metallic Compounds

Method: EPA 6010D Sampled: 03/18/2021 14:20
Instrument: ICP2 Analyst: SKD Analyzed: 03/31/2021 21:03
Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 21C0263-05 E 01
Preparation Batch: BJC0863 Sample Size: 25 mL
Prepared: 03/31/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	19.9	mg/L	
Potassium	7440-09-7	1	0.500	0.873	mg/L	
Sodium	7440-23-5	1	0.500	7.04	mg/L	



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MW-8
21C0263-05 (Water)

Wet Chemistry

Method: EPA 325.2	Instrument: LACHAT1	Analyst: LRB	Sampled: 03/18/2021 14:20
Sample Preparation:	Preparation Method: No Prep - Volatiles	Preparation Batch: BJD0038	Analyzed: 04/01/2021 17:32
	Prepared: 04/01/2021	Sample Size: 10 mL	Extract ID: 21C0263-05 C
		Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	1.88	mg/L	



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MW-8
21C0263-05 (Water)

Wet Chemistry

Method: EPA 353.2 Sampled: 03/18/2021 14:20
Instrument: [CALC] Analyst: LRB Analyzed: 03/31/2021 19:44

Sample Preparation: Preparation Method: [CALC] Extract ID: 21C0263-05
Preparation Batch: [CALC]
Prepared: 03/31/2021 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.0200	0.106	mg/L	

Instrument: LACHAT2 Analyst: LRB Analyzed: 03/19/2021 17:28

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21C0263-05 A
Preparation Batch: BJC0554 Sample Size: 10 mL
Prepared: 03/19/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.010	0.010	ND	mg/L	U

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21C0263-05 D
Preparation Batch: BJC0897 Sample Size: 10 mL
Prepared: 03/31/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		1	0.010	0.010	0.106	mg/L	



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MW-8
21C0263-05 (Water)

Wet Chemistry

Method: EPA 375.2 Sampled: 03/18/2021 14:20
Instrument: LACHAT1 Analyst: LRB Analyzed: 03/30/2021 14:42

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21C0263-05 A
Preparation Batch: BJC0843 Sample Size: 10 mL
Prepared: 03/30/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	5.21	mg/L	



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MW-8
21C0263-05 (Water)

Wet Chemistry

Method: EPA 410.4 Sampled: 03/18/2021 14:20
Instrument: UV1800-2 Analyst: BF Analyzed: 04/02/2021 10:29

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21C0263-05 D
Preparation Batch: BJD0026 Sample Size: 2 mL
Prepared: 04/01/2021 Final Volume: 2 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
COD		1	10.0	10.0	ND	mg/L	U



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MW-8
21C0263-05 (Water)

Wet Chemistry

Method: EPA 9060A	Sampled: 03/18/2021 14:20
Instrument: TOC-LCSH Analyst: WCW	Analyzed: 03/23/2021 00:23
Sample Preparation:	Preparation Method: No Prep Wet Chem
	Preparation Batch: BJC0586
	Prepared: 03/22/2021
	Sample Size: 20 mL
	Final Volume: 20 mL
	Extract ID: 21C0263-05 D

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	0.69	mg/L	



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MW-8
21C0263-05 (Water)

Wet Chemistry

Method: SM 2320 B-97	Sampled: 03/18/2021 14:20
Instrument: Accumet AB150 Analyst: UW	Analyzed: 03/23/2021 14:00
Sample Preparation: Preparation Method: No Prep Wet Chem	Extract ID: 21C0263-05 C
Preparation Batch: BJC0624	Sample Size: 100 mL
Prepared: 03/23/2021	Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	117	mg/L CaCO3	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Carbonate		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Hydroxide		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Total		1	1.00	1.00	117	mg/L CaCO3	



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MW-8
21C0263-05 (Water)

Wet Chemistry

Method: SM 4500-H+ B-00	Sampled: 03/18/2021 14:20
Instrument: Accumet AB150 Analyst: BF	Analyzed: 03/18/2021 17:30
Sample Preparation: Preparation Method: No Prep Wet Chem	Extract ID: 21C0263-05 A
Preparation Batch: BJC0512	Sample Size: 50 mL
Prepared: 03/18/2021	Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.57	pH Units	H



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MW-8
21C0263-05 (Water)

Wet Chemistry

Method: SM 4500-NH3 H-97	Sampled: 03/18/2021 14:20
Instrument: LACHAT2 Analyst: KOTT	Analyzed: 04/01/2021 17:01
Sample Preparation:	Preparation Method: No Prep Wet Chem
	Preparation Batch: BJD0027
	Prepared: 04/01/2021
	Sample Size: 10 mL
	Final Volume: 10 mL
	Extract ID: 21C0263-05 A

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.040	ND	mg/L	U



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MW-8
21C0263-05 (Water)

Microbiology

Method: SM 9222B	Preparation Method: No Prep Wet Chem	Sampled: 03/18/2021 14:20
Instrument: N/A Analyst: WCW	Preparation Batch: BJC0511	Analyzed: 03/19/2021 15:55
Sample Preparation:	Prepared: 03/18/2021	Extract ID: 21C0263-05
	Sample Size: 100 mL	
	Final Volume: 100 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Coliforms		1	1	1	ND	CFU/100 ml	U



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MW-9
21C0263-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/18/2021 14:00

Instrument: NT2 Analyst: PKC

Analyzed: 03/30/2021 20:20

Sample Preparation:

Preparation Method: EPA 5030C (Purge and Trap)

Extract ID: 21C0263-06 H

Preparation Batch: BJC0833

Sample Size: 10 mL

Prepared: 03/30/2021

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



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Project Number: 429487
Project Manager: Doug Kunkel

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MW-9
21C0263-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/18/2021 14:00

Instrument: NT2 Analyst: PKC

Analyzed: 03/30/2021 20:20

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.50	ND	ug/L	U



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Project Manager: Doug Kunkel

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MW-9
21C0263-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/18/2021 14:00

Instrument: NT2 Analyst: PKC

Analyzed: 03/30/2021 20:20

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Pentanone	107-87-9	1	5.00	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	118	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	92.0	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	87.9	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	100	%	



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MW-9
21C0263-06 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 03/18/2021 14:00
Instrument: NT16 Analyst: PB	Analyzed: 03/30/2021 14:44
Sample Preparation:	Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 21C0263-06 J
Preparation Batch: BJC0841	Sample Size: 10 mL
Prepared: 03/30/2021	Final Volume: 10 mL

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



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MW-9
21C0263-06 (Water)

Metals and Metallic Compounds

Method: EPA 6010D Sampled: 03/18/2021 14:00
Instrument: ICP2 Analyst: SKD Analyzed: 03/31/2021 21:06

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 21C0263-06 E 01
Preparation Batch: BJC0863 Sample Size: 25 mL
Prepared: 03/31/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	30.5	mg/L	
Potassium	7440-09-7	1	0.500	0.571	mg/L	
Sodium	7440-23-5	1	0.500	6.58	mg/L	



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MW-9
21C0263-06 (Water)

Wet Chemistry

Method: EPA 325.2 Sampled: 03/18/2021 14:00
Instrument: LACHAT1 Analyst: LRB Analyzed: 04/01/2021 17:33

Sample Preparation: Preparation Method: No Prep - Volatiles Extract ID: 21C0263-06 C
Preparation Batch: BJD0038 Sample Size: 10 mL
Prepared: 04/01/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	4.78	mg/L	



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MW-9
21C0263-06 (Water)

Wet Chemistry

Method: EPA 353.2 Sampled: 03/18/2021 14:00
Instrument: [CALC] Analyst: KOTT Analyzed: 03/31/2021 20:47

Sample Preparation: Preparation Method: [CALC] Extract ID: 21C0263-06
Preparation Batch: [CALC]
Prepared: 03/31/2021 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	10	0.110	2.02	mg/L	

Instrument: LACHAT2 Analyst: LRB Analyzed: 03/19/2021 17:29

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21C0263-06 A
Preparation Batch: BJC0554 Sample Size: 10 mL
Prepared: 03/19/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.010	0.010	ND	mg/L	U



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MW-9
21C0263-06 (Water)

Wet Chemistry

Method: EPA 410.4 Sampled: 03/18/2021 14:00
Instrument: UV1800-2 Analyst: BF Analyzed: 04/02/2021 10:30

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21C0263-06 D
Preparation Batch: BJD0026 Sample Size: 2 mL
Prepared: 04/01/2021 Final Volume: 2 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
COD		1	10.0	10.0	ND	mg/L	U



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MW-9
21C0263-06 (Water)

Wet Chemistry

Method: EPA 9060A	Sampled: 03/18/2021 14:00
Instrument: TOC-LCSH Analyst: WCW	Analyzed: 03/23/2021 00:42
Sample Preparation:	Preparation Method: No Prep Wet Chem
	Preparation Batch: BJC0586
	Prepared: 03/22/2021
	Sample Size: 20 mL
	Final Volume: 20 mL
	Extract ID: 21C0263-06 D

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	1.70	mg/L	



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MW-9
21C0263-06 (Water)

Wet Chemistry

Method: SM 2320 B-97	Instrument: Accumet AB150	Analyst: UW	Sampled: 03/18/2021 14:00	Analyzed: 03/23/2021 14:00
Sample Preparation:	Preparation Method: No Prep Wet Chem	Preparation Batch: BJC0624	Sample Size: 100 mL	Extract ID: 21C0263-06 C
	Prepared: 03/23/2021		Final Volume: 100 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	108	mg/L CaCO3	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Carbonate		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Hydroxide		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Total		1	1.00	1.00	108	mg/L CaCO3	



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MW-9
21C0263-06 (Water)

Wet Chemistry

Method: SM 4500-H+ B-00	Instrument: Accumet AB150	Analyst: BF	Sampled: 03/18/2021 14:00	Analyzed: 03/18/2021 17:30
Sample Preparation:	Preparation Method: No Prep Wet Chem	Preparation Batch: BJC0512	Sample Size: 50 mL	Extract ID: 21C0263-06 A
	Prepared: 03/18/2021		Final Volume: 50 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.24	pH Units	H



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MW-9
21C0263-06 (Water)

Wet Chemistry

Method: SM 4500-NH3 H-97 Sampled: 03/18/2021 14:00
Instrument: LCHAT2 Analyst: KOTT Analyzed: 04/01/2021 17:02

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21C0263-06 A
Preparation Batch: BJD0027 Sample Size: 10 mL
Prepared: 04/01/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.040	ND	mg/L	U



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MW-9
21C0263-06 (Water)

Microbiology

Method: SM 9222B	Preparation Method: No Prep Wet Chem	Sampled: 03/18/2021 14:00
Instrument: N/A Analyst: WCW	Preparation Batch: BJC0511	Analyzed: 03/19/2021 15:55
Sample Preparation:	Prepared: 03/18/2021	Extract ID: 21C0263-06
	Sample Size: 100 mL	
	Final Volume: 100 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Coliforms		1	1	1	ND	CFU/100 ml	U



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MW-9
21C0263-06RE1 (Water)

Wet Chemistry

Method: EPA 353.2 Sampled: 03/18/2021 14:00
Instrument: LACHAT2 Analyst: KOTT Analyzed: 03/31/2021 20:47

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21C0263-06RE1 D
Preparation Batch: BJC0897 Sample Size: 10 mL
Prepared: 03/31/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		10	0.100	0.100	2.02	mg/L	D



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MW-9
21C0263-06RE1 (Water)

Wet Chemistry

Method: EPA 375.2 Sampled: 03/18/2021 14:00
Instrument: LACHAT1 Analyst: LRB Analyzed: 03/30/2021 15:27

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21C0263-06RE1 A
Preparation Batch: BJC0843 Sample Size: 10 mL
Prepared: 03/30/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	5	10.0	10.0	40.2	mg/L	D



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MW-1
21C0263-07 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8	Sampled: 03/18/2021 09:15
Instrument: ICPMS1 Analyst: MCB	Analyzed: 04/05/2021 17:58
Sample Preparation:	Extract ID: 21C0263-07 A 03
Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix	
Preparation Batch: BJC0866	Sample Size: 25 mL
Prepared: 03/31/2021	Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	20.0	159	ug/L	



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MW-1
21C0263-07 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED	Sampled: 03/18/2021 09:15
Instrument: ICPMS1 Analyst: MCB	Analyzed: 04/01/2021 03:56
Sample Preparation: Preparation Method: RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x Preparation Batch: BJC0864 Prepared: 03/31/2021	Extract ID: 21C0263-07 A 01 Sample Size: 100 mL Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.0970	ug/L	

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Preparation Batch: BJC0866 Prepared: 03/31/2021	Extract ID: 21C0263-07 A 03 Sample Size: 25 mL Final Volume: 25 mL
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Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Zinc, Dissolved	7440-66-6	1	4.00	ND	ug/L	U



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MW-1
21C0263-07 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010D	Preparation Method: WMN (No Prep)	Sample Size: 25 mL	Sampled: 03/18/2021 09:15
Instrument: ICP2 Analyst: SKD	Preparation Batch: BJC0892	Final Volume: 25 mL	Analyzed: 03/31/2021 21:51
Sample Preparation:	Prepared: 03/31/2021	Extract ID: 21C0263-07 A 02	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	ND	mg/L	U
Manganese, Dissolved	7439-96-5	1	0.0040	ND	mg/L	U



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MW-3
21C0263-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8	Sampled: 03/18/2021 11:00
Instrument: ICPMS1 Analyst: MCB	Analyzed: 04/05/2021 17:29
Sample Preparation:	Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
	Preparation Batch: BJC0866
	Sample Size: 25 mL
	Final Volume: 25 mL
	Extract ID: 21C0263-08 A 03

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	20.0	ND	ug/L	U



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MW-3
21C0263-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED	Sampled: 03/18/2021 11:00
Instrument: ICPMS1 Analyst: MCB	Analyzed: 04/01/2021 03:59
Sample Preparation: Preparation Method: RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x Preparation Batch: BJC0864 Prepared: 03/31/2021	Sample Size: 100 mL Final Volume: 20 mL Extract ID: 21C0263-08 A 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.0894	ug/L	

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Preparation Batch: BJC0866 Prepared: 03/31/2021	Sample Size: 25 mL Final Volume: 25 mL Extract ID: 21C0263-08 A 03
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Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Zinc, Dissolved	7440-66-6	1	4.00	ND	ug/L	U



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MW-3
21C0263-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010D Sampled: 03/18/2021 11:00
Instrument: ICP2 Analyst: SKD Analyzed: 03/31/2021 21:54
Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 21C0263-08 A 02
Preparation Batch: BJC0892 Sample Size: 25 mL
Prepared: 03/31/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	0.0085	mg/L	
Manganese, Dissolved	7439-96-5	1	0.0040	3.56	mg/L	



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MW-10
21C0263-09 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8	Sampled: 03/18/2021 11:55
Instrument: ICPMS1 Analyst: MCB	Analyzed: 04/05/2021 17:37
Sample Preparation:	Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
	Preparation Batch: BJC0866
	Prepared: 03/31/2021
	Sample Size: 25 mL
	Final Volume: 25 mL
	Extract ID: 21C0263-09 A 03

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	20.0	ND	ug/L	U



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MW-10
21C0263-09 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED Sampled: 03/18/2021 11:55
Instrument: ICPMS1 Analyst: MCB Analyzed: 04/01/2021 04:03

Sample Preparation: Preparation Method: RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x Extract ID: 21C0263-09 A 01
Preparation Batch: BJC0864 Sample Size: 100 mL
Prepared: 03/31/2021 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	1.75	ug/L	

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 21C0263-09 A 03
Preparation Batch: BJC0866 Sample Size: 25 mL
Prepared: 03/31/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Zinc, Dissolved	7440-66-6	1	4.00	ND	ug/L	U



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MW-10
21C0263-09 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010D	Sampled: 03/18/2021 11:55
Instrument: ICP2 Analyst: SKD	Analyzed: 03/31/2021 22:21
Sample Preparation:	Preparation Method: WMN (No Prep)
	Preparation Batch: BJC0892
	Prepared: 03/31/2021
	Sample Size: 25 mL
	Final Volume: 25 mL
	Extract ID: 21C0263-09 A 02

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	0.0158	mg/L	
Manganese, Dissolved	7439-96-5	1	0.0040	3.89	mg/L	



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MW-6
21C0263-10 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8	Sampled: 03/18/2021 13:30
Instrument: ICPMS1 Analyst: MCB	Analyzed: 04/05/2021 17:41
Sample Preparation:	Extract ID: 21C0263-10 A 03
Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix	
Preparation Batch: BJC0866	Sample Size: 25 mL
Prepared: 03/31/2021	Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	20.0	31.7	ug/L	



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MW-6
21C0263-10 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED	Sampled: 03/18/2021 13:30
Instrument: ICPMS1 Analyst: MCB	Analyzed: 04/01/2021 04:07
Sample Preparation:	Preparation Method: RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x
	Preparation Batch: BJC0864
	Prepared: 03/31/2021
	Sample Size: 100 mL
	Final Volume: 20 mL
	Extract ID: 21C0263-10 A 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.266	ug/L	

Sample Preparation:	Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix	Extract ID: 21C0263-10 A 03
	Preparation Batch: BJC0866	
	Prepared: 03/31/2021	
	Sample Size: 25 mL	
	Final Volume: 25 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Zinc, Dissolved	7440-66-6	1	4.00	ND	ug/L	U



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MW-6
21C0263-10 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010D Sampled: 03/18/2021 13:30
Instrument: ICP2 Analyst: SKD Analyzed: 03/31/2021 22:24
Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 21C0263-10 A 02
Preparation Batch: BJC0892 Sample Size: 25 mL
Prepared: 03/31/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	ND	mg/L	U
Manganese, Dissolved	7439-96-5	1	0.0040	0.162	mg/L	



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MW-8
21C0263-11 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8	Sampled: 03/18/2021 14:20
Instrument: ICPMS1 Analyst: MCB	Analyzed: 04/05/2021 17:46
Sample Preparation:	Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
	Preparation Batch: BJC0866
	Prepared: 03/31/2021
	Sample Size: 25 mL
	Final Volume: 25 mL
	Extract ID: 21C0263-11 A 03

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	20.0	152	ug/L	



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Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
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MW-8
21C0263-11 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED Sampled: 03/18/2021 14:20
Instrument: ICPMS1 Analyst: MCB Analyzed: 04/01/2021 04:12

Sample Preparation: Preparation Method: RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x Extract ID: 21C0263-11 A 01
Preparation Batch: BJC0864 Sample Size: 100 mL
Prepared: 03/31/2021 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.920	ug/L	

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 21C0263-11 A 03
Preparation Batch: BJC0866 Sample Size: 25 mL
Prepared: 03/31/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Zinc, Dissolved	7440-66-6	1	4.00	ND	ug/L	U



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Project Number: 429487
Project Manager: Doug Kunkel

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MW-8
21C0263-11 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010D Sampled: 03/18/2021 14:20
Instrument: ICP2 Analyst: SKD Analyzed: 03/31/2021 22:27
Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 21C0263-11 A 02
Preparation Batch: BJC0892 Sample Size: 25 mL
Prepared: 03/31/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	ND	mg/L	U
Manganese, Dissolved	7439-96-5	1	0.0040	2.23	mg/L	



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Project Number: 429487
Project Manager: Doug Kunkel

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MW-9
21C0263-12 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8	Sampled: 03/18/2021 14:00
Instrument: ICPMS1 Analyst: MCB	Analyzed: 04/05/2021 17:51
Sample Preparation:	Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
	Preparation Batch: BJC0866
	Prepared: 03/31/2021
	Sample Size: 25 mL
	Final Volume: 25 mL
	Extract ID: 21C0263-12 A 03

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	20.0	ND	ug/L	U



Environmental Partners, Inc. 1180 NW Maple St., Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 429487 Project Manager: Doug Kunkel	Reported: 08-Apr-2021 10:32
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MW-9
21C0263-12 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED	Sampled: 03/18/2021 14:00
Instrument: ICPMS1 Analyst: MCB	Analyzed: 04/01/2021 04:17
Sample Preparation: Preparation Method: RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x Preparation Batch: BJC0864 Prepared: 03/31/2021	Sample Size: 100 mL Final Volume: 20 mL Extract ID: 21C0263-12 A 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.0874	ug/L	

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Preparation Batch: BJC0866 Prepared: 03/31/2021	Sample Size: 25 mL Final Volume: 25 mL Extract ID: 21C0263-12 A 03
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Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Zinc, Dissolved	7440-66-6	1	4.00	ND	ug/L	U



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MW-9
21C0263-12 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010D	Sampled: 03/18/2021 14:00
Instrument: ICP2 Analyst: SKD	Analyzed: 03/31/2021 22:33
Sample Preparation:	Preparation Method: WMN (No Prep)
	Preparation Batch: BJC0892
	Prepared: 03/31/2021
	Sample Size: 25 mL
	Final Volume: 25 mL
	Extract ID: 21C0263-12 A 02

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	0.0085	mg/L	
Manganese, Dissolved	7439-96-5	1	0.0040	3.49	mg/L	



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Trip Blanks
21C0263-13 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/18/2021 09:15

Instrument: NT2 Analyst: PKC

Analyzed: 03/30/2021 12:46

Sample Preparation:

Preparation Method: EPA 5030C (Purge and Trap)

Extract ID: 21C0263-13 A

Preparation Batch: BJC0833

Sample Size: 10 mL

Prepared: 03/30/2021

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



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Trip Blanks
21C0263-13 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/18/2021 09:15

Instrument: NT2 Analyst: PKC

Analyzed: 03/30/2021 12:46

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.50	ND	ug/L	U



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Project Manager: Doug Kunkel

Reported:
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Trip Blanks
21C0263-13 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/18/2021 09:15

Instrument: NT2 Analyst: PKC

Analyzed: 03/30/2021 12:46

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Pentanone	107-87-9	1	5.00	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	104	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	94.7	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	87.1	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	101	%	



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Reported:
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Trip Blanks
21C0263-13 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 03/18/2021 09:15
Instrument: NT16 Analyst: PB	Analyzed: 03/30/2021 15:05
Sample Preparation:	Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 21C0263-13 B
Preparation Batch: BJC0841	Sample Size: 10 mL
Prepared: 03/30/2021	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	ND	ng/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>94.4</i>	<i>%</i>	



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Project Manager: Doug Kunkel

Reported:
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Volatile Organic Compounds - Quality Control

Batch BJC0833 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0833-BLK1)		Prepared: 30-Mar-2021 Analyzed: 30-Mar-2021 12:25								
Chloromethane	ND	0.50	ug/L							U
Vinyl Chloride	ND	0.20	ug/L							U
Bromomethane	ND	1.00	ug/L							U
Chloroethane	ND	0.20	ug/L							U
Trichlorofluoromethane	ND	0.20	ug/L							U
Acrolein	ND	5.00	ug/L							U
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.20	ug/L							U
Acetone	ND	5.00	ug/L							U
1,1-Dichloroethene	ND	0.20	ug/L							U
Iodomethane	ND	1.00	ug/L							U
Methylene Chloride	ND	1.00	ug/L							U
Acrylonitrile	ND	1.00	ug/L							U
Carbon Disulfide	ND	0.20	ug/L							U
trans-1,2-Dichloroethene	ND	0.20	ug/L							U
Vinyl Acetate	ND	0.20	ug/L							U
1,1-Dichloroethane	ND	0.20	ug/L							U
2-Butanone	ND	5.00	ug/L							U
2,2-Dichloropropane	ND	0.20	ug/L							U
cis-1,2-Dichloroethene	ND	0.20	ug/L							U
Chloroform	ND	0.20	ug/L							U
Bromochloromethane	ND	0.20	ug/L							U
1,1,1-Trichloroethane	ND	0.20	ug/L							U
1,1-Dichloropropene	ND	0.20	ug/L							U
Carbon tetrachloride	ND	0.20	ug/L							U
1,2-Dichloroethane	ND	0.20	ug/L							U
Benzene	ND	0.20	ug/L							U
Trichloroethene	ND	0.20	ug/L							U
1,2-Dichloropropane	ND	0.20	ug/L							U
Bromodichloromethane	ND	0.20	ug/L							U
Dibromomethane	ND	0.20	ug/L							U
2-Chloroethyl vinyl ether	ND	1.00	ug/L							U
4-Methyl-2-Pentanone	ND	5.00	ug/L							U
cis-1,3-Dichloropropene	ND	0.20	ug/L							U
Toluene	ND	0.20	ug/L							U
trans-1,3-Dichloropropene	ND	0.20	ug/L							U



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Volatile Organic Compounds - Quality Control

Batch BJC0833 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0833-BLK1)		Prepared: 30-Mar-2021 Analyzed: 30-Mar-2021 12:25								
2-Hexanone	ND	5.00	ug/L							U
1,1,2-Trichloroethane	ND	0.20	ug/L							U
1,3-Dichloropropane	ND	0.20	ug/L							U
Tetrachloroethene	ND	0.20	ug/L							U
Dibromochloromethane	ND	0.20	ug/L							U
1,2-Dibromoethane	ND	0.20	ug/L							U
Chlorobenzene	ND	0.20	ug/L							U
Ethylbenzene	ND	0.20	ug/L							U
1,1,1,2-Tetrachloroethane	ND	0.20	ug/L							U
m,p-Xylene	ND	0.40	ug/L							U
o-Xylene	ND	0.20	ug/L							U
Xylenes, total	ND	0.60	ug/L							U
Styrene	ND	0.20	ug/L							U
Bromoform	ND	0.20	ug/L							U
1,1,2,2-Tetrachloroethane	ND	0.20	ug/L							U
1,2,3-Trichloropropane	ND	0.50	ug/L							U
trans-1,4-Dichloro 2-Butene	ND	1.00	ug/L							U
n-Propylbenzene	ND	0.20	ug/L							U
Bromobenzene	ND	0.20	ug/L							U
Isopropyl Benzene	ND	0.20	ug/L							U
2-Chlorotoluene	ND	0.20	ug/L							U
4-Chlorotoluene	ND	0.20	ug/L							U
t-Butylbenzene	ND	0.20	ug/L							U
1,3,5-Trimethylbenzene	ND	0.20	ug/L							U
1,2,4-Trimethylbenzene	ND	0.20	ug/L							U
s-Butylbenzene	ND	0.20	ug/L							U
4-Isopropyl Toluene	ND	0.20	ug/L							U
1,3-Dichlorobenzene	ND	0.20	ug/L							U
1,4-Dichlorobenzene	ND	0.20	ug/L							U
n-Butylbenzene	ND	0.20	ug/L							U
1,2-Dichlorobenzene	ND	0.20	ug/L							U
1,2-Dibromo-3-chloropropane	ND	0.50	ug/L							U
1,2,4-Trichlorobenzene	ND	0.50	ug/L							U
Hexachloro-1,3-Butadiene	ND	0.50	ug/L							U
Naphthalene	ND	0.50	ug/L							U



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Volatile Organic Compounds - Quality Control

Batch BJC0833 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0833-BLK1)										
				Prepared: 30-Mar-2021 Analyzed: 30-Mar-2021 12:25						
1,2,3-Trichlorobenzene	ND	0.50	ug/L							U
Dichlorodifluoromethane	ND	0.20	ug/L							U
Methyl tert-butyl Ether	ND	0.50	ug/L							U
2-Pentanone	ND	5.00	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5.19		ug/L	5.00		104	80-129			
Surrogate: Toluene-d8	4.73		ug/L	5.00		94.6	80-120			
Surrogate: 4-Bromofluorobenzene	4.36		ug/L	5.00		87.1	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	5.07		ug/L	5.00		101	80-120			
LCS (BJC0833-BS1)										
				Prepared: 30-Mar-2021 Analyzed: 30-Mar-2021 10:21						
Chloromethane	8.11	0.50	ug/L	10.0		81.1	60-138			
Vinyl Chloride	9.10	0.20	ug/L	10.0		91.0	66-133			
Bromomethane	8.26	1.00	ug/L	10.0		82.6	72-131			
Chloroethane	9.09	0.20	ug/L	10.0		90.9	60-155			
Trichlorofluoromethane	10.3	0.20	ug/L	10.0		103	62-141			
Acrolein	44.0	5.00	ug/L	50.0		88.0	52-190			
1,1,2-Trichloro-1,2,2-Trifluoroethane	8.80	0.20	ug/L	10.0		88.0	76-129			
Acetone	38.9	5.00	ug/L	50.0		77.9	58-142			Q
1,1-Dichloroethene	8.72	0.20	ug/L	10.0		87.2	69-135			
Iodomethane	8.32	1.00	ug/L	10.0		83.2	56-147			
Methylene Chloride	8.03	1.00	ug/L	10.0		80.3	65-135			
Acrylonitrile	9.97	1.00	ug/L	10.0		99.7	64-134			
Carbon Disulfide	8.59	0.20	ug/L	10.0		85.9	78-125			
trans-1,2-Dichloroethene	8.48	0.20	ug/L	10.0		84.8	78-128			
Vinyl Acetate	7.96	0.20	ug/L	10.0		79.6	55-138			Q
1,1-Dichloroethane	9.73	0.20	ug/L	10.0		97.3	76-124			
2-Butanone	44.8	5.00	ug/L	50.0		89.7	61-140			
2,2-Dichloropropane	10.7	0.20	ug/L	10.0		107	66-147			
cis-1,2-Dichloroethene	9.67	0.20	ug/L	10.0		96.7	80-121			
Chloroform	9.70	0.20	ug/L	10.0		97.0	80-122			
Bromochloromethane	9.58	0.20	ug/L	10.0		95.8	80-121			
1,1,1-Trichloroethane	9.96	0.20	ug/L	10.0		99.6	79-123			
1,1-Dichloropropene	10.0	0.20	ug/L	10.0		100	80-127			
Carbon tetrachloride	9.78	0.20	ug/L	10.0		97.8	53-137			
1,2-Dichloroethane	9.49	0.20	ug/L	10.0		94.9	75-123			



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Issaquah WA, 98027

Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
08-Apr-2021 10:32

Volatile Organic Compounds - Quality Control

Batch BJC0833 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJC0833-BS1)				Prepared: 30-Mar-2021		Analyzed: 30-Mar-2021 10:21				
Benzene	9.86	0.20	ug/L	10.0		98.6	80-120			
Trichloroethene	9.70	0.20	ug/L	10.0		97.0	80-120			
1,2-Dichloropropane	9.65	0.20	ug/L	10.0		96.5	80-120			
Bromodichloromethane	9.46	0.20	ug/L	10.0		94.6	80-121			
Dibromomethane	9.34	0.20	ug/L	10.0		93.4	80-120			
2-Chloroethyl vinyl ether	7.70	1.00	ug/L	10.0		77.0	64-120			Q
4-Methyl-2-Pentanone	37.2	5.00	ug/L	50.0		74.5	67-133			Q
cis-1,3-Dichloropropene	8.65	0.20	ug/L	10.0		86.5	80-124			
Toluene	9.45	0.20	ug/L	10.0		94.5	80-120			
trans-1,3-Dichloropropene	8.04	0.20	ug/L	10.0		80.4	71-127			
2-Hexanone	47.1	5.00	ug/L	50.0		94.3	69-133			
1,1,2-Trichloroethane	8.31	0.20	ug/L	10.0		83.1	80-121			
1,3-Dichloropropane	10.0	0.20	ug/L	10.0		100	80-120			
Tetrachloroethene	10.1	0.20	ug/L	10.0		101	80-120			
Dibromochloromethane	8.30	0.20	ug/L	10.0		83.0	65-135			
1,2-Dibromoethane	8.08	0.20	ug/L	10.0		80.8	80-121			
Chlorobenzene	9.82	0.20	ug/L	10.0		98.2	80-120			
Ethylbenzene	9.80	0.20	ug/L	10.0		98.0	80-120			
1,1,1,2-Tetrachloroethane	9.87	0.20	ug/L	10.0		98.7	80-120			
m,p-Xylene	20.3	0.40	ug/L	20.0		101	80-121			
o-Xylene	10.2	0.20	ug/L	10.0		102	80-121			
Xylenes, total	30.5	0.60	ug/L	30.0		102	76-127			
Styrene	8.92	0.20	ug/L	10.0		89.2	80-124			
Bromoform	7.71	0.20	ug/L	10.0		77.1	51-134			Q
1,1,1,2-Tetrachloroethane	9.58	0.20	ug/L	10.0		95.8	77-123			
1,2,3-Trichloropropane	9.14	0.50	ug/L	10.0		91.4	76-125			
trans-1,4-Dichloro 2-Butene	7.11	1.00	ug/L	10.0		71.1	55-129			Q
n-Propylbenzene	10.8	0.20	ug/L	10.0		108	78-130			
Bromobenzene	9.84	0.20	ug/L	10.0		98.4	80-120			
Isopropyl Benzene	11.8	0.20	ug/L	10.0		118	80-128			
2-Chlorotoluene	10.3	0.20	ug/L	10.0		103	78-122			
4-Chlorotoluene	10.5	0.20	ug/L	10.0		105	80-121			
t-Butylbenzene	11.2	0.20	ug/L	10.0		112	78-125			
1,3,5-Trimethylbenzene	11.4	0.20	ug/L	10.0		114	80-129			
1,2,4-Trimethylbenzene	10.3	0.20	ug/L	10.0		103	80-127			



Environmental Partners, Inc.
1180 NW Maple St., Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
08-Apr-2021 10:32

Volatile Organic Compounds - Quality Control

Batch BJC0833 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJC0833-BS1)		Prepared: 30-Mar-2021 Analyzed: 30-Mar-2021 10:21								
s-Butylbenzene	11.4	0.20	ug/L	10.0		114	78-129			
4-Isopropyl Toluene	10.2	0.20	ug/L	10.0		102	79-130			
1,3-Dichlorobenzene	9.98	0.20	ug/L	10.0		99.8	80-120			
1,4-Dichlorobenzene	9.52	0.20	ug/L	10.0		95.2	80-120			
n-Butylbenzene	11.5	0.20	ug/L	10.0		115	74-129			
1,2-Dichlorobenzene	9.66	0.20	ug/L	10.0		96.6	80-120			
1,2-Dibromo-3-chloropropane	8.99	0.50	ug/L	10.0		89.9	62-123			
1,2,4-Trichlorobenzene	9.90	0.50	ug/L	10.0		99.0	64-124			
Hexachloro-1,3-Butadiene	10.0	0.50	ug/L	10.0		100	58-123			
Naphthalene	7.68	0.50	ug/L	10.0		76.8	50-134			Q
1,2,3-Trichlorobenzene	9.68	0.50	ug/L	10.0		96.8	49-133			
Dichlorodifluoromethane	7.84	0.20	ug/L	10.0		78.4	48-147			Q
Methyl tert-butyl Ether	9.39	0.50	ug/L	10.0		93.9	71-132			
2-Pentanone	35.0	5.00	ug/L	50.0		70.1	69-134			Q
Surrogate: 1,2-Dichloroethane-d4	4.90		ug/L	5.00		98.0	80-129			
Surrogate: Toluene-d8	5.01		ug/L	5.00		100	80-120			
Surrogate: 4-Bromofluorobenzene	5.06		ug/L	5.00		101	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	5.04		ug/L	5.00		101	80-120			
LCS Dup (BJC0833-BSD1)		Prepared: 30-Mar-2021 Analyzed: 30-Mar-2021 11:03								
Chloromethane	8.72	0.50	ug/L	10.0		87.2	60-138	7.31	30	
Vinyl Chloride	9.74	0.20	ug/L	10.0		97.4	66-133	6.83	30	
Bromomethane	8.85	1.00	ug/L	10.0		88.5	72-131	6.86	30	
Chloroethane	9.91	0.20	ug/L	10.0		99.1	60-155	8.68	30	
Trichlorofluoromethane	11.6	0.20	ug/L	10.0		116	62-141	11.90	30	
Acrolein	47.8	5.00	ug/L	50.0		95.6	52-190	8.34	30	
1,1,2-Trichloro-1,2,2-Trifluoroethane	9.15	0.20	ug/L	10.0		91.5	76-129	3.97	30	
Acetone	41.3	5.00	ug/L	50.0		82.6	58-142	5.85	30	Q
1,1-Dichloroethene	9.05	0.20	ug/L	10.0		90.5	69-135	3.77	30	
Iodomethane	8.93	1.00	ug/L	10.0		89.3	56-147	7.07	30	
Methylene Chloride	8.52	1.00	ug/L	10.0		85.2	65-135	5.99	30	
Acrylonitrile	10.0	1.00	ug/L	10.0		100	64-134	0.64	30	
Carbon Disulfide	9.00	0.20	ug/L	10.0		90.0	78-125	4.65	30	
trans-1,2-Dichloroethene	9.07	0.20	ug/L	10.0		90.7	78-128	6.72	30	
Vinyl Acetate	8.80	0.20	ug/L	10.0		88.0	55-138	10.10	30	Q



Environmental Partners, Inc.
1180 NW Maple St., Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
08-Apr-2021 10:32

Volatile Organic Compounds - Quality Control

Batch BJC0833 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJC0833-BSD1)		Prepared: 30-Mar-2021 Analyzed: 30-Mar-2021 11:03								
1,1-Dichloroethane	10.5	0.20	ug/L	10.0		105	76-124	7.43	30	
2-Butanone	49.7	5.00	ug/L	50.0		99.3	61-140	10.20	30	
2,2-Dichloropropane	11.3	0.20	ug/L	10.0		113	66-147	5.14	30	
cis-1,2-Dichloroethene	10.4	0.20	ug/L	10.0		104	80-121	6.93	30	
Chloroform	10.3	0.20	ug/L	10.0		103	80-122	6.10	30	
Bromochloromethane	10.2	0.20	ug/L	10.0		102	80-121	6.71	30	
1,1,1-Trichloroethane	10.6	0.20	ug/L	10.0		106	79-123	5.74	30	
1,1-Dichloropropene	10.5	0.20	ug/L	10.0		105	80-127	4.74	30	
Carbon tetrachloride	10.3	0.20	ug/L	10.0		103	53-137	5.33	30	
1,2-Dichloroethane	10.1	0.20	ug/L	10.0		101	75-123	6.36	30	
Benzene	10.4	0.20	ug/L	10.0		104	80-120	5.84	30	
Trichloroethene	10.4	0.20	ug/L	10.0		104	80-120	6.56	30	
1,2-Dichloropropane	10.4	0.20	ug/L	10.0		104	80-120	7.65	30	
Bromodichloromethane	10.2	0.20	ug/L	10.0		102	80-121	7.64	30	
Dibromomethane	10.1	0.20	ug/L	10.0		101	80-120	7.42	30	
2-Chloroethyl vinyl ether	8.50	1.00	ug/L	10.0		85.0	64-120	9.87	30	Q
4-Methyl-2-Pentanone	40.0	5.00	ug/L	50.0		80.0	67-133	7.12	30	Q
cis-1,3-Dichloropropene	9.07	0.20	ug/L	10.0		90.7	80-124	4.72	30	
Toluene	10.1	0.20	ug/L	10.0		101	80-120	6.36	30	
trans-1,3-Dichloropropene	8.60	0.20	ug/L	10.0		86.0	71-127	6.78	30	
2-Hexanone	51.0	5.00	ug/L	50.0		102	69-133	7.81	30	
1,1,2-Trichloroethane	8.92	0.20	ug/L	10.0		89.2	80-121	7.07	30	
1,3-Dichloropropane	10.7	0.20	ug/L	10.0		107	80-120	6.16	30	
Tetrachloroethene	10.7	0.20	ug/L	10.0		107	80-120	5.18	30	
Dibromochloromethane	8.80	0.20	ug/L	10.0		88.0	65-135	5.84	30	
1,2-Dibromoethane	8.72	0.20	ug/L	10.0		87.2	80-121	7.57	30	
Chlorobenzene	10.4	0.20	ug/L	10.0		104	80-120	5.40	30	
Ethylbenzene	10.3	0.20	ug/L	10.0		103	80-120	4.81	30	
1,1,1,2-Tetrachloroethane	10.4	0.20	ug/L	10.0		104	80-120	4.73	30	
m,p-Xylene	21.5	0.40	ug/L	20.0		107	80-121	5.75	30	
o-Xylene	11.0	0.20	ug/L	10.0		110	80-121	7.46	30	
Xylenes, total	32.5	0.60	ug/L	30.0		108	76-127	6.32	30	
Styrene	9.53	0.20	ug/L	10.0		95.3	80-124	6.59	30	
Bromoform	8.16	0.20	ug/L	10.0		81.6	51-134	5.59	30	Q
1,1,2,2-Tetrachloroethane	10.3	0.20	ug/L	10.0		103	77-123	7.40	30	



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Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
08-Apr-2021 10:32

Volatile Organic Compounds - Quality Control

Batch BJC0833 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJC0833-BSD1)				Prepared: 30-Mar-2021 Analyzed: 30-Mar-2021 11:03						
1,2,3-Trichloropropane	9.87	0.50	ug/L	10.0		98.7	76-125	7.70	30	
trans-1,4-Dichloro 2-Butene	7.73	1.00	ug/L	10.0		77.3	55-129	8.29	30	Q
n-Propylbenzene	11.4	0.20	ug/L	10.0		114	78-130	5.96	30	
Bromobenzene	10.5	0.20	ug/L	10.0		105	80-120	6.09	30	
Isopropyl Benzene	12.5	0.20	ug/L	10.0		125	80-128	6.15	30	
2-Chlorotoluene	11.0	0.20	ug/L	10.0		110	78-122	6.64	30	
4-Chlorotoluene	11.2	0.20	ug/L	10.0		112	80-121	6.99	30	
t-Butylbenzene	11.9	0.20	ug/L	10.0		119	78-125	6.24	30	
1,3,5-Trimethylbenzene	12.1	0.20	ug/L	10.0		121	80-129	6.08	30	
1,2,4-Trimethylbenzene	11.0	0.20	ug/L	10.0		110	80-127	6.63	30	
s-Butylbenzene	12.0	0.20	ug/L	10.0		120	78-129	5.51	30	
4-Isopropyl Toluene	10.8	0.20	ug/L	10.0		108	79-130	5.51	30	
1,3-Dichlorobenzene	10.7	0.20	ug/L	10.0		107	80-120	6.76	30	
1,4-Dichlorobenzene	10.1	0.20	ug/L	10.0		101	80-120	5.89	30	
n-Butylbenzene	12.0	0.20	ug/L	10.0		120	74-129	4.86	30	
1,2-Dichlorobenzene	10.3	0.20	ug/L	10.0		103	80-120	6.26	30	
1,2-Dibromo-3-chloropropane	9.94	0.50	ug/L	10.0		99.4	62-123	10.10	30	
1,2,4-Trichlorobenzene	10.5	0.50	ug/L	10.0		105	64-124	6.28	30	
Hexachloro-1,3-Butadiene	10.5	0.50	ug/L	10.0		105	58-123	4.67	30	
Naphthalene	8.36	0.50	ug/L	10.0		83.6	50-134	8.53	30	Q
1,2,3-Trichlorobenzene	10.3	0.50	ug/L	10.0		103	49-133	6.66	30	
Dichlorodifluoromethane	8.13	0.20	ug/L	10.0		81.3	48-147	3.73	30	Q
Methyl tert-butyl Ether	9.90	0.50	ug/L	10.0		99.0	71-132	5.20	30	
2-Pentanone	38.6	5.00	ug/L	50.0		77.2	69-134	9.68	30	Q
Surrogate: 1,2-Dichloroethane-d4	4.93		ug/L	5.00		98.7	80-129			
Surrogate: Toluene-d8	5.02		ug/L	5.00		100	80-120			
Surrogate: 4-Bromofluorobenzene	5.09		ug/L	5.00		102	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	5.02		ug/L	5.00		100	80-120			



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Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
08-Apr-2021 10:32

Volatile Organic Compounds - SIM - Quality Control

Batch BJC0841 - 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 (BJC0841-BLK1)				Prepared: 30-Mar-2021 Analyzed: 30-Mar-2021 10:31						
Vinyl chloride	ND	20.0	ng/L							U
Surrogate: 1,2-Dichloroethane-d4	4850		ng/L	5000		97.1	80-129			
LCS (BJC0841-BS1)				Prepared: 30-Mar-2021 Analyzed: 30-Mar-2021 09:36						
Vinyl chloride	1980	20.0	ng/L	2000		98.9	62-141			
Surrogate: 1,2-Dichloroethane-d4	4760		ng/L	5000		95.2	80-129			
LCS Dup (BJC0841-BSD1)				Prepared: 30-Mar-2021 Analyzed: 30-Mar-2021 10:11						
Vinyl chloride	1810	20.0	ng/L	2000		90.3	62-141	9.07	30	
Surrogate: 1,2-Dichloroethane-d4	4230		ng/L	5000		84.7	80-129			



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Issaquah WA, 98027

Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
08-Apr-2021 10:32

Metals and Metallic Compounds - Quality Control

Batch BJC0863 - TWC EPA 3010A

Instrument: ICP2 Analyst: SKD

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0863-BLK1)		Prepared: 31-Mar-2021 Analyzed: 31-Mar-2021 20:05								
Calcium	ND	0.0500	mg/L							U
Potassium	ND	0.500	mg/L							U
Sodium	ND	0.500	mg/L							U

LCS (BJC0863-BS1)		Prepared: 31-Mar-2021 Analyzed: 31-Mar-2021 21:22								
Calcium	9.38	0.0500	mg/L	10.0		93.8	80-120			
Potassium	9.52	0.500	mg/L	10.0		95.2	80-120			
Sodium	9.78	0.500	mg/L	10.0		97.8	80-120			

Duplicate (BJC0863-DUP1)		Source: 21C0263-01		Prepared: 31-Mar-2021 Analyzed: 31-Mar-2021 21:09						
Calcium	10.7	0.0500	mg/L		10.6			0.69	20	
Potassium	0.559	0.500	mg/L		0.574			2.72	20	
Sodium	4.51	0.500	mg/L		4.47			0.77	20	

Matrix Spike (BJC0863-MS1)		Source: 21C0263-01		Prepared: 31-Mar-2021 Analyzed: 31-Mar-2021 21:15						
Calcium	20.7	0.0500	mg/L	10.0	10.6	101	75-125			
Potassium	10.4	0.500	mg/L	10.0	0.574	98.3	75-125			
Sodium	15.2	0.500	mg/L	10.0	4.47	108	75-125			

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

Matrix Spike Dup (BJC0863-MSD1)		Source: 21C0263-01		Prepared: 31-Mar-2021 Analyzed: 31-Mar-2021 21:17						
Calcium	21.0	0.0500	mg/L	10.0	10.6	104	75-125	1.54	20	
Potassium	10.4	0.500	mg/L	10.0	0.574	98.2	75-125	0.03	20	
Sodium	15.3	0.500	mg/L	10.0	4.47	109	75-125	0.70	20	

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



Environmental Partners, Inc. 1180 NW Maple St., Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 429487 Project Manager: Doug Kunkel	Reported: 08-Apr-2021 10:32
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Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJC0864 - RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0864-BLK1)						Prepared: 31-Mar-2021 Analyzed: 01-Apr-2021 03:48					
Arsenic, Dissolved	75a	ND	0.0400	ug/L							U
LCS (BJC0864-BS1)						Prepared: 31-Mar-2021 Analyzed: 01-Apr-2021 03:52					
Arsenic, Dissolved	75a	4.58	0.0400	ug/L	5.00		91.7	80-120			



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Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
08-Apr-2021 10:32

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJC0866 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0866-BLK1)						Prepared: 31-Mar-2021 Analyzed: 02-Apr-2021 16:20					
Iron, Dissolved	54	ND	36.0	ug/L							U
Iron, Dissolved	57	ND	20.0	ug/L							U
Zinc, Dissolved	66	ND	5.00	ug/L							U
Zinc, Dissolved	67	ND	4.00	ug/L							U

LCS (BJC0866-BS1)						Prepared: 31-Mar-2021 Analyzed: 02-Apr-2021 16:24					
Iron, Dissolved	54	4960	36.0	ug/L	5000		99.2	80-120			
Iron, Dissolved	57	5230	20.0	ug/L	5000		105	80-120			
Zinc, Dissolved	66	85.0	5.00	ug/L	80.0		106	80-120			
Zinc, Dissolved	67	77.4	4.00	ug/L	80.0		96.8	80-120			

Duplicate (BJC0866-DUP1)						Source: 21C0263-07 Prepared: 31-Mar-2021 Analyzed: 05-Apr-2021 18:03					
Iron, Dissolved	54	ND	36.0	ug/L		159					*, L, U
Zinc, Dissolved	66	ND	5.00	ug/L		ND					U

Matrix Spike (BJC0866-MS1)						Source: 21C0263-07 Prepared: 31-Mar-2021 Analyzed: 05-Apr-2021 18:08					
Iron, Dissolved	54	4640	36.0	ug/L	5000	159	89.5	75-125			
Zinc, Dissolved	66	79.0	5.00	ug/L	80.0	ND	98.7	75-125			

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

Matrix Spike Dup (BJC0866-MSD1)						Source: 21C0263-07 Prepared: 31-Mar-2021 Analyzed: 05-Apr-2021 18:14					
Iron, Dissolved	54	4760	36.0	ug/L	5000	159	92.1	75-125	2.72	20	
Zinc, Dissolved	66	78.8	5.00	ug/L	80.0	ND	98.5	75-125	0.20	20	

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



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Project Number: 429487
Project Manager: Doug Kunkel

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Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJC0892 - WMN (No Prep)

Instrument: ICP2 Analyst: SKD

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0892-BLK1)				Prepared: 31-Mar-2021 Analyzed: 31-Mar-2021 21:34						
Barium, Dissolved	ND	0.0060	mg/L							U
Manganese, Dissolved	ND	0.0040	mg/L							U
LCS (BJC0892-BS1)				Prepared: 31-Mar-2021 Analyzed: 31-Mar-2021 21:57						
Barium, Dissolved	2.03	0.0060	mg/L	2.00		102	80-120			
Manganese, Dissolved	0.502	0.0040	mg/L	0.500		100	80-120			
Duplicate (BJC0892-DUP1)				Source: 21C0263-12 Prepared: 31-Mar-2021 Analyzed: 31-Mar-2021 22:30						
Barium, Dissolved	0.0066	0.0060	mg/L		0.0085			25.20	20	L
Manganese, Dissolved	3.53	0.0040	mg/L		3.49			1.08	20	
Matrix Spike (BJC0892-MS1)				Source: 21C0263-12 Prepared: 31-Mar-2021 Analyzed: 31-Mar-2021 22:35						
Barium, Dissolved	1.96	0.0061	mg/L	2.00	0.0085	97.5	75-125			
Manganese, Dissolved	4.03	0.0040	mg/L	0.500	3.49	109	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike Dup (BJC0892-MSD1)				Source: 21C0263-12 Prepared: 31-Mar-2021 Analyzed: 31-Mar-2021 22:40						
Barium, Dissolved	1.99	0.0061	mg/L	2.00	0.0085	99.3	75-125	1.82	20	
Manganese, Dissolved	4.03	0.0040	mg/L	0.500	3.49	108	75-125	0.06	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										



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Wet Chemistry - Quality Control

Batch BJC0512 - No Prep Wet Chem

Instrument: Accumet AB150 Analyst: BF

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJC0512-BS1)						Prepared: 18-Mar-2021 Analyzed: 18-Mar-2021 17:30					
pH	6.97	0.01	0.01	pH Units	7.00		99.6	99.2-100.8			
Duplicate (BJC0512-DUP1)						Source: 21C0263-01 Prepared: 18-Mar-2021 Analyzed: 18-Mar-2021 17:30					
pH	6.05	0.01	0.01	pH Units		6.05			0.00		H



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Wet Chemistry - Quality Control

Batch BJC0554 - No Prep Wet Chem

Instrument: LCHAT2 Analyst: LRB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0554-BLK1)						Prepared: 19-Mar-2021 Analyzed: 19-Mar-2021 17:12					
Nitrite-N	ND	0.010	0.010	mg/L							U
LCS (BJC0554-BS1)						Prepared: 19-Mar-2021 Analyzed: 19-Mar-2021 17:13					
Nitrite-N	0.506	0.010	0.010	mg/L	0.500		101	90-110			
Duplicate (BJC0554-DUP1)						Source: 21C0263-01 Prepared: 19-Mar-2021 Analyzed: 19-Mar-2021 17:16					
Nitrite-N	ND	0.010	0.010	mg/L		ND					U
Matrix Spike (BJC0554-MS1)						Source: 21C0263-01 Prepared: 19-Mar-2021 Analyzed: 19-Mar-2021 17:17					
Nitrite-N	0.499	0.010	0.010	mg/L	0.500	ND	99.8	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJC0554-MSD1)						Source: 21C0263-01 Prepared: 19-Mar-2021 Analyzed: 19-Mar-2021 17:18					
Nitrite-N	0.506	0.010	0.010	mg/L	0.500	ND	101	75-125	1.39	200	

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



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Wet Chemistry - Quality Control

Batch BJC0586 - No Prep Wet Chem

Instrument: TOC-LCSH Analyst: WCW

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0586-BLK1)						Prepared: 22-Mar-2021 Analyzed: 22-Mar-2021 15:57					
Total Organic Carbon	ND	0.50	0.50	mg/L							U
LCS (BJC0586-BS1)						Prepared: 22-Mar-2021 Analyzed: 22-Mar-2021 16:15					
Total Organic Carbon	18.73	0.50	0.50	mg/L	20.00		93.7	90-110			
Duplicate (BJC0586-DUP2)						Source: 21C0263-01 Prepared: 22-Mar-2021 Analyzed: 22-Mar-2021 21:32					
Total Organic Carbon	ND	0.50	0.50	mg/L		ND					U
Matrix Spike (BJC0586-MS4)						Source: 21C0263-01 Prepared: 22-Mar-2021 Analyzed: 24-Mar-2021 13:33					
Total Organic Carbon	13.95	0.50	0.50	mg/L	20.00	ND	69.8	75-125			*

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

Matrix Spike Dup (BJC0586-MSD4)						Source: 21C0263-01 Prepared: 22-Mar-2021 Analyzed: 24-Mar-2021 13:52					
Total Organic Carbon	14.34	0.50	0.50	mg/L	20.00	ND	71.7	75-125	2.76	20	*

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



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Wet Chemistry - Quality Control

Batch BJC0624 - No Prep Wet Chem

Instrument: Accumet AB150 Analyst: UW

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0624-BLK1)						Prepared: 23-Mar-2021 Analyzed: 23-Mar-2021 11:24					
Alkalinity, Total	ND	1.00	1.00	mg/L CaCO3							U
Reference (BJC0624-SRM1)						Prepared: 23-Mar-2021 Analyzed: 23-Mar-2021 11:24					
Alkalinity, Total	128	1.00	1.00	mg/L CaCO3	127		101	85.04-114.96			



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Wet Chemistry - Quality Control

Batch BJC0843 - No Prep Wet Chem

Instrument: LCHAT1 Analyst: LRB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0843-BLK1)						Prepared: 30-Mar-2021 Analyzed: 30-Mar-2021 14:25					
Sulfate	ND	2.00	2.00	mg/L							U
LCS (BJC0843-BS1)						Prepared: 30-Mar-2021 Analyzed: 30-Mar-2021 14:27					
Sulfate	15.1	2.00	2.00	mg/L	15.0		101	90-110			
Duplicate (BJC0843-DUP1)						Source: 21C0263-01 Prepared: 30-Mar-2021 Analyzed: 30-Mar-2021 14:29					
Sulfate	4.42	2.00	2.00	mg/L		4.46			0.90	20	
Matrix Spike (BJC0843-MS1)						Source: 21C0263-01 Prepared: 30-Mar-2021 Analyzed: 30-Mar-2021 14:30					
Sulfate	19.5	2.00	2.00	mg/L	15.0	4.46	100	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJC0843-MSD1)						Source: 21C0263-01 Prepared: 30-Mar-2021 Analyzed: 30-Mar-2021 14:31					
Sulfate	19.6	2.00	2.00	mg/L	15.0	4.46	101	75-125	0.51	20	

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



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Wet Chemistry - Quality Control

Batch BJC0897 - No Prep Wet Chem

Instrument: LCHAT2 Analyst: KOTT

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0897-BLK1)						Prepared: 31-Mar-2021 Analyzed: 31-Mar-2021 19:22					
Nitrate + Nitrite as N	ND	0.010	0.010	mg/L							U
LCS (BJC0897-BS1)						Prepared: 31-Mar-2021 Analyzed: 31-Mar-2021 19:29					
Nitrate + Nitrite as N	0.520	0.010	0.010	mg/L	0.500		104	90-110			
Duplicate (BJC0897-DUP2)						Source: 21C0263-02RE1 Prepared: 31-Mar-2021 Analyzed: 31-Mar-2021 20:38					
Nitrate + Nitrite as N	2.02	0.100	0.100	mg/L		2.02			0.00		D
Matrix Spike (BJC0897-MS1)						Source: 21C0263-02RE1 Prepared: 31-Mar-2021 Analyzed: 31-Mar-2021 19:35					
Nitrate + Nitrite as N	2.43	0.100	0.100	mg/L	0.500	2.02	82.0	75-125			D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJC0897-MSD1)						Source: 21C0263-02RE1 Prepared: 31-Mar-2021 Analyzed: 31-Mar-2021 19:38					
Nitrate + Nitrite as N	2.44	0.100	0.100	mg/L	0.500	2.02	84.0	75-125	0.41	20	D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											



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Wet Chemistry - Quality Control

Batch BJD0026 - No Prep Wet Chem

Instrument: UV1800-2 Analyst: BF

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJD0026-BLK1)						Prepared: 01-Apr-2021 Analyzed: 02-Apr-2021 10:21					
COD	ND	10.0	10.0	mg/L							U
LCS (BJD0026-BS1)						Prepared: 01-Apr-2021 Analyzed: 02-Apr-2021 10:22					
COD	105	10.0	10.0	mg/L	100		105	90-110			
Duplicate (BJD0026-DUP1)						Source: 21C0263-03 Prepared: 01-Apr-2021 Analyzed: 02-Apr-2021 10:24					
COD	ND	10.0	10.0	mg/L		10.2					U
Matrix Spike (BJD0026-MS1)						Source: 21C0263-03 Prepared: 01-Apr-2021 Analyzed: 02-Apr-2021 10:25					
COD	105	10.0	20.0	mg/L	100	10.2	94.9	90-110			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJD0026-MSD1)						Source: 21C0263-03 Prepared: 01-Apr-2021 Analyzed: 02-Apr-2021 10:25					
COD	101	10.0	20.0	mg/L	100	10.2	90.6	90-110	4.12	10	

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



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Wet Chemistry - Quality Control

Batch BJD0027 - No Prep Wet Chem

Instrument: LCHAT2 Analyst: KOTT

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJD0027-BLK1)						Prepared: 01-Apr-2021 Analyzed: 01-Apr-2021 16:38					
Ammonia-N	ND	0.040	0.040	mg/L							U
LCS (BJD0027-BS1)						Prepared: 01-Apr-2021 Analyzed: 01-Apr-2021 16:39					
Ammonia-N	0.514	0.040	0.040	mg/L	0.500		103	90-110			
Duplicate (BJD0027-DUP1)						Source: 21C0263-02 Prepared: 01-Apr-2021 Analyzed: 01-Apr-2021 16:43					
Ammonia-N	ND	0.040	0.040	mg/L		ND					U
Matrix Spike (BJD0027-MS1)						Source: 21C0263-02 Prepared: 01-Apr-2021 Analyzed: 01-Apr-2021 16:44					
Ammonia-N	0.502	0.040	0.040	mg/L	0.500	ND	100	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJD0027-MSD1)						Source: 21C0263-02 Prepared: 01-Apr-2021 Analyzed: 01-Apr-2021 16:45					
Ammonia-N	0.504	0.040	0.040	mg/L	0.500	ND	101	75-125	0.40	200	

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



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Wet Chemistry - Quality Control

Batch BJD0038 - No Prep - Volatiles

Instrument: LCHAT1 Analyst: LRB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJD0038-BLK1)						Prepared: 01-Apr-2021 Analyzed: 01-Apr-2021 17:14					
Chloride	ND	1.00	1.00	mg/L							U
LCS (BJD0038-BS1)						Prepared: 01-Apr-2021 Analyzed: 01-Apr-2021 17:15					
Chloride	4.95	1.00	1.00	mg/L	5.00		99.0	90-110			
Duplicate (BJD0038-DUP1)						Source: 21C0263-01 Prepared: 01-Apr-2021 Analyzed: 01-Apr-2021 17:18					
Chloride	4.17	1.00	1.00	mg/L		4.15			0.48	20	
Matrix Spike (BJD0038-MS1)						Source: 21C0263-01 Prepared: 01-Apr-2021 Analyzed: 01-Apr-2021 17:19					
Chloride	9.48	1.00	1.00	mg/L	5.00	4.15	107	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJD0038-MSD1)						Source: 21C0263-01 Prepared: 01-Apr-2021 Analyzed: 01-Apr-2021 17:20					
Chloride	9.54	1.00	1.00	mg/L	5.00	4.15	108	75-125	0.63	20	

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



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Microbiology - Quality Control

Batch BJC0511 - No Prep Wet Chem

Instrument: N/A

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0511-BLK1)						Prepared: 18-Mar-2021 Analyzed: 19-Mar-2021 15:55					
Total Coliforms	ND	1	1	CFU/100 ml							U



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Certified Analyses included in this Report

Analyte	Certifications
EPA 200.8 in Water	
Iron-54	WADOE, DoD-ELAP
Iron-54	NELAP, DoD-ELAP
Iron-54	NELAP, WADOE, DoD-ELAP
Iron-54	NELAP, WADOE, DoD-ELAP
Iron-57	NELAP, WADOE, DoD-ELAP
Iron-57	WADOE, DoD-ELAP
Iron-57	NELAP, DoD-ELAP
Iron-57	NELAP, WADOE, DoD-ELAP
EPA 200.8 UCT-KED in Water	
Arsenic-75a	NELAP, WADOE, WA-DW, DoD-ELAP
Arsenic-75a	NELAP, WADOE, DoD-ELAP
Arsenic-75a	NELAP, WA-DW, DoD-ELAP
Arsenic-75a	WADOE, WA-DW, DoD-ELAP
Zinc-66	NELAP, WADOE, WA-DW, DoD-ELAP
Zinc-66	WADOE, WA-DW, DoD-ELAP
Zinc-66	NELAP, WA-DW, DoD-ELAP
Zinc-66	NELAP, WADOE, DoD-ELAP
Zinc-67	NELAP, WA-DW, DoD-ELAP
Zinc-67	WADOE, WA-DW, DoD-ELAP
Zinc-67	NELAP, WADOE, DoD-ELAP
Zinc-67	NELAP, WADOE, WA-DW, DoD-ELAP
EPA 353.2 in Water	
Nitrate + Nitrite as N	NELAP, DoD-ELAP, WADOE
Nitrate + Nitrite as N	NELAP, DoD-ELAP
Nitrate + Nitrite as N	DoD-ELAP, WADOE
Nitrate + Nitrite as N	NELAP, DoD-ELAP, WADOE
Nitrite-N	WADOE, NELAP, DoD-ELAP
Nitrite-N	WADOE, NELAP, DoD-ELAP
Nitrite-N	NELAP, DoD-ELAP
Nitrite-N	WADOE, DoD-ELAP
EPA 375.2 in Water	
Sulfate	NELAP
Sulfate	WADOE
Sulfate	WADOE, NELAP



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Sulfate

WADOE,NELAP

EPA 410.4 in Water

COD	DoD-ELAP,NELAP,WADOE
COD	DoD-ELAP,NELAP,WADOE
COD	DoD-ELAP,NELAP
COD	DoD-ELAP,WADOE

EPA 6010D in Water

Calcium	NELAP,DoD-ELAP
Calcium	WADOE,DoD-ELAP
Calcium	WADOE,NELAP,DoD-ELAP
Calcium	WADOE,NELAP,DoD-ELAP
Potassium	WADOE,NELAP,DoD-ELAP
Potassium	WADOE,NELAP,DoD-ELAP
Potassium	WADOE,DoD-ELAP
Potassium	NELAP,DoD-ELAP
Sodium	DoD-ELAP,WADOE,NELAP
Sodium	DoD-ELAP,NELAP
Sodium	DoD-ELAP,WADOE
Sodium	DoD-ELAP,WADOE,NELAP
Sodium-1	DoD-ELAP
Sodium-1	DoD-ELAP
Sodium-1	DoD-ELAP
Sodium-1	DoD-ELAP
Barium	NELAP,DoD-ELAP
Barium	WADOE,NELAP,DoD-ELAP
Barium	WADOE,DoD-ELAP
Barium	WADOE,NELAP,DoD-ELAP
Manganese	WADOE,NELAP,DoD-ELAP
Manganese	WADOE,DoD-ELAP
Manganese	NELAP,DoD-ELAP
Manganese	WADOE,NELAP,DoD-ELAP

EPA 8260D in Water

Chloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloromethane	DoD-ELAP,ADEC,NELAP,CALAP
Chloromethane	DoD-ELAP,ADEC,CALAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,CALAP



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Vinyl Chloride	DoD-ELAP,ADEC,CALAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromomethane	DoD-ELAP,ADEC,CALAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,CALAP
Chloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloroethane	DoD-ELAP,ADEC,CALAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,CALAP
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,CALAP
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,CALAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acrolein	DoD-ELAP,CALAP,WADOE
Acrolein	DoD-ELAP,NELAP,WADOE
Acrolein	DoD-ELAP,NELAP,CALAP
Acrolein	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,WADOE
Acetone	DoD-ELAP,ADEC,CALAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,CALAP
Acetone	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,CALAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Iodomethane	DoD-ELAP,NELAP,WADOE
Iodomethane	DoD-ELAP,CALAP,WADOE
Iodomethane	DoD-ELAP,NELAP,CALAP,WADOE
Iodomethane	DoD-ELAP,NELAP,CALAP
Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,CALAP
Methylene Chloride	DoD-ELAP,ADEC,CALAP,WADOE
Acrylonitrile	DoD-ELAP,CALAP,WADOE



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



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1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP
1,1-Dichloropropene	DoD-ELAP,ADEC,CALAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,CALAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,CALAP
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP
Benzene	DoD-ELAP,ADEC,NELAP,CALAP
Benzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Benzene	DoD-ELAP,ADEC,CALAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,CALAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,CALAP
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,CALAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,CALAP
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,CALAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,CALAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,CALAP
Dibromomethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,CALAP



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2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,CALAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,CALAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,CALAP
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,CALAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,CALAP,WADOE
Toluene	DoD-ELAP,ADEC,CALAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,CALAP
Toluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,CALAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
2-Hexanone	DoD-ELAP,CALAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,CALAP
2-Hexanone	DoD-ELAP,NELAP,CALAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP
1,3-Dichloropropane	DoD-ELAP,ADEC,CALAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,CALAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,CALAP
Dibromochloromethane	DoD-ELAP,ADEC,CALAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,CALAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,CALAP



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1,2-Dibromoethane	DoD-ELAP,NELAP,CALAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
Chlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,CALAP
Ethylbenzene	DoD-ELAP,ADEC,CALAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,CALAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,CALAP
m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,CALAP
o-Xylene	DoD-ELAP,ADEC,CALAP,WADOE
Styrene	DoD-ELAP,NELAP,CALAP
Styrene	DoD-ELAP,NELAP,WADOE
Styrene	DoD-ELAP,NELAP,CALAP,WADOE
Styrene	DoD-ELAP,CALAP,WADOE
Bromoform	DoD-ELAP,NELAP,CALAP,WADOE
Bromoform	DoD-ELAP,NELAP,CALAP
Bromoform	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,CALAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,CALAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,CALAP
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE



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trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,CALAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,CALAP
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,CALAP
n-Propylbenzene	DoD-ELAP,CALAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,CALAP,WADOE
Bromobenzene	DoD-ELAP,CALAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,CALAP
Isopropyl Benzene	DoD-ELAP,NELAP,CALAP
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,CALAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,CALAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP
2-Chlorotoluene	DoD-ELAP,ADEC,CALAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP
4-Chlorotoluene	DoD-ELAP,ADEC,CALAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,CALAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,CALAP
t-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,CALAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,CALAP
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,CALAP
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,CALAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,CALAP
s-Butylbenzene	DoD-ELAP,CALAP,WADOE



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4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,CALAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,CALAP
4-Isopropyl Toluene	DoD-ELAP,CALAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,CALAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,CALAP
n-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,2-Dichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,CALAP
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,CALAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,CALAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,CALAP
Naphthalene	DoD-ELAP,ADEC,CALAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,CALAP
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE



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

EPA 8260D-SIM in Water

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



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

EPA 9060A in Water

Total Organic Carbon	DoD-ELAP,WADOE,NELAP
Total Organic Carbon	DoD-ELAP,WADOE,NELAP
Total Organic Carbon	DoD-ELAP,NELAP
Total Organic Carbon	DoD-ELAP,WADOE

SM 2320 B-97 in Water

Alkalinity, Bicarbonate	NELAP,WA-DW,DoD-ELAP
Alkalinity, Bicarbonate	NELAP,WADOE,WA-DW,DoD-ELAP
Alkalinity, Bicarbonate	WADOE,WA-DW,DoD-ELAP
Alkalinity, Bicarbonate	NELAP,WADOE,DoD-ELAP
Alkalinity, Carbonate	WADOE,DoD-ELAP,NELAP
Alkalinity, Carbonate	WADOE,WA-DW,DoD-ELAP
Alkalinity, Carbonate	WADOE,WA-DW,DoD-ELAP,NELAP
Alkalinity, Carbonate	WA-DW,DoD-ELAP,NELAP
Alkalinity, Hydroxide	WADOE,WA-DW,DoD-ELAP,NELAP
Alkalinity, Hydroxide	WADOE,WA-DW,DoD-ELAP
Alkalinity, Hydroxide	WA-DW,DoD-ELAP,NELAP
Alkalinity, Hydroxide	WADOE,DoD-ELAP,NELAP
Alkalinity, Total	DoD-ELAP,WA-DW,NELAP
Alkalinity, Total	DoD-ELAP,WADOE,NELAP



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Alkalinity, Total DoD-ELAP,WADOE,WA-DW
Alkalinity, Total DoD-ELAP,WADOE,WA-DW,NELAP

SM 4500-H+ B-00 in Water

pH NELAP,WA-DW
pH WADOE,WA-DW
pH WADOE,NELAP,WA-DW
pH WADOE,NELAP

SM 4500-NH3 H-97 in Water

Ammonia-N DoD-ELAP,NELAP
Ammonia-N WADOE,DoD-ELAP
Ammonia-N WADOE,DoD-ELAP,NELAP
Ammonia-N WADOE,DoD-ELAP,NELAP

SM 9222B in Water

Total Coliforms WADOE
Total Coliforms
Total Coliforms WADOE
Total Coliforms WADOE

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2023
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	02/28/2022



Environmental Partners, Inc.
1180 NW Maple St., Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
08-Apr-2021 10:32

Notes and Definitions

- * Flagged value is not within established control limits.
- B This analyte was detected in the method blank.
- D The reported value is from a dilution
- E The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
- H Hold time violation - Hold time was exceeded.
- 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
- 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.



22 July 2021

Doug Kunkel
Environmental Partners, Inc.
1180 NW Maple St., Suite 310
Issaquah, WA 98027

RE: Olalla Landfill

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.

<u>Associated Work Order(s)</u>	<u>Associated SDG ID(s)</u>
21F0317	N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

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

Analytical Resources, Inc.

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)
 www.arilabs.com

ARI Assigned Number: <i>21F0317</i>	Turn-around Requested: <i>Standard</i>	Page: <i>1</i> of <i>1</i>
ARI Client Company: <i>TRC</i>	Phone:	Date: <i>6/18/21</i>
Client Contact: <i>Doug Kunkel dkunkel@trccompanies.com</i>		Ice Present? <i>NO</i>
Client Project Name: <i>Ollala</i>		No. of Coolers: <i>2</i>
Client Project #: <i>382595</i>	Samplers: <i>Wesley Weisberg</i>	Cooler Temps: <i>9.1 10.3</i>

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested							Notes/Comments
					VOC & Vinyl chloride by Sing	Disolved & Total metals Pb, Fe, Zn, Cu, Mn, Ni, Cr, Cd	Alkalinity, carbonate, bicarbonate	Nitrate, Nitrite, chloride, sulfate, pH	TOC, COD	ammonia	Total carbon	
<i>MW-1</i>	<i>6/18/21</i>	<i>1055</i>	<i>Water</i>	<i>11</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>		
<i>MW-3</i>	<i>6/18/21</i>	<i>1220</i>	<i>Water</i>	<i>11</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>		
<i>MW-10</i>	<i>6/18/21</i>	<i>1325</i>	<i>Water</i>	<i>11</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>		
<i>MW-6</i>	<i>6/18/21</i>	<i>1409</i>	<i>Water</i>	<i>11</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>		
<i>MW-17</i>	<i>6/18/21</i>	<i>1420</i>	<i>Water</i>	<i>11</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>		
<i>MW-8</i>	<i>6/18/21</i>	<i>1575</i>	<i>Water</i>	<i>11</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>		
Comments/Special Instructions	Relinquished by: (Signature) <i>[Signature]</i>	Received by: (Signature) <i>[Signature]</i>		Relinquished by: (Signature)	Received by: (Signature)							
	Printed Name: <i>Wesley Weisberg</i>	Printed Name: <i>Jacob [Signature]</i>		Printed Name:	Printed Name:							
	Company: <i>TRC</i>	Company: <i>AR</i>		Company:	Company:							
	Date & Time: <i>6/18/21 1647</i>	Date & Time: <i>06/18/2021 1647</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: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.



Environmental Partners, Inc.
1180 NW Maple St., Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: 382595
Project Manager: Doug Kunkel

Reported:
22-Jul-2021 19:49

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	21F0317-01	Water	18-Jun-2021 10:55	18-Jun-2021 16:47
MW-1	21F0317-02	Water	18-Jun-2021 10:55	18-Jun-2021 16:47
MW-3	21F0317-03	Water	18-Jun-2021 12:20	18-Jun-2021 16:47
MW-3	21F0317-04	Water	18-Jun-2021 12:20	18-Jun-2021 16:47
MW-10	21F0317-05	Water	18-Jun-2021 13:25	18-Jun-2021 16:47
MW-10	21F0317-06	Water	18-Jun-2021 13:25	18-Jun-2021 16:47
MW-6	21F0317-07	Water	18-Jun-2021 14:09	18-Jun-2021 16:47
MW-6	21F0317-08	Water	18-Jun-2021 14:09	18-Jun-2021 16:47
MW-17	21F0317-09	Water	18-Jun-2021 14:20	18-Jun-2021 16:47
MW-17	21F0317-10	Water	18-Jun-2021 14:20	18-Jun-2021 16:47
MW-8	21F0317-11	Water	18-Jun-2021 15:15	18-Jun-2021 16:47
MW-8	21F0317-12	Water	18-Jun-2021 15:15	18-Jun-2021 16:47
Trip Blanks	21F0317-13	Water	18-Jun-2021 10:55	18-Jun-2021 16:47



Environmental Partners, Inc.
1180 NW Maple St., Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: 382595
Project Manager: Doug Kunkel

Reported:
22-Jul-2021 19:49

Work Order Case Narrative

Volatiles - EPA Method SW8260D

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

Initial and continuing calibrations were within method requirements with the exception of all associated "Q" flagged analytes which are out of control high in the CCAL. All associated samples that contain analyte have been flagged with a "Q" qualifier.

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 200.8 and 6010D

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.



Environmental Partners, Inc.
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Project: Olalla Landfill
Project Number: 382595
Project Manager: Doug Kunkel

Reported:
22-Jul-2021 19:49

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

Wet Chemistry

The sample(s) were prepared and analyzed within the recommended holding times with the exception of pH which was sent to the lab outside of the holding time.

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 reference material (SRM) percent recoveries were within control limits.

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



WORK ORDER

21F0317

Client: Environmental Partners, Inc.

Project Manager: Kelly Bottem

Project: Olalla Landfill

Project Number: 382595

Preservation Confirmation

Container ID	Container Type	pH	
21F0317-01 A	Large OJ, 1000 mL	7.2	Pass (CF)
21F0317-01 B	Small OJ, 500 mL		
21F0317-01 C	Corning Plastic, 125 mL, Na2S2O3		
21F0317-01 D	HDPE NM, 250mL H2SO4	<2	Pass (CP)
21F0317-01 E	HDPE NM, 500 mL, 1:1 HNO3	<2	P
21F0317-01 F	VOA Vial, Clear, 40 mL, HCL		
21F0317-01 G	VOA Vial, Clear, 40 mL, HCL		
21F0317-01 H	VOA Vial, Clear, 40 mL, HCL		
21F0317-01 I	VOA Vial, Clear, 40 mL, HCL		
21F0317-01 J	VOA Vial, Clear, 40 mL, HCL		
21F0317-02 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
21F0317-03 A	Large OJ, 1000 mL	7.2	F
21F0317-03 B	Small OJ, 500 mL		
21F0317-03 C	Corning Plastic, 125 mL, Na2S2O3		
21F0317-03 D	HDPE NM, 250mL H2SO4	<2	P
21F0317-03 E	HDPE NM, 500 mL, 1:1 HNO3	<2	P
21F0317-03 F	VOA Vial, Clear, 40 mL, HCL		
21F0317-03 G	VOA Vial, Clear, 40 mL, HCL		
21F0317-03 H	VOA Vial, Clear, 40 mL, HCL		
21F0317-03 I	VOA Vial, Clear, 40 mL, HCL		
21F0317-03 J	VOA Vial, Clear, 40 mL, HCL		
21F0317-04 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
21F0317-05 A	Large OJ, 1000 mL	7.2	F
21F0317-05 B	Small OJ, 500 mL		
21F0317-05 C	Corning Plastic, 125 mL, Na2S2O3		
21F0317-05 D	HDPE NM, 250mL H2SO4	<2	P
21F0317-05 E	HDPE NM, 500 mL, 1:1 HNO3	<2	P
21F0317-05 F	VOA Vial, Clear, 40 mL, HCL		
21F0317-05 G	VOA Vial, Clear, 40 mL, HCL		
21F0317-05 H	VOA Vial, Clear, 40 mL, HCL		
21F0317-05 I	VOA Vial, Clear, 40 mL, HCL		
21F0317-05 J	VOA Vial, Clear, 40 mL, HCL		
21F0317-06 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
21F0317-07 A	Large OJ, 1000 mL	7.2	F
21F0317-07 B	Small OJ, 500 mL		



WORK ORDER

21F0317

Client: Environmental Partners, Inc.	Project Manager: Kelly Bottem
Project: Olalla Landfill	Project Number: 382595

21F0317-07 C	Corning Plastic, 125 mL, Na2S2O3		
21F0317-07 D	HDPE NM, 250mL H2SO4	↵	Pass (P)
21F0317-07 E	HDPE NM, 500 mL, 1:1 HNO3	↵	P
21F0317-07 F	VOA Vial, Clear, 40 mL, HCL		
21F0317-07 G	VOA Vial, Clear, 40 mL, HCL		
21F0317-07 H	VOA Vial, Clear, 40 mL, HCL		
21F0317-07 I	VOA Vial, Clear, 40 mL, HCL		
21F0317-07 J	VOA Vial, Clear, 40 mL, HCL		
21F0317-08 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	↵	P
21F0317-09 A	Large OJ, 1000 mL	↵	Fail (F)
21F0317-09 B	Small OJ, 500 mL		
21F0317-09 C	Corning Plastic, 125 mL, Na2S2O3		
21F0317-09 D	HDPE NM, 250mL H2SO4	↵	P
21F0317-09 E	HDPE NM, 500 mL, 1:1 HNO3	↵	P
21F0317-09 F	VOA Vial, Clear, 40 mL, HCL		
21F0317-09 G	VOA Vial, Clear, 40 mL, HCL		
21F0317-09 H	VOA Vial, Clear, 40 mL, HCL		
21F0317-09 I	VOA Vial, Clear, 40 mL, HCL		
21F0317-09 J	VOA Vial, Clear, 40 mL, HCL		
21F0317-10 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	↵	P
21F0317-11 A	Large OJ, 1000 mL	↵	F
21F0317-11 B	Small OJ, 500 mL		
21F0317-11 C	Corning Plastic, 125 mL, Na2S2O3		
21F0317-11 D	HDPE NM, 250mL H2SO4	↵	P
21F0317-11 E	HDPE NM, 500 mL, 1:1 HNO3	↵	P
21F0317-11 F	VOA Vial, Clear, 40 mL, HCL		
21F0317-11 G	VOA Vial, Clear, 40 mL, HCL		
21F0317-11 H	VOA Vial, Clear, 40 mL, HCL		
21F0317-11 I	VOA Vial, Clear, 40 mL, HCL		
21F0317-11 J	VOA Vial, Clear, 40 mL, HCL		
21F0317-12 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	↵	P
21F0317-13 A	VOA Vial, Clear, 40 mL, HCL		
21F0317-13 B	VOA Vial, Clear, 40 mL, HCL		
21F0317-13 C	VOA Vial, Clear, 40 mL, HCL		

 JOW
Preservation Confirmed By

 06/18/2021
Date

Reviewed By _____ Date _____



Cooler Receipt Form

ARI Client: TRC

Project Name: dlala

COC No(s): _____ (NA)

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

Assigned ARI Job No: 21F0317

Tracking No: _____ (NA)

Preliminary Examination Phase:

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

Were custody papers included with the cooler? YES NO

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

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

Time 1647

9.1 10.3

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

Temp Gun ID#: DOO 5206

Cooler Accepted by: JSW

Date: 06/18/2001

Time: 1647

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 JSW YES NO

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

Date VOC Trip Blank was made at ARI..... NA 06/18/2001

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

Samples Logged by: JSW

Date: 06/18/2001

Time: 1707

Labels checked by: JSW

**** 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:
Trip blanks were not listed on Clients COC, logged as final sample in work order.

By: JSW

Date: 06/18/2001



Environmental Partners, Inc.
1180 NW Maple St., Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: 382595
Project Manager: Doug Kunkel

Reported:
22-Jul-2021 19:49

MW-1
21F0317-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 06/18/2021 10:55

Instrument: NT2 Analyst: PKC

Analyzed: 06/23/2021 18:07

Sample Preparation:

Preparation Method: EPA 5030C (Purge and Trap)

Extract ID: 21F0317-01 F

Preparation Batch: BJF0536

Sample Size: 10 mL

Prepared: 06/23/2021

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



Environmental Partners, Inc.
1180 NW Maple St., Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: 382595
Project Manager: Doug Kunkel

Reported:
22-Jul-2021 19:49

MW-1
21F0317-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 06/18/2021 10:55

Instrument: NT2 Analyst: PKC

Analyzed: 06/23/2021 18:07

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.50	ND	ug/L	U



Environmental Partners, Inc.
1180 NW Maple St., Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: 382595
Project Manager: Doug Kunkel

Reported:
22-Jul-2021 19:49

MW-1
21F0317-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 06/18/2021 10:55

Instrument: NT2 Analyst: PKC

Analyzed: 06/23/2021 18:07

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Pentanone	107-87-9	1	5.00	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	99.2	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	98.5	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	97.1	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	102	%	



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Project: Olalla Landfill
Project Number: 382595
Project Manager: Doug Kunkel

Reported:
22-Jul-2021 19:49

MW-1
21F0317-01 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 06/18/2021 10:55
Instrument: NT16 Analyst: PB	Analyzed: 07/02/2021 10:45
Sample Preparation:	Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 21F0317-01 J
	Preparation Batch: BJG0073 Sample Size: 10 mL
	Prepared: 07/02/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	ND	ng/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>104</i>	<i>%</i>	



Environmental Partners, Inc.
1180 NW Maple St., Suite 310
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Project: Olalla Landfill
Project Number: 382595
Project Manager: Doug Kunkel

Reported:
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MW-1
21F0317-01 (Water)

Metals and Metallic Compounds

Method: EPA 6010D Sampled: 06/18/2021 10:55
Instrument: ICP2 Analyst: MVP Analyzed: 06/30/2021 16:52

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 21F0317-01 E
Preparation Batch: BJF0774 Sample Size: 25 mL
Prepared: 06/29/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	11.8	mg/L	
Potassium	7440-09-7	1	0.500	0.709	mg/L	
Sodium	7440-23-5	1	0.500	4.14	mg/L	



Environmental Partners, Inc. 1180 NW Maple St., Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 382595 Project Manager: Doug Kunkel	Reported: 22-Jul-2021 19:49
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MW-1
21F0317-01 (Water)

Wet Chemistry

Method: EPA 325.2	Instrument: LACHAT1	Analyst: LRB	Sampled: 06/18/2021 10:55	Analyzed: 06/22/2021 14:58
Sample Preparation:	Preparation Method: No Prep Wet Chem	Preparation Batch: BJF0607	Sample Size: 10 mL	Final Volume: 10 mL
	Prepared: 06/22/2021		Extract ID: 21F0317-01 B	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	4.91	mg/L	



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MW-1
21F0317-01 (Water)

Wet Chemistry

Method: EPA 353.2 Sampled: 06/18/2021 10:55
Instrument: [CALC] Analyst: LRB Analyzed: 07/02/2021 15:28

Sample Preparation: Preparation Method: [CALC] Extract ID: 21F0317-01
Preparation Batch: [CALC]
Prepared: 07/02/2021 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.0200	0.182	mg/L	

Instrument: LACHAT2 Analyst: LRB Analyzed: 06/18/2021 18:21

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21F0317-01 A
Preparation Batch: BJF0546 Sample Size: 10 mL
Prepared: 06/18/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.010	0.010	ND	mg/L	U

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21F0317-01 D
Preparation Batch: BJG0069 Sample Size: 10 mL
Prepared: 07/02/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		1	0.010	0.010	0.182	mg/L	



Environmental Partners, Inc. 1180 NW Maple St., Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 382595 Project Manager: Doug Kunkel	Reported: 22-Jul-2021 19:49
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MW-1
21F0317-01 (Water)

Wet Chemistry

Method: EPA 375.2	Instrument: LACHAT2	Analyst: RMS	Sampled: 06/18/2021 10:55
Sample Preparation:	Preparation Method: No Prep Wet Chem	Preparation Batch: BJG0102	Analyzed: 07/06/2021 11:52
	Prepared: 07/06/2021	Sample Size: 10 mL	Extract ID: 21F0317-01 B
		Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	4.66	mg/L	



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MW-1
21F0317-01 (Water)

Wet Chemistry

Method: EPA 410.4	Preparation Method: No Prep Wet Chem		Sampled: 06/18/2021 10:55
Instrument: UV1800-1 Analyst: BF	Preparation Batch: BJF0602	Sample Size: 2 mL	Analyzed: 06/22/2021 15:26
Sample Preparation:	Prepared: 06/22/2021	Final Volume: 2 mL	Extract ID: 21F0317-01 D

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
COD		1	10.0	10.0	ND	mg/L	U



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MW-1
21F0317-01 (Water)

Wet Chemistry

Method: EPA 9060A	Instrument: TOC-LCSH	Analyst: RMS	Sampled: 06/18/2021 10:55	Analyzed: 07/01/2021 20:40
Sample Preparation:	Preparation Method: No Prep Wet Chem	Preparation Batch: BJG0048	Sample Size: 20 mL	Final Volume: 20 mL
	Prepared: 07/01/2021			Extract ID: 21F0317-01 D

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	ND	mg/L	U



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MW-1
21F0317-01 (Water)

Wet Chemistry

Method: SM 2320 B-97	Sampled: 06/18/2021 10:55
Instrument: Accumet AB150 Analyst: UW	Analyzed: 06/24/2021 11:50
Sample Preparation: Preparation Method: No Prep Wet Chem	Extract ID: 21F0317-01 B
Preparation Batch: BJF0675	Sample Size: 100 mL
Prepared: 06/24/2021	Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	54.9	mg/L CaCO3	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Carbonate		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Hydroxide		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Total		1	1.00	1.00	54.9	mg/L CaCO3	



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MW-1
21F0317-01 (Water)

Wet Chemistry

Method: SM 4500-H+ B-00	Instrument: Accumet AB150	Analyst: BF	Sampled: 06/18/2021 10:55	Analyzed: 06/18/2021 17:42
Sample Preparation:	Preparation Method: No Prep Wet Chem	Preparation Batch: BJF0545	Sample Size: 50 mL	Final Volume: 50 mL
	Prepared: 06/18/2021			Extract ID: 21F0317-01 A

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.16	pH Units	H



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MW-1
21F0317-01 (Water)

Wet Chemistry

Method: SM 4500-NH3 H-97	Sampled: 06/18/2021 10:55
Instrument: LACHAT1 Analyst: LRB	Analyzed: 07/01/2021 16:31
Sample Preparation:	Preparation Method: No Prep Wet Chem
	Preparation Batch: BJF0838
	Prepared: 06/30/2021
	Sample Size: 10 mL
	Final Volume: 10 mL
	Extract ID: 21F0317-01 D

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.040	ND	mg/L	U



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MW-1
21F0317-01 (Water)

Microbiology

Method: SM 9222B	Preparation Method: No Prep Wet Chem	Sampled: 06/18/2021 10:55
Instrument: N/A Analyst: UW	Preparation Batch: BJF0544	Analyzed: 06/19/2021 17:55
Sample Preparation:	Prepared: 06/18/2021	Extract ID: 21F0317-01
	Sample Size: 100 mL	
	Final Volume: 100 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Coliforms		1	1	1	ND	CFU/100 ml	U



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MW-1
21F0317-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8	Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix	Sampled: 06/18/2021 10:55
Instrument: ICPMS1 Analyst: MCB	Preparation Batch: BJF0822	Analyzed: 06/30/2021 21:05
Sample Preparation:	Prepared: 06/30/2021	Extract ID: 21F0317-02 A 01
	Sample Size: 25 mL	
	Final Volume: 25 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	20.0	ND	ug/L	U



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MW-1
21F0317-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED	Sampled: 06/18/2021 10:55
Instrument: ICPMS1 Analyst: MCB	Analyzed: 06/30/2021 21:05
Sample Preparation:	Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
	Preparation Batch: BJF0822
	Prepared: 06/30/2021
	Sample Size: 25 mL
	Final Volume: 25 mL
	Extract ID: 21F0317-02 A 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Zinc, Dissolved	7440-66-6	1	6.00	ND	ug/L	U

Sample Preparation:	Preparation Method: RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x	Extract ID: 21F0317-02 A 02
	Preparation Batch: BJF0849	
	Prepared: 07/01/2021	
	Sample Size: 100 mL	
	Final Volume: 20 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.100	ug/L	



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Project Manager: Doug Kunkel

Reported:
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MW-1
21F0317-02RE1 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010D Sampled: 06/18/2021 10:55
Instrument: ICP2 Analyst: MVP Analyzed: 07/21/2021 13:29

Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 21F0317-02RE1 A 03
Preparation Batch: BJG0089 Sample Size: 25 mL
Prepared: 07/02/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	ND	mg/L	U
Manganese, Dissolved	7439-96-5	1	0.0040	ND	mg/L	U



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Project: Olalla Landfill
Project Number: 382595
Project Manager: Doug Kunkel

Reported:
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MW-3
21F0317-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 06/18/2021 12:20

Instrument: NT2 Analyst: PKC

Analyzed: 06/23/2021 18:28

Sample Preparation:

Preparation Method: EPA 5030C (Purge and Trap)

Extract ID: 21F0317-03 G

Preparation Batch: BJF0536

Sample Size: 10 mL

Prepared: 06/23/2021

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



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Project Number: 382595
Project Manager: Doug Kunkel

Reported:
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MW-3
21F0317-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 06/18/2021 12:20

Instrument: NT2 Analyst: PKC

Analyzed: 06/23/2021 18:28

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.50	ND	ug/L	U



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Project: Olalla Landfill
Project Number: 382595
Project Manager: Doug Kunkel

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MW-3
21F0317-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 06/18/2021 12:20

Instrument: NT2 Analyst: PKC

Analyzed: 06/23/2021 18:28

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Pentanone	107-87-9	1	5.00	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	102	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	96.9	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	97.5	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	100	%	



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Project Number: 382595
Project Manager: Doug Kunkel

Reported:
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MW-3
21F0317-03 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 06/18/2021 12:20
Instrument: NT16 Analyst: PB	Analyzed: 07/02/2021 11:05
Sample Preparation:	Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 21F0317-03 F
	Preparation Batch: BJG0073 Sample Size: 10 mL
	Prepared: 07/02/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	ND	ng/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>105</i>	<i>%</i>	



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MW-3
21F0317-03 (Water)

Metals and Metallic Compounds

Method: EPA 6010D	Preparation Method: TWC EPA 3010A	Sample Size: 25 mL	Sampled: 06/18/2021 12:20
Instrument: ICP2 Analyst: MVP	Preparation Batch: BJF0774	Final Volume: 25 mL	Analyzed: 06/30/2021 17:18
Sample Preparation:	Prepared: 06/29/2021	Extract ID: 21F0317-03 E	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	35.5	mg/L	
Potassium	7440-09-7	1	0.500	0.741	mg/L	
Sodium	7440-23-5	1	0.500	6.68	mg/L	



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MW-3
21F0317-03 (Water)

Wet Chemistry

Method: EPA 325.2	Preparation Method: No Prep Wet Chem		Sampled: 06/18/2021 12:20
Instrument: LACHAT1 Analyst: LRB	Preparation Batch: BJF0607	Sample Size: 10 mL	Analyzed: 06/22/2021 15:31
Sample Preparation:	Prepared: 06/22/2021	Final Volume: 10 mL	Extract ID: 21F0317-03 B

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	6.30	mg/L	



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MW-3
21F0317-03 (Water)

Wet Chemistry

Method: EPA 353.2 Sampled: 06/18/2021 12:20
Instrument: [CALC] Analyst: LRB Analyzed: 07/02/2021 15:29

Sample Preparation: Preparation Method: [CALC] Extract ID: 21F0317-03
Preparation Batch: [CALC]
Prepared: 07/02/2021 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.0200	0.0693	mg/L	

Instrument: LACHAT2 Analyst: LRB Analyzed: 06/18/2021 18:24

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21F0317-03 A
Preparation Batch: BJF0546 Sample Size: 10 mL
Prepared: 06/18/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.010	0.010	ND	mg/L	U

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21F0317-03 D
Preparation Batch: BJG0069 Sample Size: 10 mL
Prepared: 07/02/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		1	0.010	0.010	0.069	mg/L	



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MW-3
21F0317-03 (Water)

Wet Chemistry

Method: EPA 375.2	Instrument: LACHAT2	Analyst: RMS	Sampled: 06/18/2021 12:20
Sample Preparation:	Preparation Method: No Prep Wet Chem	Preparation Batch: BJG0102	Analyzed: 07/06/2021 11:57
	Prepared: 07/06/2021	Sample Size: 10 mL	Extract ID: 21F0317-03 B
		Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	13.4	mg/L	



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MW-3
21F0317-03 (Water)

Wet Chemistry

Method: EPA 410.4	Instrument: UV1800-1	Analyst: BF	Sampled: 06/18/2021 12:20	Analyzed: 06/22/2021 15:29
Sample Preparation:	Preparation Method: No Prep Wet Chem	Preparation Batch: BJF0602	Sample Size: 2 mL	Extract ID: 21F0317-03 D
	Prepared: 06/22/2021		Final Volume: 2 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
COD		1	10.0	10.0	ND	mg/L	U



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MW-3
21F0317-03 (Water)

Wet Chemistry

Method: EPA 9060A	Preparation Method: No Prep Wet Chem	Sampled: 06/18/2021 12:20
Instrument: TOC-LCSH Analyst: RMS	Preparation Batch: BJG0048	Analyzed: 07/01/2021 22:04
Sample Preparation:	Prepared: 07/01/2021	Extract ID: 21F0317-03 D
	Sample Size: 20 mL	
	Final Volume: 20 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	2.13	mg/L	



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MW-3
21F0317-03 (Water)

Wet Chemistry

Method: SM 2320 B-97	Instrument: Accumet AB150	Analyst: UW	Sampled: 06/18/2021 12:20	Analyzed: 06/24/2021 11:19
Sample Preparation:	Preparation Method: No Prep Wet Chem	Preparation Batch: BJF0675	Sample Size: 100 mL	Extract ID: 21F0317-03 B
	Prepared: 06/24/2021		Final Volume: 100 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	158	mg/L CaCO3	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Carbonate		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Hydroxide		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Total		1	1.00	1.00	158	mg/L CaCO3	



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MW-3
21F0317-03 (Water)

Wet Chemistry

Method: SM 4500-H+ B-00	Instrument: Accumet AB150	Analyst: BF	Sampled: 06/18/2021 12:20	Analyzed: 06/18/2021 17:42
Sample Preparation:	Preparation Method: No Prep Wet Chem	Preparation Batch: BJF0545	Sample Size: 50 mL	Final Volume: 50 mL
	Prepared: 06/18/2021			Extract ID: 21F0317-03 A

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.12	pH Units	H



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MW-3
21F0317-03 (Water)

Wet Chemistry

Method: SM 4500-NH3 H-97	Preparation Method: No Prep Wet Chem	Sample Size: 10 mL	Sampled: 06/18/2021 12:20
Instrument: LCHAT1 Analyst: LRB	Preparation Batch: BJF0838	Final Volume: 10 mL	Analyzed: 07/01/2021 16:36
Sample Preparation:	Prepared: 06/30/2021		Extract ID: 21F0317-03 D

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.040	ND	mg/L	U



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MW-3
21F0317-03 (Water)

Microbiology

Method: SM 9222B	Preparation Method: No Prep Wet Chem	Sampled: 06/18/2021 12:20
Instrument: N/A Analyst: UW	Preparation Batch: BJF0544	Analyzed: 06/19/2021 17:55
Sample Preparation:	Prepared: 06/18/2021	Extract ID: 21F0317-03
	Sample Size: 100 mL	
	Final Volume: 100 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Coliforms		1	1	1	ND	CFU/100 ml	U



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MW-3
21F0317-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8	Sampled: 06/18/2021 12:20
Instrument: ICPMS1 Analyst: MCB	Analyzed: 07/01/2021 00:47
Sample Preparation:	Extract ID: 21F0317-04 A 01
Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix	
Preparation Batch: BJF0822	Sample Size: 25 mL
Prepared: 06/30/2021	Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	20.0	ND	ug/L	U



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MW-3
21F0317-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED	Sampled: 06/18/2021 12:20
Instrument: ICPMS1 Analyst: MCB	Analyzed: 07/01/2021 00:47
Sample Preparation:	Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
	Preparation Batch: BJF0822
	Prepared: 06/30/2021
	Sample Size: 25 mL
	Final Volume: 25 mL
	Extract ID: 21F0317-04 A 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Zinc, Dissolved	7440-66-6	1	6.00	ND	ug/L	U

Sample Preparation:	Preparation Method: RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x	Extract ID: 21F0317-04 A 02
	Preparation Batch: BJF0849	
	Prepared: 07/01/2021	
	Sample Size: 100 mL	
	Final Volume: 20 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.112	ug/L	



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MW-3
21F0317-04RE1 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010D	Sampled: 06/18/2021 12:20
Instrument: ICP2 Analyst: MVP	Analyzed: 07/21/2021 13:32
Sample Preparation:	Preparation Method: WMN (No Prep) Extract ID: 21F0317-04RE1 A 03
	Preparation Batch: BJG0089
	Prepared: 07/02/2021
	Sample Size: 25 mL
	Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	0.0101	mg/L	
Manganese, Dissolved	7439-96-5	1	0.0040	5.03	mg/L	



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MW-10
21F0317-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 06/18/2021 13:25

Instrument: NT2 Analyst: PKC

Analyzed: 06/23/2021 18:49

Sample Preparation:

Preparation Method: EPA 5030C (Purge and Trap)

Extract ID: 21F0317-05 F

Preparation Batch: BJF0536

Sample Size: 10 mL

Prepared: 06/23/2021

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



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MW-10
21F0317-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 06/18/2021 13:25

Instrument: NT2 Analyst: PKC

Analyzed: 06/23/2021 18:49

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.50	ND	ug/L	U



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MW-10
21F0317-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 06/18/2021 13:25

Instrument: NT2 Analyst: PKC

Analyzed: 06/23/2021 18:49

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Pentanone	107-87-9	1	5.00	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4			80-129 %	100	%	
Surrogate: Toluene-d8			80-120 %	98.1	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	93.9	%	
Surrogate: 1,2-Dichlorobenzene-d4			80-120 %	102	%	



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MW-10
21F0317-05 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 06/18/2021 13:25
Instrument: NT16 Analyst: PB	Analyzed: 07/02/2021 11:26
Sample Preparation:	Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 21F0317-05 J
Preparation Batch: BJG0073	Sample Size: 10 mL
Prepared: 07/02/2021	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	ND	ng/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>107</i>	<i>%</i>	



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MW-10
21F0317-05 (Water)

Metals and Metallic Compounds

Method: EPA 6010D Sampled: 06/18/2021 13:25
Instrument: ICP2 Analyst: MVP Analyzed: 06/30/2021 17:30

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 21F0317-05 E
Preparation Batch: BJF0774 Sample Size: 25 mL
Prepared: 06/29/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	47.8	mg/L	
Potassium	7440-09-7	1	0.500	1.41	mg/L	
Sodium	7440-23-5	1	0.500	20.8	mg/L	



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MW-10
21F0317-05 (Water)

Wet Chemistry

Method: EPA 325.2	Instrument: LACHAT1	Analyst: LRB	Sampled: 06/18/2021 13:25	Analyzed: 06/22/2021 15:33
Sample Preparation:	Preparation Method: No Prep Wet Chem	Preparation Batch: BJF0607	Sample Size: 10 mL	Final Volume: 10 mL
	Prepared: 06/22/2021			Extract ID: 21F0317-05 B

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	6.14	mg/L	



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MW-10
21F0317-05 (Water)

Wet Chemistry

Method: EPA 353.2 Sampled: 06/18/2021 13:25
Instrument: [CALC] Analyst: LRB Analyzed: 07/02/2021 15:34

Sample Preparation: Preparation Method: [CALC] Extract ID: 21F0317-05
Preparation Batch: [CALC]
Prepared: 07/02/2021 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.0200	0.450	mg/L	

Instrument: LACHAT2 Analyst: LRB Analyzed: 06/18/2021 18:25

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21F0317-05 A
Preparation Batch: BJF0546 Sample Size: 10 mL
Prepared: 06/18/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.010	0.010	ND	mg/L	U

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21F0317-05 D
Preparation Batch: BJG0069 Sample Size: 10 mL
Prepared: 07/02/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		1	0.010	0.010	0.450	mg/L	



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MW-10
21F0317-05 (Water)

Wet Chemistry

Method: EPA 375.2 Sampled: 06/18/2021 13:25
Instrument: LACHAT2 Analyst: RMS Analyzed: 07/06/2021 11:58

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21F0317-05 B
Preparation Batch: BJG0102 Sample Size: 10 mL
Prepared: 07/06/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	23.2	mg/L	



Environmental Partners, Inc. 1180 NW Maple St., Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 382595 Project Manager: Doug Kunkel	Reported: 22-Jul-2021 19:49
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MW-10
21F0317-05 (Water)

Wet Chemistry

Method: EPA 410.4	Instrument: UV1800-1	Analyst: BF	Sampled: 06/18/2021 13:25	Analyzed: 06/22/2021 15:29
Sample Preparation:	Preparation Method: No Prep Wet Chem	Preparation Batch: BJF0602	Sample Size: 2 mL	Extract ID: 21F0317-05 D
	Prepared: 06/22/2021		Final Volume: 2 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
COD		1	10.0	10.0	ND	mg/L	U



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MW-10
21F0317-05 (Water)

Wet Chemistry

Method: EPA 9060A	Preparation Method: No Prep Wet Chem	Sampled: 06/18/2021 13:25
Instrument: TOC-LCSH Analyst: RMS	Preparation Batch: BJG0048	Analyzed: 07/01/2021 22:27
Sample Preparation:	Prepared: 07/01/2021	Extract ID: 21F0317-05 D
	Sample Size: 20 mL	
	Final Volume: 20 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	2.67	mg/L	



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MW-10
21F0317-05 (Water)

Wet Chemistry

Method: SM 2320 B-97	Sampled: 06/18/2021 13:25
Instrument: Accumet AB150 Analyst: UW	Analyzed: 06/24/2021 11:19
Sample Preparation: Preparation Method: No Prep Wet Chem	Extract ID: 21F0317-05 B
Preparation Batch: BJF0675	Sample Size: 100 mL
Prepared: 06/24/2021	Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	241	mg/L CaCO3	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Carbonate		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Hydroxide		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Total		1	1.00	1.00	241	mg/L CaCO3	



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Project Manager: Doug Kunkel

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MW-10
21F0317-05 (Water)

Wet Chemistry

Method: SM 4500-H+ B-00 Sampled: 06/18/2021 13:25
Instrument: Accumet AB150 Analyst: BF Analyzed: 06/18/2021 17:42

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21F0317-05 A
Preparation Batch: BJF0545 Sample Size: 50 mL
Prepared: 06/18/2021 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.52	pH Units	H



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MW-10
21F0317-05 (Water)

Wet Chemistry

Method: SM 4500-NH3 H-97	Preparation Method: No Prep Wet Chem	Sample Size: 10 mL	Sampled: 06/18/2021 13:25
Instrument: LCHAT1 Analyst: LRB	Preparation Batch: BJF0838	Final Volume: 10 mL	Analyzed: 07/01/2021 16:37
Sample Preparation:	Prepared: 06/30/2021		Extract ID: 21F0317-05 D

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.040	0.105	mg/L	



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MW-10
21F0317-05 (Water)

Microbiology

Method: SM 9222B	Preparation Method: No Prep Wet Chem	Sampled: 06/18/2021 13:25
Instrument: N/A Analyst: UW	Preparation Batch: BJF0544	Analyzed: 06/19/2021 17:55
Sample Preparation:	Prepared: 06/18/2021	Extract ID: 21F0317-05
	Sample Size: 100 mL	
	Final Volume: 100 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Coliforms		1	1	1	ND	CFU/100 ml	U



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MW-10
21F0317-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8	Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix	Sampled: 06/18/2021 13:25
Instrument: ICPMS1 Analyst: MCB	Preparation Batch: BJF0822	Analyzed: 07/01/2021 00:52
Sample Preparation:	Prepared: 06/30/2021	Extract ID: 21F0317-06 A 01
	Sample Size: 25 mL	
	Final Volume: 25 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	20.0	ND	ug/L	U



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MW-10
21F0317-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED	Sampled: 06/18/2021 13:25
Instrument: ICPMS1 Analyst: MCB	Analyzed: 07/01/2021 00:52
Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix	Extract ID: 21F0317-06 A 01
Preparation Batch: BJF0822	Sample Size: 25 mL
Prepared: 06/30/2021	Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Zinc, Dissolved	7440-66-6	1	6.00	ND	ug/L	U

Sample Preparation: Preparation Method: RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x	Extract ID: 21F0317-06 A 02
Preparation Batch: BJF0849	Sample Size: 100 mL
Prepared: 07/01/2021	Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	1.84	ug/L	



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MW-10
21F0317-06RE1 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010D Sampled: 06/18/2021 13:25
Instrument: ICP2 Analyst: MVP Analyzed: 07/21/2021 13:35
Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 21F0317-06RE1 A 03
Preparation Batch: BJG0089 Sample Size: 25 mL
Prepared: 07/02/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	0.0169	mg/L	
Manganese, Dissolved	7439-96-5	1	0.0040	4.76	mg/L	



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MW-6
21F0317-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 06/18/2021 14:09

Instrument: NT2 Analyst: PKC

Analyzed: 06/23/2021 19:10

Sample Preparation:

Preparation Method: EPA 5030C (Purge and Trap)

Extract ID: 21F0317-07 G

Preparation Batch: BJF0536

Sample Size: 10 mL

Prepared: 06/23/2021

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



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MW-6
21F0317-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 06/18/2021 14:09

Instrument: NT2 Analyst: PKC

Analyzed: 06/23/2021 19:10

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	1.68	ug/L	
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.50	ND	ug/L	U



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MW-6
21F0317-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 06/18/2021 14:09

Instrument: NT2 Analyst: PKC

Analyzed: 06/23/2021 19:10

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Pentanone	107-87-9	1	5.00	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	102	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	97.8	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	94.4	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	102	%	



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MW-6
21F0317-07 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 06/18/2021 14:09
Instrument: NT16 Analyst: PB	Analyzed: 07/02/2021 11:47
Sample Preparation:	Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 21F0317-07 F
	Preparation Batch: BJG0073 Sample Size: 10 mL
	Prepared: 07/02/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	ND	ng/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>107</i>	<i>%</i>	



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MW-6
21F0317-07 (Water)

Metals and Metallic Compounds

Method: EPA 6010D Sampled: 06/18/2021 14:09
Instrument: ICP2 Analyst: MVP Analyzed: 07/02/2021 14:00

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 21F0317-07 E 01
Preparation Batch: BJF0774 Sample Size: 25 mL
Prepared: 06/29/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	36.9	mg/L	
Potassium	7440-09-7	1	0.500	1.38	mg/L	
Sodium	7440-23-5	1	0.500	9.46	mg/L	



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MW-6
21F0317-07 (Water)

Wet Chemistry

Method: EPA 325.2	Instrument: LACHAT1	Analyst: LRB	Sampled: 06/18/2021 14:09	Analyzed: 06/22/2021 15:34
Sample Preparation:	Preparation Method: No Prep Wet Chem	Preparation Batch: BJF0607	Sample Size: 10 mL	Final Volume: 10 mL
	Prepared: 06/22/2021			Extract ID: 21F0317-07 B

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	2.76	mg/L	



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MW-6
21F0317-07 (Water)

Wet Chemistry

Method: EPA 353.2 Sampled: 06/18/2021 14:09
Instrument: [CALC] Analyst: LRB Analyzed: 07/02/2021 15:35

Sample Preparation: Preparation Method: [CALC] Extract ID: 21F0317-07
Preparation Batch: [CALC]
Prepared: 07/02/2021 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.0200	0.260	mg/L	

Instrument: LACHAT2 Analyst: LRB Analyzed: 06/18/2021 18:27

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21F0317-07 A
Preparation Batch: BJF0546 Sample Size: 10 mL
Prepared: 06/18/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.010	0.010	0.025	mg/L	

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21F0317-07 D
Preparation Batch: BJG0069 Sample Size: 10 mL
Prepared: 07/02/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		1	0.010	0.010	0.285	mg/L	



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MW-6
21F0317-07 (Water)

Wet Chemistry

Method: EPA 375.2	Instrument: LACHAT2	Analyst: RMS	Sampled: 06/18/2021 14:09
Sample Preparation:	Preparation Method: No Prep Wet Chem	Preparation Batch: BJG0102	Analyzed: 07/06/2021 12:00
	Prepared: 07/06/2021	Sample Size: 10 mL	Extract ID: 21F0317-07 B
		Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	8.03	mg/L	



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MW-6
21F0317-07 (Water)

Wet Chemistry

Method: EPA 410.4	Instrument: UV1800-1	Analyst: BF	Sampled: 06/18/2021 14:09	Analyzed: 06/22/2021 15:29
Sample Preparation:	Preparation Method: No Prep Wet Chem	Preparation Batch: BJF0602	Sample Size: 2 mL	Extract ID: 21F0317-07 D
	Prepared: 06/22/2021		Final Volume: 2 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
COD		1	10.0	10.0	ND	mg/L	U



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MW-6
21F0317-07 (Water)

Wet Chemistry

Method: EPA 9060A Sampled: 06/18/2021 14:09
Instrument: TOC-LCSH Analyst: RMS Analyzed: 07/01/2021 23:28

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21F0317-07 D
Preparation Batch: BJG0048 Sample Size: 20 mL
Prepared: 07/01/2021 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	1.61	mg/L	



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MW-6
21F0317-07 (Water)

Wet Chemistry

Method: SM 2320 B-97	Sampled: 06/18/2021 14:09
Instrument: Accumet AB150 Analyst: UW	Analyzed: 06/24/2021 11:19
Sample Preparation: Preparation Method: No Prep Wet Chem	Extract ID: 21F0317-07 B
Preparation Batch: BJF0675	Sample Size: 100 mL
Prepared: 06/24/2021	Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	183	mg/L CaCO3	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Carbonate		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Hydroxide		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Total		1	1.00	1.00	183	mg/L CaCO3	



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MW-6
21F0317-07 (Water)

Wet Chemistry

Method: SM 4500-H+ B-00	Instrument: Accumet AB150	Analyst: BF	Sampled: 06/18/2021 14:09
Sample Preparation:	Preparation Method: No Prep Wet Chem	Preparation Batch: BJF0545	Analyzed: 06/18/2021 17:42
	Prepared: 06/18/2021	Sample Size: 50 mL	Extract ID: 21F0317-07 A
		Final Volume: 50 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.55	pH Units	H



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MW-6
21F0317-07 (Water)

Wet Chemistry

Method: SM 4500-NH3 H-97	Sampled: 06/18/2021 14:09
Instrument: LCHAT1 Analyst: LRB	Analyzed: 07/01/2021 16:38
Sample Preparation: Preparation Method: No Prep Wet Chem	Extract ID: 21F0317-07 D
Preparation Batch: BJF0838	Sample Size: 10 mL
Prepared: 06/30/2021	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.040	0.052	mg/L	



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MW-6
21F0317-07 (Water)

Microbiology

Method: SM 9222B	Preparation Method: No Prep Wet Chem	Sampled: 06/18/2021 14:09
Instrument: N/A Analyst: UW	Preparation Batch: BJF0544	Analyzed: 06/19/2021 17:55
Sample Preparation:	Prepared: 06/18/2021	Extract ID: 21F0317-07
	Sample Size: 100 mL	
	Final Volume: 100 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Coliforms		1	1	1	ND	CFU/100 ml	U



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MW-6
21F0317-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8	Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix	Sampled: 06/18/2021 14:09
Instrument: ICPMS1 Analyst: MCB	Preparation Batch: BJF0822	Analyzed: 07/01/2021 00:56
Sample Preparation:	Prepared: 06/30/2021	Extract ID: 21F0317-08 A 01
	Sample Size: 25 mL	
	Final Volume: 25 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	20.0	195	ug/L	



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MW-6
21F0317-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED	Sampled: 06/18/2021 14:09
Instrument: ICPMS1 Analyst: MCB	Analyzed: 07/01/2021 00:56
Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix	Extract ID: 21F0317-08 A 01
Preparation Batch: BJF0822	Sample Size: 25 mL
Prepared: 06/30/2021	Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Zinc, Dissolved	7440-66-6	1	6.00	ND	ug/L	U

Sample Preparation: Preparation Method: RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x	Extract ID: 21F0317-08 A 02
Preparation Batch: BJF0849	Sample Size: 100 mL
Prepared: 07/01/2021	Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.304	ug/L	



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MW-6
21F0317-08RE1 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010D Sampled: 06/18/2021 14:09
Instrument: ICP2 Analyst: MVP Analyzed: 07/21/2021 13:38
Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 21F0317-08RE1 A 03
Preparation Batch: BJG0089 Sample Size: 25 mL
Prepared: 07/02/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	0.0142	mg/L	
Manganese, Dissolved	7439-96-5	1	0.0040	0.405	mg/L	



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MW-17
21F0317-09 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 06/18/2021 14:20

Instrument: NT2 Analyst: PKC

Analyzed: 06/23/2021 19:31

Sample Preparation:

Preparation Method: EPA 5030C (Purge and Trap)

Extract ID: 21F0317-09 G

Preparation Batch: BJF0536

Sample Size: 10 mL

Prepared: 06/23/2021

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



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MW-17
21F0317-09 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 06/18/2021 14:20

Instrument: NT2 Analyst: PKC

Analyzed: 06/23/2021 19:31

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	1.73	ug/L	
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.50	ND	ug/L	U



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MW-17
21F0317-09 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 06/18/2021 14:20

Instrument: NT2 Analyst: PKC

Analyzed: 06/23/2021 19:31

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Pentanone	107-87-9	1	5.00	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	103	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	97.5	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	96.9	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	102	%	



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MW-17
21F0317-09 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 06/18/2021 14:20
Instrument: NT16 Analyst: KOTT	Analyzed: 06/25/2021 17:14
Sample Preparation:	Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 21F0317-09 H
Preparation Batch: BJF0720	Sample Size: 10 mL
Prepared: 06/25/2021	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	ND	ng/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>103</i>	<i>%</i>	



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MW-17
21F0317-09 (Water)

Metals and Metallic Compounds

Method: EPA 6010D Sampled: 06/18/2021 14:20
Instrument: ICP2 Analyst: MVP Analyzed: 07/02/2021 14:03

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 21F0317-09 E 01
Preparation Batch: BJF0774 Sample Size: 25 mL
Prepared: 06/29/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	36.5	mg/L	
Potassium	7440-09-7	1	0.500	1.37	mg/L	
Sodium	7440-23-5	1	0.500	9.35	mg/L	



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MW-17
21F0317-09 (Water)

Wet Chemistry

Method: EPA 325.2	Instrument: LACHAT1	Analyst: LRB	Sampled: 06/18/2021 14:20	Analyzed: 06/22/2021 15:35
Sample Preparation:	Preparation Method: No Prep Wet Chem	Preparation Batch: BJF0607	Sample Size: 10 mL	Final Volume: 10 mL
	Prepared: 06/22/2021			Extract ID: 21F0317-09 B

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	2.67	mg/L	



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MW-17
21F0317-09 (Water)

Wet Chemistry

Method: EPA 353.2 Sampled: 06/18/2021 14:20
Instrument: [CALC] Analyst: LRB Analyzed: 07/02/2021 15:36

Sample Preparation: Preparation Method: [CALC] Extract ID: 21F0317-09
Preparation Batch: [CALC]
Prepared: 07/02/2021 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.0200	0.253	mg/L	

Instrument: LACHAT2 Analyst: LRB Analyzed: 06/18/2021 18:28

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21F0317-09 A
Preparation Batch: BJF0546 Sample Size: 10 mL
Prepared: 06/18/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.010	0.010	0.024	mg/L	

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21F0317-09 D
Preparation Batch: BJG0069 Sample Size: 10 mL
Prepared: 07/02/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		1	0.010	0.010	0.277	mg/L	



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MW-17
21F0317-09 (Water)

Wet Chemistry

Method: EPA 375.2	Instrument: LACHAT2	Analyst: RMS	Sampled: 06/18/2021 14:20
Sample Preparation:	Preparation Method: No Prep Wet Chem	Preparation Batch: BJG0102	Analyzed: 07/06/2021 12:07
	Prepared: 07/06/2021	Sample Size: 10 mL	Extract ID: 21F0317-09 B
		Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	8.09	mg/L	



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MW-17
21F0317-09 (Water)

Wet Chemistry

Method: EPA 410.4	Instrument: UV1800-1	Analyst: BF	Sampled: 06/18/2021 14:20	Analyzed: 06/22/2021 15:30
Sample Preparation:	Preparation Method: No Prep Wet Chem	Preparation Batch: BJF0602	Sample Size: 2 mL	Extract ID: 21F0317-09 D
	Prepared: 06/22/2021		Final Volume: 2 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
COD		1	10.0	10.0	ND	mg/L	U



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MW-17
21F0317-09 (Water)

Wet Chemistry

Method: EPA 9060A		Sampled: 06/18/2021 14:20
Instrument: TOC-LCSH Analyst: RMS		Analyzed: 07/01/2021 23:46
Sample Preparation:	Preparation Method: No Prep Wet Chem	Extract ID: 21F0317-09 D
	Preparation Batch: BJG0048	Sample Size: 20 mL
	Prepared: 07/01/2021	Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	1.63	mg/L	



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MW-17
21F0317-09 (Water)

Wet Chemistry

Method: SM 2320 B-97	Instrument: Accumet AB150	Analyst: UW	Sampled: 06/18/2021 14:20	Analyzed: 06/24/2021 11:19
Sample Preparation:	Preparation Method: No Prep Wet Chem	Preparation Batch: BJF0675	Sample Size: 100 mL	Extract ID: 21F0317-09 B
	Prepared: 06/24/2021		Final Volume: 100 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	183	mg/L CaCO3	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Carbonate		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Hydroxide		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Total		1	1.00	1.00	183	mg/L CaCO3	



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MW-17
21F0317-09 (Water)

Wet Chemistry

Method: SM 4500-H+ B-00	Instrument: Accumet AB150	Analyst: BF	Sampled: 06/18/2021 14:20
Sample Preparation:	Preparation Method: No Prep Wet Chem	Preparation Batch: BJF0545	Analyzed: 06/18/2021 17:42
	Prepared: 06/18/2021	Sample Size: 50 mL	Extract ID: 21F0317-09 A
		Final Volume: 50 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.55	pH Units	H



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MW-17
21F0317-09 (Water)

Wet Chemistry

Method: SM 4500-NH3 H-97	Preparation Method: No Prep Wet Chem	Sample Size: 10 mL	Sampled: 06/18/2021 14:20
Instrument: LCHAT1 Analyst: LRB	Preparation Batch: BJF0838	Final Volume: 10 mL	Analyzed: 07/01/2021 16:39
Sample Preparation:	Prepared: 06/30/2021	Extract ID: 21F0317-09 D	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.040	0.049	mg/L	



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MW-17
21F0317-09 (Water)

Microbiology

Method: SM 9222B	Preparation Method: No Prep Wet Chem	Sampled: 06/18/2021 14:20
Instrument: N/A Analyst: UW	Preparation Batch: BJF0544	Analyzed: 06/19/2021 17:55
Sample Preparation:	Prepared: 06/18/2021	Extract ID: 21F0317-09
	Sample Size: 100 mL	
	Final Volume: 100 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Coliforms		1	1	1	ND	CFU/100 ml	U



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MW-17
21F0317-10 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8	Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix	Sampled: 06/18/2021 14:20
Instrument: ICPMS1 Analyst: MCB	Preparation Batch: BJF0822	Analyzed: 07/01/2021 01:00
Sample Preparation:	Prepared: 06/30/2021	Extract ID: 21F0317-10 A 01
	Sample Size: 25 mL	
	Final Volume: 25 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	20.0	164	ug/L	



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MW-17
21F0317-10 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED	Sampled: 06/18/2021 14:20
Instrument: ICPMS1 Analyst: MCB	Analyzed: 07/01/2021 01:00
Sample Preparation:	Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
	Preparation Batch: BJF0822
	Prepared: 06/30/2021
	Sample Size: 25 mL
	Final Volume: 25 mL
	Extract ID: 21F0317-10 A 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Zinc, Dissolved	7440-66-6	1	6.00	ND	ug/L	U

Sample Preparation:	Preparation Method: RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x	Extract ID: 21F0317-10 A 02
	Preparation Batch: BJF0849	
	Prepared: 07/01/2021	
	Sample Size: 100 mL	
	Final Volume: 20 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.316	ug/L	



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MW-17
21F0317-10RE1 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010D	Sampled: 06/18/2021 14:20
Instrument: ICP2 Analyst: MVP	Analyzed: 07/21/2021 13:40
Sample Preparation:	Preparation Method: WMN (No Prep) Extract ID: 21F0317-10RE1 A 03
	Preparation Batch: BJG0089 Sample Size: 25 mL
	Prepared: 07/02/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	0.0144	mg/L	
Manganese, Dissolved	7439-96-5	1	0.0040	0.416	mg/L	



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MW-8
21F0317-11 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 06/18/2021 15:15

Instrument: NT2 Analyst: PKC

Analyzed: 06/23/2021 19:51

Sample Preparation:

Preparation Method: EPA 5030C (Purge and Trap)

Extract ID: 21F0317-11 F

Preparation Batch: BJF0536

Sample Size: 10 mL

Prepared: 06/23/2021

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



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MW-8
21F0317-11 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 06/18/2021 15:15

Instrument: NT2 Analyst: PKC

Analyzed: 06/23/2021 19:51

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.50	ND	ug/L	U



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MW-8
21F0317-11 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 06/18/2021 15:15

Instrument: NT2 Analyst: PKC

Analyzed: 06/23/2021 19:51

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Pentanone	107-87-9	1	5.00	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4			80-129 %	102	%	
Surrogate: Toluene-d8			80-120 %	97.6	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	93.1	%	
Surrogate: 1,2-Dichlorobenzene-d4			80-120 %	99.8	%	



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MW-8
21F0317-11 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 06/18/2021 15:15
Instrument: NT16 Analyst: KOTT	Analyzed: 06/25/2021 17:46
Sample Preparation:	Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 21F0317-11 G
	Preparation Batch: BJF0720 Sample Size: 10 mL
	Prepared: 06/25/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	ND	ng/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>103</i>	<i>%</i>	



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MW-8
21F0317-11 (Water)

Metals and Metallic Compounds

Method: EPA 6010D	Preparation Method: TWC EPA 3010A	Sample Size: 25 mL	Sampled: 06/18/2021 15:15
Instrument: ICP2 Analyst: MVP	Preparation Batch: BJF0774	Final Volume: 25 mL	Analyzed: 06/30/2021 17:39
Sample Preparation:	Prepared: 06/29/2021	Extract ID: 21F0317-11 E	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	15.6	mg/L	
Potassium	7440-09-7	1	0.500	0.960	mg/L	
Sodium	7440-23-5	1	0.500	5.20	mg/L	



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MW-8
21F0317-11 (Water)

Wet Chemistry

Method: EPA 325.2

Sampled: 06/18/2021 15:15

Instrument: LACHAT1 Analyst: LRB

Analyzed: 06/22/2021 15:36

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 21F0317-11 B

Preparation Batch: BJF0607

Sample Size: 10 mL

Prepared: 06/22/2021

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	2.16	mg/L	



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MW-8
21F0317-11 (Water)

Wet Chemistry

Method: EPA 353.2 Sampled: 06/18/2021 15:15
Instrument: [CALC] Analyst: LRB Analyzed: 07/02/2021 15:37

Sample Preparation: Preparation Method: [CALC] Extract ID: 21F0317-11
Preparation Batch: [CALC]
Prepared: 07/02/2021 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.0200	0.0206	mg/L	

Instrument: LACHAT2 Analyst: LRB Analyzed: 06/18/2021 18:34

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21F0317-11 A
Preparation Batch: BJF0546 Sample Size: 10 mL
Prepared: 06/18/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.010	0.010	ND	mg/L	U

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21F0317-11 D
Preparation Batch: BJG0069 Sample Size: 10 mL
Prepared: 07/02/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		1	0.010	0.010	0.021	mg/L	



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MW-8
21F0317-11 (Water)

Wet Chemistry

Method: EPA 375.2	Preparation Method: No Prep Wet Chem	Sampled: 06/18/2021 15:15
Instrument: LACHAT2 Analyst: RMS	Preparation Batch: BJG0102	Analyzed: 07/06/2021 12:08
Sample Preparation:	Prepared: 07/06/2021	Extract ID: 21F0317-11 B
	Sample Size: 10 mL	
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	4.03	mg/L	



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MW-8
21F0317-11 (Water)

Wet Chemistry

Method: EPA 410.4	Instrument: UV1800-1	Analyst: BF	Sampled: 06/18/2021 15:15	Analyzed: 06/22/2021 15:30
Sample Preparation:	Preparation Method: No Prep Wet Chem	Preparation Batch: BJF0602	Sample Size: 2 mL	Extract ID: 21F0317-11 D
	Prepared: 06/22/2021		Final Volume: 2 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
COD		1	10.0	10.0	ND	mg/L	U



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MW-8
21F0317-11 (Water)

Wet Chemistry

Method: EPA 9060A	Instrument: TOC-LCSH	Analyst: RMS	Sampled: 06/18/2021 15:15	Analyzed: 07/02/2021 00:12
Sample Preparation:	Preparation Method: No Prep Wet Chem	Preparation Batch: BJG0048	Sample Size: 20 mL	Final Volume: 20 mL
	Prepared: 07/01/2021			Extract ID: 21F0317-11 D

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	ND	mg/L	U



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MW-8
21F0317-11 (Water)

Wet Chemistry

Method: SM 2320 B-97 Sampled: 06/18/2021 15:15
Instrument: Accumet AB150 Analyst: UW Analyzed: 06/24/2021 11:50
Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21F0317-11 B
Preparation Batch: BJF0675 Sample Size: 100 mL
Prepared: 06/24/2021 Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	82.9	mg/L CaCO3	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Carbonate		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Hydroxide		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Total		1	1.00	1.00	82.9	mg/L CaCO3	



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MW-8
21F0317-11 (Water)

Wet Chemistry

Method: SM 4500-H+ B-00 Sampled: 06/18/2021 15:15
Instrument: Accumet AB150 Analyst: BF Analyzed: 06/18/2021 17:42

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21F0317-11 A
Preparation Batch: BJF0545 Sample Size: 50 mL
Prepared: 06/18/2021 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.49	pH Units	H



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MW-8
21F0317-11 (Water)

Wet Chemistry

Method: SM 4500-NH3 H-97	Preparation Method: No Prep Wet Chem	Sample Size: 10 mL	Sampled: 06/18/2021 15:15
Instrument: LACHAT1 Analyst: LRB	Preparation Batch: BJF0838	Final Volume: 10 mL	Analyzed: 07/01/2021 16:40
Sample Preparation:	Prepared: 06/30/2021		Extract ID: 21F0317-11 D

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.040	ND	mg/L	U



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MW-8
21F0317-11 (Water)

Microbiology

Method: SM 9222B	Preparation Method: No Prep Wet Chem	Sampled: 06/18/2021 15:15
Instrument: N/A Analyst: UW	Preparation Batch: BJF0544	Analyzed: 06/19/2021 17:55
Sample Preparation:	Prepared: 06/18/2021	Extract ID: 21F0317-11
	Sample Size: 100 mL	
	Final Volume: 100 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Coliforms		1	1	1	ND	CFU/100 ml	U



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MW-8
21F0317-12 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8	Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix	Sampled: 06/18/2021 15:15
Instrument: ICPMS1 Analyst: MCB	Preparation Batch: BJF0822	Analyzed: 07/01/2021 01:06
Sample Preparation:	Prepared: 06/30/2021	Extract ID: 21F0317-12 A 01
	Sample Size: 25 mL	
	Final Volume: 25 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	20.0	124	ug/L	



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MW-8
21F0317-12 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED	Sampled: 06/18/2021 15:15
Instrument: ICPMS1 Analyst: MCB	Analyzed: 07/01/2021 01:06
Sample Preparation:	Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
	Preparation Batch: BJF0822
	Prepared: 06/30/2021
	Sample Size: 25 mL
	Final Volume: 25 mL
	Extract ID: 21F0317-12 A 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Zinc, Dissolved	7440-66-6	1	6.00	ND	ug/L	U

Sample Preparation:	Preparation Method: RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x	Extract ID: 21F0317-12 A 02
	Preparation Batch: BJF0849	
	Prepared: 07/01/2021	
	Sample Size: 100 mL	
	Final Volume: 20 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.699	ug/L	



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MW-8
21F0317-12RE1 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010D	Preparation Method: WMN (No Prep)	Sample Size: 25 mL	Sampld: 06/18/2021 15:15
Instrument: ICP2 Analyst: MVP	Preparation Batch: BJG0089	Final Volume: 25 mL	Analyzed: 07/21/2021 13:46
Sample Preparation:	Prepared: 07/02/2021	Extract ID: 21F0317-12RE1 A 03	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	ND	mg/L	U
Manganese, Dissolved	7439-96-5	1	0.0040	1.39	mg/L	



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Trip Blanks
21F0317-13 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 06/18/2021 10:55

Instrument: NT2 Analyst: PKC

Analyzed: 06/23/2021 14:13

Sample Preparation:

Preparation Method: EPA 5030C (Purge and Trap)

Extract ID: 21F0317-13 B

Preparation Batch: BJF0536

Sample Size: 10 mL

Prepared: 06/23/2021

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



Environmental Partners, Inc.
1180 NW Maple St., Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: 382595
Project Manager: Doug Kunkel

Reported:
22-Jul-2021 19:49

Trip Blanks
21F0317-13 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 06/18/2021 10:55

Instrument: NT2 Analyst: PKC

Analyzed: 06/23/2021 14:13

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.50	ND	ug/L	U



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Reported:
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Trip Blanks
21F0317-13 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 06/18/2021 10:55

Instrument: NT2 Analyst: PKC

Analyzed: 06/23/2021 14:13

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Pentanone	107-87-9	1	5.00	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	105	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	96.3	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	93.4	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	101	%	



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Reported:
22-Jul-2021 19:49

Trip Blanks
21F0317-13 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 06/18/2021 10:55
Instrument: NT16 Analyst: KOTT	Analyzed: 06/25/2021 15:39
Sample Preparation:	Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 21F0317-13 A
	Preparation Batch: BJF0720 Sample Size: 10 mL
	Prepared: 06/25/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	ND	ng/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>98.5</i>	<i>%</i>	



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Project Manager: Doug Kunkel

Reported:
22-Jul-2021 19:49

Volatile Organic Compounds - Quality Control

Batch BJF0536 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJF0536-BLK2)		Prepared: 23-Jun-2021 Analyzed: 23-Jun-2021 13:22								
Chloromethane	ND	0.50	ug/L							U
Vinyl Chloride	ND	0.20	ug/L							U
Bromomethane	ND	1.00	ug/L							U
Chloroethane	ND	0.20	ug/L							U
Trichlorofluoromethane	ND	0.20	ug/L							U
Acrolein	ND	5.00	ug/L							U
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.20	ug/L							U
Acetone	ND	5.00	ug/L							U
1,1-Dichloroethene	ND	0.20	ug/L							U
Iodomethane	ND	1.00	ug/L							U
Methylene Chloride	ND	1.00	ug/L							U
Acrylonitrile	ND	1.00	ug/L							U
Carbon Disulfide	ND	0.20	ug/L							U
trans-1,2-Dichloroethene	ND	0.20	ug/L							U
Vinyl Acetate	ND	0.20	ug/L							U
1,1-Dichloroethane	ND	0.20	ug/L							U
2-Butanone	ND	5.00	ug/L							U
2,2-Dichloropropane	ND	0.20	ug/L							U
cis-1,2-Dichloroethene	ND	0.20	ug/L							U
Chloroform	ND	0.20	ug/L							U
Bromochloromethane	ND	0.20	ug/L							U
1,1,1-Trichloroethane	ND	0.20	ug/L							U
1,1-Dichloropropene	ND	0.20	ug/L							U
Carbon tetrachloride	ND	0.20	ug/L							U
1,2-Dichloroethane	ND	0.20	ug/L							U
Benzene	ND	0.20	ug/L							U
Trichloroethene	ND	0.20	ug/L							U
1,2-Dichloropropane	ND	0.20	ug/L							U
Bromodichloromethane	ND	0.20	ug/L							U
Dibromomethane	ND	0.20	ug/L							U
2-Chloroethyl vinyl ether	ND	1.00	ug/L							U
4-Methyl-2-Pentanone	ND	5.00	ug/L							U
cis-1,3-Dichloropropene	ND	0.20	ug/L							U
Toluene	ND	0.20	ug/L							U
trans-1,3-Dichloropropene	ND	0.20	ug/L							U



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Volatile Organic Compounds - Quality Control

Batch BJF0536 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJF0536-BLK2)		Prepared: 23-Jun-2021 Analyzed: 23-Jun-2021 13:22								
2-Hexanone	ND	5.00	ug/L							U
1,1,2-Trichloroethane	ND	0.20	ug/L							U
1,3-Dichloropropane	ND	0.20	ug/L							U
Tetrachloroethene	ND	0.20	ug/L							U
Dibromochloromethane	ND	0.20	ug/L							U
1,2-Dibromoethane	ND	0.20	ug/L							U
Chlorobenzene	ND	0.20	ug/L							U
Ethylbenzene	ND	0.20	ug/L							U
1,1,1,2-Tetrachloroethane	ND	0.20	ug/L							U
m,p-Xylene	ND	0.40	ug/L							U
o-Xylene	ND	0.20	ug/L							U
Xylenes, total	ND	0.60	ug/L							U
Styrene	ND	0.20	ug/L							U
Bromoform	ND	0.20	ug/L							U
1,1,2,2-Tetrachloroethane	ND	0.20	ug/L							U
1,2,3-Trichloropropane	ND	0.50	ug/L							U
trans-1,4-Dichloro 2-Butene	ND	1.00	ug/L							U
n-Propylbenzene	ND	0.20	ug/L							U
Bromobenzene	ND	0.20	ug/L							U
Isopropyl Benzene	ND	0.20	ug/L							U
2-Chlorotoluene	ND	0.20	ug/L							U
4-Chlorotoluene	ND	0.20	ug/L							U
t-Butylbenzene	ND	0.20	ug/L							U
1,3,5-Trimethylbenzene	ND	0.20	ug/L							U
1,2,4-Trimethylbenzene	ND	0.20	ug/L							U
s-Butylbenzene	ND	0.20	ug/L							U
4-Isopropyl Toluene	ND	0.20	ug/L							U
1,3-Dichlorobenzene	ND	0.20	ug/L							U
1,4-Dichlorobenzene	ND	0.20	ug/L							U
n-Butylbenzene	ND	0.20	ug/L							U
1,2-Dichlorobenzene	ND	0.20	ug/L							U
1,2-Dibromo-3-chloropropane	ND	0.50	ug/L							U
1,2,4-Trichlorobenzene	ND	0.50	ug/L							U
Hexachloro-1,3-Butadiene	ND	0.50	ug/L							U
Naphthalene	ND	0.50	ug/L							U



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Project Manager: Doug Kunkel

Reported:
22-Jul-2021 19:49

Volatile Organic Compounds - Quality Control

Batch BJF0536 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJF0536-BLK2)										
					Prepared: 23-Jun-2021		Analyzed: 23-Jun-2021 13:22			
1,2,3-Trichlorobenzene	ND	0.50	ug/L							U
Dichlorodifluoromethane	ND	0.20	ug/L							U
Methyl tert-butyl Ether	ND	0.50	ug/L							U
2-Pentanone	ND	5.00	ug/L							U
<i>Surrogate: 1,2-Dichloroethane-d4</i>	5.15		ug/L	5.00		103	80-129			
<i>Surrogate: Toluene-d8</i>	4.87		ug/L	5.00		97.3	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	4.72		ug/L	5.00		94.4	80-120			
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	5.14		ug/L	5.00		103	80-120			
LCS (BJF0536-BS2)										
					Prepared: 23-Jun-2021		Analyzed: 23-Jun-2021 11:59			
Chloromethane	9.31	0.50	ug/L	10.0		93.1	60-138			
Vinyl Chloride	10.0	0.20	ug/L	10.0		100	66-133			
Bromomethane	9.80	1.00	ug/L	10.0		98.0	72-131			
Chloroethane	9.87	0.20	ug/L	10.0		98.7	60-155			
Trichlorofluoromethane	9.48	0.20	ug/L	10.0		94.8	62-141			
Acrolein	48.0	5.00	ug/L	50.0		95.9	52-190			
1,1,2-Trichloro-1,2,2-Trifluoroethane	10.7	0.20	ug/L	10.0		107	76-129			
Acetone	46.8	5.00	ug/L	50.0		93.7	58-142			
1,1-Dichloroethene	10.5	0.20	ug/L	10.0		105	69-135			
Iodomethane	10.0	1.00	ug/L	10.0		100	56-147			
Methylene Chloride	9.48	1.00	ug/L	10.0		94.8	65-135			
Acrylonitrile	8.44	1.00	ug/L	10.0		84.4	64-134			
Carbon Disulfide	9.80	0.20	ug/L	10.0		98.0	78-125			
trans-1,2-Dichloroethene	9.64	0.20	ug/L	10.0		96.4	78-128			
Vinyl Acetate	9.19	0.20	ug/L	10.0		91.9	55-138			
1,1-Dichloroethane	9.99	0.20	ug/L	10.0		99.9	76-124			
2-Butanone	50.7	5.00	ug/L	50.0		101	61-140			
2,2-Dichloropropane	12.8	0.20	ug/L	10.0		128	66-147			Q
cis-1,2-Dichloroethene	9.96	0.20	ug/L	10.0		99.6	80-121			
Chloroform	10.1	0.20	ug/L	10.0		101	80-122			
Bromochloromethane	9.97	0.20	ug/L	10.0		99.7	80-121			
1,1,1-Trichloroethane	10.5	0.20	ug/L	10.0		105	79-123			
1,1-Dichloropropene	10.5	0.20	ug/L	10.0		105	80-127			
Carbon tetrachloride	10.9	0.20	ug/L	10.0		109	53-137			
1,2-Dichloroethane	10.2	0.20	ug/L	10.0		102	75-123			



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Project: Olalla Landfill
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Project Manager: Doug Kunkel

Reported:
22-Jul-2021 19:49

Volatile Organic Compounds - Quality Control

Batch BJF0536 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJF0536-BS2)		Prepared: 23-Jun-2021 Analyzed: 23-Jun-2021 11:59								
Benzene	10.3	0.20	ug/L	10.0		103	80-120			
Trichloroethene	10.4	0.20	ug/L	10.0		104	80-120			
1,2-Dichloropropane	10.2	0.20	ug/L	10.0		102	80-120			
Bromodichloromethane	10.4	0.20	ug/L	10.0		104	80-121			
Dibromomethane	10.2	0.20	ug/L	10.0		102	80-120			
2-Chloroethyl vinyl ether	9.40	1.00	ug/L	10.0		94.0	64-120			
4-Methyl-2-Pentanone	51.7	5.00	ug/L	50.0		103	67-133			
cis-1,3-Dichloropropene	11.0	0.20	ug/L	10.0		110	80-124			
Toluene	10.3	0.20	ug/L	10.0		103	80-120			
trans-1,3-Dichloropropene	11.0	0.20	ug/L	10.0		110	71-127			
2-Hexanone	47.6	5.00	ug/L	50.0		95.3	69-133			
1,1,2-Trichloroethane	9.70	0.20	ug/L	10.0		97.0	80-121			
1,3-Dichloropropane	9.65	0.20	ug/L	10.0		96.5	80-120			
Tetrachloroethene	10.6	0.20	ug/L	10.0		106	80-120			
Dibromochloromethane	10.3	0.20	ug/L	10.0		103	65-135			
1,2-Dibromoethane	10.2	0.20	ug/L	10.0		102	80-121			
Chlorobenzene	10.3	0.20	ug/L	10.0		103	80-120			
Ethylbenzene	10.3	0.20	ug/L	10.0		103	80-120			
1,1,1,2-Tetrachloroethane	10.5	0.20	ug/L	10.0		105	80-120			
m,p-Xylene	21.4	0.40	ug/L	20.0		107	80-121			
o-Xylene	10.8	0.20	ug/L	10.0		108	80-121			
Xylenes, total	32.2	0.60	ug/L	30.0		107	76-127			
Styrene	10.6	0.20	ug/L	10.0		106	80-124			
Bromoform	8.59	0.20	ug/L	10.0		85.9	51-134			
1,1,2,2-Tetrachloroethane	9.07	0.20	ug/L	10.0		90.7	77-123			
1,2,3-Trichloropropane	9.92	0.50	ug/L	10.0		99.2	76-125			
trans-1,4-Dichloro 2-Butene	8.79	1.00	ug/L	10.0		87.9	55-129			
n-Propylbenzene	10.8	0.20	ug/L	10.0		108	78-130			
Bromobenzene	10.1	0.20	ug/L	10.0		101	80-120			
Isopropyl Benzene	10.9	0.20	ug/L	10.0		109	80-128			
2-Chlorotoluene	10.2	0.20	ug/L	10.0		102	78-122			
4-Chlorotoluene	11.0	0.20	ug/L	10.0		110	80-121			
t-Butylbenzene	10.8	0.20	ug/L	10.0		108	78-125			
1,3,5-Trimethylbenzene	11.0	0.20	ug/L	10.0		110	80-129			
1,2,4-Trimethylbenzene	11.1	0.20	ug/L	10.0		111	80-127			



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Reported:
22-Jul-2021 19:49

Volatile Organic Compounds - Quality Control

Batch BJF0536 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJF0536-BS2)										
					Prepared: 23-Jun-2021		Analyzed: 23-Jun-2021 11:59			
s-Butylbenzene	10.8	0.20	ug/L	10.0		108	78-129			
4-Isopropyl Toluene	11.3	0.20	ug/L	10.0		113	79-130			
1,3-Dichlorobenzene	10.1	0.20	ug/L	10.0		101	80-120			
1,4-Dichlorobenzene	9.92	0.20	ug/L	10.0		99.2	80-120			
n-Butylbenzene	11.3	0.20	ug/L	10.0		113	74-129			
1,2-Dichlorobenzene	9.87	0.20	ug/L	10.0		98.7	80-120			
1,2-Dibromo-3-chloropropane	9.76	0.50	ug/L	10.0		97.6	62-123			
1,2,4-Trichlorobenzene	11.1	0.50	ug/L	10.0		111	64-124			
Hexachloro-1,3-Butadiene	10.8	0.50	ug/L	10.0		108	58-123			
Naphthalene	8.54	0.50	ug/L	10.0		85.4	50-134			
1,2,3-Trichlorobenzene	10.4	0.50	ug/L	10.0		104	49-133			
Dichlorodifluoromethane	9.33	0.20	ug/L	10.0		93.3	48-147			
Methyl tert-butyl Ether	9.49	0.50	ug/L	10.0		94.9	71-132			
2-Pentanone	43.9	5.00	ug/L	50.0		87.8	69-134			
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Surrogate: 1,2-Dichloroethane-d4	4.80		ug/L	5.00		96.0	80-129			
Surrogate: Toluene-d8	5.10		ug/L	5.00		102	80-120			
Surrogate: 4-Bromofluorobenzene	5.02		ug/L	5.00		100	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	5.09		ug/L	5.00		102	80-120			
<hr/>										
LCS Dup (BJF0536-BSD2)										
					Prepared: 23-Jun-2021		Analyzed: 23-Jun-2021 12:40			
Chloromethane	9.60	0.50	ug/L	10.0		96.0	60-138	3.09	30	
Vinyl Chloride	9.66	0.20	ug/L	10.0		96.6	66-133	3.95	30	
Bromomethane	9.71	1.00	ug/L	10.0		97.1	72-131	0.96	30	
Chloroethane	9.93	0.20	ug/L	10.0		99.3	60-155	0.61	30	
Trichlorofluoromethane	9.37	0.20	ug/L	10.0		93.7	62-141	1.16	30	
Acrolein	46.9	5.00	ug/L	50.0		93.8	52-190	2.19	30	
1,1,2-Trichloro-1,2,2-Trifluoroethane	10.1	0.20	ug/L	10.0		101	76-129	5.08	30	
Acetone	44.7	5.00	ug/L	50.0		89.5	58-142	4.61	30	
1,1-Dichloroethene	10.1	0.20	ug/L	10.0		101	69-135	3.97	30	
Iodomethane	9.61	1.00	ug/L	10.0		96.1	56-147	4.20	30	
Methylene Chloride	9.24	1.00	ug/L	10.0		92.4	65-135	2.59	30	
Acrylonitrile	8.52	1.00	ug/L	10.0		85.2	64-134	0.94	30	
Carbon Disulfide	9.43	0.20	ug/L	10.0		94.3	78-125	3.81	30	
trans-1,2-Dichloroethene	9.15	0.20	ug/L	10.0		91.5	78-128	5.25	30	
Vinyl Acetate	9.07	0.20	ug/L	10.0		90.7	55-138	1.30	30	



Environmental Partners, Inc.
1180 NW Maple St., Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: 382595
Project Manager: Doug Kunkel

Reported:
22-Jul-2021 19:49

Volatile Organic Compounds - Quality Control

Batch BJF0536 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJF0536-BSD2)		Prepared: 23-Jun-2021 Analyzed: 23-Jun-2021 12:40								
1,1-Dichloroethane	9.61	0.20	ug/L	10.0		96.1	76-124	3.86	30	
2-Butanone	48.9	5.00	ug/L	50.0		97.7	61-140	3.68	30	
2,2-Dichloropropane	12.2	0.20	ug/L	10.0		122	66-147	5.14	30	Q
cis-1,2-Dichloroethene	9.54	0.20	ug/L	10.0		95.4	80-121	4.38	30	
Chloroform	9.74	0.20	ug/L	10.0		97.4	80-122	3.82	30	
Bromochloromethane	9.54	0.20	ug/L	10.0		95.4	80-121	4.41	30	
1,1,1-Trichloroethane	10.2	0.20	ug/L	10.0		102	79-123	2.96	30	
1,1-Dichloropropene	10.0	0.20	ug/L	10.0		100	80-127	4.21	30	
Carbon tetrachloride	10.3	0.20	ug/L	10.0		103	53-137	5.35	30	
1,2-Dichloroethane	9.96	0.20	ug/L	10.0		99.6	75-123	2.70	30	
Benzene	9.91	0.20	ug/L	10.0		99.1	80-120	3.87	30	
Trichloroethene	9.83	0.20	ug/L	10.0		98.3	80-120	5.62	30	
1,2-Dichloropropane	9.71	0.20	ug/L	10.0		97.1	80-120	4.52	30	
Bromodichloromethane	10.1	0.20	ug/L	10.0		101	80-121	2.65	30	
Dibromomethane	9.72	0.20	ug/L	10.0		97.2	80-120	4.83	30	
2-Chloroethyl vinyl ether	8.79	1.00	ug/L	10.0		87.9	64-120	6.60	30	
4-Methyl-2-Pentanone	50.5	5.00	ug/L	50.0		101	67-133	2.38	30	
cis-1,3-Dichloropropene	10.7	0.20	ug/L	10.0		107	80-124	3.12	30	
Toluene	9.64	0.20	ug/L	10.0		96.4	80-120	6.13	30	
trans-1,3-Dichloropropene	11.0	0.20	ug/L	10.0		110	71-127	0.42	30	
2-Hexanone	47.9	5.00	ug/L	50.0		95.9	69-133	0.64	30	
1,1,2-Trichloroethane	9.26	0.20	ug/L	10.0		92.6	80-121	4.65	30	
1,3-Dichloropropane	9.49	0.20	ug/L	10.0		94.9	80-120	1.71	30	
Tetrachloroethene	9.83	0.20	ug/L	10.0		98.3	80-120	7.23	30	
Dibromochloromethane	9.89	0.20	ug/L	10.0		98.9	65-135	3.74	30	
1,2-Dibromoethane	9.91	0.20	ug/L	10.0		99.1	80-121	2.83	30	
Chlorobenzene	9.70	0.20	ug/L	10.0		97.0	80-120	5.60	30	
Ethylbenzene	9.75	0.20	ug/L	10.0		97.5	80-120	5.81	30	
1,1,1,2-Tetrachloroethane	10.0	0.20	ug/L	10.0		100	80-120	4.34	30	
m,p-Xylene	20.6	0.40	ug/L	20.0		103	80-121	3.69	30	
o-Xylene	10.3	0.20	ug/L	10.0		103	80-121	5.03	30	
Xylenes, total	30.9	0.60	ug/L	30.0		103	76-127	4.14	30	
Styrene	10.1	0.20	ug/L	10.0		101	80-124	4.78	30	
Bromoform	8.41	0.20	ug/L	10.0		84.1	51-134	2.18	30	
1,1,2,2-Tetrachloroethane	9.01	0.20	ug/L	10.0		90.1	77-123	0.62	30	



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Project: Olalla Landfill
Project Number: 382595
Project Manager: Doug Kunkel

Reported:
22-Jul-2021 19:49

Volatile Organic Compounds - Quality Control

Batch BJF0536 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJF0536-BSD2)										
					Prepared: 23-Jun-2021 Analyzed: 23-Jun-2021 12:40					
1,2,3-Trichloropropane	9.51	0.50	ug/L	10.0		95.1	76-125	4.14	30	
trans-1,4-Dichloro 2-Butene	9.36	1.00	ug/L	10.0		93.6	55-129	6.26	30	
n-Propylbenzene	10.3	0.20	ug/L	10.0		103	78-130	4.55	30	
Bromobenzene	9.73	0.20	ug/L	10.0		97.3	80-120	3.68	30	
Isopropyl Benzene	10.4	0.20	ug/L	10.0		104	80-128	5.19	30	
2-Chlorotoluene	9.75	0.20	ug/L	10.0		97.5	78-122	4.32	30	
4-Chlorotoluene	10.2	0.20	ug/L	10.0		102	80-121	7.34	30	
t-Butylbenzene	10.3	0.20	ug/L	10.0		103	78-125	4.72	30	
1,3,5-Trimethylbenzene	10.4	0.20	ug/L	10.0		104	80-129	5.13	30	
1,2,4-Trimethylbenzene	10.5	0.20	ug/L	10.0		105	80-127	4.84	30	
s-Butylbenzene	10.2	0.20	ug/L	10.0		102	78-129	6.14	30	
4-Isopropyl Toluene	10.7	0.20	ug/L	10.0		107	79-130	5.86	30	
1,3-Dichlorobenzene	9.74	0.20	ug/L	10.0		97.4	80-120	3.87	30	
1,4-Dichlorobenzene	9.40	0.20	ug/L	10.0		94.0	80-120	5.38	30	
n-Butylbenzene	10.6	0.20	ug/L	10.0		106	74-129	6.14	30	
1,2-Dichlorobenzene	9.67	0.20	ug/L	10.0		96.7	80-120	2.11	30	
1,2-Dibromo-3-chloropropane	9.42	0.50	ug/L	10.0		94.2	62-123	3.62	30	
1,2,4-Trichlorobenzene	10.3	0.50	ug/L	10.0		103	64-124	7.22	30	
Hexachloro-1,3-Butadiene	10.0	0.50	ug/L	10.0		100	58-123	7.09	30	
Naphthalene	8.19	0.50	ug/L	10.0		81.9	50-134	4.17	30	
1,2,3-Trichlorobenzene	9.93	0.50	ug/L	10.0		99.3	49-133	4.68	30	
Dichlorodifluoromethane	8.95	0.20	ug/L	10.0		89.5	48-147	4.15	30	
Methyl tert-butyl Ether	9.44	0.50	ug/L	10.0		94.4	71-132	0.46	30	
2-Pentanone	43.1	5.00	ug/L	50.0		86.1	69-134	1.89	30	
Surrogate: 1,2-Dichloroethane-d4	4.85		ug/L	5.00		97.0	80-129			
Surrogate: Toluene-d8	5.12		ug/L	5.00		102	80-120			
Surrogate: 4-Bromofluorobenzene	5.07		ug/L	5.00		101	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	5.05		ug/L	5.00		101	80-120			



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Reported:
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Volatile Organic Compounds - SIM - Quality Control

Batch BJF0720 - 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 (BJF0720-BLK1)				Prepared: 25-Jun-2021 Analyzed: 25-Jun-2021 13:45						
Vinyl chloride	ND	20.0	ng/L							U
Surrogate: 1,2-Dichloroethane-d4	4980		ng/L	5000		99.5	80-129			
LCS (BJF0720-BS1)				Prepared: 25-Jun-2021 Analyzed: 25-Jun-2021 12:13						
Vinyl chloride	2160	20.0	ng/L	2000		108	62-141			
Surrogate: 1,2-Dichloroethane-d4	4950		ng/L	5000		99.0	80-129			
LCS Dup (BJF0720-BSD1)				Prepared: 25-Jun-2021 Analyzed: 25-Jun-2021 13:23						
Vinyl chloride	2090	20.0	ng/L	2000		104	62-141	3.17	30	
Surrogate: 1,2-Dichloroethane-d4	5020		ng/L	5000		100	80-129			



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Reported:
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Volatile Organic Compounds - SIM - Quality Control

Batch BJG0073 - 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 (BJG0073-BLK1)				Prepared: 02-Jul-2021 Analyzed: 02-Jul-2021 09:46						
Vinyl chloride	ND	20.0	ng/L							U
Surrogate: 1,2-Dichloroethane-d4	5190		ng/L	5000	104		80-129			
LCS (BJG0073-BS1)				Prepared: 02-Jul-2021 Analyzed: 02-Jul-2021 08:37						
Vinyl chloride	2220	20.0	ng/L	2000		111	62-141			
Surrogate: 1,2-Dichloroethane-d4	5290		ng/L	5000	106		80-129			
LCS Dup (BJG0073-BSD1)				Prepared: 02-Jul-2021 Analyzed: 02-Jul-2021 09:26						
Vinyl chloride	2090	20.0	ng/L	2000		105	62-141	5.94	30	
Surrogate: 1,2-Dichloroethane-d4	5200		ng/L	5000	104		80-129			



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Project: Olalla Landfill
Project Number: 382595
Project Manager: Doug Kunkel

Reported:
22-Jul-2021 19:49

Metals and Metallic Compounds - Quality Control

Batch BJF0774 - TWC EPA 3010A

Instrument: ICP2 Analyst: MVP

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJF0774-BLK1)				Prepared: 29-Jun-2021 Analyzed: 30-Jun-2021 16:05						
Calcium	ND	0.0500	mg/L							U
Potassium	ND	0.500	mg/L							U
Blank (BJF0774-BLK3)				Prepared: 29-Jun-2021 Analyzed: 02-Jul-2021 13:02						
Sodium	ND	0.500	mg/L							U
LCS (BJF0774-BS1)				Prepared: 29-Jun-2021 Analyzed: 30-Jun-2021 16:08						
Calcium	9.85	0.0500	mg/L	10.0		98.5	80-120			
Potassium	8.48	0.500	mg/L	10.0		84.8	80-120			
LCS (BJF0774-BS3)				Prepared: 29-Jun-2021 Analyzed: 02-Jul-2021 13:05						
Sodium	8.74	0.500	mg/L	10.0		87.4	80-120			
Duplicate (BJF0774-DUP1)				Source: 21F0317-01 Prepared: 29-Jun-2021 Analyzed: 30-Jun-2021 16:49						
Calcium	11.3	0.0500	mg/L		11.8			4.37	20	
Potassium	0.540	0.500	mg/L		0.709			27.10	20	L
Duplicate (BJF0774-DUP3)				Source: 21F0317-01 Prepared: 29-Jun-2021 Analyzed: 02-Jul-2021 13:10						
Sodium	3.95	0.500	mg/L		4.14			4.82	20	
Matrix Spike (BJF0774-MS1)				Source: 21F0317-01 Prepared: 29-Jun-2021 Analyzed: 30-Jun-2021 16:55						
Calcium	22.3	0.0500	mg/L	10.0	11.8	104	75-125			
Potassium	9.40	0.500	mg/L	10.0	0.709	86.9	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike (BJF0774-MS3)				Source: 21F0317-01 Prepared: 29-Jun-2021 Analyzed: 02-Jul-2021 13:15						
Sodium	14.2	0.500	mg/L	10.0	4.14	100	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike Dup (BJF0774-MSD1)				Source: 21F0317-01 Prepared: 29-Jun-2021 Analyzed: 30-Jun-2021 16:59						
Calcium	22.0	0.0500	mg/L	10.0	11.8	102	75-125	1.12	20	
Potassium	9.45	0.500	mg/L	10.0	0.709	87.4	75-125	0.57	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike Dup (BJF0774-MSD3)				Source: 21F0317-01 Prepared: 29-Jun-2021 Analyzed: 02-Jul-2021 13:20						
Sodium	14.0	0.500	mg/L	10.0	4.14	99.0	75-125	0.83	20	



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Reported:
22-Jul-2021 19:49

Metals and Metallic Compounds - Quality Control

Batch BJF0774 - TWC EPA 3010A

Instrument: ICP2 Analyst: MVP

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Recovery limits for target analytes in MS/MSD QC samples are advisory only.



Environmental Partners, Inc.
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Reported:
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Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJF0822 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJF0822-BLK1)						Prepared: 30-Jun-2021 Analyzed: 30-Jun-2021 19:10					
Iron, Dissolved	54	ND	36.0	ug/L							U
Iron, Dissolved	57	ND	20.0	ug/L							U
Zinc, Dissolved	66	ND	6.00	ug/L							U
Zinc, Dissolved	67	ND	6.00	ug/L							U

LCS (BJF0822-BS1)						Prepared: 30-Jun-2021 Analyzed: 30-Jun-2021 19:14					
Iron, Dissolved	54	5190	36.0	ug/L	5000		104	80-120			
Iron, Dissolved	57	5140	20.0	ug/L	5000		103	80-120			
Zinc, Dissolved	66	82.0	6.00	ug/L	80.0		102	80-120			
Zinc, Dissolved	67	80.9	6.00	ug/L	80.0		101	80-120			

Duplicate (BJF0822-DUP1)						Source: 21F0317-02 Prepared: 30-Jun-2021 Analyzed: 30-Jun-2021 19:33					
Iron, Dissolved	54	ND	36.0	ug/L		ND					U
Zinc, Dissolved	66	ND	6.00	ug/L		ND					U

Matrix Spike (BJF0822-MS1)						Source: 21F0317-02 Prepared: 30-Jun-2021 Analyzed: 30-Jun-2021 19:37					
Iron, Dissolved	54	4380	36.0	ug/L	5000	ND	87.6	75-125			
Zinc, Dissolved	66	77.4	6.00	ug/L	80.0	ND	96.8	75-125			

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

Matrix Spike Dup (BJF0822-MSD1)						Source: 21F0317-02 Prepared: 30-Jun-2021 Analyzed: 30-Jun-2021 19:42					
Iron, Dissolved	54	4580	36.0	ug/L	5000	ND	91.6	75-125	4.40	20	
Zinc, Dissolved	66	80.3	6.00	ug/L	80.0	ND	100	75-125	3.60	20	

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



Environmental Partners, Inc. 1180 NW Maple St., Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 382595 Project Manager: Doug Kunkel	Reported: 22-Jul-2021 19:49
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Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJF0849 - RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJF0849-BLK1)						Prepared: 01-Jul-2021 Analyzed: 01-Jul-2021 15:57					
Arsenic, Dissolved	75a	ND	0.0400	ug/L							U
LCS (BJF0849-BS1)						Prepared: 01-Jul-2021 Analyzed: 01-Jul-2021 16:01					
Arsenic, Dissolved	75a	5.04	0.0400	ug/L	5.00		101	80-120			
LCS Dup (BJF0849-BSD1)						Prepared: 01-Jul-2021 Analyzed: 01-Jul-2021 16:05					
Arsenic, Dissolved	75a	4.83	0.0400	ug/L	5.00		96.6	80-120	4.15	20	



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Reported:
22-Jul-2021 19:49

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJG0089 - WMN (No Prep)

Instrument: ICP2 Analyst: MVP

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJG0089-BLK3)		Prepared: 02-Jul-2021 Analyzed: 21-Jul-2021 12:51								
Barium, Dissolved	ND	0.0060	mg/L							U
Manganese, Dissolved	ND	0.0040	mg/L							U
LCS (BJG0089-BS3)		Prepared: 02-Jul-2021 Analyzed: 21-Jul-2021 12:54								
Barium, Dissolved	2.12	0.0061	mg/L	2.00		106	80-120			
Manganese, Dissolved	0.546	0.0040	mg/L	0.500		109	80-120			
Duplicate (BJG0089-DUP3)		Source: 21F0317-12RE1		Prepared: 02-Jul-2021 Analyzed: 21-Jul-2021 13:43						
Barium, Dissolved	ND	0.0060	mg/L		ND					U
Manganese, Dissolved	1.40	0.0040	mg/L		1.39			0.80	20	
Matrix Spike (BJG0089-MS3)		Source: 21F0317-12RE1		Prepared: 02-Jul-2021 Analyzed: 21-Jul-2021 13:49						
Barium, Dissolved	2.24	0.0061	mg/L	2.00	ND	112	75-125			
Manganese, Dissolved	1.95	0.0040	mg/L	0.500	1.39	112	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike Dup (BJG0089-MSD3)		Source: 21F0317-12RE1		Prepared: 02-Jul-2021 Analyzed: 21-Jul-2021 13:53						
Barium, Dissolved	2.26	0.0061	mg/L	2.00	ND	113	75-125	0.98	20	
Manganese, Dissolved	2.03	0.0040	mg/L	0.500	1.39	127	75-125	3.94	20	*
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										



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Reported:
22-Jul-2021 19:49

Wet Chemistry - Quality Control

Batch BJF0545 - No Prep Wet Chem

Instrument: Accumet AB150 Analyst: BF

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJF0545-BS1)						Prepared: 18-Jun-2021 Analyzed: 18-Jun-2021 17:42					
pH	6.95	0.01	0.01	pH Units	7.00		99.3	99.2-100.8			
Duplicate (BJF0545-DUP1)						Source: 21F0317-01 Prepared: 18-Jun-2021 Analyzed: 18-Jun-2021 17:42					
pH	6.16	0.01	0.01	pH Units		6.16			0.00		H



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Wet Chemistry - Quality Control

Batch BJF0546 - No Prep Wet Chem

Instrument: LACHAT2 Analyst: LRB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJF0546-BLK1)						Prepared: 18-Jun-2021 Analyzed: 18-Jun-2021 18:18					
Nitrite-N	ND	0.010	0.010	mg/L							U
LCS (BJF0546-BS1)						Prepared: 18-Jun-2021 Analyzed: 18-Jun-2021 18:19					
Nitrite-N	0.508	0.010	0.010	mg/L	0.500		102	90-110			
Duplicate (BJF0546-DUP1)						Source: 21F0317-01 Prepared: 18-Jun-2021 Analyzed: 18-Jun-2021 18:22					
Nitrite-N	ND	0.010	0.010	mg/L		ND					U
Matrix Spike (BJF0546-MS1)						Source: 21F0317-01 Prepared: 18-Jun-2021 Analyzed: 18-Jun-2021 18:23					
Nitrite-N	0.511	0.010	0.010	mg/L	0.500	ND	102	75-125			

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



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Wet Chemistry - Quality Control

Batch BJF0602 - No Prep Wet Chem

Instrument: UV1800-1 Analyst: BF

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJF0602-BLK1)						Prepared: 22-Jun-2021 Analyzed: 22-Jun-2021 15:25					
COD	ND	10.0	10.0	mg/L							U
LCS (BJF0602-BS1)						Prepared: 22-Jun-2021 Analyzed: 22-Jun-2021 15:25					
COD	102	10.0	10.0	mg/L	100		102	90-110			
Duplicate (BJF0602-DUP1)						Source: 21F0317-01 Prepared: 22-Jun-2021 Analyzed: 22-Jun-2021 15:27					
COD	ND	10.0	10.0	mg/L		ND					U
Matrix Spike (BJF0602-MS1)						Source: 21F0317-01 Prepared: 22-Jun-2021 Analyzed: 22-Jun-2021 15:28					
COD	94.6	20.0	20.0	mg/L	100	ND	94.6	90-110			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJF0602-MSD1)						Source: 21F0317-01 Prepared: 22-Jun-2021 Analyzed: 22-Jun-2021 15:29					
COD	99.5	20.0	20.0	mg/L	100	ND	99.6	90-110	5.11	10	

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



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Wet Chemistry - Quality Control

Batch BJF0607 - No Prep Wet Chem

Instrument: LCHAT1 Analyst: LRB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJF0607-BLK1)						Prepared: 22-Jun-2021 Analyzed: 22-Jun-2021 14:56					
Chloride	ND	1.00	1.00	mg/L							U
LCS (BJF0607-BS1)						Prepared: 22-Jun-2021 Analyzed: 22-Jun-2021 14:57					
Chloride	4.94	1.00	1.00	mg/L	5.00		98.8	90-110			
Duplicate (BJF0607-DUP1)						Source: 21F0317-01 Prepared: 22-Jun-2021 Analyzed: 22-Jun-2021 15:00					
Chloride	4.85	1.00	1.00	mg/L		4.91			1.23	20	
Matrix Spike (BJF0607-MS1)						Source: 21F0317-01 Prepared: 22-Jun-2021 Analyzed: 22-Jun-2021 15:01					
Chloride	10.4	1.00	1.00	mg/L	5.00	4.91	110	75-125			E
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJF0607-MSD1)						Source: 21F0317-01 Prepared: 22-Jun-2021 Analyzed: 22-Jun-2021 15:02					
Chloride	10.3	1.00	1.00	mg/L	5.00	4.91	108	75-125	0.97	20	E
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											



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Wet Chemistry - Quality Control

Batch BJF0675 - No Prep Wet Chem

Instrument: Accumet AB150 Analyst: UW

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJF0675-BLK1)						Prepared: 24-Jun-2021 Analyzed: 24-Jun-2021 11:50					
Alkalinity, Total	ND	1.00	1.00	mg/L CaCO3							U
Reference (BJF0675-SRM1)						Prepared: 24-Jun-2021 Analyzed: 24-Jun-2021 11:19					
Alkalinity, Total	126	1.00	1.00	mg/L CaCO3	127		99.2	85.04-114.96			



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Wet Chemistry - Quality Control

Batch BJF0838 - No Prep Wet Chem

Instrument: LCHAT1 Analyst: LRB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJF0838-BLK1)						Prepared: 30-Jun-2021 Analyzed: 01-Jul-2021 16:20					
Ammonia-N	ND	0.040	0.040	mg/L							U
LCS (BJF0838-BS1)						Prepared: 30-Jun-2021 Analyzed: 01-Jul-2021 16:21					
Ammonia-N	0.538	0.040	0.040	mg/L	0.500		108	90-110			
Duplicate (BJF0838-DUP1)						Source: 21F0317-01 Prepared: 30-Jun-2021 Analyzed: 01-Jul-2021 16:32					
Ammonia-N	ND	0.040	0.040	mg/L		ND					U
Matrix Spike (BJF0838-MS1)						Source: 21F0317-01 Prepared: 30-Jun-2021 Analyzed: 01-Jul-2021 16:33					
Ammonia-N	0.537	0.040	0.040	mg/L	0.500	ND	107	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJF0838-MSD1)						Source: 21F0317-01 Prepared: 30-Jun-2021 Analyzed: 01-Jul-2021 16:34					
Ammonia-N	0.542	0.040	0.040	mg/L	0.500	ND	108	75-125	0.93	200	

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



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Wet Chemistry - Quality Control

Batch BJG0048 - No Prep Wet Chem

Instrument: TOC-LCSH Analyst: RMS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJG0048-BLK1)						Prepared: 01-Jul-2021 Analyzed: 01-Jul-2021 20:00					
Total Organic Carbon	ND	0.50	0.50	mg/L							U
LCS (BJG0048-BS1)						Prepared: 01-Jul-2021 Analyzed: 01-Jul-2021 20:18					
Total Organic Carbon	19.26	0.50	0.50	mg/L	20.00		96.3	90-110			
Duplicate (BJG0048-DUP1)						Source: 21F0317-01 Prepared: 01-Jul-2021 Analyzed: 01-Jul-2021 21:01					
Total Organic Carbon	ND	0.50	0.50	mg/L		ND					U
Matrix Spike (BJG0048-MS1)						Source: 21F0317-01 Prepared: 01-Jul-2021 Analyzed: 01-Jul-2021 21:27					
Total Organic Carbon	17.46	0.50	0.50	mg/L	20.04	ND	87.1	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJG0048-MSD1)						Source: 21F0317-01 Prepared: 01-Jul-2021 Analyzed: 01-Jul-2021 21:45					
Total Organic Carbon	17.54	0.50	0.50	mg/L	20.04	ND	87.5	75-125	0.46	20	

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



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Wet Chemistry - Quality Control

Batch BJG0069 - No Prep Wet Chem

Instrument: LCHAT2 Analyst: RMS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJG0069-BLK1)						Prepared: 02-Jul-2021 Analyzed: 02-Jul-2021 15:20					
Nitrate + Nitrite as N	ND	0.010	0.010	mg/L							U
LCS (BJG0069-BS1)						Prepared: 02-Jul-2021 Analyzed: 02-Jul-2021 15:21					
Nitrate + Nitrite as N	0.506	0.010	0.010	mg/L	0.500		101	90-110			
Duplicate (BJG0069-DUP1)						Source: 21F0317-03 Prepared: 02-Jul-2021 Analyzed: 02-Jul-2021 15:30					
Nitrate + Nitrite as N	0.070	0.010	0.010	mg/L		0.069			0.58	20	
Matrix Spike (BJG0069-MS1)						Source: 21F0317-03 Prepared: 02-Jul-2021 Analyzed: 02-Jul-2021 15:31					
Nitrate + Nitrite as N	0.574	0.010	0.010	mg/L	0.500	0.069	101	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJG0069-MSD1)						Source: 21F0317-03 Prepared: 02-Jul-2021 Analyzed: 02-Jul-2021 15:32					
Nitrate + Nitrite as N	0.582	0.010	0.010	mg/L	0.500	0.069	103	75-125	1.38	20	

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



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Wet Chemistry - Quality Control

Batch BJG0102 - No Prep Wet Chem

Instrument: LCHAT2 Analyst: RMS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJG0102-BLK1)						Prepared: 06-Jul-2021 Analyzed: 06-Jul-2021 11:50					
Sulfate	ND	2.00	2.00	mg/L							U
LCS (BJG0102-BS1)						Prepared: 06-Jul-2021 Analyzed: 06-Jul-2021 11:51					
Sulfate	14.9	2.00	2.00	mg/L	15.0		99.3	90-110			
Duplicate (BJG0102-DUP1)						Source: 21F0317-01 Prepared: 06-Jul-2021 Analyzed: 06-Jul-2021 11:54					
Sulfate	4.52	2.00	2.00	mg/L		4.66			3.05	20	
Matrix Spike (BJG0102-MS1)						Source: 21F0317-01 Prepared: 06-Jul-2021 Analyzed: 06-Jul-2021 11:55					
Sulfate	19.8	2.00	2.00	mg/L	15.0	4.66	101	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJG0102-MSD1)						Source: 21F0317-01 Prepared: 06-Jul-2021 Analyzed: 06-Jul-2021 11:56					
Sulfate	20.4	2.00	2.00	mg/L	15.0	4.66	105	75-125	2.99	20	

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



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Microbiology - Quality Control

Batch BJF0544 - No Prep Wet Chem

Instrument: N/A

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJF0544-BLK1)						Prepared: 18-Jun-2021 Analyzed: 19-Jun-2021 17:55					
Total Coliforms	ND	1	1	CFU/100 ml							U



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Certified Analyses included in this Report

Analyte	Certifications
EPA 200.8 in Water	
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-54	NELAP,DoD-ELAP
Iron-57	NELAP,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
EPA 200.8 UCT-KED in Water	
Arsenic-75a	NELAP,WA-DW,DoD-ELAP
Arsenic-75a	NELAP,WADOE,DoD-ELAP
Zinc-66	NELAP,WADOE,DoD-ELAP
Zinc-66	NELAP,WA-DW,DoD-ELAP
Zinc-67	NELAP,WADOE,DoD-ELAP
Zinc-67	NELAP,WA-DW,DoD-ELAP
EPA 353.2 in Water	
Nitrate + Nitrite as N	NELAP,DoD-ELAP,WADOE
Nitrate + Nitrite as N	NELAP,DoD-ELAP
Nitrite-N	NELAP,DoD-ELAP
Nitrite-N	WADOE,NELAP,DoD-ELAP
EPA 375.2 in Water	
Sulfate	WADOE,NELAP
Sulfate	NELAP
EPA 410.4 in Water	
COD	DoD-ELAP,NELAP,WADOE
COD	DoD-ELAP,NELAP
EPA 6010D in Water	
Calcium	WADOE,NELAP,DoD-ELAP
Calcium	NELAP,DoD-ELAP
Potassium	NELAP,DoD-ELAP
Potassium	WADOE,NELAP,DoD-ELAP
Sodium	DoD-ELAP,WADOE,NELAP
Sodium	DoD-ELAP,NELAP
Sodium-1	DoD-ELAP
Sodium-1	DoD-ELAP
Barium	WADOE,NELAP,DoD-ELAP
Barium	NELAP,DoD-ELAP



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Manganese	WADOE,NELAP,DoD-ELAP
Manganese	NELAP,DoD-ELAP
EPA 8260D in Water	
Chloromethane	DoD-ELAP,ADEC,NELAP
Chloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP
Bromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP
Chloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP
Acrolein	DoD-ELAP,NELAP
Acrolein	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP
Acetone	DoD-ELAP,ADEC,NELAP
Acetone	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Iodomethane	DoD-ELAP,NELAP,WADOE
Iodomethane	DoD-ELAP,NELAP
Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP
Acrylonitrile	DoD-ELAP,NELAP
Acrylonitrile	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP
Carbon Disulfide	DoD-ELAP,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP
2-Butanone	DoD-ELAP,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE



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cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP
Toluene	DoD-ELAP,ADEC,NELAP
Toluene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP
2-Hexanone	DoD-ELAP,NELAP
2-Hexanone	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP



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1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP
Chlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP
Ethylbenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP
Styrene	DoD-ELAP,NELAP
Styrene	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,NELAP
Bromoform	DoD-ELAP,NELAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP
n-Propylbenzene	DoD-ELAP,NELAP
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,NELAP
Bromobenzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP



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1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP
Naphthalene	DoD-ELAP,ADEC,NELAP
Naphthalene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP
n-Hexane	WADOE
n-Hexane	
2-Pentanone	WADOE
2-Pentanone	

EPA 8260D-SIM in Water

Acrylonitrile	NELAP,WADOE
Acrylonitrile	NELAP
Vinyl chloride	NELAP,WADOE
Vinyl chloride	NELAP



Environmental Partners, Inc.
1180 NW Maple St., Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: 382595
Project Manager: Doug Kunkel

Reported:
22-Jul-2021 19:49

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

EPA 9060A in Water

Total Organic Carbon	DoD-ELAP,NELAP
Total Organic Carbon	DoD-ELAP,WADOE,NELAP

SM 2320 B-97 in Water

Alkalinity, Bicarbonate	NELAP,WA-DW,DoD-ELAP
Alkalinity, Bicarbonate	NELAP,WADOE,DoD-ELAP
Alkalinity, Carbonate	WA-DW,DoD-ELAP,NELAP
Alkalinity, Carbonate	WADOE,DoD-ELAP,NELAP
Alkalinity, Hydroxide	WADOE,DoD-ELAP,NELAP
Alkalinity, Hydroxide	WA-DW,DoD-ELAP,NELAP
Alkalinity, Total	DoD-ELAP,WA-DW,NELAP
Alkalinity, Total	DoD-ELAP,WADOE,NELAP

SM 4500-H+ B-00 in Water

pH	NELAP,WA-DW
pH	WADOE,NELAP

SM 4500-NH3 H-97 in Water

Ammonia-N	DoD-ELAP,NELAP
Ammonia-N	WADOE,DoD-ELAP,NELAP

SM 9222B in Water

Total Coliforms	
Total Coliforms	WADOE



Environmental Partners, Inc.
1180 NW Maple St., Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: 382595
Project Manager: Doug Kunkel

Reported:
22-Jul-2021 19:49

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2023
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	02/28/2022
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2022



Environmental Partners, Inc.
1180 NW Maple St., Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: 382595
Project Manager: Doug Kunkel

Reported:
22-Jul-2021 19:49

Notes and Definitions

- * Flagged value is not within established control limits.
- D The reported value is from a dilution
- E The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
- H Hold time violation - Hold time was exceeded.
- 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
- 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, Incorporated
Analytical Chemists and Consultants

11 October 2021

Doug Kunkel
TRC Companies, Inc
1180 NW Maple Street, Suite 310
Issaquah, WA 98027

RE: Olalla Landfill

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)
2110203

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, Inc.

Kelly Bottem, Client Services Manager

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



Chain of Custody Record & Laboratory Analysis Request



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

ARI Assigned Number: 21E0203	Turn-around Requested: STANDARD	Page: 1 of 1
ARI Client Company: TRC	Phone:	Date: 9-16-21
Client Contact: DAUG KUNKEL	No. of Coolers:	Ice Present? 5-4:49

Client Project Name: Glalla LANDFILL					Analysis Requested									Notes/Comments	
Client Project #: 429487		Samplers: STRA / BRIANT			0926-700	UL-9760 SIM	DISSOLVED METALS AS FIC IN BATH	TOTAL METALS	K Na Ca	ALKALINITY / CaCO3 equiv	pH	WATER	TOL, COD	NH3	TOTAL Coliform
Sample ID	Date	Time	Matrix	No. Containers											
MW-1	9-16-21	0935	H2O	11	X	X	X	X	X	X	X	X	X		
MW-3		1145		11	X	X	X	X	X	X	X	X	X		
MW-10		1240		11	X	X	X	X	X	X	X	X	X		
MW-6		1350		11	X	X	X	X	X	X	X	X	X		
MW-8		1450		11	X	X	X	X	X	X	X	X	X		
MW-12		1545		11	X	X	X	X	X	X	X	X	X		
TB	9-16-21		H2O	1	X										
TB1	9-16-21		H2O	1	X										
Comments/Special Instructions all requested analyses for every sample.	Relinquished by: (Signature)	Received by: (Signature)			Relinquished by: (Signature)						Received by: (Signature)				
	Printed Name: Caithan Briant	Printed Name: D. Lorie			Printed Name:						Printed Name:				
	Company: TRC	Company: ARTR			Company:						Company:				
	Date & Time: 9-16-21, 1700	Date & Time: 09/16/21 1700			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: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.



TRC Companies, Inc
1180 NW Maple Street, Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
11-Oct-2021 17:20

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	21I0203-01	Water	16-Sep-2021 09:35	16-Sep-2021 17:00
MW-1	21I0203-02	Water	16-Sep-2021 09:35	16-Sep-2021 17:00
MW-3	21I0203-03	Water	16-Sep-2021 11:45	16-Sep-2021 17:00
MW-3	21I0203-04	Water	16-Sep-2021 11:45	16-Sep-2021 17:00
MW-10	21I0203-05	Water	16-Sep-2021 12:40	16-Sep-2021 17:00
MW-10	21I0203-06	Water	16-Sep-2021 12:40	16-Sep-2021 17:00
MW-6	21I0203-07	Water	16-Sep-2021 13:50	16-Sep-2021 17:00
MW-6	21I0203-08	Water	16-Sep-2021 13:50	16-Sep-2021 17:00
MW-8	21I0203-09	Water	16-Sep-2021 14:50	16-Sep-2021 17:00
MW-8	21I0203-10	Water	16-Sep-2021 13:50	16-Sep-2021 17:00
MW-12	21I0203-11	Water	16-Sep-2021 15:45	16-Sep-2021 17:00
MW-12	21I0203-12	Water	16-Sep-2021 15:45	16-Sep-2021 17:00
TB	21I0203-13	Water	16-Sep-2021 09:35	16-Sep-2021 17:00
TB 1	21I0203-14	Water	16-Sep-2021 09:35	16-Sep-2021 17:00



TRC Companies, Inc
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Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
11-Oct-2021 17:20

Work Order Case Narrative

Total and Dissolved Metals - EPA Method 200.8 and 6010D

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

Initial and continuing calibrations were within method requirements.

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

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

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

Wet Chemistry

The sample(s) were prepared and analyzed within the recommended holding times with the exception of pH and total coliforms which were sent to the lab outside of the holding time.

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 reference material (SRM) percent recoveries were within control limits.

The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits with the exception of analytes flagged on the associated forms.

Volatiles - EPA Method SW8260D

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

Initial and continuing calibrations were within method requirements with the exception of all associated "Q" flagged analytes which are out of control high in the CCAL. All associated samples that contain analyte have been flagged with a "Q" qualifier.

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)



TRC Companies, Inc
1180 NW Maple Street, Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
11-Oct-2021 17:20

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.



WORK ORDER

21I0203

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

Client: TRC Companies, Inc	Project Manager: Kelly Bottem
Project: Olalla Landfill	Project Number: 429487

Preservation Confirmation

Container ID	Container Type	pH
21I0203-01 A	Corning Plastic, 125 mL, Na2S2O3	
21I0203-01 B	Small OJ, 500 mL	
21I0203-01 C	HDPE NM, 1000 mL	
21I0203-01 D	HDPE NM, 500 mL, 1:1 HNO3	<2 Pass (P)
21I0203-01 E	Glass NM, Amber, 250 mL, 9N H2SO4	<2 P
21I0203-01 F	VOA Vial, Clear, 40 mL, HCL	
21I0203-01 G	VOA Vial, Clear, 40 mL, HCL	
21I0203-01 H	VOA Vial, Clear, 40 mL, HCL	
21I0203-01 I	VOA Vial, Clear, 40 mL, HCL	
21I0203-01 J	VOA Vial, Clear, 40 mL, HCL	
21I0203-02 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2 P
21I0203-03 A	Corning Plastic, 125 mL, Na2S2O3	<2 PC
21I0203-03 B	Small OJ, 500 mL	
21I0203-03 C	HDPE NM, 1000 mL	
21I0203-03 D	HDPE NM, 500 mL, 1:1 HNO3	<2 P
21I0203-03 E	Glass NM, Amber, 250 mL, 9N H2SO4	<2 P
21I0203-03 F	VOA Vial, Clear, 40 mL, HCL	
21I0203-03 G	VOA Vial, Clear, 40 mL, HCL	
21I0203-03 H	VOA Vial, Clear, 40 mL, HCL	
21I0203-03 I	VOA Vial, Clear, 40 mL, HCL	
21I0203-03 J	VOA Vial, Clear, 40 mL, HCL	
21I0203-04	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2 P
21I0203-05 A	Corning Plastic, 125 mL, Na2S2O3	
21I0203-05 B	Small OJ, 500 mL	
21I0203-05 C	HDPE NM, 1000 mL	
21I0203-05 D	HDPE NM, 500 mL, 1:1 HNO3	<2 P
21I0203-05 E	Glass NM, Amber, 250 mL, 9N H2SO4	<2 P
21I0203-05 F	VOA Vial, Clear, 40 mL, HCL	
21I0203-05 G	VOA Vial, Clear, 40 mL, HCL	
21I0203-05 H	VOA Vial, Clear, 40 mL, HCL	
21I0203-05 I	VOA Vial, Clear, 40 mL, HCL	
21I0203-05 J	VOA Vial, Clear, 40 mL, HCL	
21I0203-06	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2 P
21I0203-07 A	Corning Plastic, 125 mL, Na2S2O3	



WORK ORDER

21I0203

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

Client: TRC Companies, Inc

Project Manager: Kelly Bottem

Project: Olalla Landfill

Project Number: 429487

21I0203-07 B	Small OJ, 500 mL		
21I0203-07 C	HDPE NM, 1000 mL		
21I0203-07 D	HDPE NM, 500 mL, 1:1 HNO3	L2	P
21I0203-07 E	Glass NM, Amber, 250 mL, 9N H2SO4	L2	P
21I0203-07 F	VOA Vial, Clear, 40 mL, HCL		
21I0203-07 G	VOA Vial, Clear, 40 mL, HCL		
21I0203-07 H	VOA Vial, Clear, 40 mL, HCL		
21I0203-07 I	VOA Vial, Clear, 40 mL, HCL		
21I0203-07 J	VOA Vial, Clear, 40 mL, HCL		
21I0203-08	HDPE NM, 500 mL, 1:1 HNO3 (FF)	L2	P
21I0203-09 A	Corning Plastic, 125 mL, Na2S2O3		
21I0203-09 B	Small OJ, 500 mL		
21I0203-09 C	HDPE NM, 1000 mL		
21I0203-09 D	HDPE NM, 500 mL, 1:1 HNO3	L2	P
21I0203-09 E	Glass NM, Amber, 250 mL, 9N H2SO4	L2	P
21I0203-09 F	VOA Vial, Clear, 40 mL, HCL		
21I0203-09 G	VOA Vial, Clear, 40 mL, HCL		
21I0203-09 H	VOA Vial, Clear, 40 mL, HCL		
21I0203-09 I	VOA Vial, Clear, 40 mL, HCL		
21I0203-09 J	VOA Vial, Clear, 40 mL, HCL		
21I0203-10	HDPE NM, 500 mL, 1:1 HNO3 (FF)	L2	P
21I0203-11 A	Corning Plastic, 125 mL, Na2S2O3		
21I0203-11 B	Small OJ, 500 mL		
21I0203-11 C	HDPE NM, 1000 mL		
21I0203-11 D	HDPE NM, 500 mL, 1:1 HNO3	L2	P
21I0203-11 E	Glass NM, Amber, 250 mL, 9N H2SO4	L2	P
21I0203-11 F	VOA Vial, Clear, 40 mL, HCL		
21I0203-11 G	VOA Vial, Clear, 40 mL, HCL		
21I0203-11 H	VOA Vial, Clear, 40 mL, HCL		
21I0203-11 I	VOA Vial, Clear, 40 mL, HCL		
21I0203-11 J	VOA Vial, Clear, 40 mL, HCL		
21I0203-12 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	L2	P

DL
Preservation Confirmed By

09/16/21
Date



Cooler Receipt Form

ARI Client: TRC

Project Name: Olaka Landfill

COC No(s): _____ NA

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

Assigned ARI Job No: 2110203

Tracking No: _____ NA

Preliminary Examination Phase:

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

Were custody papers included with the cooler? YES NO

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

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

Time 1700 5.4 4.9

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: DOO256

Cooler Accepted by: DL Date: 04/16/21 Time: 1700

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: DL Date: 04/16/21 Time: 1739 Labels checked by: _____

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

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____



TRC Companies, Inc
1180 NW Maple Street, Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
11-Oct-2021 17:20

MW-1
21I0203-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 09/16/2021 09:35

Instrument: NT2 Analyst: PKC

Analyzed: 09/21/2021 14:33

Sample Preparation:

Preparation Method: EPA 5030C (Purge and Trap)

Extract ID: 21I0203-01 I

Preparation Batch: BJI0577

Sample Size: 10 mL

Prepared: 09/21/2021

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



TRC Companies, Inc
1180 NW Maple Street, Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
11-Oct-2021 17:20

MW-1
21I0203-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 09/16/2021 09:35

Instrument: NT2 Analyst: PKC

Analyzed: 09/21/2021 14:33

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.50	ND	ug/L	U



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Issaquah WA, 98027

Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
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MW-1
21I0203-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 09/16/2021 09:35

Instrument: NT2 Analyst: PKC

Analyzed: 09/21/2021 14:33

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Pentanone	107-87-9	1	5.00	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	122	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	98.3	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	95.8	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	102	%	



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MW-1
21I0203-01 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 09/16/2021 09:35
Instrument: NT16 Analyst: KOTT	Analyzed: 09/20/2021 20:05
Sample Preparation:	Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 21I0203-01 F
Preparation Batch: BJI0554	Sample Size: 10 mL
Prepared: 09/20/2021	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	ND	ng/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>112</i>	<i>%</i>	



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Project Manager: Doug Kunkel

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MW-1
21I0203-01 (Water)

Metals and Metallic Compounds

Method: EPA 6010D
Instrument: ICP2 Analyst: MVP

Sampled: 09/16/2021 09:35
Analyzed: 09/30/2021 16:06

Sample Preparation: Preparation Method: TWC EPA 3010A
Preparation Batch: BJI0840
Prepared: 09/29/2021

Sample Size: 25 mL
Final Volume: 25 mL

Extract ID: 21I0203-01 D 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	13.4	mg/L	
Potassium	7440-09-7	1	0.500	0.857	mg/L	
Sodium	7440-23-5	1	0.500	5.31	mg/L	



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MW-1
21I0203-01 (Water)

Wet Chemistry

Method: EPA 325.2	Preparation Method: No Prep Wet Chem	Sampled: 09/16/2021 09:35
Instrument: LACHAT2 Analyst: RMS	Preparation Batch: BJI0886	Analyzed: 09/30/2021 15:46
Sample Preparation:	Prepared: 09/30/2021	Extract ID: 21I0203-01 B
	Sample Size: 10 mL	
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	5.77	mg/L	



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MW-1
21I0203-01 (Water)

Wet Chemistry

Method: EPA 353.2 Sampled: 09/16/2021 09:35
Instrument: [CALC] Analyst: RMS Analyzed: 09/17/2021 17:17

Sample Preparation: Preparation Method: [CALC] Extract ID: 21I0203-01
Preparation Batch: [CALC]
Prepared: 09/17/2021 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.0200	0.314	mg/L	

Instrument: LACHAT2 Analyst: RMS Analyzed: 09/17/2021 17:17

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21I0203-01 B
Preparation Batch: BJI0508 Sample Size: 10 mL
Prepared: 09/17/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		1	0.010	0.010	0.314	mg/L	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.010	0.010	ND	mg/L	U



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MW-1
21I0203-01 (Water)

Wet Chemistry

Method: EPA 375.2	Preparation Method: No Prep Wet Chem	Sampled: 09/16/2021 09:35
Instrument: LACHAT2 Analyst: BF	Preparation Batch: BJJ0068	Analyzed: 10/04/2021 17:49
Sample Preparation:	Prepared: 10/04/2021	Extract ID: 21I0203-01 C
	Sample Size: 10 mL	
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	4.38	mg/L	



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MW-1
21I0203-01 (Water)

Wet Chemistry

Method: EPA 410.4	Preparation Method: No Prep Wet Chem		Sampled: 09/16/2021 09:35
Instrument: UV1800-1 Analyst: CKI	Preparation Batch: BJJ0052	Sample Size: 2 mL	Analyzed: 10/04/2021 18:22
Sample Preparation:	Prepared: 10/04/2021	Final Volume: 2 mL	Extract ID: 21I0203-01 E

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
COD		1	10.0	10.0	ND	mg/L	U



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MW-1
21I0203-01 (Water)

Wet Chemistry

Method: EPA 9060A	Preparation Method: No Prep Wet Chem	Sampled: 09/16/2021 09:35
Instrument: TOC-LCSH Analyst: RMS	Preparation Batch: BJI0709	Analyzed: 09/24/2021 15:48
Sample Preparation:	Prepared: 09/24/2021	Extract ID: 21I0203-01 E
	Sample Size: 20 mL	
	Final Volume: 20 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	0.59	mg/L	



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MW-1
21I0203-01 (Water)

Wet Chemistry

Method: SM 2320 B-97	Preparation Method: No Prep Wet Chem	Sampled: 09/16/2021 09:35
Instrument: Accumet AB150 Analyst: UW	Preparation Batch: BJI0706	Analyzed: 09/24/2021 13:15
Sample Preparation:	Prepared: 09/24/2021	Extract ID: 21I0203-01 C
	Sample Size: 100 mL	
	Final Volume: 100 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	59.9	mg/L CaCO3	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Carbonate		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Hydroxide		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Total		1	1.00	1.00	59.9	mg/L CaCO3	



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MW-1
21I0203-01 (Water)

Wet Chemistry

Method: SM 4500-H+ B-00	Instrument: Accumet AB150	Analyst: DOE	Sampled: 09/16/2021 09:35	Analyzed: 09/16/2021 18:35
Sample Preparation:	Preparation Method: No Prep Wet Chem	Preparation Batch: BJI0476	Sample Size: 50 mL	Extract ID: 21I0203-01 B
	Prepared: 09/16/2021		Final Volume: 50 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.25	pH Units	H



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MW-1
21I0203-01 (Water)

Wet Chemistry

Method: SM 4500-NH3 H-97	Sampled: 09/16/2021 09:35
Instrument: LACHAT1 Analyst: RMS	Analyzed: 09/29/2021 13:52
Sample Preparation: Preparation Method: No Prep Wet Chem	Extract ID: 21I0203-01 E
Preparation Batch: BJI0811	Sample Size: 10 mL
Prepared: 09/28/2021	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.040	ND	mg/L	U



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MW-1
21I0203-01 (Water)

Microbiology

Method: SM 9222B Sampled: 09/16/2021 09:35
Instrument: N/A Analyst: CDE Analyzed: 09/17/2021 17:52

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21I0203-01
Preparation Batch: BJI0477 Sample Size: 100 mL
Prepared: 09/16/2021 Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Coliforms		1	1	1	ND	CFU/100 ml	H, U



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MW-1
21I0203-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8	Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix	Sampled: 09/16/2021 09:35
Instrument: ICPMS1 Analyst: MCB	Preparation Batch: BJI0798	Analyzed: 09/28/2021 21:09
Sample Preparation:	Prepared: 09/28/2021	Extract ID: 21I0203-02 A 01
	Sample Size: 25 mL	
	Final Volume: 25 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	20.0	ND	ug/L	U



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MW-1
21I0203-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED
Instrument: ICPMS1 Analyst: MCB
Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BJI0798
Prepared: 09/28/2021
Sample Size: 25 mL
Final Volume: 25 mL
Extract ID: 21I0203-02 A 01
Sampled: 09/16/2021 09:35
Analyzed: 09/28/2021 21:09

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Zinc, Dissolved	7440-66-6	1	6.00	ND	ug/L	U



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MW-1
21I0203-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010D
Instrument: ICP2 Analyst: MVP

Sampled: 09/16/2021 09:35

Analyzed: 09/29/2021 16:03

Sample Preparation: Preparation Method: WMN (No Prep) Sample Size: 25 mL
Preparation Batch: BJI0845 Final Volume: 25 mL
Prepared: 09/29/2021 Extract ID: 21I0203-02 A 02

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	ND	mg/L	U
Manganese, Dissolved	7439-96-5	1	0.0040	ND	mg/L	U



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MW-1
2110203-02RE1 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED	Sampled: 09/16/2021 09:35
Instrument: ICPMS1 Analyst: MCB	Analyzed: 09/30/2021 00:52
Sample Preparation:	Preparation Method: RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x
	Preparation Batch: BJI0832
	Prepared: 09/28/2021
	Sample Size: 100 mL
	Final Volume: 20 mL
	Extract ID: 2110203-02RE1 A 03

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.0930	ug/L	



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Project Manager: Doug Kunkel

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MW-3
21I0203-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 09/16/2021 11:45

Instrument: NT2 Analyst: PKC

Analyzed: 09/21/2021 14:55

Sample Preparation:

Preparation Method: EPA 5030C (Purge and Trap)

Extract ID: 21I0203-03 H

Preparation Batch: BJI0577

Sample Size: 10 mL

Prepared: 09/21/2021

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



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MW-3
21I0203-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 09/16/2021 11:45

Instrument: NT2 Analyst: PKC

Analyzed: 09/21/2021 14:55

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.50	ND	ug/L	U



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MW-3
21I0203-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 09/16/2021 11:45

Instrument: NT2 Analyst: PKC

Analyzed: 09/21/2021 14:55

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Pentanone	107-87-9	1	5.00	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	117	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	98.6	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	95.0	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	102	%	



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MW-3
21I0203-03 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 09/16/2021 11:45
Instrument: NT16 Analyst: KOTT	Preparation Batch: BJI0554	Analyzed: 09/20/2021 20:26
Sample Preparation:	Prepared: 09/20/2021	Extract ID: 21I0203-03 F
	Sample Size: 10 mL	
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	ND	ng/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>112</i>	<i>%</i>	



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1180 NW Maple Street, Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
11-Oct-2021 17:20

MW-3
21I0203-03 (Water)

Metals and Metallic Compounds

Method: EPA 6010D
Instrument: ICP2 Analyst: MVP

Sampled: 09/16/2021 11:45
Analyzed: 09/30/2021 16:09

Sample Preparation: Preparation Method: TWC EPA 3010A
Preparation Batch: BJI0840
Prepared: 09/29/2021

Sample Size: 25 mL
Final Volume: 25 mL

Extract ID: 21I0203-03 D 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	46.5	mg/L	
Potassium	7440-09-7	1	0.500	0.856	mg/L	
Sodium	7440-23-5	1	0.500	9.08	mg/L	



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MW-3
21I0203-03 (Water)

Wet Chemistry

Method: EPA 325.2	Preparation Method: No Prep Wet Chem	Sampled: 09/16/2021 11:45
Instrument: LACHAT2 Analyst: RMS	Preparation Batch: BJI0886	Analyzed: 09/30/2021 16:03
Sample Preparation:	Prepared: 09/30/2021	Extract ID: 21I0203-03 B
	Sample Size: 10 mL	
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	4.25	mg/L	



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MW-3
21I0203-03 (Water)

Wet Chemistry

Method: EPA 353.2 Sampled: 09/16/2021 11:45
Instrument: [CALC] Analyst: RMS Analyzed: 09/17/2021 17:33

Sample Preparation: Preparation Method: [CALC] Extract ID: 21I0203-03
Preparation Batch: [CALC]
Prepared: 09/17/2021 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.0200	ND	mg/L	U

Instrument: LACHAT2 Analyst: RMS Analyzed: 09/17/2021 17:33

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21I0203-03 B
Preparation Batch: BJI0508 Sample Size: 10 mL
Prepared: 09/17/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		1	0.010	0.010	0.019	mg/L	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.010	0.010	ND	mg/L	U



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MW-3
21I0203-03 (Water)

Wet Chemistry

Method: EPA 375.2	Preparation Method: No Prep Wet Chem	Sampled: 09/16/2021 11:45
Instrument: LACHAT2 Analyst: BF	Preparation Batch: BJJ0068	Analyzed: 10/04/2021 17:53
Sample Preparation:	Prepared: 10/04/2021	Extract ID: 21I0203-03 C
	Sample Size: 10 mL	
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	16.5	mg/L	



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MW-3
21I0203-03 (Water)

Wet Chemistry

Method: EPA 410.4	Preparation Method: No Prep Wet Chem	Sampled: 09/16/2021 11:45
Instrument: UV1800-1 Analyst: CKI	Preparation Batch: BJJ0052	Analyzed: 10/04/2021 18:23
Sample Preparation:	Prepared: 10/04/2021	Extract ID: 21I0203-03 E
	Sample Size: 2 mL	
	Final Volume: 2 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
COD		1	10.0	10.0	ND	mg/L	U



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MW-3
21I0203-03 (Water)

Wet Chemistry

Method: EPA 9060A	Preparation Method: No Prep Wet Chem	Sampled: 09/16/2021 11:45
Instrument: TOC-LCSH Analyst: RMS	Preparation Batch: BJI0709	Analyzed: 09/24/2021 17:17
Sample Preparation:	Prepared: 09/24/2021	Extract ID: 21I0203-03 E
	Sample Size: 20 mL	
	Final Volume: 20 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	2.26	mg/L	



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MW-3
21I0203-03 (Water)

Wet Chemistry

Method: SM 2320 B-97	Preparation Method: No Prep Wet Chem	Sampled: 09/16/2021 11:45
Instrument: Accumet AB150 Analyst: UW	Preparation Batch: BJI0706	Analyzed: 09/24/2021 13:15
Sample Preparation:	Prepared: 09/24/2021	Extract ID: 21I0203-03 C
	Sample Size: 100 mL	
	Final Volume: 100 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	208	mg/L CaCO3	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Carbonate		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Hydroxide		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Total		1	1.00	1.00	208	mg/L CaCO3	



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MW-3
21I0203-03 (Water)

Wet Chemistry

Method: SM 4500-H+ B-00	Instrument: Accumet AB150	Analyst: DOE	Sampled: 09/16/2021 11:45	Analyzed: 09/16/2021 18:35
Sample Preparation:	Preparation Method: No Prep Wet Chem	Preparation Batch: BJI0476	Sample Size: 50 mL	Final Volume: 50 mL
	Prepared: 09/16/2021		Extract ID: 21I0203-03 B	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.18	pH Units	H



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MW-3
21I0203-03 (Water)

Wet Chemistry

Method: SM 4500-NH3 H-97	Preparation Method: No Prep Wet Chem	Sample Size: 10 mL	Sampled: 09/16/2021 11:45
Instrument: LACHAT1 Analyst: RMS	Preparation Batch: BJI0811	Final Volume: 10 mL	Analyzed: 09/29/2021 13:57
Sample Preparation:	Prepared: 09/28/2021		Extract ID: 21I0203-03 E

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.040	ND	mg/L	U



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MW-3
21I0203-03 (Water)

Microbiology

Method: SM 9222B	Preparation Method: No Prep Wet Chem	Sample Size: 100 mL	Sampled: 09/16/2021 11:45
Instrument: N/A Analyst: CDE	Preparation Batch: BJI0477	Final Volume: 100 mL	Analyzed: 09/17/2021 17:52
Sample Preparation:	Prepared: 09/16/2021		Extract ID: 21I0203-03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Coliforms		1	1	1	ND	CFU/100 ml	U



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Project: Olalla Landfill
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Project Manager: Doug Kunkel

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MW-3
21I0203-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8
Instrument: ICPMS1 Analyst: MCB
Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BJI0798
Prepared: 09/28/2021
Sample Size: 25 mL
Final Volume: 25 mL
Extract ID: 21I0203-04 A 01
Sampled: 09/16/2021 11:45
Analyzed: 09/28/2021 20:40

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	20.0	ND	ug/L	U



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MW-3
21I0203-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED	Sampled: 09/16/2021 11:45
Instrument: ICPMS1 Analyst: MCB	Analyzed: 09/28/2021 20:40
Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix	Extract ID: 21I0203-04 A 01
Preparation Batch: BJI0798	Sample Size: 25 mL
Prepared: 09/28/2021	Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Zinc, Dissolved	7440-66-6	1	6.00	ND	ug/L	U

Sample Preparation: Preparation Method: RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x	Extract ID: 21I0203-04 A 03
Preparation Batch: BJI0832	Sample Size: 100 mL
Prepared: 09/28/2021	Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.113	ug/L	



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MW-3
21I0203-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010D	Preparation Method: WMN (No Prep)	Sample Size: 25 mL	Reported: 09/16/2021 11:45
Instrument: ICP2 Analyst: MVP	Preparation Batch: BJI0845	Final Volume: 25 mL	Analyzed: 09/29/2021 16:05
Sample Preparation:	Prepared: 09/29/2021	Extract ID: 21I0203-04 A 02	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	0.0136	mg/L	
Manganese, Dissolved	7439-96-5	1	0.0040	5.75	mg/L	



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Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
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MW-10
21I0203-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 09/16/2021 12:40
Instrument: NT2 Analyst: PKC Analyzed: 09/21/2021 15:17

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 21I0203-05 H
Preparation Batch: BJI0577 Sample Size: 10 mL
Prepared: 09/21/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



TRC Companies, Inc
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Issaquah WA, 98027

Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
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MW-10
2110203-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 09/16/2021 12:40

Instrument: NT2 Analyst: PKC

Analyzed: 09/21/2021 15:17

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.50	ND	ug/L	U



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Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
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MW-10
2110203-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 09/16/2021 12:40

Instrument: NT2 Analyst: PKC

Analyzed: 09/21/2021 15:17

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Pentanone	107-87-9	1	5.00	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	120	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	97.2	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	94.0	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	101	%	



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MW-10
21I0203-05 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 09/16/2021 12:40
Instrument: NT16 Analyst: KOTT	Analyzed: 09/20/2021 20:46
Sample Preparation:	Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 21I0203-05 F
	Preparation Batch: BJI0554 Sample Size: 10 mL
	Prepared: 09/20/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	ND	ng/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>106</i>	<i>%</i>	



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MW-10
21I0203-05 (Water)

Metals and Metallic Compounds

Method: EPA 6010D	Preparation Method: TWC EPA 3010A	Sample Size: 25 mL	Sampled: 09/16/2021 12:40
Instrument: ICP2 Analyst: MVP	Preparation Batch: BJI0840	Final Volume: 25 mL	Analyzed: 09/30/2021 16:12
Sample Preparation:	Prepared: 09/29/2021	Extract ID: 21I0203-05 D 01	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	42.6	mg/L	
Potassium	7440-09-7	1	0.500	1.41	mg/L	
Sodium	7440-23-5	1	0.500	20.0	mg/L	



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MW-10
21I0203-05 (Water)

Wet Chemistry

Method: EPA 325.2	Preparation Method: No Prep Wet Chem	Sampled: 09/16/2021 12:40
Instrument: LACHAT2 Analyst: RMS	Preparation Batch: BJI0886	Analyzed: 09/30/2021 16:04
Sample Preparation:	Prepared: 09/30/2021	Extract ID: 21I0203-05 B
	Sample Size: 10 mL	
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	6.30	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 429487 Project Manager: Doug Kunkel	Reported: 11-Oct-2021 17:20
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MW-10
21I0203-05 (Water)

Wet Chemistry

Method: EPA 353.2 Sampled: 09/16/2021 12:40
Instrument: [CALC] Analyst: RMS Analyzed: 09/17/2021 17:34

Sample Preparation: Preparation Method: [CALC] Extract ID: 21I0203-05
Preparation Batch: [CALC]
Prepared: 09/17/2021 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.0200	ND	mg/L	U

Instrument: LACHAT2 Analyst: RMS Analyzed: 09/17/2021 17:34

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21I0203-05 B
Preparation Batch: BJI0508 Sample Size: 10 mL
Prepared: 09/17/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		1	0.010	0.010	ND	mg/L	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.010	0.010	ND	mg/L	U



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MW-10
21I0203-05 (Water)

Wet Chemistry

Method: EPA 375.2	Preparation Method: No Prep Wet Chem	Sampled: 09/16/2021 12:40
Instrument: LACHAT2 Analyst: BF	Preparation Batch: BJJ0068	Analyzed: 10/04/2021 17:55
Sample Preparation:	Prepared: 10/04/2021	Extract ID: 21I0203-05 C
	Sample Size: 10 mL	
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	15.5	mg/L	



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MW-10
2110203-05 (Water)

Wet Chemistry

Method: EPA 410.4	Instrument: UV1800-1	Analyst: CKI	Sampled: 09/16/2021 12:40	Analyzed: 10/04/2021 18:25
Sample Preparation:	Preparation Method: No Prep Wet Chem	Preparation Batch: BJJ0052	Sample Size: 2 mL	Final Volume: 2 mL
	Prepared: 10/04/2021		Extract ID: 2110203-05 E	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
COD		1	10.0	10.0	ND	mg/L	U



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MW-10
2110203-05 (Water)

Wet Chemistry

Method: EPA 9060A	Preparation Method: No Prep Wet Chem	Sampled: 09/16/2021 12:40
Instrument: TOC-LCSH Analyst: RMS	Preparation Batch: BJI0709	Analyzed: 09/24/2021 17:39
Sample Preparation:	Prepared: 09/24/2021	Extract ID: 2110203-05 E
	Sample Size: 20 mL	
	Final Volume: 20 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	2.49	mg/L	



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MW-10
21I0203-05 (Water)

Wet Chemistry

Method: SM 2320 B-97	Preparation Method: No Prep Wet Chem	Sampled: 09/16/2021 12:40
Instrument: Accumet AB150 Analyst: UW	Preparation Batch: BJI0706	Analyzed: 09/24/2021 13:15
Sample Preparation:	Prepared: 09/24/2021	Extract ID: 21I0203-05 C
	Sample Size: 100 mL	
	Final Volume: 100 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	227	mg/L CaCO3	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Carbonate		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Hydroxide		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Total		1	1.00	1.00	227	mg/L CaCO3	



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MW-10
21I0203-05 (Water)

Wet Chemistry

Method: SM 4500-H+ B-00	Preparation Method: No Prep Wet Chem	Sampled: 09/16/2021 12:40
Instrument: Accumet AB150	Preparation Batch: BJI0476	Analyzed: 09/16/2021 18:35
Analyst: DOE	Prepared: 09/16/2021	Extract ID: 21I0203-05 B
Sample Preparation:	Sample Size: 50 mL	
	Final Volume: 50 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.60	pH Units	H



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MW-10
2110203-05 (Water)

Wet Chemistry

Method: SM 4500-NH3 H-97	Sampled: 09/16/2021 12:40
Instrument: LACHAT1 Analyst: RMS	Analyzed: 09/29/2021 13:58
Sample Preparation: Preparation Method: No Prep Wet Chem	Extract ID: 2110203-05 E
Preparation Batch: BJI0811	Sample Size: 10 mL
Prepared: 09/28/2021	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.040	0.086	mg/L	



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MW-10
21I0203-05 (Water)

Microbiology

Method: SM 9222B	Preparation Method: No Prep Wet Chem	Sampled: 09/16/2021 12:40
Instrument: N/A Analyst: CDE	Preparation Batch: BJI0477	Analyzed: 09/17/2021 17:52
Sample Preparation:	Prepared: 09/16/2021	Extract ID: 21I0203-05
	Sample Size: 100 mL	
	Final Volume: 100 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Coliforms		1	1	1	ND	CFU/100 ml	U



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MW-10
21I0203-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8
Instrument: ICPMS1 Analyst: MCB
Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BJI0798
Prepared: 09/28/2021
Sample Size: 25 mL
Final Volume: 25 mL
Extract ID: 21I0203-06 A 01
Sampled: 09/16/2021 12:40
Analyzed: 09/28/2021 20:46

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	20.0	ND	ug/L	U



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MW-10
21I0203-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED	Sampled: 09/16/2021 12:40
Instrument: ICPMS1 Analyst: MCB	Analyzed: 09/28/2021 20:46
Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix	Extract ID: 21I0203-06 A 01
Preparation Batch: BJI0798	Sample Size: 25 mL
Prepared: 09/28/2021	Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Zinc, Dissolved	7440-66-6	1	6.00	ND	ug/L	U

Sample Preparation: Preparation Method: RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x	Extract ID: 21I0203-06 A 03
Preparation Batch: BJI0832	Sample Size: 100 mL
Prepared: 09/28/2021	Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	2.14	ug/L	



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MW-10
21I0203-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010D
Instrument: ICP2 Analyst: MVP
Sample Preparation: Preparation Method: WMN (No Prep)
Preparation Batch: BJI0845 Prepared: 09/29/2021
Sample Size: 25 mL
Final Volume: 25 mL
Extract ID: 21I0203-06 A 02
Sampled: 09/16/2021 12:40
Analyzed: 09/29/2021 16:08

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	0.0177	mg/L	
Manganese, Dissolved	7439-96-5	1	0.0040	4.07	mg/L	



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Project Manager: Doug Kunkel

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MW-6
21I0203-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 09/16/2021 13:50

Instrument: NT2 Analyst: PKC

Analyzed: 09/21/2021 15:39

Sample Preparation:

Preparation Method: EPA 5030C (Purge and Trap)

Extract ID: 21I0203-07 I

Preparation Batch: BJI0577

Sample Size: 10 mL

Prepared: 09/21/2021

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



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MW-6
21I0203-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 09/16/2021 13:50

Instrument: NT2 Analyst: PKC

Analyzed: 09/21/2021 15:39

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	1.62	ug/L	
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.50	ND	ug/L	U



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Project Manager: Doug Kunkel

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MW-6
21I0203-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 09/16/2021 13:50

Instrument: NT2 Analyst: PKC

Analyzed: 09/21/2021 15:39

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Pentanone	107-87-9	1	5.00	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	124	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	101	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	95.5	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	104	%	



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MW-6
21I0203-07 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 09/16/2021 13:50
Instrument: NT16 Analyst: KOTT	Analyzed: 09/20/2021 21:06
Sample Preparation:	Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 21I0203-07 F
Preparation Batch: BJI0554	Sample Size: 10 mL
Prepared: 09/20/2021	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	ND	ng/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>113</i>	<i>%</i>	



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MW-6
21I0203-07 (Water)

Metals and Metallic Compounds

Method: EPA 6010D
Instrument: ICP2 Analyst: MVP

Sampled: 09/16/2021 13:50
Analyzed: 09/30/2021 16:15

Sample Preparation: Preparation Method: TWC EPA 3010A
Preparation Batch: BJI0840
Prepared: 09/29/2021

Sample Size: 25 mL
Final Volume: 25 mL

Extract ID: 21I0203-07 D 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	42.9	mg/L	
Potassium	7440-09-7	1	0.500	2.15	mg/L	
Sodium	7440-23-5	1	0.500	10.6	mg/L	



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MW-6
21I0203-07 (Water)

Wet Chemistry

Method: EPA 325.2	Preparation Method: No Prep Wet Chem	Sampled: 09/16/2021 13:50
Instrument: LACHAT2 Analyst: RMS	Preparation Batch: BJI0886	Analyzed: 09/30/2021 16:05
Sample Preparation:	Prepared: 09/30/2021	Extract ID: 21I0203-07 B
	Sample Size: 10 mL	
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	1.86	mg/L	



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MW-6
21I0203-07 (Water)

Wet Chemistry

Method: EPA 353.2 Sampled: 09/16/2021 13:50
Instrument: [CALC] Analyst: RMS Analyzed: 09/17/2021 17:35

Sample Preparation: Preparation Method: [CALC] Extract ID: 21I0203-07
Preparation Batch: [CALC]
Prepared: 09/17/2021 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.0200	ND	mg/L	U

Instrument: LACHAT2 Analyst: RMS Analyzed: 09/17/2021 17:35

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21I0203-07 B
Preparation Batch: BJI0508 Sample Size: 10 mL
Prepared: 09/17/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		1	0.010	0.010	0.010	mg/L	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.010	0.010	ND	mg/L	U



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MW-6
21I0203-07 (Water)

Wet Chemistry

Method: EPA 375.2	Preparation Method: No Prep Wet Chem	Sampled: 09/16/2021 13:50
Instrument: LACHAT2 Analyst: BF	Preparation Batch: BJJ0068	Analyzed: 10/04/2021 18:02
Sample Preparation:	Prepared: 10/04/2021	Extract ID: 21I0203-07 C
	Sample Size: 10 mL	
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	11.3	mg/L	



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MW-6
2110203-07 (Water)

Wet Chemistry

Method: EPA 410.4	Instrument: UV1800-1	Analyst: CKI	Sampled: 09/16/2021 13:50
Sample Preparation:	Preparation Method: No Prep Wet Chem	Preparation Batch: BJJ0052	Analyzed: 10/04/2021 18:25
	Prepared: 10/04/2021	Sample Size: 2 mL	Extract ID: 2110203-07 E
		Final Volume: 2 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
COD		1	10.0	10.0	ND	mg/L	U



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MW-6
2110203-07 (Water)

Wet Chemistry

Method: EPA 9060A	Preparation Method: No Prep Wet Chem	Sampled: 09/16/2021 13:50
Instrument: TOC-LCSH Analyst: RMS	Preparation Batch: BJI0709	Analyzed: 09/24/2021 18:40
Sample Preparation:	Prepared: 09/24/2021	Extract ID: 2110203-07 E
	Sample Size: 20 mL	
	Final Volume: 20 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	1.87	mg/L	



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MW-6
21I0203-07 (Water)

Wet Chemistry

Method: SM 2320 B-97	Preparation Method: No Prep Wet Chem	Sampled: 09/16/2021 13:50
Instrument: Accumet AB150 Analyst: UW	Preparation Batch: BJI0706	Analyzed: 09/24/2021 13:15
Sample Preparation:	Prepared: 09/24/2021	Extract ID: 21I0203-07 C
	Sample Size: 100 mL	
	Final Volume: 100 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	211	mg/L CaCO3	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Carbonate		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Hydroxide		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Total		1	1.00	1.00	211	mg/L CaCO3	



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MW-6
21I0203-07 (Water)

Wet Chemistry

Method: SM 4500-H+ B-00	Instrument: Accumet AB150	Analyst: DOE	Sampled: 09/16/2021 13:50
Sample Preparation:	Preparation Method: No Prep Wet Chem	Preparation Batch: BJI0476	Analyzed: 09/16/2021 18:35
	Prepared: 09/16/2021	Sample Size: 50 mL	Extract ID: 21I0203-07 B
		Final Volume: 50 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.55	pH Units	H



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MW-6
21I0203-07 (Water)

Wet Chemistry

Method: SM 4500-NH3 H-97	Preparation Method: No Prep Wet Chem	Sample Size: 10 mL	Sampled: 09/16/2021 13:50
Instrument: LACHAT1 Analyst: RMS	Preparation Batch: BJI0811	Final Volume: 10 mL	Analyzed: 09/29/2021 13:59
Sample Preparation:	Prepared: 09/28/2021		Extract ID: 21I0203-07 E

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.040	0.113	mg/L	



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MW-6
21I0203-07 (Water)

Microbiology

Method: SM 9222B	Preparation Method: No Prep Wet Chem	Sampled: 09/16/2021 13:50
Instrument: N/A Analyst: CDE	Preparation Batch: BJI0477	Analyzed: 09/17/2021 17:52
Sample Preparation:	Prepared: 09/16/2021	Extract ID: 21I0203-07
	Sample Size: 100 mL	
	Final Volume: 100 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Coliforms		1	1	1	ND	CFU/100 ml	U



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MW-6
21I0203-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8	Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix	Sampled: 09/16/2021 13:50
Instrument: ICPMS1 Analyst: MCB	Preparation Batch: BJI0798	Analyzed: 09/28/2021 20:51
Sample Preparation:	Prepared: 09/28/2021	Extract ID: 21I0203-08 A 01
	Sample Size: 25 mL	
	Final Volume: 25 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	20.0	219	ug/L	



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MW-6
21I0203-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED	Sampled: 09/16/2021 13:50
Instrument: ICPMS1 Analyst: MCB	Analyzed: 09/28/2021 20:51
Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix	Extract ID: 21I0203-08 A 01
Preparation Batch: BJI0798	Sample Size: 25 mL
Prepared: 09/28/2021	Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Zinc, Dissolved	7440-66-6	1	6.00	ND	ug/L	U

Sample Preparation: Preparation Method: RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x	Extract ID: 21I0203-08 A 03
Preparation Batch: BJI0832	Sample Size: 100 mL
Prepared: 09/28/2021	Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.373	ug/L	



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MW-6
21I0203-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010D	Preparation Method: WMN (No Prep)	Sample Size: 25 mL	Sampled: 09/16/2021 13:50
Instrument: ICP2 Analyst: MVP	Preparation Batch: BJI0845	Final Volume: 25 mL	Analyzed: 09/29/2021 16:11
Sample Preparation:	Prepared: 09/29/2021	Extract ID: 21I0203-08 A 02	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	0.0210	mg/L	
Manganese, Dissolved	7439-96-5	1	0.0040	0.332	mg/L	



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MW-8
21I0203-09 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 09/16/2021 14:50

Instrument: NT2 Analyst: PKC

Analyzed: 09/21/2021 16:02

Sample Preparation:

Preparation Method: EPA 5030C (Purge and Trap)

Extract ID: 21I0203-09 H

Preparation Batch: BJI0577

Sample Size: 10 mL

Prepared: 09/21/2021

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



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MW-8
21I0203-09 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 09/16/2021 14:50

Instrument: NT2 Analyst: PKC

Analyzed: 09/21/2021 16:02

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.50	ND	ug/L	U



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MW-8
21I0203-09 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 09/16/2021 14:50

Instrument: NT2 Analyst: PKC

Analyzed: 09/21/2021 16:02

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Pentanone	107-87-9	1	5.00	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	122	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	99.5	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	94.3	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	103	%	



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MW-8
21I0203-09 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 09/16/2021 14:50
Instrument: NT16 Analyst: KOTT	Analyzed: 09/20/2021 21:27
Sample Preparation:	Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 21I0203-09 F
Preparation Batch: BJI0554	Sample Size: 10 mL
Prepared: 09/20/2021	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	ND	ng/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>112</i>	<i>%</i>	



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MW-8
21I0203-09 (Water)

Metals and Metallic Compounds

Method: EPA 6010D
Instrument: ICP2 Analyst: MVP

Sampled: 09/16/2021 14:50
Analyzed: 09/30/2021 16:17

Sample Preparation: Preparation Method: TWC EPA 3010A
Preparation Batch: BJI0840
Prepared: 09/29/2021

Sample Size: 25 mL
Final Volume: 25 mL

Extract ID: 21I0203-09 D 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	13.4	mg/L	
Potassium	7440-09-7	1	0.500	0.974	mg/L	
Sodium	7440-23-5	1	0.500	6.05	mg/L	



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MW-8
21I0203-09 (Water)

Wet Chemistry

Method: EPA 325.2	Preparation Method: No Prep Wet Chem	Sampled: 09/16/2021 14:50
Instrument: LACHAT2 Analyst: RMS	Preparation Batch: BJI0886	Analyzed: 09/30/2021 16:06
Sample Preparation:	Prepared: 09/30/2021	Extract ID: 21I0203-09 B
	Sample Size: 10 mL	
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	2.23	mg/L	



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MW-8
21I0203-09 (Water)

Wet Chemistry

Method: EPA 353.2 Sampled: 09/16/2021 14:50
Instrument: [CALC] Analyst: RMS Analyzed: 09/17/2021 17:37

Sample Preparation: Preparation Method: [CALC] Extract ID: 21I0203-09
Preparation Batch: [CALC]
Prepared: 09/17/2021 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.0200	0.0239	mg/L	

Instrument: LACHAT2 Analyst: RMS Analyzed: 09/17/2021 17:37

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21I0203-09 B
Preparation Batch: BJI0508 Sample Size: 10 mL
Prepared: 09/17/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		1	0.010	0.010	0.024	mg/L	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.010	0.010	ND	mg/L	U



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MW-8
21I0203-09 (Water)

Wet Chemistry

Method: EPA 375.2	Preparation Method: No Prep Wet Chem	Sampled: 09/16/2021 14:50
Instrument: LACHAT2 Analyst: BF	Preparation Batch: BJJ0068	Analyzed: 10/04/2021 18:03
Sample Preparation:	Prepared: 10/04/2021	Extract ID: 21I0203-09 C
	Sample Size: 10 mL	
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	3.72	mg/L	



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MW-8
2110203-09 (Water)

Wet Chemistry

Method: EPA 410.4	Instrument: UV1800-1	Analyst: CKI	Sampled: 09/16/2021 14:50
Sample Preparation:	Preparation Method: No Prep Wet Chem	Preparation Batch: BJJ0052	Analyzed: 10/04/2021 18:25
	Prepared: 10/04/2021	Sample Size: 2 mL	Extract ID: 2110203-09 E
		Final Volume: 2 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
COD		1	10.0	10.0	ND	mg/L	U



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MW-8
2110203-09 (Water)

Wet Chemistry

Method: EPA 9060A	Preparation Method: No Prep Wet Chem	Sampled: 09/16/2021 14:50
Instrument: TOC-LCSH Analyst: RMS	Preparation Batch: BJI0709	Analyzed: 09/24/2021 19:02
Sample Preparation:	Prepared: 09/24/2021	Extract ID: 2110203-09 E
	Sample Size: 20 mL	
	Final Volume: 20 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	ND	mg/L	U



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MW-8
21I0203-09 (Water)

Wet Chemistry

Method: SM 2320 B-97	Preparation Method: No Prep Wet Chem	Sampled: 09/16/2021 14:50
Instrument: Accumet AB150 Analyst: UW	Preparation Batch: BJI0706	Analyzed: 09/24/2021 13:15
Sample Preparation:	Prepared: 09/24/2021	Extract ID: 21I0203-09 C
	Sample Size: 100 mL	
	Final Volume: 100 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	75.9	mg/L CaCO3	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Carbonate		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Hydroxide		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Total		1	1.00	1.00	75.9	mg/L CaCO3	



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MW-8
21I0203-09 (Water)

Wet Chemistry

Method: SM 4500-H+ B-00	Instrument: Accumet AB150	Analyst: DOE	Sampled: 09/16/2021 14:50	Analyzed: 09/16/2021 18:35
Sample Preparation:	Preparation Method: No Prep Wet Chem	Preparation Batch: BJI0476	Sample Size: 50 mL	Final Volume: 50 mL
	Prepared: 09/16/2021			Extract ID: 21I0203-09 B

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.68	pH Units	H



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MW-8
21I0203-09 (Water)

Wet Chemistry

Method: SM 4500-NH3 H-97	Sampled: 09/16/2021 14:50
Instrument: LACHAT1 Analyst: RMS	Analyzed: 09/29/2021 14:00
Sample Preparation: Preparation Method: No Prep Wet Chem	Extract ID: 21I0203-09 E
Preparation Batch: BJI0811	Sample Size: 10 mL
Prepared: 09/28/2021	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.040	ND	mg/L	U



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MW-8
21I0203-09 (Water)

Microbiology

Method: SM 9222B Sampled: 09/16/2021 14:50
Instrument: N/A Analyst: CDE Analyzed: 09/17/2021 17:52

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21I0203-09
Preparation Batch: BJI0477 Sample Size: 100 mL
Prepared: 09/16/2021 Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Coliforms		1	1	1	ND	CFU/100 ml	U



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MW-8
21I0203-10 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8	Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix	Sampled: 09/16/2021 13:50
Instrument: ICPMS1 Analyst: MCB	Preparation Batch: BJI0798	Analyzed: 09/28/2021 20:56
Sample Preparation:	Prepared: 09/28/2021	Extract ID: 21I0203-10 A 01
	Sample Size: 25 mL	
	Final Volume: 25 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	20.0	46.7	ug/L	



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MW-8
21I0203-10 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED	Sampled: 09/16/2021 13:50
Instrument: ICPMS1 Analyst: MCB	Analyzed: 09/28/2021 20:56
Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix	Extract ID: 21I0203-10 A 01
Preparation Batch: BJI0798	Sample Size: 25 mL
Prepared: 09/28/2021	Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Zinc, Dissolved	7440-66-6	1	6.00	ND	ug/L	U

Sample Preparation: Preparation Method: RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x	Extract ID: 21I0203-10 A 03
Preparation Batch: BJI0832	Sample Size: 100 mL
Prepared: 09/28/2021	Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.566	ug/L	



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MW-8
21I0203-10 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010D
Instrument: ICP2 Analyst: MVP
Sample Preparation: Preparation Method: WMN (No Prep)
Preparation Batch: BJI0845
Prepared: 09/29/2021
Sample Size: 25 mL
Final Volume: 25 mL
Extract ID: 21I0203-10 A 02

Sampled: 09/16/2021 13:50

Analyzed: 09/29/2021 16:42

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	ND	mg/L	U
Manganese, Dissolved	7439-96-5	1	0.0040	1.84	mg/L	



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Project Manager: Doug Kunkel

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MW-12
21I0203-11 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 09/16/2021 15:45

Instrument: NT2 Analyst: PKC

Analyzed: 09/21/2021 16:23

Sample Preparation:

Preparation Method: EPA 5030C (Purge and Trap)

Extract ID: 21I0203-11 H

Preparation Batch: BJI0577

Sample Size: 10 mL

Prepared: 09/21/2021

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



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MW-12
21I0203-11 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 09/16/2021 15:45

Instrument: NT2 Analyst: PKC

Analyzed: 09/21/2021 16:23

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.50	ND	ug/L	U



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MW-12
21I0203-11 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 09/16/2021 15:45

Instrument: NT2 Analyst: PKC

Analyzed: 09/21/2021 16:23

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Pentanone	107-87-9	1	5.00	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	125	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	100	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	95.0	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	104	%	



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MW-12
21I0203-11 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 09/16/2021 15:45
Instrument: NT16 Analyst: KOTT	Analyzed: 09/20/2021 21:47
Sample Preparation:	Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 21I0203-11 F
Preparation Batch: BJI0554	Sample Size: 10 mL
Prepared: 09/20/2021	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	ND	ng/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>111</i>	<i>%</i>	



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MW-12
21I0203-11 (Water)

Metals and Metallic Compounds

Method: EPA 6010D
Instrument: ICP2 Analyst: MVP

Sampled: 09/16/2021 15:45

Analyzed: 09/30/2021 16:23

Sample Preparation: Preparation Method: TWC EPA 3010A
Preparation Batch: BJI0840
Prepared: 09/29/2021

Sample Size: 25 mL
Final Volume: 25 mL

Extract ID: 21I0203-11 D 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	12.7	mg/L	
Potassium	7440-09-7	1	0.500	0.997	mg/L	
Sodium	7440-23-5	1	0.500	5.86	mg/L	



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MW-12
21I0203-11 (Water)

Wet Chemistry

Method: EPA 325.2	Preparation Method: No Prep Wet Chem	Sampled: 09/16/2021 15:45
Instrument: LACHAT2 Analyst: RMS	Preparation Batch: BJI0886	Analyzed: 09/30/2021 16:08
Sample Preparation:	Prepared: 09/30/2021	Extract ID: 21I0203-11 B
	Sample Size: 10 mL	
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	2.24	mg/L	



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MW-12
21I0203-11 (Water)

Wet Chemistry

Method: EPA 353.2 Sampled: 09/16/2021 15:45
Instrument: [CALC] Analyst: RMS Analyzed: 09/17/2021 17:38

Sample Preparation: Preparation Method: [CALC] Extract ID: 21I0203-11
Preparation Batch: [CALC]
Prepared: 09/17/2021 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.0200	0.0204	mg/L	

Instrument: LACHAT2 Analyst: RMS Analyzed: 09/17/2021 17:38

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21I0203-11 B
Preparation Batch: BJI0508 Sample Size: 10 mL
Prepared: 09/17/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		1	0.010	0.010	0.020	mg/L	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.010	0.010	ND	mg/L	U



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MW-12
21I0203-11 (Water)

Wet Chemistry

Method: EPA 375.2	Preparation Method: No Prep Wet Chem	Sampled: 09/16/2021 15:45
Instrument: LACHAT2 Analyst: BF	Preparation Batch: BJJ0068	Analyzed: 10/04/2021 18:04
Sample Preparation:	Prepared: 10/04/2021	Extract ID: 21I0203-11 C
	Sample Size: 10 mL	
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	3.49	mg/L	



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MW-12
21I0203-11 (Water)

Wet Chemistry

Method: EPA 410.4	Preparation Method: No Prep Wet Chem	Sampled: 09/16/2021 15:45
Instrument: UV1800-1 Analyst: CKI	Preparation Batch: BJJ0052	Analyzed: 10/04/2021 18:25
Sample Preparation:	Prepared: 10/04/2021	Extract ID: 21I0203-11 E
	Sample Size: 2 mL	
	Final Volume: 2 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
COD		1	10.0	10.0	ND	mg/L	U



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MW-12
21I0203-11 (Water)

Wet Chemistry

Method: EPA 9060A	Preparation Method: No Prep Wet Chem	Sampled: 09/16/2021 15:45
Instrument: TOC-LCSH Analyst: RMS	Preparation Batch: BJI0709	Analyzed: 09/24/2021 19:19
Sample Preparation:	Prepared: 09/24/2021	Extract ID: 21I0203-11 E
	Sample Size: 20 mL	
	Final Volume: 20 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	ND	mg/L	U



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MW-12
21I0203-11 (Water)

Wet Chemistry

Method: SM 2320 B-97	Preparation Method: No Prep Wet Chem	Sampled: 09/16/2021 15:45
Instrument: Accumet AB150 Analyst: UW	Preparation Batch: BJI0706	Analyzed: 09/24/2021 13:15
Sample Preparation:	Prepared: 09/24/2021	Extract ID: 21I0203-11 C
	Sample Size: 100 mL	
	Final Volume: 100 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	75.6	mg/L CaCO3	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Carbonate		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Hydroxide		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Total		1	1.00	1.00	75.6	mg/L CaCO3	



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MW-12
21I0203-11 (Water)

Wet Chemistry

Method: SM 4500-H+ B-00	Preparation Method: No Prep Wet Chem	Sampled: 09/16/2021 15:45
Instrument: Accumet AB150	Preparation Batch: BJI0476	Analyzed: 09/16/2021 18:35
Analyst: DOE	Prepared: 09/16/2021	Extract ID: 21I0203-11 B
Sample Preparation:	Sample Size: 50 mL	
	Final Volume: 50 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.61	pH Units	H



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MW-12
21I0203-11 (Water)

Wet Chemistry

Method: SM 4500-NH3 H-97	Preparation Method: No Prep Wet Chem	Sampled: 09/16/2021 15:45
Instrument: LACHAT1 Analyst: RMS	Preparation Batch: BJI0811	Analyzed: 09/29/2021 14:01
Sample Preparation:	Prepared: 09/28/2021	Extract ID: 21I0203-11 E
	Sample Size: 10 mL	
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.040	ND	mg/L	U



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MW-12
21I0203-11 (Water)

Microbiology

Method: SM 9222B Sampled: 09/16/2021 15:45
Instrument: N/A Analyst: CDE Analyzed: 09/17/2021 17:52

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21I0203-11
Preparation Batch: BJI0477 Sample Size: 100 mL
Prepared: 09/16/2021 Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Coliforms		1	1	1	ND	CFU/100 ml	U



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MW-12
21I0203-12 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8	Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix	Sampled: 09/16/2021 15:45
Instrument: ICPMS1 Analyst: MCB	Preparation Batch: BJI0798	Analyzed: 09/28/2021 21:02
Sample Preparation:	Prepared: 09/28/2021	Extract ID: 21I0203-12 A 01
	Sample Size: 25 mL	
	Final Volume: 25 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	20.0	46.6	ug/L	



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MW-12
21I0203-12 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED Sampled: 09/16/2021 15:45
Instrument: ICPMS1 Analyst: MCB Analyzed: 09/28/2021 21:02

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 21I0203-12 A 01
Preparation Batch: BJI0798 Sample Size: 25 mL
Prepared: 09/28/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Zinc, Dissolved	7440-66-6	1	6.00	ND	ug/L	U

Sample Preparation: Preparation Method: RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x Extract ID: 21I0203-12 A 03
Preparation Batch: BJI0832 Sample Size: 100 mL
Prepared: 09/28/2021 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.554	ug/L	



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MW-12
21I0203-12 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010D
Instrument: ICP2 Analyst: MVP
Sample Preparation: Preparation Method: WMN (No Prep)
Preparation Batch: BJI0845
Prepared: 09/29/2021
Sample Size: 25 mL
Final Volume: 25 mL
Extract ID: 21I0203-12 A 02

Sampled: 09/16/2021 15:45

Analyzed: 09/29/2021 16:55

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	ND	mg/L	U
Manganese, Dissolved	7439-96-5	1	0.0040	1.90	mg/L	



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TB
21I0203-13 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 09/16/2021 09:35
Instrument: NT16 Analyst: KOTT	Analyzed: 09/20/2021 17:43
Sample Preparation:	Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 21I0203-13 A
	Preparation Batch: BJI0554 Sample Size: 10 mL
	Prepared: 09/20/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	ND	ng/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	111	%	



TRC Companies, Inc
1180 NW Maple Street, Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
11-Oct-2021 17:20

TB 1
21I0203-14 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 09/16/2021 09:35

Instrument: NT2 Analyst: PKC

Analyzed: 09/21/2021 12:00

Sample Preparation:

Preparation Method: EPA 5030C (Purge and Trap)

Extract ID: 21I0203-14 A

Preparation Batch: BJI0577

Sample Size: 10 mL

Prepared: 09/21/2021

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



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TB 1
21I0203-14 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 09/16/2021 09:35

Instrument: NT2 Analyst: PKC

Analyzed: 09/21/2021 12:00

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.50	ND	ug/L	U



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TB 1
21I0203-14 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 09/16/2021 09:35

Instrument: NT2 Analyst: PKC

Analyzed: 09/21/2021 12:00

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Pentanone	107-87-9	1	5.00	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	115	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	97.9	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	93.7	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	103	%	



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Reported:
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Volatile Organic Compounds - Quality Control

Batch BJI0577 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0577-BLK2)		Prepared: 21-Sep-2021 Analyzed: 21-Sep-2021 11:39								
Chloromethane	ND	0.50	ug/L							U
Vinyl Chloride	ND	0.20	ug/L							U
Bromomethane	ND	1.00	ug/L							U
Chloroethane	ND	0.20	ug/L							U
Trichlorofluoromethane	ND	0.20	ug/L							U
Acrolein	ND	5.00	ug/L							U
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.20	ug/L							U
Acetone	ND	5.00	ug/L							U
1,1-Dichloroethene	ND	0.20	ug/L							U
Iodomethane	ND	1.00	ug/L							U
Methylene Chloride	ND	1.00	ug/L							U
Acrylonitrile	ND	1.00	ug/L							U
Carbon Disulfide	ND	0.20	ug/L							U
trans-1,2-Dichloroethene	ND	0.20	ug/L							U
Vinyl Acetate	ND	0.20	ug/L							U
1,1-Dichloroethane	ND	0.20	ug/L							U
2-Butanone	ND	5.00	ug/L							U
2,2-Dichloropropane	ND	0.20	ug/L							U
cis-1,2-Dichloroethene	ND	0.20	ug/L							U
Chloroform	ND	0.20	ug/L							U
Bromochloromethane	ND	0.20	ug/L							U
1,1,1-Trichloroethane	ND	0.20	ug/L							U
1,1-Dichloropropene	ND	0.20	ug/L							U
Carbon tetrachloride	ND	0.20	ug/L							U
1,2-Dichloroethane	ND	0.20	ug/L							U
Benzene	ND	0.20	ug/L							U
Trichloroethene	ND	0.20	ug/L							U
1,2-Dichloropropane	ND	0.20	ug/L							U
Bromodichloromethane	ND	0.20	ug/L							U
Dibromomethane	ND	0.20	ug/L							U
2-Chloroethyl vinyl ether	ND	1.00	ug/L							U
4-Methyl-2-Pentanone	ND	5.00	ug/L							U
cis-1,3-Dichloropropene	ND	0.20	ug/L							U
Toluene	ND	0.20	ug/L							U
trans-1,3-Dichloropropene	ND	0.20	ug/L							U



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Reported:
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Volatile Organic Compounds - Quality Control

Batch BJI0577 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0577-BLK2)		Prepared: 21-Sep-2021 Analyzed: 21-Sep-2021 11:39								
2-Hexanone	ND	5.00	ug/L							U
1,1,2-Trichloroethane	ND	0.20	ug/L							U
1,3-Dichloropropane	ND	0.20	ug/L							U
Tetrachloroethene	ND	0.20	ug/L							U
Dibromochloromethane	ND	0.20	ug/L							U
1,2-Dibromoethane	ND	0.20	ug/L							U
Chlorobenzene	ND	0.20	ug/L							U
Ethylbenzene	ND	0.20	ug/L							U
1,1,1,2-Tetrachloroethane	ND	0.20	ug/L							U
m,p-Xylene	ND	0.40	ug/L							U
o-Xylene	ND	0.20	ug/L							U
Xylenes, total	ND	0.60	ug/L							U
Styrene	ND	0.20	ug/L							U
Bromoform	ND	0.20	ug/L							U
1,1,2,2-Tetrachloroethane	ND	0.20	ug/L							U
1,2,3-Trichloropropane	ND	0.50	ug/L							U
trans-1,4-Dichloro 2-Butene	ND	1.00	ug/L							U
n-Propylbenzene	ND	0.20	ug/L							U
Bromobenzene	ND	0.20	ug/L							U
Isopropyl Benzene	ND	0.20	ug/L							U
2-Chlorotoluene	ND	0.20	ug/L							U
4-Chlorotoluene	ND	0.20	ug/L							U
t-Butylbenzene	ND	0.20	ug/L							U
1,3,5-Trimethylbenzene	ND	0.20	ug/L							U
1,2,4-Trimethylbenzene	ND	0.20	ug/L							U
s-Butylbenzene	ND	0.20	ug/L							U
4-Isopropyl Toluene	ND	0.20	ug/L							U
1,3-Dichlorobenzene	ND	0.20	ug/L							U
1,4-Dichlorobenzene	ND	0.20	ug/L							U
n-Butylbenzene	ND	0.20	ug/L							U
1,2-Dichlorobenzene	ND	0.20	ug/L							U
1,2-Dibromo-3-chloropropane	ND	0.50	ug/L							U
1,2,4-Trichlorobenzene	ND	0.50	ug/L							U
Hexachloro-1,3-Butadiene	ND	0.50	ug/L							U
Naphthalene	ND	0.50	ug/L							U



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11-Oct-2021 17:20

Volatile Organic Compounds - Quality Control

Batch BJI0577 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0577-BLK2)		Prepared: 21-Sep-2021 Analyzed: 21-Sep-2021 11:39								
1,2,3-Trichlorobenzene	ND	0.50	ug/L							U
Dichlorodifluoromethane	ND	0.20	ug/L							U
Methyl tert-butyl Ether	ND	0.50	ug/L							U
2-Pentanone	ND	5.00	ug/L							U
<i>Surrogate: 1,2-Dichloroethane-d4</i>	5.83		ug/L	5.00		117	80-129			
<i>Surrogate: Toluene-d8</i>	4.94		ug/L	5.00		98.9	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	4.71		ug/L	5.00		94.1	80-120			
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	5.00		ug/L	5.00		100	80-120			
LCS (BJI0577-BS2)		Prepared: 21-Sep-2021 Analyzed: 21-Sep-2021 10:16								
Chloromethane	9.91	0.50	ug/L	10.0		99.1	60-138			
Vinyl Chloride	10.8	0.20	ug/L	10.0		108	66-133			
Bromomethane	11.0	1.00	ug/L	10.0		110	72-131			
Chloroethane	10.1	0.20	ug/L	10.0		101	60-155			
Trichlorofluoromethane	9.42	0.20	ug/L	10.0		94.2	62-141			
Acrolein	56.1	5.00	ug/L	50.0		112	52-190			
1,1,2-Trichloro-1,2,2-Trifluoroethane	11.8	0.20	ug/L	10.0		118	76-129			
Acetone	64.5	5.00	ug/L	50.0		129	58-142			Q
1,1-Dichloroethene	11.6	0.20	ug/L	10.0		116	69-135			
Iodomethane	11.3	1.00	ug/L	10.0		113	56-147			
Methylene Chloride	10.6	1.00	ug/L	10.0		106	65-135			
Acrylonitrile	10.4	1.00	ug/L	10.0		104	64-134			
Carbon Disulfide	10.9	0.20	ug/L	10.0		109	78-125			
trans-1,2-Dichloroethene	10.8	0.20	ug/L	10.0		108	78-128			
Vinyl Acetate	10.5	0.20	ug/L	10.0		105	55-138			
1,1-Dichloroethane	11.4	0.20	ug/L	10.0		114	76-124			
2-Butanone	64.4	5.00	ug/L	50.0		129	61-140			Q
2,2-Dichloropropane	10.6	0.20	ug/L	10.0		106	66-147			
cis-1,2-Dichloroethene	11.4	0.20	ug/L	10.0		114	80-121			
Chloroform	11.9	0.20	ug/L	10.0		119	80-122			
Bromochloromethane	11.8	0.20	ug/L	10.0		118	80-121			
1,1,1-Trichloroethane	11.7	0.20	ug/L	10.0		117	79-123			
1,1-Dichloropropene	10.9	0.20	ug/L	10.0		109	80-127			
Carbon tetrachloride	10.3	0.20	ug/L	10.0		103	53-137			
1,2-Dichloroethane	11.6	0.20	ug/L	10.0		116	75-123			



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Volatile Organic Compounds - Quality Control

Batch BJI0577 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJI0577-BS2)				Prepared: 21-Sep-2021 Analyzed: 21-Sep-2021 10:16						
Benzene	11.1	0.20	ug/L	10.0		111	80-120			
Trichloroethene	10.9	0.20	ug/L	10.0		109	80-120			
1,2-Dichloropropane	10.6	0.20	ug/L	10.0		106	80-120			
Bromodichloromethane	10.7	0.20	ug/L	10.0		107	80-121			
Dibromomethane	11.8	0.20	ug/L	10.0		118	80-120			
2-Chloroethyl vinyl ether	9.91	1.00	ug/L	10.0		99.1	64-120			
4-Methyl-2-Pentanone	60.7	5.00	ug/L	50.0		121	67-133			Q
cis-1,3-Dichloropropene	11.2	0.20	ug/L	10.0		112	80-124			
Toluene	10.8	0.20	ug/L	10.0		108	80-120			
trans-1,3-Dichloropropene	11.5	0.20	ug/L	10.0		115	71-127			
2-Hexanone	57.6	5.00	ug/L	50.0		115	69-133			
1,1,2-Trichloroethane	11.8	0.20	ug/L	10.0		118	80-121			
1,3-Dichloropropane	11.2	0.20	ug/L	10.0		112	80-120			
Tetrachloroethene	10.4	0.20	ug/L	10.0		104	80-120			
Dibromochloromethane	10.3	0.20	ug/L	10.0		103	65-135			
1,2-Dibromoethane	11.8	0.20	ug/L	10.0		118	80-121			
Chlorobenzene	10.7	0.20	ug/L	10.0		107	80-120			
Ethylbenzene	10.3	0.20	ug/L	10.0		103	80-120			
1,1,1,2-Tetrachloroethane	10.2	0.20	ug/L	10.0		102	80-120			
m,p-Xylene	21.0	0.40	ug/L	20.0		105	80-121			
o-Xylene	10.3	0.20	ug/L	10.0		103	80-121			
Xylenes, total	31.4	0.60	ug/L	30.0		105	76-127			
Styrene	10.2	0.20	ug/L	10.0		102	80-124			
Bromoform	9.84	0.20	ug/L	10.0		98.4	51-134			
1,1,1,2-Tetrachloroethane	10.7	0.20	ug/L	10.0		107	77-123			
1,2,3-Trichloropropane	11.5	0.50	ug/L	10.0		115	76-125			
trans-1,4-Dichloro 2-Butene	9.55	1.00	ug/L	10.0		95.5	55-129			
n-Propylbenzene	10.7	0.20	ug/L	10.0		107	78-130			
Bromobenzene	10.4	0.20	ug/L	10.0		104	80-120			
Isopropyl Benzene	10.4	0.20	ug/L	10.0		104	80-128			
2-Chlorotoluene	9.98	0.20	ug/L	10.0		99.8	78-122			
4-Chlorotoluene	10.7	0.20	ug/L	10.0		107	80-121			
t-Butylbenzene	10.1	0.20	ug/L	10.0		101	78-125			
1,3,5-Trimethylbenzene	10.5	0.20	ug/L	10.0		105	80-129			
1,2,4-Trimethylbenzene	10.5	0.20	ug/L	10.0		105	80-127			



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Project Manager: Doug Kunkel

Reported:
11-Oct-2021 17:20

Volatile Organic Compounds - Quality Control

Batch BJI0577 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJI0577-BS2)		Prepared: 21-Sep-2021 Analyzed: 21-Sep-2021 10:16								
s-Butylbenzene	10.2	0.20	ug/L	10.0		102	78-129			
4-Isopropyl Toluene	10.5	0.20	ug/L	10.0		105	79-130			
1,3-Dichlorobenzene	10.2	0.20	ug/L	10.0		102	80-120			
1,4-Dichlorobenzene	10.1	0.20	ug/L	10.0		101	80-120			
n-Butylbenzene	10.7	0.20	ug/L	10.0		107	74-129			
1,2-Dichlorobenzene	10.0	0.20	ug/L	10.0		100	80-120			
1,2-Dibromo-3-chloropropane	9.10	0.50	ug/L	10.0		91.0	62-123			
1,2,4-Trichlorobenzene	9.44	0.50	ug/L	10.0		94.4	64-124			
Hexachloro-1,3-Butadiene	9.57	0.50	ug/L	10.0		95.7	58-123			
Naphthalene	8.61	0.50	ug/L	10.0		86.1	50-134			
1,2,3-Trichlorobenzene	9.24	0.50	ug/L	10.0		92.4	49-133			
Dichlorodifluoromethane	9.40	0.20	ug/L	10.0		94.0	48-147			
Methyl tert-butyl Ether	10.9	0.50	ug/L	10.0		109	71-132			
2-Pentanone	54.3	5.00	ug/L	50.0		109	69-134			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	5.67		ug/L	5.00		113	80-129			
<i>Surrogate: Toluene-d8</i>	5.08		ug/L	5.00		102	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	5.01		ug/L	5.00		100	80-120			
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	4.93		ug/L	5.00		98.6	80-120			
LCS Dup (BJI0577-BSD2)		Prepared: 21-Sep-2021 Analyzed: 21-Sep-2021 10:57								
Chloromethane	9.97	0.50	ug/L	10.0		99.7	60-138	0.65	30	
Vinyl Chloride	10.8	0.20	ug/L	10.0		108	66-133	0.45	30	
Bromomethane	11.1	1.00	ug/L	10.0		111	72-131	0.15	30	
Chloroethane	11.1	0.20	ug/L	10.0		111	60-155	9.27	30	
Trichlorofluoromethane	10.6	0.20	ug/L	10.0		106	62-141	11.50	30	
Acrolein	59.2	5.00	ug/L	50.0		118	52-190	5.36	30	
1,1,2-Trichloro-1,2,2-Trifluoroethane	11.7	0.20	ug/L	10.0		117	76-129	0.34	30	
Acetone	62.3	5.00	ug/L	50.0		125	58-142	3.49	30	Q
1,1-Dichloroethene	11.8	0.20	ug/L	10.0		118	69-135	1.16	30	
Iodomethane	11.5	1.00	ug/L	10.0		115	56-147	1.42	30	
Methylene Chloride	10.6	1.00	ug/L	10.0		106	65-135	0.04	30	
Acrylonitrile	10.7	1.00	ug/L	10.0		107	64-134	3.06	30	
Carbon Disulfide	10.8	0.20	ug/L	10.0		108	78-125	1.23	30	
trans-1,2-Dichloroethene	10.9	0.20	ug/L	10.0		109	78-128	1.10	30	
Vinyl Acetate	10.8	0.20	ug/L	10.0		108	55-138	3.09	30	



TRC Companies, Inc
1180 NW Maple Street, Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
11-Oct-2021 17:20

Volatile Organic Compounds - Quality Control

Batch BJI0577 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJI0577-BSD2)				Prepared: 21-Sep-2021		Analyzed: 21-Sep-2021 10:57				
1,1-Dichloroethane	11.4	0.20	ug/L	10.0	114	76-124	0.32	30		
2-Butanone	65.4	5.00	ug/L	50.0	131	61-140	1.49	30		Q
2,2-Dichloropropane	10.7	0.20	ug/L	10.0	107	66-147	0.97	30		
cis-1,2-Dichloroethene	11.6	0.20	ug/L	10.0	116	80-121	1.42	30		
Chloroform	11.9	0.20	ug/L	10.0	119	80-122	0.21	30		
Bromochloromethane	11.9	0.20	ug/L	10.0	119	80-121	0.81	30		
1,1,1-Trichloroethane	11.9	0.20	ug/L	10.0	119	79-123	2.09	30		
1,1-Dichloropropene	11.1	0.20	ug/L	10.0	111	80-127	1.57	30		
Carbon tetrachloride	10.5	0.20	ug/L	10.0	105	53-137	2.33	30		
1,2-Dichloroethane	11.9	0.20	ug/L	10.0	119	75-123	2.33	30		
Benzene	11.2	0.20	ug/L	10.0	112	80-120	0.85	30		
Trichloroethene	10.8	0.20	ug/L	10.0	108	80-120	0.74	30		
1,2-Dichloropropane	10.7	0.20	ug/L	10.0	107	80-120	1.02	30		
Bromodichloromethane	10.7	0.20	ug/L	10.0	107	80-121	0.07	30		
Dibromomethane	11.8	0.20	ug/L	10.0	118	80-120	0.01	30		
2-Chloroethyl vinyl ether	10.1	1.00	ug/L	10.0	101	64-120	1.71	30		
4-Methyl-2-Pentanone	62.5	5.00	ug/L	50.0	125	67-133	2.83	30		Q
cis-1,3-Dichloropropene	11.3	0.20	ug/L	10.0	113	80-124	0.84	30		
Toluene	10.8	0.20	ug/L	10.0	108	80-120	0.22	30		
trans-1,3-Dichloropropene	11.6	0.20	ug/L	10.0	116	71-127	1.30	30		
2-Hexanone	60.2	5.00	ug/L	50.0	120	69-133	4.57	30		
1,1,2-Trichloroethane	12.1	0.20	ug/L	10.0	121	80-121	2.17	30		
1,3-Dichloropropane	11.4	0.20	ug/L	10.0	114	80-120	2.02	30		
Tetrachloroethene	10.5	0.20	ug/L	10.0	105	80-120	1.36	30		
Dibromochloromethane	10.6	0.20	ug/L	10.0	106	65-135	2.77	30		
1,2-Dibromoethane	12.0	0.20	ug/L	10.0	120	80-121	1.66	30		
Chlorobenzene	10.9	0.20	ug/L	10.0	109	80-120	1.53	30		
Ethylbenzene	10.5	0.20	ug/L	10.0	105	80-120	2.38	30		
1,1,1,2-Tetrachloroethane	10.5	0.20	ug/L	10.0	105	80-120	3.09	30		
m,p-Xylene	21.6	0.40	ug/L	20.0	108	80-121	2.80	30		
o-Xylene	10.6	0.20	ug/L	10.0	106	80-121	2.65	30		
Xylenes, total	32.2	0.60	ug/L	30.0	107	76-127	2.75	30		
Styrene	11.0	0.20	ug/L	10.0	110	80-124	7.69	30		
Bromoform	10.2	0.20	ug/L	10.0	102	51-134	3.52	30		
1,1,2,2-Tetrachloroethane	11.0	0.20	ug/L	10.0	110	77-123	2.92	30		



TRC Companies, Inc
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Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
11-Oct-2021 17:20

Volatile Organic Compounds - Quality Control

Batch BJI0577 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJI0577-BSD2)										
					Prepared: 21-Sep-2021	Analyzed: 21-Sep-2021 10:57				
1,2,3-Trichloropropane	11.4	0.50	ug/L	10.0		114	76-125	0.87	30	
trans-1,4-Dichloro 2-Butene	9.83	1.00	ug/L	10.0		98.3	55-129	2.88	30	
n-Propylbenzene	10.8	0.20	ug/L	10.0		108	78-130	1.00	30	
Bromobenzene	10.7	0.20	ug/L	10.0		107	80-120	2.88	30	
Isopropyl Benzene	10.4	0.20	ug/L	10.0		104	80-128	0.74	30	
2-Chlorotoluene	10.1	0.20	ug/L	10.0		101	78-122	1.22	30	
4-Chlorotoluene	10.5	0.20	ug/L	10.0		105	80-121	1.94	30	
t-Butylbenzene	10.1	0.20	ug/L	10.0		101	78-125	0.04	30	
1,3,5-Trimethylbenzene	10.6	0.20	ug/L	10.0		106	80-129	0.80	30	
1,2,4-Trimethylbenzene	10.5	0.20	ug/L	10.0		105	80-127	0.20	30	
s-Butylbenzene	10.3	0.20	ug/L	10.0		103	78-129	0.35	30	
4-Isopropyl Toluene	10.5	0.20	ug/L	10.0		105	79-130	0.04	30	
1,3-Dichlorobenzene	10.4	0.20	ug/L	10.0		104	80-120	1.28	30	
1,4-Dichlorobenzene	10.1	0.20	ug/L	10.0		101	80-120	0.23	30	
n-Butylbenzene	10.7	0.20	ug/L	10.0		107	74-129	0.01	30	
1,2-Dichlorobenzene	10.3	0.20	ug/L	10.0		103	80-120	2.84	30	
1,2-Dibromo-3-chloropropane	9.20	0.50	ug/L	10.0		92.0	62-123	1.08	30	
1,2,4-Trichlorobenzene	9.40	0.50	ug/L	10.0		94.0	64-124	0.37	30	
Hexachloro-1,3-Butadiene	9.12	0.50	ug/L	10.0		91.2	58-123	4.81	30	
Naphthalene	8.93	0.50	ug/L	10.0		89.3	50-134	3.63	30	
1,2,3-Trichlorobenzene	9.28	0.50	ug/L	10.0		92.8	49-133	0.47	30	
Dichlorodifluoromethane	9.28	0.20	ug/L	10.0		92.8	48-147	1.26	30	
Methyl tert-butyl Ether	11.4	0.50	ug/L	10.0		114	71-132	4.53	30	
2-Pentanone	58.2	5.00	ug/L	50.0		116	69-134	7.09	30	
Surrogate: 1,2-Dichloroethane-d4	5.53		ug/L	5.00		111	80-129			
Surrogate: Toluene-d8	5.12		ug/L	5.00		102	80-120			
Surrogate: 4-Bromofluorobenzene	5.05		ug/L	5.00		101	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	4.95		ug/L	5.00		99.1	80-120			



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Project Manager: Doug Kunkel

Reported:
11-Oct-2021 17:20

Volatile Organic Compounds - SIM - Quality Control

Batch BJI0554 - 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 (BJI0554-BLK1)				Prepared: 20-Sep-2021 Analyzed: 20-Sep-2021 16:43						
Vinyl chloride	ND	20.0	ng/L							U
<i>Surrogate: 1,2-Dichloroethane-d4</i>	5690		ng/L	5000	114		80-129			
LCS (BJI0554-BS1)				Prepared: 20-Sep-2021 Analyzed: 20-Sep-2021 15:13						
Vinyl chloride	2150	20.0	ng/L	2000		108	62-141			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	5600		ng/L	5000	112		80-129			
LCS Dup (BJI0554-BSD1)				Prepared: 20-Sep-2021 Analyzed: 20-Sep-2021 16:23						
Vinyl chloride	2630	20.0	ng/L	2000		131	62-141	19.80	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	5680		ng/L	5000	114		80-129			



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Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
11-Oct-2021 17:20

Metals and Metallic Compounds - Quality Control

Batch BJI0840 - TWC EPA 3010A

Instrument: ICP2 Analyst: MVP

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0840-BLK1)										
					Prepared: 29-Sep-2021	Analyzed: 30-Sep-2021 15:56				
Calcium	ND	0.0500	mg/L							U
Potassium	ND	0.500	mg/L							U
Sodium	ND	0.500	mg/L							U
LCS (BJI0840-BS1)										
					Prepared: 29-Sep-2021	Analyzed: 30-Sep-2021 15:59				
Calcium	9.63	0.0500	mg/L	10.0		96.3	80-120			
Potassium	10.1	0.500	mg/L	10.0		101	80-120			
Sodium	9.99	0.500	mg/L	10.0		99.9	80-120			
Duplicate (BJI0840-DUP1)										
		Source: 2110203-05			Prepared: 29-Sep-2021	Analyzed: 30-Sep-2021 16:20				
Calcium	44.6	0.0500	mg/L		42.6			4.67	20	
Potassium	1.48	0.500	mg/L		1.41			4.92	20	
Sodium	20.9	0.500	mg/L		20.0			4.44	20	
Matrix Spike (BJI0840-MS1)										
		Source: 2110203-05			Prepared: 29-Sep-2021	Analyzed: 30-Sep-2021 16:45				
Calcium	53.9	0.0500	mg/L	10.0	42.6	113	75-125			
Potassium	12.0	0.500	mg/L	10.0	1.41	105	75-125			
Sodium	31.2	0.500	mg/L	10.0	20.0	112	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike Dup (BJI0840-MSD1)										
		Source: 2110203-05			Prepared: 29-Sep-2021	Analyzed: 30-Sep-2021 16:50				
Calcium	52.8	0.0500	mg/L	10.0	42.6	102	75-125	2.09	20	
Potassium	11.9	0.500	mg/L	10.0	1.41	105	75-125	0.30	20	
Sodium	30.7	0.500	mg/L	10.0	20.0	107	75-125	1.53	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										



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Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
11-Oct-2021 17:20

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJI0798 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0798-BLK1)			Prepared: 28-Sep-2021 Analyzed: 28-Sep-2021 18:26								
Iron, Dissolved	54	ND	36.0	ug/L							U
Iron, Dissolved	57	ND	20.0	ug/L							U
Arsenic, Dissolved	75a	ND	0.200	ug/L							U
Zinc, Dissolved	66	ND	6.00	ug/L							U
Zinc, Dissolved	67	ND	6.00	ug/L							U
LCS (BJI0798-BS1)			Prepared: 28-Sep-2021 Analyzed: 28-Sep-2021 18:31								
Iron, Dissolved	54	4870	36.0	ug/L	5000		97.4	80-120			
Iron, Dissolved	57	4760	20.0	ug/L	5000		95.3	80-120			
Arsenic, Dissolved	75a	24.8	0.200	ug/L	25.0		99.4	80-120			
Zinc, Dissolved	66	78.1	6.00	ug/L	80.0		97.7	80-120			
Zinc, Dissolved	67	76.5	6.00	ug/L	80.0		95.7	80-120			
Duplicate (BJI0798-DUP1)			Source: 2110203-02		Prepared: 28-Sep-2021 Analyzed: 28-Sep-2021 21:14						
Iron, Dissolved	54	ND	36.0	ug/L		ND					U
Arsenic, Dissolved	75a	ND	0.200	ug/L		0.101			8.25	20	U
Zinc, Dissolved	66	ND	6.00	ug/L		ND					U
Matrix Spike (BJI0798-MS1)			Source: 2110203-02		Prepared: 28-Sep-2021 Analyzed: 28-Sep-2021 21:19						
Iron, Dissolved	54	4270	36.0	ug/L	5000	ND	85.5	75-125			
Arsenic, Dissolved	75a	24.8	0.200	ug/L	25.0	0.101	98.9	75-125			
Zinc, Dissolved	66	74.0	6.00	ug/L	80.0	ND	92.5	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJI0798-MSD1)			Source: 2110203-02		Prepared: 28-Sep-2021 Analyzed: 28-Sep-2021 21:25						
Iron, Dissolved	54	4270	36.0	ug/L	5000	ND	85.5	75-125	0.01	20	
Arsenic, Dissolved	75a	26.9	0.200	ug/L	25.0	0.101	107	75-125	7.93	20	
Zinc, Dissolved	66	85.6	6.00	ug/L	80.0	ND	107	75-125	14.60	20	

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



TRC Companies, Inc
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Project: Olalla Landfill
Project Number: 429487
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Reported:
11-Oct-2021 17:20

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJI0832 - RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0832-BLK1)						Prepared: 28-Sep-2021 Analyzed: 29-Sep-2021 23:59					
Arsenic, Dissolved	75a	ND	0.0400	ug/L							U
LCS (BJI0832-BS1)						Prepared: 28-Sep-2021 Analyzed: 30-Sep-2021 00:03					
Arsenic, Dissolved	75a	4.70	0.0400	ug/L	5.00		93.9	80-120			
LCS Dup (BJI0832-BSD1)						Prepared: 28-Sep-2021 Analyzed: 30-Sep-2021 00:06					
Arsenic, Dissolved	75a	4.68	0.0400	ug/L	5.00		93.5	80-120	0.41	20	
Duplicate (BJI0832-DUP1)						Source: 21I0203-12 Prepared: 28-Sep-2021 Analyzed: 30-Sep-2021 01:22					
Arsenic, Dissolved	75a	0.566	0.0400	ug/L		0.554			2.14	20	
Matrix Spike (BJI0832-MS1)						Source: 21I0203-12 Prepared: 28-Sep-2021 Analyzed: 30-Sep-2021 01:27					
Arsenic, Dissolved	75a	5.06	0.0400	ug/L	5.00	0.554	90.2	75-125			

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



TRC Companies, Inc
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Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
11-Oct-2021 17:20

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJI0845 - WMN (No Prep)

Instrument: ICP2 Analyst: MVP

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0845-BLK1)				Prepared: 29-Sep-2021 Analyzed: 29-Sep-2021 15:01						
Barium, Dissolved	ND	0.0060	mg/L							U
Manganese, Dissolved	ND	0.0040	mg/L							U
LCS (BJI0845-BS1)				Prepared: 29-Sep-2021 Analyzed: 29-Sep-2021 15:03						
Barium, Dissolved	1.88	0.0061	mg/L	2.00		94.2	80-120			
Manganese, Dissolved	0.469	0.0040	mg/L	0.500		93.7	80-120			
Duplicate (BJI0845-DUP1)				Source: 2110203-10		Prepared: 29-Sep-2021 Analyzed: 29-Sep-2021 16:40				
Barium, Dissolved	ND	0.0060	mg/L		ND					U
Manganese, Dissolved	1.81	0.0040	mg/L		1.84			1.78	20	
Matrix Spike (BJI0845-MS1)				Source: 2110203-10		Prepared: 29-Sep-2021 Analyzed: 29-Sep-2021 16:45				
Barium, Dissolved	2.04	0.0061	mg/L	2.00	ND	102	75-125			
Manganese, Dissolved	2.35	0.0040	mg/L	0.500	1.84	101	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike Dup (BJI0845-MSD1)				Source: 2110203-10		Prepared: 29-Sep-2021 Analyzed: 29-Sep-2021 16:50				
Barium, Dissolved	1.99	0.0061	mg/L	2.00	ND	99.5	75-125	2.24	20	
Manganese, Dissolved	2.33	0.0040	mg/L	0.500	1.84	96.8	75-125	0.91	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 429487 Project Manager: Doug Kunkel	Reported: 11-Oct-2021 17:20
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Wet Chemistry - Quality Control

Batch BJI0476 - No Prep Wet Chem

Instrument: Accumet AB150 Analyst: DOE

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJI0476-BS1)						Prepared: 16-Sep-2021 Analyzed: 16-Sep-2021 18:35					
pH	6.98	0.01	0.01	pH Units	7.00		99.7	99.2-100.8			
Duplicate (BJI0476-DUP1)						Source: 21I0203-01 Prepared: 16-Sep-2021 Analyzed: 16-Sep-2021 18:35					
pH	6.36	0.01	0.01	pH Units		6.25			1.74	20	H



TRC Companies, Inc
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Project Manager: Doug Kunkel

Reported:
11-Oct-2021 17:20

Wet Chemistry - Quality Control

Batch BJI0508 - No Prep Wet Chem

Instrument: LACHAT2 Analyst: RMS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0508-BLK1)						Prepared: 17-Sep-2021 Analyzed: 17-Sep-2021 17:14					
Nitrate + Nitrite as N	ND	0.010	0.010	mg/L							U
Nitrite-N	ND	0.010	0.010	mg/L							U
LCS (BJI0508-BS1)						Prepared: 17-Sep-2021 Analyzed: 17-Sep-2021 17:15					
Nitrate + Nitrite as N	0.503	0.010	0.010	mg/L	0.500		101	90-110			
LCS (BJI0508-BS2)						Prepared: 17-Sep-2021 Analyzed: 17-Sep-2021 17:16					
Nitrite-N	0.494	0.010	0.010	mg/L	0.500		98.8	90-110			
Duplicate (BJI0508-DUP1)						Source: 21I0203-01 Prepared: 17-Sep-2021 Analyzed: 17-Sep-2021 17:19					
Nitrate + Nitrite as N	0.314	0.010	0.010	mg/L		0.314			0.00		
Nitrite-N	ND	0.010	0.010	mg/L		ND					U
Matrix Spike (BJI0508-MS1)						Source: 21I0203-01 Prepared: 17-Sep-2021 Analyzed: 17-Sep-2021 17:20					
Nitrate + Nitrite as N	0.807	0.010	0.010	mg/L	0.500	0.314	98.6	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike (BJI0508-MS2)						Source: 21I0203-01 Prepared: 17-Sep-2021 Analyzed: 17-Sep-2021 17:22					
Nitrite-N	0.522	0.010	0.010	mg/L	0.500	ND	104	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJI0508-MSD1)						Source: 21I0203-01 Prepared: 17-Sep-2021 Analyzed: 17-Sep-2021 17:21					
Nitrate + Nitrite as N	0.809	0.010	0.010	mg/L	0.500	0.314	99.0	75-125	0.25	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJI0508-MSD2)						Source: 21I0203-01 Prepared: 17-Sep-2021 Analyzed: 17-Sep-2021 17:32					
Nitrite-N	0.520	0.010	0.010	mg/L	0.500	ND	104	75-125	0.38	200	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 429487 Project Manager: Doug Kunkel	Reported: 11-Oct-2021 17:20
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Wet Chemistry - Quality Control

Batch BJI0706 - No Prep Wet Chem

Instrument: Accumet AB150 Analyst: UW

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0706-BLK1)						Prepared: 24-Sep-2021 Analyzed: 24-Sep-2021 13:15					
Alkalinity, Total	ND	1.00	1.00	mg/L CaCO3							U
Reference (BJI0706-SRM1)						Prepared: 24-Sep-2021 Analyzed: 24-Sep-2021 13:15					
Alkalinity, Total	133	1.00	1.00	mg/L CaCO3	127		105	85.04-114.96			



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Project Number: 429487
Project Manager: Doug Kunkel

Reported:
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Wet Chemistry - Quality Control

Batch BJI0709 - No Prep Wet Chem

Instrument: TOC-LCSH Analyst: RMS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0709-BLK1)						Prepared: 24-Sep-2021 Analyzed: 24-Sep-2021 15:12					
Total Organic Carbon	ND	0.50	0.50	mg/L							U
LCS (BJI0709-BS1)						Prepared: 24-Sep-2021 Analyzed: 24-Sep-2021 15:30					
Total Organic Carbon	19.02	0.50	0.50	mg/L	20.00		95.1	90-110			
Duplicate (BJI0709-DUP1)						Source: 21I0203-01 Prepared: 24-Sep-2021 Analyzed: 24-Sep-2021 16:14					
Total Organic Carbon	0.50	0.50	0.50	mg/L		0.59			15.40	20	
Matrix Spike (BJI0709-MS1)						Source: 21I0203-01 Prepared: 24-Sep-2021 Analyzed: 24-Sep-2021 16:39					
Total Organic Carbon	16.35	0.50	0.50	mg/L	20.00	0.59	78.8	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJI0709-MSD1)						Source: 21I0203-01 Prepared: 24-Sep-2021 Analyzed: 24-Sep-2021 16:58					
Total Organic Carbon	16.18	0.50	0.50	mg/L	20.00	0.59	78.0	75-125	1.05	20	

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



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Project Manager: Doug Kunkel

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Wet Chemistry - Quality Control

Batch BJI0811 - No Prep Wet Chem

Instrument: LCHAT1 Analyst: RMS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0811-BLK1)						Prepared: 28-Sep-2021 Analyzed: 29-Sep-2021 13:42					
Ammonia-N	ND	0.040	0.040	mg/L							U
LCS (BJI0811-BS1)						Prepared: 28-Sep-2021 Analyzed: 29-Sep-2021 13:51					
Ammonia-N	0.497	0.040	0.040	mg/L	0.500		99.4	90-110			
Duplicate (BJI0811-DUP1)						Source: 21I0203-01 Prepared: 28-Sep-2021 Analyzed: 29-Sep-2021 13:53					
Ammonia-N	ND	0.040	0.040	mg/L		ND					U
Matrix Spike (BJI0811-MS1)						Source: 21I0203-01 Prepared: 28-Sep-2021 Analyzed: 29-Sep-2021 13:54					
Ammonia-N	0.514	0.040	0.040	mg/L	0.500	ND	103	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJI0811-MSD1)						Source: 21I0203-01 Prepared: 28-Sep-2021 Analyzed: 29-Sep-2021 13:55					
Ammonia-N	0.522	0.040	0.040	mg/L	0.500	ND	104	75-125	1.54	200	

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



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Reported:
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Wet Chemistry - Quality Control

Batch BJI0886 - No Prep Wet Chem

Instrument: LCHAT2 Analyst: RMS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0886-BLK1)						Prepared: 30-Sep-2021 Analyzed: 30-Sep-2021 15:43					
Chloride	ND	1.00	1.00	mg/L							U
LCS (BJI0886-BS1)						Prepared: 30-Sep-2021 Analyzed: 30-Sep-2021 15:44					
Chloride	4.87	1.00	1.00	mg/L	5.00		97.4	90-110			
Duplicate (BJI0886-DUP1)						Source: 21I0203-01 Prepared: 30-Sep-2021 Analyzed: 30-Sep-2021 15:47					
Chloride	5.79	1.00	1.00	mg/L		5.77			0.35	20	
Matrix Spike (BJI0886-MS1)						Source: 21I0203-01 Prepared: 30-Sep-2021 Analyzed: 30-Sep-2021 15:59					
Chloride	13.1	2.00	2.00	mg/L	5.00	5.77	146	75-125			*, D

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

Matrix Spike Dup (BJI0886-MSD1)						Source: 21I0203-01 Prepared: 30-Sep-2021 Analyzed: 30-Sep-2021 16:02					
Chloride	13.2	2.00	2.00	mg/L	5.00	5.77	149	75-125	1.22	20	*, D

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



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Wet Chemistry - Quality Control

Batch BJJ0052 - No Prep Wet Chem

Instrument: UV1800-1 Analyst: CKI

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJJ0052-BLK1)						Prepared: 04-Oct-2021 Analyzed: 04-Oct-2021 18:22					
COD	ND	10.0	10.0	mg/L							U
Blank (BJJ0052-BLK2)						Prepared: 04-Oct-2021 Analyzed: 04-Oct-2021 18:26					
COD	ND	10.0	10.0	mg/L							U
Blank (BJJ0052-BLK3)						Prepared: 04-Oct-2021 Analyzed: 04-Oct-2021 18:37					
COD	ND	10.0	10.0	mg/L							U
Blank (BJJ0052-BLK4)						Prepared: 04-Oct-2021 Analyzed: 04-Oct-2021 18:40					
COD	ND	10.0	10.0	mg/L							U
Blank (BJJ0052-BLK5)						Prepared: 04-Oct-2021 Analyzed: 05-Oct-2021 11:43					
COD	ND	10.0	10.0	mg/L							U
Blank (BJJ0052-BLK6)						Prepared: 04-Oct-2021 Analyzed: 05-Oct-2021 11:46					
COD	ND	10.0	10.0	mg/L							U
LCS (BJJ0052-BS1)						Prepared: 04-Oct-2021 Analyzed: 04-Oct-2021 18:22					
COD	102	10.0	10.0	mg/L	100		102	90-110			
LCS (BJJ0052-BS2)						Prepared: 04-Oct-2021 Analyzed: 04-Oct-2021 18:26					
COD	105	10.0	10.0	mg/L	100		105	90-110			
LCS (BJJ0052-BS3)						Prepared: 04-Oct-2021 Analyzed: 04-Oct-2021 18:38					
COD	104	10.0	10.0	mg/L	100		104	90-110			
LCS (BJJ0052-BS4)						Prepared: 04-Oct-2021 Analyzed: 04-Oct-2021 18:40					
COD	104	10.0	10.0	mg/L	100		104	90-110			
LCS (BJJ0052-BS5)						Prepared: 04-Oct-2021 Analyzed: 05-Oct-2021 11:44					
COD	104	10.0	10.0	mg/L	100		104	90-110			
LCS (BJJ0052-BS6)						Prepared: 04-Oct-2021 Analyzed: 05-Oct-2021 11:46					
COD	104	10.0	10.0	mg/L	100		104	90-110			
Duplicate (BJJ0052-DUP1)						Source: 2110203-03 Prepared: 04-Oct-2021 Analyzed: 04-Oct-2021 18:23					
COD	ND	10.0	10.0	mg/L		ND					U



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Wet Chemistry - Quality Control

Batch BJJ0052 - No Prep Wet Chem

Instrument: UV1800-1 Analyst: CKI

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BJJ0052-MS1)		Source: 2110203-03		Prepared: 04-Oct-2021		Analyzed: 04-Oct-2021 18:24					
COD	112	20.0	20.0	mg/L	100	ND	112	90-110			*

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

Matrix Spike Dup (BJJ0052-MSD1)		Source: 2110203-03		Prepared: 04-Oct-2021		Analyzed: 04-Oct-2021 18:24					
COD	101	20.0	20.0	mg/L	100	ND	101	90-110	11.10	10	*

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



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Wet Chemistry - Quality Control

Batch BJJ0068 - No Prep Wet Chem

Instrument: LACHAT2 Analyst: BF

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJJ0068-BLK1)						Prepared: 04-Oct-2021 Analyzed: 04-Oct-2021 17:26					
Sulfate	ND	2.00	2.00	mg/L							U
LCS (BJJ0068-BS1)						Prepared: 04-Oct-2021 Analyzed: 04-Oct-2021 17:27					
Sulfate	14.6	2.00	2.00	mg/L	15.0		97.3	90-110			
Duplicate (BJJ0068-DUP1)						Source: 21I0203-01 Prepared: 04-Oct-2021 Analyzed: 04-Oct-2021 17:50					
Sulfate	4.48	2.00	2.00	mg/L		4.38			2.26	20	
Matrix Spike (BJJ0068-MS1)						Source: 21I0203-01 Prepared: 04-Oct-2021 Analyzed: 04-Oct-2021 17:51					
Sulfate	19.5	2.00	2.00	mg/L	15.0	4.38	101	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJJ0068-MSD1)						Source: 21I0203-01 Prepared: 04-Oct-2021 Analyzed: 04-Oct-2021 17:52					
Sulfate	19.8	2.00	2.00	mg/L	15.0	4.38	103	75-125	1.53	20	

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



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Microbiology - Quality Control

Batch BJI0477 - No Prep Wet Chem

Instrument: N/A

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0477-BLK1)						Prepared: 16-Sep-2021 Analyzed: 17-Sep-2021 17:52					
Total Coliforms	ND	1	1	CFU/100 ml							U



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Certified Analyses included in this Report

Analyte	Certifications
EPA 200.8 in Water	
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
EPA 200.8 UCT-KED in Water	
Arsenic-75a	NELAP,WADOE,WA-DW,DoD-ELAP
Zinc-66	NELAP,WADOE,WA-DW,DoD-ELAP
Zinc-67	NELAP,WADOE,WA-DW,DoD-ELAP
EPA 353.2 in Water	
Nitrate + Nitrite as N	NELAP,DoD-ELAP,WADOE
Nitrite-N	WADOE,NELAP,DoD-ELAP
EPA 375.2 in Water	
Sulfate	WADOE,NELAP
EPA 410.4 in Water	
COD	DoD-ELAP,NELAP,WADOE
EPA 6010D in Water	
Calcium	WADOE,NELAP,DoD-ELAP
Potassium	WADOE,NELAP,DoD-ELAP
Sodium	DoD-ELAP,WADOE,NELAP
Sodium-1	DoD-ELAP
Barium	WADOE,NELAP,DoD-ELAP
Manganese	WADOE,NELAP,DoD-ELAP
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



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Carbon Disulfide	DoD-ELAP,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE
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



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n-Propylbenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,WADOE
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

EPA 9060A in Water

Total Organic Carbon	DoD-ELAP,WADOE,NELAP
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SM 2320 B-97 in Water

Alkalinity, Bicarbonate	NELAP,WADOE,WA-DW,DoD-ELAP
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Alkalinity, Carbonate	WADOE,WA-DW,DoD-ELAP,NELAP
Alkalinity, Hydroxide	WADOE,WA-DW,DoD-ELAP,NELAP
Alkalinity, Total	DoD-ELAP,WADOE,WA-DW,NELAP

SM 4500-H+ B-00 in Water

pH	WADOE,NELAP,WA-DW
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SM 4500-NH3 H-97 in Water

Ammonia-N	WADOE,DoD-ELAP,NELAP
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SM 9222B in Water

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



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Notes and Definitions

- * Flagged value is not within established control limits.
- B This analyte was detected in the method blank.
- D The reported value is from a dilution
- E The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
- H Hold time violation - Hold time was exceeded.
- 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

12 January 2022

Doug Kunkel
TRC Companies, Inc
1180 NW Maple Street, Suite 310
Issaquah, WA 98027

RE: Olalla Landfill ([none])

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)
21L0200

Associated SDG ID(s)
N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclosed Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

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

Analytical Resources, LLC

Kelly Bottem, Client Services Manager

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



Chain of Custody Record & Laboratory Analysis Request



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

ARI Assigned Number: 210200	Turn-around Requested: Standard	Page: 1	of 1
ARI Client Company: TRC	Phone: 425-395-0010	Date: 12-14-21	Ice Present?
Client Contact: Doug Kunkel	No. of Coolers: 	Cooler Temps: 	

Client Project Name: Olalla Landfill	Analysis Requested	Notes/Comments													
Client Project #: 429487	<table border="1"> <tr> <td>VOC</td> <td>8260</td> <td>Ve-8260</td> <td>STM</td> <td>metals H₂O diss. Pb</td> <td>Fe, Mn, Zn</td> <td>Total metals</td> <td>Alk, Carb</td> <td>+ Biorb</td> <td>Nitrate Nitrite Chlorine</td> <td>SO₄</td> <td>Tot. Coliform</td> <td></td> </tr> </table>	VOC	8260	Ve-8260	STM	metals H ₂ O diss. Pb	Fe, Mn, Zn	Total metals	Alk, Carb	+ Biorb	Nitrate Nitrite Chlorine	SO ₄	Tot. Coliform		
VOC	8260	Ve-8260	STM	metals H ₂ O diss. Pb	Fe, Mn, Zn	Total metals	Alk, Carb	+ Biorb	Nitrate Nitrite Chlorine	SO ₄	Tot. Coliform				

Sample ID	Date	Time	Matrix	No. Containers	VOC	8260	Ve-8260	STM	metals H ₂ O diss. Pb	Fe, Mn, Zn	Total metals	Alk, Carb	+ Biorb	Nitrate Nitrite Chlorine	SO ₄	Tot. Coliform	Notes/Comments		
MW-1	12-14-21	0905	H ₂ O	11	X	X	X	X	X	X	X	X	X	X	X	X			
MW-5A	↓	1045	↓	3	↓	X	X	X											
MW-3		1115		11		X	X	X	X	X	X	X	X						
MW-10		1155		11		X	X	X	X	X	X	X	X						
MW-13		1230		11		X	X	X	X	X	X	X	X						
MW-6		1240		11		X	X	X	X	X	X	X	X						
MW-8		1400		11		X	X	X	X	X	X	X	X						
MW-7		↓		1445		↓	3	↓	X	X									

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Lauren Bixert	Printed Name: Arden Paist	Printed Name:	Printed Name:
	Company: TRC	Company: ARI	Company:	Company:
	Date & Time: 12-14-21 @ 1653	Date & Time: 12/14/21 1653	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: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.



TRC Companies, Inc
1180 NW Maple Street, Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: [none]
Project Manager: Doug Kunkel

Reported:
12-Jan-2022 08:46

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	21L0200-01	Water	14-Dec-2021 09:05	14-Dec-2021 16:53
MW-5A	21L0200-02	Water	14-Dec-2021 10:45	14-Dec-2021 16:53
MW-3	21L0200-03	Water	14-Dec-2021 11:15	14-Dec-2021 16:53
MW-10	21L0200-04	Water	14-Dec-2021 11:55	14-Dec-2021 16:53
MW-13	21L0200-05	Water	14-Dec-2021 12:30	14-Dec-2021 16:53
MW-6	21L0200-06	Water	14-Dec-2021 12:40	14-Dec-2021 16:53
MW-8	21L0200-07	Water	14-Dec-2021 14:00	14-Dec-2021 16:53
MW-7	21L0200-08	Water	14-Dec-2021 14:45	14-Dec-2021 16:53
MW-1	21L0200-09	Water	14-Dec-2021 09:05	14-Dec-2021 16:53
MW-3	21L0200-10	Water	14-Dec-2021 11:15	14-Dec-2021 16:53
MW-10	21L0200-11	Water	14-Dec-2021 11:55	14-Dec-2021 16:53
MW-13	21L0200-12	Water	14-Dec-2021 12:30	14-Dec-2021 16:53
MW-6	21L0200-13	Water	14-Dec-2021 12:40	14-Dec-2021 16:53
MW-8	21L0200-14	Water	14-Dec-2021 14:00	14-Dec-2021 16:53
Trip Blanks	21L0200-15	Water	14-Dec-2021 09:05	14-Dec-2021 16:53



TRC Companies, Inc
1180 NW Maple Street, Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: [none]
Project Manager: Doug Kunkel

Reported:
12-Jan-2022 08:46

Work Order Case Narrative

Volatiles - EPA Method SW8260D

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

Initial and continuing calibrations were within method requirements with the exception of all associated "Q" flagged analytes which are out of control high in the CCAL. All associated samples that contain analyte have been flagged with a "Q" qualifier.

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 200.8 and 6010D

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.



TRC Companies, Inc
1180 NW Maple Street, Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: [none]
Project Manager: Doug Kunkel

Reported:
12-Jan-2022 08:46

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

Wet Chemistry

The sample(s) were prepared and analyzed within the recommended holding times with the exception of total coliforms and pH which have been flagged with an "H" qualifier.

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 reference material (SRM) percent recoveries were within control limits.

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

TOC was subcontracted due to instrument failure.



WORK ORDER

21L0200

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

Client: TRC Companies, Inc

Project Manager: Kelly Bottem

Project: Olalla Landfill

Project Number: [none]

Preservation Confirmation

Container ID	Container Type	pH	
21L0200-01 A	Corning Plastic, 125 mL, Na2S2O3		
21L0200-01 B	HDPE NM, 1000 mL		
21L0200-01 C	HDPE NM, 500 mL, 1:1 HNO3	L2	Pass (P)
21L0200-01 D	HDPE NM, 500 mL		
21L0200-01 E	HDPE NM, 250mL H2SO4	L2	P
21L0200-01 F	VOA Vial, Clear, 40 mL, HCL		
21L0200-01 G	VOA Vial, Clear, 40 mL, HCL		
21L0200-01 H	VOA Vial, Clear, 40 mL, HCL		
21L0200-01 I	VOA Vial, Clear, 40 mL, HCL		
21L0200-01 J	VOA Vial, Clear, 40 mL, HCL		
21L0200-02 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	L2	P
21L0200-02 B	VOA Vial, Clear, 40 mL, HCL		
21L0200-02 C	VOA Vial, Clear, 40 mL, HCL		
21L0200-03 A	Corning Plastic, 125 mL, Na2S2O3	L2	P
21L0200-03 B	HDPE NM, 1000 mL		
21L0200-03 C	HDPE NM, 500 mL, 1:1 HNO3	L2	P
21L0200-03 D	HDPE NM, 500 mL		
21L0200-03 E	HDPE NM, 250mL H2SO4	L2	P
21L0200-03 F	VOA Vial, Clear, 40 mL, HCL		
21L0200-03 G	VOA Vial, Clear, 40 mL, HCL		
21L0200-03 H	VOA Vial, Clear, 40 mL, HCL		
21L0200-03 I	VOA Vial, Clear, 40 mL, HCL		
21L0200-03 J	VOA Vial, Clear, 40 mL, HCL		
21L0200-04 A	Corning Plastic, 125 mL, Na2S2O3		
21L0200-04 B	HDPE NM, 1000 mL		
21L0200-04 C	HDPE NM, 500 mL, 1:1 HNO3	L2	P
21L0200-04 D	HDPE NM, 500 mL		
21L0200-04 E	HDPE NM, 250mL H2SO4	L2	P
21L0200-04 F	VOA Vial, Clear, 40 mL, HCL		
21L0200-04 G	VOA Vial, Clear, 40 mL, HCL		
21L0200-04 H	VOA Vial, Clear, 40 mL, HCL		
21L0200-04 I	VOA Vial, Clear, 40 mL, HCL		
21L0200-04 J	VOA Vial, Clear, 40 mL, HCL		
21L0200-05 A	Corning Plastic, 125 mL, Na2S2O3		

RD 12/15/21

RD 12/15/21



WORK ORDER

21L0200

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

Client: TRC Companies, Inc

Project Manager: Kelly Bottem

Project: Olalla Landfill

Project Number: [none]

21L0200-05 B	HDPE NM, 1000 mL		
21L0200-05 C	HDPE NM, 500 mL, 1:1 HNO3	L2	P
21L0200-05 D	HDPE NM, 500 mL		
21L0200-05 E	HDPE NM, 250mL H2SO4	L2	P
21L0200-05 F	VOA Vial, Clear, 40 mL, HCL		
21L0200-05 G	VOA Vial, Clear, 40 mL, HCL		
21L0200-05 H	VOA Vial, Clear, 40 mL, HCL		
21L0200-05 I	VOA Vial, Clear, 40 mL, HCL		
21L0200-05 J	VOA Vial, Clear, 40 mL, HCL		
21L0200-06 A	Corning Plastic, 125 mL, Na2S2O3		
21L0200-06 B	HDPE NM, 1000 mL		
21L0200-06 C	HDPE NM, 500 mL, 1:1 HNO3	L2	P
21L0200-06 D	HDPE NM, 500 mL		
21L0200-06 E	HDPE NM, 250mL H2SO4	L2	P
21L0200-06 F	VOA Vial, Clear, 40 mL, HCL		
21L0200-06 G	VOA Vial, Clear, 40 mL, HCL		
21L0200-06 H	VOA Vial, Clear, 40 mL, HCL		
21L0200-06 I	VOA Vial, Clear, 40 mL, HCL		
21L0200-06 J	VOA Vial, Clear, 40 mL, HCL		
21L0200-07 A	Corning Plastic, 125 mL, Na2S2O3		
21L0200-07 B	HDPE NM, 1000 mL		
21L0200-07 C	HDPE NM, 500 mL, 1:1 HNO3	L2	P
21L0200-07 D	HDPE NM, 500 mL		
21L0200-07 E	HDPE NM, 250mL H2SO4	L2	P
21L0200-07 F	VOA Vial, Clear, 40 mL, HCL		
21L0200-07 G	VOA Vial, Clear, 40 mL, HCL		
21L0200-07 H	VOA Vial, Clear, 40 mL, HCL		
21L0200-07 I	VOA Vial, Clear, 40 mL, HCL		
21L0200-07 J	VOA Vial, Clear, 40 mL, HCL		
21L0200-08 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	L2	P
21L0200-08 B	VOA Vial, Clear, 40 mL, HCL		
21L0200-08 C	VOA Vial, Clear, 40 mL, HCL		
21L0200-09 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	L2	P
21L0200-10 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	L2	P
21L0200-11 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	L2	P
21L0200-12 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	L2	P



WORK ORDER

21L0200

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

Client: TRC Companies, Inc		Project Manager: Kelly Bottem	
Project: Olalla Landfill		Project Number: [none]	
21L0200-13 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	L2	P
21L0200-14 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	L2	P
21L0200-15 A	VOA Vial, Clear, 40 mL, HCL		
21L0200-15 B	VOA Vial, Clear, 40 mL, HCL		

RH

Preservation Confirmed By _____

12/15/21

Date _____



Cooler Receipt Form

ARI Client: TRC

Project Name: Olalla Landfill

COC No(s): _____ NA

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

Assigned ARI Job No: 21LO200

Tracking No: _____ NA

Preliminary Examination Phase:

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

Were custody papers included with the cooler? YES NO

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

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

Time 1653 5.6 4.0

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: DO02565

Cooler Accepted by: AP Date: 12/14/21 Time: 1653

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 12/10/21

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

Samples Logged by: RB Date: 12/15/21 Time: 1701 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:

Included 2 Trip Blanks but not on COC, added as last sample.

By: RB Date: 12/15/21



Analytical Resources, Incorporated
Analytical Chemists and Consultants

Conventional Laboratory Analyst Notes

ARI Job No.: 21L0200

Client ID: _____

Parameter: N+N

Client Project: _____

List problems, concerns, corrective actions and any other pertinent information

Aliquotted 100mLs of samples 01, 03, 04, 05, 06, and 07 for N+N analysis. Preserved with 400mL of 9N H₂SO₄ to pH 2.

Analyst Initials: AGM

Date: 12/15/2021



Am Test Inc.
13600 NE 126TH PL
Suite C
Kirkland, WA 98034
(425) 885-1664

Professional
Analytical
Services

Dec 28 2021
Analytical Resources LLC
4611 S 134th PI
Suite 100
Tukwila, WA 98168
Attention: KELLY BOTTEM

Dear KELLY BOTTEM:

Enclosed please find the analytical data for your project.

The following is a cross correlation of client and laboratory identifications for your convenience.

CLIENT ID	MATRIX	AMTEST ID	TEST
21L0200-01	Water	21-A019057	DEM
21L0200-03	Water	21-A019058	DEM
21L0200-04	Water	21-A019059	DEM
21L0200-05	Water	21-A019060	DEM
21L0200-06	Water	21-A019061	DEM
21L0200-07	Water	21-A019062	DEM

Your samples were received on Friday, December 17, 2021. At the time of receipt, the samples were logged in and properly maintained prior to the subsequent analysis.

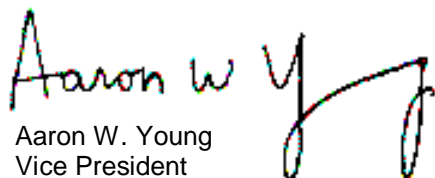
The analytical procedures used at AmTest are well documented and are typically derived from the protocols of the EPA, USDA, FDA or the Army Corps of Engineers.

Following the analytical data you will find the Quality Control (QC) results.

Please note that the detection limits that are listed in the body of the report refer to the Practical Quantitation Limits (PQL's), as opposed to the Method Detection Limits (MDL's).

If you should have any questions pertaining to the data package, please feel free to contact me.

Sincerely,


Aaron W. Young
Vice President

PO Number: 21L0200

BACT = Bacteriological
CONV = Conventional

MET = Metals
ORG = Organics

NUT=Nutrients
DEM=Demand

MIN=Minerals

Am Test Inc.
13600 NE 126TH PL
Suite C
Kirkland, WA 98034
(425) 885-1664
www.amtestlab.com



*Professional
Analytical
Services*

ANALYSIS REPORT

Analytical Resources LLC
4611 S 134th PI
Tukwila, WA 98168
Attention: KELLY BOTTEM
PO Number: 21L0200
All results reported on an as received basis.

Date Received: 12/17/21
Date Reported: 12/28/21

AMTEST Identification Number 21-A019057
Client Identification 21L0200-01
Sampling Date 12/14/21, 09:05

Demand

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Total Organic Carbon	0.83	mg/l		0.5	EPA 9060A	NNL	12/23/21

AMTEST Identification Number 21-A019058
Client Identification 21L0200-03
Sampling Date 12/14/21, 11:15

Demand

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Total Organic Carbon	3.0	mg/l		0.5	EPA 9060A	NNL	12/23/21

Analytical Resources LLC
Project Name:
AmTest ID: 21-A019059

AMTEST Identification Number 21-A019059
Client Identification 21L0200-04
Sampling Date 12/14/21, 11:55

Demand

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Total Organic Carbon	3.4	mg/l		0.5	EPA 9060A	NNL	12/23/21

AMTEST Identification Number 21-A019060
Client Identification 21L0200-05
Sampling Date 12/14/21, 12:30

Demand

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Total Organic Carbon	4.4	mg/l		0.5	EPA 9060A	NNL	12/23/21

AMTEST Identification Number 21-A019061
Client Identification 21L0200-06
Sampling Date 12/14/21, 12:40

Demand

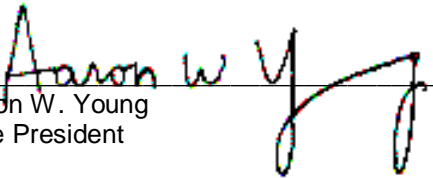
PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Total Organic Carbon	3.6	mg/l		0.5	EPA 9060A	NNL	12/23/21

Analytical Resources LLC
Project Name:
AmTest ID: 21-A019062

AMTEST Identification Number 21-A019062
Client Identification 21L0200-07
Sampling Date 12/14/21, 14:00

Demand

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Total Organic Carbon	1.8	mg/l		0.5	EPA 9060A	NNL	12/23/21



Aaron W. Young
Vice President

QC Summary for sample numbers: 21-A019057 to 21-A019062

DUPLICATES

SAMPLE #	ANALYTE	UNITS	SAMPLE VALUE	DUP VALUE	RPD
21-A019061	Total Organic Carbon	mg/l	3.6	3.6	0.00
21-A019235	Total Organic Carbon	mg/l	3.7	3.6	2.7
21-A019262	Total Organic Carbon	mg/l	2.8	2.9	3.5
21-A019267	Total Organic Carbon	mg/l	8.3	8.7	4.7

MATRIX SPIKES

SAMPLE #	ANALYTE	UNITS	SAMPLE VALUE	SMPL+ SPK	SPK AMT	RECOVERY
21-A019062	Total Organic Carbon	mg/l	1.8	53.	50.	102.40 %
21-A019236	Total Organic Carbon	mg/l	2.6	52.	50.	98.80 %
21-A019263	Total Organic Carbon	mg/l	3.0	52.	50.	98.00 %

STANDARD REFERENCE MATERIALS

ANALYTE	UNITS	TRUE VALUE	MEASURED VALUE	RECOVERY
Total Organic Carbon	mg/l	25.	23.	92.0 %
Total Organic Carbon	mg/l	25.	25.	100. %

BLANKS

ANALYTE	UNITS	RESULT
Total Organic Carbon	mg/l	< 0.5
Total Organic Carbon	mg/l	< 0.5



SUBCONTRACT ORDER
To: AmTest Laboratories
ARI Work Order:21L0200

SENDING LABORATORY:

Analytical Resources, LLC
4611 S. 134th Place, Suite 100
Tukwila, WA 98168
Phone: (206) 695-6200
Fax: (206) 695-6202
Project Manager: Kelly Bottem
E-Mail: kelly.bottem@arilabs.com

RECEIVING LABORATORY:

AmTest Laboratories
13600 NE 126th Pl Suite C
Kirkland, WA 98034
Phone :425-885-1664
Fax: -

PLEASE SEND DATA TO subdata@arilabs.com

Analysis	Due	Expires	Sub Laboratory ID	Comments
Sample ID: 21L0200-01 Sampled: 12/14/21 09:05 Matrix: Water				
Carbon, Organic Total, 9060A	12/30/21	01/11/22 09:05		
Containers Supplied:	19057			
<div style="border: 1px solid black; padding: 2px;"> 21L0200-01 K Glass NM, Amber, 250 mL, 9N </div>				
Sample ID: 21L0200-03 Sampled: 12/14/21 11:15 Matrix: Water				
Carbon, Organic Total, 9060A	12/30/21	01/11/22 11:15		
Containers Supplied:	58			
<div style="border: 1px solid black; padding: 2px;"> 21L0200-03 K Glass NM, Amber, 250 mL, 9N </div>				
Sample ID: 21L0200-04 Sampled: 12/14/21 11:55 Matrix: Water				
Carbon, Organic Total, 9060A	12/30/21	01/11/22 11:55		
Containers Supplied:	59			
<div style="border: 1px solid black; padding: 2px;"> 21L0200-04 K Glass NM, Amber, 250 mL, 9N </div>				
Sample ID: 21L0200-05 Sampled: 12/14/21 12:30 Matrix: Water				
Carbon, Organic Total, 9060A	12/30/21	01/11/22 12:30		
Containers Supplied:	60			
<div style="border: 1px solid black; padding: 2px;"> 21L0200-05 K Glass NM, Amber, 250 mL, 9N </div>				

Released By: *ADJ* Date: *12/17/21 1448* Received By: *AS* Date: *12/17/21 1448* T=9.7



SUBCONTRACT ORDER
To: AmTest Laboratories
ARI Work Order:21L0200

Analysis	Due	Expires	Sub Laboratory ID	Comments
----------	-----	---------	-------------------	----------

Sample ID: 21L0200-06 Sampled: 12/14/21 12:40 Matrix: Water				
----------------------------------------------------------------	--	--	--	--

Carbon, Organic Total, 9060A	12/30/21	01/11/22 12:40		
------------------------------	----------	----------------	--	--

Containers Supplied:

21L0200-06 K Glass NM, Amber, 250 mL, 9N

19061

Sample ID: 21L0200-07 Sampled: 12/14/21 14:00 Matrix: Water				
----------------------------------------------------------------	--	--	--	--

Carbon, Organic Total, 9060A	12/30/21	01/11/22 14:00		
------------------------------	----------	----------------	--	--

Containers Supplied:

21L0200-07 K Glass NM, Amber, 250 mL, 9N

62

D. Lopez ARI	12/17/21	1448	AS	12/17/21	1448
Released By	Date	Received By		Date	

Released By	Date	Received By		Date	



TRC Companies, Inc
1180 NW Maple Street, Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: [none]
Project Manager: Doug Kunkel

Reported:
12-Jan-2022 08:46

MW-1
21L0200-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 12/14/2021 09:05

Instrument: NT3 Analyst: PKC

Analyzed: 12/15/2021 17:28

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)
Preparation Batch: BJL0361
Prepared: 12/15/2021

Sample Size: 10 mL
Final Volume: 10 mL

Extract ID: 21L0200-01 G

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	9.96	ug/L	
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U



TRC Companies, Inc
1180 NW Maple Street, Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: [none]
Project Manager: Doug Kunkel

Reported:
12-Jan-2022 08:46

MW-1
21L0200-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 12/14/2021 09:05

Instrument: NT3 Analyst: PKC

Analyzed: 12/15/2021 17:28

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	2.00	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U



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1180 NW Maple Street, Suite 310
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Project: Olalla Landfill
Project Number: [none]
Project Manager: Doug Kunkel

Reported:
12-Jan-2022 08:46

MW-1
21L0200-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 12/14/2021 09:05

Instrument: NT3 Analyst: PKC

Analyzed: 12/15/2021 17:28

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.50	ND	ug/L	U
2-Pentanone	107-87-9	1	5.00	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>98.9</i>	<i>%</i>	
<i>Surrogate: Toluene-d8</i>			<i>80-120 %</i>	<i>97.6</i>	<i>%</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>			<i>80-120 %</i>	<i>100</i>	<i>%</i>	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			<i>80-120 %</i>	<i>100</i>	<i>%</i>	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-1
21L0200-01 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM Sampled: 12/14/2021 09:05
Instrument: NT16 Analyst: KOTT Analyzed: 12/16/2021 12:25

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 21L0200-01 H
Preparation Batch: BJL0409 Sample Size: 10 mL
Prepared: 12/16/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	ND	ng/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>94.8</i>	<i>%</i>	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-1
21L0200-01 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 Sampled: 12/14/2021 09:05
Instrument: ICPMS2 Analyst: MCB Analyzed: 12/28/2021 23:15

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 21L0200-01 C 01
Preparation Batch: BJL0556 Sample Size: 25 mL
Prepared: 12/22/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	36.0	224	ug/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-1
21L0200-01 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED Sampled: 12/14/2021 09:05
Instrument: ICPMS2 Analyst: MCB Analyzed: 12/28/2021 23:15

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 21L0200-01 C 01
Preparation Batch: BJL0556 Sample Size: 25 mL
Prepared: 12/22/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.200	ND	ug/L	U
Zinc	7440-66-6	1	6.00	ND	ug/L	U



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-1
21L0200-01 (Water)

Metals and Metallic Compounds

Method: EPA 6010D Sampled: 12/14/2021 09:05
Instrument: ICP2 Analyst: MVP Analyzed: 01/05/2022 14:45

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 21L0200-01 C 02
Preparation Batch: BKA0023 Sample Size: 25 mL
Prepared: 01/03/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	12.9	mg/L	
Potassium	7440-09-7	1	0.500	0.726	mg/L	
Sodium	7440-23-5	1	0.500	5.02	mg/L	



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MW-1
21L0200-01 (Water)

Wet Chemistry

Method: EPA 325.2 Sampled: 12/14/2021 09:05
Instrument: LACHAT2 Analyst: AGM Analyzed: 12/16/2021 15:20

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-01 B
Preparation Batch: BJL0411 Sample Size: 10 mL
Prepared: 12/16/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	5.46	mg/L	



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MW-1
21L0200-01 (Water)

Wet Chemistry

Method: EPA 353.2 Sampled: 12/14/2021 09:05
Instrument: [CALC] Analyst: AGM Analyzed: 12/20/2021 13:08

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: [CALC] Extract ID: 21L0200-01
Preparation Batch: [CALC]
Prepared: 12/17/2021 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.0200	0.192	mg/L	

Instrument: LACHAT2 Analyst: AGM Analyzed: 12/15/2021 12:59

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-01 B
Preparation Batch: BJL0368 Sample Size: 10 mL
Prepared: 12/15/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.010	0.010	ND	mg/L	U

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-01
Preparation Batch: BJL0438 Sample Size: 10 mL
Prepared: 12/17/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		1	0.010	0.010	0.192	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-1
21L0200-01 (Water)

Wet Chemistry

Method: EPA 375.2 Sampled: 12/14/2021 09:05
Instrument: LACHAT2 Analyst: AGM Analyzed: 12/16/2021 10:36

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-01 B
Preparation Batch: BJL0369 Sample Size: 10 mL
Prepared: 12/15/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	4.52	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-1
21L0200-01 (Water)

Wet Chemistry

Method: EPA 410.4 Sampled: 12/14/2021 09:05
Instrument: LACHAT1 Analyst: BF Analyzed: 12/17/2021 15:18

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-01 E
Preparation Batch: BJL0435 Sample Size: 2 mL
Prepared: 12/17/2021 Final Volume: 2 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
COD		1	10.0	10.0	ND	mg/L	U



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MW-1
21L0200-01 (Water)

Wet Chemistry

Method: SM 2320 B-97 Sampled: 12/14/2021 09:05
Instrument: Accumet AB150 Analyst: UW Analyzed: 12/15/2021 15:31

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-01 D
Preparation Batch: BJL0380 Sample Size: 100 mL
Prepared: 12/15/2021 Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	59.3	mg/L CaCO3	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Carbonate		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Hydroxide		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Total		1	1.00	1.00	59.3	mg/L CaCO3	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-1
21L0200-01 (Water)

Wet Chemistry

Method: SM 4500-H+ B-00 Sampled: 12/14/2021 09:05
Instrument: Accumet AB150 Analyst: CKI Analyzed: 12/14/2021 17:30

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-01 B
Preparation Batch: BJL0338 Sample Size: 50 mL
Prepared: 12/14/2021 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.38	pH Units	H



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-1
21L0200-01 (Water)

Wet Chemistry

Method: SM 4500-NH3 H-97 Sampled: 12/14/2021 09:05
Instrument: LCHAT2 Analyst: AGM Analyzed: 12/21/2021 14:59

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-01
Preparation Batch: BJL0512 Sample Size: 10 mL
Prepared: 12/21/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.040	ND	mg/L	U



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-1
21L0200-01 (Water)

Microbiology

Method: SM 9222B Sampled: 12/14/2021 09:05
Instrument: N/A Analyst: UW Analyzed: 12/15/2021 17:00

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-01
Preparation Batch: BJL0336 Sample Size: 100 mL
Prepared: 12/14/2021 Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Coliforms		1	1	1	ND	CFU/100 ml	H, U



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
-----------------------------------------------------------------------------	------------------------------------------------------------------------------------	---------------------------------------

MW-1
21L0200-01 (Water)

Wet Chemistry

Method: EPA 9060A Sampled: 12/14/2021 09:05
Instrument: ALAB Analyst: Analyzed: 12/23/2021 00:00

Analysis by: AmTest Laboratories

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-01
Preparation Batch: B231221
Prepared: 12/23/2021 Final Volume:

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.5	0.5	0.83	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-5A
21L0200-02 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM Sampled: 12/14/2021 10:45
Instrument: NT16 Analyst: KOTT Analyzed: 12/16/2021 12:46

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 21L0200-02 C
Preparation Batch: BJL0409 Sample Size: 10 mL
Prepared: 12/16/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	ND	ng/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	93.2	%	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-5A
21L0200-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 Sampled: 12/14/2021 10:45
Instrument: ICPMS2 Analyst: MCB Analyzed: 12/22/2021 21:01

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 21L0200-02 A 01
Preparation Batch: BJL0414 Sample Size: 25 mL
Prepared: 12/16/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	2	40.0	ND	ug/L	U



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-5A
21L0200-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED Sampled: 12/14/2021 10:45
Instrument: ICPMS2 Analyst: MCB Analyzed: 12/18/2021 05:24

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 21L0200-02 A 01
Preparation Batch: BJL0414 Sample Size: 25 mL
Prepared: 12/16/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Zinc, Dissolved	7440-66-6	1	6.00	ND	ug/L	U



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-5A
21L0200-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010D Sampled: 12/14/2021 10:45
Instrument: ICP2 Analyst: MVP Analyzed: 12/22/2021 17:38

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 21L0200-02 A 02
Preparation Batch: BJL0454 Sample Size: 25 mL
Prepared: 12/17/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	ND	mg/L	U
Manganese, Dissolved	7439-96-5	1	0.0040	ND	mg/L	U



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-5A
21L0200-02RE1 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED Sampled: 12/14/2021 10:45
Instrument: ICPMS2 Analyst: MCB Analyzed: 01/07/2022 01:53

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x Extract ID: 21L0200-02RE1 A 03
Preparation Batch: BKA0008 Sample Size: 100 mL
Prepared: 01/03/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.151	ug/L	



TRC Companies, Inc
1180 NW Maple Street, Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: [none]
Project Manager: Doug Kunkel

Reported:
12-Jan-2022 08:46

MW-3
21L0200-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 12/14/2021 11:15

Instrument: NT3 Analyst: PKC

Analyzed: 12/15/2021 17:54

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)
Preparation Batch: BJL0361
Prepared: 12/15/2021

Sample Size: 10 mL
Final Volume: 10 mL

Extract ID: 21L0200-03 F

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U



TRC Companies, Inc
1180 NW Maple Street, Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: [none]
Project Manager: Doug Kunkel

Reported:
12-Jan-2022 08:46

MW-3
21L0200-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 12/14/2021 11:15

Instrument: NT3 Analyst: PKC

Analyzed: 12/15/2021 17:54

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	2.00	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-3
21L0200-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 12/14/2021 11:15
Instrument: NT3 Analyst: PKC Analyzed: 12/15/2021 17:54

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.50	ND	ug/L	U
2-Pentanone	107-87-9	1	5.00	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	98.2	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	98.9	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	99.3	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	100	%	



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MW-3
21L0200-03 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM Sampled: 12/14/2021 11:15
Instrument: NT16 Analyst: KOTT Analyzed: 12/16/2021 13:07

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 21L0200-03 I
Preparation Batch: BJL0409 Sample Size: 10 mL
Prepared: 12/16/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	ND	ng/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>93.3</i>	<i>%</i>	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-3
21L0200-03 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 Sampled: 12/14/2021 11:15
Instrument: ICPMS2 Analyst: MCB Analyzed: 12/28/2021 23:20

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 21L0200-03 C 01
Preparation Batch: BJL0556 Sample Size: 25 mL
Prepared: 12/22/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	36.0	ND	ug/L	U



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-3
21L0200-03 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED Sampled: 12/14/2021 11:15
Instrument: ICPMS2 Analyst: MCB Analyzed: 12/28/2021 23:20

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 21L0200-03 C 01
Preparation Batch: BJL0556 Sample Size: 25 mL
Prepared: 12/22/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.200	ND	ug/L	U
Zinc	7440-66-6	1	6.00	13.6	ug/L	



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MW-3
21L0200-03 (Water)

Metals and Metallic Compounds

Method: EPA 6010D Sampled: 12/14/2021 11:15
Instrument: ICP2 Analyst: MVP Analyzed: 01/07/2022 16:14

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 21L0200-03 C 02
Preparation Batch: BKA0023 Sample Size: 25 mL
Prepared: 01/03/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	45.6	mg/L	
Potassium	7440-09-7	1	0.500	0.811	mg/L	
Sodium	7440-23-5	1	0.500	8.57	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-3
21L0200-03 (Water)

Wet Chemistry

Method: EPA 325.2 Sampled: 12/14/2021 11:15
Instrument: LACHAT2 Analyst: AGM Analyzed: 12/16/2021 15:28

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-03 B
Preparation Batch: BJL0411 Sample Size: 10 mL
Prepared: 12/16/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	5.58	mg/L	



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MW-3
21L0200-03 (Water)

Wet Chemistry

Method: EPA 353.2 Sampled: 12/14/2021 11:15
Instrument: [CALC] Analyst: AGM Analyzed: 12/20/2021 13:13

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: [CALC] Extract ID: 21L0200-03
Preparation Batch: [CALC]
Prepared: 12/17/2021 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
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Nitrate-N	14797-55-8	1	0.0200	ND	mg/L	U
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Instrument: LACHAT2 Analyst: AGM Analyzed: 12/15/2021 13:03

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-03 B
Preparation Batch: BJL0368 Sample Size: 10 mL
Prepared: 12/15/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
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Nitrite-N	14797-65-0	1	0.010	0.010	ND	mg/L	U
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Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-03
Preparation Batch: BJL0438 Sample Size: 10 mL
Prepared: 12/17/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
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Nitrate + Nitrite as N		1	0.010	0.010	ND	mg/L	U
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MW-3
21L0200-03 (Water)

Wet Chemistry

Method: EPA 375.2 Sampled: 12/14/2021 11:15
Instrument: LACHAT2 Analyst: AGM Analyzed: 12/16/2021 10:41

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-03 B
Preparation Batch: BJL0369 Sample Size: 10 mL
Prepared: 12/15/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	11.3	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-3
21L0200-03 (Water)

Wet Chemistry

Method: EPA 410.4 Sampled: 12/14/2021 11:15
Instrument: LACHAT1 Analyst: BF Analyzed: 12/17/2021 15:19

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-03 E
Preparation Batch: BJL0435 Sample Size: 2 mL
Prepared: 12/17/2021 Final Volume: 2 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
COD		1	10.0	10.0	ND	mg/L	U



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-3
21L0200-03 (Water)

Wet Chemistry

Method: SM 2320 B-97 Sampled: 12/14/2021 11:15
Instrument: Accumet AB150 Analyst: UW Analyzed: 12/15/2021 15:31

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-03 D
Preparation Batch: BJL0380 Sample Size: 100 mL
Prepared: 12/15/2021 Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	199	mg/L CaCO3	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Carbonate		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Hydroxide		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Total		1	1.00	1.00	199	mg/L CaCO3	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-3
21L0200-03 (Water)

Wet Chemistry

Method: SM 4500-H+ B-00 Sampled: 12/14/2021 11:15
Instrument: Accumet AB150 Analyst: CKI Analyzed: 12/14/2021 17:30

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-03 B
Preparation Batch: BJL0338 Sample Size: 50 mL
Prepared: 12/14/2021 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.42	pH Units	H



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-3
21L0200-03 (Water)

Wet Chemistry

Method: SM 4500-NH3 H-97 Sampled: 12/14/2021 11:15
Instrument: LCHAT2 Analyst: AGM Analyzed: 12/21/2021 15:04

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-03
Preparation Batch: BJL0512 Sample Size: 10 mL
Prepared: 12/21/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.040	ND	mg/L	U



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-3
21L0200-03 (Water)

Microbiology

Method: SM 9222B Sampled: 12/14/2021 11:15
Instrument: N/A Analyst: UW Analyzed: 12/15/2021 17:00

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-03
Preparation Batch: BJL0336 Sample Size: 100 mL
Prepared: 12/14/2021 Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Coliforms		1	1	1	ND	CFU/100 ml	U



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-3
21L0200-03 (Water)

Wet Chemistry

Method: EPA 9060A Sampled: 12/14/2021 11:15
Instrument: ALAB Analyst: Analyzed: 12/23/2021 00:00

Analysis by: AmTest Laboratories

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-03
Preparation Batch: B231221
Prepared: 12/23/2021 Final Volume:

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.5	0.5	3.00	mg/L	



TRC Companies, Inc
1180 NW Maple Street, Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: [none]
Project Manager: Doug Kunkel

Reported:
12-Jan-2022 08:46

MW-10
21L0200-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 12/14/2021 11:55

Instrument: NT3 Analyst: PKC

Analyzed: 12/15/2021 18:19

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)
Preparation Batch: BJL0361
Prepared: 12/15/2021

Sample Size: 10 mL
Final Volume: 10 mL

Extract ID: 21L0200-04 F

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	11.7	ug/L	
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U



TRC Companies, Inc
1180 NW Maple Street, Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: [none]
Project Manager: Doug Kunkel

Reported:
12-Jan-2022 08:46

MW-10
21L0200-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 12/14/2021 11:55

Instrument: NT3 Analyst: PKC

Analyzed: 12/15/2021 18:19

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	2.00	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U



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MW-10
21L0200-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 12/14/2021 11:55

Instrument: NT3 Analyst: PKC

Analyzed: 12/15/2021 18:19

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.50	ND	ug/L	U
2-Pentanone	107-87-9	1	5.00	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>99.2</i>	<i>%</i>	
<i>Surrogate: Toluene-d8</i>			<i>80-120 %</i>	<i>100</i>	<i>%</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>			<i>80-120 %</i>	<i>99.9</i>	<i>%</i>	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			<i>80-120 %</i>	<i>104</i>	<i>%</i>	



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MW-10
21L0200-04 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM Sampled: 12/14/2021 11:55
Instrument: NT16 Analyst: KOTT Analyzed: 12/16/2021 13:28

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 21L0200-04 I
Preparation Batch: BJL0409 Sample Size: 10 mL
Prepared: 12/16/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	ND	ng/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>97.8</i>	<i>%</i>	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-10
21L0200-04 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 Sampled: 12/14/2021 11:55
Instrument: ICPMS2 Analyst: MCB Analyzed: 12/28/2021 23:25

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 21L0200-04 C 01
Preparation Batch: BJL0556 Sample Size: 25 mL
Prepared: 12/22/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	36.0	57.1	ug/L	



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MW-10
21L0200-04 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED Sampled: 12/14/2021 11:55
Instrument: ICPMS2 Analyst: MCB Analyzed: 12/28/2021 23:25

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 21L0200-04 C 01
Preparation Batch: BJL0556 Sample Size: 25 mL
Prepared: 12/22/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.200	1.88	ug/L	
Zinc	7440-66-6	1	6.00	ND	ug/L	U



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MW-10
21L0200-04 (Water)

Metals and Metallic Compounds

Method: EPA 6010D Sampled: 12/14/2021 11:55
Instrument: ICP2 Analyst: MVP Analyzed: 01/05/2022 15:00

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 21L0200-04 C 02
Preparation Batch: BKA0023 Sample Size: 25 mL
Prepared: 01/03/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	33.4	mg/L	
Potassium	7440-09-7	1	0.500	1.23	mg/L	
Sodium	7440-23-5	1	0.500	17.8	mg/L	



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MW-10
21L0200-04 (Water)

Wet Chemistry

Method: EPA 325.2 Sampled: 12/14/2021 11:55
Instrument: LACHAT2 Analyst: AGM Analyzed: 12/16/2021 15:29

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-04 B
Preparation Batch: BJL0411 Sample Size: 10 mL
Prepared: 12/16/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	2.11	mg/L	



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MW-10
21L0200-04 (Water)

Wet Chemistry

Method: EPA 353.2 Sampled: 12/14/2021 11:55
Instrument: [CALC] Analyst: AGM Analyzed: 12/20/2021 13:14

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: [CALC] Extract ID: 21L0200-04
Preparation Batch: [CALC]
Prepared: 12/17/2021 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
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Nitrate-N	14797-55-8	1	0.0200	ND	mg/L	U
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Instrument: LACHAT2 Analyst: AGM Analyzed: 12/15/2021 13:05

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-04 B
Preparation Batch: BJL0368 Sample Size: 10 mL
Prepared: 12/15/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
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Nitrite-N	14797-65-0	1	0.010	0.010	ND	mg/L	U
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Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-04
Preparation Batch: BJL0438 Sample Size: 10 mL
Prepared: 12/17/2021 Final Volume: 10 mL

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-04
Preparation Batch: BJL0438 Sample Size: 10 mL
Prepared: 12/17/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
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Nitrate + Nitrite as N		1	0.010	0.010	ND	mg/L	U
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MW-10
21L0200-04 (Water)

Wet Chemistry

Method: EPA 375.2 Sampled: 12/14/2021 11:55
Instrument: LACHAT2 Analyst: AGM Analyzed: 12/16/2021 10:42

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-04 B
Preparation Batch: BJL0369 Sample Size: 10 mL
Prepared: 12/15/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	11.2	mg/L	



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MW-10
21L0200-04 (Water)

Wet Chemistry

Method: EPA 410.4 Sampled: 12/14/2021 11:55
Instrument: LACHAT1 Analyst: BF Analyzed: 12/17/2021 15:19

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-04 E
Preparation Batch: BJL0435 Sample Size: 2 mL
Prepared: 12/17/2021 Final Volume: 2 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
COD		1	10.0	10.0	ND	mg/L	U



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MW-10
21L0200-04 (Water)

Wet Chemistry

Method: SM 2320 B-97 Sampled: 12/14/2021 11:55
Instrument: Accumet AB150 Analyst: UW Analyzed: 12/15/2021 15:31

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-04 D
Preparation Batch: BJL0380 Sample Size: 100 mL
Prepared: 12/15/2021 Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	191	mg/L CaCO3	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Carbonate		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Hydroxide		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Total		1	1.00	1.00	191	mg/L CaCO3	



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MW-10
21L0200-04 (Water)

Wet Chemistry

Method: SM 4500-H+ B-00 Sampled: 12/14/2021 11:55
Instrument: Accumet AB150 Analyst: CKI Analyzed: 12/14/2021 17:30

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-04 B
Preparation Batch: BJL0338 Sample Size: 50 mL
Prepared: 12/14/2021 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.78	pH Units	H



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-10
21L0200-04 (Water)

Wet Chemistry

Method: SM 4500-NH3 H-97 Sampled: 12/14/2021 11:55
Instrument: LCHAT2 Analyst: AGM Analyzed: 12/21/2021 15:05

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-04
Preparation Batch: BJL0512 Sample Size: 10 mL
Prepared: 12/21/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.040	0.076	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-10
21L0200-04 (Water)

Microbiology

Method: SM 9222B Sampled: 12/14/2021 11:55
Instrument: N/A Analyst: UW Analyzed: 12/15/2021 17:00

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-04
Preparation Batch: BJL0336 Sample Size: 100 mL
Prepared: 12/14/2021 Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Coliforms		1	1	1	ND	CFU/100 ml	U



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-10
21L0200-04 (Water)

Wet Chemistry

Method: EPA 9060A Sampled: 12/14/2021 11:55
Instrument: ALAB Analyst: Analyzed: 12/23/2021 00:00

Analysis by: AmTest Laboratories

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-04
Preparation Batch: B231221
Prepared: 12/23/2021 Final Volume:

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.5	0.5	3.40	mg/L	



TRC Companies, Inc
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Project: Olalla Landfill
Project Number: [none]
Project Manager: Doug Kunkel

Reported:
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MW-13
21L0200-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 12/14/2021 12:30

Instrument: NT3 Analyst: PKC

Analyzed: 12/15/2021 18:44

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)
Preparation Batch: B JL0361
Prepared: 12/15/2021

Sample Size: 10 mL
Final Volume: 10 mL

Extract ID: 21L0200-05 F

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	7.46	ug/L	
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U



TRC Companies, Inc
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Issaquah WA, 98027

Project: Olalla Landfill
Project Number: [none]
Project Manager: Doug Kunkel

Reported:
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MW-13
21L0200-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 12/14/2021 12:30

Instrument: NT3 Analyst: PKC

Analyzed: 12/15/2021 18:44

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	2.00	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U



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MW-13
21L0200-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 12/14/2021 12:30
Instrument: NT3 Analyst: PKC Analyzed: 12/15/2021 18:44

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.50	ND	ug/L	U
2-Pentanone	107-87-9	1	5.00	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>101</i>	<i>%</i>	
<i>Surrogate: Toluene-d8</i>			<i>80-120 %</i>	<i>98.4</i>	<i>%</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>			<i>80-120 %</i>	<i>102</i>	<i>%</i>	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			<i>80-120 %</i>	<i>101</i>	<i>%</i>	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-13
21L0200-05 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM Sampled: 12/14/2021 12:30
Instrument: NT16 Analyst: KOTT Analyzed: 12/16/2021 13:50

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 21L0200-05 H
Preparation Batch: BJL0409 Sample Size: 10 mL
Prepared: 12/16/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	ND	ng/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>92.7</i>	<i>%</i>	



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MW-13
21L0200-05 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 Sampled: 12/14/2021 12:30
Instrument: ICPMS2 Analyst: MCB Analyzed: 12/28/2021 23:30

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 21L0200-05 C 01
Preparation Batch: BJL0556 Sample Size: 25 mL
Prepared: 12/22/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	36.0	ND	ug/L	U



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-13
21L0200-05 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED Sampled: 12/14/2021 12:30
Instrument: ICPMS2 Analyst: MCB Analyzed: 12/28/2021 23:30

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 21L0200-05 C 01
Preparation Batch: BJL0556 Sample Size: 25 mL
Prepared: 12/22/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.200	1.75	ug/L	
Zinc	7440-66-6	1	6.00	ND	ug/L	U



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Project: Olalla Landfill
Project Number: [none]
Project Manager: Doug Kunkel

Reported:
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MW-13
21L0200-05 (Water)

Metals and Metallic Compounds

Method: EPA 6010D

Sampled: 12/14/2021 12:30

Instrument: ICP2 Analyst: MVP

Analyzed: 01/05/2022 14:57

Analysis by: Analytical Resources, LLC

Sample Preparation:

Preparation Method: TWC EPA 3010A

Extract ID: 21L0200-05 C 02

Preparation Batch: BKA0023

Sample Size: 25 mL

Prepared: 01/03/2022

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	43.0	mg/L	
Potassium	7440-09-7	1	0.500	0.798	mg/L	
Sodium	7440-23-5	1	0.500	8.02	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-13
21L0200-05 (Water)

Wet Chemistry

Method: EPA 325.2 Sampled: 12/14/2021 12:30
Instrument: LACHAT2 Analyst: AGM Analyzed: 12/16/2021 15:30

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-05 B
Preparation Batch: BJL0411 Sample Size: 10 mL
Prepared: 12/16/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	1.96	mg/L	



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MW-13
21L0200-05 (Water)

Wet Chemistry

Method: EPA 353.2 Sampled: 12/14/2021 12:30
Instrument: [CALC] Analyst: AGM Analyzed: 12/20/2021 13:15

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: [CALC] Extract ID: 21L0200-05
Preparation Batch: [CALC]
Prepared: 12/17/2021 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.0200	ND	mg/L	U

Instrument: LACHAT2 Analyst: AGM Analyzed: 12/15/2021 13:06

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-05 B
Preparation Batch: BJL0368 Sample Size: 10 mL
Prepared: 12/15/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.010	0.010	ND	mg/L	U

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-05
Preparation Batch: BJL0438 Sample Size: 10 mL
Prepared: 12/17/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		1	0.010	0.010	ND	mg/L	U



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MW-13
21L0200-05 (Water)

Wet Chemistry

Method: EPA 375.2 Sampled: 12/14/2021 12:30
Instrument: LACHAT2 Analyst: AGM Analyzed: 12/16/2021 10:44

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-05 B
Preparation Batch: BJL0369 Sample Size: 10 mL
Prepared: 12/15/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	11.1	mg/L	



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MW-13
21L0200-05 (Water)

Wet Chemistry

Method: EPA 410.4 Sampled: 12/14/2021 12:30
Instrument: LACHAT1 Analyst: BF Analyzed: 12/17/2021 15:20

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-05 E
Preparation Batch: BJL0435 Sample Size: 2 mL
Prepared: 12/17/2021 Final Volume: 2 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
COD		1	10.0	10.0	12.1	mg/L	



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MW-13
21L0200-05 (Water)

Wet Chemistry

Method: SM 2320 B-97 Sampled: 12/14/2021 12:30
Instrument: Accumet AB150 Analyst: UW Analyzed: 12/15/2021 15:31

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-05 D
Preparation Batch: BJL0380 Sample Size: 100 mL
Prepared: 12/15/2021 Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	192	mg/L CaCO3	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Carbonate		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Hydroxide		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Total		1	1.00	1.00	192	mg/L CaCO3	



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MW-13
21L0200-05 (Water)

Wet Chemistry

Method: SM 4500-H+ B-00 Sampled: 12/14/2021 12:30
Instrument: Accumet AB150 Analyst: CKI Analyzed: 12/14/2021 17:30

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-05 B
Preparation Batch: BJL0338 Sample Size: 50 mL
Prepared: 12/14/2021 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.76	pH Units	H



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MW-13
21L0200-05 (Water)

Microbiology

Method: SM 9222B Sampled: 12/14/2021 12:30
Instrument: N/A Analyst: UW Analyzed: 12/15/2021 17:00

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-05
Preparation Batch: BJL0336 Sample Size: 100 mL
Prepared: 12/14/2021 Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Coliforms		1	1	1	ND	CFU/100 ml	U



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MW-13
21L0200-05 (Water)

Wet Chemistry

Method: EPA 9060A Sampled: 12/14/2021 12:30
Instrument: ALAB Analyst: Analyzed: 12/23/2021 00:00

Analysis by: AmTest Laboratories

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-05
Preparation Batch: B231221
Prepared: 12/23/2021 Final Volume:

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.5	0.5	4.40	mg/L	



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MW-13
21L0200-05RE1 (Water)

Wet Chemistry

Method: SM 4500-NH3 H-97 Sampled: 12/14/2021 12:30
Instrument: LCHAT2 Analyst: AGM Analyzed: 12/21/2021 15:14

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-05RE1
Preparation Batch: BJL0512 Sample Size: 10 mL
Prepared: 12/21/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.040	0.078	mg/L	



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Project: Olalla Landfill
Project Number: [none]
Project Manager: Doug Kunkel

Reported:
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MW-6
21L0200-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 12/14/2021 12:40

Instrument: NT3 Analyst: PKC

Analyzed: 12/15/2021 19:10

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)
Preparation Batch: BJL0361
Prepared: 12/15/2021

Sample Size: 10 mL
Final Volume: 10 mL

Extract ID: 21L0200-06 G

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U



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Project: Olalla Landfill
Project Number: [none]
Project Manager: Doug Kunkel

Reported:
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MW-6
21L0200-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 12/14/2021 12:40

Instrument: NT3 Analyst: PKC

Analyzed: 12/15/2021 19:10

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	2.09	ug/L	
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	2.00	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U



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MW-6
21L0200-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 12/14/2021 12:40
Instrument: NT3 Analyst: PKC Analyzed: 12/15/2021 19:10

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.50	ND	ug/L	U
2-Pentanone	107-87-9	1	5.00	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>98.2</i>	<i>%</i>	
<i>Surrogate: Toluene-d8</i>			<i>80-120 %</i>	<i>99.8</i>	<i>%</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>			<i>80-120 %</i>	<i>99.0</i>	<i>%</i>	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			<i>80-120 %</i>	<i>101</i>	<i>%</i>	



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MW-6
21L0200-06 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM Sampled: 12/14/2021 12:40
Instrument: NT16 Analyst: KOTT Analyzed: 12/16/2021 14:11

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 21L0200-06 H
Preparation Batch: BJL0409 Sample Size: 10 mL
Prepared: 12/16/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	ND	ng/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>92.4</i>	<i>%</i>	



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MW-6
21L0200-06 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 Sampled: 12/14/2021 12:40
Instrument: ICPMS2 Analyst: MCB Analyzed: 12/28/2021 23:35

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 21L0200-06 C 01
Preparation Batch: BJL0556 Sample Size: 25 mL
Prepared: 12/22/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	36.0	285	ug/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-6
21L0200-06 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED Sampled: 12/14/2021 12:40
Instrument: ICPMS2 Analyst: MCB Analyzed: 12/28/2021 23:35

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 21L0200-06 C 01
Preparation Batch: BJL0556 Sample Size: 25 mL
Prepared: 12/22/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.200	0.383	ug/L	
Zinc	7440-66-6	1	6.00	ND	ug/L	U



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-6
21L0200-06 (Water)

Metals and Metallic Compounds

Method: EPA 6010D Sampled: 12/14/2021 12:40
Instrument: ICP2 Analyst: MVP Analyzed: 01/07/2022 16:17

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 21L0200-06 C 02
Preparation Batch: BKA0023 Sample Size: 25 mL
Prepared: 01/03/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	32.3	mg/L	
Potassium	7440-09-7	1	0.500	1.77	mg/L	
Sodium	7440-23-5	1	0.500	10.9	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-6
21L0200-06 (Water)

Wet Chemistry

Method: EPA 325.2 Sampled: 12/14/2021 12:40
Instrument: LACHAT2 Analyst: AGM Analyzed: 12/16/2021 15:34

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-06 B
Preparation Batch: BJL0411 Sample Size: 10 mL
Prepared: 12/16/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	1.65	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-6
21L0200-06 (Water)

Wet Chemistry

Method: EPA 353.2 Sampled: 12/14/2021 12:40
Instrument: [CALC] Analyst: AGM Analyzed: 12/20/2021 13:16

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: [CALC] Extract ID: 21L0200-06
Preparation Batch: [CALC]
Prepared: 12/17/2021 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
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Nitrate-N	14797-55-8	1	0.0200	0.570	mg/L	
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Instrument: LACHAT2 Analyst: AGM Analyzed: 12/15/2021 13:12

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-06 B
Preparation Batch: BJL0368 Sample Size: 10 mL
Prepared: 12/15/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
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Nitrite-N	14797-65-0	1	0.010	0.010	0.051	mg/L	
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Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-06
Preparation Batch: BJL0438 Sample Size: 10 mL
Prepared: 12/17/2021 Final Volume: 10 mL

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-06
Preparation Batch: BJL0438 Sample Size: 10 mL
Prepared: 12/17/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
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Nitrate + Nitrite as N		1	0.010	0.010	0.621	mg/L	
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TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-6
21L0200-06 (Water)

Wet Chemistry

Method: EPA 375.2 Sampled: 12/14/2021 12:40
Instrument: LACHAT2 Analyst: AGM Analyzed: 12/16/2021 10:51

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-06 B
Preparation Batch: BJL0369 Sample Size: 10 mL
Prepared: 12/15/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	11.0	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-6
21L0200-06 (Water)

Wet Chemistry

Method: EPA 410.4 Sampled: 12/14/2021 12:40
Instrument: LACHAT1 Analyst: BF Analyzed: 12/17/2021 15:20

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-06 E
Preparation Batch: BJL0435 Sample Size: 2 mL
Prepared: 12/17/2021 Final Volume: 2 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
COD		1	10.0	10.0	ND	mg/L	U



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MW-6
21L0200-06 (Water)

Wet Chemistry

Method: SM 2320 B-97 Sampled: 12/14/2021 12:40
Instrument: Accumet AB150 Analyst: UW Analyzed: 12/15/2021 15:31

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-06 D
Preparation Batch: BJL0380 Sample Size: 100 mL
Prepared: 12/15/2021 Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	164	mg/L CaCO3	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Carbonate		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Hydroxide		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Total		1	1.00	1.00	164	mg/L CaCO3	



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MW-6
21L0200-06 (Water)

Wet Chemistry

Method: SM 4500-H+ B-00 Sampled: 12/14/2021 12:40
Instrument: Accumet AB150 Analyst: CKI Analyzed: 12/14/2021 17:30

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-06 B
Preparation Batch: BJL0338 Sample Size: 50 mL
Prepared: 12/14/2021 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.74	pH Units	H



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MW-6
21L0200-06 (Water)

Wet Chemistry

Method: SM 4500-NH3 H-97 Sampled: 12/14/2021 12:40
Instrument: LCHAT2 Analyst: AGM Analyzed: 12/21/2021 15:15

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-06
Preparation Batch: BJL0512 Sample Size: 10 mL
Prepared: 12/21/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.040	0.068	mg/L	



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MW-6
21L0200-06 (Water)

Microbiology

Method: SM 9222B Sampled: 12/14/2021 12:40
Instrument: N/A Analyst: UW Analyzed: 12/15/2021 17:00

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-06
Preparation Batch: BJL0336 Sample Size: 100 mL
Prepared: 12/14/2021 Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Coliforms		1	1	1	ND	CFU/100 ml	U



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-6
21L0200-06 (Water)

Wet Chemistry

Method: EPA 9060A Sampled: 12/14/2021 12:40
Instrument: ALAB Analyst: Analyzed: 12/23/2021 00:00

Analysis by: AmTest Laboratories

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-06
Preparation Batch: B231221
Prepared: 12/23/2021 Final Volume:

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.5	0.5	3.60	mg/L	



TRC Companies, Inc
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Issaquah WA, 98027

Project: Olalla Landfill
Project Number: [none]
Project Manager: Doug Kunkel

Reported:
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MW-8
21L0200-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 12/14/2021 14:00

Instrument: NT3 Analyst: PKC

Analyzed: 12/15/2021 19:35

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)
Preparation Batch: BJL0361
Prepared: 12/15/2021

Sample Size: 10 mL
Final Volume: 10 mL

Extract ID: 21L0200-07 G

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	11.3	ug/L	
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.27	ug/L	
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U



TRC Companies, Inc
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Issaquah WA, 98027

Project: Olalla Landfill
Project Number: [none]
Project Manager: Doug Kunkel

Reported:
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MW-8
21L0200-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 12/14/2021 14:00

Instrument: NT3 Analyst: PKC

Analyzed: 12/15/2021 19:35

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	2.00	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U



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MW-8
21L0200-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 12/14/2021 14:00
Instrument: NT3 Analyst: PKC Analyzed: 12/15/2021 19:35

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.50	ND	ug/L	U
2-Pentanone	107-87-9	1	5.00	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	103	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	98.5	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	105	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	98.9	%	



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MW-8
21L0200-07 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM Sampled: 12/14/2021 14:00
Instrument: NT16 Analyst: KOTT Analyzed: 12/16/2021 14:32

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 21L0200-07 F
Preparation Batch: BJL0409 Sample Size: 10 mL
Prepared: 12/16/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	43.2	ng/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>91.7</i>	<i>%</i>	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-8
21L0200-07 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 Sampled: 12/14/2021 14:00
Instrument: ICPMS2 Analyst: MCB Analyzed: 12/28/2021 23:41

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 21L0200-07 C 01
Preparation Batch: BJL0556 Sample Size: 25 mL
Prepared: 12/22/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	36.0	925	ug/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-8
21L0200-07 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED Sampled: 12/14/2021 14:00
Instrument: ICPMS2 Analyst: MCB Analyzed: 12/28/2021 23:41

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 21L0200-07 C 01
Preparation Batch: BJL0556 Sample Size: 25 mL
Prepared: 12/22/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.200	1.41	ug/L	
Zinc	7440-66-6	1	6.00	ND	ug/L	U



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-8
21L0200-07 (Water)

Metals and Metallic Compounds

Method: EPA 6010D Sampled: 12/14/2021 14:00
Instrument: ICP2 Analyst: MVP Analyzed: 01/07/2022 16:20

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 21L0200-07 C 02
Preparation Batch: BKA0023 Sample Size: 25 mL
Prepared: 01/03/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	27.3	mg/L	
Potassium	7440-09-7	1	0.500	0.994	mg/L	
Sodium	7440-23-5	1	0.500	7.95	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-8
21L0200-07 (Water)

Wet Chemistry

Method: EPA 325.2 Sampled: 12/14/2021 14:00
Instrument: LACHAT2 Analyst: AGM Analyzed: 12/16/2021 15:35

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-07 B
Preparation Batch: BJL0411 Sample Size: 10 mL
Prepared: 12/16/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	2.18	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-8
21L0200-07 (Water)

Wet Chemistry

Method: EPA 353.2 Sampled: 12/14/2021 14:00
Instrument: [CALC] Analyst: AGM Analyzed: 12/20/2021 13:17

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: [CALC] Extract ID: 21L0200-07
Preparation Batch: [CALC]
Prepared: 12/17/2021 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
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Nitrate-N	14797-55-8	1	0.0200	0.117	mg/L	
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Instrument: LACHAT2 Analyst: AGM Analyzed: 12/15/2021 13:13

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-07 B
Preparation Batch: BJL0368
Prepared: 12/15/2021 Sample Size: 10 mL
Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
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Nitrite-N	14797-65-0	1	0.010	0.010	ND	mg/L	U
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Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-07
Preparation Batch: BJL0438
Prepared: 12/17/2021 Sample Size: 10 mL
Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
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Nitrate + Nitrite as N		1	0.010	0.010	0.117	mg/L	
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TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-8
21L0200-07 (Water)

Wet Chemistry

Method: EPA 375.2 Sampled: 12/14/2021 14:00
Instrument: LACHAT2 Analyst: AGM Analyzed: 12/16/2021 10:52

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-07 B
Preparation Batch: BJL0369 Sample Size: 10 mL
Prepared: 12/15/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	6.31	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-8
21L0200-07 (Water)

Wet Chemistry

Method: EPA 410.4 Sampled: 12/14/2021 14:00
Instrument: LACHAT1 Analyst: BF Analyzed: 12/17/2021 15:20

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-07 E
Preparation Batch: BJL0435 Sample Size: 2 mL
Prepared: 12/17/2021 Final Volume: 2 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
COD		1	10.0	10.0	ND	mg/L	U



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MW-8
21L0200-07 (Water)

Wet Chemistry

Method: SM 2320 B-97 Sampled: 12/14/2021 14:00
Instrument: Accumet AB150 Analyst: UW Analyzed: 12/15/2021 15:31

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-07 D
Preparation Batch: BJL0380 Sample Size: 100 mL
Prepared: 12/15/2021 Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	131	mg/L CaCO3	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Carbonate		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Hydroxide		1	1.00	1.00	ND	mg/L CaCO3	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Total		1	1.00	1.00	131	mg/L CaCO3	



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MW-8
21L0200-07 (Water)

Wet Chemistry

Method: SM 4500-H+ B-00 Sampled: 12/14/2021 14:00
Instrument: Accumet AB150 Analyst: CKI Analyzed: 12/14/2021 17:30

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-07 B
Preparation Batch: BJL0338 Sample Size: 50 mL
Prepared: 12/14/2021 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.65	pH Units	H



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MW-8
21L0200-07 (Water)

Wet Chemistry

Method: SM 4500-NH3 H-97 Sampled: 12/14/2021 14:00
Instrument: LCHAT2 Analyst: AGM Analyzed: 12/21/2021 15:17

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-07
Preparation Batch: BJL0512 Sample Size: 10 mL
Prepared: 12/21/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.040	ND	mg/L	U



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MW-8
21L0200-07 (Water)

Microbiology

Method: SM 9222B Sampled: 12/14/2021 14:00
Instrument: N/A Analyst: UW Analyzed: 12/15/2021 17:00

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-07
Preparation Batch: BJL0336 Sample Size: 100 mL
Prepared: 12/14/2021 Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Coliforms		1	1	1	ND	CFU/100 ml	U



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MW-8
21L0200-07 (Water)

Wet Chemistry

Method: EPA 9060A Sampled: 12/14/2021 14:00
Instrument: ALAB Analyst: Analyzed: 12/23/2021 00:00

Analysis by: AmTest Laboratories

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 21L0200-07
Preparation Batch: B231221
Prepared: 12/23/2021 Final Volume:

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.5	0.5	1.80	mg/L	



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MW-7
21L0200-08 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM Sampled: 12/14/2021 14:45
Instrument: NT16 Analyst: KOTT Analyzed: 12/16/2021 14:53

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 21L0200-08 B
Preparation Batch: BJL0409 Sample Size: 10 mL
Prepared: 12/16/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	ND	ng/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	90.6	%	



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MW-7
21L0200-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 Sampled: 12/14/2021 14:45
Instrument: ICPMS2 Analyst: MCB Analyzed: 12/28/2021 22:08

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 21L0200-08 A 01
Preparation Batch: BJL0414 Sample Size: 25 mL
Prepared: 12/16/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	20.0	ND	ug/L	U



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-7
21L0200-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED Sampled: 12/14/2021 14:45
Instrument: ICPMS2 Analyst: MCB Analyzed: 12/28/2021 22:08

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 21L0200-08 A 01
Preparation Batch: BJL0414 Sample Size: 25 mL
Prepared: 12/16/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Zinc, Dissolved	7440-66-6	1	6.00	ND	ug/L	U

Sample Preparation: Preparation Method: RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x Extract ID: 21L0200-08 A 03
Preparation Batch: BKA0008 Sample Size: 100 mL
Prepared: 01/03/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.349	ug/L	



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MW-7
21L0200-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010D Sampled: 12/14/2021 14:45
Instrument: ICP2 Analyst: MVP Analyzed: 12/22/2021 17:41

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 21L0200-08 A 02
Preparation Batch: BJL0454 Sample Size: 25 mL
Prepared: 12/17/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	ND	mg/L	U
Manganese, Dissolved	7439-96-5	1	0.0040	ND	mg/L	U



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-1
21L0200-09 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 Sampled: 12/14/2021 09:05
Instrument: ICPMS2 Analyst: MCB Analyzed: 12/28/2021 22:13

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 21L0200-09 A 01
Preparation Batch: BJL0414 Sample Size: 25 mL
Prepared: 12/16/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	20.0	ND	ug/L	U



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-1
21L0200-09 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED Sampled: 12/14/2021 09:05
Instrument: ICPMS2 Analyst: MCB Analyzed: 12/28/2021 22:13

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 21L0200-09 A 01
Preparation Batch: BJL0414 Sample Size: 25 mL
Prepared: 12/16/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Zinc, Dissolved	7440-66-6	1	6.00	ND	ug/L	U

Sample Preparation: Preparation Method: RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x Extract ID: 21L0200-09 A 03
Preparation Batch: BKA0008 Sample Size: 100 mL
Prepared: 01/03/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.100	ug/L	



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MW-1
21L0200-09 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010D Sampled: 12/14/2021 09:05
Instrument: ICP2 Analyst: MVP Analyzed: 12/22/2021 17:43

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 21L0200-09 A 02
Preparation Batch: BJL0454 Sample Size: 25 mL
Prepared: 12/17/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	ND	mg/L	U
Manganese, Dissolved	7439-96-5	1	0.0040	ND	mg/L	U



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MW-3
21L0200-10 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 Sampled: 12/14/2021 11:15
Instrument: ICPMS2 Analyst: MCB Analyzed: 12/28/2021 22:17

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 21L0200-10 A 01
Preparation Batch: BJL0414 Sample Size: 25 mL
Prepared: 12/16/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	20.0	ND	ug/L	U



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-3
21L0200-10 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED Sampled: 12/14/2021 11:15
Instrument: ICPMS2 Analyst: MCB Analyzed: 12/28/2021 22:17

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 21L0200-10 A 01
Preparation Batch: BJL0414 Sample Size: 25 mL
Prepared: 12/16/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Zinc, Dissolved	7440-66-6	1	6.00	ND	ug/L	U

Sample Preparation: Preparation Method: RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x Extract ID: 21L0200-10 A 03
Preparation Batch: BKA0008 Sample Size: 100 mL
Prepared: 01/03/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.126	ug/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-3
21L0200-10 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010D Sampled: 12/14/2021 11:15
Instrument: ICP2 Analyst: MVP Analyzed: 12/22/2021 17:46

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 21L0200-10 A 02
Preparation Batch: BJL0454 Sample Size: 25 mL
Prepared: 12/17/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	0.0142	mg/L	
Manganese, Dissolved	7439-96-5	1	0.0040	5.30	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-10
21L0200-11 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 Sampled: 12/14/2021 11:55
Instrument: ICPMS2 Analyst: MCB Analyzed: 12/28/2021 22:22

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 21L0200-11 A 01
Preparation Batch: BJL0414 Sample Size: 25 mL
Prepared: 12/16/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	20.0	ND	ug/L	U



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-10
21L0200-11 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED Sampled: 12/14/2021 11:55
Instrument: ICPMS2 Analyst: MCB Analyzed: 12/28/2021 22:22

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 21L0200-11 A 01
Preparation Batch: BJL0414 Sample Size: 25 mL
Prepared: 12/16/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Zinc, Dissolved	7440-66-6	1	6.00	ND	ug/L	U

Sample Preparation: Preparation Method: RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x Extract ID: 21L0200-11 A 03
Preparation Batch: BKA0008 Sample Size: 100 mL
Prepared: 01/03/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	1.74	ug/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-10
21L0200-11 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010D Sampled: 12/14/2021 11:55
Instrument: ICP2 Analyst: MVP Analyzed: 12/22/2021 17:49

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 21L0200-11 A 02
Preparation Batch: BJL0454 Sample Size: 25 mL
Prepared: 12/17/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	0.0146	mg/L	
Manganese, Dissolved	7439-96-5	1	0.0040	3.28	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-13
21L0200-12 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 Sampled: 12/14/2021 12:30
Instrument: ICPMS2 Analyst: MCB Analyzed: 12/28/2021 22:27

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 21L0200-12 A 01
Preparation Batch: BJL0414 Sample Size: 25 mL
Prepared: 12/16/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	20.0	ND	ug/L	U



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-13
21L0200-12 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED Sampled: 12/14/2021 12:30
Instrument: ICPMS2 Analyst: MCB Analyzed: 12/28/2021 22:27

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 21L0200-12 A 01
Preparation Batch: BJL0414 Sample Size: 25 mL
Prepared: 12/16/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Zinc, Dissolved	7440-66-6	1	6.00	ND	ug/L	U

Sample Preparation: Preparation Method: RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x Extract ID: 21L0200-12 A 03
Preparation Batch: BKA0008 Sample Size: 100 mL
Prepared: 01/03/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	1.78	ug/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-13
21L0200-12 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010D Sampled: 12/14/2021 12:30
Instrument: ICP2 Analyst: MVP Analyzed: 12/22/2021 17:52

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 21L0200-12 A 02
Preparation Batch: BJL0454 Sample Size: 25 mL
Prepared: 12/17/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	0.0153	mg/L	
Manganese, Dissolved	7439-96-5	1	0.0040	3.26	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-6
21L0200-13 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 Sampled: 12/14/2021 12:40
Instrument: ICPMS2 Analyst: MCB Analyzed: 12/28/2021 22:32

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 21L0200-13 A 01
Preparation Batch: BJL0414 Sample Size: 25 mL
Prepared: 12/16/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	20.0	39.9	ug/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-6
21L0200-13 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED Sampled: 12/14/2021 12:40
Instrument: ICPMS2 Analyst: MCB Analyzed: 12/28/2021 22:32

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 21L0200-13 A 01
Preparation Batch: BJL0414 Sample Size: 25 mL
Prepared: 12/16/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Zinc, Dissolved	7440-66-6	1	6.00	ND	ug/L	U

Sample Preparation: Preparation Method: RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x Extract ID: 21L0200-13 A 03
Preparation Batch: BKA0008 Sample Size: 100 mL
Prepared: 01/03/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.215	ug/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-6
21L0200-13 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010D Sampled: 12/14/2021 12:40
Instrument: ICP2 Analyst: MVP Analyzed: 12/22/2021 17:55

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 21L0200-13 A 02
Preparation Batch: BJL0454 Sample Size: 25 mL
Prepared: 12/17/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	0.0162	mg/L	
Manganese, Dissolved	7439-96-5	1	0.0040	0.330	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-8
21L0200-14 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 Sampled: 12/14/2021 14:00
Instrument: ICPMS2 Analyst: MCB Analyzed: 12/28/2021 22:37

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 21L0200-14 A 01
Preparation Batch: BJL0414 Sample Size: 25 mL
Prepared: 12/16/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	20.0	920	ug/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-8
21L0200-14 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED Sampled: 12/14/2021 14:00
Instrument: ICPMS2 Analyst: MCB Analyzed: 12/28/2021 22:37

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 21L0200-14 A 01
Preparation Batch: BJL0414 Sample Size: 25 mL
Prepared: 12/16/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Zinc, Dissolved	7440-66-6	1	6.00	ND	ug/L	U

Sample Preparation: Preparation Method: RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x Extract ID: 21L0200-14 A 03
Preparation Batch: BKA0008 Sample Size: 100 mL
Prepared: 01/03/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	1.06	ug/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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MW-8
21L0200-14 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010D Sampled: 12/14/2021 14:00
Instrument: ICP2 Analyst: MVP Analyzed: 12/22/2021 18:17

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 21L0200-14 A 02
Preparation Batch: BJL0454 Sample Size: 25 mL
Prepared: 12/17/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	0.0068	mg/L	
Manganese, Dissolved	7439-96-5	1	0.0040	2.26	mg/L	



TRC Companies, Inc
1180 NW Maple Street, Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: [none]
Project Manager: Doug Kunkel

Reported:
12-Jan-2022 08:46

Trip Blanks
21L0200-15 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 12/14/2021 09:05

Instrument: NT3 Analyst: PKC

Analyzed: 12/15/2021 20:00

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)
Preparation Batch: B JL0361
Prepared: 12/15/2021

Sample Size: 10 mL
Final Volume: 10 mL

Extract ID: 21L0200-15 B

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	10.9	ug/L	
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U



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Project Manager: Doug Kunkel

Reported:
12-Jan-2022 08:46

Trip Blanks
21L0200-15 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 12/14/2021 09:05

Instrument: NT3 Analyst: PKC

Analyzed: 12/15/2021 20:00

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	2.00	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U



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Project: Olalla Landfill
Project Number: [none]
Project Manager: Doug Kunkel

Reported:
12-Jan-2022 08:46

Trip Blanks
21L0200-15 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 12/14/2021 09:05

Instrument: NT3 Analyst: PKC

Analyzed: 12/15/2021 20:00

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.50	ND	ug/L	U
2-Pentanone	107-87-9	1	5.00	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>97.4</i>	<i>%</i>	
<i>Surrogate: Toluene-d8</i>			<i>80-120 %</i>	<i>101</i>	<i>%</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>			<i>80-120 %</i>	<i>98.8</i>	<i>%</i>	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			<i>80-120 %</i>	<i>99.7</i>	<i>%</i>	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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Trip Blanks
21L0200-15 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM Sampled: 12/14/2021 09:05
Instrument: NT16 Analyst: KOTT Analyzed: 12/16/2021 12:04

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 21L0200-15 A
Preparation Batch: BJL0409 Sample Size: 10 mL
Prepared: 12/16/2021 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	ND	ng/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>96.7</i>	<i>%</i>	



TRC Companies, Inc
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Project: Olalla Landfill
Project Number: [none]
Project Manager: Doug Kunkel

Reported:
12-Jan-2022 08:46

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BJL0361 - EPA 5030C (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJL0361-BLK1)		Prepared: 15-Dec-2021 Analyzed: 15-Dec-2021 11:35								
Chloromethane	ND	0.50	ug/L							U
Vinyl Chloride	ND	0.20	ug/L							U
Bromomethane	ND	1.00	ug/L							U
Chloroethane	ND	0.20	ug/L							U
Trichlorofluoromethane	ND	0.20	ug/L							U
Acrolein	ND	5.00	ug/L							U
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.20	ug/L							U
Acetone	ND	5.00	ug/L							U
1,1-Dichloroethene	ND	0.20	ug/L							U
Iodomethane	ND	1.00	ug/L							U
Methylene Chloride	ND	1.00	ug/L							U
Acrylonitrile	ND	1.00	ug/L							U
Carbon Disulfide	ND	0.20	ug/L							U
trans-1,2-Dichloroethene	ND	0.20	ug/L							U
Vinyl Acetate	ND	0.20	ug/L							U
1,1-Dichloroethane	ND	0.20	ug/L							U
2-Butanone	ND	5.00	ug/L							U
2,2-Dichloropropane	ND	0.20	ug/L							U
cis-1,2-Dichloroethene	ND	0.20	ug/L							U
Chloroform	ND	0.20	ug/L							U
Bromochloromethane	ND	0.20	ug/L							U
1,1,1-Trichloroethane	ND	0.20	ug/L							U
1,1-Dichloropropene	ND	0.20	ug/L							U
Carbon tetrachloride	ND	0.20	ug/L							U
1,2-Dichloroethane	ND	0.20	ug/L							U
Benzene	ND	0.20	ug/L							U
Trichloroethene	ND	0.20	ug/L							U
1,2-Dichloropropane	ND	0.20	ug/L							U
Bromodichloromethane	ND	0.20	ug/L							U
Dibromomethane	ND	0.20	ug/L							U
2-Chloroethyl vinyl ether	ND	1.00	ug/L							U
4-Methyl-2-Pentanone	ND	5.00	ug/L							U
cis-1,3-Dichloropropene	ND	0.20	ug/L							U
Toluene	ND	0.20	ug/L							U
trans-1,3-Dichloropropene	ND	0.20	ug/L							U



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Project: Olalla Landfill
Project Number: [none]
Project Manager: Doug Kunkel

Reported:
12-Jan-2022 08:46

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BJL0361 - EPA 5030C (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJL0361-BLK1)		Prepared: 15-Dec-2021 Analyzed: 15-Dec-2021 11:35								
2-Hexanone	ND	5.00	ug/L							U
1,1,2-Trichloroethane	ND	0.20	ug/L							U
1,3-Dichloropropane	ND	0.20	ug/L							U
Tetrachloroethene	ND	0.20	ug/L							U
Dibromochloromethane	ND	0.20	ug/L							U
1,2-Dibromoethane	ND	0.20	ug/L							U
Chlorobenzene	ND	0.20	ug/L							U
Ethylbenzene	ND	0.20	ug/L							U
1,1,1,2-Tetrachloroethane	ND	0.20	ug/L							U
m,p-Xylene	ND	0.40	ug/L							U
o-Xylene	ND	0.20	ug/L							U
Xylenes, total	ND	0.60	ug/L							U
Styrene	ND	0.20	ug/L							U
Bromoform	ND	0.20	ug/L							U
1,1,2,2-Tetrachloroethane	ND	0.20	ug/L							U
1,2,3-Trichloropropane	ND	0.50	ug/L							U
trans-1,4-Dichloro 2-Butene	ND	1.00	ug/L							U
n-Propylbenzene	ND	0.20	ug/L							U
Bromobenzene	ND	0.20	ug/L							U
Isopropyl Benzene	ND	0.20	ug/L							U
2-Chlorotoluene	ND	0.20	ug/L							U
4-Chlorotoluene	ND	0.20	ug/L							U
t-Butylbenzene	ND	0.20	ug/L							U
1,3,5-Trimethylbenzene	ND	0.20	ug/L							U
1,2,4-Trimethylbenzene	ND	0.20	ug/L							U
s-Butylbenzene	ND	0.20	ug/L							U
4-Isopropyl Toluene	ND	0.20	ug/L							U
1,3-Dichlorobenzene	ND	0.20	ug/L							U
1,4-Dichlorobenzene	ND	0.20	ug/L							U
n-Butylbenzene	ND	0.20	ug/L							U
1,2-Dichlorobenzene	ND	0.20	ug/L							U
1,2-Dibromo-3-chloropropane	ND	0.50	ug/L							U
1,2,4-Trichlorobenzene	ND	0.50	ug/L							U
Hexachloro-1,3-Butadiene	ND	2.00	ug/L							U
Naphthalene	ND	0.50	ug/L							U



TRC Companies, Inc
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Issaquah WA, 98027

Project: Olalla Landfill
Project Number: [none]
Project Manager: Doug Kunkel

Reported:
12-Jan-2022 08:46

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BJL0361 - EPA 5030C (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJL0361-BLK1)										
					Prepared: 15-Dec-2021 Analyzed: 15-Dec-2021 11:35					
1,2,3-Trichlorobenzene	ND	0.50	ug/L							U
Dichlorodifluoromethane	ND	0.20	ug/L							U
Methyl tert-butyl Ether	ND	0.50	ug/L							U
2-Pentanone	ND	5.00	ug/L							U
<i>Surrogate: 1,2-Dichloroethane-d4</i>	4.97		ug/L	5.00		99.3	80-129			
<i>Surrogate: Toluene-d8</i>	4.88		ug/L	5.00		97.7	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	4.99		ug/L	5.00		99.9	80-120			
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	4.96		ug/L	5.00		99.2	80-120			
LCS (BJL0361-BS1)										
					Prepared: 15-Dec-2021 Analyzed: 15-Dec-2021 10:19					
Chloromethane	9.09	0.50	ug/L	10.0		90.9	60-138			
Vinyl Chloride	8.16	0.20	ug/L	10.0		81.6	66-133			
Bromomethane	9.33	1.00	ug/L	10.0		93.3	72-131			
Chloroethane	9.82	0.20	ug/L	10.0		98.2	60-155			
Trichlorofluoromethane	12.1	0.20	ug/L	10.0		121	62-141			Q
Acrolein	46.9	5.00	ug/L	50.0		93.8	52-190			
1,1,2-Trichloro-1,2,2-Trifluoroethane	9.24	0.20	ug/L	10.0		92.4	76-129			
Acetone	44.0	5.00	ug/L	50.0		88.0	58-142			
1,1-Dichloroethene	9.27	0.20	ug/L	10.0		92.7	69-135			
Iodomethane	9.52	1.00	ug/L	10.0		95.2	56-147			
Methylene Chloride	9.73	1.00	ug/L	10.0		97.3	65-135			
Acrylonitrile	9.05	1.00	ug/L	10.0		90.5	64-134			
Carbon Disulfide	8.93	0.20	ug/L	10.0		89.3	78-125			
trans-1,2-Dichloroethene	9.55	0.20	ug/L	10.0		95.5	78-128			
Vinyl Acetate	9.39	0.20	ug/L	10.0		93.9	55-138			
1,1-Dichloroethane	9.65	0.20	ug/L	10.0		96.5	76-124			
2-Butanone	46.5	5.00	ug/L	50.0		93.0	61-140			
2,2-Dichloropropane	11.4	0.20	ug/L	10.0		114	66-147			
cis-1,2-Dichloroethene	9.26	0.20	ug/L	10.0		92.6	80-121			
Chloroform	9.51	0.20	ug/L	10.0		95.1	80-122			
Bromochloromethane	9.42	0.20	ug/L	10.0		94.2	80-121			
1,1,1-Trichloroethane	9.53	0.20	ug/L	10.0		95.3	79-123			
1,1-Dichloropropene	9.44	0.20	ug/L	10.0		94.4	80-127			
Carbon tetrachloride	9.66	0.20	ug/L	10.0		96.6	53-137			
1,2-Dichloroethane	9.41	0.20	ug/L	10.0		94.1	75-123			



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Project: Olalla Landfill
Project Number: [none]
Project Manager: Doug Kunkel

Reported:
12-Jan-2022 08:46

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BJL0361 - EPA 5030C (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJL0361-BS1)		Prepared: 15-Dec-2021 Analyzed: 15-Dec-2021 10:19								
Benzene	9.47	0.20	ug/L	10.0		94.7	80-120			
Trichloroethene	9.58	0.20	ug/L	10.0		95.8	80-120			
1,2-Dichloropropane	9.69	0.20	ug/L	10.0		96.9	80-120			
Bromodichloromethane	9.36	0.20	ug/L	10.0		93.6	80-121			
Dibromomethane	9.14	0.20	ug/L	10.0		91.4	80-120			
2-Chloroethyl vinyl ether	9.10	1.00	ug/L	10.0		91.0	64-120			
4-Methyl-2-Pentanone	46.3	5.00	ug/L	50.0		92.7	67-133			
cis-1,3-Dichloropropene	9.21	0.20	ug/L	10.0		92.1	80-124			
Toluene	9.49	0.20	ug/L	10.0		94.9	80-120			
trans-1,3-Dichloropropene	9.31	0.20	ug/L	10.0		93.1	71-127			
2-Hexanone	45.0	5.00	ug/L	50.0		90.1	69-133			
1,1,2-Trichloroethane	8.70	0.20	ug/L	10.0		87.0	80-121			
1,3-Dichloropropane	8.91	0.20	ug/L	10.0		89.1	80-120			
Tetrachloroethene	9.21	0.20	ug/L	10.0		92.1	80-120			
Dibromochloromethane	9.16	0.20	ug/L	10.0		91.6	65-135			
1,2-Dibromoethane	9.14	0.20	ug/L	10.0		91.4	80-121			
Chlorobenzene	9.43	0.20	ug/L	10.0		94.3	80-120			
Ethylbenzene	9.33	0.20	ug/L	10.0		93.3	80-120			
1,1,1,2-Tetrachloroethane	9.12	0.20	ug/L	10.0		91.2	80-120			
m,p-Xylene	18.9	0.40	ug/L	20.0		94.4	80-121			
o-Xylene	9.16	0.20	ug/L	10.0		91.6	80-121			
Xylenes, total	28.0	0.60	ug/L	30.0		93.5	76-127			
Styrene	9.39	0.20	ug/L	10.0		93.9	80-124			
Bromoform	8.60	0.20	ug/L	10.0		86.0	51-134			
1,1,2,2-Tetrachloroethane	8.30	0.20	ug/L	10.0		83.0	77-123			
1,2,3-Trichloropropane	8.04	0.50	ug/L	10.0		80.4	76-125			
trans-1,4-Dichloro 2-Butene	9.06	1.00	ug/L	10.0		90.6	55-129			
n-Propylbenzene	9.79	0.20	ug/L	10.0		97.9	78-130			
Bromobenzene	9.32	0.20	ug/L	10.0		93.2	80-120			
Isopropyl Benzene	9.57	0.20	ug/L	10.0		95.7	80-128			
2-Chlorotoluene	9.18	0.20	ug/L	10.0		91.8	78-122			
4-Chlorotoluene	9.15	0.20	ug/L	10.0		91.5	80-121			
t-Butylbenzene	9.65	0.20	ug/L	10.0		96.5	78-125			
1,3,5-Trimethylbenzene	9.46	0.20	ug/L	10.0		94.6	80-129			
1,2,4-Trimethylbenzene	9.50	0.20	ug/L	10.0		95.0	80-127			



TRC Companies, Inc
1180 NW Maple Street, Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: [none]
Project Manager: Doug Kunkel

Reported:
12-Jan-2022 08:46

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BJL0361 - EPA 5030C (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJL0361-BS1)				Prepared: 15-Dec-2021 Analyzed: 15-Dec-2021 10:19						
s-Butylbenzene	9.71	0.20	ug/L	10.0		97.1	78-129			
4-Isopropyl Toluene	9.75	0.20	ug/L	10.0		97.5	79-130			
1,3-Dichlorobenzene	9.44	0.20	ug/L	10.0		94.4	80-120			
1,4-Dichlorobenzene	9.38	0.20	ug/L	10.0		93.8	80-120			
n-Butylbenzene	9.70	0.20	ug/L	10.0		97.0	74-129			
1,2-Dichlorobenzene	9.26	0.20	ug/L	10.0		92.6	80-120			
1,2-Dibromo-3-chloropropane	8.90	0.50	ug/L	10.0		89.0	62-123			
1,2,4-Trichlorobenzene	9.76	0.50	ug/L	10.0		97.6	64-124			
Hexachloro-1,3-Butadiene	9.74	2.00	ug/L	10.0		97.4	58-123			
Naphthalene	9.22	0.50	ug/L	10.0		92.2	50-134			
1,2,3-Trichlorobenzene	9.31	0.50	ug/L	10.0		93.1	49-133			
Dichlorodifluoromethane	10.0	0.20	ug/L	10.0		100	48-147			
Methyl tert-butyl Ether	9.62	0.50	ug/L	10.0		96.2	71-132			
2-Pentanone	44.6	5.00	ug/L	50.0		89.2	69-134			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	5.04		ug/L	5.00		101	80-129			
<i>Surrogate: Toluene-d8</i>	4.97		ug/L	5.00		99.4	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	4.94		ug/L	5.00		98.8	80-120			
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	4.84		ug/L	5.00		96.8	80-120			
LCS Dup (BJL0361-BSD1)				Prepared: 15-Dec-2021 Analyzed: 15-Dec-2021 10:45						
Chloromethane	8.67	0.50	ug/L	10.0		86.7	60-138	4.66	30	
Vinyl Chloride	8.26	0.20	ug/L	10.0		82.6	66-133	1.17	30	
Bromomethane	9.35	1.00	ug/L	10.0		93.5	72-131	0.22	30	
Chloroethane	9.73	0.20	ug/L	10.0		97.3	60-155	0.94	30	
Trichlorofluoromethane	10.9	0.20	ug/L	10.0		109	62-141	10.50	30	Q
Acrolein	49.5	5.00	ug/L	50.0		99.0	52-190	5.43	30	
1,1,2-Trichloro-1,2,2-Trifluoroethane	9.53	0.20	ug/L	10.0		95.3	76-129	3.06	30	
Acetone	47.5	5.00	ug/L	50.0		95.0	58-142	7.60	30	
1,1-Dichloroethene	9.30	0.20	ug/L	10.0		93.0	69-135	0.27	30	
Iodomethane	9.57	1.00	ug/L	10.0		95.7	56-147	0.58	30	
Methylene Chloride	9.59	1.00	ug/L	10.0		95.9	65-135	1.40	30	
Acrylonitrile	9.60	1.00	ug/L	10.0		96.0	64-134	5.90	30	
Carbon Disulfide	9.07	0.20	ug/L	10.0		90.7	78-125	1.51	30	
trans-1,2-Dichloroethene	9.51	0.20	ug/L	10.0		95.1	78-128	0.36	30	
Vinyl Acetate	9.67	0.20	ug/L	10.0		96.7	55-138	3.00	30	



TRC Companies, Inc
1180 NW Maple Street, Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: [none]
Project Manager: Doug Kunkel

Reported:
12-Jan-2022 08:46

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BJL0361 - EPA 5030C (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Alyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJL0361-BSD1)		Prepared: 15-Dec-2021 Analyzed: 15-Dec-2021 10:45								
1,1-Dichloroethane	9.65	0.20	ug/L	10.0		96.5	76-124	0.03	30	
2-Butanone	49.9	5.00	ug/L	50.0		99.8	61-140	7.03	30	
2,2-Dichloropropane	11.3	0.20	ug/L	10.0		113	66-147	0.76	30	
cis-1,2-Dichloroethene	9.37	0.20	ug/L	10.0		93.7	80-121	1.11	30	
Chloroform	9.44	0.20	ug/L	10.0		94.4	80-122	0.82	30	
Bromochloromethane	9.55	0.20	ug/L	10.0		95.5	80-121	1.39	30	
1,1,1-Trichloroethane	9.68	0.20	ug/L	10.0		96.8	79-123	1.55	30	
1,1-Dichloropropene	9.16	0.20	ug/L	10.0		91.6	80-127	3.05	30	
Carbon tetrachloride	9.51	0.20	ug/L	10.0		95.1	53-137	1.52	30	
1,2-Dichloroethane	9.22	0.20	ug/L	10.0		92.2	75-123	2.07	30	
Benzene	9.23	0.20	ug/L	10.0		92.3	80-120	2.56	30	
Trichloroethene	9.46	0.20	ug/L	10.0		94.6	80-120	1.25	30	
1,2-Dichloropropane	9.48	0.20	ug/L	10.0		94.8	80-120	2.20	30	
Bromodichloromethane	9.11	0.20	ug/L	10.0		91.1	80-121	2.67	30	
Dibromomethane	9.02	0.20	ug/L	10.0		90.2	80-120	1.36	30	
2-Chloroethyl vinyl ether	9.31	1.00	ug/L	10.0		93.1	64-120	2.25	30	
4-Methyl-2-Pentanone	47.5	5.00	ug/L	50.0		94.9	67-133	2.42	30	
cis-1,3-Dichloropropene	9.18	0.20	ug/L	10.0		91.8	80-124	0.35	30	
Toluene	9.19	0.20	ug/L	10.0		91.9	80-120	3.19	30	
trans-1,3-Dichloropropene	9.28	0.20	ug/L	10.0		92.8	71-127	0.30	30	
2-Hexanone	47.8	5.00	ug/L	50.0		95.6	69-133	5.89	30	
1,1,2-Trichloroethane	8.75	0.20	ug/L	10.0		87.5	80-121	0.61	30	
1,3-Dichloropropane	9.02	0.20	ug/L	10.0		90.2	80-120	1.22	30	
Tetrachloroethene	8.97	0.20	ug/L	10.0		89.7	80-120	2.60	30	
Dibromochloromethane	9.24	0.20	ug/L	10.0		92.4	65-135	0.84	30	
1,2-Dibromoethane	9.47	0.20	ug/L	10.0		94.7	80-121	3.63	30	
Chlorobenzene	9.31	0.20	ug/L	10.0		93.1	80-120	1.31	30	
Ethylbenzene	9.11	0.20	ug/L	10.0		91.1	80-120	2.42	30	
1,1,1,2-Tetrachloroethane	9.08	0.20	ug/L	10.0		90.8	80-120	0.47	30	
m,p-Xylene	18.6	0.40	ug/L	20.0		93.2	80-121	1.28	30	
o-Xylene	9.12	0.20	ug/L	10.0		91.2	80-121	0.45	30	
Xylenes, total	27.8	0.60	ug/L	30.0		92.5	76-127	1.01	30	
Styrene	9.29	0.20	ug/L	10.0		92.9	80-124	1.05	30	
Bromoform	8.85	0.20	ug/L	10.0		88.5	51-134	2.79	30	
1,1,2,2-Tetrachloroethane	8.72	0.20	ug/L	10.0		87.2	77-123	4.92	30	



TRC Companies, Inc
1180 NW Maple Street, Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: [none]
Project Manager: Doug Kunkel

Reported:
12-Jan-2022 08:46

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BJL0361 - EPA 5030C (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJL0361-BSD1)				Prepared: 15-Dec-2021 Analyzed: 15-Dec-2021 10:45						
1,2,3-Trichloropropane	9.04	0.50	ug/L	10.0		90.4	76-125	11.70	30	
trans-1,4-Dichloro 2-Butene	9.36	1.00	ug/L	10.0		93.6	55-129	3.24	30	
n-Propylbenzene	9.60	0.20	ug/L	10.0		96.0	78-130	1.99	30	
Bromobenzene	9.16	0.20	ug/L	10.0		91.6	80-120	1.68	30	
Isopropyl Benzene	9.45	0.20	ug/L	10.0		94.5	80-128	1.32	30	
2-Chlorotoluene	9.19	0.20	ug/L	10.0		91.9	78-122	0.06	30	
4-Chlorotoluene	9.23	0.20	ug/L	10.0		92.3	80-121	0.85	30	
t-Butylbenzene	9.67	0.20	ug/L	10.0		96.7	78-125	0.22	30	
1,3,5-Trimethylbenzene	9.39	0.20	ug/L	10.0		93.9	80-129	0.80	30	
1,2,4-Trimethylbenzene	9.38	0.20	ug/L	10.0		93.8	80-127	1.25	30	
s-Butylbenzene	9.76	0.20	ug/L	10.0		97.6	78-129	0.52	30	
4-Isopropyl Toluene	9.70	0.20	ug/L	10.0		97.0	79-130	0.45	30	
1,3-Dichlorobenzene	9.42	0.20	ug/L	10.0		94.2	80-120	0.28	30	
1,4-Dichlorobenzene	9.24	0.20	ug/L	10.0		92.4	80-120	1.54	30	
n-Butylbenzene	9.87	0.20	ug/L	10.0		98.7	74-129	1.70	30	
1,2-Dichlorobenzene	9.24	0.20	ug/L	10.0		92.4	80-120	0.26	30	
1,2-Dibromo-3-chloropropane	9.19	0.50	ug/L	10.0		91.9	62-123	3.13	30	
1,2,4-Trichlorobenzene	9.98	0.50	ug/L	10.0		99.8	64-124	2.21	30	
Hexachloro-1,3-Butadiene	9.94	2.00	ug/L	10.0		99.4	58-123	2.00	30	
Naphthalene	9.68	0.50	ug/L	10.0		96.8	50-134	4.87	30	
1,2,3-Trichlorobenzene	10.1	0.50	ug/L	10.0		101	49-133	8.62	30	
Dichlorodifluoromethane	10.1	0.20	ug/L	10.0		101	48-147	0.51	30	
Methyl tert-butyl Ether	10.1	0.50	ug/L	10.0		101	71-132	4.75	30	
2-Pentanone	45.7	5.00	ug/L	50.0		91.5	69-134	2.57	30	
Surrogate: 1,2-Dichloroethane-d4	5.44		ug/L	5.00		109	80-129			
Surrogate: Toluene-d8	4.95		ug/L	5.00		99.0	80-120			
Surrogate: 4-Bromofluorobenzene	5.01		ug/L	5.00		100	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	4.96		ug/L	5.00		99.3	80-120			



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BJL0409 - 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 (BJL0409-BLK1)		Prepared: 16-Dec-2021 Analyzed: 16-Dec-2021 11:43								
Vinyl chloride	ND	20.0	ng/L							U
<i>Surrogate: 1,2-Dichloroethane-d4</i>	4770		ng/L	5000		95.3	80-129			
LCS (BJL0409-BS1)		Prepared: 16-Dec-2021 Analyzed: 16-Dec-2021 10:05								
Vinyl chloride	2320	20.0	ng/L	2000		116	62-141			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	4840		ng/L	5000		96.7	80-129			
LCS Dup (BJL0409-BSD1)		Prepared: 16-Dec-2021 Analyzed: 16-Dec-2021 10:54								
Vinyl chloride	1960	20.0	ng/L	2000		98.2	62-141	16.50	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	4750		ng/L	5000		95.0	80-129			



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BJL0556 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS2 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJL0556-BLK1)			Prepared: 22-Dec-2021 Analyzed: 22-Dec-2021 20:01								
Zinc	66	ND	6.00	ug/L							U
Zinc	67	ND	6.00	ug/L							U
LCS (BJL0556-BS1)			Prepared: 22-Dec-2021 Analyzed: 22-Dec-2021 20:06								
Zinc	66	80.2	6.00	ug/L	80.0		100	80-120			
Zinc	67	76.4	6.00	ug/L	80.0		95.4	80-120			
Duplicate (BJL0556-DUP1)			Source: 21L0200-07			Prepared: 22-Dec-2021 Analyzed: 28-Dec-2021 23:46					
Iron	54	905	36.0	ug/L		925			2.24	20	
Arsenic	75a	1.40	0.200	ug/L		1.41			1.14	20	
Zinc	66	ND	6.00	ug/L		ND					U
Matrix Spike (BJL0556-MS1)			Source: 21L0200-07			Prepared: 22-Dec-2021 Analyzed: 28-Dec-2021 23:51					
Iron	54	5500	36.0	ug/L	5000	925	91.6	75-125			
Arsenic	75a	27.6	0.200	ug/L	25.0	1.41	105	75-125			
Zinc	66	78.0	6.00	ug/L	80.0	ND	97.5	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJL0556-MSD1)			Source: 21L0200-07			Prepared: 22-Dec-2021 Analyzed: 28-Dec-2021 23:58					
Iron	54	5450	36.0	ug/L	5000	925	90.5	75-125	0.98	20	
Arsenic	75a	26.8	0.200	ug/L	25.0	1.41	102	75-125	3.07	20	
Zinc	66	76.5	6.00	ug/L	80.0	ND	95.7	75-125	1.89	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BKA0023 - TWC EPA 3010A

Instrument: ICP2 Analyst: MVP

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKA0023-BLK1) Prepared: 03-Jan-2022 Analyzed: 05-Jan-2022 14:25										
Calcium	ND	0.0500	mg/L							U
Potassium	ND	0.500	mg/L							U
Sodium	ND	0.500	mg/L							U
Sodium	ND	50.0	mg/L							U
LCS (BKA0023-BS1) Prepared: 03-Jan-2022 Analyzed: 05-Jan-2022 14:28										
Calcium	9.82	0.0500	mg/L	10.0		98.2	80-120			
Potassium	10.2	0.500	mg/L	10.0		102	80-120			
Sodium	10.1	0.500	mg/L	10.0		101	80-120			
Duplicate (BKA0023-DUP1) Source: 21L0200-01 Prepared: 03-Jan-2022 Analyzed: 05-Jan-2022 14:40										
Calcium	12.8	0.0500	mg/L		12.9			0.57	20	
Potassium	0.769	0.500	mg/L		0.726			5.71	20	
Sodium	5.04	0.500	mg/L		5.02			0.41	20	
Matrix Spike (BKA0023-MS1) Source: 21L0200-01 Prepared: 03-Jan-2022 Analyzed: 05-Jan-2022 14:48										
Calcium	22.4	0.0500	mg/L	10.0	12.9	95.5	75-125			
Potassium	10.5	0.500	mg/L	10.0	0.726	98.1	75-125			
Sodium	14.6	0.500	mg/L	10.0	5.02	96.0	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike Dup (BKA0023-MSD1) Source: 21L0200-01 Prepared: 03-Jan-2022 Analyzed: 05-Jan-2022 14:52										
Calcium	22.6	0.0500	mg/L	10.0	12.9	97.2	75-125	0.76	20	
Potassium	10.6	0.500	mg/L	10.0	0.726	98.8	75-125	0.68	20	
Sodium	14.8	0.500	mg/L	10.0	5.02	97.8	75-125	1.20	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										



TRC Companies, Inc
1180 NW Maple Street, Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: [none]
Project Manager: Doug Kunkel

Reported:
12-Jan-2022 08:46

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJL0414 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS2 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJL0414-BLK1)			Prepared: 16-Dec-2021 Analyzed: 17-Dec-2021 18:44								
Iron, Dissolved	54	ND	36.0	ug/L							U
Iron, Dissolved	57	ND	20.0	ug/L							U
Arsenic, Dissolved	75a	ND	0.200	ug/L							U
Zinc, Dissolved	66	ND	6.00	ug/L							U
Zinc, Dissolved	67	ND	6.00	ug/L							U
LCS (BJL0414-BS1)			Prepared: 16-Dec-2021 Analyzed: 17-Dec-2021 18:49								
Iron, Dissolved	54	5120	36.0	ug/L	5000		102	80-120			
Iron, Dissolved	57	5000	20.0	ug/L	5000		100	80-120			
Arsenic, Dissolved	75a	24.8	0.200	ug/L	25.0		99.3	80-120			
Zinc, Dissolved	66	79.7	6.00	ug/L	80.0		99.6	80-120			
Zinc, Dissolved	67	74.7	6.00	ug/L	80.0		93.4	80-120			
Duplicate (BJL0414-DUP1)			Source: 21L0200-02		Prepared: 16-Dec-2021 Analyzed: 18-Dec-2021 05:29						
Iron, Dissolved	54	ND	36.0	ug/L		ND					U
Iron, Dissolved	57	ND	20.0	ug/L		13.6			19.70	20	U
Arsenic, Dissolved	75a	0.237	0.200	ug/L		0.207			13.50	20	
Zinc, Dissolved	66	ND	6.00	ug/L		ND					U
Duplicate (BJL0414-DUP2)			Source: 21L0200-02		Prepared: 16-Dec-2021 Analyzed: 22-Dec-2021 21:05						
Iron, Dissolved	54	ND	72.0	ug/L		ND					U
Arsenic, Dissolved	75a	ND	0.400	ug/L		0.207			14.00	20	U, D
Matrix Spike (BJL0414-MS1)			Source: 21L0200-02		Prepared: 16-Dec-2021 Analyzed: 18-Dec-2021 05:34						
Iron, Dissolved	54	4840	36.0	ug/L	5000	ND	96.9	75-125			
Iron, Dissolved	57	4700	20.0	ug/L	5000	13.6	93.7	75-125			
Arsenic, Dissolved	75a	23.4	0.200	ug/L	25.0	0.207	92.8	75-125			
Zinc, Dissolved	66	78.0	6.00	ug/L	80.0	ND	97.5	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike (BJL0414-MS2)			Source: 21L0200-02		Prepared: 16-Dec-2021 Analyzed: 22-Dec-2021 21:10						
Iron, Dissolved	54	4920	72.0	ug/L	5000	ND	98.3	75-125			D
Arsenic, Dissolved	75a	25.9	0.400	ug/L	25.0	0.207	103	75-125			D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJL0414-MSD1)			Source: 21L0200-02		Prepared: 16-Dec-2021 Analyzed: 18-Dec-2021 05:41						



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJL0414 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS2 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BJL0414-MSD1)			Source: 21L0200-02		Prepared: 16-Dec-2021		Analyzed: 18-Dec-2021 05:41				
Iron, Dissolved	54	4940	36.0	ug/L	5000	ND	98.9	75-125	2.04	20	
Iron, Dissolved	57	4840	20.0	ug/L	5000	13.6	96.4	75-125	2.83	20	
Arsenic, Dissolved	75a	24.1	0.200	ug/L	25.0	0.207	95.5	75-125	2.86	20	
Zinc, Dissolved	66	79.2	6.00	ug/L	80.0	ND	99.0	75-125	1.51	20	

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

Matrix Spike Dup (BJL0414-MSD2)			Source: 21L0200-02		Prepared: 16-Dec-2021		Analyzed: 22-Dec-2021 21:15				
Iron, Dissolved	54	4960	72.0	ug/L	5000	ND	99.1	75-125	0.83	20	D
Arsenic, Dissolved	75a	25.1	0.400	ug/L	25.0	0.207	99.4	75-125	3.30	20	D

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



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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJL0454 - WMN (No Prep)

Instrument: ICP2 Analyst: MVP

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJL0454-BLK1)				Prepared: 17-Dec-2021 Analyzed: 22-Dec-2021 17:30						
Barium, Dissolved	ND	0.0060	mg/L							U
Manganese, Dissolved	ND	0.0040	mg/L							U
LCS (BJL0454-BS1)				Prepared: 17-Dec-2021 Analyzed: 22-Dec-2021 17:33						
Barium, Dissolved	2.06	0.0061	mg/L	2.00		103	80-120			
Manganese, Dissolved	0.509	0.0040	mg/L	0.500		102	80-120			
Duplicate (BJL0454-DUP1)				Source: 21L0200-14 Prepared: 17-Dec-2021 Analyzed: 22-Dec-2021 17:57						
Barium, Dissolved	0.0061	0.0060	mg/L		0.0068			10.60	20	
Manganese, Dissolved	2.29	0.0040	mg/L		2.26			1.35	20	
Matrix Spike (BJL0454-MS1)				Source: 21L0200-14 Prepared: 17-Dec-2021 Analyzed: 22-Dec-2021 18:20						
Barium, Dissolved	2.02	0.0061	mg/L	2.00	0.0068	100	75-125			
Manganese, Dissolved	2.70	0.0040	mg/L	0.500	2.26	86.9	75-125			

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

Matrix Spike Dup (BJL0454-MSD1)				Source: 21L0200-14 Prepared: 17-Dec-2021 Analyzed: 22-Dec-2021 18:24						
Barium, Dissolved	2.07	0.0061	mg/L	2.00	0.0068	103	75-125	2.43	20	
Manganese, Dissolved	2.72	0.0040	mg/L	0.500	2.26	91.4	75-125	0.82	20	

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



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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BKA0008 - RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x

Instrument: ICPMS2 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKA0008-BLK1)						Prepared: 03-Jan-2022 Analyzed: 07-Jan-2022 00:52					
Arsenic, Dissolved	75a	ND	0.0400	ug/L							U
LCS (BKA0008-BS1)						Prepared: 03-Jan-2022 Analyzed: 07-Jan-2022 00:56					
Arsenic, Dissolved	75a	5.21	0.0400	ug/L	5.00		104	80-120			



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Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BJL0338 - No Prep Wet Chem

Instrument: Accumet AB150 Analyst: CKI

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJL0338-BS1)						Prepared: 14-Dec-2021 Analyzed: 14-Dec-2021 17:30					
pH	7.00	0.01	0.01	pH Units	7.00		100	99.2-100.8			
Duplicate (BJL0338-DUP1)						Source: 21L0200-01 Prepared: 14-Dec-2021 Analyzed: 14-Dec-2021 17:30					
pH	6.36	0.01	0.01	pH Units		6.38			0.31	20	H



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Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BJL0368 - No Prep Wet Chem

Instrument: LCHAT2 Analyst: AGM

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJL0368-BLK1)						Prepared: 15-Dec-2021 Analyzed: 15-Dec-2021 12:56					
Nitrite-N	ND	0.010	0.010	mg/L							U
LCS (BJL0368-BS1)						Prepared: 15-Dec-2021 Analyzed: 15-Dec-2021 12:57					
Nitrite-N	0.490	0.010	0.010	mg/L	0.500		98.0	90-110			
Duplicate (BJL0368-DUP1)						Source: 21L0200-01 Prepared: 15-Dec-2021 Analyzed: 15-Dec-2021 13:00					
Nitrite-N	ND	0.010	0.010	mg/L		ND					U
Matrix Spike (BJL0368-MS1)						Source: 21L0200-01 Prepared: 15-Dec-2021 Analyzed: 15-Dec-2021 13:01					
Nitrite-N	0.521	0.010	0.010	mg/L	0.500	ND	104	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJL0368-MSD1)						Source: 21L0200-01 Prepared: 15-Dec-2021 Analyzed: 15-Dec-2021 13:02					
Nitrite-N	0.517	0.010	0.010	mg/L	0.500	ND	103	75-125	0.77	200	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											



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Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BJL0369 - No Prep Wet Chem

Instrument: LCHAT2 Analyst: AGM

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJL0369-BLK1)						Prepared: 15-Dec-2021 Analyzed: 16-Dec-2021 10:34					
Sulfate	ND	2.00	2.00	mg/L							U
LCS (BJL0369-BS1)						Prepared: 15-Dec-2021 Analyzed: 16-Dec-2021 10:35					
Sulfate	15.0	2.00	2.00	mg/L	15.0		100	90-110			
Duplicate (BJL0369-DUP1)						Source: 21L0200-01 Prepared: 15-Dec-2021 Analyzed: 16-Dec-2021 10:38					
Sulfate	4.32	2.00	2.00	mg/L		4.52			4.52	20	
Matrix Spike (BJL0369-MS1)						Source: 21L0200-01 Prepared: 15-Dec-2021 Analyzed: 16-Dec-2021 10:39					
Sulfate	19.1	2.00	2.00	mg/L	15.0	4.52	97.2	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJL0369-MSD1)						Source: 21L0200-01 Prepared: 15-Dec-2021 Analyzed: 16-Dec-2021 10:40					
Sulfate	18.7	2.00	2.00	mg/L	15.0	4.52	94.5	75-125	2.12	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											



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Project: Olalla Landfill
Project Number: [none]
Project Manager: Doug Kunkel

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Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BJL0380 - No Prep Wet Chem

Instrument: Accumet AB150 Analyst: UW

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJL0380-BLK1)						Prepared: 15-Dec-2021 Analyzed: 15-Dec-2021 15:31					
Alkalinity, Total	ND	1.00	1.00	mg/L CaCO3							U
Duplicate (BJL0380-DUP1)						Source: 21L0200-01 Prepared: 15-Dec-2021 Analyzed: 15-Dec-2021 15:31					
Alkalinity, Total	59.1	1.00	1.00	mg/L CaCO3		59.3			0.36	20	
Reference (BJL0380-SRM1)						Prepared: 15-Dec-2021 Analyzed: 15-Dec-2021 15:31					
Alkalinity, Total	131	1.00	1.00	mg/L CaCO3	127		103	85.04-114.96			



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Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BJL0411 - No Prep Wet Chem

Instrument: LCHAT2 Analyst: AGM

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJL0411-BLK1)						Prepared: 16-Dec-2021 Analyzed: 16-Dec-2021 15:18					
Chloride	ND	1.00	1.00	mg/L							U
LCS (BJL0411-BS1)						Prepared: 16-Dec-2021 Analyzed: 16-Dec-2021 15:19					
Chloride	4.86	1.00	1.00	mg/L	5.00		97.2	90-110			
Duplicate (BJL0411-DUP1)						Source: 21L0200-01 Prepared: 16-Dec-2021 Analyzed: 16-Dec-2021 15:21					
Chloride	5.44	1.00	1.00	mg/L		5.46			0.37	20	
Matrix Spike (BJL0411-MS2)						Source: 21L0200-01 Prepared: 16-Dec-2021 Analyzed: 16-Dec-2021 15:56					
Chloride	16.1	2.00	2.00	mg/L	10.0	5.46	106	75-125			D

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

Matrix Spike Dup (BJL0411-MSD2)						Source: 21L0200-01 Prepared: 16-Dec-2021 Analyzed: 16-Dec-2021 16:04					
Chloride	15.9	2.00	2.00	mg/L	10.0	5.46	104	75-125	1.25	20	D

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



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Project: Olalla Landfill
Project Number: [none]
Project Manager: Doug Kunkel

Reported:
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Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BJL0435 - No Prep Wet Chem

Instrument: LCHAT1 Analyst: BF

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJL0435-BLK1)						Prepared: 17-Dec-2021 Analyzed: 17-Dec-2021 14:43					
COD	ND	10.0	10.0	mg/L							U
Blank (BJL0435-BLK2)						Prepared: 17-Dec-2021 Analyzed: 17-Dec-2021 15:09					
COD	ND	10.0	10.0	mg/L							U
Blank (BJL0435-BLK3)						Prepared: 17-Dec-2021 Analyzed: 17-Dec-2021 15:17					
COD	ND	10.0	10.0	mg/L							U
Blank (BJL0435-BLK4)						Prepared: 17-Dec-2021 Analyzed: 17-Dec-2021 15:20					
COD	ND	10.0	10.0	mg/L							U
Blank (BJL0435-BLK5)						Prepared: 17-Dec-2021 Analyzed: 17-Dec-2021 15:22					
COD	ND	10.0	10.0	mg/L							U
LCS (BJL0435-BS1)						Prepared: 17-Dec-2021 Analyzed: 17-Dec-2021 14:43					
COD	92.4	10.0	10.0	mg/L	100		92.4	90-110			
LCS (BJL0435-BS2)						Prepared: 17-Dec-2021 Analyzed: 17-Dec-2021 15:09					
COD	92.9	10.0	10.0	mg/L	100		92.9	90-110			
LCS (BJL0435-BS3)						Prepared: 17-Dec-2021 Analyzed: 17-Dec-2021 15:17					
COD	92.7	10.0	10.0	mg/L	100		92.7	90-110			
LCS (BJL0435-BS4)						Prepared: 17-Dec-2021 Analyzed: 17-Dec-2021 15:21					
COD	93.9	10.0	10.0	mg/L	100		93.8	90-110			
LCS (BJL0435-BS5)						Prepared: 17-Dec-2021 Analyzed: 17-Dec-2021 15:22					
COD	94.6	10.0	10.0	mg/L	100		94.5	90-110			
Duplicate (BJL0435-DUP2)						Source: 21L0200-01 Prepared: 17-Dec-2021 Analyzed: 17-Dec-2021 15:18					
COD	ND	10.0	10.0	mg/L		ND					U
Matrix Spike (BJL0435-MS2)						Source: 21L0200-01 Prepared: 17-Dec-2021 Analyzed: 17-Dec-2021 15:19					
COD	95.2	20.0	20.0	mg/L	100	ND	95.2	90-110			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJL0435-MSD2)						Source: 21L0200-01 Prepared: 17-Dec-2021 Analyzed: 17-Dec-2021 15:19					



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Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BJL0435 - No Prep Wet Chem

Instrument: LCHAT1 Analyst: BF

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BJL0435-MSD2)		Source: 21L0200-01		Prepared: 17-Dec-2021		Analyzed: 17-Dec-2021 15:19					
COD	92.5	20.0	20.0	mg/L	100	ND	92.5	90-110	2.86	10	

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



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Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BJL0438 - No Prep Wet Chem

Instrument: LCHAT2 Analyst: AGM

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJL0438-BLK1)						Prepared: 17-Dec-2021 Analyzed: 20-Dec-2021 12:57					
Nitrate + Nitrite as N	ND	0.010	0.010	mg/L							U
LCS (BJL0438-BS1)						Prepared: 17-Dec-2021 Analyzed: 20-Dec-2021 12:59					
Nitrate + Nitrite as N	0.496	0.010	0.010	mg/L	0.500		99.2	90-110			
Duplicate (BJL0438-DUP2)						Source: 21L0200-01 Prepared: 17-Dec-2021 Analyzed: 20-Dec-2021 13:09					
Nitrate + Nitrite as N	0.192	0.010	0.010	mg/L		0.192			0.00		
Matrix Spike (BJL0438-MS2)						Source: 21L0200-01 Prepared: 17-Dec-2021 Analyzed: 20-Dec-2021 13:10					
Nitrate + Nitrite as N	0.720	0.010	0.010	mg/L	0.500	0.192	106	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJL0438-MSD2)						Source: 21L0200-01 Prepared: 17-Dec-2021 Analyzed: 20-Dec-2021 13:11					
Nitrate + Nitrite as N	0.722	0.010	0.010	mg/L	0.500	0.192	106	75-125	0.28	20	

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



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Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BJL0512 - No Prep Wet Chem

Instrument: LCHAT2 Analyst: AGM

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJL0512-BLK1)						Prepared: 21-Dec-2021 Analyzed: 21-Dec-2021 14:57					
Ammonia-N	ND	0.040	0.040	mg/L							U
LCS (BJL0512-BS1)						Prepared: 21-Dec-2021 Analyzed: 21-Dec-2021 14:58					
Ammonia-N	0.467	0.040	0.040	mg/L	0.500		93.4	90-110			
Duplicate (BJL0512-DUP1)						Source: 21L0200-01 Prepared: 21-Dec-2021 Analyzed: 21-Dec-2021 15:00					
Ammonia-N	ND	0.040	0.040	mg/L		ND					U
Matrix Spike (BJL0512-MS1)						Source: 21L0200-01 Prepared: 21-Dec-2021 Analyzed: 21-Dec-2021 15:01					
Ammonia-N	0.501	0.040	0.040	mg/L	0.500	ND	100	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJL0512-MSD1)						Source: 21L0200-01 Prepared: 21-Dec-2021 Analyzed: 21-Dec-2021 15:02					
Ammonia-N	0.521	0.040	0.040	mg/L	0.500	ND	104	75-125	3.91	200	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											



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Analysis by: Analytical Resources, LLC

Microbiology - Quality Control

Batch BJL0336 - No Prep Wet Chem

Instrument: N/A

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJL0336-BLK1)						Prepared: 14-Dec-2021 Analyzed: 15-Dec-2021 17:00					
Total Coliforms	ND	1	1	CFU/100 ml							U



TRC Companies, Inc
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Project: Olalla Landfill
Project Number: [none]
Project Manager: Doug Kunkel

Reported:
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Certified Analyses included in this Report

Analyte	Certifications
EPA 200.8 in Water	
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
EPA 200.8 UCT-KED in Water	
Arsenic-75a	NELAP,WADOE,WA-DW,DoD-ELAP
Zinc-66	NELAP,WADOE,WA-DW,DoD-ELAP
Zinc-67	NELAP,WADOE,WA-DW,DoD-ELAP
Arsenic-75a	NELAP,WADOE,WA-DW,DoD-ELAP
Zinc-66	NELAP,WADOE,WA-DW,DoD-ELAP
Zinc-67	NELAP,WADOE,WA-DW,DoD-ELAP
EPA 353.2 in Water	
Nitrate + Nitrite as N	NELAP,DoD-ELAP,WADOE
Nitrite-N	WADOE,NELAP,DoD-ELAP
EPA 375.2 in Water	
Sulfate	WADOE,NELAP
EPA 410.4 in Water	
COD	DoD-ELAP,NELAP,WADOE
EPA 6010D in Water	
Calcium	WADOE,NELAP,DoD-ELAP
Potassium	WADOE,NELAP,DoD-ELAP
Sodium	DoD-ELAP,WADOE,NELAP
Sodium-1	DoD-ELAP
Barium	WADOE,NELAP,DoD-ELAP
Manganese	WADOE,NELAP,DoD-ELAP
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



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Project: Olalla Landfill
Project Number: [none]
Project Manager: Doug Kunkel

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Acetone	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Iodomethane	DoD-ELAP,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE
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



TRC Companies, Inc
1180 NW Maple Street, Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: [none]
Project Manager: Doug Kunkel

Reported:
12-Jan-2022 08:46

Styrene	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,NELAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,WADOE
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



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Doug Kunkel	Reported: 12-Jan-2022 08:46
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SM 2320 B-97 in Water

Alkalinity, Bicarbonate	NELAP,WADOE,WA-DW,DoD-ELAP
Alkalinity, Carbonate	WADOE,WA-DW,DoD-ELAP,NELAP
Alkalinity, Hydroxide	WADOE,WA-DW,DoD-ELAP,NELAP
Alkalinity, Total	DoD-ELAP,WADOE,WA-DW,NELAP

SM 4500-H+ B-00 in Water

pH	WADOE,NELAP,WA-DW
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SM 4500-NH3 H-97 in Water

Ammonia-N	WADOE,DoD-ELAP,NELAP
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SM 9222B in Water

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



TRC Companies, Inc
1180 NW Maple Street, Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: [none]
Project Manager: Doug Kunkel

Reported:
12-Jan-2022 08:46

Notes and Definitions

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

03 February 2022

Doug Kunkel
TRC Companies, Inc
1180 NW Maple Street, Suite 310
Issaquah, WA 98027

RE: Olalla Landfill (429487)

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)
22A0467

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

Kelly Bottem, Client Services Manager

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



Chain of Custody Record & Laboratory Analysis Request



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

ARI Assigned Number: 22A0467	Turn-around Requested:	Page: 1 of 1
ARI Client Company: TRC	Phone: 425-355-0010	Date: 1/20/22
Client Contact: Doug Konkel <i>dkonkel@trccompanies.com</i>		Ice Present?
		No. of Coolers: Cooler Temps: 5.3

Client Project Name:					Analysis Requested								Notes/Comments			
Client Project #:					PH	Nitrate	Nitrogen	Fecal Coliform								
Samplers:																
Sample ID	Date	Time	Matrix	No. Containers												
SW	1/20/22	1400	H2O	3	X	X	X									
Comments/Special Instructions					Relinquished by:	Received by:			Relinquished by:			Received by:				
					Printed Name: Leithen Bright			Printed Name: Arden Paist			Printed Name:			Printed Name:		
					Company: TRC			Company: ARI			Company:			Company:		
					Date & Time: 1/20/22 @ 1630			Date & Time: 1/20/22 1630			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: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.



TRC Companies, Inc
1180 NW Maple Street, Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
03-Feb-2022 17:24

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SW	22A0467-01	Water	20-Jan-2022 14:00	20-Jan-2022 16:30



TRC Companies, Inc
1180 NW Maple Street, Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
03-Feb-2022 17:24

Work Order Case Narrative

Wet Chemistry

The sample(s) were prepared and analyzed within the recommended holding times with the exception of pH which was sent to the lab outside of the holding time.

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: TRC
 COC No(s): _____ (NA)
 Assigned ARI Job No: 22A0467

Project Name: Olalla Landfill
 Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____
 Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler? YES NO
 Were custody papers included with the cooler? YES NO
 Were custody papers properly filled out (ink, signed, etc.) YES NO
 Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1630 5.3
 If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: DOO 9708

Cooler Accepted by: JP Date: 1/20/22 Time: 1630

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: DL Date: 1/20/22 Time: 1639 Labels checked by: _____

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

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 429487 Project Manager: Doug Kunkel	Reported: 03-Feb-2022 17:24
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SW
22A0467-01 (Water)

Wet Chemistry

Method: EPA 353.2 Sampled: 01/20/2022 14:00
Instrument: [CALC] Analyst: AGM Analyzed: 01/21/2022 13:01

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: [CALC] Extract ID: 22A0467-01
Preparation Batch: [CALC]
Prepared: 01/21/2022 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
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Nitrate-N	14797-55-8	1	0.0200	0.178	mg/L	
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Instrument: LACHAT2 Analyst: AGM Analyzed: 01/21/2022 10:46

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22A0467-01 A
Preparation Batch: BKA0473 Sample Size: 10 mL
Prepared: 01/21/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
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Nitrate + Nitrite as N		1	0.010	0.010	0.195	mg/L	
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Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22A0467-01 A
Preparation Batch: BKA0496 Sample Size: 10 mL
Prepared: 01/21/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
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Nitrite-N	14797-65-0	1	0.010	0.010	0.017	mg/L	
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TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 429487 Project Manager: Doug Kunkel	Reported: 03-Feb-2022 17:24
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SW
22A0467-01 (Water)

Wet Chemistry

Method: SM 2510 B-97 Sampled: 01/20/2022 14:00
Instrument: Orion115 Analyst: DOE Analyzed: 02/03/2022 12:30

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22A0467-01 B
Preparation Batch: BKB0096 Sample Size: 50 mL
Prepared: 02/03/2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Conductivity		1	1.00	1.00	35.7	µS/cm	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 429487 Project Manager: Doug Kunkel	Reported: 03-Feb-2022 17:24
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SW
22A0467-01 (Water)

Wet Chemistry

Method: SM 4500-H+ B-00 Sampled: 01/20/2022 14:00
Instrument: Accumet AB150 Analyst: BF Analyzed: 01/20/2022 17:58

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22A0467-01 A
Preparation Batch: BKA0483 Sample Size: 50 mL
Prepared: 01/20/2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.66	pH Units	H



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 429487 Project Manager: Doug Kunkel	Reported: 03-Feb-2022 17:24
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SW
22A0467-01 (Water)

Microbiology

Method: SM 9222D Sampled: 01/20/2022 14:00
Instrument: N/A Analyst: UW Analyzed: 01/21/2022 17:15

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22A0467-01
Preparation Batch: BKA0484 Sample Size: 43 mL
Prepared: 01/20/2022 Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Fecal Coliforms		1	2	2	ND	CFU/100 ml	U



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 429487 Project Manager: Doug Kunkel	Reported: 03-Feb-2022 17:24
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Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BKA0473 - No Prep Wet Chem

Instrument: LCHAT2 Analyst: AGM

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKA0473-BLK1)						Prepared: 20-Jan-2022 Analyzed: 21-Jan-2022 10:12					
Nitrate + Nitrite as N	ND	0.010	0.010	mg/L							U
LCS (BKA0473-BS1)						Prepared: 20-Jan-2022 Analyzed: 21-Jan-2022 10:14					
Nitrate + Nitrite as N	0.520	0.010	0.010	mg/L	0.500		104	90-110			



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 429487 Project Manager: Doug Kunkel	Reported: 03-Feb-2022 17:24
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Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BKA0483 - No Prep Wet Chem

Instrument: Accumet AB150 Analyst: BF

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BKA0483-BS1)						Prepared: 20-Jan-2022 Analyzed: 20-Jan-2022 17:58					
pH	6.97	0.01	0.01	pH Units	7.00		99.6	99.2-100.8			
Duplicate (BKA0483-DUP1)						Source: 22A0467-01 Prepared: 20-Jan-2022 Analyzed: 20-Jan-2022 17:58					
pH	6.74	0.01	0.01	pH Units		6.66			1.19	20	H



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 429487 Project Manager: Doug Kunkel	Reported: 03-Feb-2022 17:24
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Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BKA0496 - No Prep Wet Chem

Instrument: LCHAT2 Analyst: AGM

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKA0496-BLK1)						Prepared: 21-Jan-2022 Analyzed: 21-Jan-2022 12:52					
Nitrite-N	ND	0.010	0.010	mg/L							U
LCS (BKA0496-BS1)						Prepared: 21-Jan-2022 Analyzed: 21-Jan-2022 12:54					
Nitrite-N	0.511	0.010	0.010	mg/L	0.500		102	90-110			



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 429487 Project Manager: Doug Kunkel	Reported: 03-Feb-2022 17:24
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Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BKB0096 - No Prep Wet Chem

Instrument: Orion115 Analyst: DOE

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKB0096-BLK1)						Prepared: 03-Feb-2022 Analyzed: 03-Feb-2022 12:30					
Conductivity	ND	1.00	1.00	μS/cm							U
LCS (BKB0096-BS1)						Prepared: 03-Feb-2022 Analyzed: 03-Feb-2022 12:30					
Conductivity	989	1.00	1.00	μS/cm	1000		98.9	90-110			
Duplicate (BKB0096-DUP1)						Source: 22A0467-01 Prepared: 03-Feb-2022 Analyzed: 03-Feb-2022 12:30					
Conductivity	35.6	1.00	1.00	μS/cm		35.7			0.28	20	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 429487 Project Manager: Doug Kunkel	Reported: 03-Feb-2022 17:24
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Analysis by: Analytical Resources, LLC

Microbiology - Quality Control

Batch BKA0484 - No Prep Wet Chem

Instrument: N/A

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKA0484-BLK1)						Prepared: 20-Jan-2022 Analyzed: 21-Jan-2022 17:15					
Fecal Coliforms	ND	1	1	CFU/100 ml							U



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 429487 Project Manager: Doug Kunkel	Reported: 03-Feb-2022 17:24
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Certified Analyses included in this Report

Analyte	Certifications
EPA 353.2 in Water	
Nitrate + Nitrite as N	NELAP,DoD-ELAP,WADOE
Nitrite-N	WADOE,NELAP,DoD-ELAP
SM 2510 B-97 in Water	
Conductivity	WADOE,WA-DW,NELAP
SM 4500-H+ B-00 in Water	
pH	WADOE,NELAP,WA-DW
SM 9222D in Water	
Fecal Coliforms	WADOE

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



TRC Companies, Inc
1180 NW Maple Street, Suite 310
Issaquah WA, 98027

Project: Olalla Landfill
Project Number: 429487
Project Manager: Doug Kunkel

Reported:
03-Feb-2022 17:24

Notes and Definitions

- H Hold time violation - Hold time was exceeded.
- 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.