

# 2022 ANNUAL MONITORING REPORT

OLALLA LANDFILL

KITSAP COUNTY, WASHINGTON

MARCH 2023



Prepared by

TRC Environmental Corporation on behalf of  
Kitsap County Department of Public Works  
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## 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 2022 quarterly groundwater and landfill gas monitoring event performed under the SWHP, CAP, and CMP are documented in this report. December 2022 analytical and field data were uploaded to Ecology’s Electronic Information Management (EIM) system on January 24, 2023.

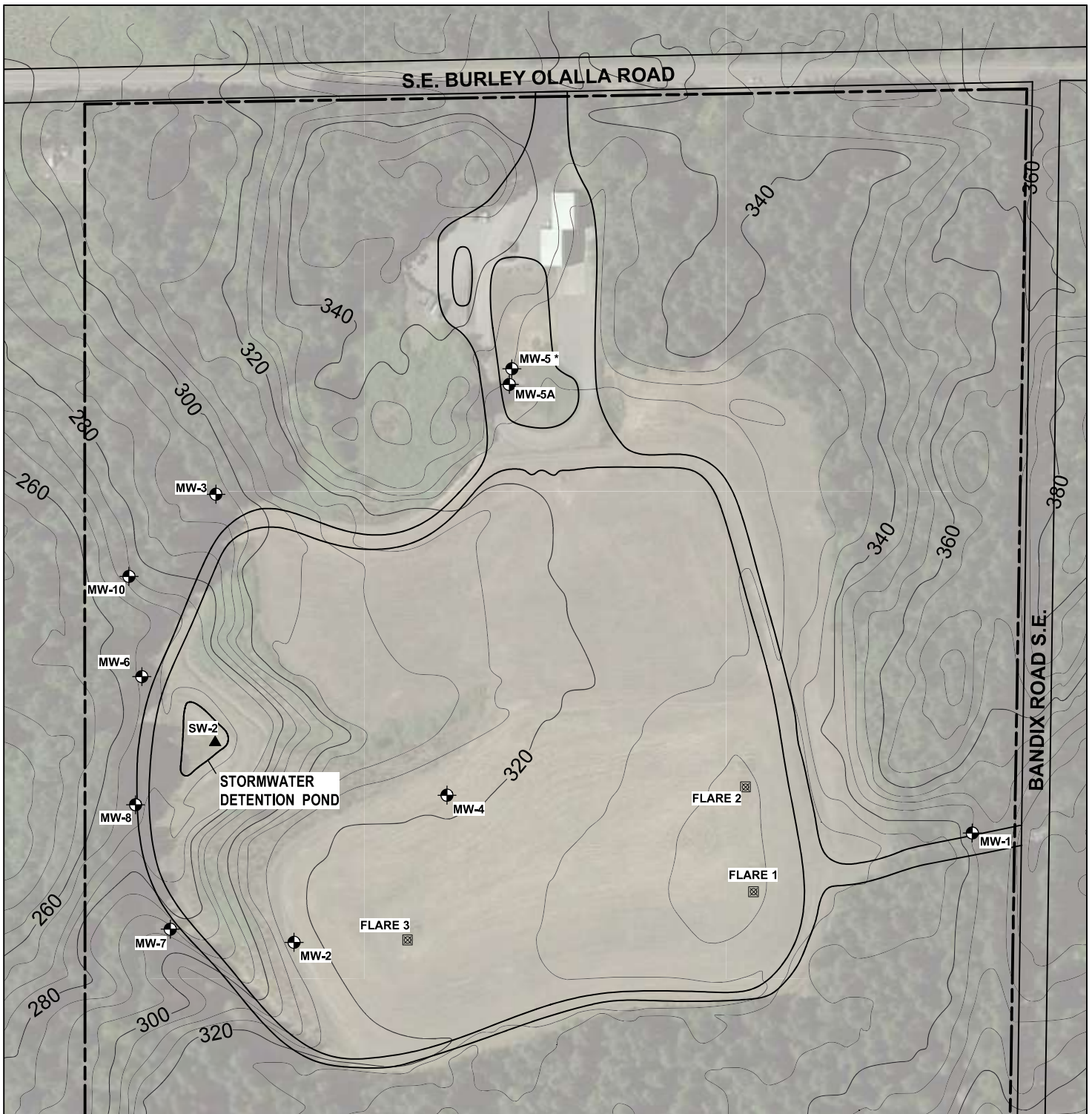
This Annual Report documents the results of the fourth quarter 2022 groundwater, surface water, and landfill gas monitoring event and summarizes the results of the previous quarterly monitoring and reporting events completed at the Landfill in 2022, in accordance with WAC 173-304-405(4), CAP, CMP, and the 2021–2025 SWHP issued by KPHD on February 10, 2021.

In addition to this Introduction, the 2022 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 2022 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 15, 2022.
- Depth-to-water measurements were performed at all on-site monitoring wells on December 15, 2022. 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 15, 2022.
- The surface water sample location, SW-2, was dry during the December 15, 2022, monitoring event. A surface water sample was collected on January 13, 2023, 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

TOPOGRAPHIC ELEVATION CONTOUR

APPROXIMATE PROPERTY BOUNDARY

PERIMETER ACCESS ROAD

N

0 50 100 200

SCALE: 1" = 200'



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**FIGURE 1**  
OLALLA LANDFILL MONITORING WELL LOCATIONS

<b>REPORT</b> 2022 ANNUAL MONITORING REPORT	<b>PREPARED FOR</b> KITSAP COUNTY
<b>LOCATION</b> OLALLA LANDFILL KITSAP COUNTY, WASHINGTON	<b>PROJECT NUMBER</b> 382595
<b>DATE</b> .....1/18/22	<b>DRAWN BY</b> .....JYT/AM
	<b>REVIEWED BY</b> .....DCK

## MONITORING RESULTS

Results for 2022 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 2022 sampling event. The surface water sampling was performed on January 13, 2023, 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 2022 is 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 22, June 9, September 21, and December 15, 2022. Landfill gas field measurement data summary tables are included in Appendix A. Data from the four quarterly landfill gas monitoring events performed in 2022 are summarized in the following sections.

#### March 22, 2022 – First Quarter

- Methane, by percent of volume was not detected in any of the flares. Instrument-measured Lower Explosive Limit (LEL) values were 0% for all three Flares.
- Oxygen concentrations were 20.5%, 20.9%, and 20.6% by volume in Flares 1, 2, and 3, respectively.
- Carbon dioxide concentrations were 0.5%, 0.2%, and 0.3% by volume in Flares 1, 2, and 3, respectively.
- Gas pressure measurements were 0.00 inches of water in Flares 1, 2, and 3.

#### June 9, 2022 – Second Quarter

- Methane was detected in Flare 3 at 1.1% of volume but was not detected in Flares 1 and 2. Instrument-measured LEL values were 3% in Flare 3, and 0%, for Flares 1 and 2.
- Oxygen concentrations were 11.1%, 12.2%, and 0.0% by volume in Flares 1, 2, and 3, respectively.
- Carbon dioxide concentrations were 5.2%, 5.2%, and 12.0% by volume in Flares 1, 2, and 3, respectively.
- Gas pressure measurements were 0.00 inches of water in Flares 1, 2, and 3.

#### September 21, 2022 – Third Quarter

- Methane, by percent of volume was not detected in any of the flares. Instrument-measured LEL values were 0% for all three Flares.
- Oxygen concentrations were 14.9%, 14.0%, and 17.0% by volume in Flares 1, 2, and 3, respectively.
- Carbon dioxide concentrations were 4.7%, 5.3%, and 3.1% by volume in Flares 1, 2, and 3, respectively.
- Gas pressure measurements were 0.00 inches of water in all three flares.

## **December 15, 2022 – Fourth Quarter**

- Methane, by percent of volume was not detected in any of the flares. Instrument-measured LEL values were 0% for all three Flares.
- Oxygen concentrations were 20.7%, 20.3%, and 20.8% by volume in Flares 1, 2, and 3, respectively.
- Carbon dioxide concentrations were 0.1%, 0.5%, and 0% by volume in Flares 1, 2, and 3, respectively.
- Pressure measurements were 0.14 inches of water in Flares 1, 2, and 3.

## **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 2022 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 2022, 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 2022 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 2022 groundwater elevations were lower than December 2021 elevations in seven of the nine wells, with differences ranging from 3.04 feet lower in upgradient well MW-1 to 1.18 feet lower in interior well MW-4. The December 2022 groundwater elevation was 3.48 feet lower than December 2021 in downgradient well MW-3.

Precipitation data from the Bremerton National Airport Weather Station (KPWT) indicate that during the 2022 water year (November 2021 to October 2022) the area near the Landfill received 42.84 inches of



precipitation, which is slightly greater than the 42.08 inches of precipitation for the 2021 water year (Weather Underground, Station KPWT, 2021 2022). The slightly greater rainfall total for the 2022 water year does not appear to have significantly affected the water elevations in the nine monitoring wells.

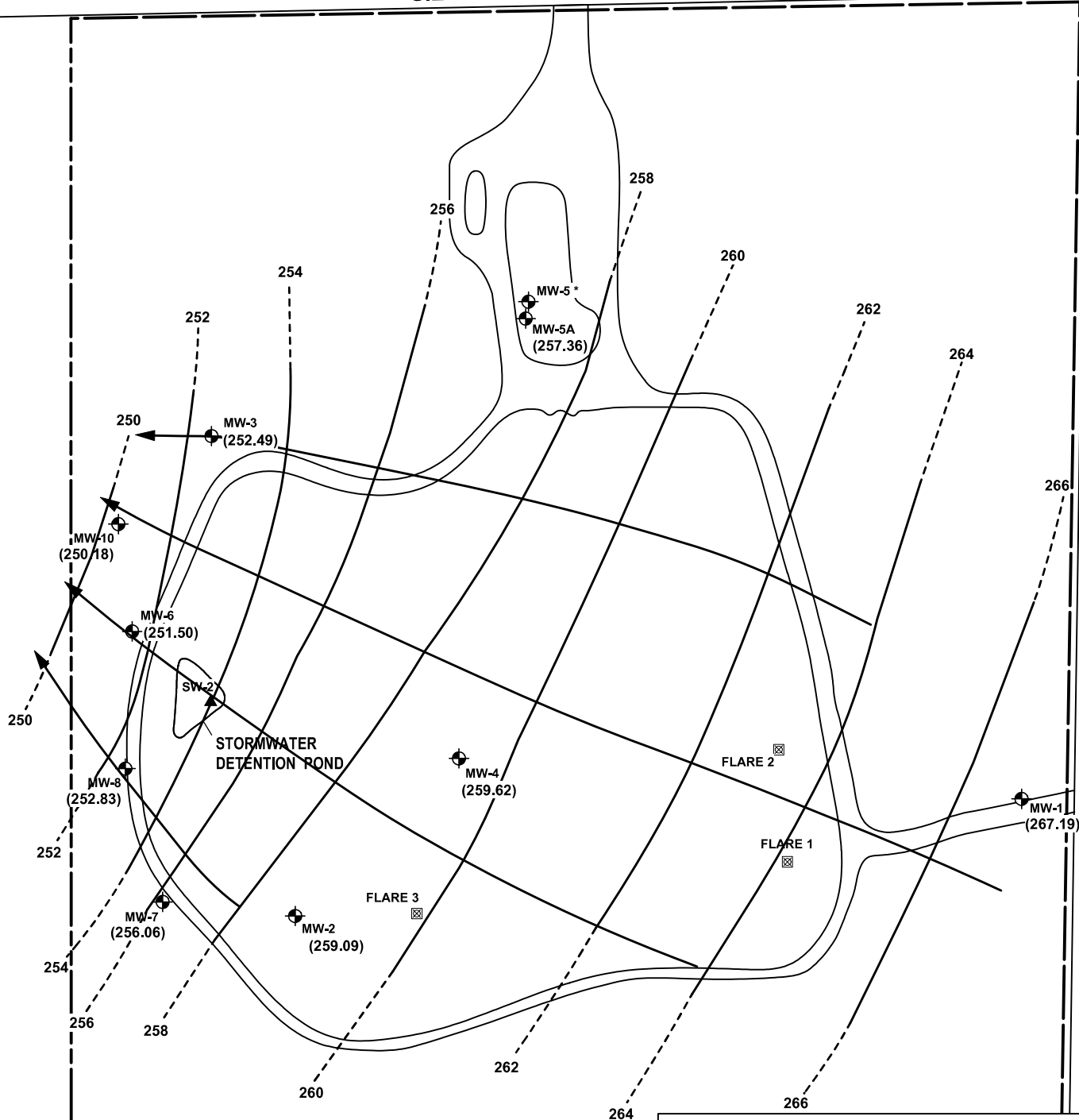
Groundwater flow rates based on the quarterly groundwater elevation contour maps have been calculated based on a modified form of Darcy's Law:

$$V = KI/n$$

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  $7 \times 10^{-3}$  to  $3 \times 10^{-2}$  centimeters per second (cm/sec), with a mean value of  $2.2 \times 10^{-2}$  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  $1.2 \times 10^{-2}$  cm/sec (34 feet/day) and  $1.4 \times 10^{-2}$  cm/sec (40 feet/day), respectively. The mean hydraulic conductivity value from the single well aquifer tests of  $2.2 \times 10^{-2}$  cm/sec (62.4 feet/day) is used for groundwater velocity calculations presented below.

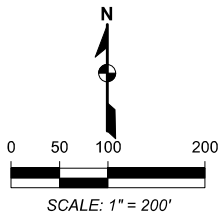
The hydraulic gradients "I" of the aquifer for each monitoring event are calculated from quarterly groundwater elevation contour maps presented in Appendix A. Average hydraulic gradients calculated for the four 2022 quarterly events at the Landfill range from 0.0123 in March to 0.0152 in September. The 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 15, 2022

**REPORT**  
 2022 ANNUAL  
 MONITORING REPORT

**PREPARED FOR**  
 KITSAP COUNTY

**PROJECT NUMBER**  
 466410

**LOCATION**  
 OLALLA LANDFILL  
 KITSAP COUNTY, WASHINGTON

**DATE** ..... 3/14/23  
**DRAWN BY** ..... AM  
**REVIEWED BY** ..... ELC

The resulting groundwater flow velocities “V” calculated from 2022 quarterly data range from 1.92 feet/day in March to 2.37 feet/day in September. The calculated groundwater gradients and flow velocities are summarized in Table 1.

**Table 1**  
**2022 Olalla Landfill Calculated Groundwater Flow Velocities**

<b>Measurement Date</b>	<b>Calculated Hydraulic Gradient (L/L)</b>	<b>Calculated Groundwater Flow Velocity (feet/day)</b>
March 22, 2022	0.0123	1.92
June 9, 2022	0.0147	2.29
September 21, 2022	0.0152	2.37
December 15, 2022	0.0142	2.22

### **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 15, 2022, sampling event. Samplers returned to the landfill on January 13, 2023, 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 6.8 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 0.045 milligrams per liter (mg/L), which is less than the Washington State Drinking Water and Groundwater Primary Standard of 10 mg/L.
- Nitrite + nitrate as nitrogen was detected at a concentration of 0.045 mg/L, which is less than the Washington State Drinking Water Primary Standard of 1.0 mg/L.
- Fecal coliform was detected at a concentration of 125 colony-forming unit per 100 milliliters (CFU/100 mL) in the surface water sample obtained from SW-2. This concentration exceeds the Groundwater Primary Standard of 1 CFU/100 mL. Fecal coliform is not normally found in SW-2 and this concentration is most likely from cross-contamination.

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 2022 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**  
**2022 Water Quality Constituent Concentrations**  
**Exceeding Washington State Primary Standards**

Constituent	Drinking Water Standards <sup>a</sup>	Groundwater Quality Standards <sup>b</sup>	Site-Specific CUL <sup>c</sup>	March	June	Sept.	Dec.
<b>MW-1 (upgradient)</b>							
Arsenic	10 µg/L	0.05 µg/L	1.29 µg/L	0.11	0.10	0.10	0.10
<b>MW-3 (downgradient)</b>							
Arsenic	10 µg/L	0.05 µg/L	1.29 µg/L	0.11	0.10	0.12	0.13
Arsenic FD	10 µg/L	0.05 µg/L	1.29 µg/L	0.11	NA	NA	NA
<b>MW-5A (crossgradient)</b>							
Arsenic	10 µg/L	0.05 µg/L	1.29 µg/L	NA	NA	NA	0.18
<b>MW-6 (downgradient)</b>							
Arsenic	10 µg/L	0.05 µg/L	1.29 µg/L	0.28	0.24	0.41	0.32
Arsenic FD	10 µg/L	0.05 µg/L	1.29 µg/L	NA	0.23	NA	NA
<b>MW-7 (crossgradient)</b>							
Arsenic	10 µg/L	0.05 µg/L	1.29 µg/L	NA	NA	NA	0.48
<b>MW-8 (downgradient)</b>							
Arsenic	10 µg/L	0.05 µg/L	1.29 µg/L	0.70	0.92	0.84	1.30
Arsenic FD	10 µg/L	0.05 µg/L	1.29 µg/L	NA	NA	0.70	NA
Vinyl Chloride	2.0 µg/L	0.02 µg/L	0.29 µg/L	--	--	--	0.03
<b>MW-10 (downgradient)</b>							
Arsenic	10 µg/L	0.05 µg/L	1.29 µg/L	1.97	1.95	1.87	1.93
Arsenic FD	10 µg/L	0.05 µg/L	1.29 µg/L	NA	NA	NA	1.86

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.

-- = Analyzed with no regulatory exceedance

<sup>a</sup> WAC 246-290-310.

<sup>b</sup> WAC 173-200-040.

<sup>c</sup>Site-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**  
**2022 Water Quality Constituent Concentrations**  
**Exceeding Washington State Secondary Standards**

Constituent	Drinking Water Standards <sup>a</sup>	Groundwater Quality Standards <sup>b</sup>	March	June	Sept.	Dec.
<b>MW-1 (upgradient)</b>						
pH (lab)	NA	6.5 – 8.5	6.4 H	6.3 H	6.7 H	6.0 H
<b>MW-3 (downgradient)</b>						
Manganese	50 µg/L	50 µg/L	4,490	4,120	7,240	5,920
Manganese FD	50 µg/L	50 µg/L	4,650	NA	NA	NA
pH (field)	NA	6.5 – 8.5	6.2	6.3	6.3	6.4
pH (lab)	NA	6.5 – 8.5	6.3 H	6.2 H	6.1 H	6.0 H
pH (lab) FD	NA	6.5 – 8.5	6.2 H	NA	NA	NA
<b>MW-5A (crossgradient)</b>						
none	NA	NA	NA	NA	NA	--
<b>MW-6 (downgradient)</b>						
Manganese	50 µg/L	50 µg/L	1,970	377	413	461
Manganese FD	50 µg/L	50 µg/L	NA	405	NA	NA
<b>MW-7 (crossgradient)</b>						
none	NA	NA	NA	NA	NA	--
<b>MW-8 (downgradient)</b>						
Iron	300 µg/L	300 µg/L	--	453	--	---
Iron FD	300 µg/L	300 µg/L	NA	NA	--	NA
Manganese	50 µg/L	50 µg/L	1,070	2,560	2,880	2,080
Manganese FD	50 µg/L	50 µg/L	NA	NA	2,850	NA
<b>MW-10 (downgradient)</b>						
Manganese	50 µg/L	50 µg/L	4,080	5,230	3,500	3,820
Manganese FD	50 µg/L	50 µg/L	NA	NA	NA	3,820

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.  
<sup>a</sup> WAC 246-290-310 and Site-Specific Cleanup Level.  
<sup>b</sup> WAC 173-200-040.

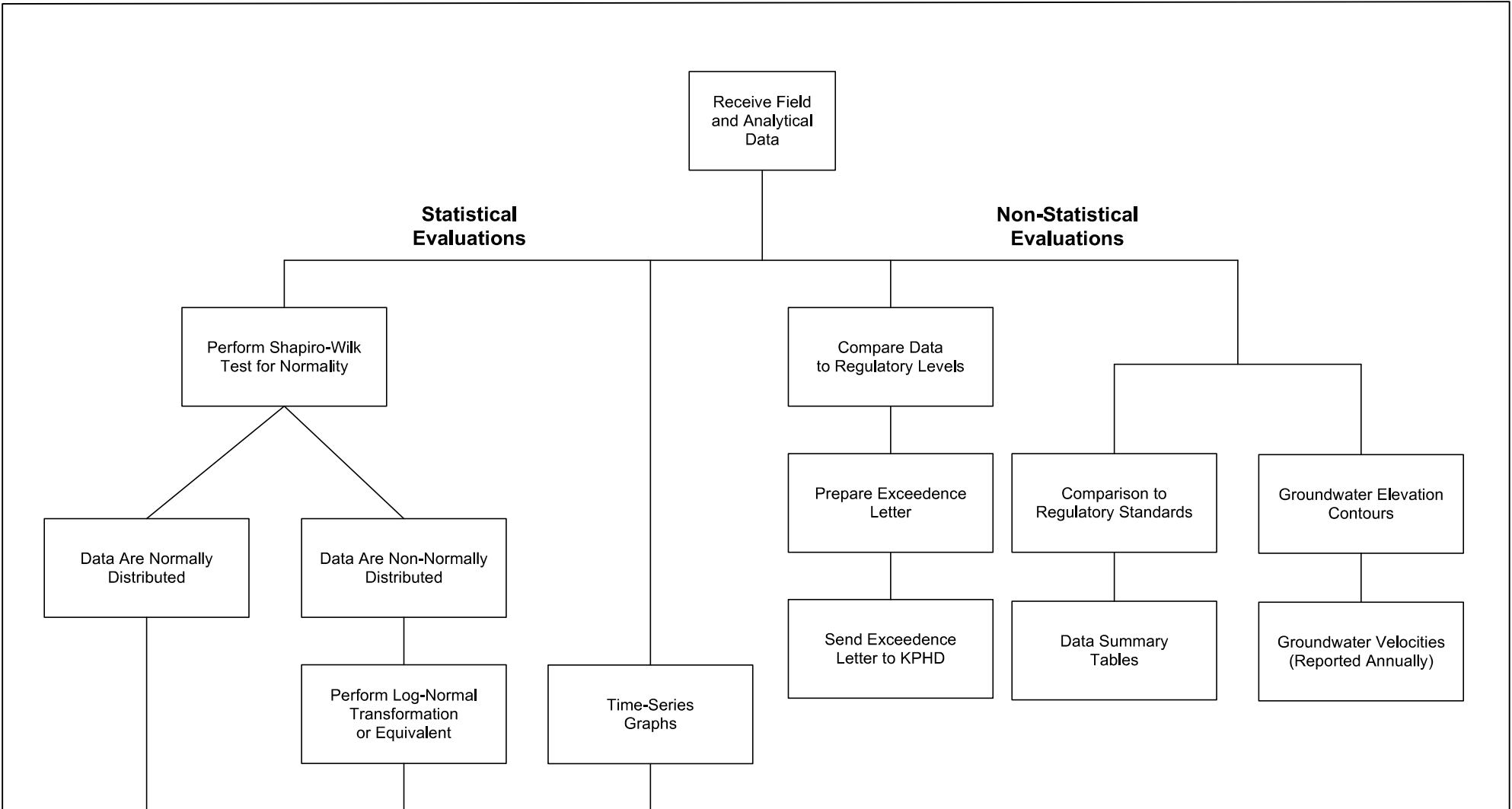
## STATISTICAL ANALYSIS

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

<b>REPORT</b> 2022 ANNUAL MONITORING REPORT	<b>PREPARED FOR</b> KITSAP COUNTY
	<b>PROJECT NUMBER</b> 466410
<b>LOCATION</b> OLALLA LANDFILL KITSAP COUNTY, WASHINGTON	<b>DATE</b> ..... 3/14/23 <b>DRAWN BY</b> ..... AM <b>REVIEWED BY</b> ..... ELC

- 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 2022 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 2022 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 2022 Mann-Kendall Statistically Significant Trend Test Results**

<b>Constituent or Parameter</b>	<b>MW-1</b>	<b>MW-3</b>	<b>MW-5A</b>	<b>MW-6</b>	<b>MW-7</b>	<b>MW-8</b>	<b>MW-10</b>
Ammonia (N)	NO TREND	NO TREND	NA	UP	NA	NO TREND	NO TREND
Arsenic - Dissolved	NO TREND	NO TREND	NO TREND	DOWN	NO TREND	DOWN	NO TREND
Barium - Dissolved	NO TREND	DOWN	NA	UP	NA	DOWN	NO TREND
Bicarbonate	UP	DOWN	NA	NO TREND	NA	NO TREND	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	UP	NO TREND	NO TREND	DOWN	NO TREND	NO TREND
Iron - Dissolved	NO TREND	NO TREND	UP	DOWN	NO TREND	DOWN	DOWN
Manganese - Dissolved	UP	DOWN	NO TREND	DOWN	NO TREND	DOWN	NO TREND
Nitrate	DOWN	NO TREND	NA	NO TREND	NA	NO TREND	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	NO TREND	NO TREND	NO TREND	NO TREND
pH - Laboratory	UP	NO TREND	NA	UP	NA	NO TREND	UP
Potassium	UP	NO TREND	NA	UP	NA	NO TREND	UP
Sodium	UP	DOWN	NA	NO TREND	NA	DOWN	UP
Specific Conductance	UP	NO TREND	NO TREND	NO TREND	NO TREND	NO TREND	NO TREND
Sulfate	NO TREND	NO TREND	NA	NO TREND	NA	NO TREND	UP
Temperature	NO TREND	NO TREND	NO TREND	UP	NO TREND	UP	UP
Total Coliform	NO TREND	NO TREND	NA	NO TREND	NA	NO TREND	NO TREND
TOC	UP	NO TREND	NA	NO TREND	NA	NO TREND	NO TREND
Vinyl Chloride	NO TREND	NO TREND	NO TREND	DOWN	NO TREND	NO TREND	DOWN
Zinc - Dissolved	UP	UP	NA	UP	NA	NO TREND	UP

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.

- Twenty-four well-constituent combinations have statistically significant downward concentration trends. The downward well-constituent combination trends are:
  - Arsenic: MW-6, and MW-8
  - Barium: MW-3 and MW-8
  - Bicarbonate: MW-3
  - Calcium: MW-3 and MW-8
  - Chloride: MW-6, MW-8, and MW-10
  - Dissolved Oxygen: MW-1 and MW-7
  - Iron: MW-6, MW-8, and MW-10
  - Manganese: MW-3, MW-6, and MW-8
  - Nitrate: MW-1
  - Oxidation Reduction Potential: MW-1
  - Sodium: MW-3 and MW-8
  - Vinyl Chloride: MW-6 and MW-10
  
- Five of the well-constituent combinations with statistically significant downward concentration trends also have regulatory standard exceedances in December 2022 data. The well-constituent combinations with downward trends and current regulatory exceedances are:
  - Arsenic: MW-6, and MW-8
  - Manganese: MW-3, MW-6, and MW-8
  
- Twenty-nine well-constituent combinations have statistically significant upward concentration trends. The upward well-constituent combination trends are:
  - Ammonia: MW-6
  - Barium: MW-6
  - Bicarbonate: MW-1
  - Calcium: MW-1
  - Chloride: MW-1 and MW-3
  - Dissolved Oxygen: MW-3
  - Iron: MW-5A
  - Manganese: MW-1
  - Nitrite: MW-6
  - Oxidation Reduction Potential: MW-6
  - pH (Laboratory): MW-1, MW-6, and MW-10
  - Potassium: MW-1, MW-6, and MW-10
  - Sodium: MW-1 and MW-10
  - Specific Conductance: MW-1
  - Sulfate: MW-10
  - Temperature: MW-6, MW-8, and MW-10
  - Total Organic Carbon: MW-1
  - Zinc: MW-1, MW-3, MW-6, and MW-10
  
- One well-constituent combination, pH (Laboratory) at MW-1, has a statistically significant upward concentration trend and a regulatory standard exceedance in December 2022 data.

- There are 90 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 eight well-constituent combinations exceed regulatory levels.
  - Arsenic: MW-1, MW-3, MW-5A, MW-7, and MW-10
  - Manganese: MW-10
  - 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 2022 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 42 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 133 well-constituent combinations were tested for normality.
- Normal data distributions were noted in 44 of the well-constituent combinations that were tested for normality.
- Non-normal data distributions were noted in 59 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 2022 Shapiro-Wilk Test for Normality Results**

<b>Constituent or Parameter</b>	<b>MW-1</b>	<b>MW-3</b>	<b>MW-5A</b>	<b>MW-6</b>	<b>MW-7</b>	<b>MW-8</b>	<b>MW-10</b>
Ammonia (N)	ND	ND	NA	Non-normal	NA	ND	Normal
Arsenic - Dissolved	Non-normal	Non-normal	Normal	Non-normal	Non-normal	Normal	Non-normal
Barium - Dissolved	Non-normal	Non-normal	ND	Non-normal	ND	Non-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	ND	NA	ND	NA	ND	ND
Chloride	Normal	Non-normal	NA	Normal	NA	Non-normal	Normal
Dissolved Oxygen	Non-normal	Non-normal	Normal	Non-normal	Normal	Non-normal	Non-normal
Iron - Dissolved	ND	ND	ND	Non-normal	ND	Non-normal	Non-normal
Manganese - Dissolved	ND	Normal	ND	Normal	ND	Normal	Normal
Nitrate	Non-normal	Non-normal	NA	Non-normal	NA	Non-normal	Non-normal
Nitrite	ND	ND	NA	Non-normal	NA	ND	ND
Oxidation-Reduction Potential	Normal	Normal	Normal	Non-normal	Non-normal	Normal	Non-normal
pH - Field	Non-normal	Non-normal	Normal	Normal	Normal	Normal	Normal
pH - Laboratory	Non-normal	Non-normal	NA*	Non-normal	NA*	Non-normal	Non-normal
Potassium	Non-normal	Non-normal	NA	Normal	NA	Non-normal	Normal
Sodium	Normal	Non-normal	NA	Normal	NA	Normal	Normal
Specific Conductance	Non-normal	Normal	NA	Normal	NA	Normal	Non-normal
Sulfate	Normal	Normal	NA	Normal	NA	Normal	Non-normal
Temperature	Non-normal	Non-normal	Normal	Normal	Normal	Normal	Non-normal
Total Coliform	ND	ND	NA	ND	NA	ND	ND
TOC	Non-normal	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 2022 is 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 2022 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.
- Eighty-three 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. 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-two 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 2022 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 68	NA	ND	74 to 85	None	
Arsenic - Dissolved	0.10 to 0.10	0.11 to 0.12	0.17 to 0.21	0.31 to 1.0	0.28 to 0.48	0.95 to 1.25	1.73 to 1.98	0.05 µg/L	Primary GW Standard
Arsenic - Dissolved	0.10 to 0.10	0.11 to 0.12	0.17 to 0.21	0.31 to 1.0	0.28 to 0.48	0.95 to 1.25	1.73 to 1.98	1.29 µg/L	Site-Specific Cleanup Level
Barium - Dissolved	ND to 3.9	14.2 to 15.5	ND	11.9 to 20.0	ND	ND to 6.8	14.50 to 17.60	1000 µg/L	Primary GW Standard
Bicarbonate (mg of CaCO <sub>3</sub> /L)	43.4 to 56.0	175 to 223	NA	164 to 188	NA	97 to 151	192 to 227	None	
Calcium	10,485 to 11,676	39,433 to 46,497	NA	32,200 to 37,300	NA	19,158 to 24,452	37,420 to 41,310	None	
Carbonate (mg of CaCO <sub>3</sub> /L)	ND	ND	NA	ND	NA	ND	ND	None	
COD	ND	ND	NA	ND	NA	ND	ND	None	
Chloride	3,874 to 4,728	2,260 to 4,750	NA	2,287 to 3,396	NA	2,180 to 2,530	5,041 to 7,819	250,000 µg/L	Secondary GW and DW Standard
Dissolved Oxygen (mg/L)	9.60 to 9.93	0.37 to 1.15	9.56 to 10.40	0.25 to 0.40	6.90 to 7.50	0.31 to 1.67	0.23 to 0.53	None	
Iron - Dissolved	ND	ND	ND	204 to 839	ND	197 to 706	ND to ND	300 µg/L	Secondary GW and DW Standard
Manganese - Dissolved	ND	5,349 to 6,484	ND	466 to 694	ND	2,126 to 2,551	3,982 to 4,444	50 µg/L	Secondary GW and DW Standard
Nitrate	231 to 453	ND to 24.0	NA	ND to 59.0	NA	53 to 309.0	ND to ND	10,000 µg/L	Primary GW and DW Standard
Nitrite	ND	ND	NA	ND to 21	NA	ND	ND to ND	1,000 µg/L	Primary DW Standard
Oxidation-Reduction Potential	215 to 258	220 to 254	158 to 267	35.8 to 97.6	135.4 to 351	64.9 to 95.4	122 to 143	None	
pH - Field	6.3 to 6.5	6.2 to 6.2	6.3 to 6.9	6.6 to 6.7	6.6 to 6.9	6.6 to 6.7	6.6 to 6.7	6.5 - 8.5	Secondary GW Standard
pH - Laboratory	6.1 to 6.3	6.1 to 6.2	NA*	6.5 to 6.6	NA*	6.4 to 6.6	6.5 to 6.6	6.5 - 8.5	Secondary GW Standard
Potassium	620 to 681	713 to 898	NA	1,346 to 1,760	NA	939 to 999	1,202 to 1,308	None	
Sodium	4,359 to 4,746	8,081 to 9,274	NA	8,255 to 9,936	NA	7,299 to 8,314	13,691 to 17,280	20,000 µg/L	Secondary DW Standard
Specific Conductance (µmhos/cm)	110 to 132	331 to 452	NA*	312 to 383	NA*	204 to 298	394 to 462	700 µmhos/cm	Secondary DW Standard
Sulfate	3,935 to 4,372	14,190 to 17,054	NA	6,348 to 8,215	NA	4,145 to 4,850	7,920 to 11,000	250,000 µg/L	Secondary GW and DW Standard
Temperature (°C)	10.8 to 11.1	11.8 to 12.2	11.6 to 13.0	11.4 to 12.0	10.6 to 11.3	10.8 to 11.3	11.3 to 11.4	None	
Total Coliform (count)	ND	ND	NA	ND	NA	ND	ND	1/100mL	Primary GW and DW Standard
TOC	ND to 590	2,362 to 2,962	NA	1,860 to 2,260	NA	650 to 1,071	2,670 to 3,560	None	
Vinyl Chloride	ND	ND	ND	ND to 0.040	ND	ND to 0.03	ND	0.02 µg/L	Primary GW Standard
Vinyl Chloride	ND	ND	ND	ND to 0.040	ND	ND to 0.03	ND	0.29 µg/L	Site-Specific Cleanup Level
Zinc - Dissolved	ND	ND	ND	ND	ND	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

- Fifteen 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)
  - Manganese: MW-3, MW-6, MW-8, and MW-10
  - pH (field): MW-3
  - pH (laboratory): MW-1 and MW-3
  
- Ten 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-6 and MW-8
  - pH (field): MW-1 and MW-5A
  - pH (laboratory): MW-8
  - Vinyl Chloride: MW-6 and MW-8 (Primary GW Standard)
  - Vinyl Chloride: MW-6 and MW-8 (Site-Specific Cleanup Level)

## CONCLUSIONS

Quarterly monitoring data collected during 2022 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 2022. Landfill gas data for all four quarterly monitoring events are included in Appendix A and are summarized in the following sections.

#### March 22, 2022 – First Quarter

Flares 1, 2, and 3 had indicators of landfill gas including the measurable presence of carbon dioxide (0.5%, 0.2%, and 0.3% by volume, respectively). None of the flares had measurable concentrations of methane. Oxygen concentrations were 20.5%, 20.9%, and 20.6% by volume, respectively, and are consistent with atmospheric conditions. The low carbon dioxide, natural atmospheric oxygen conditions and lack of methane measurements are consistent with the byproducts of aerobic degradation of organics.

Gas pressure measurements were 0.00 inches of water in Flare 1, 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 increased from a mean of 29.84 inches of mercury on March 21, 2022, the day before the monitoring event, to a mean of 29.87 inches of mercury on March 22, 2022, the day the flares were measured (Weather Underground, Station KPWT, 2022). This slight increasing trend in barometric pressure likely contributed to subduing any measurable landfill gas 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 9, 2022 – Second Quarter

Flares 1, 2, and 3 had indicators of landfill gas including the measurable presence of methane in Flare 3 at 1.1% by volume. Carbon dioxide was also detected at 5.2%, 5.2%, and 12.0% by volume, respectively. Depressed oxygen was observed at concentrations of 11.1%, 12.2%, and 0.0% 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 29.53 inches of mercury on June 8, 2022, the day before the monitoring event, to a mean of 29.48 inches of mercury on June 9, 2022, the day the flares were measured (Weather Underground, Station KPWT, 2022). This decreasing trend in barometric pressure likely contributed to the presence of measurable landfill gas indicators in the three flares.

#### September 21, 2022 – Third Quarter

Flares 1, 2, and 3 had some indicators of landfill gas including the measurable presence of carbon dioxide, 4.7%, 5.3%, and 3.1% by volume, respectively, and depressed oxygen concentrations of 14.9%, 14.0%, and 17.0% by volume, respectively. However, none of the flares had measurable concentrations of methane. The presence of carbon dioxide, depressed oxygen and lack of methane measurements are consistent with the byproducts of aerobic degradation of organics.



Gas pressure measurements were 0.00 inches of water in Flares 1, 2, and 3. 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 slightly from a mean of 29.52 inches of mercury on September 20, 2022, the day before the monitoring event, to a mean of 29.51 inches of mercury on September 21, 2022, the day the flares were measured (Weather Underground, Station KPWT, 2022). This unchanging trend in barometric pressure potentially limited the presence of measurable landfill gas indicators in the three flares.

### **December 15, 2022 – Fourth Quarter**

Flares 1 and 2 had low indicators of landfill gas including the measurable presence of carbon dioxide at 0.1% and 0.5% by volume, respectively. Flare 3 did not have any indicators of landfill gas. None of the flares had measurable concentrations of methane. Oxygen concentrations were 20.7%, 20.3%, and 20.8% by volume, respectively and are consistent with atmospheric conditions. The low concentrations of carbon dioxide in Flares 1 and 2, natural atmospheric oxygen conditions, and lack of methane measurements are consistent with the byproducts of aerobic degradation of organics.

Gas pressure measurements were 0.14 inches of water in all three flares. The low 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 29.97 inches of mercury on December 14, 2022, the day before the monitoring event, to 29.98 inches of mercury on December 15, 2022, the day the flares were measured (Weather Underground, Station KPWT 2022). This increasing trend in barometric pressure likely contributed to the absence of measurable landfill gas indicators in Flare 3, the low concentration of carbon dioxide in Flares 1 and 2, 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 for 2022 sampling events 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 2022 occurred in March and December with mean horizontal gradients of 0.0133. The resulting calculated groundwater flow velocities are 2.07 feet/day. Groundwater gradients and calculated groundwater velocities were greatest during June and September, which had mean horizontal gradients of 0.0150 and calculated flow velocities of 2.33 feet/day.

## Exceedances of Primary Regulatory Standards

### Upgradient Well (MW-1)

#### *Arsenic*

- Groundwater samples collected from MW-1 had arsenic concentrations of 0.11 µg/L, 0.10 µg/L, 0.10 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 0.18 µg/L and 0.48 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 2022. 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 2022 and one sample from MW-8 December 2022. Arsenic concentrations for downgradient wells are summarized in the following bullets:
  - MW-3 had arsenic concentrations of 0.11 µg/L, 0.10 µg/L, 0.12 µg/L, and 0.13 µg/L in March, June, September, and December, respectively.
  - MW-6 had arsenic concentrations of 0.28 µg/L, 0.24 µg/L, 0.41 µg/L, and 0.33 µg/L in March, June, September, and December, respectively.
  - MW-8 had arsenic concentrations of 0.70 µg/L, 0.92 µg/L, 0.84 µg/L, and 1.30 µg/L in March, June, September, and December, respectively.
  - MW-10 had arsenic concentrations of 1.97 µg/L, 1.95 µg/L, 1.87 µg/L, and 1.93 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-10 also exceed the Site-Specific CUL of 1.29 µg/L, indicating statistically significant exceedance of the CUL for MW-10.
- Upper and lower 95% confidence intervals for arsenic in samples from MW-8 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 does not exceed the Site-Specific CUL of 1.29 µg/L. This does not represent statistical exceedance or compliance but indicates that continued monitoring and evaluation is warranted.

### *Vinyl Chloride*

#### MW-8

- The December 2022 groundwater sample from downgradient monitoring well MW-8 had a vinyl chloride concentration of 0.03 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 is greater 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 6.4, 6.3, 6.7, and 6.0 during the March, June, September, and December monitoring events. These values are lower or within the limit range of 6.5 – 8.5 pH 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 or within the 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-8

- Iron is a common constituent in landfill leachate and the December 2022 groundwater sample from downgradient well MW-8 had an iron concentration of 230 µg/L, which is less than the Washington State Drinking Water Secondary Standard and Groundwater Secondary Standard of 300 µg/L. During the June 2022 groundwater sampling event, the concentration of iron was 453 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 is less than the Washington State Secondary Groundwater Standard of 300 µg/L. Therefore there is no statistical exceedance for MW-8 and the well meets compliance standards for iron. However, due to prior years exceedances, it is recommended that continued monitoring and evaluation is warranted.

#### *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 exceed the Washington State Drinking Water Secondary Standard and Groundwater Secondary Standard of 50 µg/L during the four quarterly monitoring events of 2022 as summarized below:

- MW-3 had manganese concentrations of 4,490 µg/L, 4,120 µg/L, 7,240 µg/L, and 5,920 µg/L for the March, June, September, and December sampling events, respectively.
- MW-6 had manganese concentrations of 197 µg/L, 377 µg/L, 413 µg/L, and 461 µg/L for the March, June, September, and December sampling events, respectively.
- MW-8 had manganese concentrations of 1,070 µg/L, 2,560 µg/L, 2,880 µg/L, and 2,080 µg/L for the March, June, September, and December sampling events, respectively.
- MW-10 had manganese concentrations of 4,080 µg/L, 5,230 µg/L, 3,500 µg/L, and 3,820 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, 6.3, 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 6.3, 6.2, 6.1, and 6.0 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 June 2022 sampling event acetone was detected in MW-1 at a 6.73 µg/L. In the September 2022 sampling event acetone was detected in MW-6 and MW-8 at concentrations of

5.68 µg/L and 20.6 µg/L, respectively. Acetone can be a byproduct of engine exhaust and may derive from sampling near a running engine. There are no Washington State Groundwater or Drinking Water Standards for acetone.

- Carbon disulfide was detected June 2022 MW-1 at a concentration of 0.2 µg/L. There are no Washington State Groundwater or Drinking Water Standards for carbon disulfide.
- Chlorobenzene was detected in the samples from MW-6 at concentrations of 1.26 µg/L, 1.35 µg/L, 1.80 µg/L, and 2.41 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.

### **Inspection and Maintenance Summary for 2022 and Activities Planned for 2023**

A summary of the inspection, maintenance, and engineering work performed at the Olalla Landfill in 2022 is presented in Appendix C. Activities planned for 2023 are summarized in Appendix D.

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**Appendix A:**  
**2022 Quarterly Monitoring Data**

Landfill Gas Data  
Groundwater Elevations and Contour Maps  
Groundwater Quality Data



**Olalla Landfill  
2022 Landfill Gas Data**

<b>March 22, 2022</b>	<b>Flare #1</b>	<b>Flare #2</b>	<b>Flare #3</b>
METHANE, (% LEL) <sup>a</sup>	0	0	0
METHANE, (% Volume)	0.0	0.0	0.0
OXYGEN, (% Volume)	20.5	20.9	20.6
CARBON DIOXIDE, (% Volume)	0.5	0.2	0.3
TEMPERATURE (°F)	54	54	54
PRESSURE (inches of water column)	0.00	0.00	0.00
AMBIENT TEMPERATURE, (°F)	54		

<b>June 9, 2022</b>	<b>Flare #1</b>	<b>Flare #2</b>	<b>Flare #3</b>
METHANE, (% Volume)	0.0	0.0	1.1
METHANE, (% LEL) <sup>a</sup>	0	0	3
OXYGEN, (% Volume)	11.1	12.2	0.0
CARBON DIOXIDE, (% Volume)	5.2	5.2	12.0
TEMPERATURE (°F)	54	54	54
PRESSURE (inches of water column)	0.00	0.00	0.00
AMBIENT TEMPERATURE, (°F)	54		

<b>September 21, 2022</b>	<b>Flare #1</b>	<b>Flare #2</b>	<b>Flare #3</b>
METHANE, (% Volume)	0.0	0.0	0.0
METHANE, (% LEL) <sup>a</sup>	0	0	0
OXYGEN, (% Volume)	14.9	14.0	17.0
CARBON DIOXIDE, (% Volume)	4.7	5.3	3.1
TEMPERATURE (°F)	61	61	61
PRESSURE (inches of water column)	0.00	0.00	0.00
AMBIENT TEMPERATURE, (°F)	61		

<b>December 15, 2022</b>	<b>Flare #1</b>	<b>Flare #2</b>	<b>Flare #3</b>
METHANE, (% Volume)	0.0	0.0	0.0
METHANE, (% LEL) <sup>a</sup>	0	0	0
OXYGEN, (% Volume)	20.7	20.3	20.8
CARBON DIOXIDE, (% Volume)	0.1	0.5	0.0
TEMPERATURE (°F)	45	45	45
PRESSURE (inches of water column)	0.14	0.14	0.14
AMBIENT TEMPERATURE, (°F)	45		

Note:

<sup>a</sup> LEL values are directly taken from the GEM 2000 at the time of measurement.

**Olalla Landfill  
2022 Groundwater Elevations**

Station	Reference Elevation*	Depth to Water (feet)	Groundwater Elevation*
<b>March 22, 2022</b>			
MW-1	343.79	77.23	266.56
MW-2	323.25	63.73	259.52
MW-3	296.95	42.45	254.50
MW-4	320.93	60.81	260.12
MW-5A	332.53	76.31	256.22
MW-6	271.17	18.48	252.69
MW-7	280.43	23.69	256.74
MW-8	272.85	19.25	253.60
MW-10	279.21	27.41	251.80

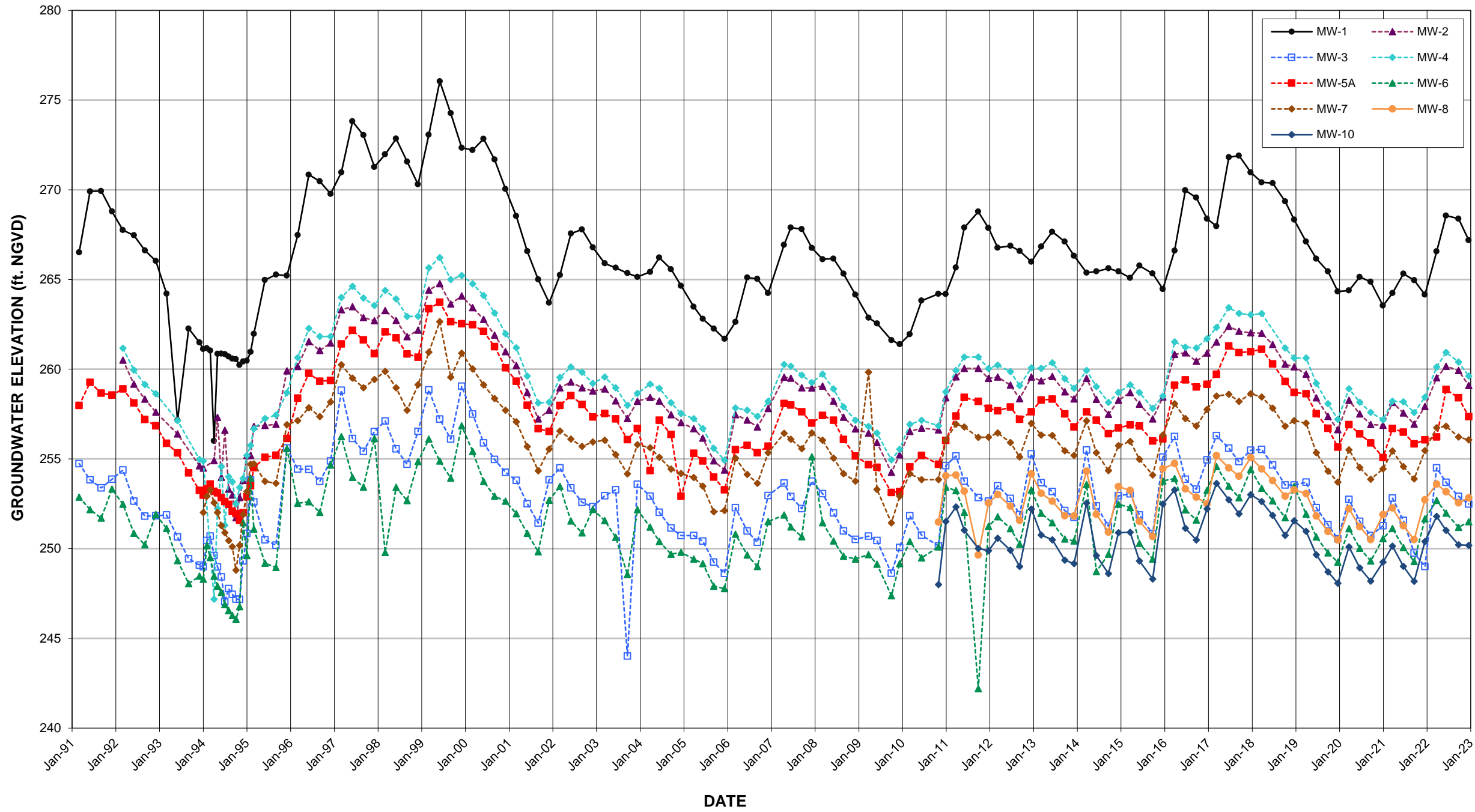
Station	Reference Elevation*	Depth to Water (feet)	Groundwater Elevation*
<b>June 9, 2022</b>			
MW-1	343.79	75.23	268.56
MW-2	323.25	63.09	260.16
MW-3	296.95	43.25	253.70
MW-4	320.93	59.99	260.94
MW-5A	332.53	73.66	258.87
MW-6	271.17	19.19	251.98
MW-7	280.43	23.61	256.82
MW-8	272.85	19.68	253.17
MW-10	279.21	28.19	251.02

Station	Reference Elevation*	Depth to Water (feet)	Groundwater Elevation*
<b>September 21, 2022</b>			
MW-1	343.79	75.40	268.39
MW-2	323.25	63.32	259.93
MW-3	296.95	44.04	252.91
MW-4	320.93	60.53	260.40
MW-5A	332.53	74.12	258.41
MW-6	271.17	19.98	251.19
MW-7	280.43	24.21	256.22
MW-8	272.85	20.30	252.55
MW-10	279.21	29.00	250.21

Station	Reference Elevation*	Depth to Water (feet)	Groundwater Elevation*
<b>December 15, 2022</b>			
MW-1	343.79	76.60	267.19
MW-2	323.25	64.16	259.09
MW-3	296.95	44.46	252.49
MW-4	320.93	61.31	259.62
MW-5A	332.53	75.17	257.36
MW-6	271.17	19.67	251.50
MW-7	280.43	24.37	256.06
MW-8	272.85	20.02	252.83
MW-10	279.21	29.03	250.18

\*Elevations in Feet NGVD 29

# OLALLA LANDFILL Groundwater Elevations



S.E. BURLEY OLALLA ROAD

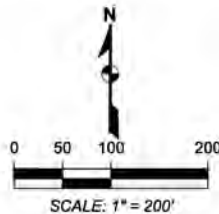
BANDIX ROAD S.E.



**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 22, 2022**

**REPORT**  
 2022 ANNUAL  
 MONITORING REPORT

**PREPARED FOR**  
 KITSAP COUNTY

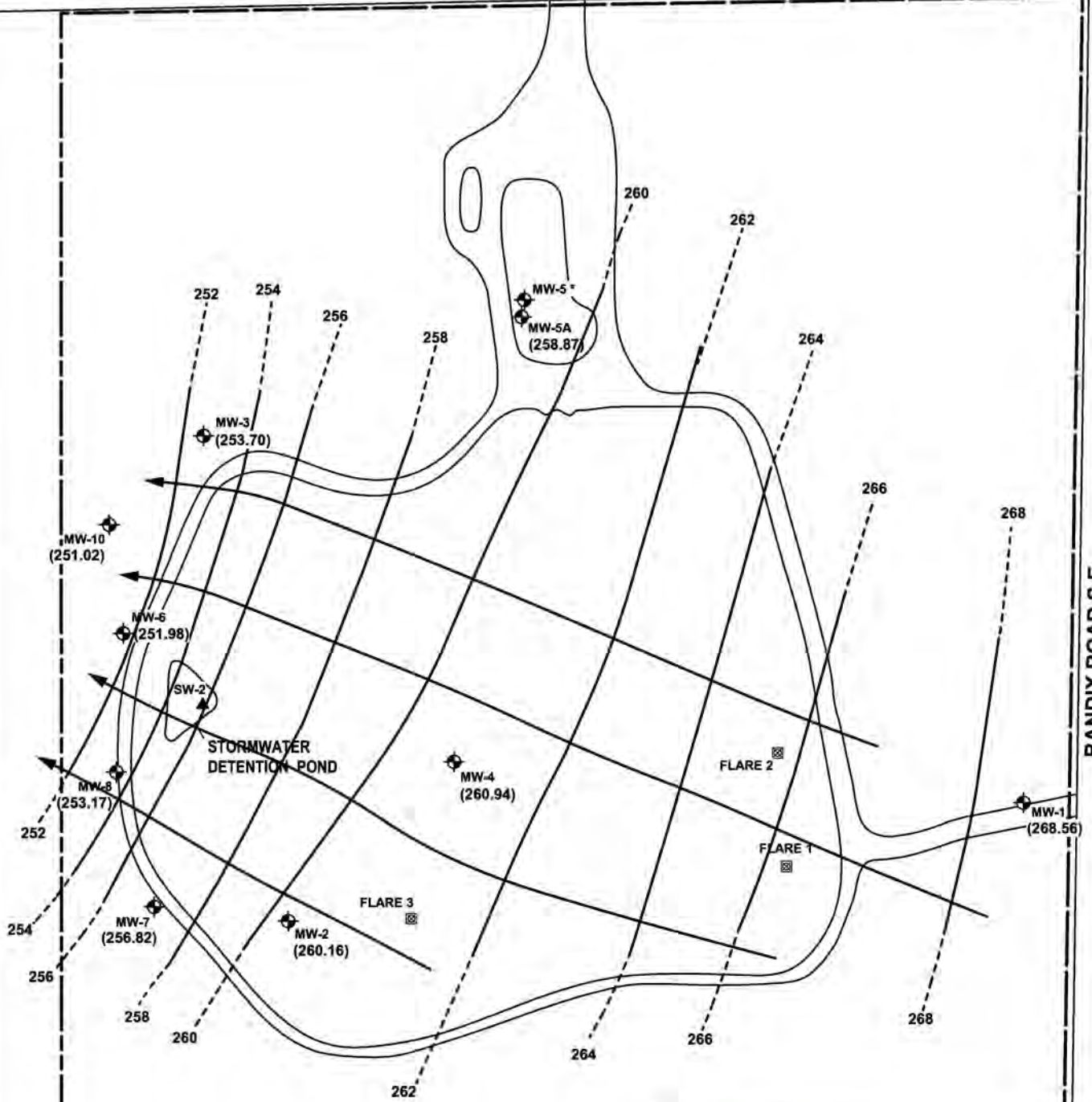
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 466410

**LOCATION**  
 OLALLA LANDFILL  
 KITSAP COUNTY, WASHINGTON

**DATE** ..... 1/18/23  
**DRAWN BY** ..... AM  
**REVIEWED BY** ..... ELC

S.E. BURLEY OLALLA ROAD

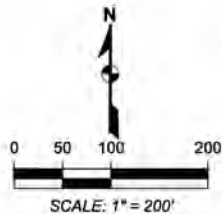
BANDIX ROAD S.E.



**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 - JUNE 9, 2022**

**REPORT**  
 2022 ANNUAL  
 MONITORING REPORT

**PREPARED FOR**  
 KITSAP COUNTY

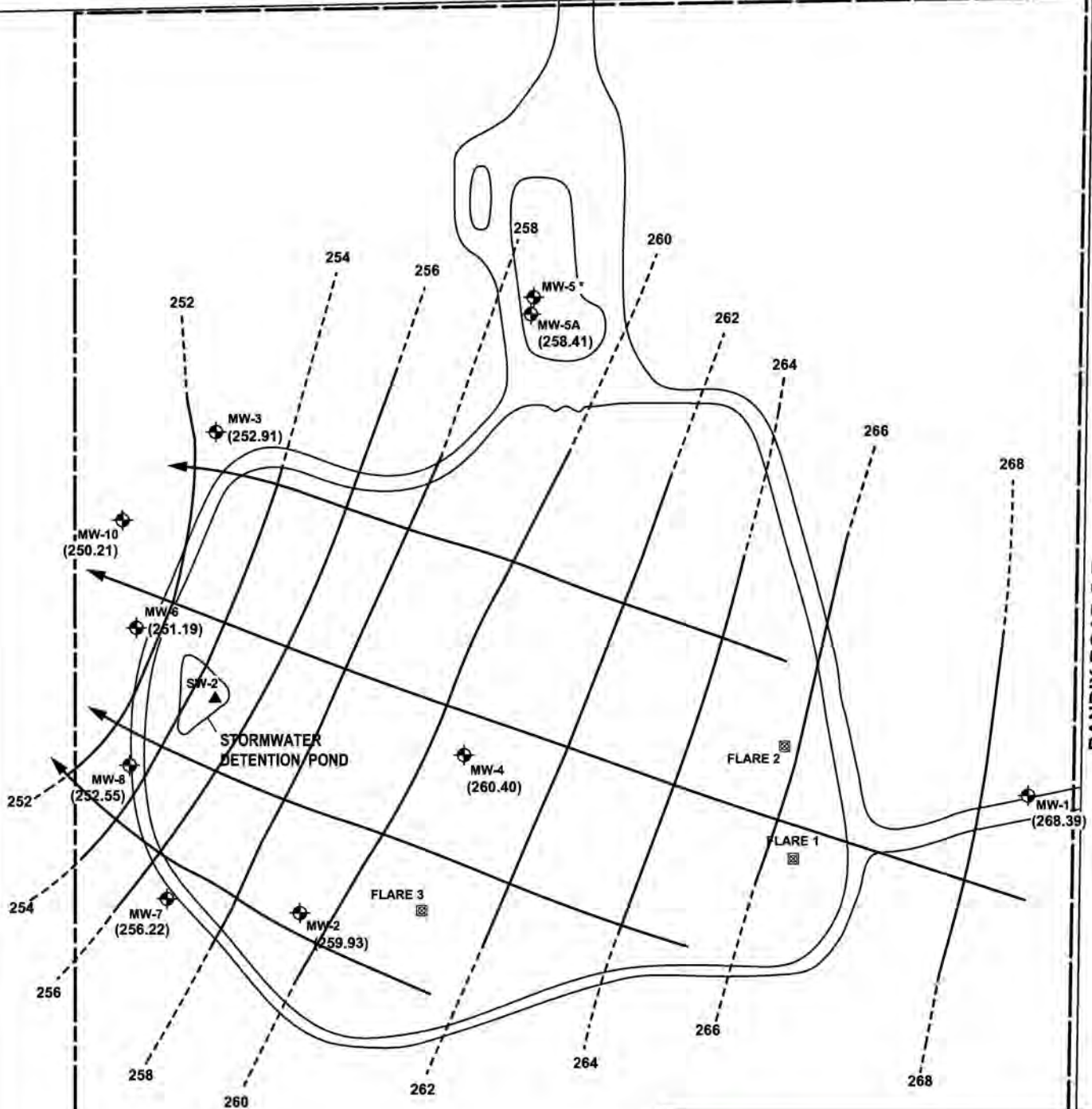
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**LOCATION**  
 OLALLA LANDFILL  
 KITSAP COUNTY, WASHINGTON

**DATE** ..... 1/18/23  
**DRAWN BY** ..... AM  
**REVIEWED BY** ..... ELC

S.E. BURLEY OLALLA ROAD

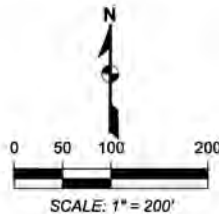
BANDIX ROAD S.E.



**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 - SEPTEMBER 21, 2022**

**REPORT**  
 2022 ANNUAL  
 MONITORING REPORT

**PREPARED FOR**  
 KITSAP COUNTY

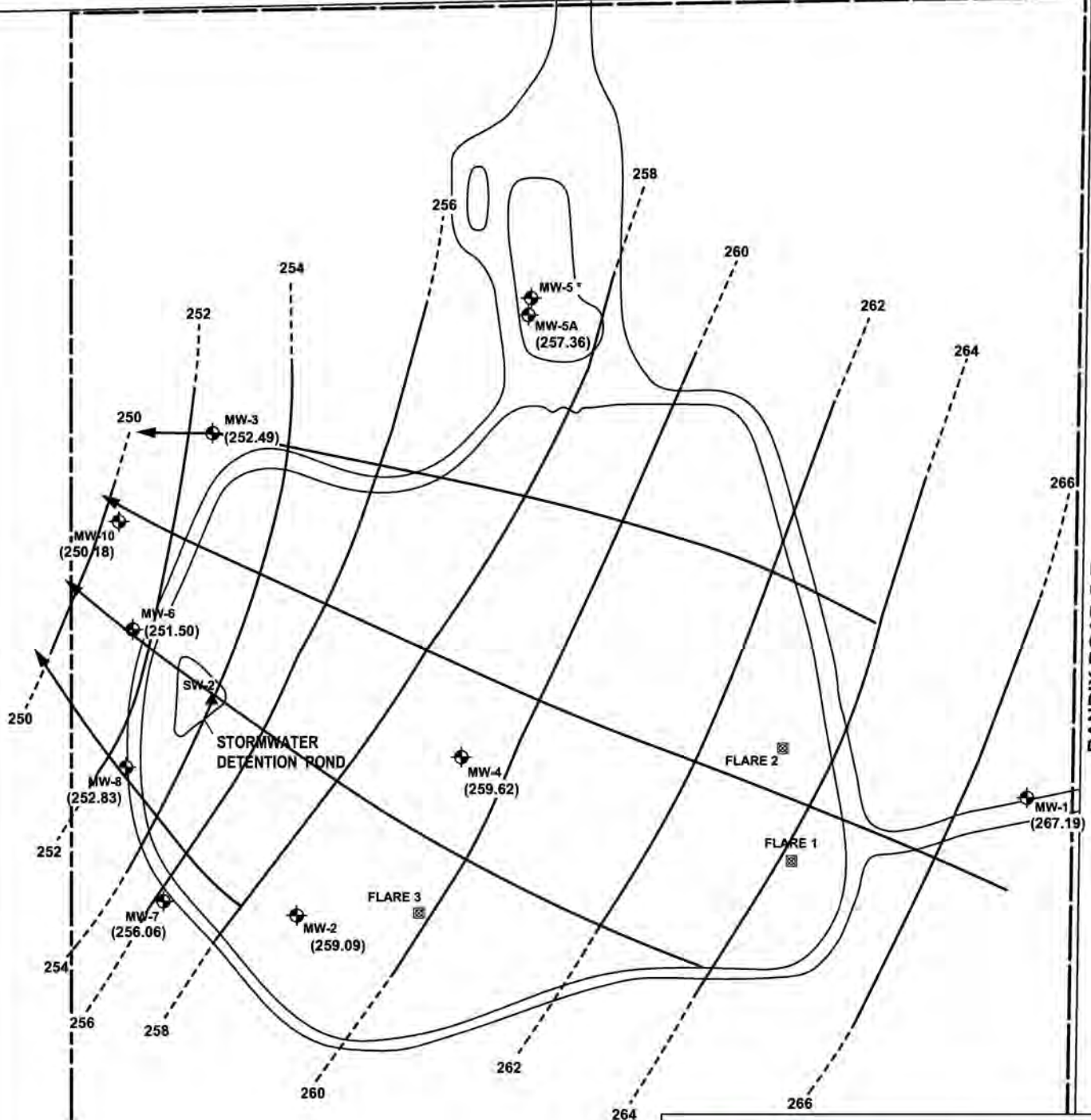
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**LOCATION**  
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 KITSAP COUNTY, WASHINGTON

**DATE** ..... 1/18/23  
**DRAWN BY** ..... AM  
**REVIEWED BY** ..... ELC

S.E. BURLEY OLALLA ROAD

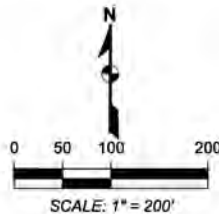
BANDIX ROAD S.E.



**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 15, 2022**

**REPORT**  
 2022 ANNUAL  
 MONITORING REPORT

**PREPARED FOR**  
 KITSAP COUNTY

**PROJECT NUMBER**  
 466410

**LOCATION**  
 OLALLA LANDFILL  
 KITSAP COUNTY, WASHINGTON

**DATE** ..... 1/20/23  
**DRAWN BY** ..... AM  
**REVIEWED BY** ..... ELC

# Groundwater Quality Data

## March 2022 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)
<b>CONVENTIONALS</b>										
ALKALINITY	----	----	----	mg/L	55.3	147	48.1	109	221	146
AMMONIA NITROGEN	----	----	----	mg/L	0.040 U	0.040 U	0.040 U	0.040 U	0.054	0.040 U
BICARBONATE	----	----	----	mg/L	55.3	147	48.1	109	221	146
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	3.93	5.60	1.00 U	1.11	4.34	5.16
<b>DISSOLVED OXYGEN</b>	----	----	----	mg/L	9.08	1.15	0.71	2.13	0.53	NA
NITRATE NITROGEN	10*	10*	----	mg/L	0.631	0.024	0.657	0.120	0.663	0.024
NITRITE NITROGEN	1*	----	----	mg/L	0.010 U	0.010 U	0.072	0.010 U	0.010 U	0.010 U
<b>OXIDATION REDUCTION POTENTIAL (ORP)</b>	----	----	----	mV	258.1	286.4	171.5	179.4	242.4	NA
<b>pH (field)</b>	----	6.5-8.5**	----	-log H+	6.4	6.2	7.0	6.7	6.6	NA
pH (laboratory)	----	6.5-8.5**	----	-log H+	6.4 J	6.3 J	6.7 J	6.6 J	6.5 J	6.2 J
<b>SPECIFIC CONDUCTANCE</b>	700**	----	----	umhos/cm	418	740	415	539	864	NA
SULFATE	250**	250**	----	mg/L	3.65	14.9	3.5	3.18	16.7	14.8
<b>TEMPERATURE</b>	----	----	----	°C	10.1	10.2	13.0	12.0	12.3	NA
TOTAL COLIFORM	1/100 mL*	1/100 mL*	----	cfu/100 mL	1 JU	1 U	1 U	1 U	1 U	1 U
TOTAL ORGANIC CARBON (TOC)	----	----	----	mg/L	1.40	4.80	3.10	2.00	4.80	3.60
<b>TURBIDITY</b>	----	----	----	NTU	5.2	2.44	NA	NA	NA	NA
<b>DISSOLVED METALS</b>										
ARSENIC	10*	0.05*	1.29	µg/L	0.11	0.11	0.28	0.70	1.97	0.11
BARIUM	2,000*	1,000*	----	µg/L	6.0 U	9.7	6.0 U	6.0 U	17.6	11.4
CALCIUM	----	----	----	mg/L	12.0	33.9	9.2	20.1	41.3	33.7
IRON	300**	300**	300	µg/L	20.0 U	20.0 U	38	172	20.0 U	20.0 U
MANGANESE	50**	50**	50	µg/L	4.0 U	4,490	197	1,070	4,080	4,650
POTASSIUM	----	----	----	mg/L	0.605	0.906	0.83	0.802	1.36	0.735
SODIUM	20***	----	----	mg/L	4.97	7.24	5.1	7.10	22.5	7.14
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
<b>VOLATILE ORGANIC COMPOUNDS</b>										
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:**

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.



**Groundwater Quality Data**  
**March 2022 Quarterly Monitoring Event**  
**Page 2 of 3**

<b>VOLATILE ORGANIC COMPOUNDS</b>	<b>State Drinking Water Standards (a)</b>	<b>State Ground- water Standards (b)</b>	<b>Units</b>	<b>MW-1</b>	<b>MW-3</b>	<b>MW-6</b>	<b>MW-8</b>	<b>MW-10</b>	<b>MW-9 (FD)</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	1.26	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**  
**March 2022 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-9 (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	2 U	2 U	2 U	2 U	2 U	2 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	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 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.

**Olalla Landfill  
Groundwater Quality Data  
June 2022 Quarterly Monitoring Event**

	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)
<b>CONVENTIONALS</b>										
ALKALINITY	----	----	----	mg/L	56.0	110	170.0	120	220	190
AMMONIA NITROGEN	----	----	----	mg/L	0.040 U	0.040 U	0.163	0.040 U	0.059	0.151
BICARBONATE	----	----	----	mg/L	56.0	110	170.0	120	220	190
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	6.55	5.00	1.68 U	2.16	4.20	1.65
DISSOLVED OXYGEN	----	----	----	mg/L	5.79	0.45	0.47	0.29	0.33	NA
NITRATE NITROGEN	10*	10*	----	mg/L	0.115	0.020	0.202	0.023	0.116	0.222
NITRITE NITROGEN	1*	----	----	mg/L	0.010 U	0.010 U	0.021	0.010 U	0.010 U	0.021
OXIDATION REDUCTION POTENTIAL (ORP)	----	----	----	mV	85.9	137.0	71.2	35.0	125.5	NA
pH (field)	----	6.5-8.5**	----	-log H+	<b>6.3</b>	<b>6.3</b>	6.5	6.6	6.6	NA
pH (laboratory)	----	6.5-8.5**	----	-log H+	<b>6.3</b> H	<b>6.2</b> H	6.5 H	6.5 H	6.5 H	6.5 H
SPECIFIC CONDUCTANCE	700**	----	----	umhos/cm	151	286	372	246	516	NA
SULFATE	250**	250**	----	mg/L	4.59	13.9	11.7	4.99	25.6	11.7
TEMPERATURE	----	----	----	°C	10.8	13.3	12.2	11.2	11.9	NA
TOTAL COLIFORM	1/100 mL*	1/100 mL*	----	cfu/100 mL	1 JU	1 JU	1 U	1 U	1 U	1 U
TOTAL ORGANIC CARBON (TOC)	----	----	----	mg/L	0.74	1.89	1.65	0.75	2.82	1.63
TURBIDITY	----	----	----	NTU	4.7	4.52	4.55	4.62	4.81	NA
<b>DISSOLVED METALS</b>										
ARSENIC	10*	0.05*	1.29	µg/L	<b>0.10</b>	<b>0.10</b>	<b>0.24</b>	<b>0.92</b>	<b>1.95</b>	<b>0.22</b>
BARIUM	2,000*	1,000*	----	µg/L	6.0 U	9.0	20.4	6.0 U	24.5	22.7
CALCIUM	----	----	----	mg/L	13.9	28.0	40.2	22.5	48.7	37.8
IRON	300**	300**	300	µg/L	20.0 U	20.0 U	112	<b>453</b>	20.0 U	115.0
MANGANESE	50**	50**	50	µg/L	4.0 U	<b>4,120</b>	<b>377</b>	<b>2,560</b>	<b>5,230</b>	<b>405</b>
POTASSIUM	----	----	----	mg/L	0.744	0.685	2.19	1.15	1.41	2.100
SODIUM	20***	----	----	mg/L	5.45	6.68	9.0	7.42	<b>22.9</b>	8.83
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
<b>VOLATILE ORGANIC COMPOUNDS</b>										
VINYL CHLORIDE	2*	0.02*	0.29	µg/L	0.02 U	0.02 U	0.02 U	0.021	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:**

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.

**Olalla Landfill  
Groundwater Quality Data  
September 2022 Quarterly Monitoring Event**

	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)
<b>CONVENTIONALS</b>										
ALKALINITY	----	----	----	mg/L	59.7	225	232	83.4	196	81.8
AMMONIA NITROGEN	----	----	----	mg/L	0.040 U	0.040 U	0.55	0.040 U	0.056	0.040 U
BICARBONATE	----	----	----	mg/L	59.7	225	232	83.4	196	81.8
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	6.25	5.71	2.40	1.85	1.39	1.86
DISSOLVED OXYGEN	----	----	----	mg/L	7.51	2.00	0.39	0.33	1.47	NA
NITRATE NITROGEN	10*	10*	----	mg/L	0.225	0.020 U	0.020	0.020 U	0.020 U	0.020 U
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	281.4	236.7	97.6	95.2	167.4	NA
pH (field)	----	6.5-8.5**	----	-log H+	6.3	6.3	6.5	6.3	6.7	NA
pH (laboratory)	----	6.5-8.5**	----	-log H+	6.7 J	6.1 J	6.4 J	6.5 J	6.5 J	6.6 J
SPECIFIC CONDUCTANCE	700**	----	----	umhos/cm	148	505	430	159	389	NA
SULFATE	250**	250**	----	mg/L	4.2	19.1	8.3	3.9	19.5	3.8
TEMPERATURE	----	----	----	°C	11.9	14.0	12.8	12.1	12.2	NA
TOTAL COLIFORM	1/100 mL*	1/100 mL*	----	cfu/100 mL	1 U	1 U	1 U	1 U	1 U	1 JU
TOTAL ORGANIC CARBON (TOC)	----	----	----	mg/L	0.91	3.07	2.67	0.95	3.01	0.91
TURBIDITY	----	----	----	NTU	4.5	0.63	1.34	3.34	0.23	NA
<b>DISSOLVED METALS</b>										
ARSENIC	10*	0.05*	1.29	µg/L	0.10	0.12	0.41	0.84	1.87	0.70
BARIUM	2,000*	1,000*	----	µg/L	6.1	17.4	27.9	6.0 U	15.2	6.0 U
CALCIUM	----	----	----	mg/L	13.8	52.5	48.5	13.2	34.9	12.8
IRON	300**	300**	300	µg/L	20.0 U	20.0 U	260	239	20.8	167
MANGANESE	50**	50**	50	µg/L	4.0 U	7,240	413	2,880	3,500	2,850
POTASSIUM	----	----	----	mg/L	0.681	0.824	2.69	0.958	1.04	0.962
SODIUM	20***	----	----	mg/L	5.47	9.58	9.79	6.71	16.1	6.72
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
<b>VOLATILE ORGANIC COMPOUNDS</b>										
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:**

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NA = Not Analyzed

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

**Groundwater Quality Data**  
**September 2022 Quarterly Monitoring Event**  
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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)							
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	5.68	20.6	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
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	1.8	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**  
**September 2022 Quarterly Monitoring Event**  
**Page 3 of 3**

<b>VOLATILE ORGANIC COMPOUNDS</b>	<b>State Drinking Water Standards (a)</b>	<b>State Ground- water Standards (b)</b>	<b>Units</b>	<b>MW-1</b>	<b>MW-3</b>	<b>MW-6</b>	<b>MW-8</b>	<b>MW-10</b>	<b>MW-12 (FD)</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	2 U	2 U	2 U	2 U	2 U	2 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	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 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.

**Olalla Landfill  
Groundwater Quality Data  
December 2022 Quarterly Monitoring Event**

	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	MW-13(FD)
<b>CONVENTIONALS</b>												
ALKALINITY	----	----	----	mg/L	54.1	212	NA	197	NA	129	217	220
AMMONIA NITROGEN	----	----	----	mg/L	0.040 U	0.040 U	NA	0.667	NA	0.040 U	0.06	0.054
BICARBONATE	----	----	----	mg/L	54.1	212	NA	197	NA	129	217	220
CARBONATE	----	----	----	mg/L	1.0 U	1.0 U	NA	1.0 U	NA	1.0 U	1.0 U	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	10.1
CHLORIDE	250**	250**	----	mg/L	5.03	2.19	NA	3.23	NA	2.26	5.99	6.29
<b>DISSOLVED OXYGEN</b>	----	----	----	mg/L	9.93	2.05	9.11	1.93	6.74	1.43	1.65	NA
NITRATE NITROGEN	10*	10*	----	mg/L	0.778	0.020 U	NA	0.020	NA	0.020 U	0.020 U	0.020 U
NITRITE NITROGEN	1*	----	----	mg/L	0.010 U	0.010 U	NA	0.010 U	NA	0.010 U	0.010 U	0.010 U
<b>OXIDATION REDUCTION POTENTIAL (ORP)</b>	----	----	----	mV	188.7	183.0	153.6	17.4	148.4	-6.0	108.9	NA
<b>pH (field)</b>	----	6.5-8.5**	----	-log H+	6.6	6.4	6.8	6.8	7.1	6.9	6.8	NA
pH (laboratory)	----	6.5-8.5**	----	-log H+	6.0 J	6.0 J	NA	6.4 J	NA	6.4 J	6.4 J	6.4 J
<b>SPECIFIC CONDUCTANCE</b>	700**	----	----	umhos/cm	129	394	132	332	97	180	373.3	NA
SULFATE	250**	250**	----	mg/L	3.7	21.9	NA	6.5	NA	4.1	7.41	7.6
<b>TEMPERATURE</b>	----	----	----	°C	10.0	12.1	12.1	11.4	10.3	11.2	11.4	NA
TOTAL COLIFORM	1/100 mL*	1/100 mL*	----	cfu/100 mL	1 JU	1 JU	NA	1 U	NA	1 U	1 U	1 U
TOTAL ORGANIC CARBON (TOC)	----	----	----	mg/L	0.72	3.71	NA	2.34	NA	1.08	3.38	3.38
<b>TURBIDITY</b>	----	----	----	NTU	1.6	2.16	3.60	2.18	3.6	1.32	0.51	NA
<b>DISSOLVED METALS</b>												
ARSENIC	10*	0.05*	1.29	µg/L	0.10	0.13	0.18	0.33	0.48	1.30	1.93	1.86
BARIUM	2,000*	1,000*	----	µg/L	6.0 U	15.0	6.0 U	22.9	6.0 U	6.0 U	15.2	14.6
CALCIUM	----	----	----	mg/L	12	48.7	NA	37.3	NA	18.7	38.6	38.5
IRON	300**	300**	300	µg/L	20.0 U	20.0 U	62	204	20 U	230	40.0 U	40 U
MANGANESE	50**	50**	50	µg/L	4.0 U	5,920	4.0 U	461	4.0 U	2,080	3,820	3,820
POTASSIUM	----	----	----	mg/L	0.675	0.816	NA	2.56	NA	0.899	1.15	1.16
SODIUM	20***	----	----	mg/L	4.8	9	NA	7.89	NA	7.52	15.2	15.4
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	6.0 U	6.0 U
<b>VOLATILE ORGANIC COMPOUNDS</b>												
VINYL CHLORIDE	2*	0.02*	0.29	µg/L	0.02 U	0.02 U	0.02 U	0.03	0.02 U	0.03	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:**

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

NA = Not Analyzed

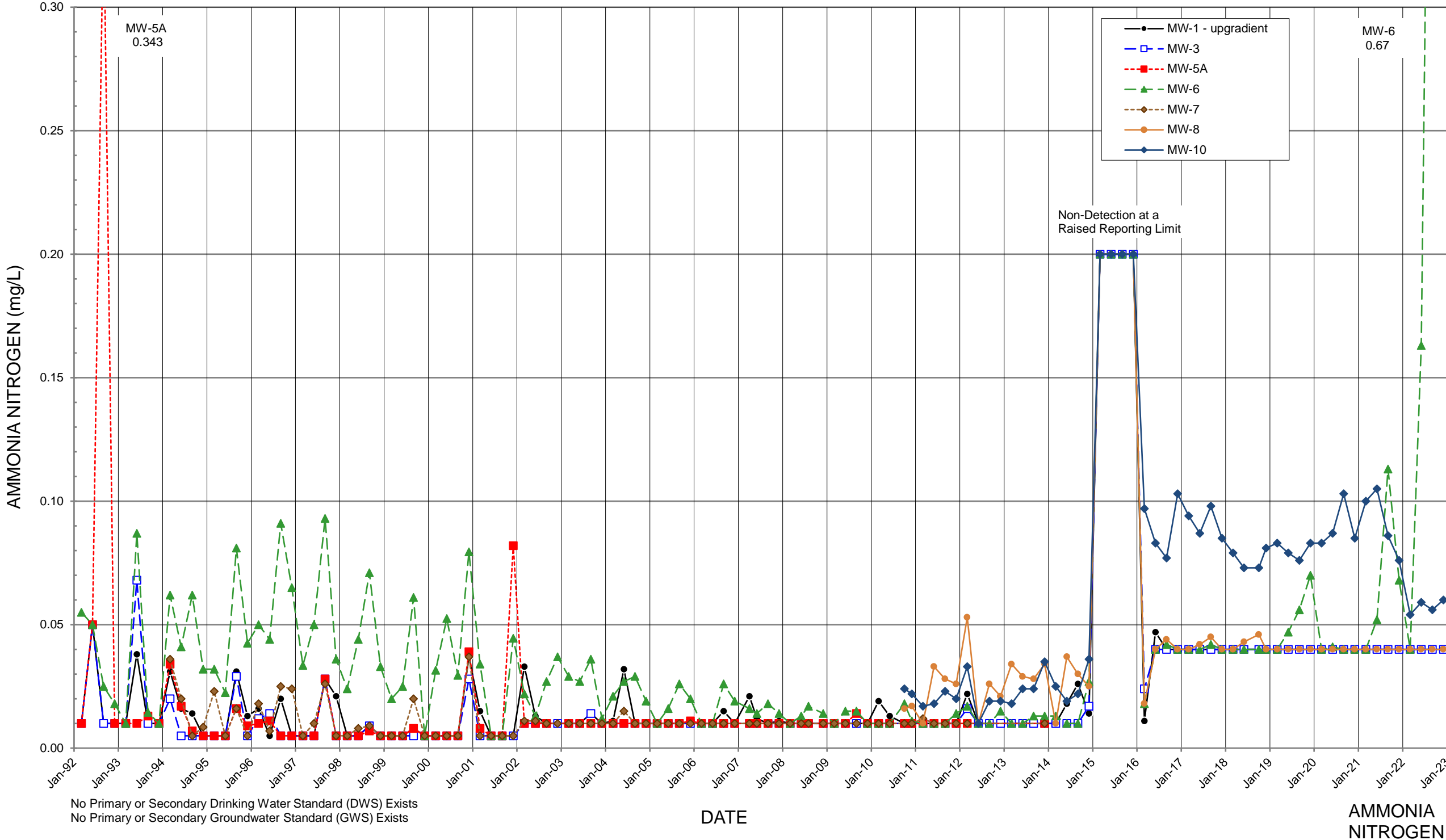
U = Indicates compound was analyzed for, but not detected at the specified detection limit.



**Appendix B:**  
**2022 Statistical Summaries**

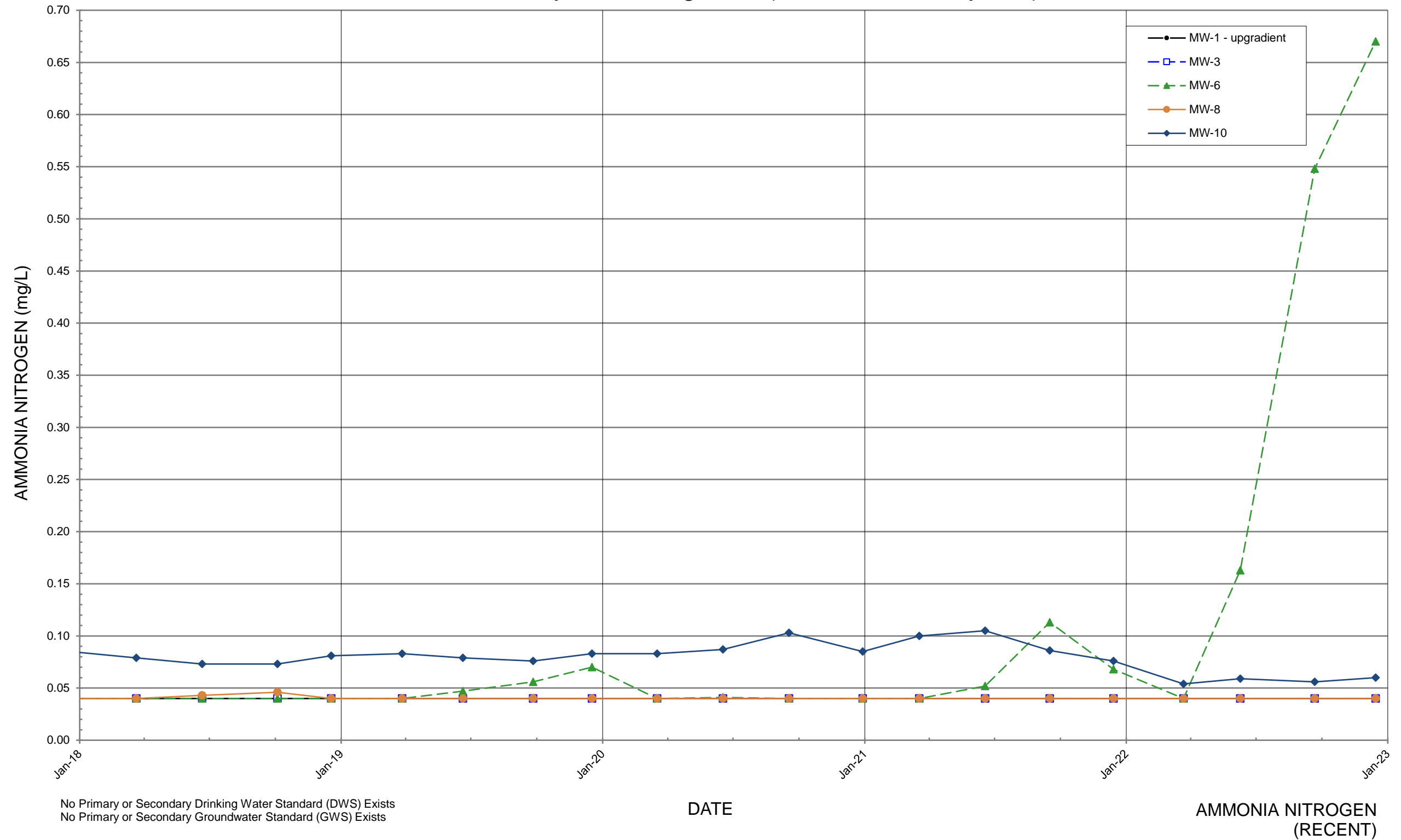
Time-Series Plots through December 2022  
Mann-Kendall Statistically Significant Trend Test Summary Tables  
Shapiro-Wilk Test for Normality Summary Tables  
Confidence Interval Summary Tables

# OLALLA LANDFILL Quarterly Monitoring Data

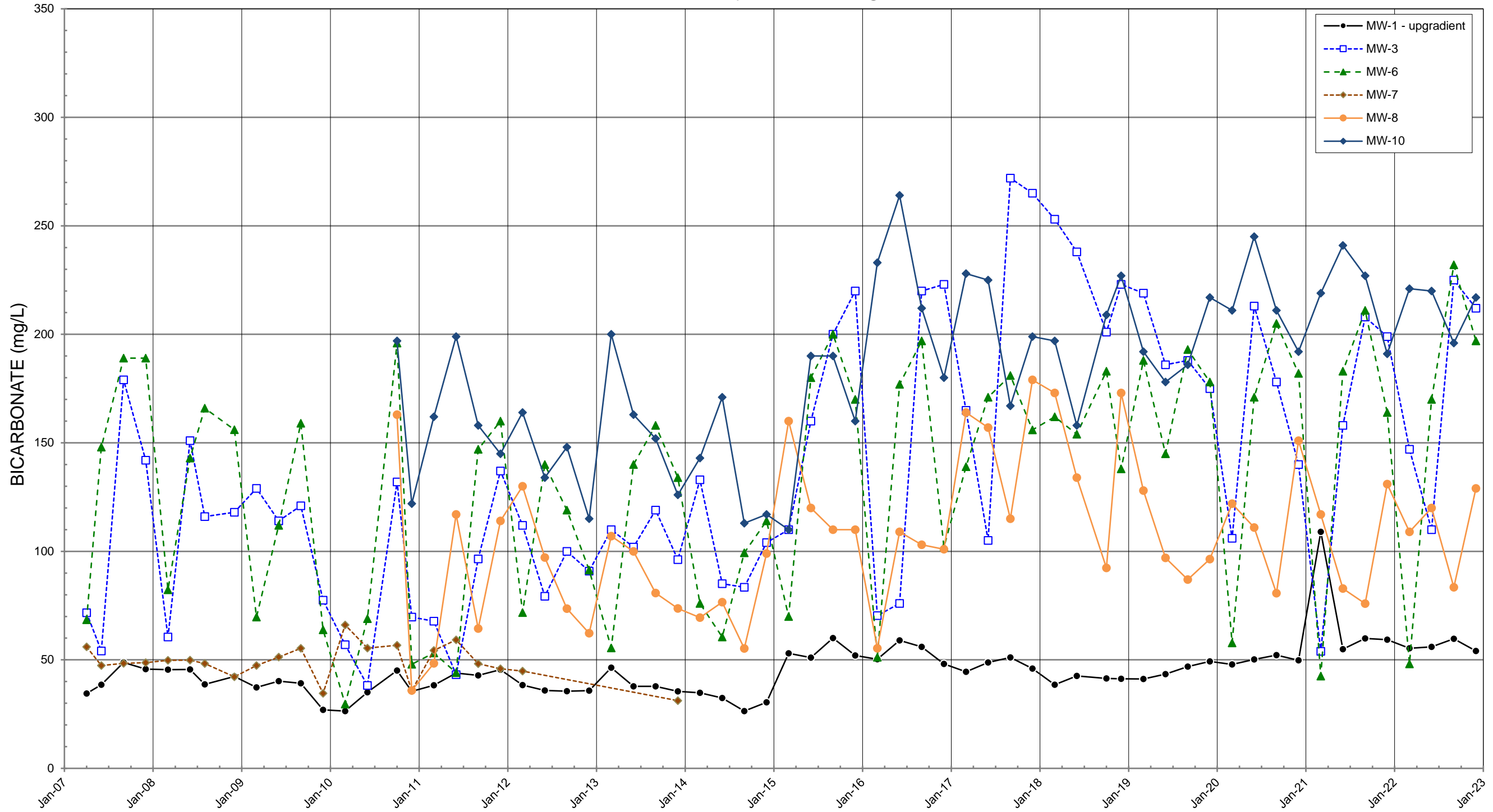


# OLALLA LANDFILL

## Quarterly Monitoring Data (most recent five years)



# OLALLA LANDFILL Quarterly Monitoring Data



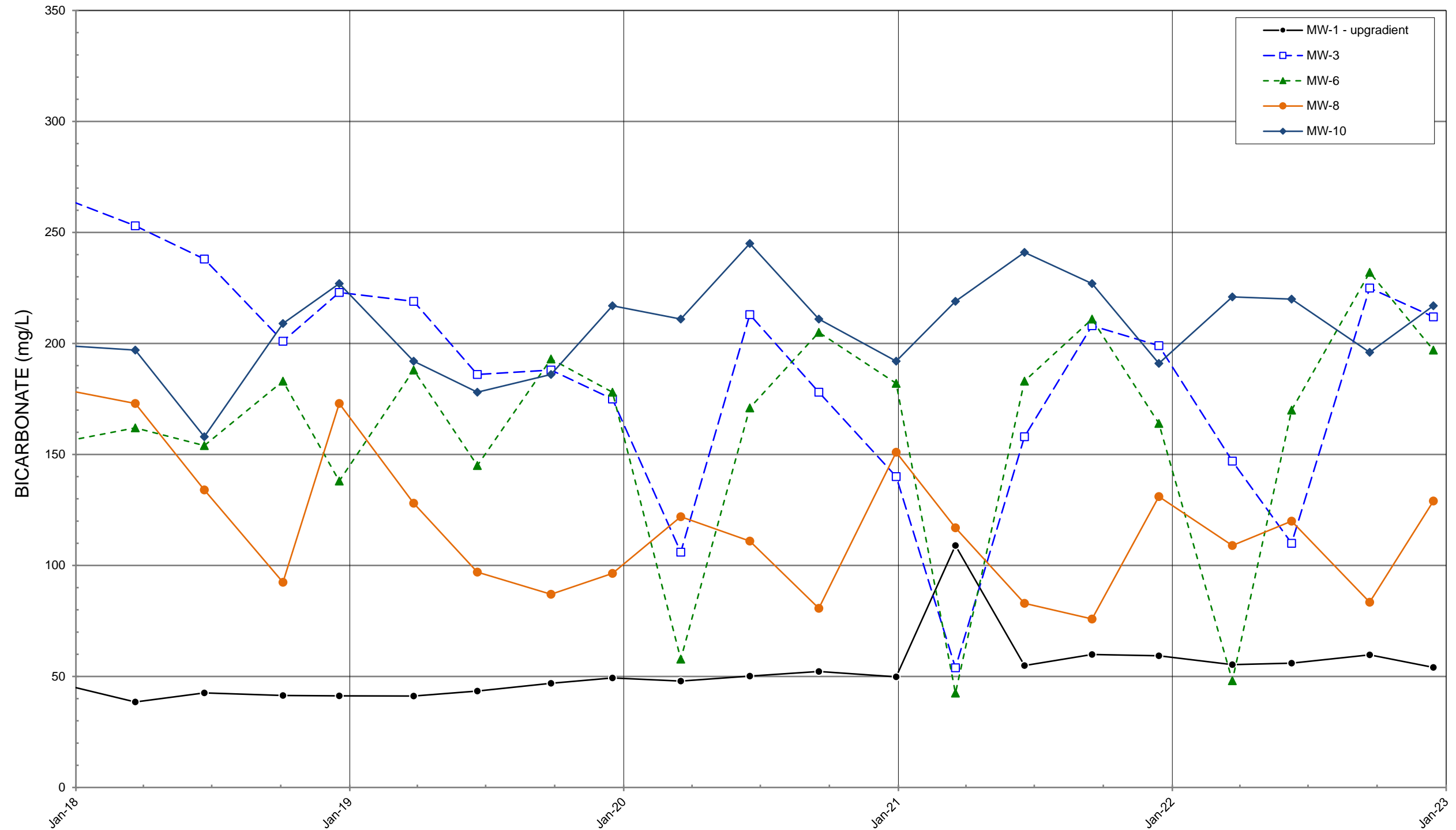
No Primary or Secondary Drinking Water Standard (DWS) Exists  
No Primary or Secondary Groundwater Standard (GWS) Exists

DATE

BICARBONATE  
(Analysis started in 2007)

# OLALLA LANDFILL

## Quarterly Monitoring Data (most recent five years)

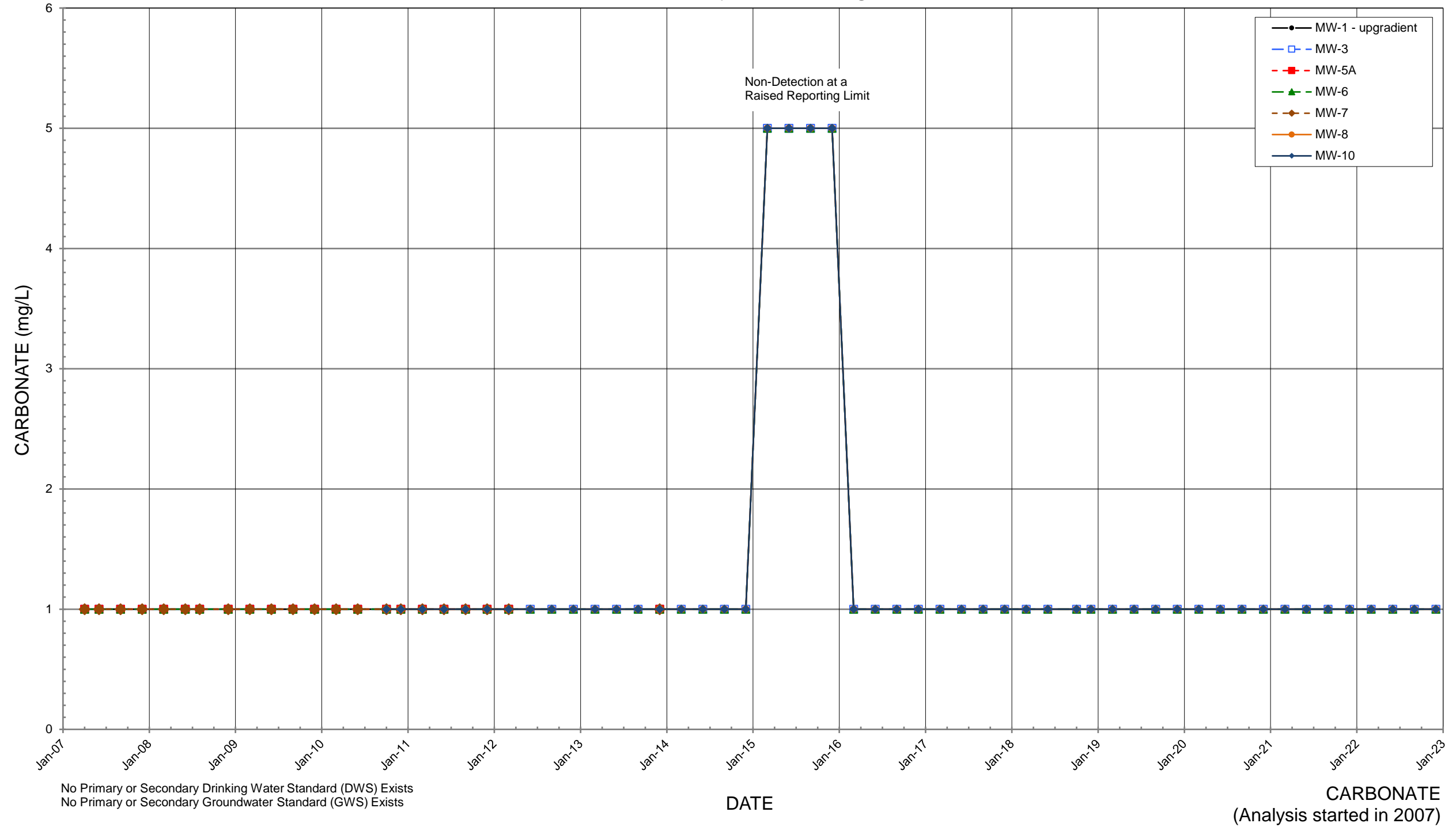


No Primary or Secondary Drinking Water Standard (DWS) Exists  
 No Primary or Secondary Groundwater Standard (GWS) Exists

DATE

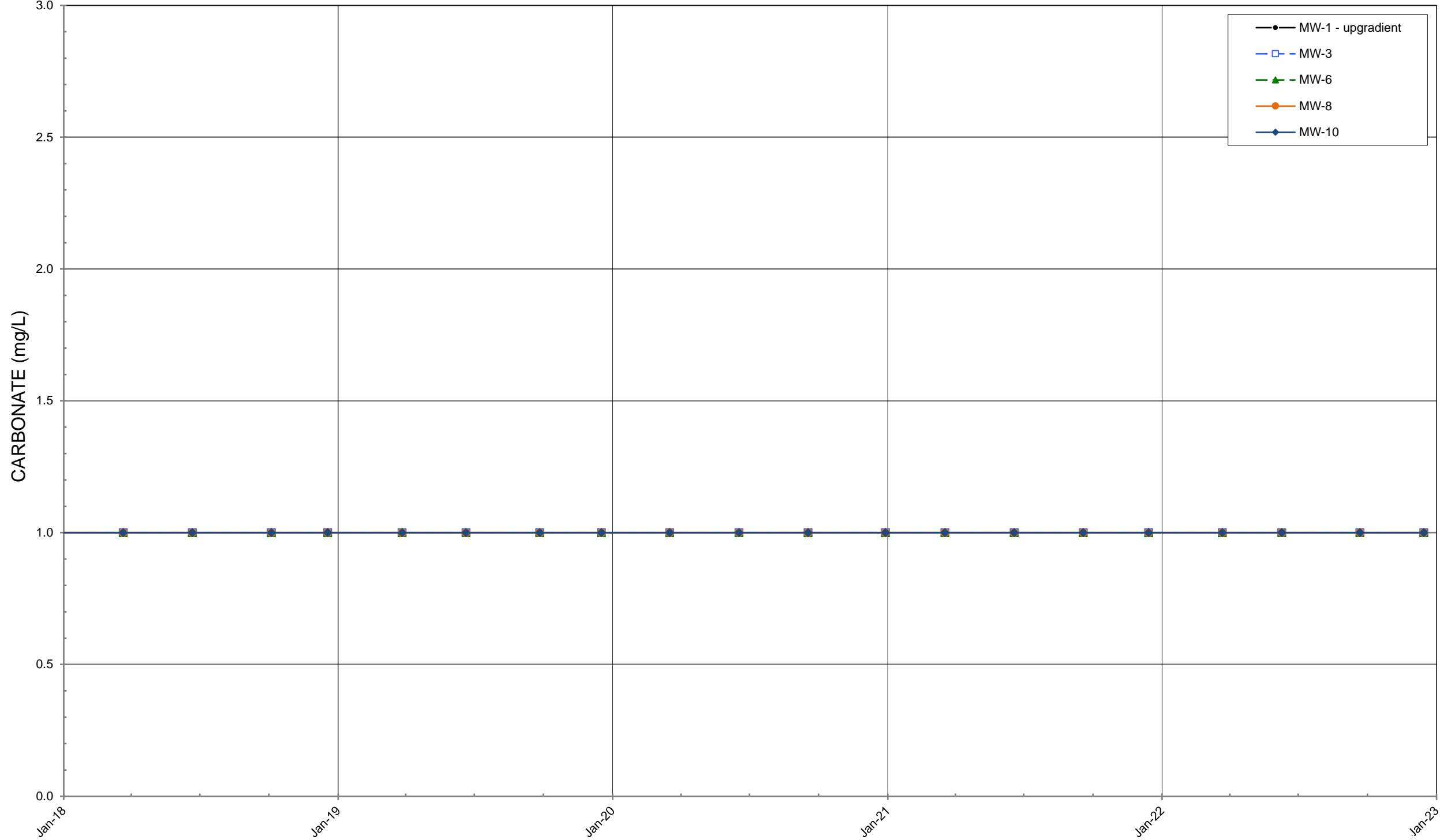
BICARBONATE  
(RECENT)

# OLALLA LANDFILL Quarterly Monitoring Data



# OLALLA LANDFILL

## Quarterly Monitoring Data (most recent five years)

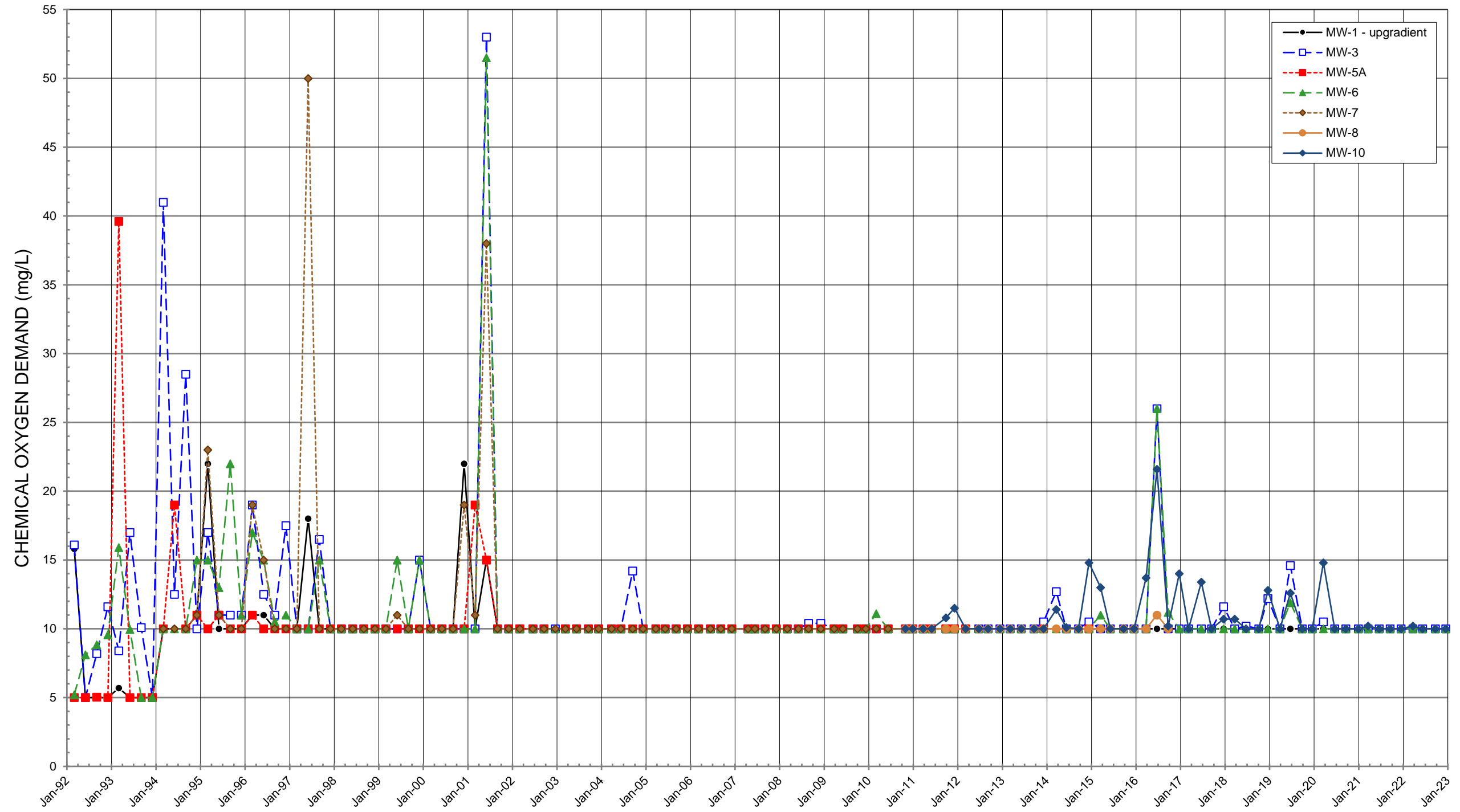


No Primary or Secondary Drinking Water Standard (DWS) Exists  
No Primary or Secondary Groundwater Standard (GWS) Exists

DATE

CARBONATE  
(RECENT)

# OLALLA LANDFILL Quarterly Monitoring Data



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

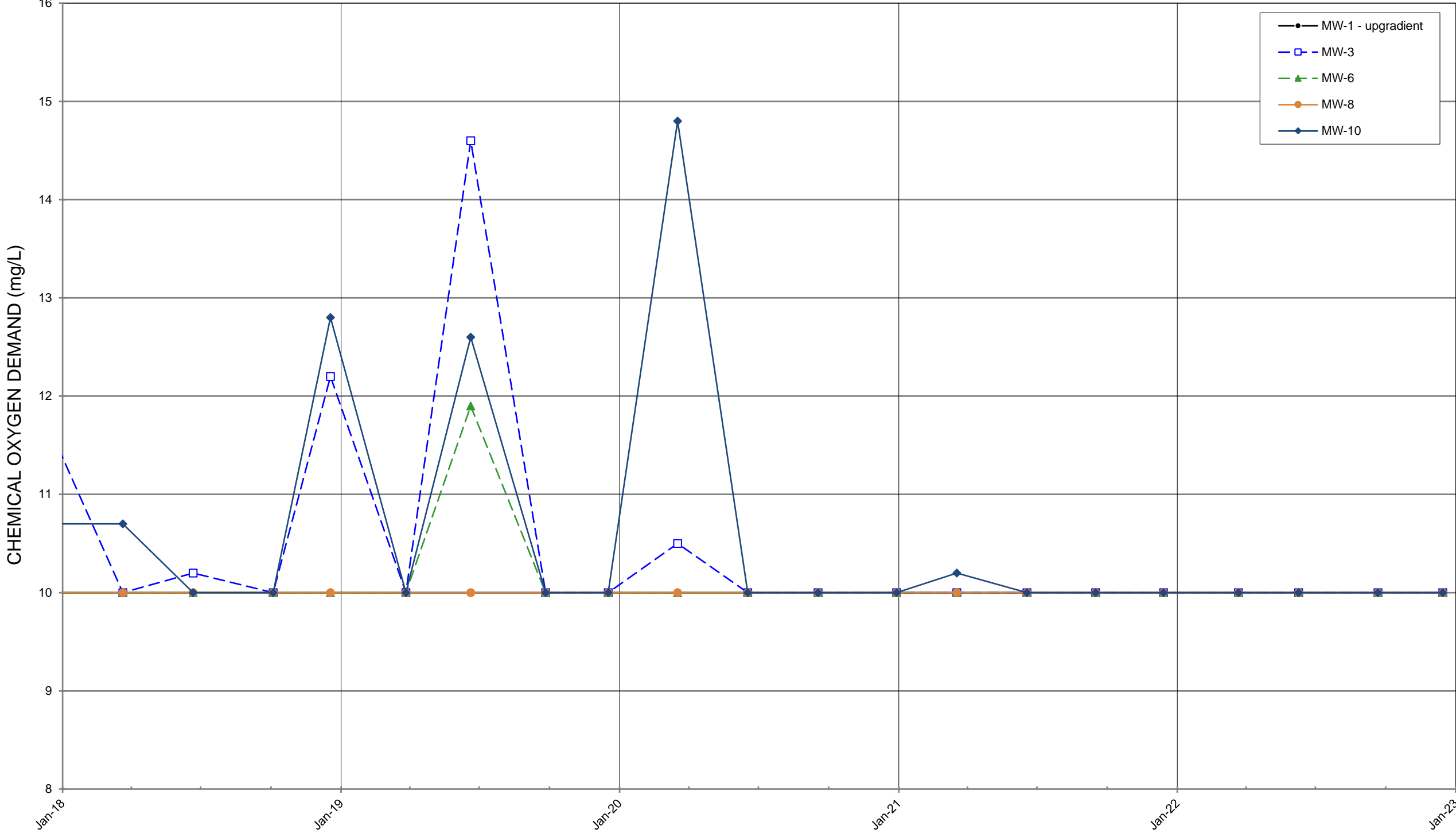
DATE

CHEMICAL OXYGEN DEMAND



# OLALLA LANDFILL

## Quarterly Monitoring Data (most recent five years)

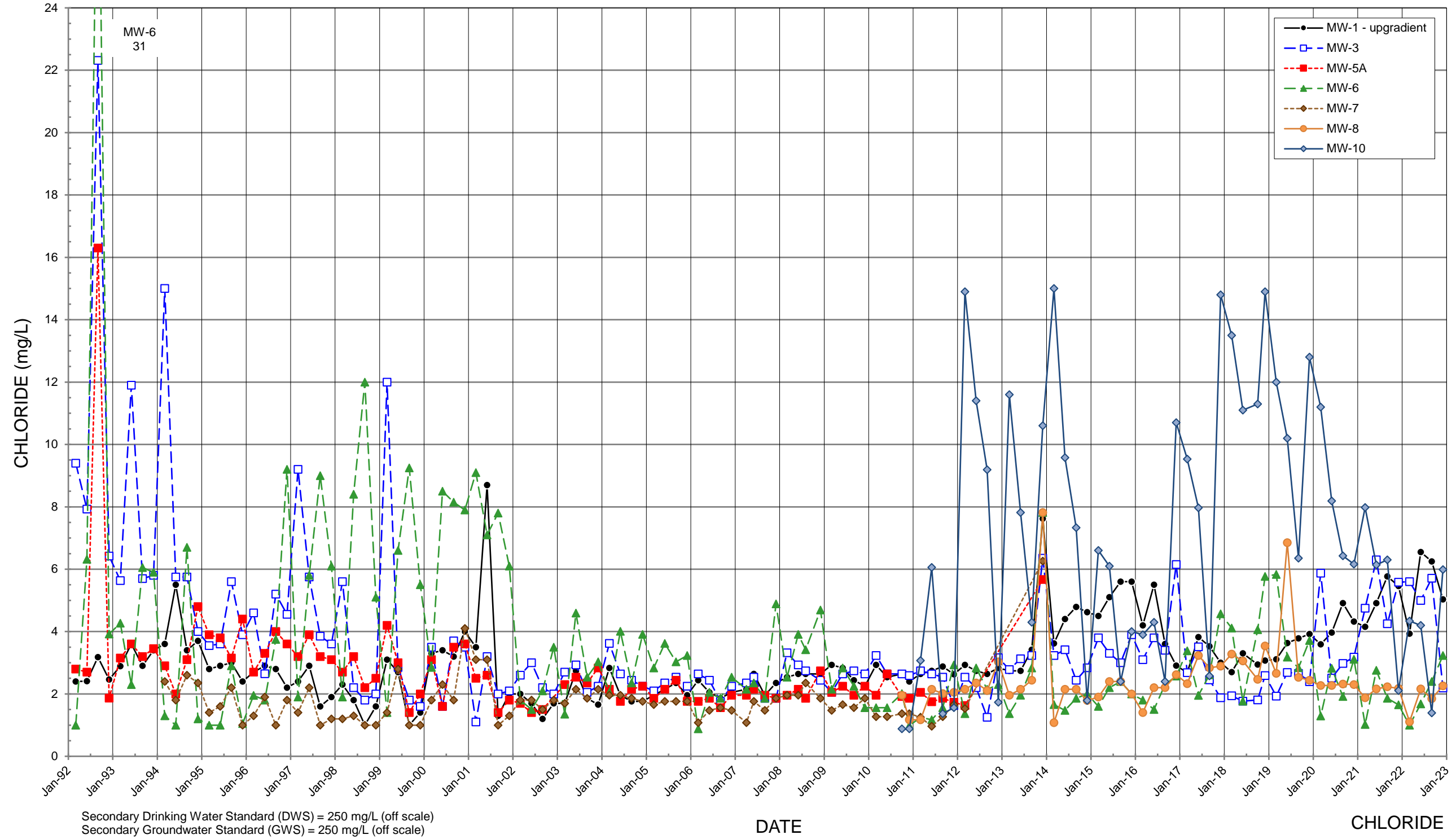


No Primary or Secondary Drinking Water Standard (DWS) Exists  
No Primary or Secondary Groundwater Standard (GWS) Exists

DATE

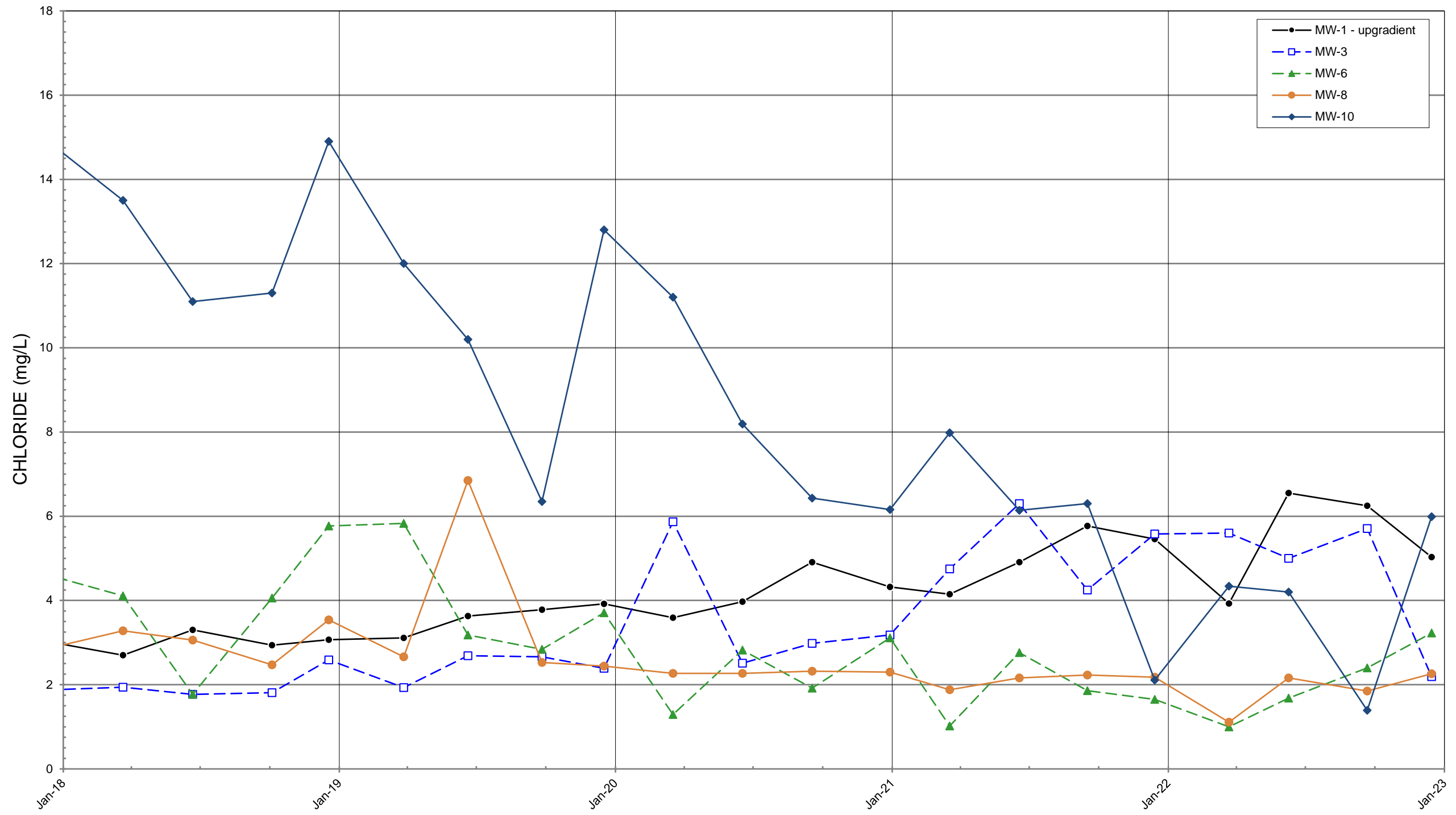
CHEMICAL OXYGEN DEMAND (RECENT)

# OLALLA LANDFILL Quarterly Monitoring Data



# OLALLA LANDFILL

## Quarterly Monitoring Data (most recent five years)



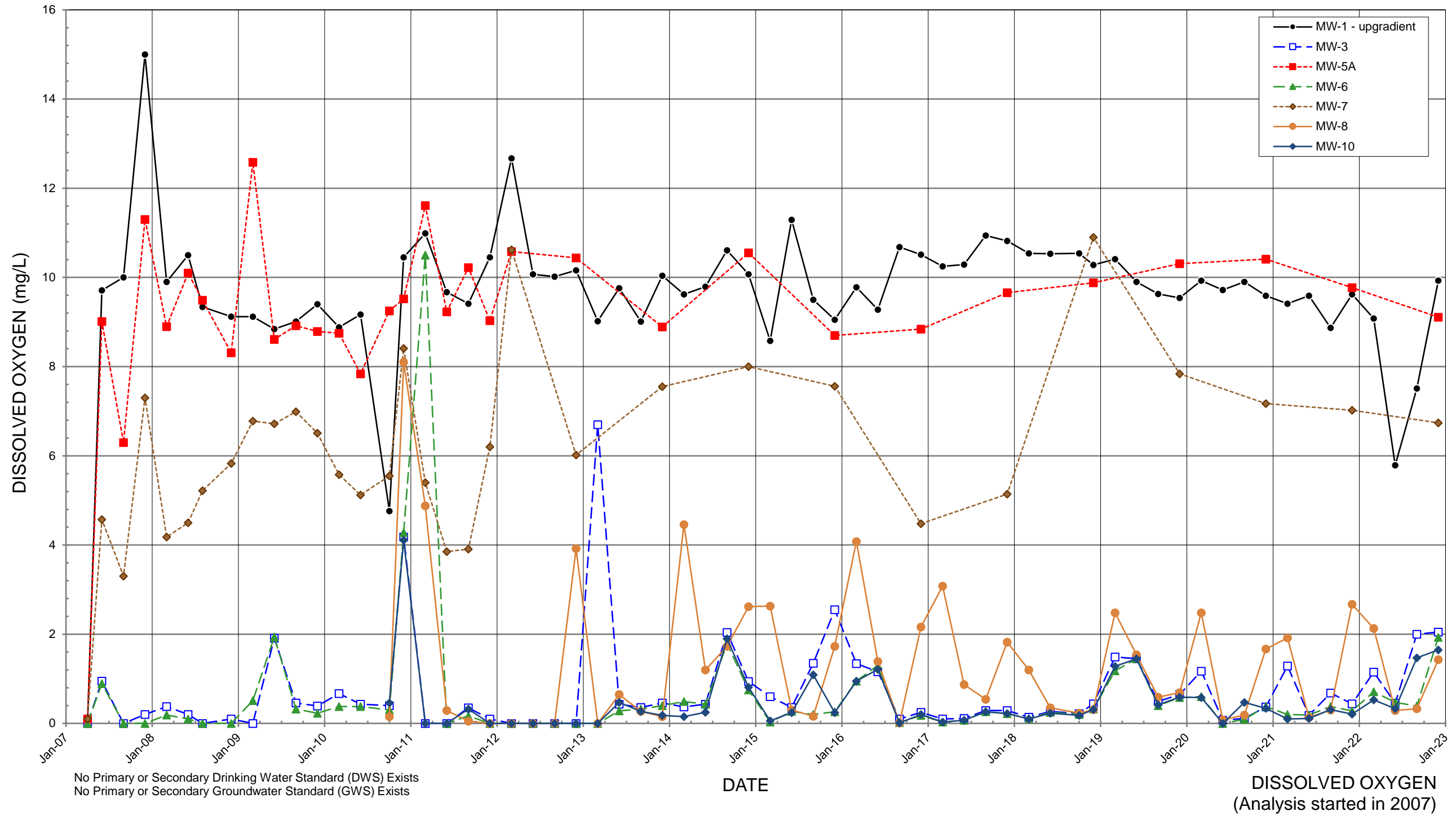
Secondary Drinking Water Standard (DWS) = 250 mg/L (off scale)  
 Secondary Groundwater Standard (GWS) = 250 mg/L (off scale)

DATE

CHLORIDE (RECENT)

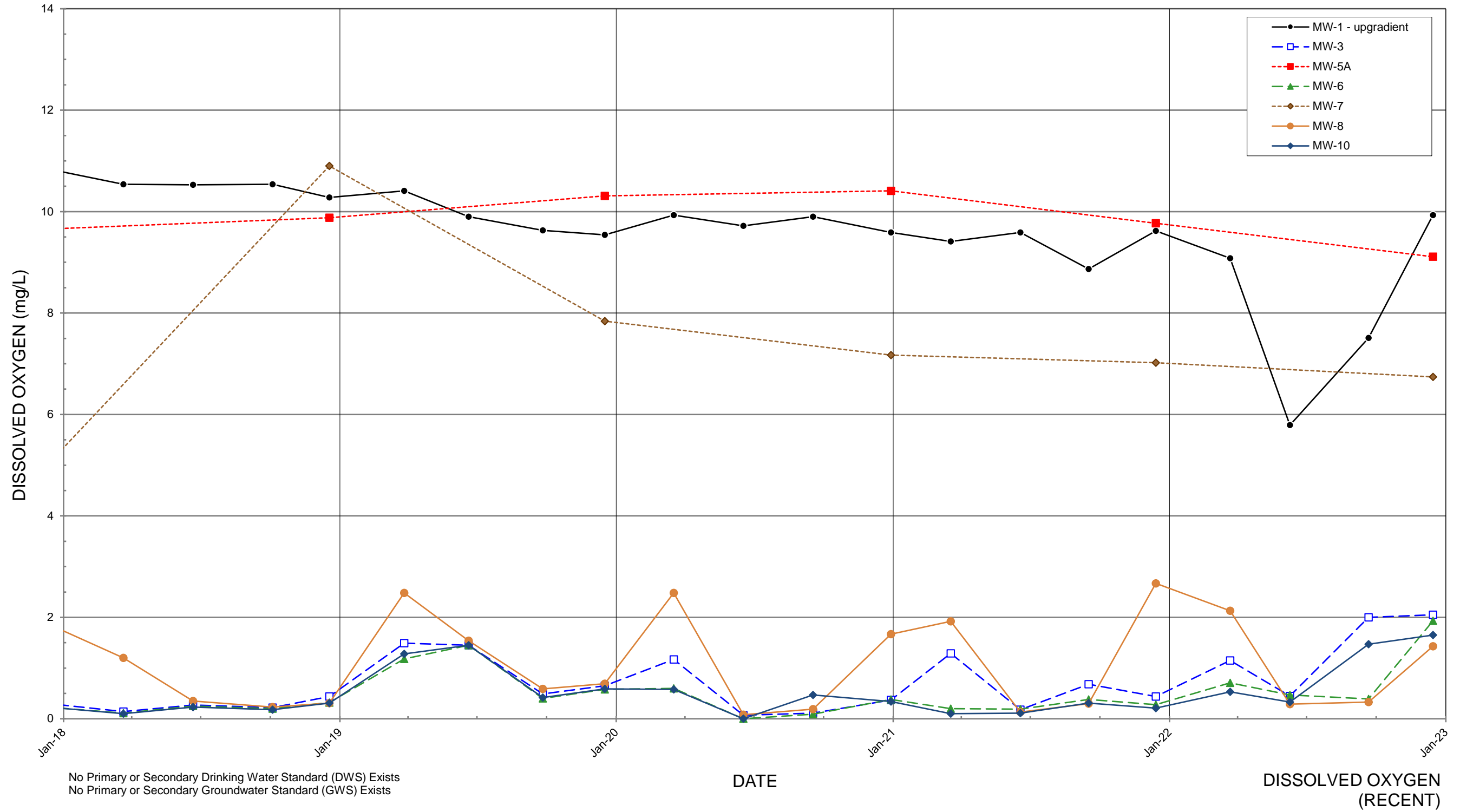
# OLALLA LANDFILL

## Quarterly Monitoring Data

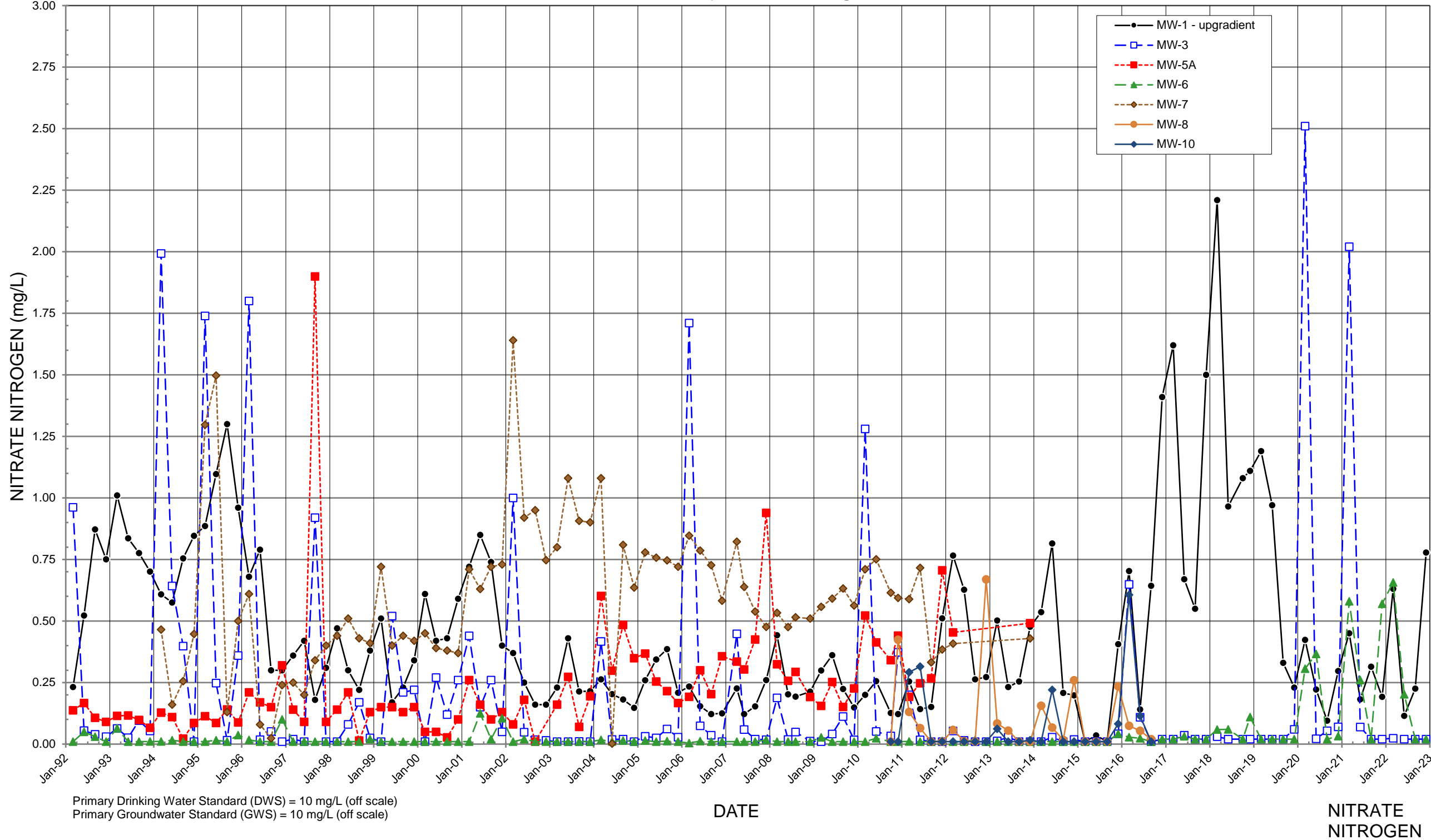


# OLALLA LANDFILL

## Quarterly Monitoring Data (most recent five years)

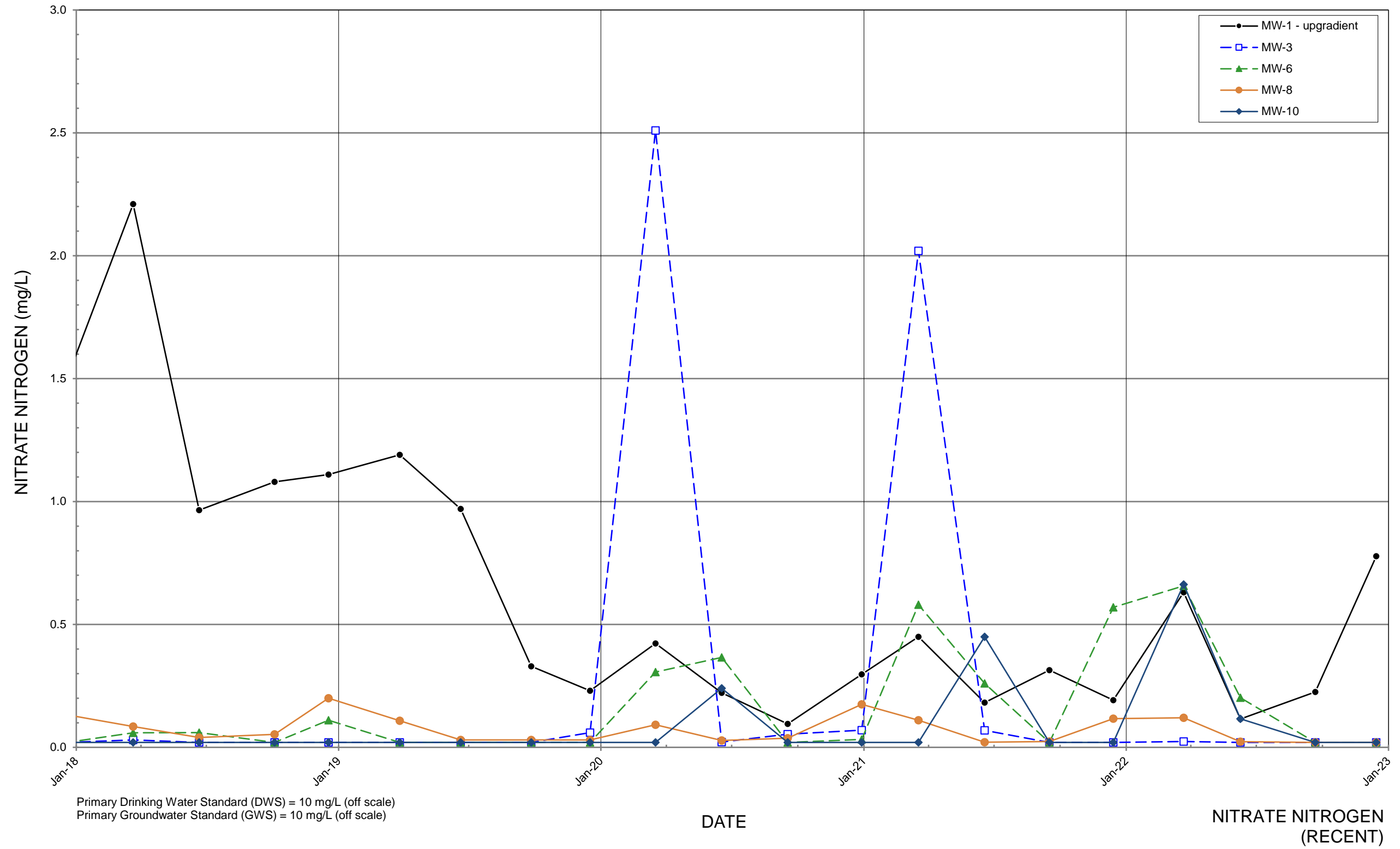


# OLALLA LANDFILL Quarterly Monitoring Data

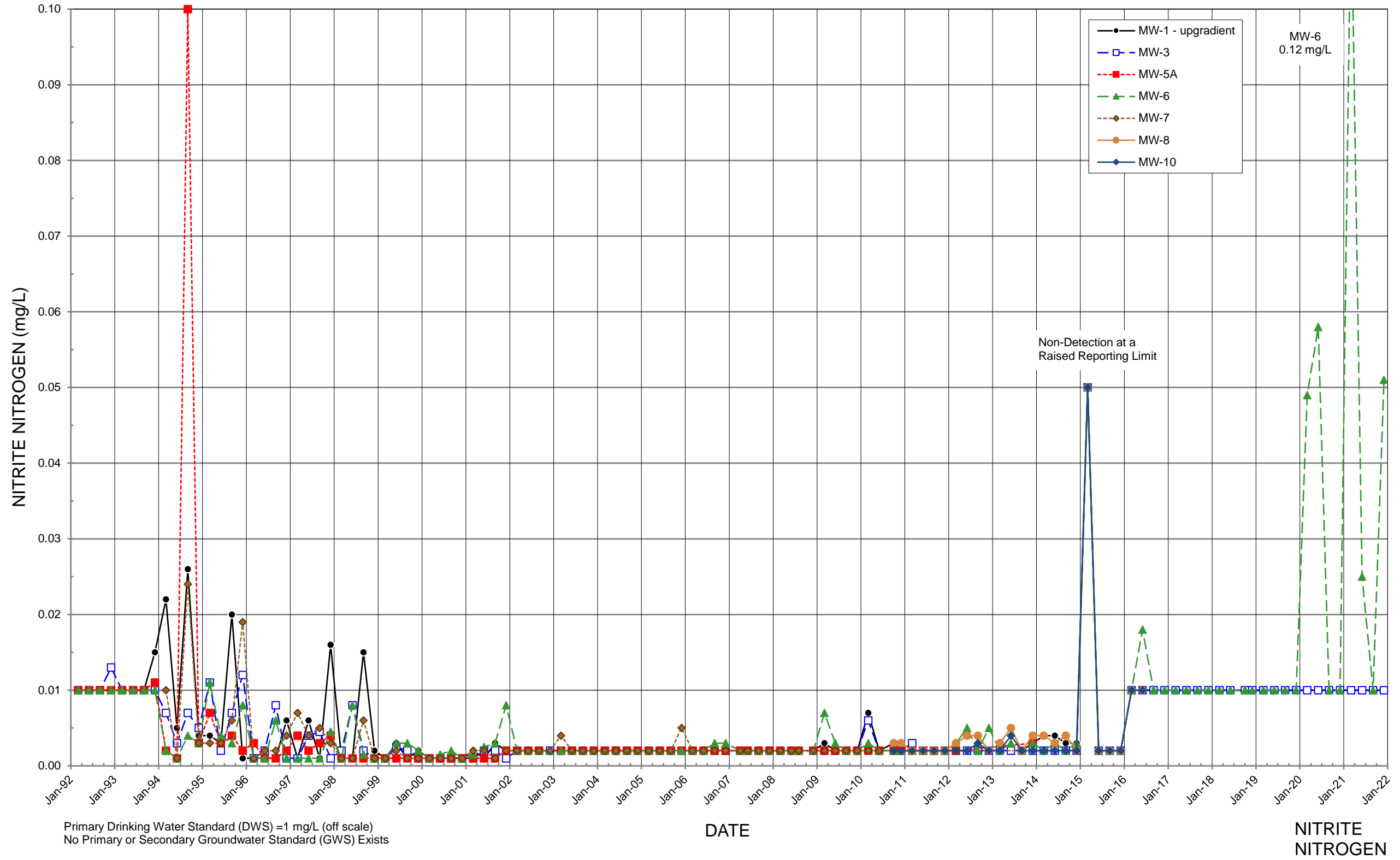


# OLALLA LANDFILL

## Quarterly Monitoring Data (most recent five years)



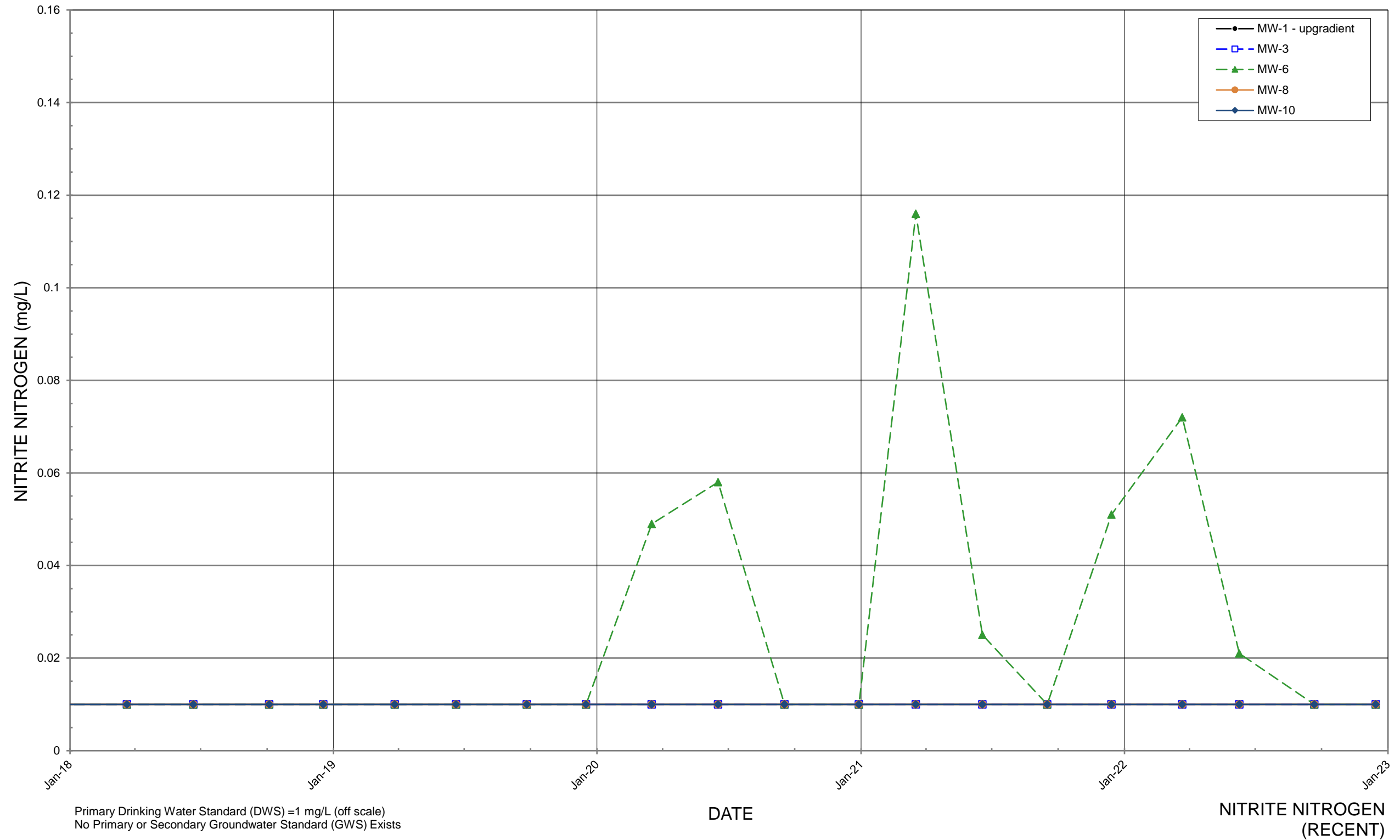
# OLALLA LANDFILL Quarterly Monitoring Data





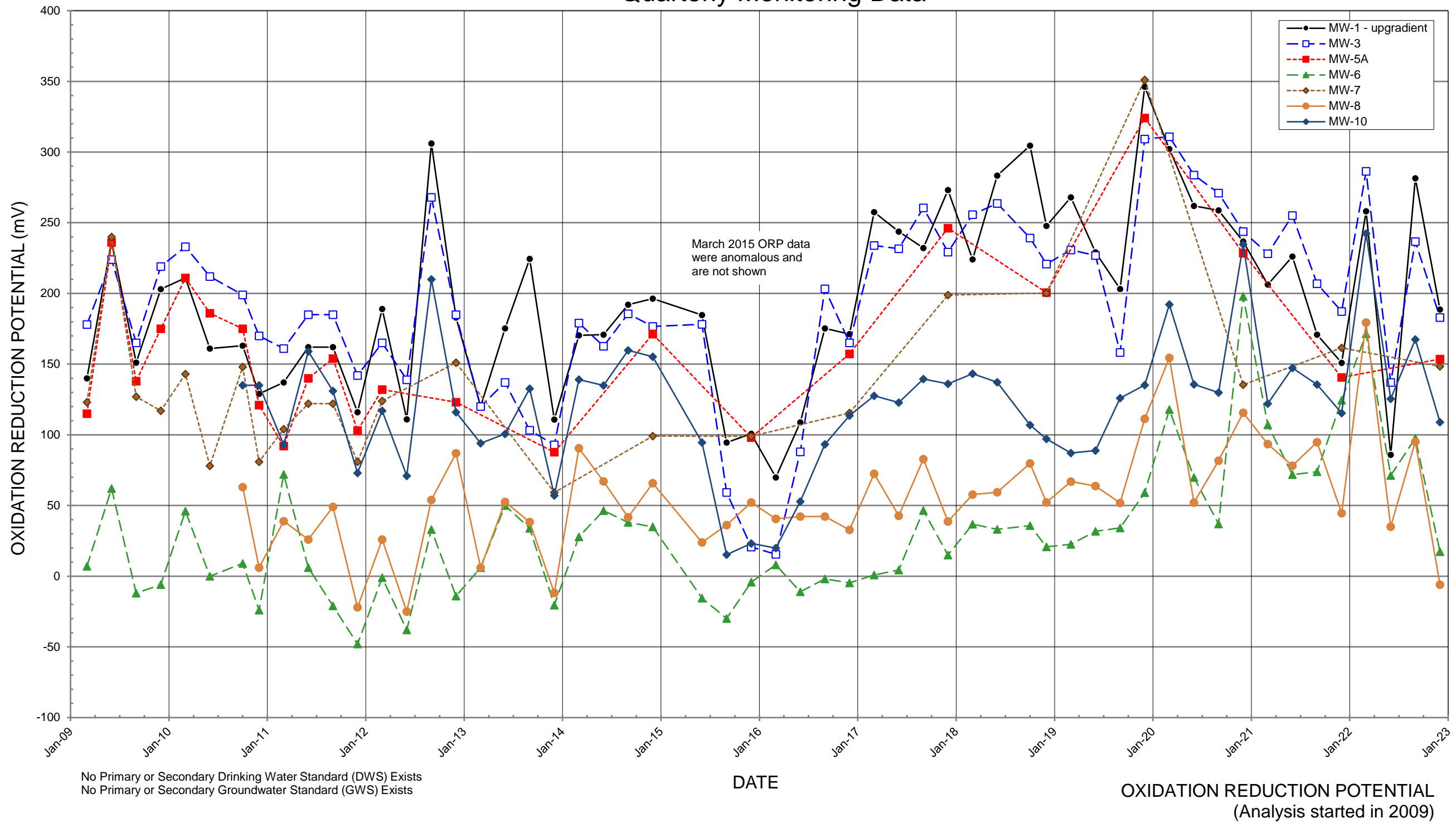
# OLALLA LANDFILL

## Quarterly Monitoring Data (most recent five years)



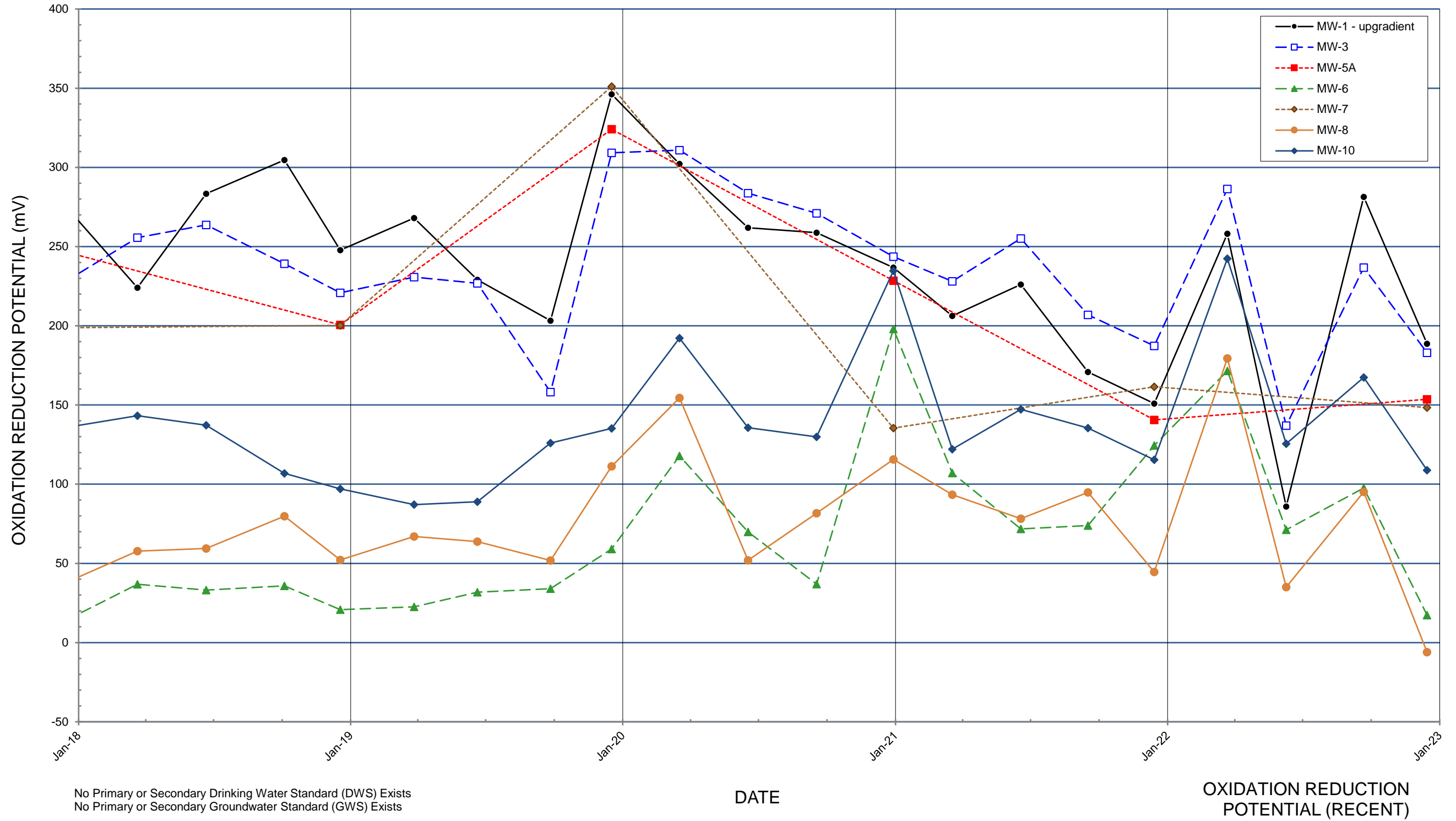
# OLALLA LANDFILL

## Quarterly Monitoring Data

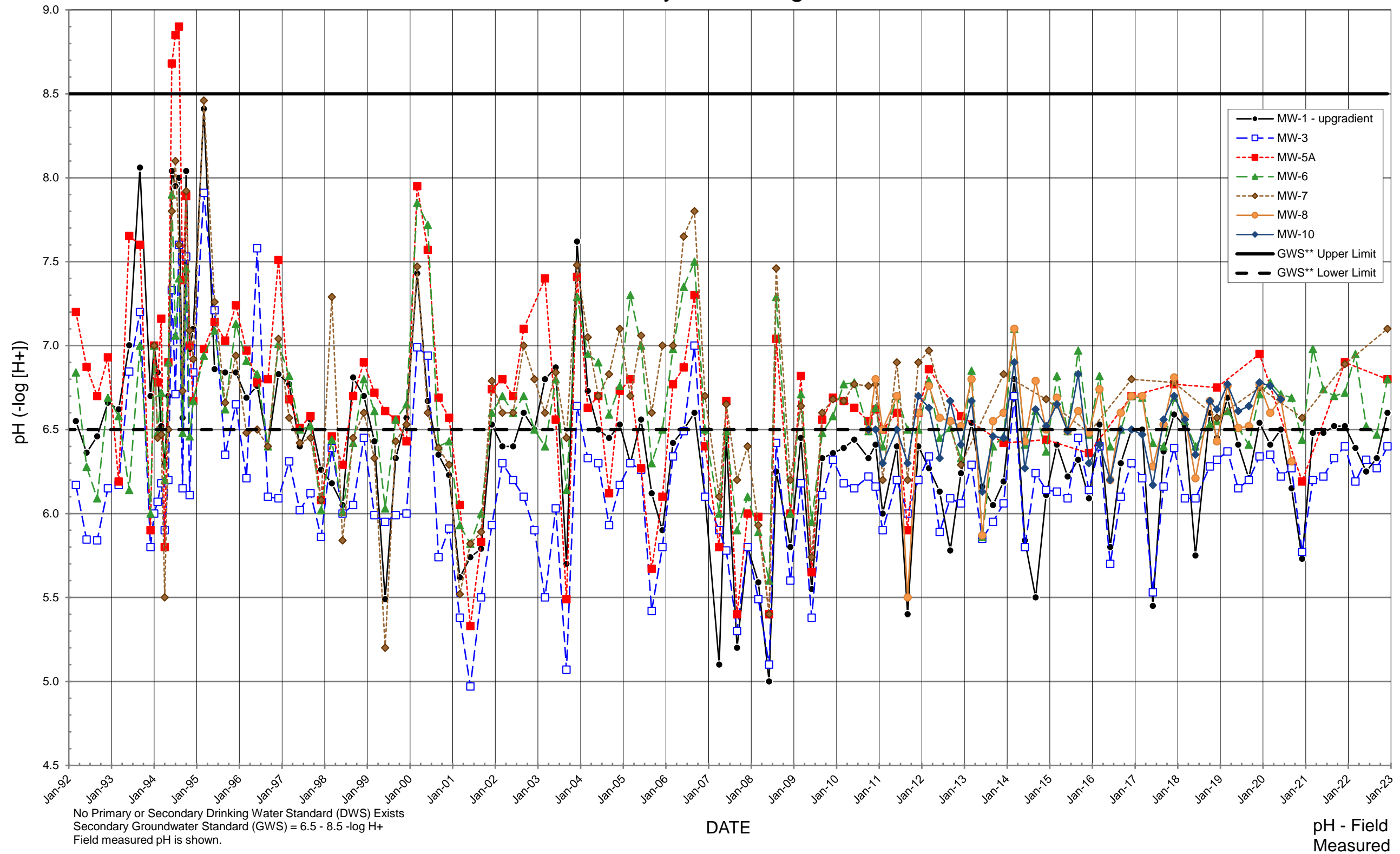


# OLALLA LANDFILL

## Quarterly Monitoring Data (most recent five years)

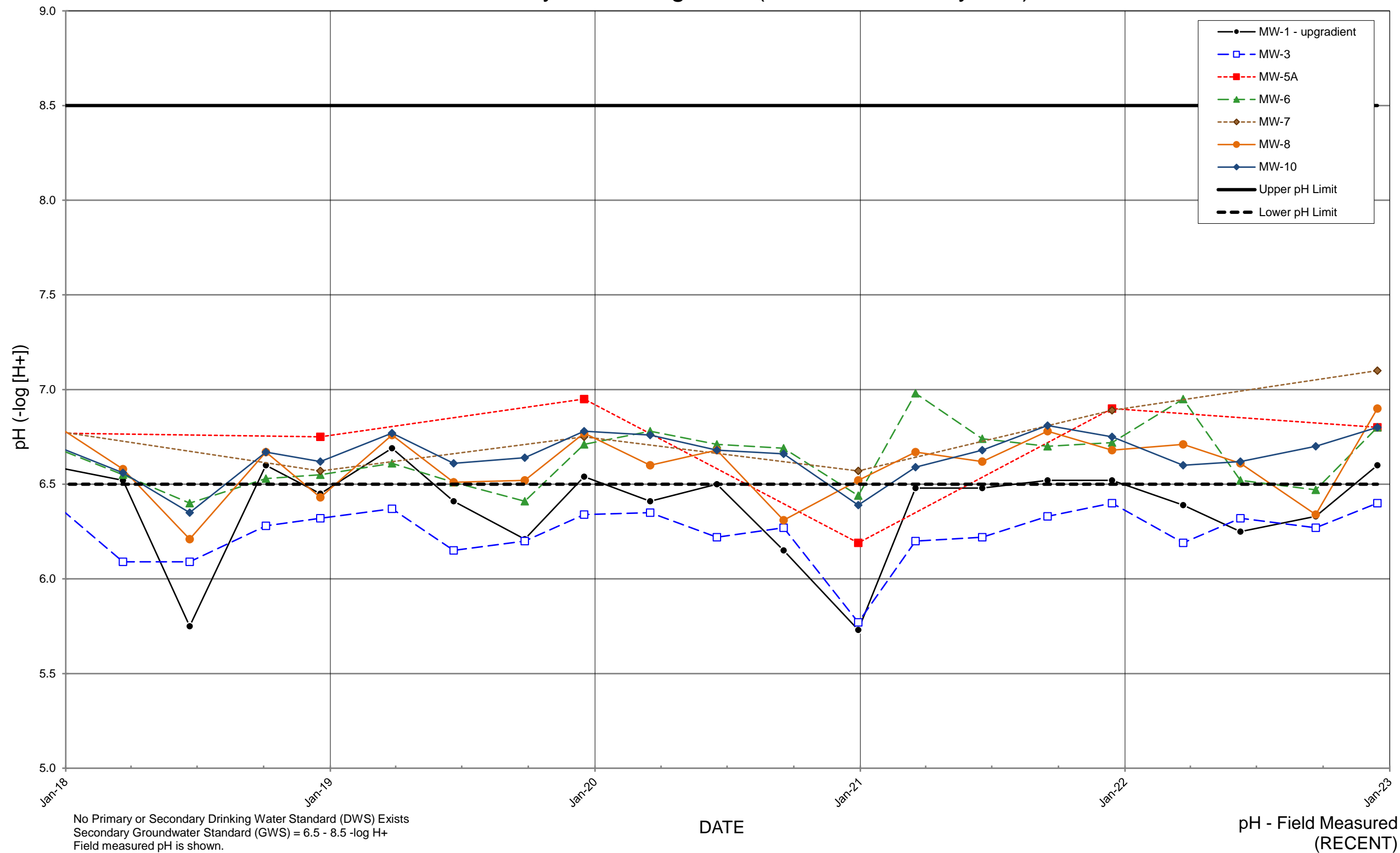


# OLALLA LANDFILL Quarterly Monitoring Data

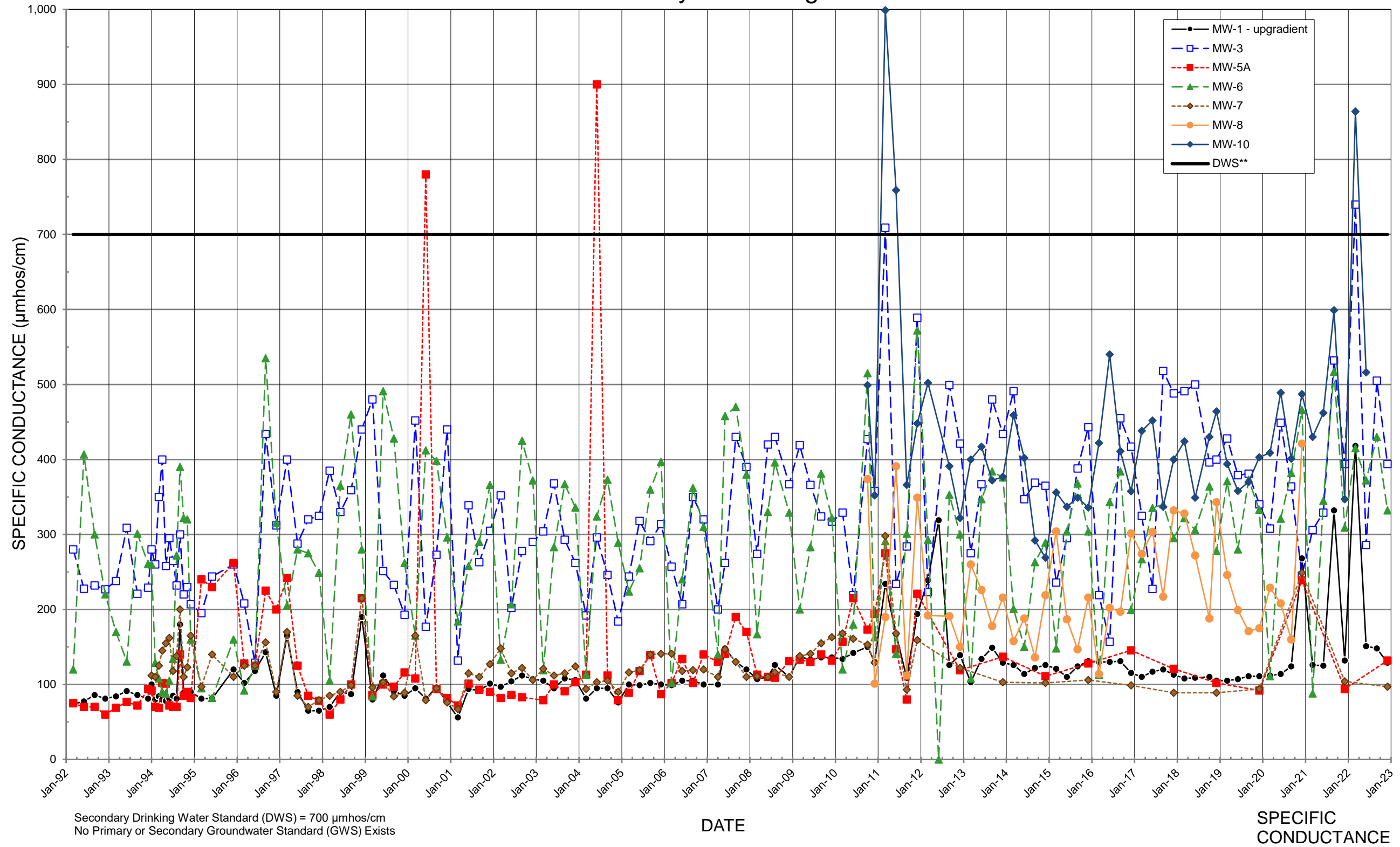


# OLALLA LANDFILL

## Quarterly Monitoring Data (most recent five years)

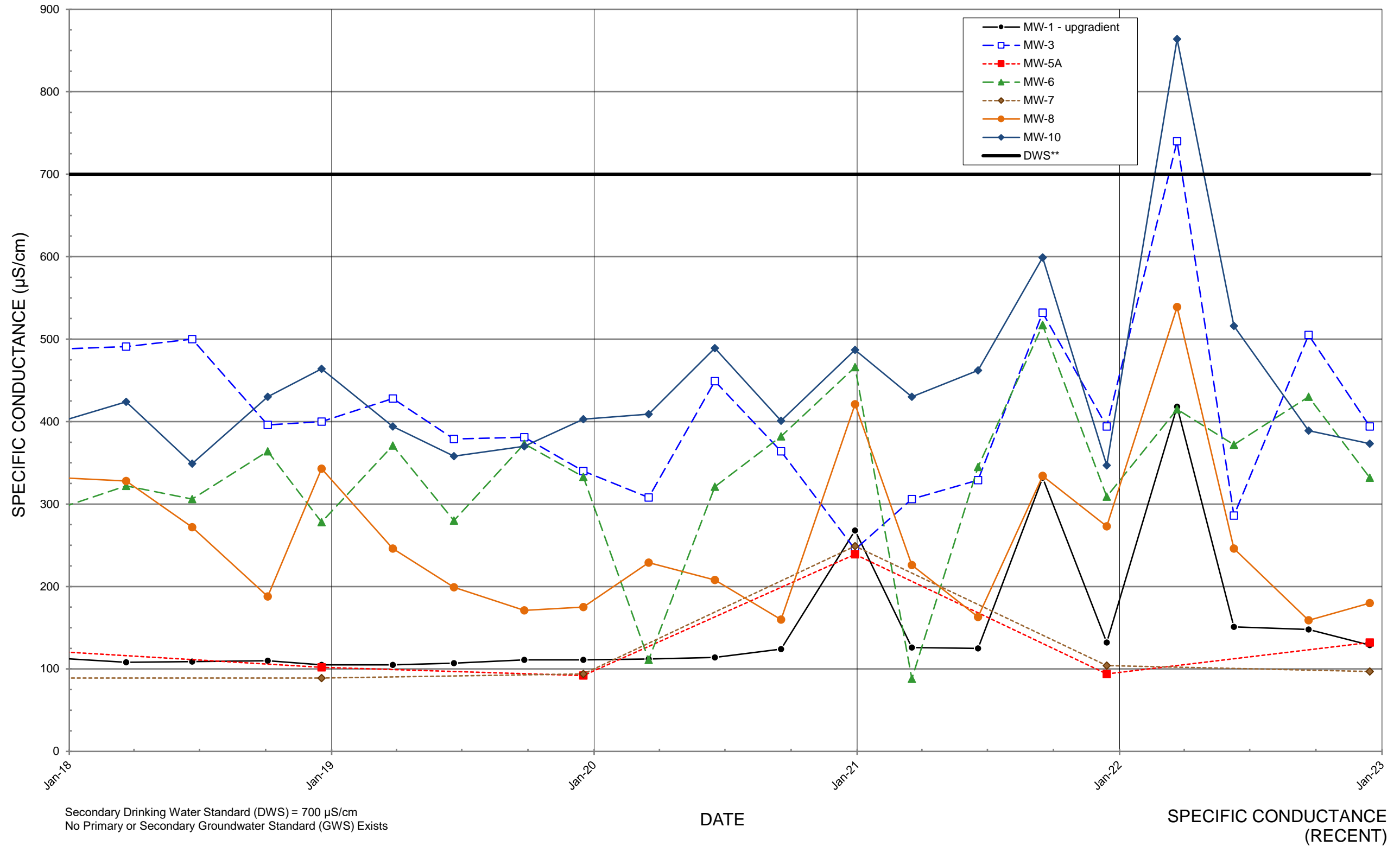


# OLALLA LANDFILL Quarterly Monitoring Data



# OLALLA LANDFILL

## Quarterly Monitoring Data (most recent five years)

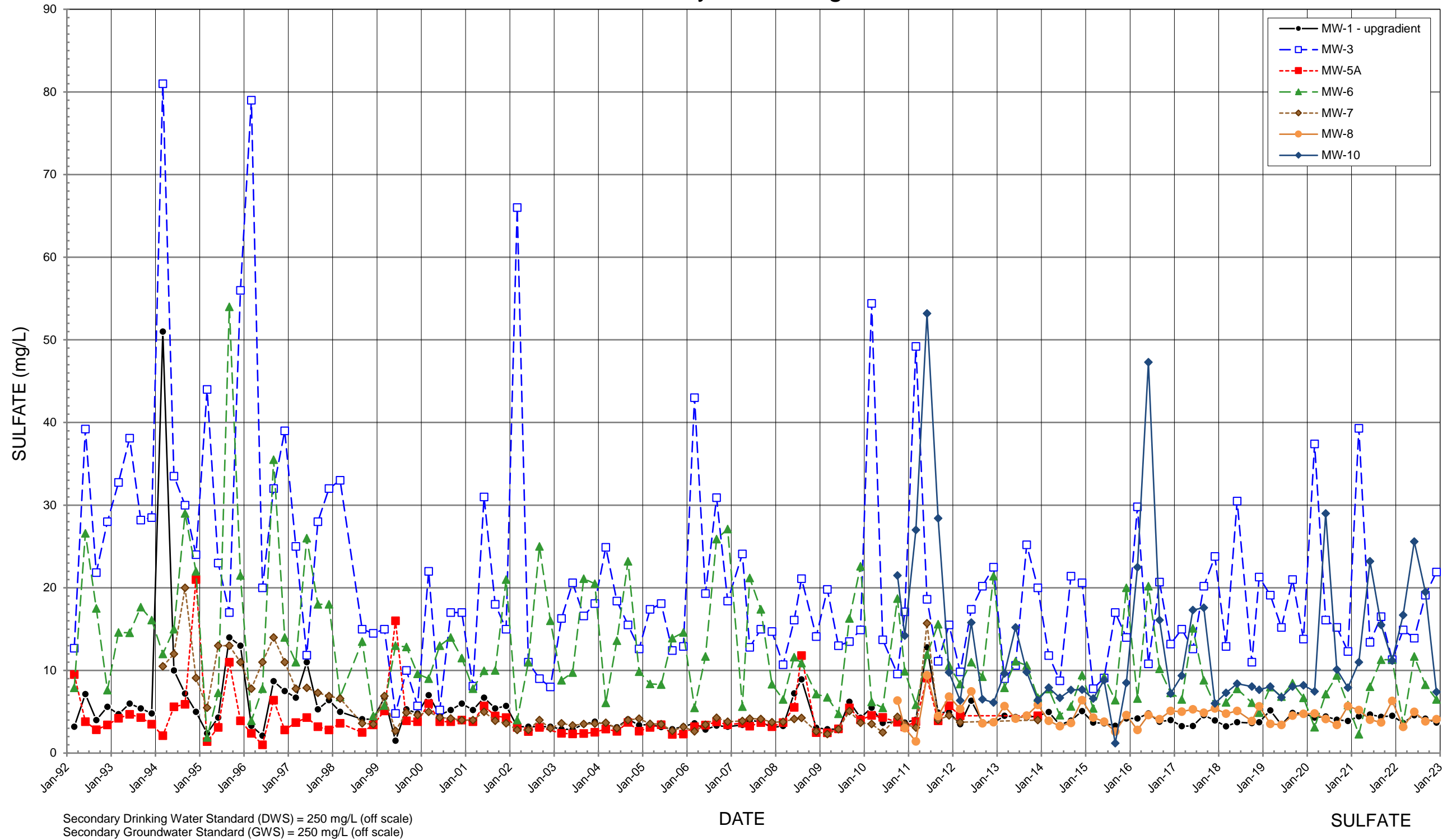


Secondary Drinking Water Standard (DWS) = 700 µS/cm  
 No Primary or Secondary Groundwater Standard (GWS) Exists

DATE

SPECIFIC CONDUCTANCE (RECENT)

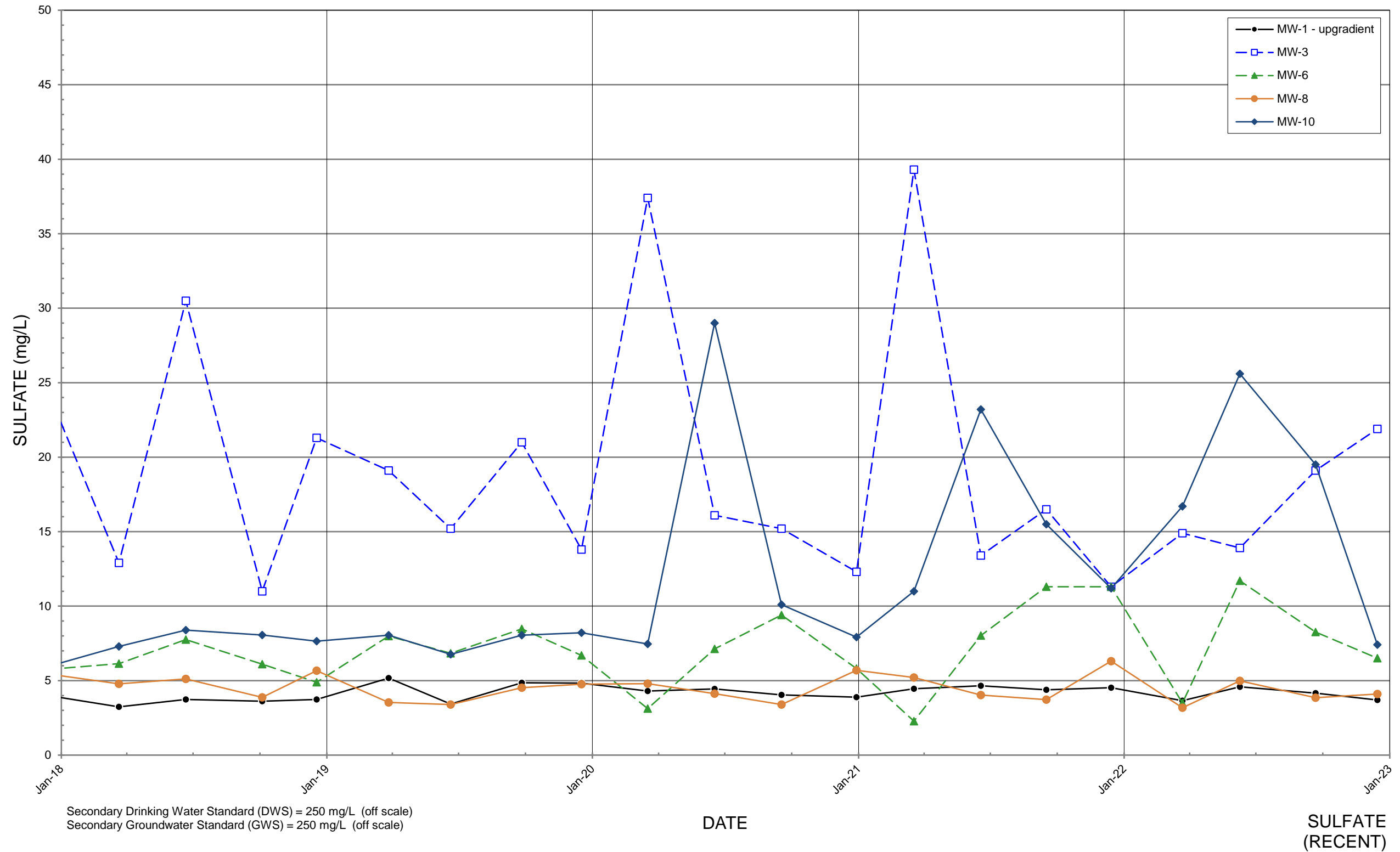
# OLALLA LANDFILL Quarterly Monitoring Data





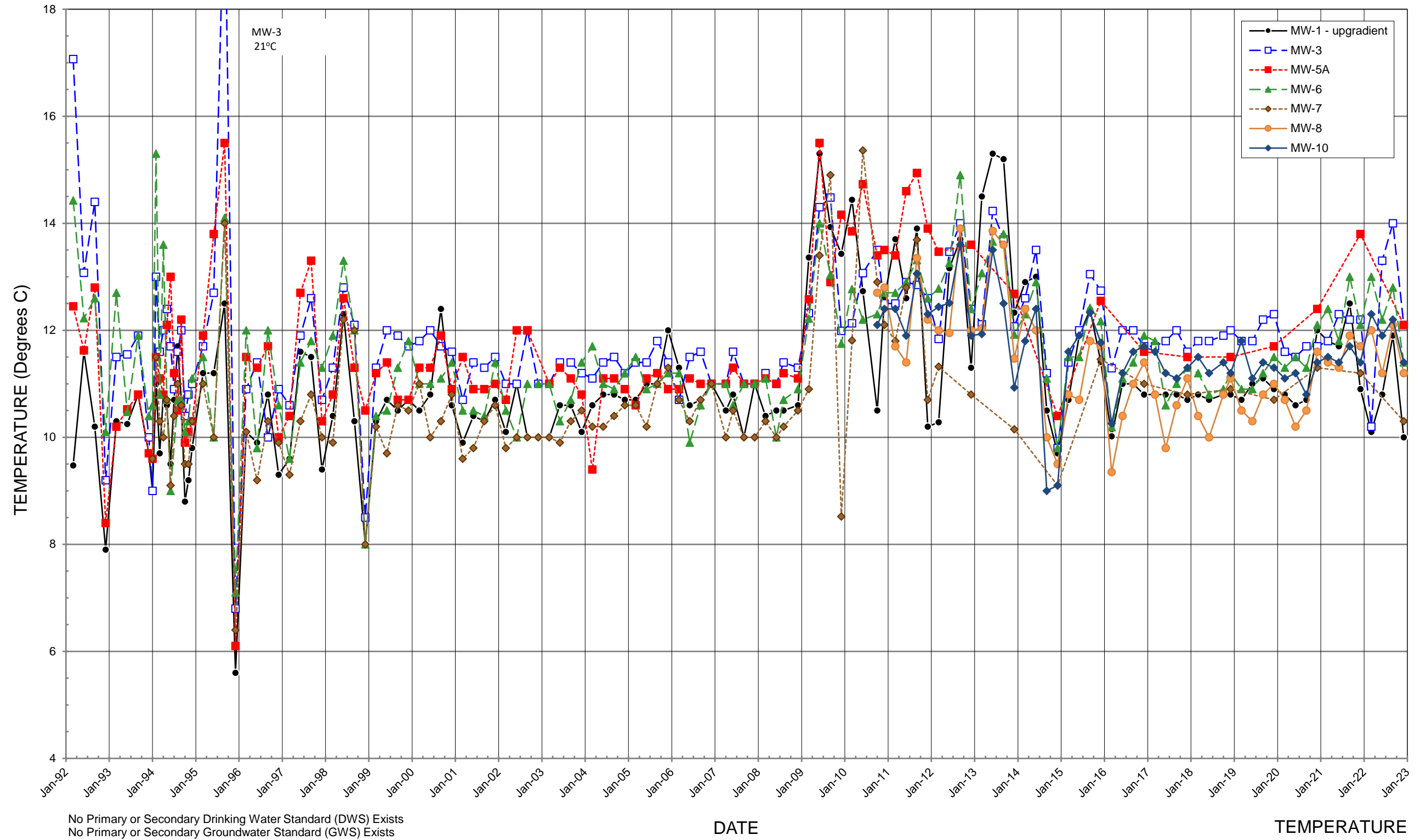
# OLALLA LANDFILL

## Quarterly Monitoring Data (most recent five years)



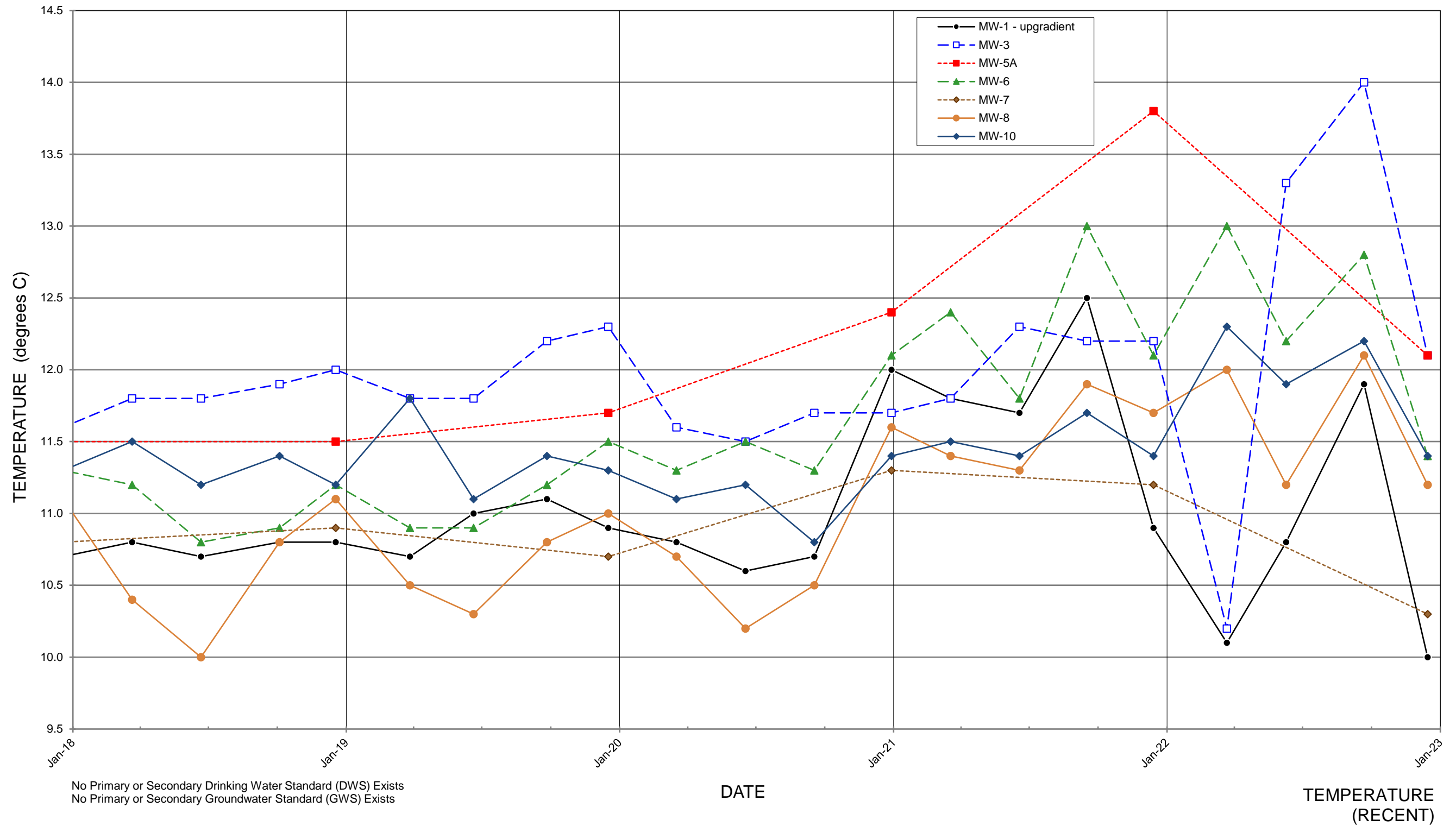
# OLALLA LANDFILL

## Quarterly Monitoring Data



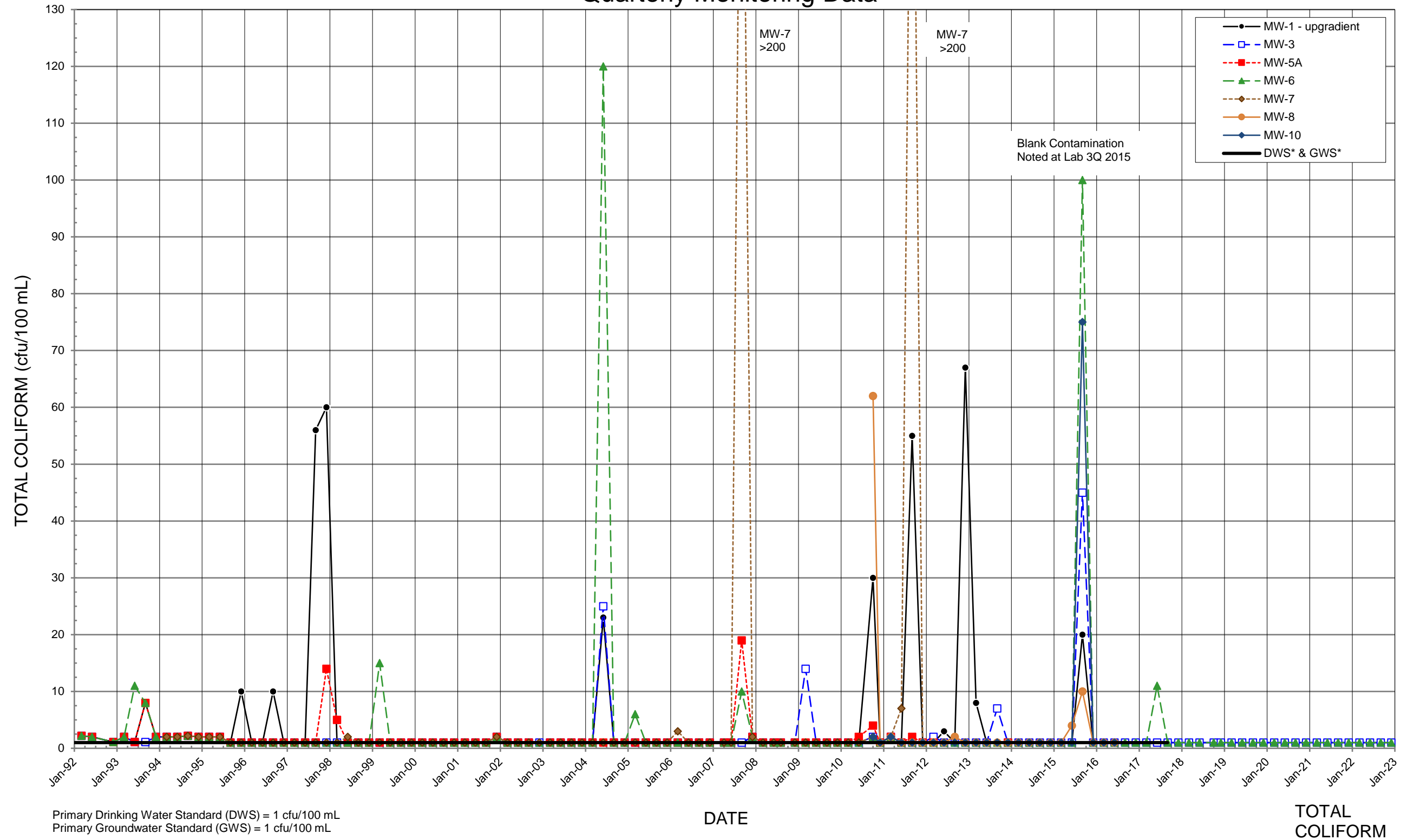
# OLALLA LANDFILL

## Quarterly Monitoring Data (most recent five years)



# OLALLA LANDFILL

## Quarterly Monitoring Data

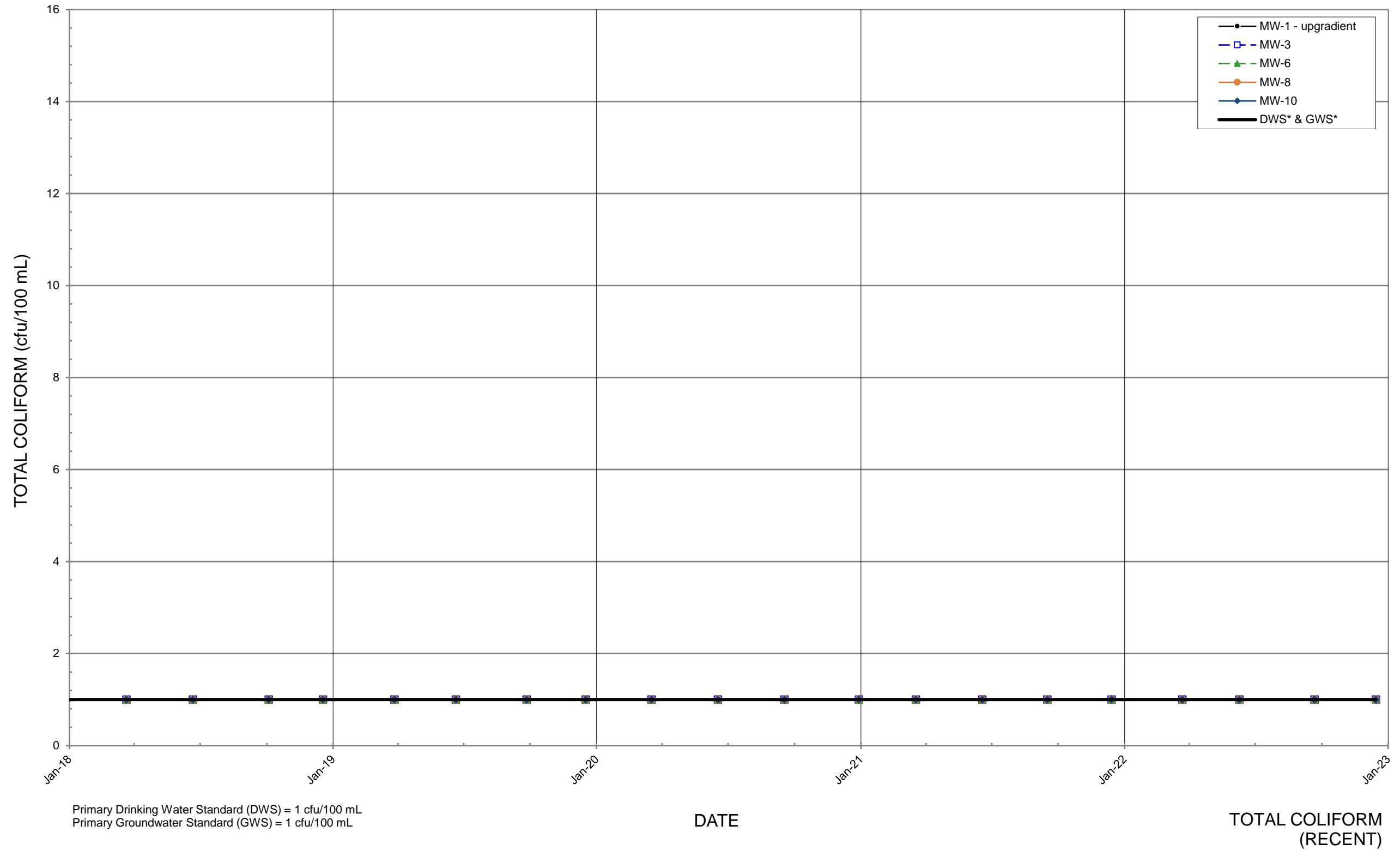


Primary Drinking Water Standard (DWS) = 1 cfu/100 mL  
 Primary Groundwater Standard (GWS) = 1 cfu/100 mL

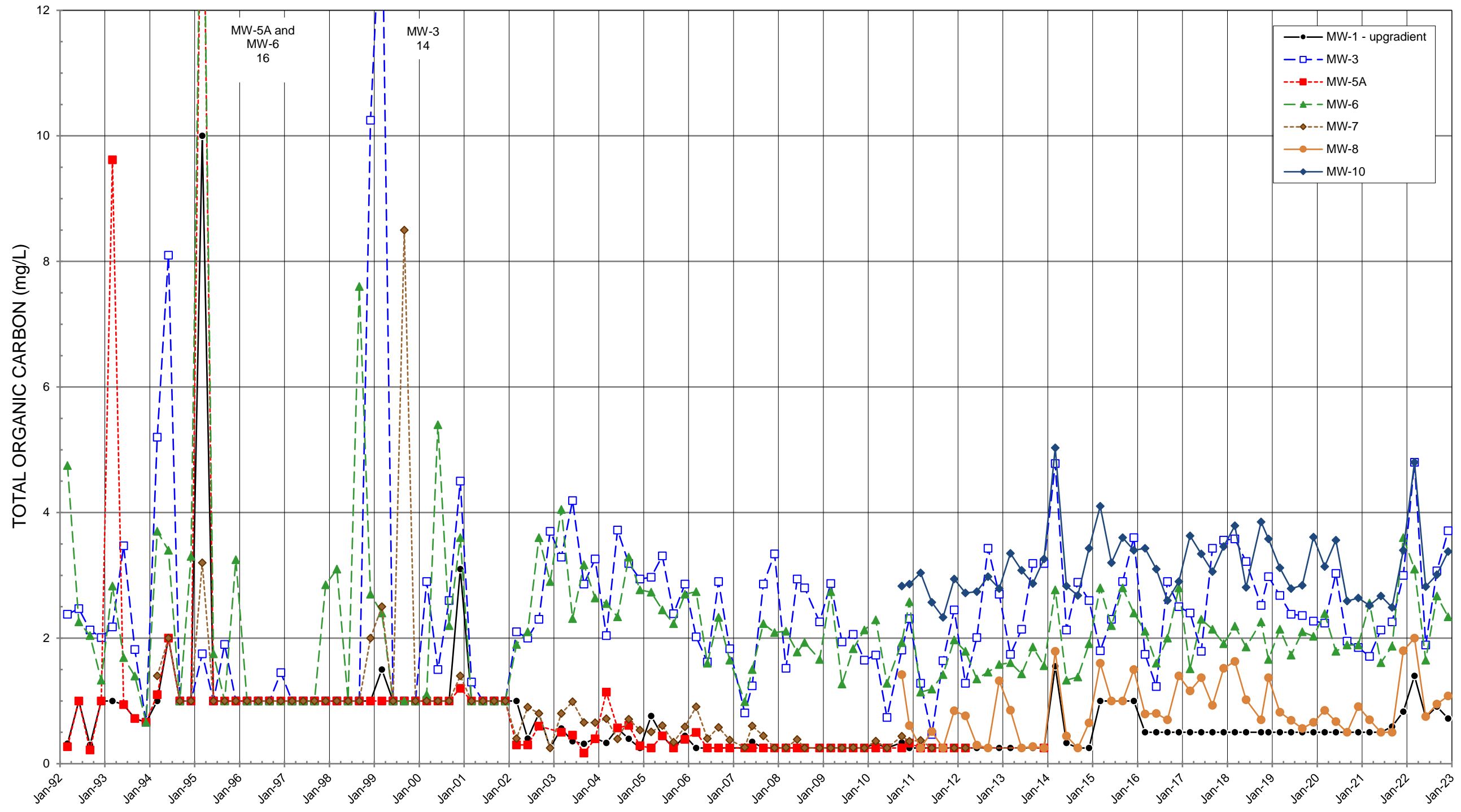
TOTAL COLIFORM

# OLALLA LANDFILL

## Quarterly Monitoring Data (most recent five years)



# OLALLA LANDFILL Quarterly Monitoring Data



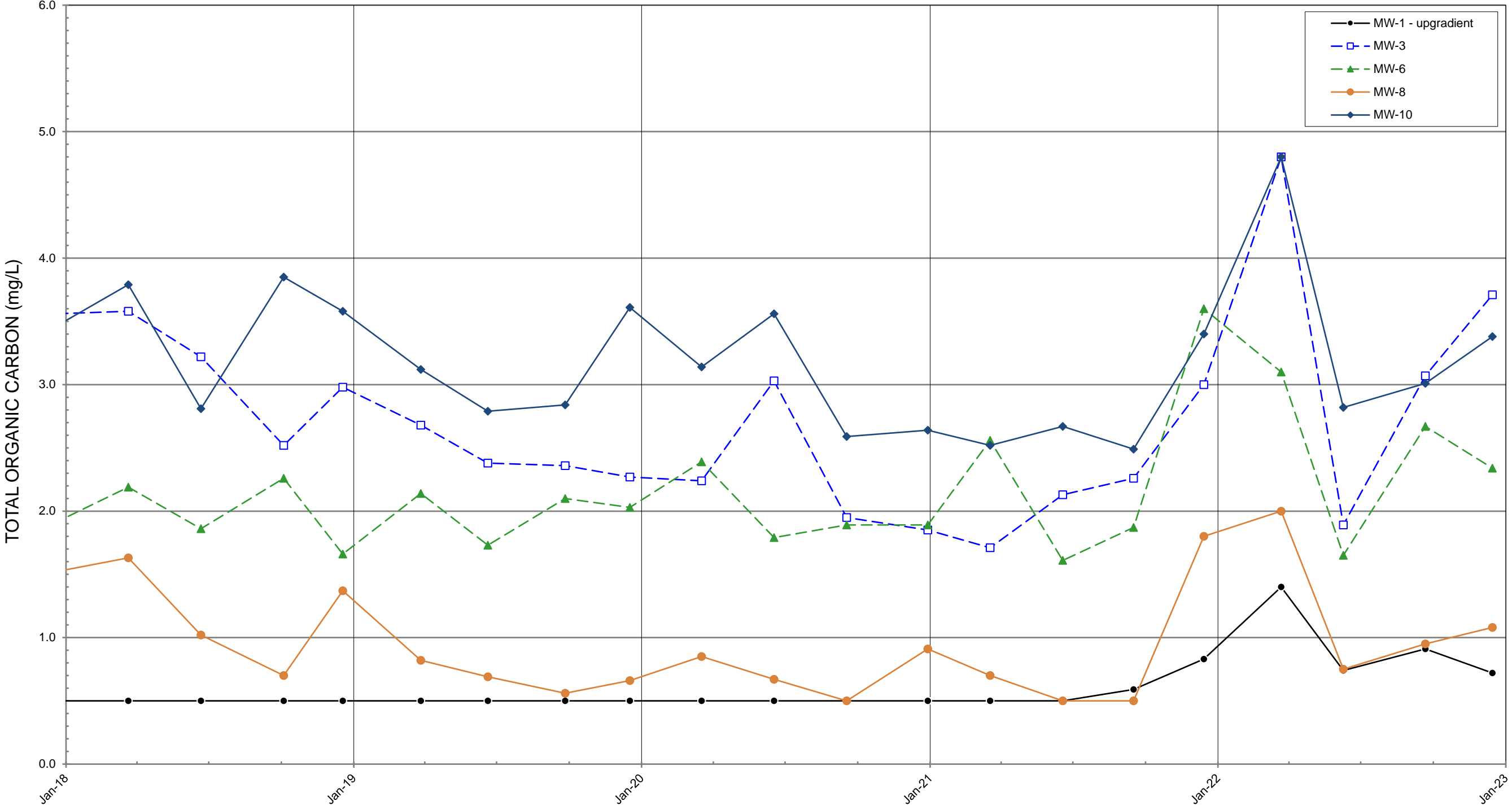
Data split (beginning 12/01) is due to a change in the Method Detection Limit  
 No Primary or Secondary Drinking Water Standard (DWS) Exists  
 No Primary or Secondary Groundwater Standard (GWS) Exists

DATE

TOTAL ORGANIC CARBON

# OLALLA LANDFILL

## Quarterly Monitoring Data (most recent five years)

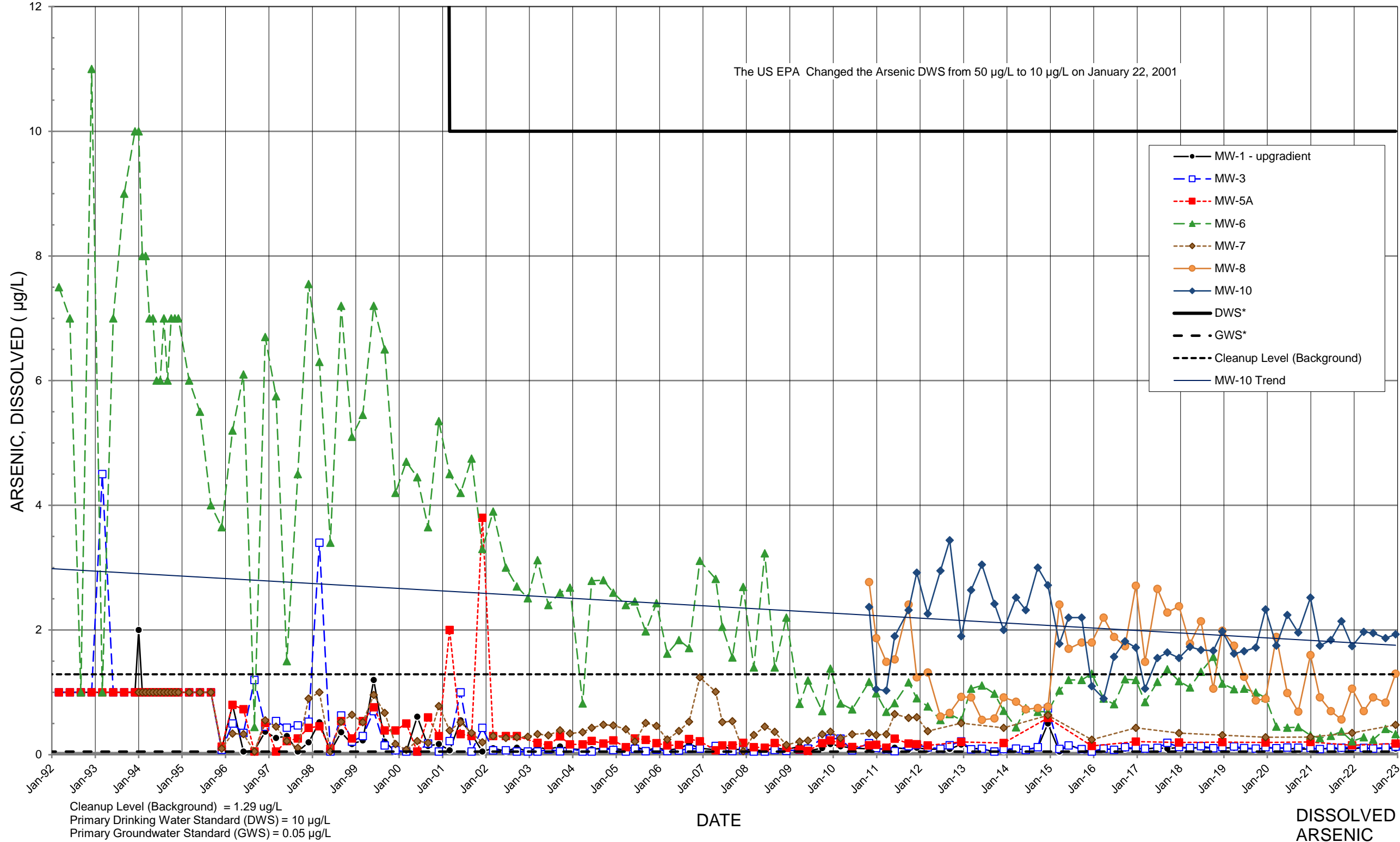


No Primary or Secondary Drinking Water Standard (DWS) Exists  
 No Primary or Secondary Groundwater Standard (GWS) Exists

DATE

TOTAL ORGANIC CARBON (RECENT)

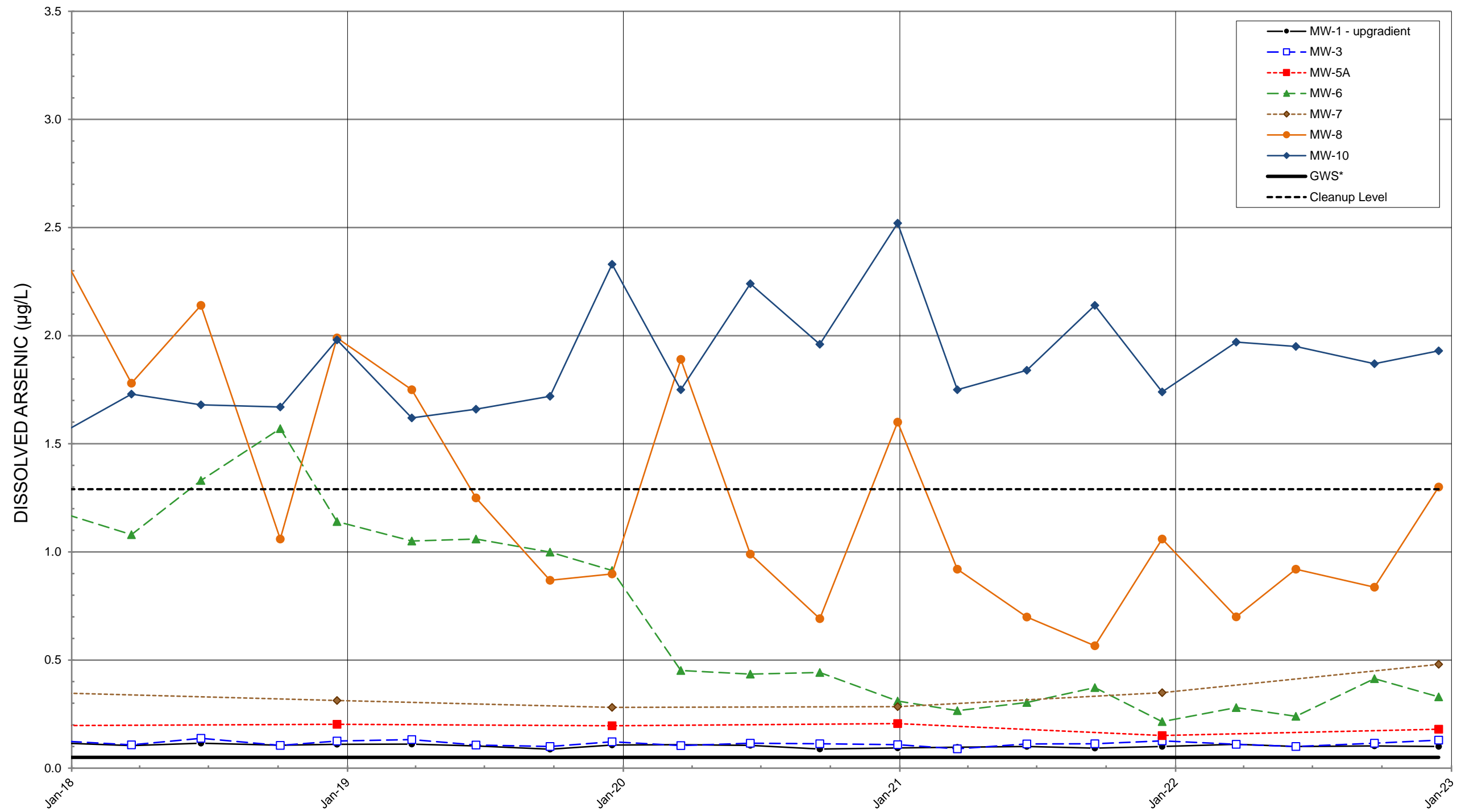
# OLALLA LANDFILL Quarterly Monitoring Data





# OLALLA LANDFILL

## Quarterly Monitoring Data (most recent five years)

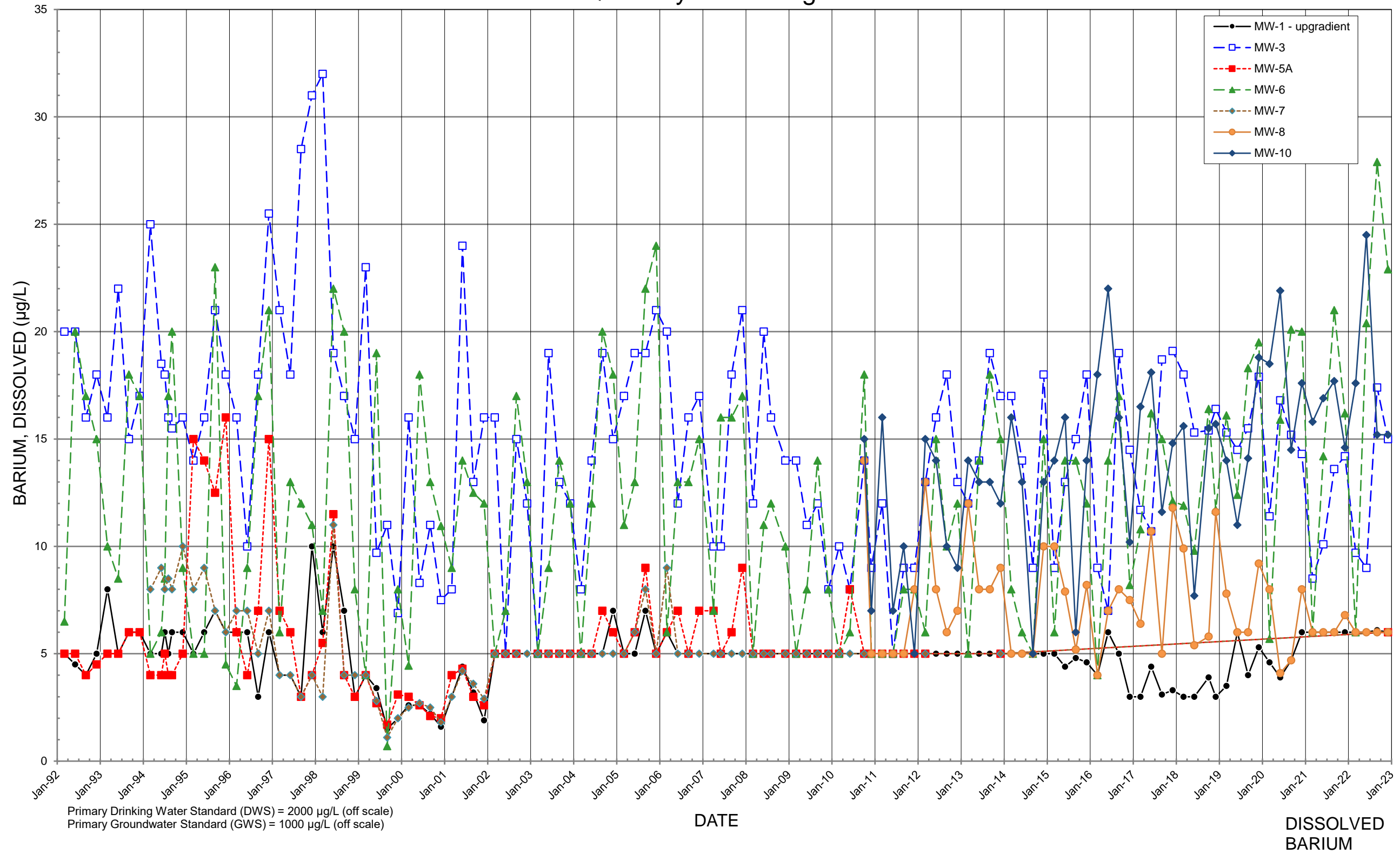


Site Specific Cleanup Level (background) = 1.29 µg/L  
 Primary Drinking Water Standard (DWS) = 10 µg/L (off scale)  
 Primary Groundwater Standard (GWS) = 0.05 µg/L

DATE

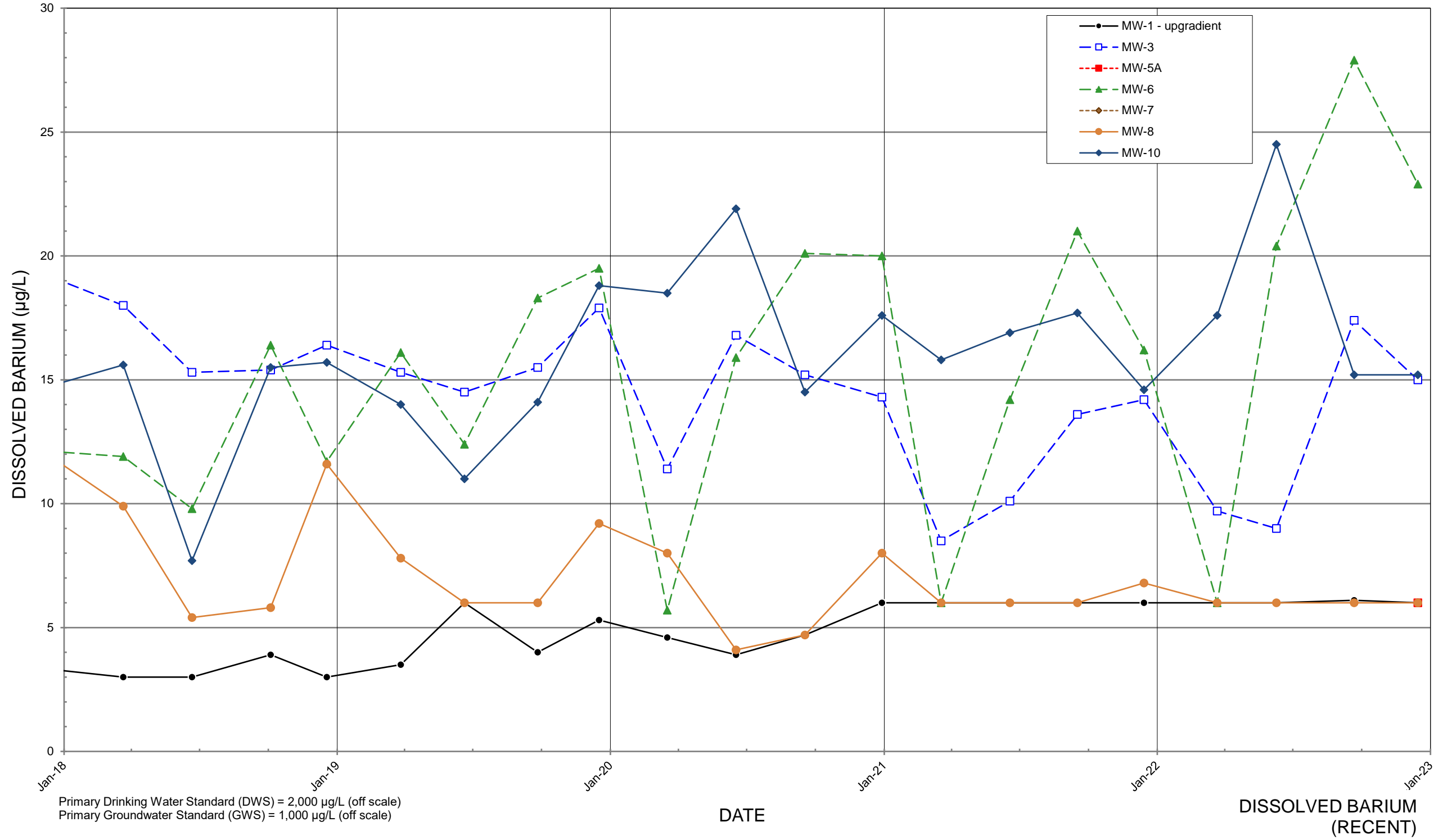
DISSOLVED ARSENIC (RECENT)

# OLALLA LANDFILL Quarterly Monitoring Data

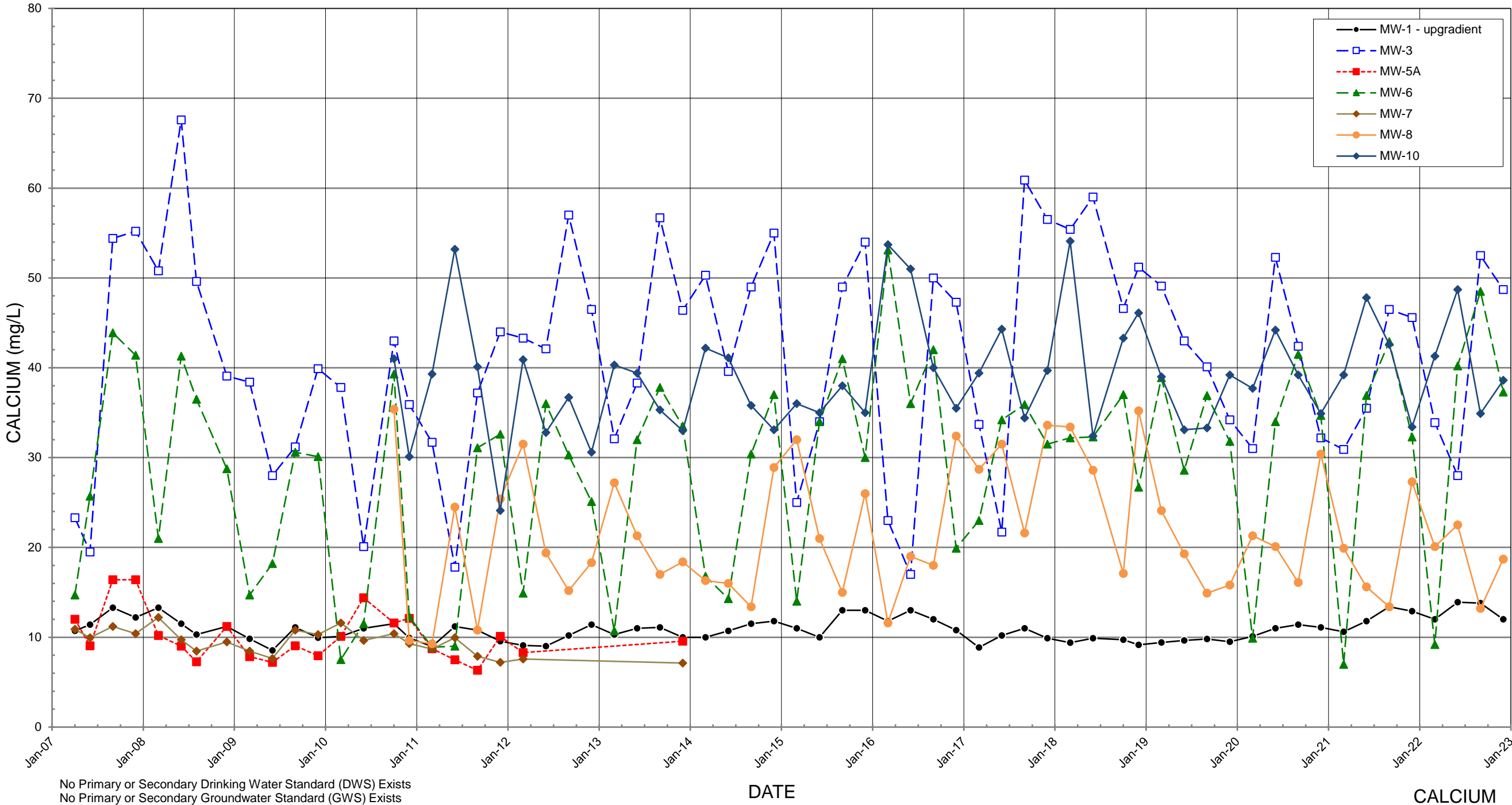


# OLALLA LANDFILL

## Quarterly Monitoring Data (most recent five years)

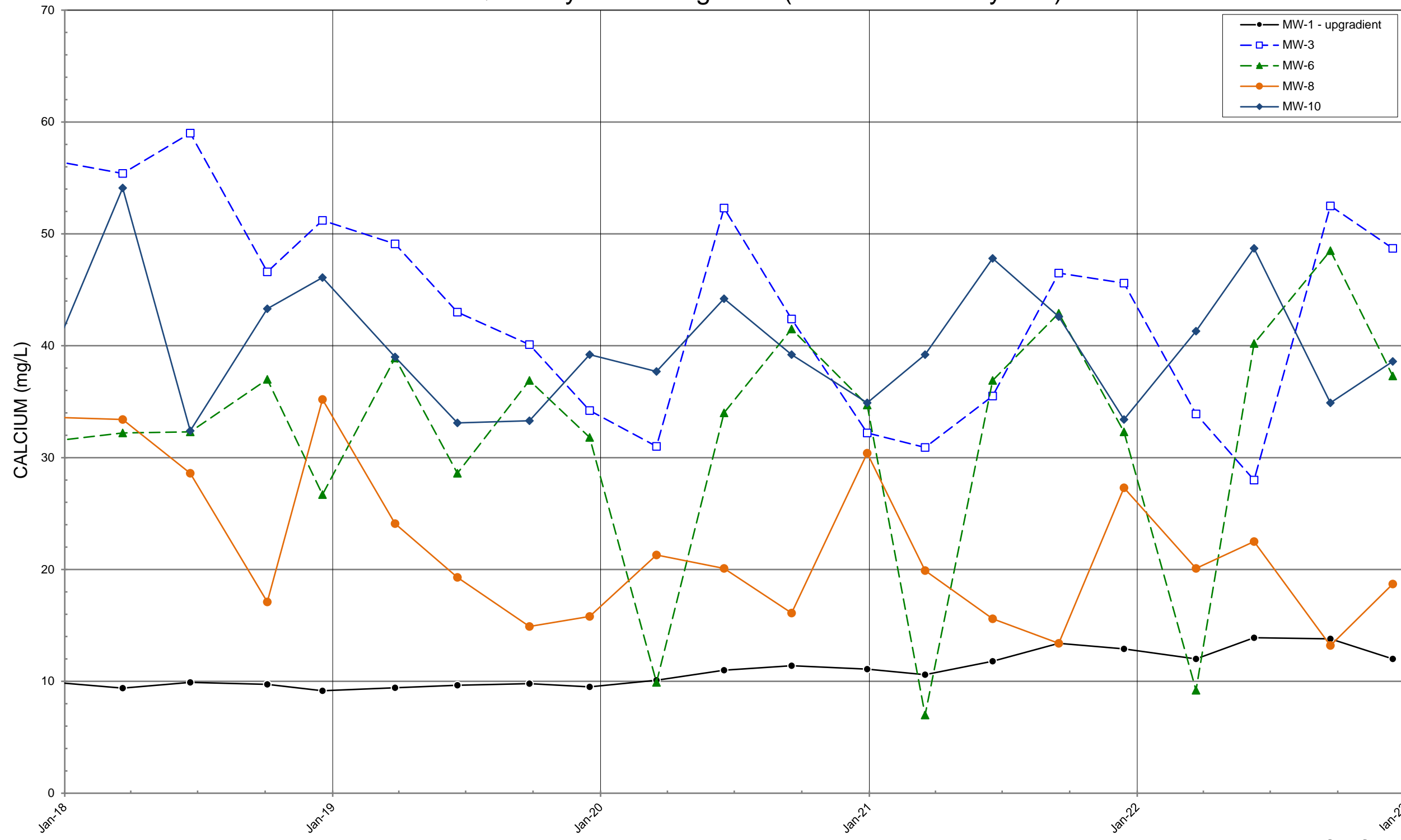


# OLALLA LANDFILL Quarterly Monitoring Data



# OLALLA LANDFILL

## Quarterly Monitoring Data (most recent five years)

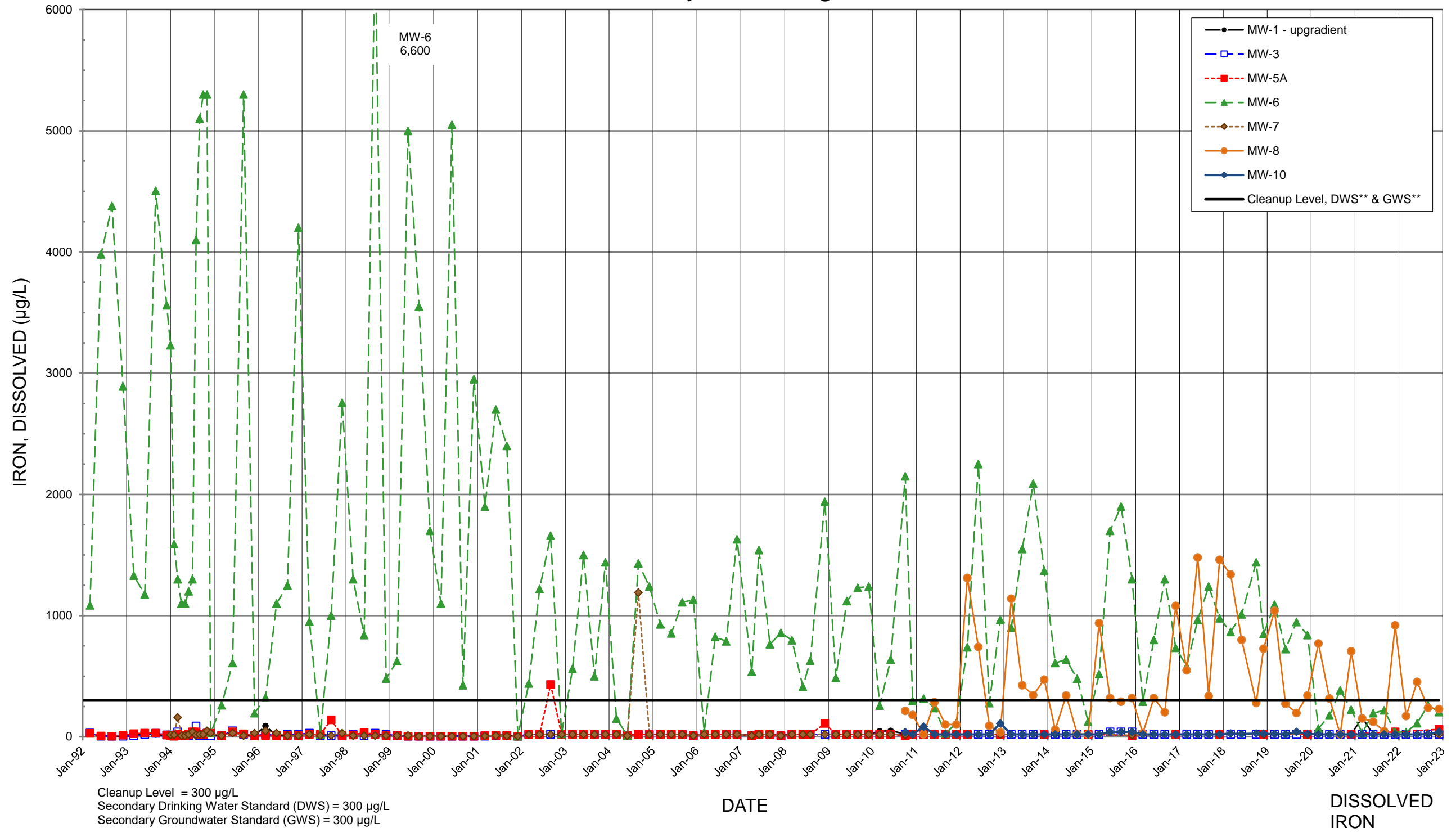


No Primary or Secondary Drinking Water Standard (DWS) Exists  
 No Primary or Secondary Groundwater Standard (GWS) Exists

DATE

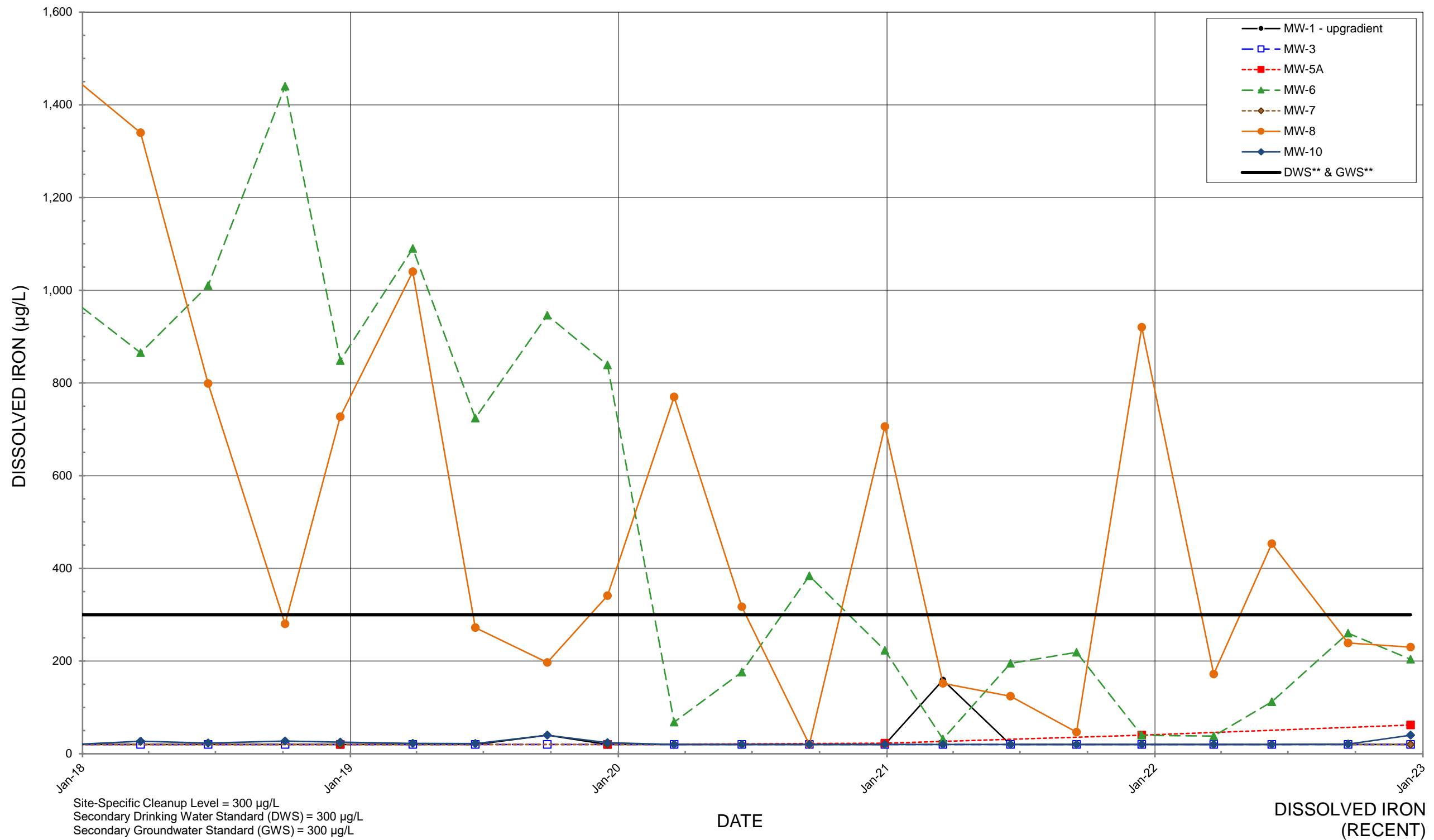
CALCIUM (RECENT)

# OLALLA LANDFILL Quarterly Monitoring Data



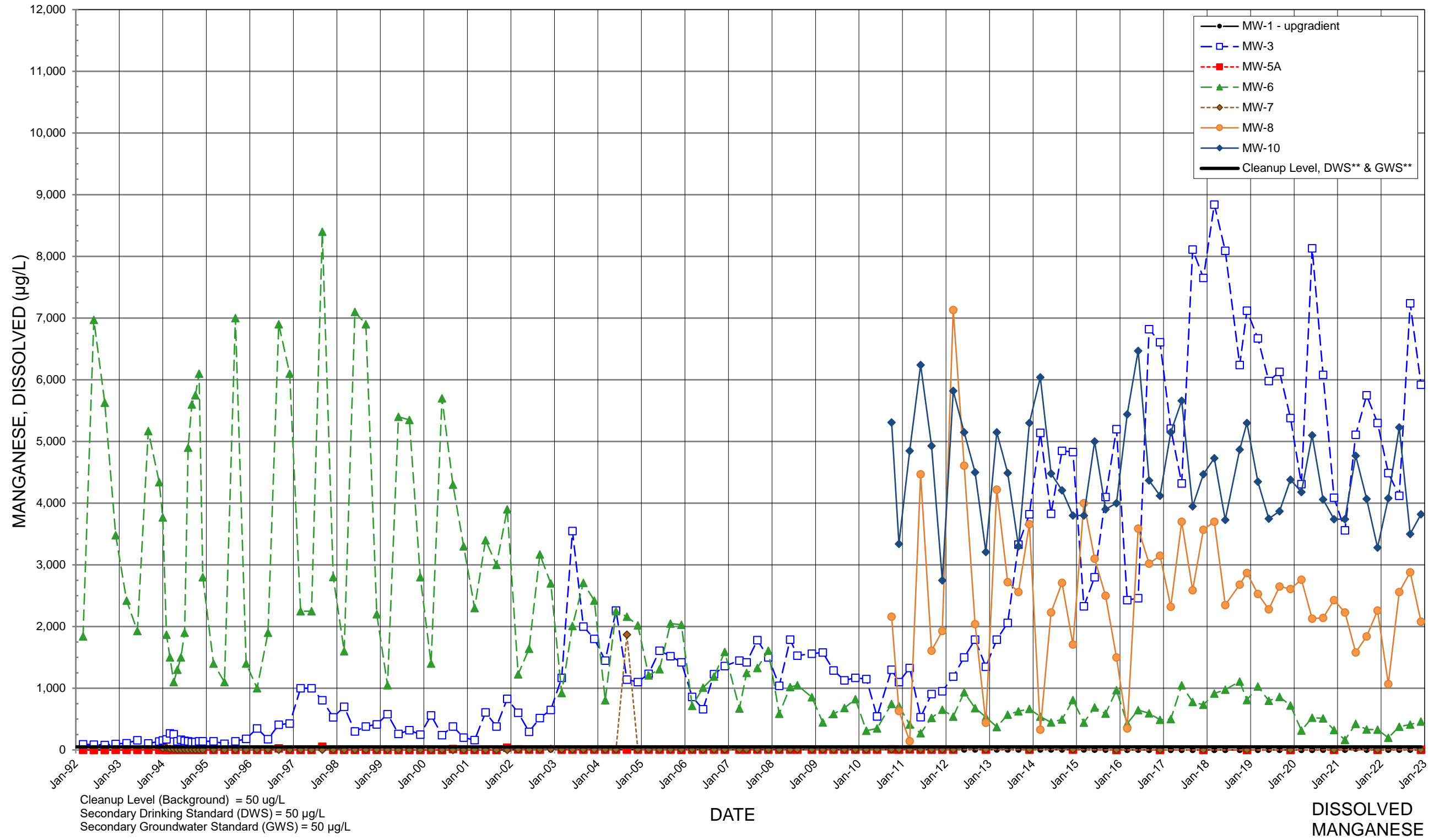
# OLALLA LANDFILL

## Quarterly Monitoring Data (most recent five years)



# OLALLA LANDFILL

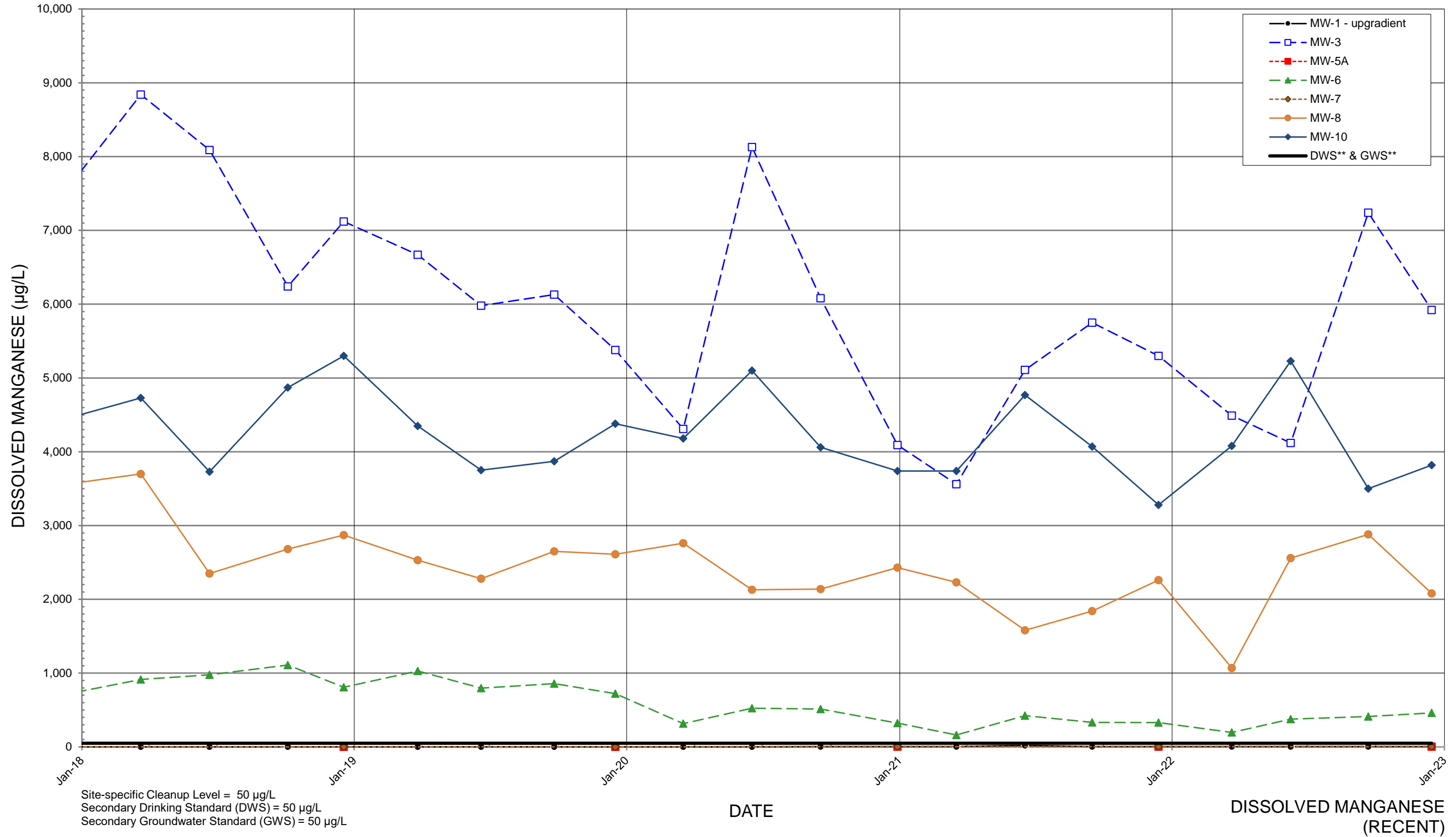
## Quarterly Monitoring Data



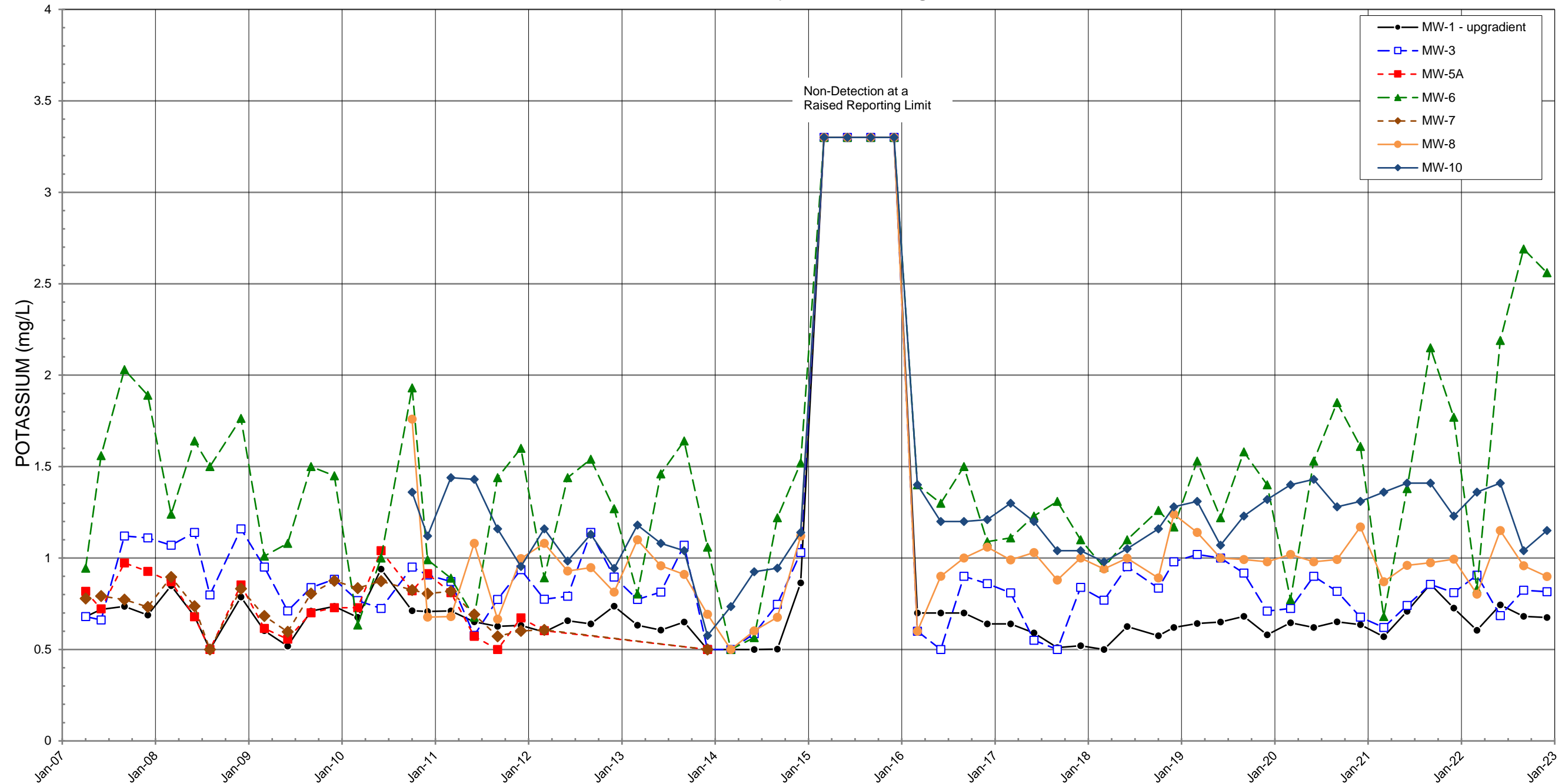


# OLALLA LANDFILL

## Quarterly Monitoring Data (most recent five years)



# OLALLA LANDFILL Quarterly Monitoring Data



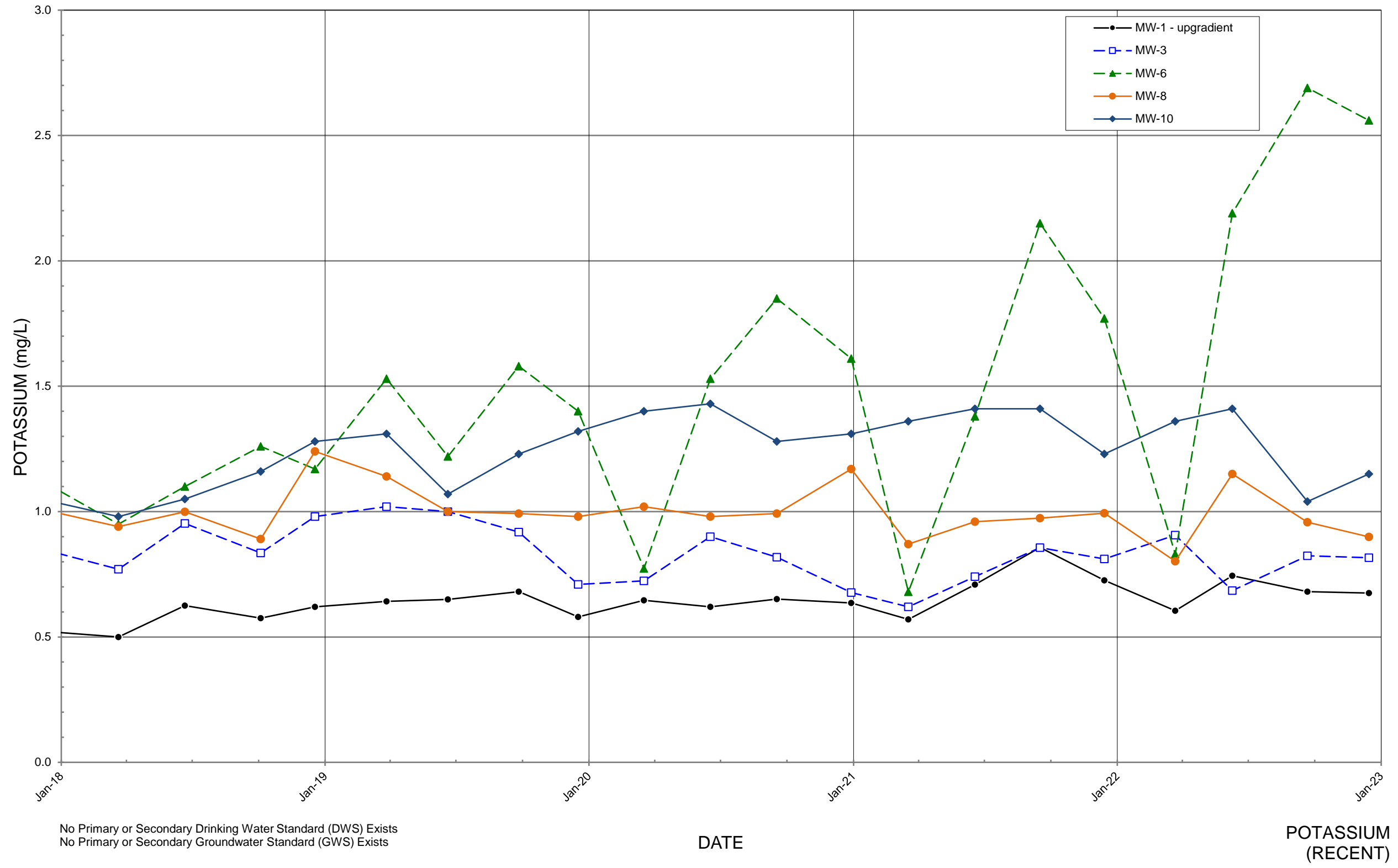
No Primary or Secondary Drinking Water Standard (DWS) Exists  
No Primary or Secondary Groundwater Standard (GWS) Exists

DATE

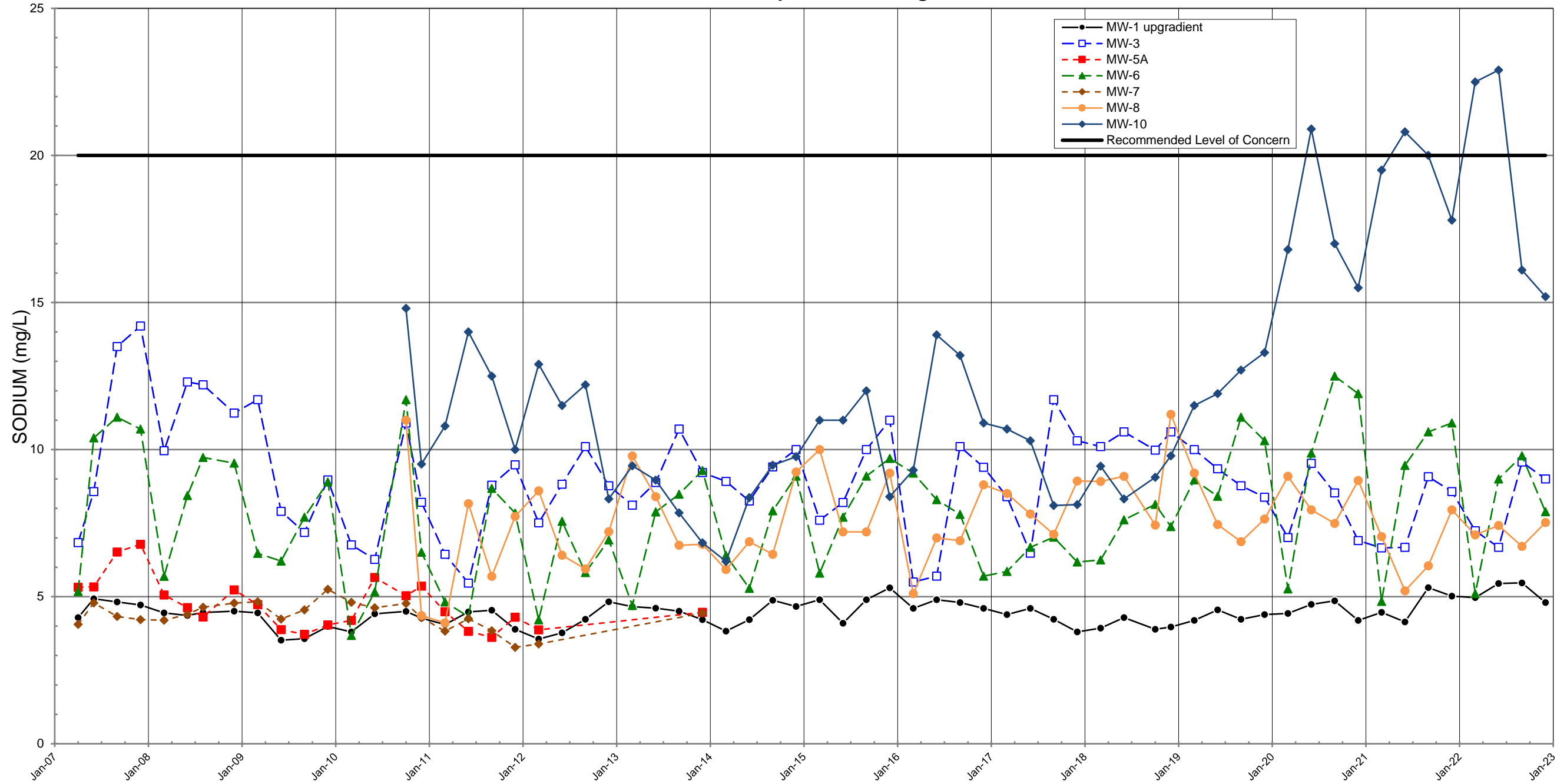
POTASSIUM  
(Analysis started in 2007)

# OLALLA LANDFILL

## Quarterly Monitoring Data (most recent five years)



# OLALLA LANDFILL Quarterly Monitoring Data



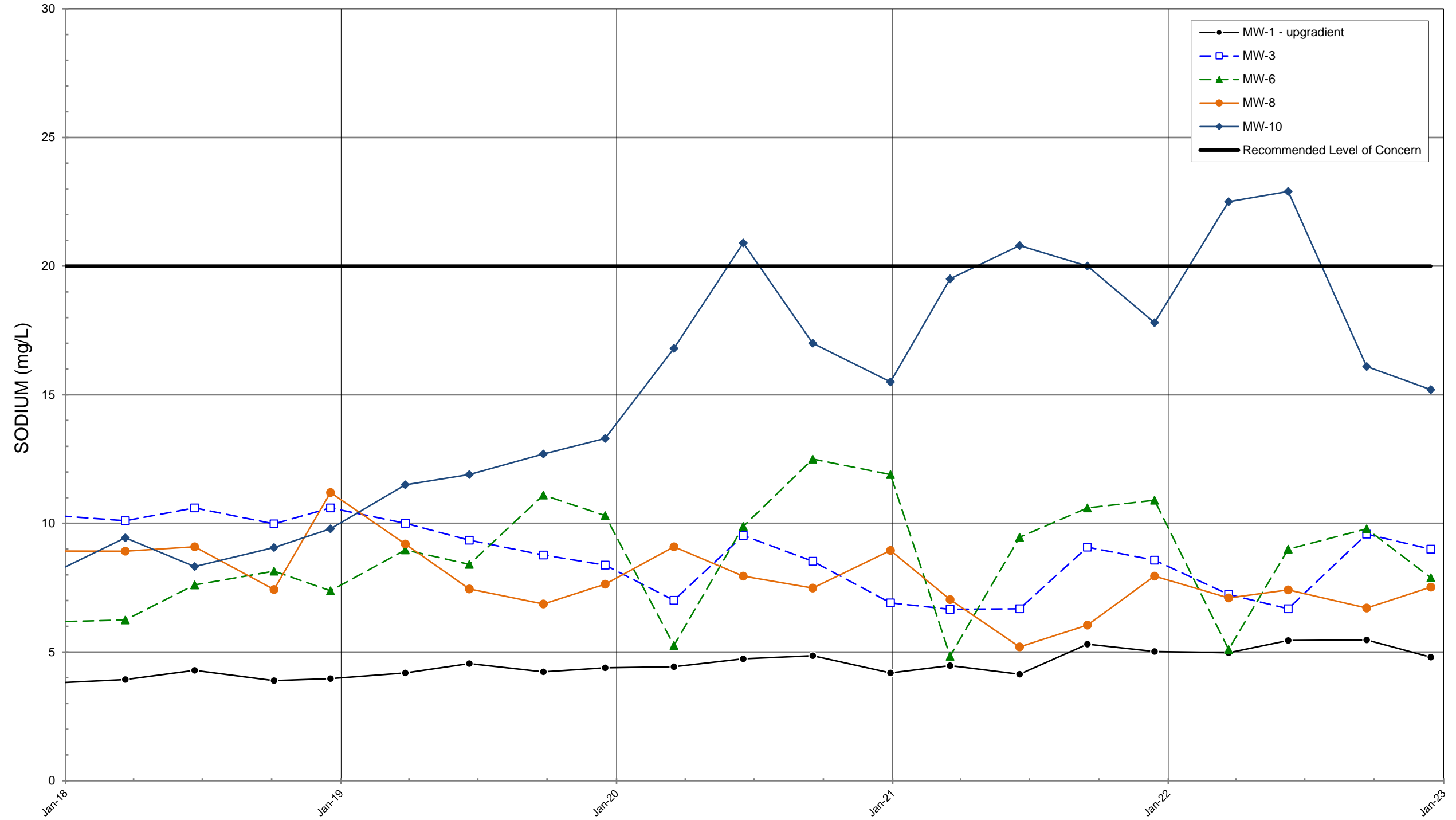
No Primary or Secondary Drinking Water Standard (DWS) Exists  
 No Primary or Secondary Groundwater Standard (GWS) Exists.  
 Recommended level of concern for consumers with restricted daily sodium intake is 20 mg/L.

DATE

SODIUM  
 (Analysis started in 2007)

# OLALLA LANDFILL

## Quarterly Monitoring Data (most recent five years)

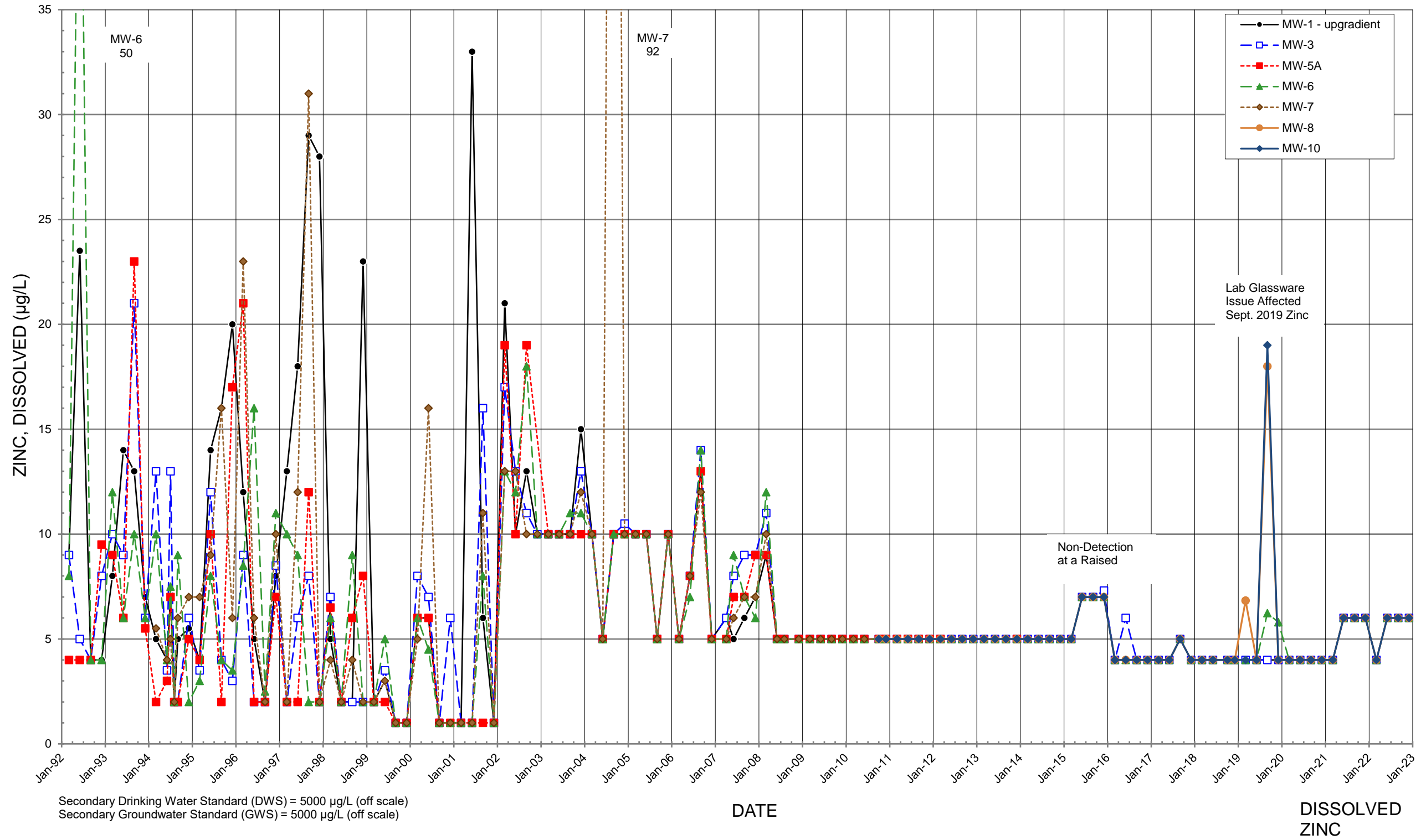


No Primary or Secondary Drinking Water Standard (DWS) Exists. Recommended level of concern for consumers with restricted daily sodium intake is 20 mg/L  
 No Primary or Secondary Groundwater Standard (GWS) Exists

DATE

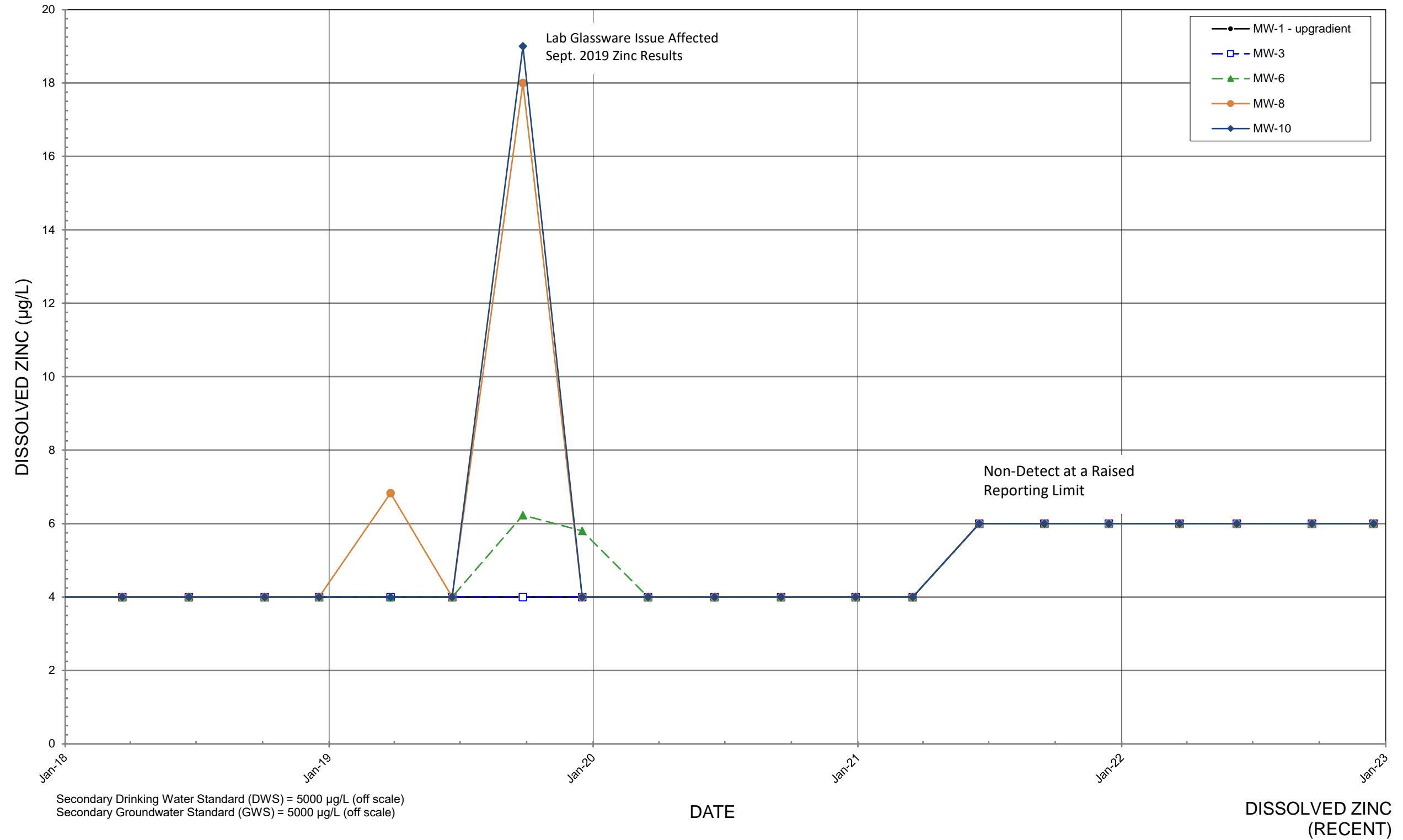
SODIUM  
(RECENT)

# OLALLA LANDFILL Quarterly Monitoring Data

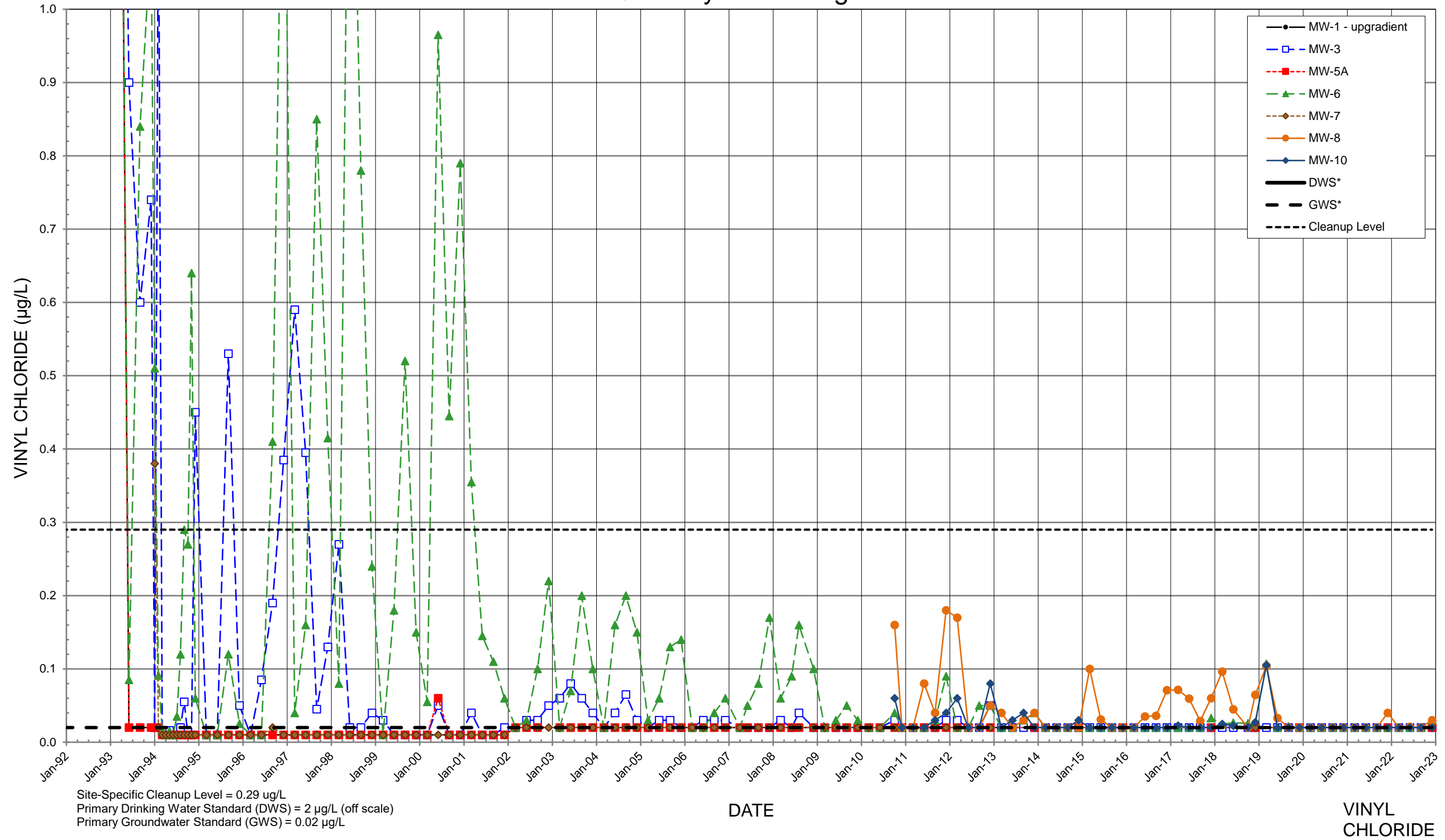


# OLALLA LANDFILL

## Quarterly Monitoring Data (most recent five years)



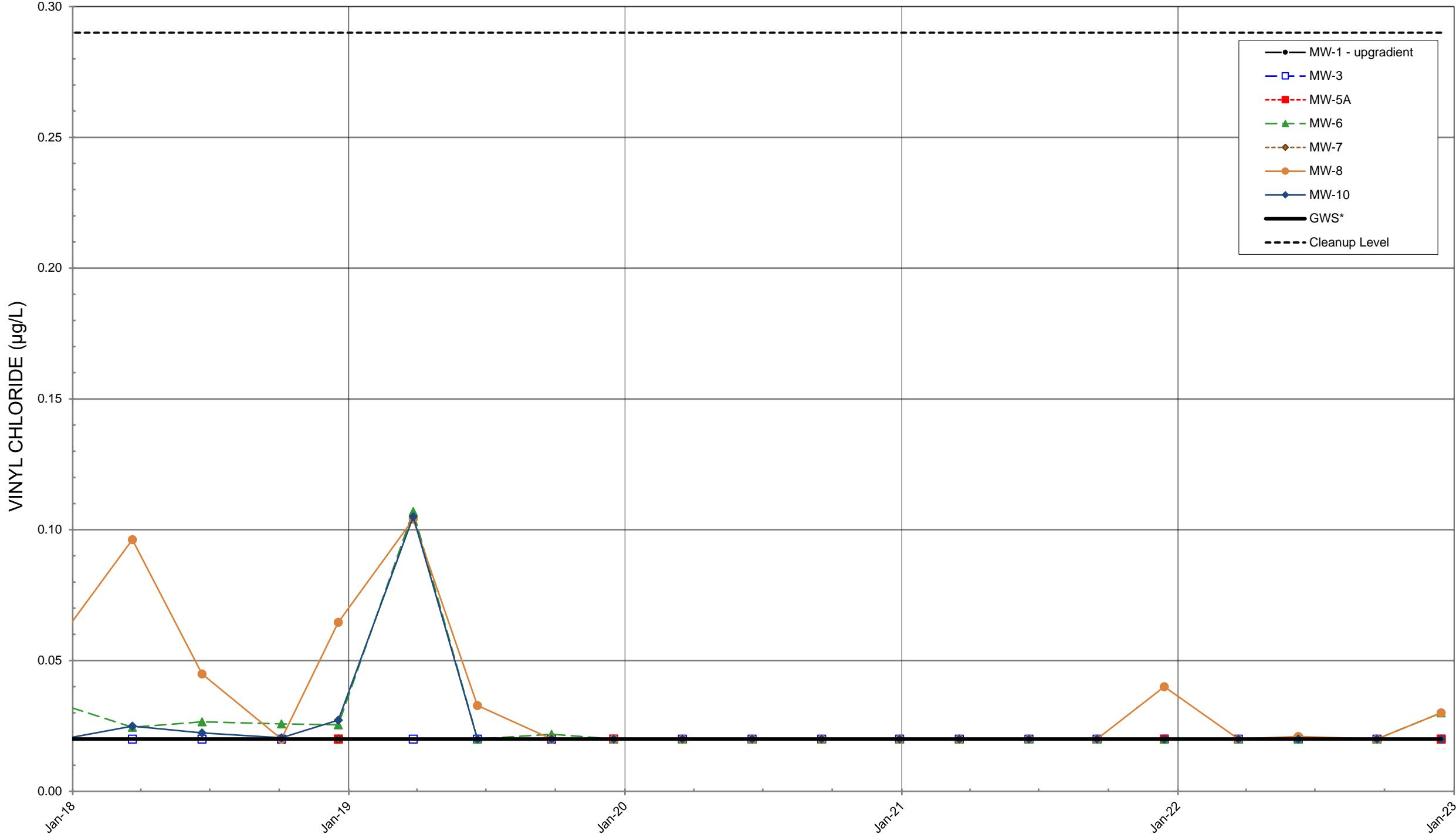
# OLALLA LANDFILL Quarterly Monitoring Data





# OLALLA LANDFILL

## Quarterly Monitoring Data (most recent five years)



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  
(RECENT)

**Table 3**  
**March 2022 Mann-Kendall Statistically Significant Trend Test Results**

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

**Table 4: March 2022 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	ND	Normal
Arsenic - Dissolved	Non-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	ND	ND	ND	Non-normal
Chloride	Normal	Non-normal	Normal	Normal	Normal
Dissolved Oxygen	Normal	Non-normal	Non-normal	Non-normal	Non-normal
Iron - Dissolved	ND	ND	Normal	Normal	Non-normal
Manganese - Dissolved	ND	Normal	Normal	Normal	Normal
Nitrate	Non-normal	Non-normal	Non-normal	Non-normal	Non-normal
Nitrite	ND	ND	Non-normal	ND	ND
Oxidation-Reduction Potential	Normal	Normal	Non-normal	Non-normal	Non-normal
pH - Field	Non-normal	Non-normal	Normal	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	Non-normal
Sulfate	Normal	Non-normal	Normal	Normal	Non-normal
Temperature	Non-normal	Non-normal	Normal	Normal	Non-normal
Total Coliform	ND	ND	ND	ND	ND
TOC	ND	Normal	Non-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.

**Table 5: March 2022 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 42	ND to ND	81 to 90	None	
Arsenic - Dissolved	0.10 to 0.11	0.11 to 0.12	0.373 to 1.08	1.15 to 1.65	1.73 to 1.98	0.05 µg/L	Primary GW Standard
Arsenic - Dissolved	0.10 to 0.11	0.11 to 0.12	0.373 to 1.08	1.15 to 1.65	1.73 to 1.98	1.29 µg/L	Site-Specific Cleanup Level
Barium - Dissolved	ND to 3.50	14.2 to 15.5	11.7 to 16.4	4.17 to 6.89	14.1 to 17.6	1000 µg/L	Primary GW Standard
Bicarbonate	42.6 to 54.9	175 to 223	156 to 183	97 to 151	192 to 227	None	
Calcium	10,134 to 11,018	39,353 to 47,029	31,500 to 35,900	21,429 to 26,707	37,349 to 40,687	None	
Carbonate	ND	ND	ND	ND	ND	None	
COD (mg/L)	ND	ND	ND	ND	ND	None	
Chloride	3,536 to 4,190	2,390 to 3,510	2,421 to 3,451	2,315 to 3,093	5,654 to 8,340	250,000 µg/L	Secondary GW and DW Standard
Dissolved Oxygen (mg/L)	9.71 to 10.11	0.220 to 0.650	0.200 to 0.380	0.350 to 1.80	0.180 to 0.420	None	
Iron - Dissolved	ND	ND	459 to 765	430 to 774	ND to 22	300 µg/L	Secondary GW and DW Standard
Manganese - Dissolved	ND	5,495 to 6,592	524 to 739	2,244 to 2,731	4,095 to 4,546	50 µg/L	Secondary GW and DW Standard
Nitrate	297 to 670	ND to 24	ND to 33	40 to 108	ND to 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	227 to 259	227 to 255	33 to 72	52 to 93	123 to 137	None	
pH - Field	6.4 to 6.5	6.2 to 6.3	6.6 to 6.7	6.5 to 6.6	6.5 to 6.7	6.5 - 8.5	Secondary GW Standard
pH - Laboratory	6.2 to 6.4	6.1 to 6.2	6.5 to 6.6	6.5 to 6.6	6.5 to 6.6	6.5 - 8.5	Secondary GW Standard
Potassium	590 to 642	741 to 898	1,212 to 1,466	960 to 1,000	1,192 to 1,290	None	
Sodium	4,263 to 4,553	8,276 to 9,379	7,615 to 9,368	7,519 to 8,449	10,300 to 17,000	20,000 µg/L	Secondary DW Standard
Specific Conductance (µmhos/cm)	110 to 124	335 to 448	291 to 360	215 to 295	394 to 461	700 µmhos/cm	Secondary DW Standard
Sulfate	3,853 to 4,311	12,900 to 16,500	6,391 to 8,389	4,342 to 4,993	7,920 to 11,000	250,000 µg/L	Secondary GW and DW Standard
Temperature (°C)	10.8 to 10.9	11.7 to 11.9	11.3 to 11.8	10.7 to 11.2	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	2,373 to 2,924	1,870 to 2,190	741 to 1,147	2,790 to 3,560	None	
Vinyl Chloride	ND	ND	ND to 0.05	ND to 0.02	ND	0.02 µg/L	Primary GW Standard
Vinyl Chloride	ND	ND	ND to 0.05	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

**Table 3**  
**June 2022 Mann-Kendall Statistically Significant Trend Test Results**

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

**Table 4  
June 2022 Shapiro-Wilk Test for Normality Results**

<b>Constituent or Parameter</b>	<b>MW-1</b>	<b>MW-3</b>	<b>MW-6</b>	<b>MW-8</b>	<b>MW-10</b>
Ammonia (N)	ND	ND	Non-normal	Non-normal	Normal
Arsenic - Dissolved	Non-normal	Non-normal	Non-normal	Normal	Normal
Barium - Dissolved	Non-normal	Non-normal	Non-normal	Non-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	Non-normal	Non-normal	Non-normal	Non-normal	Non-normal
Iron - Dissolved	ND	ND	Non-normal	Non-normal	Non-normal
Manganese - Dissolved	ND	Normal	Normal	Normal	Normal
Nitrate	Non-normal	Non-normal	Non-normal	Non-normal	Non-normal
Nitrite	ND	ND	Non-normal	ND	ND
Oxidation-Reduction Potential	Normal	Normal	Non-normal	Non-normal	Non-normal
pH - Field	Non-normal	Non-normal	Non-normal	Non-normal	Non-normal
pH - Laboratory	Non-normal	Non-normal	Non-normal	Non-normal	Non-normal
Potassium	Normal	Normal	Normal	Normal	Non-normal
Sodium	Normal	Normal	Normal	Normal	Non-normal
Specific Conductance	Non-normal	Normal	Normal	Normal	Non-normal
Sulfate	Normal	Non-normal	Non-normal	Normal	Non-normal
Temperature	Non-normal	Non-normal	Normal	Normal	Normal
Total Coliform	ND	ND	ND	ND	ND
TOC	ND	Normal	Non-normal	Normal	Non-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.

**Table 5**  
**June 2022 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 42	ND to ND	80 to 88	None	
Arsenic - Dissolved	0.10 to 0.10	0.10 to 0.12	0.373 to 1.08	1.18 to 1.64	1.73 to 1.96	0.05 µg/L	Primary GW Standard
Arsenic - Dissolved	0.10 to 0.10	0.10 to 0.12	0.373 to 1.08	1.18 to 1.64	1.73 to 1.96	1.29 µg/L	Site-Specific Cleanup Level
Barium - Dissolved	ND to 3.90	13.6 to 15.5	11.9 to 17.3	4.70 to 7.50	14.5 to 17.6	1000 µg/L	Primary GW Standard
Bicarbonate	42.6 to 55.3	158 to 223	156 to 183	97 to 151	192 to 227	None	
Calcium	10,380 to 11,337	37,840 to 45,775	31,800 to 36,900	21,231 to 25,945	38,127 to 41,689	None	
Carbonate	ND	ND	ND	ND	ND	None	
COD (mg/L)	ND	ND	ND	ND	ND to 10.2	None	
Chloride	3,672 to 4,392	2,450 to 3,800	2,332 to 3,270	2,230 to 2,660	5,206 to 7,664	250,000 µg/L	Secondary GW and DW Standard
Dissolved Oxygen (mg/L)	9.59 to 10.28	0.220 to 0.650	0.200 to 0.380	0.310 to 1.67	0.180 to 0.420	None	
Iron - Dissolved	ND	ND	223 to 848	272 to 799	ND to 20	300 µg/L	Secondary GW and DW Standard
Manganese - Dissolved	ND	5,299 to 6,409	525 to 716	2,331 to 2,786	4,193 to 4,697	50 µg/L	Secondary GW and DW Standard
Nitrate	297 to 642	ND to 24	ND to 33	37 to 106	ND to 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 (ORP)	209 to 249	212 to 247	32 to 71	52 to 82	122 to 136	None	
pH - Field	6.3 to 6.5	6.1 to 6.3	6.5 to 6.6	6.5 to 6.6	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	6.5 to 6.6	6.5 to 6.6	6.5 - 8.5	Secondary GW Standard
Potassium	565 to 666	701 to 845	1,252 to 1,503	886 to 1,041	1,200 to 1,310	None	
Sodium	4,334 to 4,634	8,114 to 9,221	7,710 to 9,244	7,462 to 8,299	10,700 to 17,000	20,000 µg/L	Secondary DW Standard
Specific Conductance (µmhos/cm)	111 to 125	327 to 432	301 to 361	225 to 301	401 to 461	700 µmhos/cm	Secondary DW Standard
Sulfate	3,916 to 4,334	13,200 to 16,100	6,140 to 8,820	4,367 to 4,942	8,050 to 11,200	250,000 µg/L	Secondary GW and DW Standard
Temperature (°C)	10.8 to 11.0	11.7 to 12.0	11.3 to 11.8	10.7 to 11.1	11.3 to 11.5	None	
Total Coliform (Colony Forming Units/100 mL)	ND	ND	ND	ND	ND	1/100mL	Primary GW and DW Standard
Total Organic Carbon (TOC)	ND	2,305 to 2,834	1,860 to 2,140	740 to 1,097	2,790 to 3,460	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.

**Table 3**  
**September 2022 Mann-Kendall Statistically Significant Trend Test Results**

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



**Table 4  
September 2022 Shapiro-Wilk Test for Normality Results**

<b>Constituent or Parameter</b>	<b>MW-1</b>	<b>MW-3</b>	<b>MW-6</b>	<b>MW-8</b>	<b>MW-10</b>
Ammonia (N)	ND	ND	Non-normal	Non-normal	Normal
Arsenic - Dissolved	Non-normal	Non-normal	Non-normal	Non-normal	Normal
Barium - Dissolved	Non-normal	Non-normal	Non-normal	Non-normal	Non-normal
Bicarbonate	Non-normal	Non-normal	Non-normal	Non-normal	Non-normal
Calcium	Normal	Normal	Non-normal	Non-normal	Normal
Carbonate	ND	ND	ND	ND	ND
COD	ND	ND	ND	ND	Non-normal
Chloride	Normal	Non-normal	Normal	Non-normal	Normal
Dissolved Oxygen	Non-normal	Non-normal	Non-normal	Non-normal	Non-normal
Iron - Dissolved	ND	ND	Non-normal	Non-normal	Non-normal
Manganese - Dissolved	ND	Normal	Normal	Normal	Normal
Nitrate	Non-normal	Non-normal	Non-normal	Non-normal	Non-normal
Nitrite	ND	ND	Non-normal	ND	ND
Oxidation-Reduction Potential	Normal	Normal	Non-normal	Non-normal	Non-normal
pH - Field	Non-normal	Non-normal	Non-normal	Non-normal	Non-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	Non-normal
Sulfate	Normal	Normal	Non-normal	Non-normal	Non-normal
Temperature	Non-normal	Non-normal	Normal	Normal	Non-normal
Total Coliform	ND	ND	ND	ND	ND
TOC	Non-normal	Normal	Non-normal	Normal	Non-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.

**Table 5**  
**September 2022 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 42	ND to ND	78 to 87	None	
Arsenic - Dissolved	0.10 to 0.10	0.11 to 0.12	0.383 to 1.06	1.92 to 1.06	1.74 to 1.96	0.05 µg/L	Primary GW Standard
Arsenic - Dissolved	0.10 to 0.10	0.11 to 0.12	0.383 to 1.06	1.06 to 1.92	1.74 to 1.96	1.29 µg/L	Site-Specific Cleanup Level
Barium - Dissolved	ND to 3.90	14.2 to 15.5	12.1 to 17.3	4.10 to 7.50	14.6 to 17.6	1000 µg/L	Primary GW Standard
Bicarbonate	43.4 to 55.3	175 to 223	162 to 183	97 to 151	192 to 221	None	
Calcium	10,474 to 11,470	38,349 to 46,089	32,200 to 36,900	19,300 to 28,600	37,976 to 41,455	None	
Carbonate	ND	ND	ND	ND	ND	None	
COD (mg/L)	ND	ND	ND	ND	ND to 10.2	None	
Chloride	3,744 to 4,498	2,510 to 3,800	2,335 to 3,236	2,230 to 2,620	4,922 to 7,417	250,000 µg/L	Secondary GW and DW Standard
Dissolved Oxygen (mg/L)	9.59 to 10.28	0.240 to 0.650	0.200 to 0.390	0.310 to 1.67	0.210 to 0.420	None	
Iron - Dissolved	ND	ND	223 to 848	272 to 706	ND to 21	300 µg/L	Secondary GW and DW Standard
Manganese - Dissolved	ND	5,367 to 6,448	520 to 705	2,353 to 2,791	4,159 to 4,658	50 µg/L	Secondary GW and DW Standard
Nitrate	297 to 642	ND to 24	ND to 33	34 to 106	ND to 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	212 to 250	213 to 246	32 to 72	52 to 82	122 to 137	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 6.7	6.5 - 8.5	Secondary GW Standard
pH - Laboratory	6.2 to 6.4	6.1 to 6.2	6.5 to 6.6	6.5 to 6.6	6.5 to 6.6	6.5 - 8.5	Secondary GW Standard
Potassium	620 to 650	741 to 859	1,280 to 1,576	960 to 999	1,192 to 1,282	None	
Sodium	4,364 to 4,680	8,168 to 9,237	7,787 to 9,268	7,427 to 8,244	12,645 to 15,800	20,000 µg/L	Secondary DW Standard
Specific Conductance (µmhos/cm)	111 to 130	334 to 436	305 to 364	221 to 296	400 to 461	700 µmhos/cm	Secondary DW Standard
Sulfate	3,927 to 4,326	14,345 to 16,955	6,490 to 8,470	4,080 to 5,060	8,050 to 15,500	250,000 µg/L	Secondary GW and DW Standard
Temperature (°C)	10.8 to 11.0	11.7 to 12.0	11.4 to 11.8	10.8 to 11.2	11.2 to 11.5	None	
Total Coliform (Colony Forming Units/100 mL)	ND	ND	ND	ND	ND	1/100mL	Primary GW and DW Standard
TOC	ND	2,333 to 2,844	1,870 to 2,140	748 to 1,091	2,810 to 3,400	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

**Table 4  
December 2022 Mann-Kendall Statistically Significant Trend Test Results**

<b>Constituent or Parameter</b>	<b>MW-1</b>	<b>MW-3</b>	<b>MW-5A</b>	<b>MW-6</b>	<b>MW-7</b>	<b>MW-8</b>	<b>MW-10</b>
Ammonia (N)	NO TREND	NO TREND	NA	UP	NA	NO TREND	NO TREND
Arsenic - Dissolved	NO TREND	NO TREND	NO TREND	DOWN	NO TREND	DOWN	NO TREND
Barium - Dissolved	NO TREND	DOWN	NA	UP	NA	DOWN	NO TREND
Bicarbonate	UP	DOWN	NA	NO TREND	NA	NO TREND	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	UP	NO TREND	NO TREND	DOWN	NO TREND	NO TREND
Iron - Dissolved	NO TREND	NO TREND	UP	DOWN	NO TREND	DOWN	DOWN
Manganese - Dissolved	UP	DOWN	NO TREND	DOWN	NO TREND	DOWN	NO TREND
Nitrate	DOWN	NO TREND	NA	NO TREND	NA	NO TREND	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	NO TREND	NO TREND	NO TREND	NO TREND
pH - Laboratory	UP	NO TREND	NA	UP	NA	NO TREND	UP
Potassium	UP	NO TREND	NA	UP	NA	NO TREND	UP
Sodium	UP	DOWN	NA	NO TREND	NA	DOWN	UP
Specific Conductance	UP	NO TREND	NO TREND	NO TREND	NO TREND	NO TREND	NO TREND
Sulfate	NO TREND	NO TREND	NA	NO TREND	NA	NO TREND	UP
Temperature	NO TREND	NO TREND	NO TREND	UP	NO TREND	UP	UP
Total Coliform	NO TREND	NO TREND	NA	NO TREND	NA	NO TREND	NO TREND
TOC	UP	NO TREND	NA	NO TREND	NA	NO TREND	NO TREND
Vinyl Chloride	NO TREND	NO TREND	NO TREND	DOWN	NO TREND	NO TREND	DOWN
Zinc - Dissolved	UP	UP	NA	UP	NA	NO TREND	UP

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.

**Table 5**  
**December 2022 Shapiro-Wilk Test for Normality Results**

<b>Constituent or Parameter</b>	<b>MW-1</b>	<b>MW-3</b>	<b>MW-5A</b>	<b>MW-6</b>	<b>MW-7</b>	<b>MW-8</b>	<b>MW-10</b>
Ammonia (N)	ND	ND	NA	Non-normal	NA	ND	Normal
Arsenic - Dissolved	Non-normal	Non-normal	Normal	Non-normal	Non-normal	Normal	Non-normal
Barium - Dissolved	Non-normal	Non-normal	ND	Non-normal	ND	Non-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	ND	NA	ND	NA	ND	ND
Chloride	Normal	Non-normal	NA	Normal	NA	Non-normal	Normal
Dissolved Oxygen	Non-normal	Non-normal	Normal	Non-normal	Normal	Non-normal	Non-normal
Iron - Dissolved	ND	ND	ND	Non-normal	ND	Non-normal	Non-normal
Manganese - Dissolved	ND	Normal	ND	Normal	ND	Normal	Normal
Nitrate	Non-normal	Non-normal	NA	Non-normal	NA	Non-normal	Non-normal
Nitrite	ND	ND	NA	Non-normal	NA	ND	ND
Oxidation-Reduction Potential	Normal	Normal	Normal	Non-normal	Non-normal	Normal	Non-normal
pH - Field	Non-normal	Non-normal	Normal	Normal	Normal	Normal	Normal
pH - Laboratory	Non-normal	Non-normal	NA*	Non-normal	NA*	Non-normal	Non-normal
Potassium	Non-normal	Non-normal	NA	Normal	NA	Non-normal	Normal
Sodium	Normal	Non-normal	NA	Normal	NA	Normal	Normal
Specific Conductance	Non-normal	Normal	NA	Normal	NA	Normal	Non-normal
Sulfate	Normal	Normal	NA	Normal	NA	Normal	Non-normal
Temperature	Non-normal	Non-normal	Normal	Normal	Normal	Normal	Non-normal
Total Coliform	ND	ND	NA	ND	NA	ND	ND
TOC	Non-normal	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.

**Table 6**  
**December 2022 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 68	NA	ND	74 to 85	None	
Arsenic - Dissolved	0.10 to 0.10	0.11 to 0.12	0.17 to 0.21	0.31 to 1.0	0.28 to 0.48	0.95 to 1.25	1.73 to 1.98	0.05 µg/L	Primary GW Standard
Arsenic - Dissolved	0.10 to 0.10	0.11 to 0.12	0.17 to 0.21	0.31 to 1.0	0.28 to 0.48	0.95 to 1.25	1.73 to 1.98	1.29 µg/L	Site-Specific Cleanup Level
Barium - Dissolved	ND to 3.9	14.2 to 15.5	ND	11.9 to 20.0	ND	ND to 6.8	14.50 to 17.60	1000 µg/L	Primary GW Standard
Bicarbonate (mg of CaCO <sub>3</sub> /L)	43.4 to 56.0	175 to 223	NA	164 to 188	NA	97 to 151	192 to 227	None	
Calcium	10,485 to 11,676	39,433 to 46,497	NA	32,200 to 37,300	NA	19,158 to 24,452	37,420 to 41,310	None	
Carbonate (mg of CaCO <sub>3</sub> /L)	ND	ND	NA	ND	NA	ND	ND	None	
COD	ND	ND	NA	ND	NA	ND	ND	None	
Chloride	3,874 to 4,728	2,260 to 4,750	NA	2,287 to 3,396	NA	2,180 to 2,530	5,041 to 7,819	250,000 µg/L	Secondary GW and DW Standard
Dissolved Oxygen (mg/L)	9.60 to 9.93	0.37 to 1.15	9.56 to 10.40	0.25 to 0.40	6.90 to 7.50	0.31 to 1.67	0.23 to 0.53	None	
Iron - Dissolved	ND	ND	ND	204 to 839	ND	197 to 706	ND to ND	300 µg/L	Secondary GW and DW Standard
Manganese - Dissolved	ND	5,349 to 6,484	ND	466 to 694	ND	2,126 to 2,551	3,982 to 4,444	50 µg/L	Secondary GW and DW Standard
Nitrate	231 to 453	ND to 24.0	NA	ND to 59.0	NA	53 to 309.0	ND to ND	10,000 µg/L	Primary GW and DW Standard
Nitrite	ND	ND	NA	ND to 21	NA	ND	ND to ND	1,000 µg/L	Primary DW Standard
Oxidation-Reduction Potential	215 to 258	220 to 254	158 to 267	35.8 to 97.6	135.4 to 351	64.9 to 95.4	122 to 143	None	
pH - Field	6.3 to 6.5	6.2 to 6.2	6.3 to 6.9	6.6 to 6.7	6.6 to 6.9	6.6 to 6.7	6.6 to 6.7	6.5 - 8.5	Secondary GW Standard
pH - Laboratory	6.1 to 6.3	6.1 to 6.2	NA*	6.5 to 6.6	NA*	6.4 to 6.6	6.5 to 6.6	6.5 - 8.5	Secondary GW Standard
Potassium	620 to 681	713 to 898	NA	1,346 to 1,760	NA	939 to 999	1,202 to 1,308	None	
Sodium	4,359 to 4,746	8,081 to 9,274	NA	8,255 to 9,936	NA	7,299 to 8,314	13,691 to 17,280	20,000 µg/L	Secondary DW Standard
Specific Conductance (µmhos/cm)	110 to 132	331 to 452	NA*	312 to 383	NA*	204 to 298	394 to 462	700 µmhos/cm	Secondary DW Standard
Sulfate	3,935 to 4,372	14,190 to 17,054	NA	6,348 to 8,215	NA	4,145 to 4,850	7,920 to 11,000	250,000 µg/L	Secondary GW and DW Standard
Temperature (°C)	10.8 to 11.1	11.8 to 12.2	11.6 to 13.0	11.4 to 12.0	10.6 to 11.3	10.8 to 11.3	11.3 to 11.4	None	
Total Coliform (count)	ND	ND	NA	ND	NA	ND	ND	1/100mL	Primary GW and DW Standard
TOC	ND to 590	2,362 to 2,962	NA	1,860 to 2,260	NA	650 to 1,071	2,670 to 3,560	None	
Vinyl Chloride	ND	ND	ND	ND to 0.040	ND	ND to 0.03	ND	0.02 µg/L	Primary GW Standard
Vinyl Chloride	ND	ND	ND	ND to 0.040	ND	ND to 0.03	ND	0.29 µg/L	Site-Specific Cleanup Level
Zinc - Dissolved	ND	ND	ND	ND	ND	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

**Appendix C:**  
**Inspection, Maintenance, and Engineering Summary for 2022**

## Inspection, Maintenance, and Engineering Summary for 2022

The bulleted items below present a summary of the inspection, maintenance, and engineering tasks that were performed by SWD during 2022 at the Olalla Landfill.

- TRC conducted groundwater and landfill gas monitoring activities in all four quarters of 2022. 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 2022, 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 2022, 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 2023**



## **Activities Planned for 2023**

The bulleted items below present a summary of the planned inspections, maintenance and engineering activities planned for 2023 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 for monitoring and sampling activities for 2023.
- 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 is continuing to finalize and add information to the draft 5-year Remediation Assessment Status Report submitted to Ecology in 2021 which includes the 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:  
2022 Quarterly Monitoring Field Notes**

Olalla Landfill - 466410

3-22-22

GWS

L. Briant

Scope: Quantity GWS  
Staff: L. Briant & E. Stata  
Conditions: Rain, 50°F

①

0830: L. Briant & A. McKinnon onsite

0835: Client opens front gate for access.

0840: E. Stata onsite, Alexis offsite

0845: review scope of work & perform HHS meeting

0855: Gauge & mob to MW-1

0915: Begin Pumping on MW-1

0935: collect samples at MW-1

0955: mob to MW-2 & MW-4

1000: Gauge MW-2

1010: Gauge MW-1

1015: mob to MW-7, gauge well.

1020: mob to S-SA cluster to gauge

1035: mob to MW-3 to gauge/sample & DUP (MW-9)

1100: Begin Purge of MW-3.

1115: Trouble w/ turbidity meter  
↳ "Cap Error"

1120: Sample mw-3 → Dup "mw-9" below

(2)

1200: Sample DUP, MW-9

1215: Begin flare chemical analysis

1245: Lunch

1300: mds to mw-10

1310: Begin purge of MW-10

1340: Sample mw-10

1350: mds to mw-6, Setup on well.

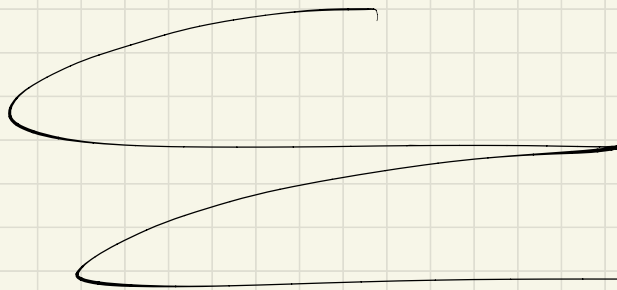
1420: Sample MW-6

1430: mds to mw-8, Setup on well.

1505: Sample mw-8, pack equipment

1520: Load equipment, lock up wells.

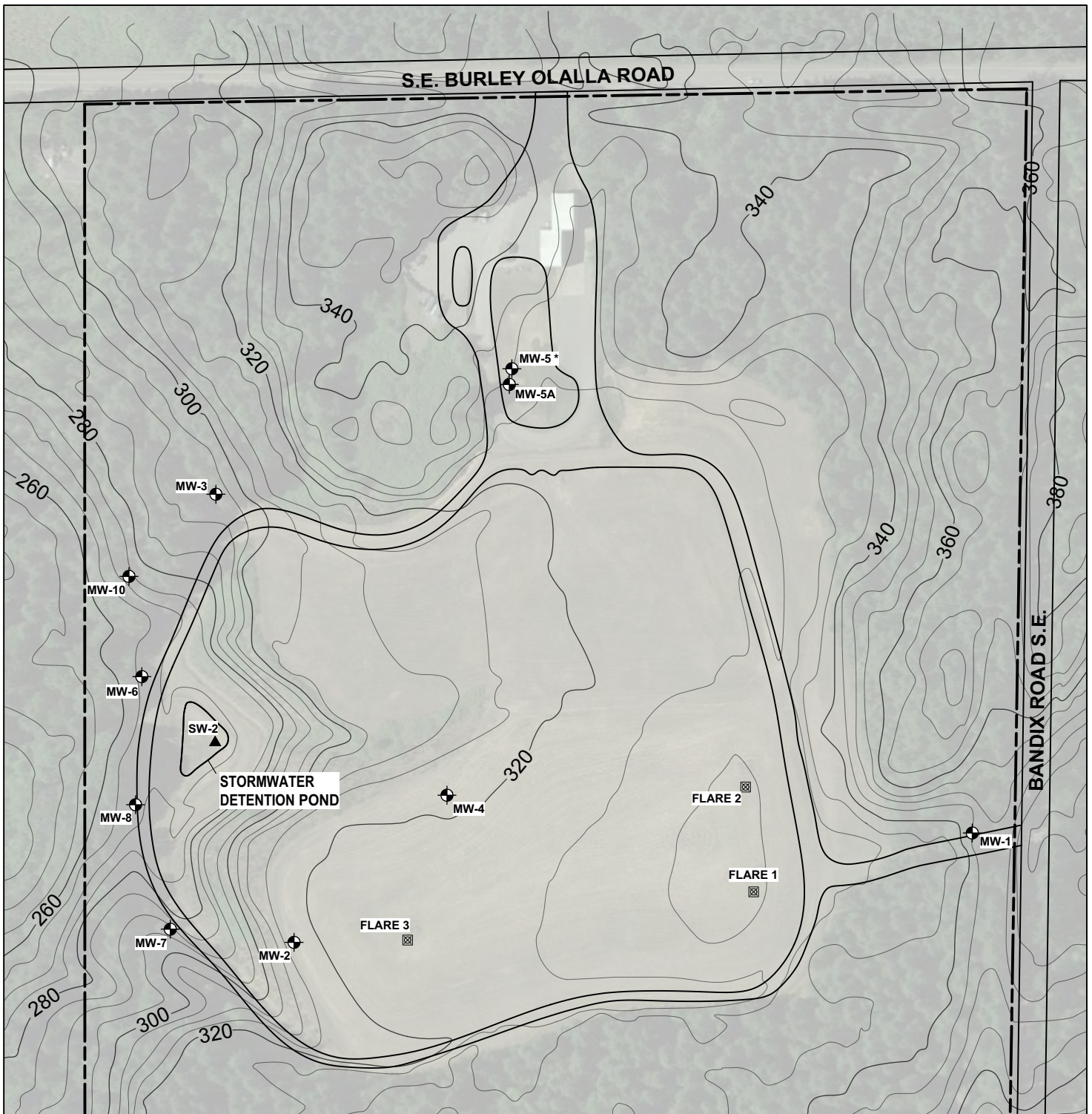
1530: TRC off-site



Ocala landfill - 466410

GWS  
6-9-22

L. Brient /  
E. Stata



**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

**PROJECT NUMBER**  
382595

**LOCATION**  
OLALLA LANDFILL  
KITSAP COUNTY, WASHINGTON

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

Scope: Quarterly GWS  
Staff: E. Stata & L. Bryant  
Cond: Rain, SSof.

①

0805: TRC on-site, open gate

0815: Both gates open, mob to mw-1

0825: Equip PPE, review H&S topics.

0835: Begin gauging & sampling of mw-1

0910: Sample MW-1, begin labeling

0925: Mob to MW-2 & mw-4 in fill & gauge wells

0945: Mob to MW-5 & MW-5A to gauge.

1000: Mob to mw-3 to gauge & sample

1040: Sample MW-3, prep bottles.

1055: Mob to MW-10, gauge & prep well

1130: Sample MW-10.

1145: Mob to landfill for flare analysis

1200: Begin flare analysis

1235: Grab bite to eat.



1300: Mob to mw-6, gauge +  
begin setting up purging equipment

(2)

1330: Sample mw-6  
↳ Dip collected (mw-17 @ 1600)

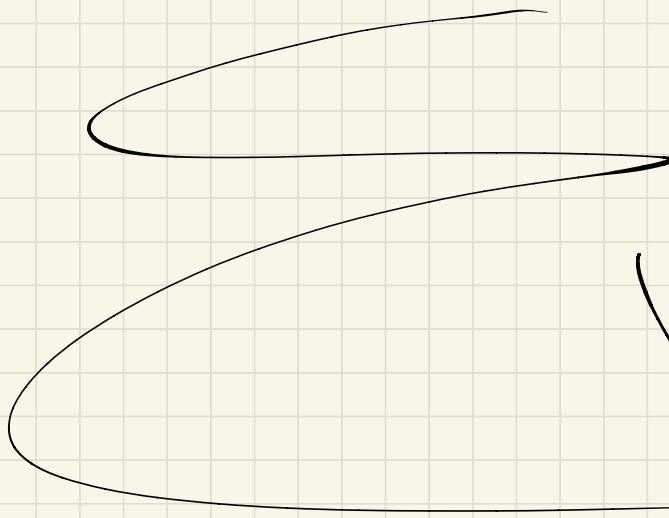
1345: Mob to mw-8, gauge + Prep  
well for Purge

1430: Sample mw-8

1450: Gauge mw-7, decon + load equipment

1455: Check samples, Prepare 10L

1510: TRC off-site



UP  
6-9-22

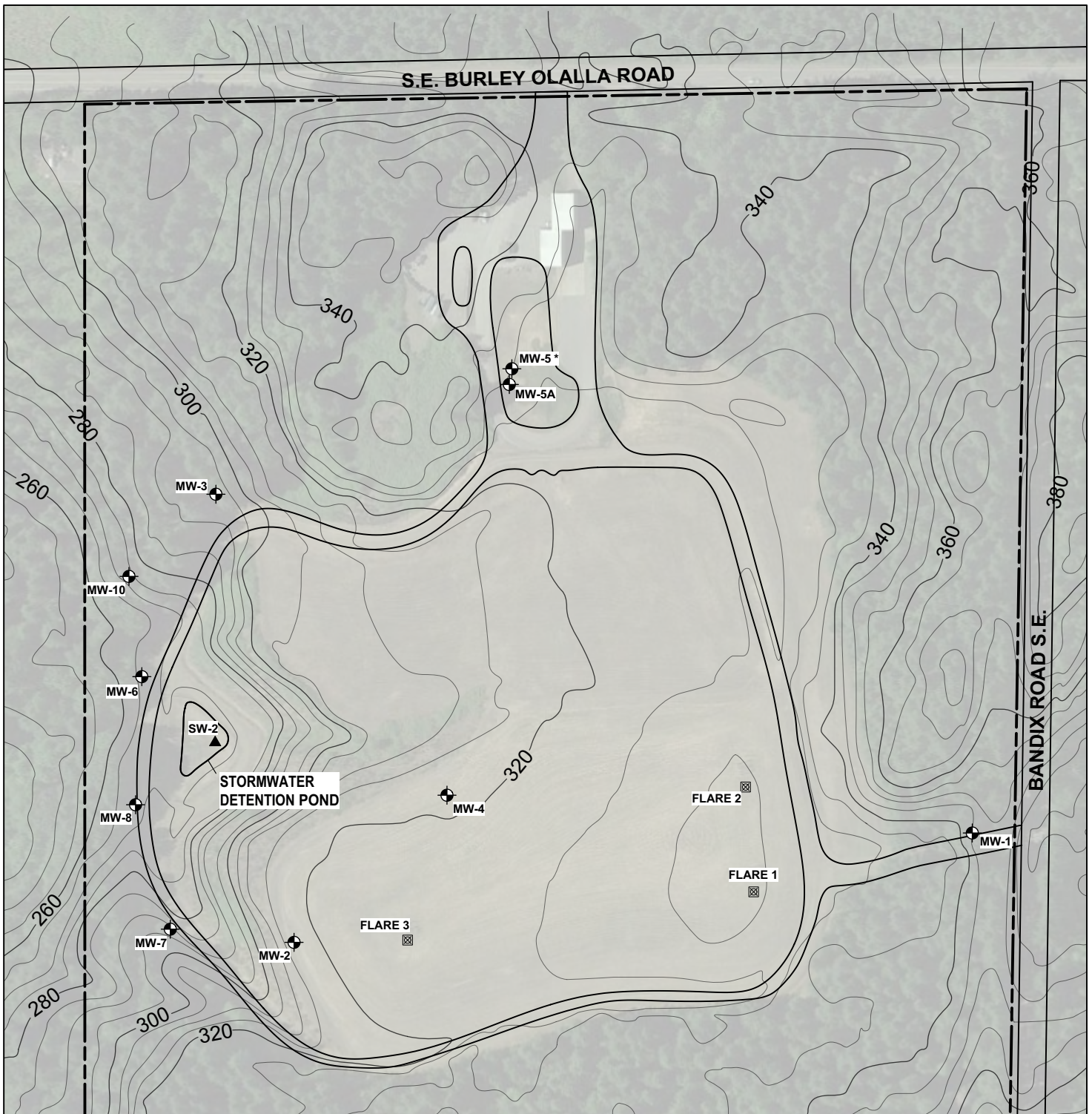
Ocala Landfill - 466410

Q3 GWS

09-21-22

466410

L. Brient 



**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

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

Scope: Quarterly GWS  
Staff: L. Brint & W. Weisberg  
conds: Sunny, 66°F

①

0825: L. Brint onsite, equip PPE

0835: Review HHS topics for site, W. Weisberg onsite.

0840: Mob to MW-1, Set up purge equipment.

0850: Begin stabilization @ MW-1

0920: Sample MW-1

0935: Mob to landfill to gauge MW-2 + MW-4

0950: Mob to landfill entrance to gauge MW-5 + MW-5A.

1000: Mob to MW-3, set-up equipment

1015: Begin purge on MW-3

1045: Sample MW-3

1055: Mob to MW-10

1105: Begin Purge on MW-10

1130: Sample MW-10

1145: Mob to landfill + begin flare analysis.

1230: Finish flame gas analysis

(2)

1230: Take lunch

1250: Mob to mw-7 to gauge

1300: Mob to mw-6 + set-up equipment.

1305: Begin purge on mw-6.

1340: Sample mw-6

1345: Mob to mw-8, Set up equipment


1350: Begin purge on mw-8, dup here (mw-12).

1420: Sample mw-8, collect dup (mw-12)

1435: Decon equipment, mobilize back to vehicles.

1450: Review QA + samples, ensure all bottles are filled

1505: TRC off-site



LB

9-21-22

# Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: \_\_\_\_\_ Turn-around Requested: \_\_\_\_\_

ARI Client Company: **Standard** Phone: \_\_\_\_\_

Client Contact: **Eric Cadbury** Phone: **425-395-0010**

Client Project Name: **Olalla Landfill Monitoring**

Client Project #: **466410** Samplers: **Wesley Weisberg**

Client Contact: **Eric Cadbury** **ecadbury@trscorporates.com**

Page: **1** of **1**

Date: **9/21/22** Ice Present?

No. of Coolers: \_\_\_\_\_ Cooler Temps: \_\_\_\_\_

Analysis Requested: **VOC**

**Vinyl Chloride**

**SIMS**

**Dissolved Metals As, Fe, Zn, Cu, Mn**

**Total Metals K, Na, Ca**

**Alkalinity Carbonate Bicarbonate**

**Nitrate, nitrite Chloride, Sulfate pH**

**TOC, LOD, Ammonia**

**Total Coliform**

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



Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested							Notes/Comments		
					VOC	Vinyl Chloride	SIMS	Dissolved Metals As, Fe, Zn, Cu, Mn	Total Metals K, Na, Ca	Alkalinity Carbonate Bicarbonate	Nitrate, nitrite Chloride, Sulfate pH		TOC, LOD, Ammonia	Total Coliform
MMW-1	9/21/22	0920	Water	11	X	X	X	X	X	X	X	X	X	
MMW-3		1045			X	X	X	X	X	X	X	X	X	
MMW-10		1130			X	X	X	X	X	X	X	X	X	
MMW-6		1340			X	X	X	X	X	X	X	X	X	
MMW-8		1420			X	X	X	X	X	X	X	X	X	
MMW-12					X	X	X	X	X	X	X	X	X	
Comments/Special Instructions					Relinquished by: _____ (Signature) Printed Name: _____ Company: _____ Date & Time: <b>9/21/22</b>	Received by: _____ (Signature) Printed Name: _____ Company: _____ Date & Time: _____	Relinquished by: _____ (Signature) Printed Name: _____ Company: _____ Date & Time: _____	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.

Olalla landfill - GWS  
Quarter 4 - 2022

Olalla, WA  
Q4 GWS  
466410  
L. Brient

①

Scope: Quarterly GWS

Staff: L. Briant & W. Weisberg

Cons: 3PF, Clear

0635: TRC on-site, equip PPE

0640: Gain entrance to facility.

0650: mob to mw-1, gauge well to begin purge.

0925: Sample mw-1

0945: mob to interior landfill wells to gauge.  
mw-2 & mw-4

1000: mob to mw-5 & mw-5A. Gauge & set-up equipment on 5A.

1035: Sample mw-5A.

1045: mobilize to mw-3. Gauge & set-up equipment on well.

1110: Sample mw-3.

1120: mobilize to mw-10. Gauge & set-up equipment on well. Dup (mw-13) collected here

1150: Sample mw-10. Dup (mw-13) @ 1220

1205: Begin flare analysis.

1240: Finish flare analysis. Take lunch break.



1310: Mob to MW-6, set-up equipment.

1340: Sample MW-6.

1350: Mob to MW-6, begin purge on well.

1420: Sample MW-6

1430: Mob to MW-7, gauge & begin purge on well.

1500: Sample MW-7

1510: Mob equipment back to vehicles.

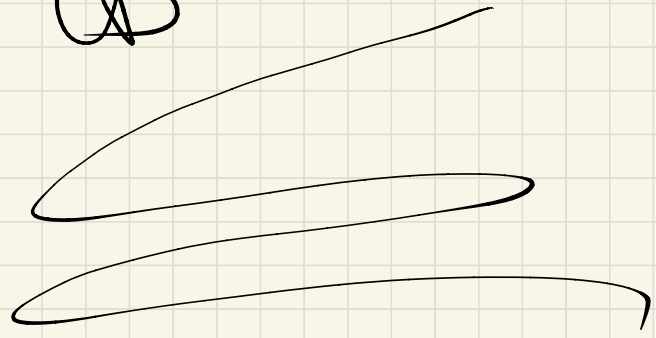
1515: cross-check COC to samples to ensure everything is collected.

1525: Review scope to ensure all data is collected.

1530: NO surface water discharge in pond.

1535: TRC off-site

LB



12-15-22

# Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number:	Turn-around Requested:	Page:	1	of	1
ARI Client Company:	Phone:	Date:	12/15/2022	Ice Present?	
Client Contact:	Client Project Name:	No. of Coolers:		Cooler Temps:	
Client Project #:	Samplers:	Analysis Requested			
		Notes/Comments			

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested				Notes/Comments	
					VOC & VC by SIM	Dissolved Metals (As, Fe, Zn, Ba, Mn)	Total Metals (K, Na, Ca)	Alkalinity, carbonate, bicarbonate		Nitrate, nitrite, Chloride Sulfate, pH
MW-1	12/15/22	0925	Water	11	X	X	X	X	X	
MW-5A		1035		3	X	X	X	X	X	Dissolved metals & VC by SIM only
MW-3		1110		11	X	X	X	X	X	
MW-10		1150		11	X	X	X	X	X	
MW-13		1228		11	X	X	X	X	X	
MW-6		1340		11	X	X	X	X	X	
MW-8		1420		11	X	X	X	X	X	
MW-7		1500		3	X	X	X	X	X	Dissolved metals & VC by SIM only

**Comments/Special Instructions**

Relinquished by: [Signature] Received by: [Signature]

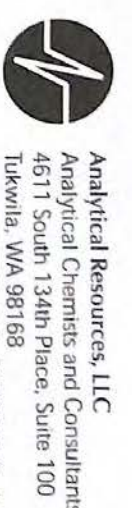
Printed Name: Wesley Weisberg Printed Name: [Signature]

Company: TRC Company: [Signature]

Date & Time: 12/15/2022 Date & Time: [Signature]

**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.

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Olall Landfill - 466410

Kitsap County

SW Sampling

1-13-2023

L. Briant

Scope: SW-2 Sampling  
conds: Rain, 47°F  
Staff: L. Briant

①

0945: L. Briant on-site, equip PDE.

1000: meet landfill staff, acquire keys to pond.

1010: calibrate YSI, Sec attached form.

1020: Gain access to pond, gather parameters  
from discharge

1030: Sample SW-2

1040: Ensure all samples collected, fill OA CC.

1050: Inform lab of incoming samples, lock pond gate

1100: TRC off-site.

Hand-drawn signature and date: 1-B-23

# Groundwater Sampling Field Data - Olalla Landfill Monitoring

Station	SW-2	Date	1-13-23
Sample: ID	SW-2	Field Team: (Initials)	LG
Field Conditions	Rcm 47°F		

## Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method	Submersible pump
Well Depth (ft.)	N/A	Other:	Grab Sample
Depth to Water (ft.)	↓	Start Time	1025
Depth of Water Column	↓	End Time	1035
1 Casing Volume (gal.)	↓	Total Gallons Purged	N/A
Controller setting (Hz)	↓		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
1025	N/A	6.29	0.0564	N/A	10.14	6.7	141.8	Clear

## Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC		(3) 40-mL VOA	HCl, cool to <4°C	
<del>Form</del> Coliform	1030	300-mL sterile AG or poly	Cool to <4°C	
Geochemical Parameters		500-mL HDPE	Cool to <4°C	
Nitrate/Nitrite	1030	500-mL HDPE	Cool to <4°C	
TOC		250-mL AG	H <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
COD		250-mL HDPE	H <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
Total Metals		250-mL HDPE	HNO <sub>3</sub> to pH <2, cool to <4°C	
Dissolved Metals		250-mL HDPE	Field filter, HNO <sub>3</sub> to pH <2, cool to <4°C	
pH	1030			

Sample End Time 1035

### Comments / Exceptions:

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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.

## TRC Instrument Calibration Log

Site: Olalla Landfill

Date: 1-13-23

Calibrated By: L Brient

Log Sheet 2 of 1

	Meter Type	Manufacturer	Model Number	Mnfg. Serial#	EPI ID#	Rental Co. Serial#	Time
<b>1a</b>	pH	Ysi	Pro	21F105627	Ysi 7	N/A	1000
<b>1b</b>	pH Electrode						
	Calibrated: <u>4.01</u> to 4.00 buffer <u>7.00</u> to 7.00 buffer <u>1006</u> to 10.00 buffer at <u>11.8</u> °C						
	Slope = _____ Comments:						
<b>2</b>	<b>Conductivity</b>						
	Specific Conductance: Calibrated <u>1120</u> μS/cm to <u>1120</u> μS/cm calibration standard						
	Electrical Conductivity: Calibrated <u>N/A</u> μS/cm to <u>N/A</u> μS/cm calibration standard at <u>11.8</u> °C						
	Comments:						
<b>3</b>	<b>Temperature</b>	<u>Pass</u>					
<b>4a</b>	<b>ORP Meter</b>						
<b>4b</b>	ORP Electrode						
	<b>Electrode Filling Solution=</b>						
	Use Orion 900001 electrode filling solution for dilute solutions that have a total ionic strength of <0.2 M.						
	Using 900001 fill solution, the electrode will match the potential of a conventional calomel electrode.						
	Electrode measured <u>220</u> millivolts at <u>11.9</u> °C in Zobell prepared on / /						
	Table value for Zobell solution at this temperature is <u>220.0</u> mV.						
	Electrode measured _____ millivolts at _____ °C using _____ solution.						
	Table value for _____ fill solution at this temperature is _____ mV.						
<b>5</b>	<b>Turbidity</b>						
	Calibrated turbidimeter to 0.02 NTUs reference standard. Comments: <u>N/A for Sampling</u>						
<b>6a</b>	<b>DO Meter</b>						
	Air-Calibration: Measured temperature <u>N/A</u> °C corresponds to <u>N/A</u> mg/L DO (from Table I)						
	Atmospheric pressure / elevation correction factor <u>N/A</u> (from Table II)						
	Corrected calibration value <u>N/A</u> mg/L DO (Table I value times Table II value)						
	Comments: <u>Pass bump check on-site.</u>						



# Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: \_\_\_\_\_ Turn-around Requested: \_\_\_\_\_

ARI Client Company: TDC Phone: 425-36-0010

Client Contact: Eric Cuddy

Client Project Name: Okalla landfill

Client Project #: 466410 Samplers: WB

Sample ID: SW-2 Date: 11-23 Time: 1030 Matrix: Water No Containers: 3

Analysis Requested:  Fecal coliform  PH  Nitrogen-Nitrate

Date: 11-23 Ice Present?  No. of Coolers: \_\_\_\_\_ Cooler Temps: \_\_\_\_\_

Notes/Comments: \_\_\_\_\_


Sample ID	Date	Time	Matrix	No Containers	Fecal coliform	PH	Nitrogen-Nitrate
<u>SW-2</u>	<u>11-23</u>	<u>1030</u>	<u>Water</u>	<u>3</u>	<u>X</u>	<u>X</u>	<u>X</u>

Comments/Special Instructions	Retrieved by:		Received by:		Retrieved by:		Received by:	
	(Signature)	Printed Name:	(Signature)	Printed Name:	(Signature)	Printed Name:	(Signature)	Printed Name:
	<i>[Signature]</i>	<u>Lonko Bigh</u>	<i>[Signature]</i>	<u>Joe Smith</u>				

Date & Time: 11-23 @ 1140 Date & Time: 0119/23 11:42

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



# **Olalla Landfill Quarterly Monitoring Field Book March 2022**



**Olalla Landfill  
Kitsap County, Washington  
Project Number: 466410.0000. Task 3**

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

## 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-3 and label it as MW-9. 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.

## 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:

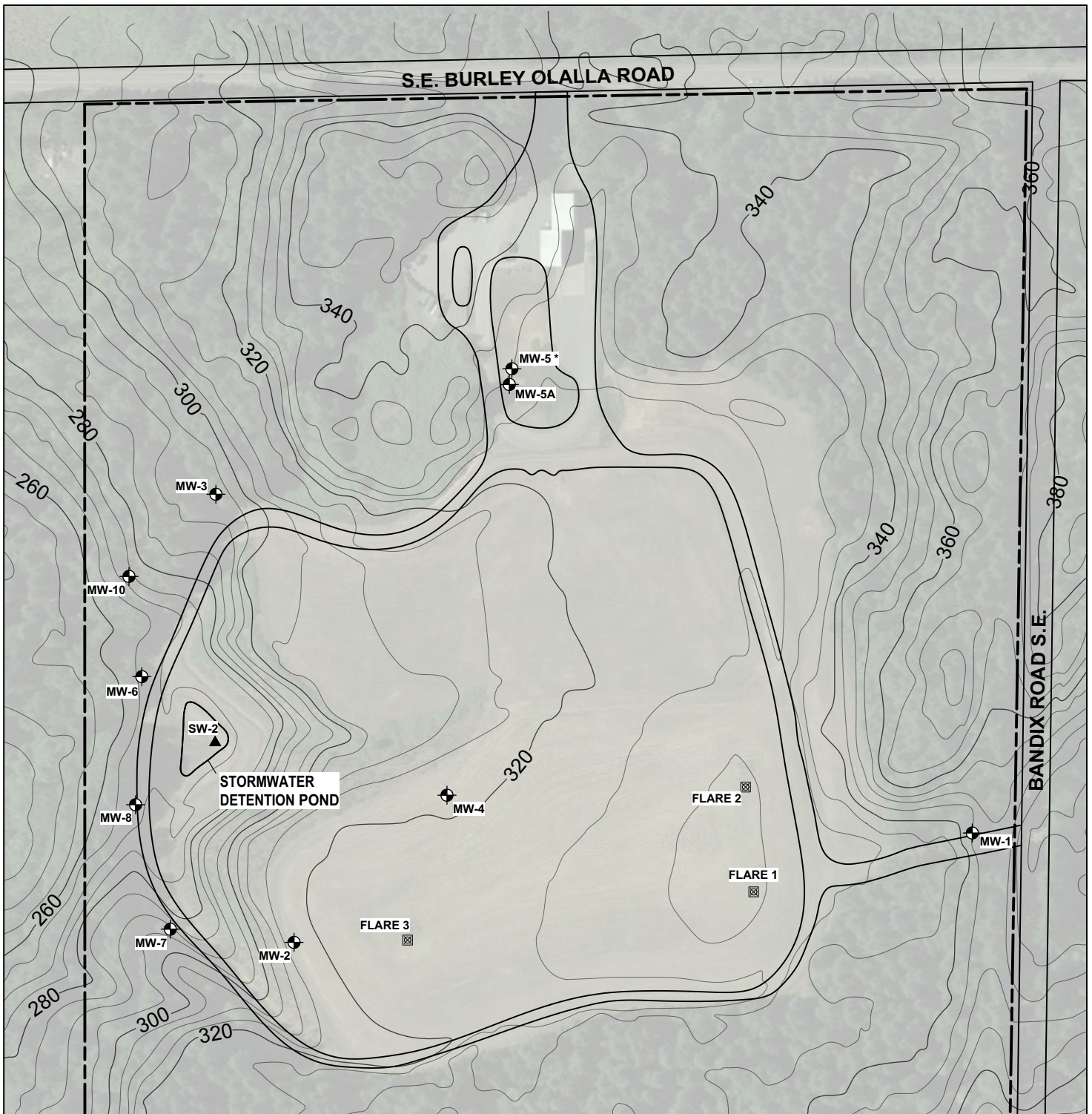
Appropriate gas powered generator (Honda eu2000i or equivalent)  
Power cord for generator  
Extra fuel for generator in DOT-approved container(s)  
Field logbook with appropriate field data forms  
Pens  
Sample bottles and coolers  
Spray bottles  
Appropriate PPE (see HASP)  
5-gallon purge water 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, CO<sub>2</sub>) and appropriate regulators and hoses  
Extra batteries or charging cords for meters and water level indicator

**Notes:**

DOT = Department of Transportation  
CO<sub>2</sub> = Carbon dioxide  
HASP = Health and safety plan  
ORP = Oxidation reduction potential  
PPE = Personal protective equipment  
YSI = Yellow Springs Instruments



**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 <sup>1</sup> )	Depth to Water (ft.)	Comments and Well Inspection <sup>2</sup> Notes
MW-1	0845	343.79	77.34	Temp pump installed
MW-2	1005	323.25	63.73	No comment
MW-3	1055	296.95	42.45	Lock is good.
MW-4	1010	320.93	60.81	No comment
MW-5	1035	334.17	8.56	Lock is good.
MW-5A	1030	332.53	76.31	Lock is good.
MW-6	1400	271.17	18.48	Lock is good.
MW-7	1021	280.43	23.69	Lock is good.
MW-8	1440	272.85	19.25	Lock is good.
MW-10	1300	279.21	27.41	Lock is good.

**Notes:**

<sup>1</sup>NGVD = National Geodetic Vertical Datum (1929)

<sup>2</sup>Observations 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 attached\**

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	3.22.2022
Sample: ID	MW-1	Field Team: (Initials)	LB + ES
Field Conditions	Rain, 50°F		

## Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method	Submersible pump
Well Depth (ft.)	87'	Other:	
Depth to Water (ft.)	77.34	Start Time	0913
Depth of Water Column	9.66	End Time	0950
1 Casing Volume (gal.)		Total Gallons Purged	1.5 gallon
Controller setting (Hz)	N/A		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
0914	.2	6.55	.370	6.85	8.49	9.9	236.7	Clear, no odor
0917	.4	6.46	.381	7.34	8.33	9.8	242.3	↓
0920	.6	6.37	.403	8.44	8.56	9.7	254.3	
0923	.8	6.41	.408	4.83	8.46	9.9	256.1	
0926	1.0	6.39	.411	5.24	9.12	9.9	256.7	
0929	1.2	6.39	.417	5.14	9.11	10.0	257.7	
0932	1.4	6.39	.418	5.15	9.08	10.1	258.1	

## 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	↓	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 <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
COD		250-mL HDPE	H <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
Total Metals		250-mL HDPE	HNO <sub>3</sub> to pH <2, cool to <4°C	
Dissolved Metals		250-mL HDPE	Field filter, HNO <sub>3</sub> to pH <2, cool to <4°C	

Sample End Time 0950

## Comments / Exceptions:

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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	3-22-2022
Sample: ID	MW-3	Field Team: (Initials)	LB & ES
Field Conditions	Sunny, 54°F		

## Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method	Submersible pump
Well Depth (ft.)	55.50'	Other:	
Depth to Water (ft.)	42.45	Start Time	1100
Depth of Water Column	12.05	End Time	1200
1 Casing Volume (gal.)		Total Gallons Purged	1.5 gallons
Controller setting (Hz)	136.78		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
1100	.2	6.21	737	570	2.15	10.3	319	Clear, no odor
1103	.4	6.21	742	554	1.89	10.0	319.8	
1106	.6	6.20	741	304	1.66	10.1	301.1	
1109	.8	6.16	736	3.16	1.34	10.1	300.4	
1112	1.0	6.18	741	2.44	1.20	10.4	293.6	
1115	1.2	6.18	741	2.59	1.18	10.3	289.3	
1118	1.4	6.19	740	2.44	1.15	10.2	286.4	

## Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	1120	(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 <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
COD		250-mL HDPE	H <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
Total Metals		250-mL HDPE	HNO <sub>3</sub> to pH <2, cool to <4°C	
Dissolved Metals		250-mL HDPE	Field filter, HNO <sub>3</sub> to pH <2, cool to <4°C	

Sample End Time 1200

## Comments / Exceptions:

DIP taken → MW-9 @ 1200

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	3/22/2022
Sample: ID	MW-10	Field Team: (Initials)	UB + ES
Field Conditions	Sunny, 57°F		

## Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method	Submersible pump
Well Depth (ft.)	47.00'	Other:	
Depth to Water (ft.)	27.41	Start Time	1310
Depth of Water Column	19.59	End Time	1350
1 Casing Volume (gal.)		Total Gallons Purged	2.0 gal.
Controller setting (Hz)	117.47		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
1311	.2	6.47	906	6.27	2.71	10.6	295.3	Clean, NO odor
1314	.4	6.49	910	N.M	2.00	10.6	293.3	↓
1317	.6	6.56	881	N.M	1.28	10.9	284.4	
1320	.8	6.57	874	N.M	.78	11.5	274.3	
1323	1.0	6.58	869	N.M	.66	12.0	263.6	
1326	1.2	6.59	867	N.M	.57	12.1	256.9	
1329	1.4	6.59	866	N.M	.54	12.3	249.1	
1332	1.6	6.60	864	N.M	.53	12.3	242.4	

## Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	1340	(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 <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
COD		250-mL HDPE	H <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
Total Metals		250-mL HDPE	HNO <sub>3</sub> to pH <2, cool to <4°C	
Dissolved Metals		250-mL HDPE	Field filter, HNO <sub>3</sub> to pH <2, cool to <4°C	

Sample End Time 1350

## Comments / Exceptions:

Turbidity meter error → <10 NTU before malfunction

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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	3-22-2022
Sample: ID	MW-6	Field Team: (Initials)	CB + ES
Field Conditions	Sunny, 57°F		

## Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method	Submersible pump
Well Depth (ft.)	35.00'	Other:	
Depth to Water (ft.)	16.46'	Start Time	1400
Depth of Water Column	6.52	End Time	1435
1 Casing Volume (gal.)		Total Gallons Purged	1.5 gal.
Controller setting (Hz)	973		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
1400	.2	7.19	.396	N.M	1.69	11.7	217.7	clear, no odor
1403	.4	7.01	.405	↓	1.03	12.1	211.9	↓
1406	.6	6.97	.414	↓	.89	12.5	206.9	↓
1409	.8	6.95	.416	↓	.75	12.6	194.9	↓
1412	1.0	6.94	.415	↓	.73	12.9	186.7	↓
1415	1.2	6.94	.415	↓	.69	13.0	175.6	↓
1418	1.4	6.95	.415	✓	.71	13.0	171.5	✓

## Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	1420	(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 <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
COD	↓	250-mL HDPE	H <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
Total Metals	↓	250-mL HDPE	HNO <sub>3</sub> to pH <2, cool to <4°C	
Dissolved Metals	✓	250-mL HDPE	Field filter, HNO <sub>3</sub> to pH <2, cool to <4°C	

Sample End Time 1435

## Comments / Exceptions:

Cap error → 40 NTU

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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	3.22.2022
Sample: ID	MW-9	Field Team: (Initials)	UN + ES
Field Conditions	Sunny, 58°F		

## Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method	Submersible pump
Well Depth (ft.)	38.00'	Other:	
Depth to Water (ft.)	19.25'	Start Time	1445
Depth of Water Column	18.75	End Time	1515
1 Casing Volume (gal.)		Total Gallons Purged	1.5 gal.
Controller setting (Hz)	979		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
1445	.2	7.06	.432	N.M.	5.14	10.4	240.8	Clear, no odor
1448	.4	6.97	.437	↓	4.12	10.4	244.9	↓
1451	.6	6.71	.546		2.89	10.8	245.7	
1454	.8	6.70	.541		2.31	11.4	221.8	
1457	1.0	6.70	.540		2.16	11.7	194.7	
1500	1.2	6.71	.540		2.14	11.9	186.7	
1503	1.4	6.71	.539		2.13	12.0	179.4	

## Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	1505	(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 <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
COD		250-mL HDPE	H <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
Total Metals		250-mL HDPE	HNO <sub>3</sub> to pH <2, cool to <4°C	
Dissolved Metals		250-mL HDPE	Field filter, HNO <sub>3</sub> to pH <2, cool to <4°C	

Sample End Time 1515

### Comments / Exceptions:

Turbidity meter cap error, <10 NTU

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:	3-22-22 12:19
Ambient Temperature:	12°	Field Team:	ES
Field Conditions:	Sunny, light breeze		

### Landfill Gas Data

Flare #	Time	Methane (% vol.)	% LEL	Oxygen (% vol.)	Carbon Dioxide (% vol.)	Temperatur e (°C)	Gas Pressure ("H <sub>2</sub> O)
3	12:20	0.0	0.0	20.6	0.3	12°	-0.22
1	12:33	0.0	0.0	20.5	0.5	12°	-0.22
2	12:40	0.0	0.0	20.9	0.2	12°	-0.22

### Comments / Inspection Results<sup>1</sup>

FLARE 3	methane	0.0	
Flare 1	"	0.0	
Flare 2	"	0.0	

NB - hose bars are weakened - may

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

wish to replace on next field event.

### Example Quarterly Event Bottle Order Form

<b>Project Name</b>	Olalla Landfill Monitoring	<b>Date of Bottle Request</b>	3/14/2022		
<b>Project Number</b>	429487.0000	<b>Date Bottle are Needed</b>	3/21/2022		
<b>Client:</b>	TRC Environmental Corporation 1180 NW Maple St. Suite 310 Issaquah, WA 98027	<b>Estimated Date Samples will Return:</b>	3/22/2022		
<b>Client Contact:</b>	Doug Kunkel 425-241-8170				
<b>Lab PM:</b>	Kelly Bottem	<b>Order completed by:</b>	Laithan Briant		
<b># of Coolers:</b>	as needed	<b>YES</b>	Include LOOSE Labels		
<b>Trip Blanks</b>	1 set (3 VOAs)	<b>YES</b>	Include COC's		
<b>Number of Samples</b>	<b>Analysis Requested</b>	<b>Bottles Per Sample</b>	<b>Bottle Size and Type</b>	<b>Preservation</b>	<b>Total Bottles</b>
<b>Groundwater Samples</b>					
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 <sub>3</sub>	6
6	Total metals (K, Na, Ca)	1	500 mL HDPE	HNO <sub>3</sub>	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 <sub>2</sub> SO <sub>4</sub>	6
6	Total coliform	1	300 mL sterile amber glass or poly	Tablet	6
<b>Surface Water Sample (Sampled in March or December)</b>					
1	pH	1	500 mL poly	-	0
1	Nitrate-Nitrogen	1	500 mL poly	-	0
1	Fecal coliform	1	300 mL sterile amber glass or poly	Tablet	0
<b>Total Bottles:</b>					<b>66</b>

**EQUIPCO**

RENTALS

YSI ProDSS RENTAL  
CALIBRATION CERTIFICATESERVICE TECHNICIAN: GMDATE: 3/21/02RENTAL CUSTOMER: TRECINSTRUMENT INFORMATIONRENTAL I.D. NUMBER: YSI PRODSS. 05SERIAL NUMBER: 16F102616CALIBRATION INFORMATION

PARAMETER:	STANDARD:	PASS ( )	LOT #
1. CONDUCTIVITY	1,000 $\mu$ Mhos	<input checked="" type="checkbox"/>	<u>057939</u>
2. pH ZERO	pH 7	<input checked="" type="checkbox"/>	<u>065579</u>
pH SLOPE	pH 4	<input checked="" type="checkbox"/>	<u>062494</u>
pH SLOPE	pH 10	<input checked="" type="checkbox"/>	<u>062496</u>
3. DISSOLVED OXYGEN	Air Calibration Barometric pressure = 760mmHg	<input checked="" type="checkbox"/>	N/A
<del>4. TURBIDITY ZERO</del>	<del>0.0 NTU's</del>	<del>—</del>	<del>N/A</del>
<del>TURBIDITY SPAN</del>	<del>20 NTU's</del>	<del>—</del>	<del>—</del>
5. REDOX (ORP)	231mV (YSI Zobell solution)	<input checked="" type="checkbox"/>	<u>040621</u>

### 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: \_\_\_\_\_ Turn-around Requested: Standard Page: 1 of \_\_\_\_\_  
 ARI Client Company: TRC Phone: 425-395-0010 Date: 3-22-22 Ice Present? \_\_\_\_\_  
 Client Contact: Doug Kunkel, Eric Cartley No. of Coolers: \_\_\_\_\_ Cooler Temps: \_\_\_\_\_

Client Project Name: oJalla Landfill  
 Client Project #: 466410 Samplers: UB&ES

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested										Notes/Comments			
					VOC	VC	SVOCs	PCBs	PAHs	Trace Metals	Trace Organics	AIK	BioB	PM10		PM2.5	PM10-2.5	PM2.5-10
MW-1	3-22-22	0835	H <sub>2</sub> O	11	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW-3		1120																
MW-9		1200																
MW-10		1340																
MW-6		1420																
MW-6	✓	1505	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Trip Blank	3-22-22			3	X													

Comments/Special Instructions	Requested by (Signature):	Received by (Signature): _____	Requested by (Signature): _____	Received by (Signature): _____
	Printed Name: <u>Leithen Bixert</u>	Printed Name: _____	Printed Name: _____	Printed Name: _____
	Company: <u>TRC</u>	Company: _____	Company: _____	Company: _____
	Date & Time: <u>3-22-22</u>	Date & Time: _____	Date & Time: _____	Date & Time: _____

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

**Sample Retention Policy:** 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.

# **Olalla Landfill Quarterly Monitoring Field Book June 2022**



**Olalla Landfill  
Kitsap County, Washington  
Project Number: 466410.0000. Task 3**

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



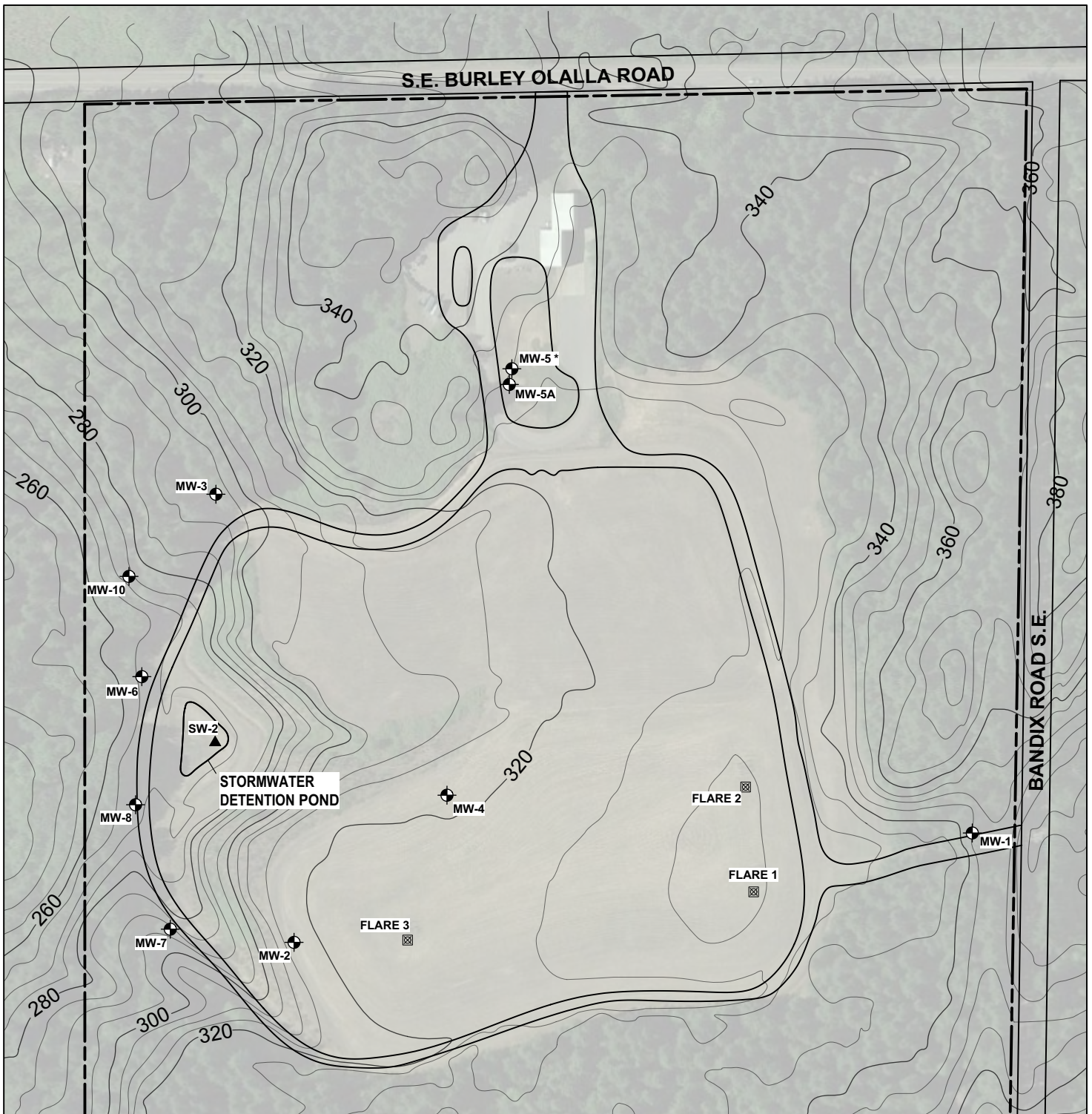
## Project Instructions - Olalla Landfill Quarterly Monitoring

- 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-3 and label it as MW-9. 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.

### 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



**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

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

## 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, CO <sub>2</sub> ) and appropriate regulators and hoses
Extra batteries or charging cords for meters and water level indicator

Notes:

DOT = Department of Transportation

CO<sub>2</sub> = Carbon dioxide

HASP = Health and safety plan

ORP = Oxidation reduction potential

PPE = Personal protective equipment

YSI = Yellow Springs Instruments

## Depth to Water Measurement Field Data - Olalla Landfill Monitoring

Well	Time	Measuring Point Elevation (ft. NGVD <sup>1</sup> )	Depth to Water (ft.)	Comments and Well Inspection <sup>2</sup> Notes
MW-1	0935	343.79	75.23	Temp well installed
MW-2	0930	323.25	63.09	NO comment
MW-3	1015	296.95	43.25	NO comment
MW-4	0939	320.93	59.99	well cap key
MW-5	0952	334.17	9.66	NO comment
MW-5A	0955	332.53	73.66	NO comment
MW-6	1305	271.17	19.14	NO comment
MW-7	1500	280.43	23.61	NO comment
MW-8	1353	272.85	19.66	Ant nest in monument.
MW-10	1110	279.21	28.19	NO comment

**Notes:**

<sup>1</sup>NGVD = National Geodetic Vertical Datum (1929)

<sup>2</sup>Observations 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 attached \**

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:**

# EQUIPCO

## CES LANDTECH MODEL: GEM 2000 CALIBRATION CERTIFICATE

SERVICE TECHNICIAN: DM

DATE: 06/07/22

### INSTRUMENT INFORMATION

RENTAL ID: GEM2000. 11

SERIAL NUMBER: GM07638/04

### CALIBRATION INFORMATION

1..CALIBRATION GAS: 35 % CO<sub>2</sub>

LOT #: 573162

GAS RESPONSE: 35 % CO<sub>2</sub> ±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



RENTALS

YSI ProDSS RENTAL CALIBRATION CERTIFICATE

SERVICE TECHNICIAN: DM  
RENTAL CUSTOMER: TRC

DATE: 06/07/22

INSTRUMENT INFORMATION

RENTAL I.D. NUMBER: YSIPRODSS. 07

SERIAL NUMBER: 165104825

CALIBRATION INFORMATION

PARAMETER:	STANDARD:	PASS ( )	LOT #
1. CONDUCTIVITY	1,000 $\mu$ Mhos	<input checked="" type="checkbox"/>	<u>057939</u>
2. pH ZERO	pH 7	<input checked="" type="checkbox"/>	<u>065579</u>
pH SLOPE	pH 4	<input checked="" type="checkbox"/>	<u>062494</u>
pH SLOPE	pH 10	<input checked="" type="checkbox"/>	<u>062496</u>
3. DISSOLVED OXYGEN	Air Calibration Barometric pressure = 760mmHg	<input checked="" type="checkbox"/>	N/A
<del>4. TURBIDITY ZERO</del>	<del>0.0 NTU's</del>	<del>—</del>	<del>N/A</del>
<del>TURBIDITY SPAN</del>	<del>20 NTU's</del>	<del>—</del>	<del>—</del>
5. REDOX (ORP)	231mV (YSI Zobell solution)	<input checked="" type="checkbox"/>	<u>040621</u>



# Groundwater Sampling Field Data - Olalla Landfill Monitoring

Station	MW-1	Date	6-9-22
Sample: ID	MW-1	Field Team: (Initials)	UBES
Field Conditions	rain, 56°F		

## Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method	Submersible pump
Well Depth (ft.)	87'	Other: :	↳ temp
Depth to Water (ft.)	75.23	Start Time	0650
Depth of Water Column		End Time	0925
1 Casing Volume (gal.)		Total Gallons Purged	2.5 gal
Controller setting (Hz)	N/A		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
0846	.2	6.13	.151	4.15	7.66	10.5	144.8	Clear
0851	.4	6.22	.150	4.12	6.12	10.5	90.0	↓
0854	.6	6.25	.148	4.00	5.78	10.4	70.4	
0857	.8	6.25	.146	3.90	5.97	10.4	74.1	
0900	1.0	6.26	.149	3.92	5.90	10.6	77.8	
0903	1.2	6.25	.150	3.71	5.63	10.6	80.9	
0906	1.4	6.25	.151	4.72	5.79	10.6	85.9	

## Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	0910	(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 <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
COD		250-mL HDPE	H <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
Total Metals		250-mL HDPE	HNO <sub>3</sub> to pH <2, cool to <4°C	
Dissolved Metals		250-mL HDPE	Field filter, HNO <sub>3</sub> to pH <2, cool to <4°C	

Sample End Time 0925

## Comments / Exceptions:

Temp Pump, No odor

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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	6-9-22
Sample: ID	MW-3	Field Team: (Initials)	LD & ES
Field Conditions	rain, soft		

## Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method :	Submersible pump
Well Depth (ft.)	55.50'	Other: :	
Depth to Water (ft.)	43.25	Start Time	1020
Depth of Water Column		End Time	1100
1 Casing Volume (gal.)		Total Gallons Purged	3.0 gal
Controller setting (Hz)	142.1		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
1020	.2	6.35	.273	23.9	0.97	11.4	164.0	clear
1023	.4	6.31	.276	19.4	0.66	11.7	160.1	
1026	.6	6.27	.282	14.2	0.61	12.1	156.6	
1029	.8	6.25	.284	8.04	0.52	13.0	147.4	
1032	1.0	6.27	.285	6.80	0.50	13.1	143.8	
1035	1.2	6.30	.286	5.38	0.48	13.2	140.6	
1038	1.4	6.32	.286	4.52	0.45	13.3	137.0	

## Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	1040	(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 <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
COD		250-mL HDPE	H <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
Total Metals		250-mL HDPE	HNO <sub>3</sub> to pH <2, cool to <4°C	
Dissolved Metals		250-mL HDPE	Field filter, HNO <sub>3</sub> to pH <2, cool to <4°C	

Sample End Time 1100

## Comments / Exceptions:

NO odor

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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	6-9-23
Sample: ID	MW-10	Field Team: (Initials)	LS + ES
Field Conditions	Fair, 61°F		

## Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method :	Submersible pump
Well Depth (ft.)	47.00'	Other :	
Depth to Water (ft.)	28.19	Start Time	1110
Depth of Water Column		End Time	1150
1 Casing Volume (gal.)		Total Gallons Purged	3 sev.
Controller setting (Hz)	120.0		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
1110	.2	6.72	503	7.60	3.12	10.4	193.6	clear
1113	.4	6.61	525	7.97	1.20	10.5	184.2	↓
1116	.6	6.63	519	6.46	0.63	10.6	167.3	
1119	.8	6.61	514	4.50	0.46	11.2	151.3	
1122	1.0	6.60	514	4.44	0.38	11.7	137.7	
1125	1.4	6.60	519	4.14	0.36	11.8	131.8	
1128	1.6	6.62	516	4.81	0.33	11.9	125.5	

## Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	1130	(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 <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
COD		250-mL HDPE	H <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
Total Metals		250-mL HDPE	HNO <sub>3</sub> to pH <2, cool to <4°C	
Dissolved Metals		250-mL HDPE	Field filter, HNO <sub>3</sub> to pH <2, cool to <4°C	

Sample End Time 1145

## Comments / Exceptions:

no odor

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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	6-9-22
Sample: ID	MW - 6	Field Team: (Initials)	UB + ES
Field Conditions	rain, 58°F		

## Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method	Submersible pump
Well Depth (ft.)	35.00'	Other: :	
Depth to Water (ft.)	19.19	Start Time	1303
Depth of Water Column		End Time	1350
1 Casing Volume (gal.)		Total Gallons Purged	3 gal.
Controller setting (Hz)	101.0		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
1309	.2	6.74	.308	116	5.72	10.9	146.2	Clear
1312	.4	6.70	.318	94.5	2.74	11.2	110.1	
1315	.6	6.63	.356	44.0	1.21	11.6	97.6	
1316	.8	6.52	.370	12.4	0.71	12.0	88.5	
1321	1.2	6.49	.371	8.58	0.59	12.1	82.1	
1324	1.4	6.50	.372	6.19	0.51	12.2	75.2	
1327	1.6	6.52	.372	4.95	0.47	12.2	71.2	

## Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	1330	(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 <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
COD		250-mL HDPE	H <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
Total Metals		250-mL HDPE	HNO <sub>3</sub> to pH <2, cool to <4°C	
Dissolved Metals		250-mL HDPE	Field filter, HNO <sub>3</sub> to pH <2, cool to <4°C	

Sample End Time 1350

## Comments / Exceptions:

Dup collected → MW-17 (@ 1600)

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	6-9-22
Sample: ID	MW-8	Field Team: (Initials)	LBTES
Field Conditions	Heavy rain, 55°F		

## Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method	Submersible pump
Well Depth (ft.)	38.00'	Other:	
Depth to Water (ft.)	19.68'	Start Time	1355
Depth of Water Column		End Time	1430
1 Casing Volume (gal.)		Total Gallons Purged	4 gal.
Controller setting (Hz)	105.0		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
1358	.2	6.69	.145	30.7	1.13	10.2	78.4	Clear
1401	.4	6.59	.176	18.6	0.79	10.7	66.2	↓
1404	.6	6.56	.194	18.3	0.66	10.8	63.9	
1407	.8	6.51	.200	15.7	0.57	10.9	61.6	
1410	1.0	6.46	0.214	14.5	0.48	11.0	58.7	
1413	1.2	6.46	0.220	9.63	0.45	11.1	54.7	
1416	1.4	6.56	0.238	8.67	0.35	11.1	47.1	
1419	1.6	6.57	0.241	6.07	0.33	11.2	41.7	
1422	1.8	6.59	0.244	5.65	0.30	11.2	36.5	
1425	2.0	6.61	0.246	4.62	0.29	11.2	35.0	

## Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	1430	(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 <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
COD		250-mL HDPE	H <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
Total Metals		250-mL HDPE	HNO <sub>3</sub> to pH <2, cool to <4°C	
Dissolved Metals		250-mL HDPE	Field filter, HNO <sub>3</sub> to pH <2, cool to <4°C	

Sample End Time 1450

## Comments / Exceptions:

Ant nest in well monument

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 (LAWOEC)	Date and Time:	6/9/2022 12:00
Ambient Temperature:	12°C	Field Team:	STARR/BHANT
Field Conditions:	Raining		

### Landfill Gas Data

Flare #	Time	Methane (% vol.)	% LEL	Oxygen (% vol.)	Carbon Dioxide (% vol.)	Temperatur e (°C)	Gas Pressure ("H <sub>2</sub> O)
3	1215	1.1	2.8	0.0	12.0	12°C	0.0
1	1224	0.0	0.0	11.1	5.2	12°C	0.0
2	1229	0.0	0.0	12.2	5.2	12°C	0.0

### Comments / Inspection Results<sup>1</sup>

N/A

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

## June 2022 Quarterly Event Bottle Order Form

<b>Project Name</b>	Olalla Landfill Monitoring	<b>Date of Bottle Request</b>	June 3, 2022
<b>Project Number</b>	466410.0	<b>Date Bottle are Needed</b>	June 8, 2022
<b>Client:</b>	TRC 1180 NW Maple St. Suite 310 Issaquah, WA 98027	<b>Estimated Date Samples will Return:</b>	June 9, 2022
<b>Client Contact:</b>	Eric Caddey		
<b>Lab PM:</b>	Kelly Bottem	<b>Order completed by:</b>	Laithan Briant
<b># of Coolers:</b>	as needed	<b>YES</b>	Include LOOSE Labels
<b>Trip Blanks</b>	1 set (3 VOAs)	<b>YES</b>	Include COC's

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

**Total Bottles: 77**

### 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:	Turn-around Requested: <b>STD</b>	Page: <b>1</b> of <b>1</b>
ARI Client Company: <b>TRC</b>	Phone: <b>425-345-0910</b>	Date: <b>6-9-22</b> Ice Present?
Client Contact: <b>Eric Carley</b>	No. of Coolers:	Cooler Temps:

Client Project Name: <b>Oxalla Landfill</b>	Analysis Requested	Notes/Comments
---	--------------------	----------------

Client Project #: <b>466410</b>	Samplers: <b>LB &amp; ES</b>
---------------------------------	------------------------------

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested												Notes/Comments
					VOC 5260	VC 5260	Diss. metals Fe, Zn, Ba, Mn	Tot. metals K, Na, Ca	Alk, Carb, bi-carb	NO <sub>3</sub> , SO <sub>4</sub> , NO <sub>2</sub> , F <sup>-</sup> , Chloride	TOD, COD	+ NH <sub>3</sub>	Total conform				
MW-1	6-9-22	0910	H <sub>2</sub> O	11	X	X	X	X	X	X	X	X	X				
MW-3		1040															
MW-10		1130															
MW-6		1330															
MW-8		1430															
MW-17	↓	1600	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓				
Tr. Blank	6-9-22			3	X												

Comments/Special Instructions	Relinquished by (Signature):	Received by (Signature):	Relinquished by (Signature):	Received by (Signature):
	Printed Name: <b>Lauren Brient</b>	Printed Name:	Printed Name:	Printed Name:
	Company: <b>TRC</b>	Company:	Company:	Company:
	Date & Time: <b>6-9-22</b>	Date & Time:	Date & Time:	Date & Time:

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

**Sample Retention Policy:** 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.



# **Olalla Landfill Quarterly Monitoring Field Book September 2022**



**Olalla Landfill  
Kitsap County, Washington  
Project Number: 466410.0000. Task 3**

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

## Project Instructions - Olalla Landfill Quarterly Monitoring

- Access the landfill from the main entrance off SE Burley Olalla Rd. The gate code is 9300. Lock the gate after entry.
- 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-8 and label it as MW-12. 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 main entrance gate are locked before you leave.

### 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

## 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, CO <sub>2</sub> ) and appropriate regulators and hoses
Extra batteries or charging cords for meters and water level indicator

Notes:

DOT = Department of Transportation

CO<sub>2</sub> = Carbon dioxide

HASP = Health and safety plan

ORP = Oxidation reduction potential

PPE = Personal protective equipment

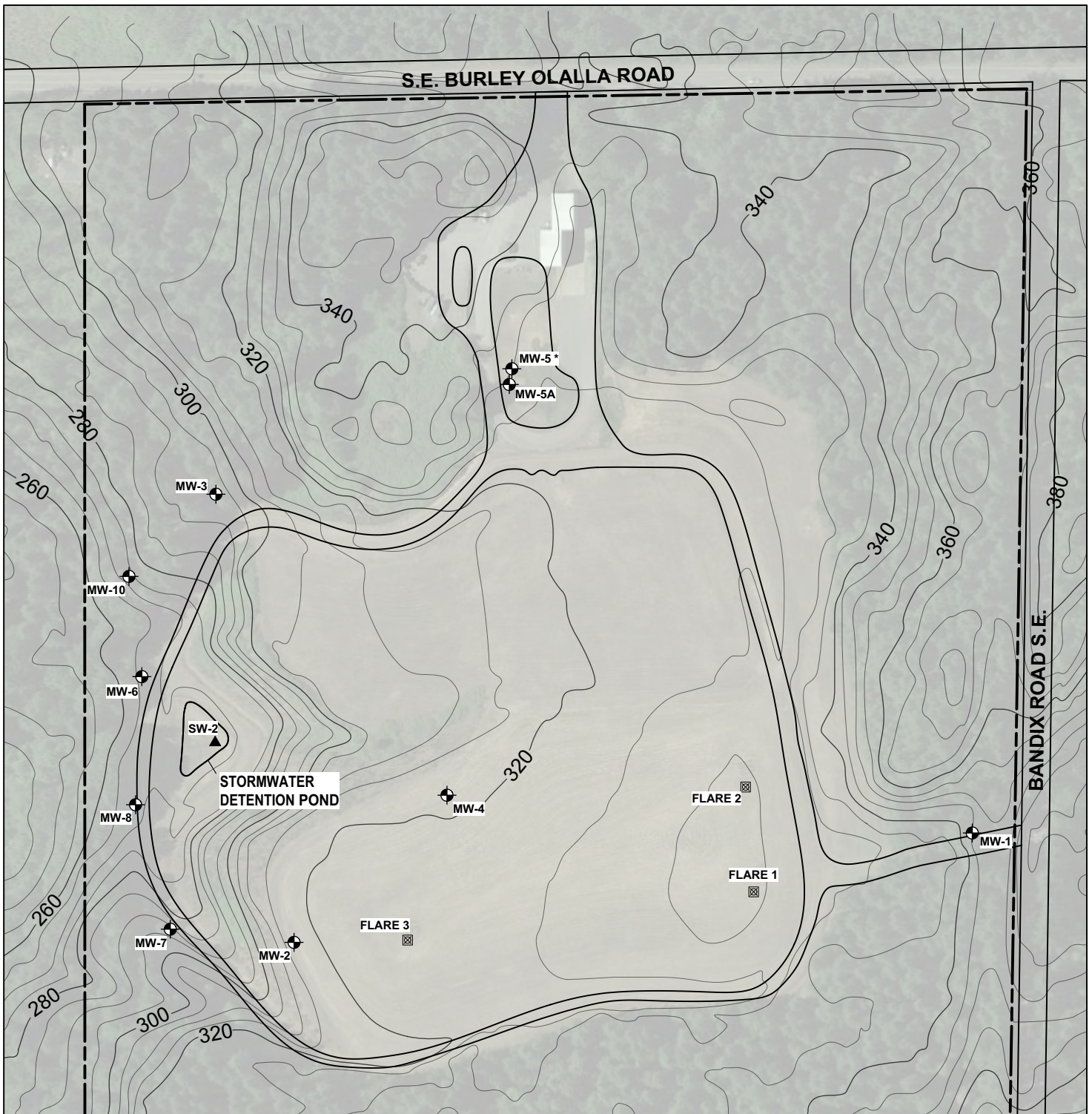
YSI = Yellow Springs Instruments

## June 2022 Quarterly Event Bottle Order Form

<b>Project Name</b>	Olalla Landfill Monitoring	<b>Date of Bottle Request</b>	September 12, 2022
<b>Project Number</b>	466410.0	<b>Date Bottle are Needed</b>	September 20, 2022
<b>Client:</b>	TRC 1180 NW Maple St. Suite 310 Issaquah, WA 98027	<b>Estimated Date Samples will Return:</b>	September 21, 2022
<b>Client Contact:</b>	Eric Caddey		
<b>Lab PM:</b>	Kelly Bottem	<b>Order completed by:</b>	Laithan Briant
<b># of Coolers:</b>	as needed	<b>YES</b>	Include LOOSE Labels
<b>Trip Blanks</b>	1 set (3 VOAs)	<b>YES</b>	Include COC's

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

**Total Bottles: 77**



**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

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

## Depth to Water Measurement Field Data - Olalla Landfill Monitoring

Well	Time	Measuring Point Elevation (ft. NGVD <sup>1</sup> )	Depth to Water (ft.)	Comments and Well Inspection <sup>2</sup> Notes
MW-1	0950	343.79	75.40	Temp Sub. Pump
MW-2	0940	323.25	63.32	NO comment
MW-3	1015	296.95	44.04	NO comment
MW-4	0945	320.93	60.53	NO comment
MW-5	0955	334.17	11.87	NO comment
MW-5A	1000	332.53	74.12	NO comment
MW-6	1305	271.17	19.94	NO comment
MW-7	1300	280.43	24.21	NO comment
MW-8	1400	272.85	20.30	NO comment
MW-10	1105	279.21	29.00	NO comment

**Notes:**

<sup>1</sup>NGVD = National Geodetic Vertical Datum (1929)

<sup>2</sup>Observations 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 attached*

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 attached*



# Groundwater Sampling Field Data - Olalla Landfill Monitoring

Station	MW-1	Date	09-21-22
Sample: ID	MW-1	Field Team: (Initials)	CB & WW
Field Conditions	Sunny, 62°F		

## Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method : Submersible pump	Other: Temp Sub. Pump
Well Depth (ft.)	87.00'	Start Time	09:54
Depth to Water (ft.)	75.40'	End Time	09:20
Depth of Water Column		Total Gallons Purged	1.4 gal
1 Casing Volume (gal.)			
Controller setting (Hz)	N/A		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
0956	0.2	6.31	.147	5.00	7.79	10.7	217.3	clean, no odor
0959	0.4	6.35	.147	4.07	7.67	10.9	230.4	↓
0902	0.6	6.36	.147	3.91	7.51	11.1	241.9	
0905	0.8	6.33	.146	3.66	7.69	11.2	256.9	
0908	1.0	6.32	.144	3.91	7.78	11.6	265.3	
0911	1.2	6.35	.149	3.50	7.62	11.8	276.2	
0914	1.4	6.33	.146	4.53	7.51	11.9	281.4	

## Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	0920	(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 <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
COD		250-mL HDPE	H <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
Total Metals		250-mL HDPE	HNO <sub>3</sub> to pH <2, cool to <4°C	
Dissolved Metals		250-mL HDPE	Field filter, HNO <sub>3</sub> to pH <2, cool to <4°C	

Sample End Time 0936

## Comments / Exceptions:

NO odor

UB

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	09-21-22
Sample: ID	MW-3	Field Team: (Initials)	CB & WW
Field Conditions	Sunny, 62°F		

## Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method	Submersible pump
Well Depth (ft.)	55.50'	Other: :	
Depth to Water (ft.)	44.04'	Start Time	1015
Depth of Water Column		End Time	1050
1 Casing Volume (gal.)		Total Gallons Purged	1.4 gal.
Controller setting (Hz)	144.0		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
1014	0.2	6.24	.465	4.92	2.81	11.9	251.0	clean, no odor
1021	0.4	6.26	.466	3.83	2.56	11.4	275.5	↓
1024	0.6	6.25	.479	3.94	2.36	12.1	266.9	
1027	0.8	6.24	.499	1.77	2.16	12.9	251.1	
1030	1.0	6.24	.501	1.98	2.09	13.6	247.6	
1033	1.2	6.25	.503	1.48	2.03	13.8	241.7	
1036	1.4	6.27	.505	0.63	2.00	14.0	236.7	

## 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 <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
COD		250-mL HDPE	H <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
Total Metals		250-mL HDPE	HNO <sub>3</sub> to pH <2, cool to <4°C	
Dissolved Metals		250-mL HDPE	Field filter, HNO <sub>3</sub> to pH <2, cool to <4°C	

Sample End Time 1050

## Comments / Exceptions:

NO odor

B

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	09-21-22
Sample: ID	MW-10	Field Team: (Initials)	CB & WW
Field Conditions	Sunny, 62°F		

## Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method	Submersible pump
Well Depth (ft.)	47.00'	Other :	
Depth to Water (ft.)	29.00'	Start Time	1110
Depth of Water Column		End Time	1145
1 Casing Volume (gal.)		Total Gallons Purged	1.5 gal.
Controller setting (Hz)	121.0		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
1109	0.2	6.91	.441	2.23	3.83	11.8	278.9	clean, no odor
1112	0.4	6.72	.377	1.94	2.23	11.4	248.0	↓
1115	0.6	6.70	.384	2.55	1.78	11.9	180.9	
1119	0.8	6.69	.387	2.72	1.63	12.1	141.3	
1121	1.0	6.68	.388	0.44	1.59	12.3	172.8	
1124	1.2	6.69	.384	0.33	1.44	12.1	168.8	
1127	1.4	6.70	.389	0.23	1.47	12.2	167.4	

## Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	1130	(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 <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
COD		250-mL HDPE	H <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
Total Metals		250-mL HDPE	HNO <sub>3</sub> to pH <2, cool to <4°C	
Dissolved Metals		250-mL HDPE	Field filter, HNO <sub>3</sub> to pH <2, cool to <4°C	

Sample End Time 1140

## 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	09-21-22
Sample: ID	MW-6	Field Team: (Initials)	CB & WW
Field Conditions	Sunny, 62°F		

## Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method	Submersible pump
Well Depth (ft.)	35.00	Other: :	
Depth to Water (ft.)	19.98'	Start Time	1305
Depth of Water Column		End Time	1345
1 Casing Volume (gal.)		Total Gallons Purged	1.3 gal
Controller setting (Hz)	101.4		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
1316	0.2	6.51	.431	10.7	.61	11.6	114.5	clear, no odor
1319	0.4	6.48	.431	6.84	.57	12.0	109.2	↓
1322	0.6	6.47	.431	3.82	.49	12.3	106.8	
1325	0.8	6.47	.432	4.15	.45	12.6	103.2	
1328	1.0	6.47	.433	1.74	.43	12.8	102.6	
1331	1.2	6.47	.430	1.34	.39	12.8	97.6	

## Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	1340	(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 <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
COD		250-mL HDPE	H <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
Total Metals		250-mL HDPE	HNO <sub>3</sub> to pH <2, cool to <4°C	
Dissolved Metals		250-mL HDPE	Field filter, HNO <sub>3</sub> to pH <2, cool to <4°C	

Sample End Time 1350

## Comments / Exceptions:

NO odor

B

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	09-21-22
Sample: ID	MW-8	Field Team: (Initials)	CB & WW
Field Conditions	Sunny, 62°F		

## Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method	Submersible pump
Well Depth (ft.)	34.00'	Other: :	
Depth to Water (ft.)	20.30'	Start Time	1358
Depth of Water Column		End Time	1425
1 Casing Volume (gal.)		Total Gallons Purged	1.5 gal
Controller setting (Hz)	106.1		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
1358	0.2	6.43	.129	6.30	.81	11.5	136.4	clean, no odor
1401	0.4	6.40	.139	8.53	.60	11.5	125.9	↓
1404	0.6	6.36	.150	11.7	.49	11.6	117.7	
1407	0.8	6.33	.157	7.66	.40	11.7	113.2	
1410	1.0	6.35	.156	4.24	.36	11.9	106.4	
1413	1.2	6.31	.158	3.41	.35	12.0	103.9	
1416	1.4	6.34	.159	3.34	.33	12.1	95.2	

## Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	1420	(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 <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
COD		250-mL HDPE	H <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
Total Metals		250-mL HDPE	HNO <sub>3</sub> to pH <2, cool to <4°C	
Dissolved Metals		250-mL HDPE	Field filter, HNO <sub>3</sub> to pH <2, cool to <4°C	

Sample End Time 1435

## Comments / Exceptions:

NO odor

WB

DIP 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:	Grem 2000	Date and Time:	9/21/22
Ambient Temperature:	61° F	Field Team:	W.W. + L.P
Field Conditions:	Sunny, Clear      Baro Pressure = 29.57" Hg		

### Landfill Gas Data

Flare #	Time	Methane (% vol.)	% LEL	Oxygen (% vol.)	Carbon Dioxide (% vol.)	Temperatur e (° <del>S</del> F)	Gas Pressure ("H <sub>2</sub> O)
3	1207	0.0	0	17.0	3.1	61°	-0.18
1	1245	0.0	0	14.9	4.7	61°	-0.14
2	1300	0.0	0	14.0	5.3	61°	-0.14

### Comments / Inspection Results<sup>1</sup>

Flare #1 valve broke off, will need to be drilled out (plastic) and valve replaced.

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

### YSI ProDSS RENTAL CALIBRATION CERTIFICATE

SERVICE TECHNICIAN: JM

DATE: 9/20/22

RENTAL CUSTOMER: TRC

#### INSTRUMENT INFORMATION

RENTAL I.D. NUMBER: YSIPRODSS. 07

SERIAL NUMBER: 16F104825

#### CALIBRATION INFORMATION

PARAMETER:	STANDARD:	PASS ( )	LOT #
1. CONDUCTIVITY	1,000 $\mu$ Mhos	<u>X</u>	<u>062494</u>
2. pH ZERO	pH 7	<u>X</u>	<u>065579</u>
pH SLOPE	pH 4	<u>X</u>	<u>040621</u>
pH SLOPE	pH 10	<u>X</u>	<u>062496</u>
3. DISSOLVED OXYGEN	Air Calibration Barometric pressure = 760mmHg	<u>X</u>	N/A
<del>4. TURBIDITY ZERO</del>	<del>0.0 NTU's</del>	<del>—</del>	<del>N/A</del>
<del>TURBIDITY SPAN</del>	<del>20 NTU's</del>	<del>—</del>	<del>—</del>
5. REDOX (ORP)	231mV (YSI Zobell solution)	<u>X</u>	<u>057939</u>

# EQUIPCO

## CES LANDTECH MODEL: GEM 2000 CALIBRATION CERTIFICATE

SERVICE TECHNICIAN: JM

DATE: 9/20/22

### INSTRUMENT INFORMATION

RENTAL ID: GEM2000.08

SERIAL NUMBER: GM07210/03

### CALIBRATION INFORMATION

1..CALIBRATION GAS: 35 % CO<sub>2</sub>

LOT #: 573162

GAS RESPONSE: 35 % CO<sub>2</sub> +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



# 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:	Turn-around Requested: <b>Standard</b>	Page: <b>1</b> of <b>1</b>
ARI Client Company: <b>TRC</b>	Phone: <b>425-395-0010</b>	Date: <b>9/21/22</b>
Client Contact: <b>Eric Caddy e.caddy@trcompanies.com</b>	No. of Coolers:	Ice Present?
Client Project Name: <b>Olalla Landfill Monitoring</b>	Cooler Temps:	

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested										Notes/Comments
					VOC	Vinyl Chloride	SIMs	Disolved Metals As, Fe, Zn Ba, Mn	Total Metals K, Na, Ca	Alkalinity Carbonate Bicarbonate	Nitrate, nitrite chloride, sulfate pH	TOC, LOD	Ammonia	Total Coliform	
MW-1	9/21/22	0920	water	11	X	X	X	X	X	X	X	X	X		
MW-3		1045			X	X	X	X	X	X	X	X	X		
MW-10		1130			X	X	X	X	X	X	X	X	X		
MW-6		1340			X	X	X	X	X	X	X	X	X		
MW-8		1420			X	X	X	X	X	X	X	X	X		
MW-12					X	X	X	X	X	X	X	X	X		

Comments/Special Instructions	Relinquished by: (Signature) <i>[Signature]</i>	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: <b>Wesley Weisberg</b>	Printed Name:	Printed Name:	Printed Name:
	Company: <b>TRC</b>	Company:	Company:	Company:
	Date & Time: <b>9/21/22</b>	Date & Time:	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.

# **Olalla Landfill Quarterly Monitoring Field Book December 2022**

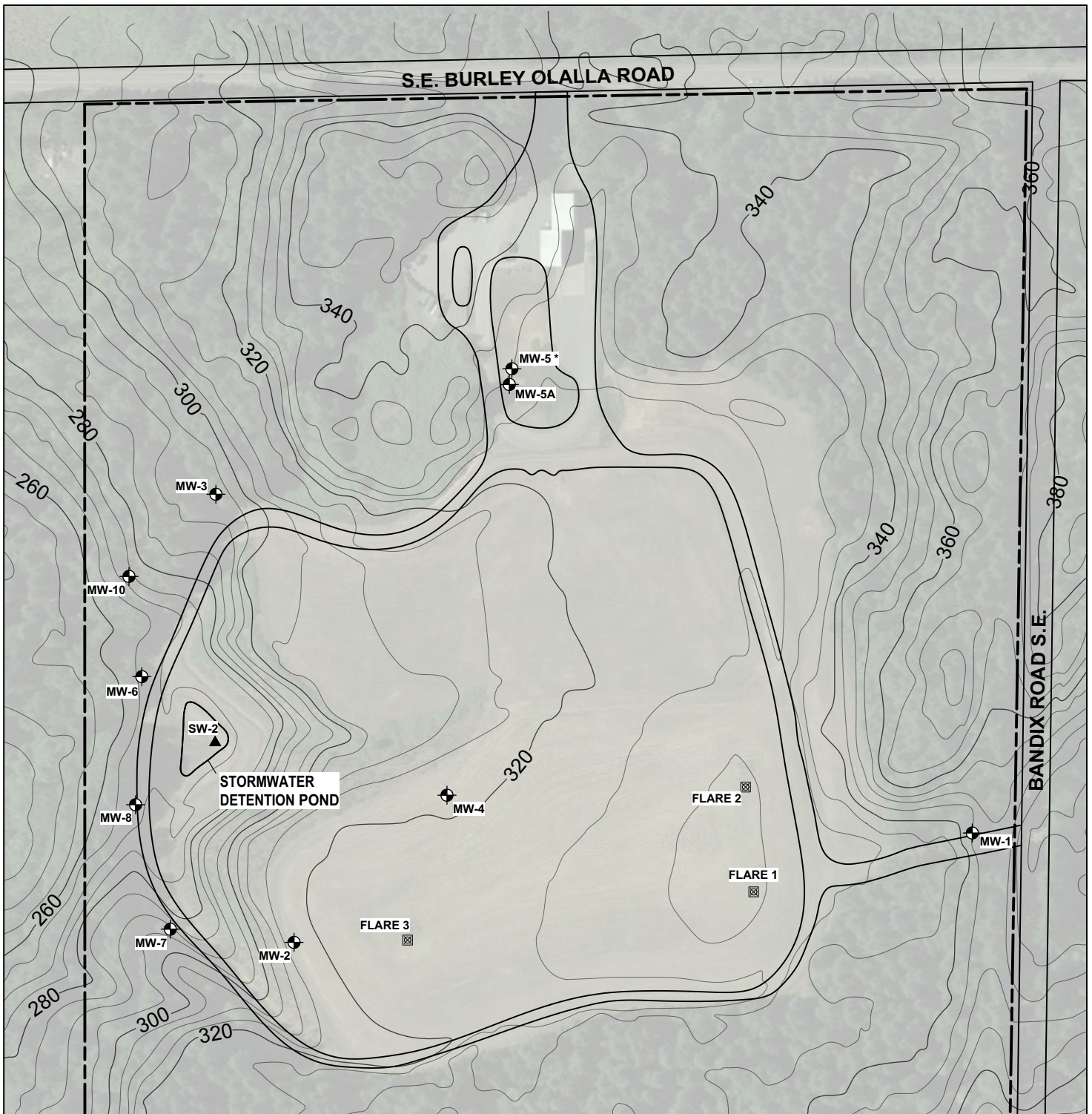


**Olalla Landfill  
Kitsap County, Washington  
Project Number: 466410.0000. Task 3**

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

## Project Instructions - Olalla Landfill Quarterly Monitoring

- Access the landfill from the main entrance off SE Burley Olalla Rd. The gate code is 9300. Lock the gate after entry.
- 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. Use the lowest sustainable flowrate for sample collection. Purge water can be poured on the ground away from the wells.
  - Samples from the cross-gradient wells MW-5A and MW-7 are only analyzed for vinyl chloride by SIM and dissolved metals (As, Fe and Mn).
  - 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.
- 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 main entrance 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

## December 2022 Quarterly Event Bottle Order Form

<b>Project Name</b>	Olalla Landfill Monitoring
<b>Project Number</b>	466410.0
<b>Client:</b>	TRC 1180 NW Maple St. Suite 310 Issaquah, WA 98027
<b>Client Contact:</b>	Eric Caddey
<b>Lab PM:</b>	Kelly Bottem
<b># of Coolers:</b>	as needed
<b>Trip Blanks</b>	1 set (3 VOAs)

<b>Date of Bottle Request</b>	December 2, 2022
<b>Date Bottle are Needed</b>	December 14, 2022
<b>Estimated Date Samples will Return:</b>	December 15, 2022

<b>Order completed by:</b>	Laithan Briant
<b>YES</b>	Include LOOSE Labels
<b>YES</b>	Include COC's

Number of Samples	Analysis Requested	Bottles Per Sample	Typical Bottle Size and Type	Preservation	Total Bottles
<b>Groundwater Samples</b>					
9	Volatiles	3	40mL VOA	HCL	<b>27</b>
9	Vinyl chloride by SIM or Low Level	2	40mL VOA	HCL	<b>18</b>
9	Dissolved metals (As, Fe, Zn, Ba, Mn)	1	500 mL HDPE	Field Filtered/HNO <sub>3</sub>	<b>9</b>
9	Total metals (K, Na, Ca)	1	500 mL HDPE	HNO <sub>3</sub>	<b>9</b>
9	Alkalinity, carbonate, bicarbonate	1	Small OJ	-	<b>9</b>
9	Nitrate, nitrite, chloride, sulfate, pH	1	Large OJ	-	<b>9</b>
9	TOC, COD, ammonia	1	250 mL AG	H <sub>2</sub> SO <sub>4</sub>	<b>9</b>
9	Total coliform	1	Corning	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	<b>9</b>
<b>Surface Water Sample (Sampled in March or December)</b>					
0	pH	1	500 mL poly		<b>0</b>
0	Nitrate-Nitrogen	1			<b>0</b>
0	Fecal coliform	1	glass or poly	-	<b>0</b>

**Total Bottles: 99**

## Depth to Water Measurement Field Data - Olalla Landfill Monitoring

Well	Time	Measuring Point Elevation (ft. NGVD <sup>1</sup> )	Depth to Water (ft.)	Comments and Well Inspection <sup>2</sup> Notes
MW-1	0900	343.79	76.60	Temp well
MW-2	0945	323.25	64.16	no comment
MW-3	1045	296.95	44.46	NO comment
MW-4	0950	320.93	61.31	no comment
MW-5	1005	334.17	10.00	no comment
MW-5A	1010	332.53	75.17	no comment
MW-6	1310	271.17	19.67	NO comment
MW-7	1435	280.43	24.37	no comment
MW-8	1355	272.85	20.02	NO comment
MW-10	1125	279.21	29.03	no comment

**Notes:**

<sup>1</sup>NGVD = National Geodetic Vertical Datum (1929)

<sup>2</sup>Observations 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 attached*

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	12-15-22
Sample: ID	MW-1	Field Team: (Initials)	LO + WW
Field Conditions			

## Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method	Submersible pump
Well Depth (ft.)	87.00'	Other: :	
Depth to Water (ft.)	76.60'	Start Time	0905
Depth of Water Column		End Time	0910
1 Casing Volume (gal.)		Total Gallons Purged	1.2 gal
Controller setting (Hz)	N/A		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
0910	.2	6.64	127.7	2.10	10.93	9.4	171.1	clear
0913	.4	6.70	127.2	1.47	9.87	9.5	177.2	↓
0916	.6	6.64	126.8	1.59	9.84	9.8	183.7	
0919	.8	6.63	128.9	1.64	9.89	9.9	185.9	
0922	1.0	6.64	129.4	1.56	9.93	10.0	198.7	

## Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	0925	(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 <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
COD		250-mL HDPE	H <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
Total Metals		250-mL HDPE	HNO <sub>3</sub> to pH <2, cool to <4°C	
Dissolved Metals		250-mL HDPE	Field filter, HNO <sub>3</sub> to pH <2, cool to <4°C	

Sample End Time 0940

## Comments / Exceptions:

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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	12-15-22
Sample: ID	MW-SA	Field Team: (Initials)	LB + WW
Field Conditions	Clear, 40°F		

## Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method :	Submersible pump
Well Depth (ft.)	N/A	Other: :	
Depth to Water (ft.)	75.17	Start Time	1015
Depth of Water Column		End Time	1040
1 Casing Volume (gal.)		Total Gallons Purged	1.2 gal
Controller setting (Hz)	104.3		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
1016	.2	6.63	133.9	20.6	9.73	10.6	171.9	clear
1019	.4	6.67	130.1	16.3	9.42	11.2	164.0	↓
1022	.6	6.46	130.6	7.66	9.23	11.6	160.0	
1025	.8	6.81	131.9	3.79	9.17	12.0	155.6	
1028	1.0	6.79	132.2	3.60	9.11	12.1	153.6	

## Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	1035	(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 <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
COD		250-mL HDPE	H <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
Total Metals		250-mL HDPE	HNO <sub>3</sub> to pH <2, cool to <4°C	
Dissolved Metals	1035	250-mL HDPE	Field filter, HNO <sub>3</sub> to pH <2, cool to <4°C	

Sample End Time 1040

## Comments / Exceptions:

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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	12-15-22
Sample: ID	MW-3	Field Team: (Initials)	LD + WW
Field Conditions	Clear, 41°F		

## Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method	Submersible pump
Well Depth (ft.)	55.00'	Other: .	
Depth to Water (ft.)	44.46'	Start Time	1045
Depth of Water Column		End Time	1115
1 Casing Volume (gal.)		Total Gallons Purged	1.4 gal.
Controller setting (Hz)	146.9		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
1051	.2	6.36	346.1	7.02	6.36	10.6	143.1	clear
1054	.4	6.34	341.4	4.96	4.69	11.1	140.1	↓
1057	.6	6.39	349.7	2.51	2.41	11.6	145.9	
1100	.8	6.40	344.3	2.19	2.11	12.0	144.3	
1103	1.0	6.39	344.1	2.28	2.08	12.0	143.7	
1106	1.2	6.39	344.4	2.16	2.05	12.1	143.0	

## Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	1110	(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 <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
COD		250-mL HDPE	H <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
Total Metals		250-mL HDPE	HNO <sub>3</sub> to pH <2, cool to <4°C	
Dissolved Metals		250-mL HDPE	Field filter, HNO <sub>3</sub> to pH <2, cool to <4°C	

Sample End Time 1115

## Comments / Exceptions:

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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	12-15-22
Sample: ID	MW-10	Field Team: (Initials)	GBT-ww
Field Conditions	Clear, 40°F		

## Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method	Submersible pump
Well Depth (ft.)	47.00'	Other: :	
Depth to Water (ft.)	29.03'	Start Time	11:25
Depth of Water Column		End Time	12:05
1 Casing Volume (gal.)		Total Gallons Purged	14 gal
Controller setting (Hz)	129.0		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
11:29	.2	6.93	356.3	1.92	5.89	10.4	164.3	Clear
11:32	.4	6.86	370.5	1.85	3.39	11.0	148.3	↓
11:35	.6	6.85	373.1	1.97	2.28	11.2	135.4	
11:38	.8	6.84	373.7	2.02	1.71	11.3	121.8	
11:41	1.0	6.84	374.1	0.71	1.69	11.4	114.3	
11:44	1.2	6.84	373.3	0.9	1.65	11.4	106.9	

## Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	11:50	(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 <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
COD		250-mL HDPE	H <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
Total Metals		250-mL HDPE	HNO <sub>3</sub> to pH <2, cool to <4°C	
Dissolved Metals		250-mL HDPE	Field filter, HNO <sub>3</sub> to pH <2, cool to <4°C	

Sample End Time 12:00

## Comments / Exceptions:

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Dup collected, mw-13

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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	12-15-22
Sample: ID	MW-6	Field Team: (Initials)	LB+NW
Field Conditions	Clear, 41°F		

## Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method :	Submersible pump
Well Depth (ft.)	35.00'	Other :	
Depth to Water (ft.)	19.67'	Start Time	1315
Depth of Water Column		End Time	1350
1 Casing Volume (gal.)		Total Gallons Purged	1.4 gal.
Controller setting (Hz)	106.6		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
1319	.2	6.84	329.7	11.6	6.09	10.8	73.5	Clear
1322	.4	6.84	333.1	5.10	4.08	11.1	47.9	↓
1325	.6	6.82	332.0	3.50	3.33	11.4	23.2	
1328	.8	6.81	332.2	2.28	2.21	11.4	25.8	
1331	1.0	6.80	332.4	2.23	2.00	11.4	21.2	
1334	1.2	6.81	332.3	2.09	1.96	11.4	19.3	
1337	1.4	6.81	332.2	2.18	1.93	11.4	17.4	

## Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	1340	(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 <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
COD		250-mL HDPE	H <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
Total Metals		250-mL HDPE	HNO <sub>3</sub> to pH <2, cool to <4°C	
Dissolved Metals		250-mL HDPE	Field filter, HNO <sub>3</sub> to pH <2, cool to <4°C	

Sample End Time 1350

## Comments / Exceptions:

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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	12-15-22
Sample: ID	MW-8	Field Team: (Initials)	UB+WW
Field Conditions	Clean, 40°F		

## Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method	Submersible pump
Well Depth (ft.)	38.00'	Other: :	
Depth to Water (ft.)	20.02'	Start Time	1355
Depth of Water Column		End Time	1430
1 Casing Volume (gal.)		Total Gallons Purged	1.6 gal
Controller setting (Hz)	110.0		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
1350	.2	7.00	166.9	8.86	3.75	10.6	-14.6	Clear
1354	.4	6.97	161.7	24.1	2.47	11.0	-12.5	↓
1402	.6	6.92	165.9	11.9	2.42	10.9	-0.9	
1405	.8	6.91	166.7	8.36	1.62	11.0	-7.2	
1408	1.0	6.91	172.4	6.51	1.53	11.1	-7.0	
1411	1.2	6.90	175.6	5.08	1.49	11.2	-6.5	
1414	1.4	6.88	179.8	1.32	1.43	11.2	-6.0	

## Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	1420	(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 <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
COD		250-mL HDPE	H <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
Total Metals		250-mL HDPE	HNO <sub>3</sub> to pH <2, cool to <4°C	
Dissolved Metals		250-mL HDPE	Field filter, HNO <sub>3</sub> to pH <2, cool to <4°C	

Sample End Time 1430

## Comments / Exceptions:

Brown particulate @ Start.

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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	12-15-22
Sample: ID	MW-7	Field Team: (Initials)	LB FWW
Field Conditions	clean, 43°f		

## Low-Flow Purge Information

Well Diameter (in.)	2"	Purge Method	Submersible pump
Well Depth (ft.)	N.M.	Other: :	
Depth to Water (ft.)	24.37'	Start Time	1435
Depth of Water Column		End Time	1510
1 Casing Volume (gal.)		Total Gallons Purged	14 gal
Controller setting (Hz)	127.4		

Time	Gallons	pH	Conductivity	NTU	DO	Temp.	ORP	Appearance
1437	.2	7.19	96.7	24.4	7.94	10.3	121.1	clear
1440	.4	7.14	96.9	12.7	7.47	10.3	125.5	↓
1443	.6	7.12	96.8	8.18	7.21	10.3	124.3	
1446	.8	7.11	96.9	4.19	6.80	10.3	139.3	
1449	1.0	7.11	96.6	3.98	6.76	10.3	144.3	
1452	1.2	7.10	96.8	3.56	6.74	10.3	148.4	

## Sample Information

Sample Method(s) : Submersible pump

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
Volatiles and VC	500	(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 <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
COD		250-mL HDPE	H <sub>2</sub> SO <sub>4</sub> to pH <2, cool to <4°C	
Total Metals		250-mL HDPE	HNO <sub>3</sub> to pH <2, cool to <4°C	
Dissolved Metals		250-mL HDPE	Field filter, HNO <sub>3</sub> to pH <2, cool to <4°C	

Sample End Time 1510

## Comments / Exceptions:

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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:	12/15/22 1225
Ambient Temperature:	45°F	Field Team:	W.W. + L.B.
Field Conditions:	Partly cloudy, light breeze.		

### Landfill Gas Data

Flare #	Time	Methane (% vol.)	% LEL	Oxygen (% vol.)	Carbon Dioxide (% vol.)	Temperature <del>(°F)</del>	Gas Pressure ("H <sub>2</sub> O)
3	1225	0.0	0	20.8	0.0	45°	-0.14
1	1232	0.0	0	20.7	0.1	45°	-0.14
2	1236	0.0	0	20.3	0.5	45°	-0.14

### Comments / Inspection Results<sup>1</sup>

Barometric pressure = 30.12 "Hg

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



### YSI ProDSS RENTAL CALIBRATION CERTIFICATE

SERVICE TECHNICIAN: SM

DATE: 12/14/22

RENTAL CUSTOMER: TRC

#### INSTRUMENT INFORMATION

RENTAL I.D. NUMBER: YSIPRODSS. 10

SERIAL NUMBER: 16F104828

#### CALIBRATION INFORMATION

PARAMETER:	STANDARD:	PASS ( )	LOT #
1. CONDUCTIVITY	1,000 $\mu$ Mhos	X	057939
2. pH ZERO	pH 7	X	065579
pH SLOPE	pH 4	X	062494
pH SLOPE	pH 10	X	062495
3. DISSOLVED OXYGEN	Air Calibration Barometric pressure = 760mmHg	X	N/A
<del>4. TURBIDITY ZERO</del>	<del>0.0 NTU's</del>	<del>—</del>	<del>N/A</del>
<del>TURBIDITY SPAN</del>	<del>20 NTU's</del>	<del>—</del>	<del>—</del>
5. REDOX (ORP)	231mV (YSI Zobell solution)	X	040621

# EQUIPCO

## CES LANDTECH MODEL: GEM 2000 CALIBRATION CERTIFICATE

SERVICE TECHNICIAN: MA

DATE: 12/14/22

### INSTRUMENT INFORMATION

RENTAL ID: GEM2000.11

SERIAL NUMBER: GM07638104

### CALIBRATION INFORMATION

1. CALIBRATION GAS: 35 % CO<sub>2</sub>

LOT #: 573162

GAS RESPONSE: 35 % CO<sub>2</sub> ±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

# 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:	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>12/15/2022</i>
Client Contact: <i>Eric Caddley</i>	No. of Coolers:	Ice Present? <input type="checkbox"/>
Client Project Name: <i>Olalla</i>	Sampler:	Cooler Temps:

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested										Notes/Comments
					VOC & VC by SIM	Dissolved Metals As, Fe, Zn, Ba, Mn	Total Metals (K, Na, Ca)	Alkalinity carbonate, bicarbonate	Nitrate, nitrite, chlorate, sulfate, pH	TOC, COD, ammonia					
MW-1	12/15/22	0925	Water	11	X	X	X	X	X	X					
MW-5A		1035		3	X	X									Dissolved metals & VC by SIMs only
MW-3		1110		11	X	X	X	X	X	X					
MW-10		1150		11	X	X	X	X	X	X					
MW-13		1220		11	X	X	X	X	X	X					
MW-6		1340		11	X	X	X	X	X	X					
MW-8		1420		11	X	X	X	X	X	X					
MW-7		1500		3	X	X									Dissolved metals & VC by SIMs only

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:	Printed Name:	Printed Name:
	Company: <i>TRC</i>	Company:	Company:	Company:
	Date & Time: <i>12/15/2022</i>	Date & Time:	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.

**Attachment 2:**  
**2022 Quarterly Monitoring Analytical Data Sheets**



**Analytical Resources, LLC**  
Analytical Chemists and Consultants

18 April 2022

Doug Kunkel  
TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah, WA 98027

RE: Olalla Landfill (466410)

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)  
22C0365

Associated SDG ID(s)  
N/A

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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

ARI Assigned Number: <b>22C0365</b>	Turn-around Requested: <b>Standard</b>	Page: <b>1</b> of <b>1</b>
ARI Client Company: <b>TRC</b>	Phone: <b>425-395-0010</b>	Date: <b>3.22.22</b> Ice Present?
Client Contact: <b>Doug Kunkel, Eric Cardley</b>	No. of Coolers:	Cooler Temps: <b>4.8; 1.8</b>



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

Client Project Name: <b>Olalla Landfill</b>					Analysis Requested								Notes/Comments
Client Project #: <b>466410</b>		Samplers: <b>UB&amp;ES</b>			VOC 9260	VC 9260	D15 Metals Fe, Zn, Pb, Mn	Total Metals K, Na, Ca	Alk, Biob Carb	NO3, SO4, NO2, PH chloride	TOC, COD NH3	Total Col. form	
Sample ID	Date	Time	Matrix	No. Containers									
MW-1	3.22.22	0935	H <sub>2</sub> O	11	X	X	X	X	X	X	X	X	
MW-3		1120											
MW-9		1200											
MW-10		1340											
MW-6		1420											
MW-8		1505											
Trip Blank	3.22.22			3	X								
Comments/Special Instructions					Relinquished by: (Signature)	Received by: (Signature)			Relinquished by: (Signature)	Received by: (Signature)			
					Printed Name: <b>Leitha Bixert</b>	Printed Name: <b>Dimitris Konradou</b>			Printed Name:	Printed Name:			
					Company: <b>TRC</b>	Company: <b>ARI</b>			Company:	Company:			
					Date & Time: <b>3.22.22, 1425</b>	Date & Time: <b>3/22/22 1525</b>			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: 466410  
Project Manager: Doug Kunkel

**Reported:**  
18-Apr-2022 10:25

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	22C0365-01	Water	22-Mar-2022 09:35	22-Mar-2022 15:25
MW-1	22C0365-02	Water	22-Mar-2022 09:35	22-Mar-2022 15:25
MW-3	22C0365-03	Water	22-Mar-2022 11:20	22-Mar-2022 15:25
MW-3	22C0365-04	Water	22-Mar-2022 11:20	22-Mar-2022 15:25
MW-9	22C0365-05	Water	22-Mar-2022 12:00	22-Mar-2022 15:25
MW-9	22C0365-06	Water	22-Mar-2022 12:00	22-Mar-2022 15:25
MW-10	22C0365-07	Water	22-Mar-2022 13:40	22-Mar-2022 15:25
MW-10	22C0365-08	Water	22-Mar-2022 13:40	22-Mar-2022 15:25
MW-6	22C0365-09	Water	22-Mar-2022 14:20	22-Mar-2022 15:25
MW-6	22C0365-10	Water	22-Mar-2022 14:10	22-Mar-2022 15:25
MW-8	22C0365-11	Water	22-Mar-2022 15:05	22-Mar-2022 15:25
MW-8	22C0365-12	Water	22-Mar-2022 15:05	22-Mar-2022 15:25
TRIP BLANK	22C0365-13	Water	22-Mar-2022 09:35	22-Mar-2022 15:25



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

Reported:  
18-Apr-2022 10:25

## Work Order Case Narrative

### Volatiles - EPA Method SW8260D

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

Initial and continuing calibrations were within method requirements 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.





TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

Reported:  
18-Apr-2022 10:25

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 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.

TOC was subcontracted due to instrument failure.



WORK ORDER

22C0365

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

Client: TRC Companies, Inc  
Project: Olalla Landfill

Project Manager: Kelly Bottem  
Project Number: 466410

Preservation Confirmation

Container ID	Container Type	pH
22C0365-01 A	HDPE NM, 1000 mL	
22C0365-01 B	HDPE NM, 500 mL, 1:1 HNO3	LL Pass (P)
22C0365-01 C	HDPE NM, 500 mL	
22C0365-01 D	Glass NM, Amber, 250 mL, 9N H2SO4	LL P
22C0365-01 E	Corning Plastic, 125 mL, Na2S2O3	
22C0365-01 F	VOA Vial, Clear, 40 mL, HCL	
22C0365-01 G	VOA Vial, Clear, 40 mL, HCL	
22C0365-01 H	VOA Vial, Clear, 40 mL, HCL	
22C0365-01 I	VOA Vial, Clear, 40 mL, HCL	
22C0365-01 J	VOA Vial, Clear, 40 mL, HCL	
22C0365-02 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	LL P
22C0365-03 A	HDPE NM, 1000 mL	
22C0365-03 B	HDPE NM, 500 mL, 1:1 HNO3	LL P
22C0365-03 C	HDPE NM, 500 mL	
22C0365-03 D	Glass NM, Amber, 250 mL, 9N H2SO4	LL P
22C0365-03 E	Corning Plastic, 125 mL, Na2S2O3	
22C0365-03 F	VOA Vial, Clear, 40 mL, HCL	
22C0365-03 G	VOA Vial, Clear, 40 mL, HCL	
22C0365-03 H	VOA Vial, Clear, 40 mL, HCL	
22C0365-03 I	VOA Vial, Clear, 40 mL, HCL	
22C0365-03 J	VOA Vial, Clear, 40 mL, HCL	
22C0365-04 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	LL P
22C0365-05 A	HDPE NM, 1000 mL	
22C0365-05 B	HDPE NM, 500 mL, 1:1 HNO3	LL P
22C0365-05 C	HDPE NM, 500 mL	
22C0365-05 D	Glass NM, Amber, 250 mL, 9N H2SO4	LL P
22C0365-05 E	Corning Plastic, 125 mL, Na2S2O3	
22C0365-05 F	VOA Vial, Clear, 40 mL, HCL	
22C0365-05 G	VOA Vial, Clear, 40 mL, HCL	
22C0365-05 H	VOA Vial, Clear, 40 mL, HCL	
22C0365-05 I	VOA Vial, Clear, 40 mL, HCL	
22C0365-05 J	VOA Vial, Clear, 40 mL, HCL	
22C0365-06 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	LL P
22C0365-07 A	HDPE NM, 1000 mL	



WORK ORDER

22C0365

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

<b>Client: TRC Companies, Inc</b>	<b>Project Manager: Kelly Bottem</b>
<b>Project: Olalla Landfill</b>	<b>Project Number: 466410</b>
22C0365-07 B	HDPE NM, 500 mL, 1:1 HNO3 <i>LL P</i>
22C0365-07 C	HDPE NM, 500 mL
22C0365-07 D	Glass NM, Amber, 250 mL, 9N H2SO4 <i>LL P</i>
22C0365-07 E	Corning Plastic, 125 mL, Na2S2O3
22C0365-07 F	VOA Vial, Clear, 40 mL, HCL
22C0365-07 G	VOA Vial, Clear, 40 mL, HCL
22C0365-07 H	VOA Vial, Clear, 40 mL, HCL
22C0365-07 I	VOA Vial, Clear, 40 mL, HCL <i>Bubble</i>
22C0365-07 J	VOA Vial, Clear, 40 mL, HCL
22C0365-08 A	HDPE NM, 500 mL, 1:1 HNO3 (FF) <i>LL P</i>
22C0365-09 A	HDPE NM, 1000 mL
22C0365-09 B	HDPE NM, 500 mL, 1:1 HNO3 <i>LL P</i>
22C0365-09 C	HDPE NM, 500 mL
22C0365-09 D	Glass NM, Amber, 250 mL, 9N H2SO4 <i>LL P</i>
22C0365-09 E	Corning Plastic, 125 mL, Na2S2O3
22C0365-09 F	VOA Vial, Clear, 40 mL, HCL <i>Bubble</i>
22C0365-09 G	VOA Vial, Clear, 40 mL, HCL <i>Bubble</i>
22C0365-09 H	VOA Vial, Clear, 40 mL, HCL
22C0365-09 I	VOA Vial, Clear, 40 mL, HCL
22C0365-09 J	VOA Vial, Clear, 40 mL, HCL
22C0365-10 A	HDPE NM, 500 mL, 1:1 HNO3 (FF) <i>LL P</i>
22C0365-11 A	HDPE NM, 1000 mL
22C0365-11 B	HDPE NM, 500 mL, 1:1 HNO3 <i>LL P</i>
22C0365-11 C	HDPE NM, 500 mL
22C0365-11 D	Glass NM, Amber, 250 mL, 9N H2SO4 <i>LL P</i>
22C0365-11 E	Corning Plastic, 125 mL, Na2S2O3
22C0365-11 F	VOA Vial, Clear, 40 mL, HCL
22C0365-11 G	VOA Vial, Clear, 40 mL, HCL
22C0365-11 H	VOA Vial, Clear, 40 mL, HCL <i>Bubble</i>
22C0365-11 I	VOA Vial, Clear, 40 mL, HCL
22C0365-11 J	VOA Vial, Clear, 40 mL, HCL
22C0365-12 A	HDPE NM, 500 mL, 1:1 HNO3 (FF) <i>LL P</i>
22C0365-13 A	VOA Vial, Clear, 40 mL, HCL
22C0365-13 B	VOA Vial, Clear, 40 mL, HCL
22C0365-13 C	VOA Vial, Clear, 40 mL, HCL
22C0365-13 D	VOA Vial, Clear, 40 mL, HCL



**WORK ORDER**

22C0365

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: 466410**

22C0365-13 E

VOA Vial, Clear, 40 mL, HCL

*DL*

Preservation Confirmed By

*3/22/22*

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: 22C0365

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 1425 4.8 1.8

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 2565

Cooler Accepted by: DL Date: 3/22/22 Time: 1425

**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: 3/22/22 Time: 1634 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: \_\_\_\_\_



WORK ORDER

22C0365

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

<b>Client: TRC Companies, Inc</b>		<b>Project Manager: Kelly Bottem</b>	
<b>Project: Olalla Landfill</b>		<b>Project Number: 466410</b>	
22C0365-07 B	HDPE NM, 500 mL, 1:1 HNO3	L2	P
22C0365-07 C	HDPE NM, 500 mL	(1)	
22C0365-07 D	Glass NM, Amber, 250 mL, 9N H2SO4	L2	P
22C0365-07 E	Corning Plastic, 125 mL, Na2S2O3		
22C0365-07 F	VOA Vial, Clear, 40 mL, HCL		
22C0365-07 G	VOA Vial, Clear, 40 mL, HCL		
22C0365-07 H	VOA Vial, Clear, 40 mL, HCL		
22C0365-07 I	VOA Vial, Clear, 40 mL, HCL	Bubble	
22C0365-07 J	VOA Vial, Clear, 40 mL, HCL		
22C0365-08 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	L2	P
22C0365-09 A	HDPE NM, 1000 mL		
22C0365-09 B	HDPE NM, 500 mL, 1:1 HNO3	L2	P
22C0365-09 C	HDPE NM, 500 mL	(1)	
22C0365-09 D	Glass NM, Amber, 250 mL, 9N H2SO4	L2	P
22C0365-09 E	Corning Plastic, 125 mL, Na2S2O3		
22C0365-09 F	VOA Vial, Clear, 40 mL, HCL	Bubble	
22C0365-09 G	VOA Vial, Clear, 40 mL, HCL	Bubble	
22C0365-09 H	VOA Vial, Clear, 40 mL, HCL		
22C0365-09 I	VOA Vial, Clear, 40 mL, HCL		
22C0365-09 J	VOA Vial, Clear, 40 mL, HCL		
22C0365-10 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	L2	P
22C0365-11 A	HDPE NM, 1000 mL		
22C0365-11 B	HDPE NM, 500 mL, 1:1 HNO3	L2	P
22C0365-11 C	HDPE NM, 500 mL	(1)	
22C0365-11 D	Glass NM, Amber, 250 mL, 9N H2SO4	L2	P
22C0365-11 E	Corning Plastic, 125 mL, Na2S2O3		
22C0365-11 F	VOA Vial, Clear, 40 mL, HCL		
22C0365-11 G	VOA Vial, Clear, 40 mL, HCL		
22C0365-11 H	VOA Vial, Clear, 40 mL, HCL	Bubble	
22C0365-11 I	VOA Vial, Clear, 40 mL, HCL		
22C0365-11 J	VOA Vial, Clear, 40 mL, HCL		
22C0365-12 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	L2	P
22C0365-13 A	VOA Vial, Clear, 40 mL, HCL		
22C0365-13 B	VOA Vial, Clear, 40 mL, HCL		
22C0365-13 C	VOA Vial, Clear, 40 mL, HCL		
22C0365-13 D	VOA Vial, Clear, 40 mL, HCL		



WORK ORDER

22C0365

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: 466410

Preservation Confirmation

Container ID	Container Type	pH
22C0365-01 A	HDPE NM, 1000 mL	
22C0365-01 B	HDPE NM, 500 mL, 1:1 HNO3	LL Pass (P)
22C0365-01 C	HDPE NM, 500 mL	① LL P
22C0365-01 D	Glass NM, Amber, 250 mL, 9N H2SO4	LL P
22C0365-01 E	Corning Plastic, 125 mL, Na2S2O3	
22C0365-01 F	VOA Vial, Clear, 40 mL, HCL	
22C0365-01 G	VOA Vial, Clear, 40 mL, HCL	
22C0365-01 H	VOA Vial, Clear, 40 mL, HCL	
22C0365-01 I	VOA Vial, Clear, 40 mL, HCL	
22C0365-01 J	VOA Vial, Clear, 40 mL, HCL	
22C0365-02 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	LL P
22C0365-03 A	HDPE NM, 1000 mL	
22C0365-03 B	HDPE NM, 500 mL, 1:1 HNO3	LL P
22C0365-03 C	HDPE NM, 500 mL	① LL P
22C0365-03 D	Glass NM, Amber, 250 mL, 9N H2SO4	LL P
22C0365-03 E	Corning Plastic, 125 mL, Na2S2O3	
22C0365-03 F	VOA Vial, Clear, 40 mL, HCL	
22C0365-03 G	VOA Vial, Clear, 40 mL, HCL	
22C0365-03 H	VOA Vial, Clear, 40 mL, HCL	
22C0365-03 I	VOA Vial, Clear, 40 mL, HCL	
22C0365-03 J	VOA Vial, Clear, 40 mL, HCL	
22C0365-04 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	LL P
22C0365-05 A	HDPE NM, 1000 mL	
22C0365-05 B	HDPE NM, 500 mL, 1:1 HNO3	LL P
22C0365-05 C	HDPE NM, 500 mL	① LL P
22C0365-05 D	Glass NM, Amber, 250 mL, 9N H2SO4	LL P
22C0365-05 E	Corning Plastic, 125 mL, Na2S2O3	
22C0365-05 F	VOA Vial, Clear, 40 mL, HCL	
22C0365-05 G	VOA Vial, Clear, 40 mL, HCL	
22C0365-05 H	VOA Vial, Clear, 40 mL, HCL	
22C0365-05 I	VOA Vial, Clear, 40 mL, HCL	
22C0365-05 J	VOA Vial, Clear, 40 mL, HCL	
22C0365-06 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	LL P
22C0365-07 A	HDPE NM, 1000 mL	



WORK ORDER

22C0365

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: 466410

22C0365-13 E      VOA Vial, Clear, 40 mL, HCL

        
Preservation Confirmed By

3/22/22  
Date

① Bottles preserved with 9 N H<sub>2</sub>SO<sub>4</sub>  
 for N+N analysis. pH confirmed < 2.  
 Container name changed in element.  
 AGM 03/23/2022.



**Am Test Inc.**  
13600 NE 126TH PL  
Suite C  
Kirkland, WA 98034  
(425) 885-1664

*Professional  
Analytical  
Services*

Apr 8 2022  
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
22C0365-01	Water	22-A004369	DEM
22C0365-03	Water	22-A004370	DEM
22C0365-05	Water	22-A004371	DEM
22C0365-07	Water	22-A004372	DEM
22C0365-09	Water	22-A004373	DEM
22C0365-11	Water	22-A004374	DEM

Your samples were received on Thursday, March 24, 2022. 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: 22C0365

BACT = Bacteriological  
CONV = Conventionals

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: 22C0365

Date Received: 03/24/22  
Date Reported: 4/ 8/22

All results reported on an as received basis.

---

**AMTEST Identification Number** 22-A004369  
**Client Identification** 22C0365-01  
**Sampling Date** 03/22/22, 09:35

### Demand

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Total Organic Carbon	1.4	mg/l		0.5	EPA 9060A	NNL	03/31/22

---

**AMTEST Identification Number** 22-A004370  
**Client Identification** 22C0365-03  
**Sampling Date** 03/22/22, 11:20

### Demand

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Total Organic Carbon	4.8	mg/l		0.5	EPA 9060A	NNL	03/31/22

Analytical Resources LLC  
Project Name:  
AmTest ID: 22-A004371

---

**AMTEST Identification Number** 22-A004371  
**Client Identification** 22C0365-05  
**Sampling Date** 03/22/22, 12:00

**Demand**

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Total Organic Carbon	3.6	mg/l		0.5	EPA 9060A	NNL	03/31/22

---

**AMTEST Identification Number** 22-A004372  
**Client Identification** 22C0365-07  
**Sampling Date** 03/22/22, 13:40

**Demand**

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Total Organic Carbon	4.8	mg/l		0.5	EPA 9060A	NNL	03/31/22

---

**AMTEST Identification Number** 22-A004373  
**Client Identification** 22C0365-09  
**Sampling Date** 03/22/22, 14:20

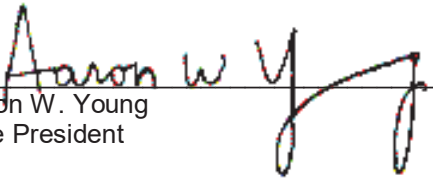
**Demand**

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Total Organic Carbon	3.1	mg/l		0.5	EPA 9060A	NNL	03/31/22

**AMTEST Identification Number**      22-A004374  
**Client Identification**                22C0365-11  
**Sampling Date**                         03/22/22, 15:05

**Demand**

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Total Organic Carbon	2.0	mg/l		0.5	EPA 9060A	NNL	03/31/22

  
\_\_\_\_\_  
Aaron W. Young  
Vice President

**QC Summary for sample numbers: 22-A004369 to 22-A004374**

**DUPLICATES**

SAMPLE #	ANALYTE	UNITS	SAMPLE VALUE	DUP VALUE	RPD
22-A004341	Total Organic Carbon	mg/l	< 0.5	< 0.5	
22-A004378	Total Organic Carbon	mg/l	3.7	4.5	20.
22-A004418	Total Organic Carbon	mg/l	2.8	2.3	20.
22-A004658	Total Organic Carbon	mg/l	3.4	4.0	16.
22-A004667	Total Organic Carbon	mg/l	9.7	10.	3.0

**MATRIX SPIKES**

SAMPLE #	ANALYTE	UNITS	SAMPLE VALUE	SMPL+ SPK	SPK AMT	RECOVERY
22-A004332	Total Organic Carbon	mg/l	2.9	55.	50.	104.20 %
22-A004369	Total Organic Carbon	mg/l	1.4	51.	50.	99.20 %
22-A004379	Total Organic Carbon	mg/l	45.	99.	50.	108.00 %
22-A004572	Total Organic Carbon	mg/l	0.65	51.	50.	100.70 %
22-A004659	Total Organic Carbon	mg/l	2.6	52.	50.	98.80 %
22-A004668	Total Organic Carbon	mg/l	10.	61.	50.	102.00 %

**STANDARD REFERENCE MATERIALS**

ANALYTE	UNITS	TRUE VALUE	MEASURED VALUE	RECOVERY
Total Organic Carbon	mg/l	25.	25.	100. %
Total Organic Carbon	mg/l	25.	26.	104. %
Total Organic Carbon	mg/l	25.	26.	104. %
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
Total Organic Carbon	mg/l	< 0.5
Total Organic Carbon	mg/l	< 0.5



Analytical Resources, LLC  
Analytical Chemists and Consultants

VPS 1045

**SUBCONTRACT ORDER**  
**To: AmTest Laboratories**  
**ARI Work Order:22C0365**

**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 AND INVOICE TO subdata@arilabs.com

Analysis	Due	Expires	Sub Laboratory ID	Comments
<b>Sample ID: 22C0365-01</b>				
Sampled: 03/22/22 09:35 Matrix: Water				
Carbon, Organic Total, 9060A	04/06/22	04/19/22 09:35		
Containers Supplied:			4369	
<b>Sample ID: 22C0365-03</b>				
Sampled: 03/22/22 11:20 Matrix: Water				
Carbon, Organic Total, 9060A	04/06/22	04/19/22 11:20		
Containers Supplied:			70	
<b>Sample ID: 22C0365-05</b>				
Sampled: 03/22/22 12:00 Matrix: Water				
Carbon, Organic Total, 9060A	04/06/22	04/19/22 12:00		
Containers Supplied:			71	
<b>Sample ID: 22C0365-07</b>				
Sampled: 03/22/22 13:40 Matrix: Water				
Carbon, Organic Total, 9060A	04/06/22	04/19/22 13:40		
Containers Supplied:			72	

Released By UB Date 3/23/22 Received By ART Date 3:00pm

Released By \_\_\_\_\_ Date \_\_\_\_\_ Received By VM Date 3/24/22 10:41.6



SUBCONTRACT ORDER  
To: AmTest Laboratories  
ARI Work Order:22C0365

Analysis	Due	Expires	Sub Laboratory ID	Comments
<b>Sample ID: 22C0365-09</b>				
<b>Sampled: 03/22/22 14:20 Matrix: Water</b>				
Carbon, Organic Total, 9060A	04/06/22	04/19/22 14:20		
<i>Containers Supplied:</i>			4373	
<div style="border: 1px solid black; height: 20px; width: 100%;"></div>				
<b>Sample ID: 22C0365-11</b>				
<b>Sampled: 03/22/22 15:05 Matrix: Water</b>				
Carbon, Organic Total, 9060A	04/06/22	04/19/22 15:05		
<i>Containers Supplied:</i>			74	
<div style="border: 1px solid black; height: 20px; width: 100%;"></div>				

LB 3/23/22 API 3:06pm  
 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: 466410  
Project Manager: Doug Kunkel

Reported:  
18-Apr-2022 10:25

**MW-1**  
**22C0365-01 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 03/22/2022 09:35

Instrument: NT2 Analyst: PKC

Analyzed: 03/23/2022 14:34

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKC0569  
Prepared: 03/23/2022

Sample Size: 10 mL  
Final Volume: 10 mL

Extract ID: 22C0365-01 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	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: 466410  
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Reported:  
18-Apr-2022 10:25

MW-1  
22C0365-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/22/2022 09:35

Instrument: NT2 Analyst: PKC

Analyzed: 03/23/2022 14:34

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: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 18-Apr-2022 10:25
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**MW-1**  
**22C0365-01 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 03/22/2022 09:35

Instrument: NT2 Analyst: PKC

Analyzed: 03/23/2022 14:34

**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>99.0</i>	<i>%</i>	
<i>Surrogate: Toluene-d8</i>			<i>80-120 %</i>	<i>95.5</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>102</i>	<i>%</i>	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 18-Apr-2022 10:25
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**MW-1**  
**22C0365-01 (Water)**

**Volatile Organic Compounds - SIM**

Method: EPA 8260D-SIM Sampled: 03/22/2022 09:35  
Instrument: NT16 Analyst: KOTT Analyzed: 03/23/2022 11:49

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22C0365-01 F  
Preparation Batch: BKC0474 Sample Size: 10 mL  
Prepared: 03/23/2022 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>108</i>	<i>%</i>	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 18-Apr-2022 10:25
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**MW-1**  
**22C0365-01 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D Sampled: 03/22/2022 09:35  
Instrument: ICP2 Analyst: SKD Analyzed: 04/06/2022 18:56

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 22C0365-01 B 01  
Preparation Batch: BKD0153 Sample Size: 25 mL  
Prepared: 04/06/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	12.0	mg/L	
Potassium	7440-09-7	1	0.500	0.605	mg/L	
Sodium	7440-23-5	1	0.500	4.97	mg/L	



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**MW-1**  
**22C0365-01 (Water)**

**Wet Chemistry**

Method: EPA 325.2 Sampled: 03/22/2022 09:35  
Instrument: LACHAT2 Analyst: AGM Analyzed: 03/30/2022 15:53

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-01 A  
Preparation Batch: BKC0661 Sample Size: 10 mL  
Prepared: 03/30/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	3.93	mg/L	



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**MW-1**  
**22C0365-01 (Water)**

**Wet Chemistry**

Method: EPA 353.2 Sampled: 03/22/2022 09:35  
Instrument: [CALC] Analyst: AGM Analyzed: 03/23/2022 16:52

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: [CALC] Extract ID: 22C0365-01  
Preparation Batch: [CALC]  
Prepared: 03/23/2022 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
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Nitrate-N	14797-55-8	1	0.0200	0.631	mg/L	
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Instrument: LACHAT2 Analyst: AGM Analyzed: 03/23/2022 15:25

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-01 C  
Preparation Batch: BKC0576 Sample Size: 10 mL  
Prepared: 03/23/2022 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	0.631	mg/L	
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Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-01 C  
Preparation Batch: BKC0578 Sample Size: 10 mL  
Prepared: 03/23/2022 Final Volume: 10 mL

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-01 C  
Preparation Batch: BKC0578 Sample Size: 10 mL  
Prepared: 03/23/2022 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	ND	mg/L	U
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**MW-1**  
**22C0365-01 (Water)**

**Wet Chemistry**

Method: EPA 375.2 Sampled: 03/22/2022 09:35  
Instrument: LACHAT2 Analyst: AGM Analyzed: 04/07/2022 11:11

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-01 A  
Preparation Batch: BKD0188 Sample Size: 10 mL  
Prepared: 04/07/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	3.65	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 18-Apr-2022 10:25
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**MW-1**  
**22C0365-01 (Water)**

**Wet Chemistry**

Method: EPA 410.4 Sampled: 03/22/2022 09:35  
Instrument: UV1800-1 Analyst: CKI Analyzed: 03/30/2022 15:47

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-01 C  
Preparation Batch: BKC0758 Sample Size: 2 mL  
Prepared: 03/29/2022 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: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 18-Apr-2022 10:25
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**MW-1**  
**22C0365-01 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97 Sampled: 03/22/2022 09:35  
Instrument: Accumet AB150 Analyst: UW Analyzed: 03/23/2022 14:35

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-01 A  
Preparation Batch: BKC0572 Sample Size: 100 mL  
Prepared: 03/23/2022 Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	55.3	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	55.3	mg/L CaCO3	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 18-Apr-2022 10:25
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**MW-1**  
**22C0365-01 (Water)**

**Wet Chemistry**

Method: SM 4500-H+ B-00 Sampled: 03/22/2022 09:35  
Instrument: Accumet AB150 Analyst: RMS Analyzed: 03/22/2022 17:15

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-01 C  
Preparation Batch: BKC0547 Sample Size: 50 mL  
Prepared: 03/22/2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.41	pH Units	H



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 18-Apr-2022 10:25
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**MW-1**  
**22C0365-01 (Water)**

**Wet Chemistry**

Method: SM 4500-NH3 H-97 Sampled: 03/22/2022 09:35  
Instrument: LACHAT1 Analyst: CKI Analyzed: 03/31/2022 16:18

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-01 C  
Preparation Batch: BKC0832 Sample Size: 10 mL  
Prepared: 03/31/2022 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: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 18-Apr-2022 10:25
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**MW-1**  
**22C0365-01 (Water)**

**Microbiology**

Method: SM 9222B Sampled: 03/22/2022 09:35  
Instrument: N/A Analyst: UW Analyzed: 03/23/2022 16:45

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-01  
Preparation Batch: BKC0546 Sample Size: 100 mL  
Prepared: 03/22/2022 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: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 18-Apr-2022 10:25
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**MW-1**  
**22C0365-01 (Water)**

**Wet Chemistry**

Method: EPA 9060A Sampled: 03/22/2022 09:35  
Instrument: ALAB Analyst: NNL Analyzed: 03/31/2022 00:00

**Analysis by: AmTest Laboratories**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-01  
Preparation Batch: B220331  
Prepared: 03/31/2022 Final Volume:

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.5	0.5	1.4	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 18-Apr-2022 10:25
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**MW-1**  
**22C0365-02 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 Sampled: 03/22/2022 09:35  
Instrument: ICPMS1 Analyst: MCB Analyzed: 04/09/2022 01:33

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0365-02 A 03  
Preparation Batch: BKD0162 Sample Size: 25 mL  
Prepared: 04/06/2022 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: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 18-Apr-2022 10:25
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**MW-1**  
**22C0365-02 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 UCT-KED Sampled: 03/22/2022 09:35  
Instrument: ICPMS1 Analyst: MCB Analyzed: 04/08/2022 23:20

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x Extract ID: 22C0365-02 A 01  
Preparation Batch: BKD0157 Sample Size: 100 mL  
Prepared: 04/06/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.110	ug/L	

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0365-02 A 03  
Preparation Batch: BKD0162 Sample Size: 25 mL  
Prepared: 04/06/2022 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: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 18-Apr-2022 10:25
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**MW-1**  
**22C0365-02 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6010D Sampled: 03/22/2022 09:35  
Instrument: ICP2 Analyst: SKD Analyzed: 04/07/2022 19:22

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 22C0365-02 A 02  
Preparation Batch: BKD0176 Sample Size: 25 mL  
Prepared: 04/06/2022 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: 466410  
Project Manager: Doug Kunkel

Reported:  
18-Apr-2022 10:25

**MW-3**  
**22C0365-03 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 03/22/2022 11:20

Instrument: NT2 Analyst: PKC

Analyzed: 03/23/2022 14:55

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKC0569  
Prepared: 03/23/2022

Sample Size: 10 mL  
Final Volume: 10 mL

Extract ID: 22C0365-03 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



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

Reported:  
18-Apr-2022 10:25

**MW-3**  
**22C0365-03 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 03/22/2022 11:20

Instrument: NT2 Analyst: PKC

Analyzed: 03/23/2022 14:55

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: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 18-Apr-2022 10:25
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**MW-3**  
**22C0365-03 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D Sampled: 03/22/2022 11:20  
Instrument: NT2 Analyst: PKC Analyzed: 03/23/2022 14:55

**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>96.7</i>	<i>%</i>	
<i>Surrogate: Toluene-d8</i>			<i>80-120 %</i>	<i>95.1</i>	<i>%</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>			<i>80-120 %</i>	<i>103</i>	<i>%</i>	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			<i>80-120 %</i>	<i>104</i>	<i>%</i>	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 18-Apr-2022 10:25
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**MW-3**  
**22C0365-03 (Water)**

**Volatile Organic Compounds - SIM**

Method: EPA 8260D-SIM Sampled: 03/22/2022 11:20  
Instrument: NT16 Analyst: KOTT Analyzed: 03/23/2022 12:10

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22C0365-03 F  
Preparation Batch: BKC0474 Sample Size: 10 mL  
Prepared: 03/23/2022 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>110</i>	<i>%</i>	



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

**Reported:**  
18-Apr-2022 10:25

**MW-3**  
**22C0365-03 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D

Sampled: 03/22/2022 11:20

Instrument: ICP2 Analyst: SKD

Analyzed: 04/06/2022 19:25

**Analysis by: Analytical Resources, LLC**

Sample Preparation:

Preparation Method: TWC EPA 3010A

Extract ID: 22C0365-03 B 01

Preparation Batch: BKD0153

Sample Size: 25 mL

Prepared: 04/06/2022

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	33.9	mg/L	
Potassium	7440-09-7	1	0.500	0.906	mg/L	
Sodium	7440-23-5	1	0.500	7.24	mg/L	



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**MW-3**  
**22C0365-03 (Water)**

**Wet Chemistry**

Method: EPA 325.2 Sampled: 03/22/2022 11:20  
Instrument: LACHAT2 Analyst: AGM Analyzed: 03/30/2022 15:56

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-03 A  
Preparation Batch: BKC0661 Sample Size: 10 mL  
Prepared: 03/30/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	5.60	mg/L	



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**MW-3**  
**22C0365-03 (Water)**

**Wet Chemistry**

Method: EPA 353.2 Sampled: 03/22/2022 11:20  
Instrument: [CALC] Analyst: AGM Analyzed: 03/23/2022 16:57

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: [CALC] Extract ID: 22C0365-03  
Preparation Batch: [CALC]  
Prepared: 03/23/2022 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
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Nitrate-N	14797-55-8	1	0.0200	0.0237	mg/L	
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Instrument: LACHAT2 Analyst: AGM Analyzed: 03/23/2022 15:30

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-03 C  
Preparation Batch: BKC0576 Sample Size: 10 mL  
Prepared: 03/23/2022 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	0.024	mg/L	
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Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-03 C  
Preparation Batch: BKC0578 Sample Size: 10 mL  
Prepared: 03/23/2022 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	ND	mg/L	U
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**MW-3**  
**22C0365-03 (Water)**

**Wet Chemistry**

Method: EPA 375.2 Sampled: 03/22/2022 11:20  
Instrument: LACHAT2 Analyst: AGM Analyzed: 04/07/2022 11:16

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-03 A  
Preparation Batch: BKD0188 Sample Size: 10 mL  
Prepared: 04/07/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	14.9	mg/L	





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**MW-3**  
**22C0365-03 (Water)**

**Wet Chemistry**

Method: EPA 410.4 Sampled: 03/22/2022 11:20  
Instrument: UV1800-1 Analyst: CKI Analyzed: 03/30/2022 15:49

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-03 C  
Preparation Batch: BKC0758 Sample Size: 2 mL  
Prepared: 03/29/2022 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**  
**22C0365-03 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97 Sampled: 03/22/2022 11:20  
Instrument: Accumet AB150 Analyst: UW Analyzed: 03/23/2022 14:35

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-03 A  
Preparation Batch: BKC0572 Sample Size: 100 mL  
Prepared: 03/23/2022 Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	147	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	147	mg/L CaCO3	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 18-Apr-2022 10:25
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**MW-3**  
**22C0365-03 (Water)**

**Wet Chemistry**

Method: SM 4500-H+ B-00 Sampled: 03/22/2022 11:20  
Instrument: Accumet AB150 Analyst: RMS Analyzed: 03/22/2022 17:15

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-03 C  
Preparation Batch: BKC0547 Sample Size: 50 mL  
Prepared: 03/22/2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.33	pH Units	H



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**MW-3**  
**22C0365-03 (Water)**

**Wet Chemistry**

Method: SM 4500-NH3 H-97 Sampled: 03/22/2022 11:20  
Instrument: LACHAT1 Analyst: CKI Analyzed: 03/31/2022 16:23

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-03 C  
Preparation Batch: BKC0832 Sample Size: 10 mL  
Prepared: 03/31/2022 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-3**  
**22C0365-03 (Water)**

**Microbiology**

Method: SM 9222B Sampled: 03/22/2022 11:20  
Instrument: N/A Analyst: UW Analyzed: 03/23/2022 16:45

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-03  
Preparation Batch: BKC0546 Sample Size: 100 mL  
Prepared: 03/22/2022 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**  
**22C0365-03 (Water)**

**Wet Chemistry**

Method: EPA 9060A Sampled: 03/22/2022 11:20  
Instrument: ALAB Analyst: NNL Analyzed: 03/31/2022 00:00

**Analysis by: AmTest Laboratories**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-03  
Preparation Batch: B220331  
Prepared: 03/31/2022 Final Volume:

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.5	0.5	4.8	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 18-Apr-2022 10:25
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**MW-3**  
**22C0365-04 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 Sampled: 03/22/2022 11:20  
Instrument: ICPMS1 Analyst: MCB Analyzed: 04/09/2022 01:59

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0365-04 A 03  
Preparation Batch: BKD0162 Sample Size: 25 mL  
Prepared: 04/06/2022 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: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 18-Apr-2022 10:25
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**MW-3**  
**22C0365-04 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 UCT-KED Sampled: 03/22/2022 11:20  
Instrument: ICPMS1 Analyst: MCB Analyzed: 04/08/2022 22:54

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x Extract ID: 22C0365-04 A 01  
Preparation Batch: BKD0157 Sample Size: 100 mL  
Prepared: 04/06/2022 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	

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0365-04 A 03  
Preparation Batch: BKD0162 Sample Size: 25 mL  
Prepared: 04/06/2022 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: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 18-Apr-2022 10:25
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**MW-3**  
**22C0365-04 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6010D Sampled: 03/22/2022 11:20  
Instrument: ICP2 Analyst: SKD Analyzed: 04/07/2022 19:25

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 22C0365-04 A 02  
Preparation Batch: BKD0176 Sample Size: 25 mL  
Prepared: 04/06/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	0.0097	mg/L	
Manganese, Dissolved	7439-96-5	1	0.0040	4.49	mg/L	



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

Reported:  
18-Apr-2022 10:25

**MW-9**  
**22C0365-05 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 03/22/2022 12:00

Instrument: NT2 Analyst: PKC

Analyzed: 03/23/2022 15:16

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKC0569  
Prepared: 03/23/2022

Sample Size: 10 mL  
Final Volume: 10 mL

Extract ID: 22C0365-05 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



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

Reported:  
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**MW-9**  
**22C0365-05 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 03/22/2022 12:00

Instrument: NT2 Analyst: PKC

Analyzed: 03/23/2022 15:16

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-9**  
**22C0365-05 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D Sampled: 03/22/2022 12:00  
Instrument: NT2 Analyst: PKC Analyzed: 03/23/2022 15:16

**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 %	102	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	95.3	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	97.2	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	101	%	



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**MW-9**  
**22C0365-05 (Water)**

**Volatile Organic Compounds - SIM**

Method: EPA 8260D-SIM Sampled: 03/22/2022 12:00  
Instrument: NT16 Analyst: KOTT Analyzed: 03/23/2022 12:32

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22C0365-05 F  
Preparation Batch: BKC0474 Sample Size: 10 mL  
Prepared: 03/23/2022 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>108</i>	<i>%</i>	



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**MW-9**  
**22C0365-05 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D Sampled: 03/22/2022 12:00  
Instrument: ICP2 Analyst: SKD Analyzed: 04/06/2022 19:28

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 22C0365-05 B 01  
Preparation Batch: BKD0153 Sample Size: 25 mL  
Prepared: 04/06/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	33.7	mg/L	
Potassium	7440-09-7	1	0.500	0.735	mg/L	
Sodium	7440-23-5	1	0.500	7.14	mg/L	



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**MW-9**  
**22C0365-05 (Water)**

**Wet Chemistry**

Method: EPA 325.2 Sampled: 03/22/2022 12:00  
Instrument: LACHAT2 Analyst: AGM Analyzed: 03/30/2022 15:58

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-05 A  
Preparation Batch: BKC0661 Sample Size: 10 mL  
Prepared: 03/30/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	5.16	mg/L	



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**MW-9**  
**22C0365-05 (Water)**

**Wet Chemistry**

Method: EPA 353.2 Sampled: 03/22/2022 12:00  
Instrument: [CALC] Analyst: AGM Analyzed: 03/23/2022 16:58

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: [CALC] Extract ID: 22C0365-05  
Preparation Batch: [CALC]  
Prepared: 03/23/2022 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.0200	0.0244	mg/L	

Instrument: LACHAT2 Analyst: AGM Analyzed: 03/23/2022 15:31

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-05 C  
Preparation Batch: BKC0576 Sample Size: 10 mL  
Prepared: 03/23/2022 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	

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-05 C  
Preparation Batch: BKC0578 Sample Size: 10 mL  
Prepared: 03/23/2022 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**  
**22C0365-05 (Water)**

**Wet Chemistry**

Method: EPA 375.2 Sampled: 03/22/2022 12:00  
Instrument: LACHAT2 Analyst: AGM Analyzed: 04/07/2022 11:17

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-05 A  
Preparation Batch: BKD0188 Sample Size: 10 mL  
Prepared: 04/07/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	14.8	mg/L	



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**MW-9**  
**22C0365-05 (Water)**

**Wet Chemistry**

Method: EPA 410.4 Sampled: 03/22/2022 12:00  
Instrument: UV1800-1 Analyst: CKI Analyzed: 03/30/2022 15:49

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-05 C  
Preparation Batch: BKC0758 Sample Size: 2 mL  
Prepared: 03/29/2022 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**  
**22C0365-05 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97 Sampled: 03/22/2022 12:00  
Instrument: Accumet AB150 Analyst: UW Analyzed: 03/23/2022 14:35

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-05 A  
Preparation Batch: BKC0572 Sample Size: 100 mL  
Prepared: 03/23/2022 Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	146	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	146	mg/L CaCO3	



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**MW-9**  
**22C0365-05 (Water)**

**Wet Chemistry**

Method: SM 4500-H+ B-00 Sampled: 03/22/2022 12:00  
Instrument: Accumet AB150 Analyst: RMS Analyzed: 03/22/2022 17:15

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-05 C  
Preparation Batch: BKC0547 Sample Size: 50 mL  
Prepared: 03/22/2022 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**  
**22C0365-05 (Water)**

**Wet Chemistry**

Method: SM 4500-NH3 H-97 Sampled: 03/22/2022 12:00  
Instrument: LACHAT1 Analyst: CKI Analyzed: 03/31/2022 16:24

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-05 C  
Preparation Batch: BKC0832 Sample Size: 10 mL  
Prepared: 03/31/2022 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: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 18-Apr-2022 10:25
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**MW-9**  
**22C0365-05 (Water)**

**Microbiology**

Method: SM 9222B Sampled: 03/22/2022 12:00  
Instrument: N/A Analyst: UW Analyzed: 03/23/2022 16:45

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-05  
Preparation Batch: BKC0546 Sample Size: 100 mL  
Prepared: 03/22/2022 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: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 18-Apr-2022 10:25
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**MW-9**  
**22C0365-05 (Water)**

**Wet Chemistry**

Method: EPA 9060A Sampled: 03/22/2022 12:00  
Instrument: ALAB Analyst: NNL Analyzed: 03/31/2022 00:00

**Analysis by: AmTest Laboratories**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-05  
Preparation Batch: B220331  
Prepared: 03/31/2022 Final Volume:

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.5	0.5	3.6	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 18-Apr-2022 10:25
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**MW-9**  
**22C0365-06 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 Sampled: 03/22/2022 12:00  
Instrument: ICPMS1 Analyst: MCB Analyzed: 04/09/2022 01:38

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0365-06 A 03  
Preparation Batch: BKD0162 Sample Size: 25 mL  
Prepared: 04/06/2022 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: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 18-Apr-2022 10:25
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**MW-9**  
**22C0365-06 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 UCT-KED Sampled: 03/22/2022 12:00  
Instrument: ICPMS1 Analyst: MCB Analyzed: 04/08/2022 22:59

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x Extract ID: 22C0365-06 A 01  
Preparation Batch: BKD0157 Sample Size: 100 mL  
Prepared: 04/06/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.110	ug/L	

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0365-06 A 03  
Preparation Batch: BKD0162 Sample Size: 25 mL  
Prepared: 04/06/2022 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: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 18-Apr-2022 10:25
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**MW-9**  
**22C0365-06 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6010D Sampled: 03/22/2022 12:00  
Instrument: ICP2 Analyst: SKD Analyzed: 04/07/2022 19:28

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 22C0365-06 A 02  
Preparation Batch: BKD0176 Sample Size: 25 mL  
Prepared: 04/06/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	0.0114	mg/L	
Manganese, Dissolved	7439-96-5	1	0.0040	4.65	mg/L	



TRC Companies, Inc  
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Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

**Reported:**  
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**MW-10**  
**22C0365-07 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 03/22/2022 13:40

Instrument: NT2 Analyst: PKC

Analyzed: 03/23/2022 15:36

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKC0569  
Prepared: 03/23/2022

Sample Size: 10 mL  
Final Volume: 10 mL

Extract ID: 22C0365-07 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	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: 466410  
Project Manager: Doug Kunkel

Reported:  
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**MW-10**  
**22C0365-07 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 03/22/2022 13:40

Instrument: NT2 Analyst: PKC

Analyzed: 03/23/2022 15:36

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**  
**22C0365-07 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 03/22/2022 13:40

Instrument: NT2 Analyst: PKC

Analyzed: 03/23/2022 15:36

**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>100</i>	<i>%</i>	
<i>Surrogate: Toluene-d8</i>			<i>80-120 %</i>	<i>95.0</i>	<i>%</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>			<i>80-120 %</i>	<i>97.9</i>	<i>%</i>	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			<i>80-120 %</i>	<i>100</i>	<i>%</i>	



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**MW-10**  
**22C0365-07 (Water)**

**Volatile Organic Compounds - SIM**

Method: EPA 8260D-SIM Sampled: 03/22/2022 13:40  
Instrument: NT16 Analyst: KOTT Analyzed: 03/23/2022 12:53

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22C0365-07 F  
Preparation Batch: BKC0474 Sample Size: 10 mL  
Prepared: 03/23/2022 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>	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 18-Apr-2022 10:25
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**MW-10**  
**22C0365-07 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D Sampled: 03/22/2022 13:40  
Instrument: ICP2 Analyst: SKD Analyzed: 04/06/2022 19:30

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 22C0365-07 B 01  
Preparation Batch: BKD0153 Sample Size: 25 mL  
Prepared: 04/06/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	41.3	mg/L	
Potassium	7440-09-7	1	0.500	1.36	mg/L	
Sodium	7440-23-5	1	0.500	22.5	mg/L	



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**MW-10**  
**22C0365-07 (Water)**

**Wet Chemistry**

Method: EPA 325.2 Sampled: 03/22/2022 13:40  
Instrument: LACHAT2 Analyst: AGM Analyzed: 03/30/2022 15:59

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-07 A  
Preparation Batch: BKC0661 Sample Size: 10 mL  
Prepared: 03/30/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	4.34	mg/L	





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**MW-10**  
**22C0365-07 (Water)**

**Wet Chemistry**

Method: EPA 353.2 Sampled: 03/22/2022 13:40  
Instrument: [CALC] Analyst: AGM Analyzed: 03/23/2022 16:59

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: [CALC] Extract ID: 22C0365-07  
Preparation Batch: [CALC]  
Prepared: 03/23/2022 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
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Nitrate-N	14797-55-8	1	0.0200	0.663	mg/L	
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Instrument: LACHAT2 Analyst: AGM Analyzed: 03/23/2022 15:37

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-07 C  
Preparation Batch: BKC0576 Sample Size: 10 mL  
Prepared: 03/23/2022 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	0.663	mg/L	
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Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-07 C  
Preparation Batch: BKC0578 Sample Size: 10 mL  
Prepared: 03/23/2022 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	ND	mg/L	U
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**MW-10**  
**22C0365-07 (Water)**

**Wet Chemistry**

Method: EPA 375.2 Sampled: 03/22/2022 13:40  
Instrument: LACHAT2 Analyst: AGM Analyzed: 04/07/2022 11:18

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-07 A  
Preparation Batch: BKD0188 Sample Size: 10 mL  
Prepared: 04/07/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	16.7	mg/L	



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**MW-10**  
**22C0365-07 (Water)**

**Wet Chemistry**

Method: EPA 410.4 Sampled: 03/22/2022 13:40  
Instrument: UV1800-1 Analyst: CKI Analyzed: 03/30/2022 15:49

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-07 C  
Preparation Batch: BKC0758 Sample Size: 2 mL  
Prepared: 03/29/2022 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**  
**22C0365-07 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97 Sampled: 03/22/2022 13:40  
Instrument: Accumet AB150 Analyst: UW Analyzed: 03/23/2022 14:35

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-07 A  
Preparation Batch: BKC0572 Sample Size: 100 mL  
Prepared: 03/23/2022 Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	221	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	221	mg/L CaCO3	



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**MW-10**  
**22C0365-07 (Water)**

**Wet Chemistry**

Method: SM 4500-H+ B-00 Sampled: 03/22/2022 13:40  
Instrument: Accumet AB150 Analyst: RMS Analyzed: 03/22/2022 17:15

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-07 C  
Preparation Batch: BKC0547 Sample Size: 50 mL  
Prepared: 03/22/2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.53	pH Units	H



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**MW-10**  
**22C0365-07 (Water)**

**Wet Chemistry**

Method: SM 4500-NH3 H-97 Sampled: 03/22/2022 13:40  
Instrument: LACHAT1 Analyst: CKI Analyzed: 03/31/2022 16:25

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-07 C  
Preparation Batch: BKC0832 Sample Size: 10 mL  
Prepared: 03/31/2022 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	0.054	mg/L	



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**MW-10**  
**22C0365-07 (Water)**

**Microbiology**

Method: SM 9222B Sampled: 03/22/2022 13:40  
Instrument: N/A Analyst: UW Analyzed: 03/23/2022 16:45

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-07  
Preparation Batch: BKC0546 Sample Size: 100 mL  
Prepared: 03/22/2022 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**  
**22C0365-07 (Water)**

**Wet Chemistry**

Method: EPA 9060A Sampled: 03/22/2022 13:40  
Instrument: ALAB Analyst: NNL Analyzed: 03/31/2022 00:00

**Analysis by: AmTest Laboratories**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-07  
Preparation Batch: B220331  
Prepared: 03/31/2022 Final Volume:

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.5	0.5	4.8	mg/L	





TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 18-Apr-2022 10:25
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**MW-10**  
**22C0365-08 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 Sampled: 03/22/2022 13:40  
Instrument: ICPMS1 Analyst: MCB Analyzed: 04/09/2022 01:44

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0365-08 A 03  
Preparation Batch: BKD0162 Sample Size: 25 mL  
Prepared: 04/06/2022 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: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 18-Apr-2022 10:25
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**MW-10**  
**22C0365-08 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 UCT-KED Sampled: 03/22/2022 13:40  
Instrument: ICPMS1 Analyst: MCB Analyzed: 04/08/2022 23:04

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x Extract ID: 22C0365-08 A 01  
Preparation Batch: BKD0157 Sample Size: 100 mL  
Prepared: 04/06/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	1.97	ug/L	

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0365-08 A 03  
Preparation Batch: BKD0162 Sample Size: 25 mL  
Prepared: 04/06/2022 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: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 18-Apr-2022 10:25
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**MW-10**  
**22C0365-08 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6010D Sampled: 03/22/2022 13:40  
Instrument: ICP2 Analyst: SKD Analyzed: 04/07/2022 19:30

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 22C0365-08 A 02  
Preparation Batch: BKD0176 Sample Size: 25 mL  
Prepared: 04/06/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	0.0176	mg/L	
Manganese, Dissolved	7439-96-5	1	0.0040	4.08	mg/L	



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

Reported:  
18-Apr-2022 10:25

**MW-6**  
**22C0365-09 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 03/22/2022 14:20

Instrument: NT2 Analyst: PKC

Analyzed: 03/23/2022 15:57

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKC0569  
Prepared: 03/23/2022

Sample Size: 10 mL  
Final Volume: 10 mL

Extract ID: 22C0365-09 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



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

**Reported:**  
18-Apr-2022 10:25

**MW-6**  
**22C0365-09 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 03/22/2022 14:20

Instrument: NT2 Analyst: PKC

Analyzed: 03/23/2022 15:57

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	1.26	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**  
**22C0365-09 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D Sampled: 03/22/2022 14:20  
Instrument: NT2 Analyst: PKC Analyzed: 03/23/2022 15:57

**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 %	100	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	96.3	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	97.7	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	102	%	



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**MW-6**  
**22C0365-09 (Water)**

**Volatile Organic Compounds - SIM**

Method: EPA 8260D-SIM Sampled: 03/22/2022 14:20  
Instrument: NT16 Analyst: KOTT Analyzed: 03/23/2022 13:14

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22C0365-09 F  
Preparation Batch: BKC0474 Sample Size: 10 mL  
Prepared: 03/23/2022 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>108</i>	<i>%</i>	



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**MW-6**  
**22C0365-09 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D Sampled: 03/22/2022 14:20  
Instrument: ICP2 Analyst: SKD Analyzed: 04/06/2022 19:33

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 22C0365-09 B 01  
Preparation Batch: BKD0153 Sample Size: 25 mL  
Prepared: 04/06/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	9.23	mg/L	
Potassium	7440-09-7	1	0.500	0.828	mg/L	
Sodium	7440-23-5	1	0.500	5.10	mg/L	





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**MW-6**  
**22C0365-09 (Water)**

**Wet Chemistry**

Method: EPA 325.2 Sampled: 03/22/2022 14:20  
Instrument: LACHAT2 Analyst: AGM Analyzed: 03/30/2022 16:00

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-09 A  
Preparation Batch: BKC0661 Sample Size: 10 mL  
Prepared: 03/30/2022 Final Volume: 10 mL

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



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**MW-6**  
**22C0365-09 (Water)**

**Wet Chemistry**

Method: EPA 353.2 Sampled: 03/22/2022 14:20  
Instrument: [CALC] Analyst: AGM Analyzed: 03/23/2022 17:05

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: [CALC] Extract ID: 22C0365-09  
Preparation Batch: [CALC]  
Prepared: 03/23/2022 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
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Nitrate-N	14797-55-8	1	0.0200	0.657	mg/L	
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Instrument: LACHAT2 Analyst: AGM Analyzed: 03/23/2022 15:39

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-09 C  
Preparation Batch: BKC0576 Sample Size: 10 mL  
Prepared: 03/23/2022 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	0.729	mg/L	
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Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-09 C  
Preparation Batch: BKC0578 Sample Size: 10 mL  
Prepared: 03/23/2022 Final Volume: 10 mL

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-09 C  
Preparation Batch: BKC0578 Sample Size: 10 mL  
Prepared: 03/23/2022 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	0.072	mg/L	
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**MW-6**  
**22C0365-09 (Water)**

**Wet Chemistry**

Method: EPA 375.2 Sampled: 03/22/2022 14:20  
Instrument: LACHAT2 Analyst: AGM Analyzed: 04/07/2022 11:20

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-09 A  
Preparation Batch: BKD0188 Sample Size: 10 mL  
Prepared: 04/07/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	3.51	mg/L	



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**MW-6**  
**22C0365-09 (Water)**

**Wet Chemistry**

Method: EPA 410.4 Sampled: 03/22/2022 14:20  
Instrument: UV1800-1 Analyst: CKI Analyzed: 03/30/2022 15:50

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-09 C  
Preparation Batch: BKC0758 Sample Size: 2 mL  
Prepared: 03/29/2022 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**  
**22C0365-09 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97 Sampled: 03/22/2022 14:20  
Instrument: Accumet AB150 Analyst: UW Analyzed: 03/23/2022 14:35

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-09 A  
Preparation Batch: BKC0572 Sample Size: 100 mL  
Prepared: 03/23/2022 Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	48.1	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	48.1	mg/L CaCO3	



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**MW-6**  
**22C0365-09 (Water)**

**Wet Chemistry**

Method: SM 4500-H+ B-00 Sampled: 03/22/2022 14:20  
Instrument: Accumet AB150 Analyst: RMS Analyzed: 03/22/2022 17:15

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-09 C  
Preparation Batch: BKC0547 Sample Size: 50 mL  
Prepared: 03/22/2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.73	pH Units	H



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**MW-6**  
**22C0365-09 (Water)**

**Wet Chemistry**

Method: SM 4500-NH3 H-97 Sampled: 03/22/2022 14:20  
Instrument: LACHAT1 Analyst: CKI Analyzed: 03/31/2022 16:33

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-09 C  
Preparation Batch: BKC0832 Sample Size: 10 mL  
Prepared: 03/31/2022 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**  
**22C0365-09 (Water)**

**Microbiology**

Method: SM 9222B Sampled: 03/22/2022 14:20  
Instrument: N/A Analyst: UW Analyzed: 03/23/2022 16:45

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-09  
Preparation Batch: BKC0546 Sample Size: 100 mL  
Prepared: 03/22/2022 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**  
**22C0365-09 (Water)**

**Wet Chemistry**

Method: EPA 9060A Sampled: 03/22/2022 14:20  
Instrument: ALAB Analyst: NNL Analyzed: 03/31/2022 00:00

**Analysis by: AmTest Laboratories**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-09  
Preparation Batch: B220331  
Prepared: 03/31/2022 Final Volume:

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.5	0.5	3.1	mg/L	



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**MW-6**  
**22C0365-10 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 Sampled: 03/22/2022 14:10  
Instrument: ICPMS1 Analyst: MCB Analyzed: 04/09/2022 01:49

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0365-10 A 03  
Preparation Batch: BKD0162 Sample Size: 25 mL  
Prepared: 04/06/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	20.0	37.7	ug/L	



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**MW-6**  
**22C0365-10 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 UCT-KED Sampled: 03/22/2022 14:10  
Instrument: ICPMS1 Analyst: MCB Analyzed: 04/08/2022 23:10

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x Extract ID: 22C0365-10 A 01  
Preparation Batch: BKD0157 Sample Size: 100 mL  
Prepared: 04/06/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.282	ug/L	

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0365-10 A 03  
Preparation Batch: BKD0162 Sample Size: 25 mL  
Prepared: 04/06/2022 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



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**MW-6**  
**22C0365-10 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6010D Sampled: 03/22/2022 14:10  
Instrument: ICP2 Analyst: SKD Analyzed: 04/07/2022 19:33

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 22C0365-10 A 02  
Preparation Batch: BKD0176 Sample Size: 25 mL  
Prepared: 04/06/2022 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	0.197	mg/L	



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Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

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**MW-8**  
**22C0365-11 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 03/22/2022 15:05

Instrument: NT2 Analyst: PKC

Analyzed: 03/23/2022 16:18

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKC0569  
Prepared: 03/23/2022

Sample Size: 10 mL  
Final Volume: 10 mL

Extract ID: 22C0365-11 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: 466410  
Project Manager: Doug Kunkel

Reported:  
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**MW-8**  
**22C0365-11 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 03/22/2022 15:05

Instrument: NT2 Analyst: PKC

Analyzed: 03/23/2022 16:18

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**  
**22C0365-11 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D Sampled: 03/22/2022 15:05  
Instrument: NT2 Analyst: PKC Analyzed: 03/23/2022 16:18

**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 %	102	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	97.1	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	99.3	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	102	%	



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**MW-8**  
**22C0365-11 (Water)**

**Volatile Organic Compounds - SIM**

Method: EPA 8260D-SIM Sampled: 03/22/2022 15:05  
Instrument: NT16 Analyst: KOTT Analyzed: 03/23/2022 13:35

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22C0365-11 F  
Preparation Batch: BKC0474 Sample Size: 10 mL  
Prepared: 03/23/2022 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-8**  
**22C0365-11 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D Sampled: 03/22/2022 15:05  
Instrument: ICP2 Analyst: SKD Analyzed: 04/06/2022 19:36

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 22C0365-11 B 01  
Preparation Batch: BKD0153 Sample Size: 25 mL  
Prepared: 04/06/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	20.1	mg/L	
Potassium	7440-09-7	1	0.500	0.802	mg/L	
Sodium	7440-23-5	1	0.500	7.10	mg/L	



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**MW-8**  
**22C0365-11 (Water)**

**Wet Chemistry**

Method: EPA 325.2 Sampled: 03/22/2022 15:05  
Instrument: LACHAT2 Analyst: AGM Analyzed: 03/30/2022 16:04

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-11 A  
Preparation Batch: BKC0661 Sample Size: 10 mL  
Prepared: 03/30/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	1.11	mg/L	



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**MW-8**  
**22C0365-11 (Water)**

**Wet Chemistry**

Method: EPA 353.2 Sampled: 03/22/2022 15:05  
Instrument: [CALC] Analyst: AGM Analyzed: 03/23/2022 17:07

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: [CALC] Extract ID: 22C0365-11  
Preparation Batch: [CALC]  
Prepared: 03/23/2022 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.0200	0.120	mg/L	

Instrument: LACHAT2 Analyst: AGM Analyzed: 03/23/2022 15:40

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-11 C  
Preparation Batch: BKC0576 Sample Size: 10 mL  
Prepared: 03/23/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		1	0.010	0.010	0.120	mg/L	

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-11 C  
Preparation Batch: BKC0578 Sample Size: 10 mL  
Prepared: 03/23/2022 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-8**  
**22C0365-11 (Water)**

**Wet Chemistry**

Method: EPA 375.2 Sampled: 03/22/2022 15:05  
Instrument: LACHAT2 Analyst: AGM Analyzed: 04/07/2022 11:28

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-11 A  
Preparation Batch: BKD0188 Sample Size: 10 mL  
Prepared: 04/07/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	3.18	mg/L	



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**MW-8**  
**22C0365-11 (Water)**

**Wet Chemistry**

Method: EPA 410.4 Sampled: 03/22/2022 15:05  
Instrument: UV1800-1 Analyst: CKI Analyzed: 03/30/2022 15:50

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-11 C  
Preparation Batch: BKC0758 Sample Size: 2 mL  
Prepared: 03/29/2022 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**  
**22C0365-11 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97 Sampled: 03/22/2022 15:05  
Instrument: Accumet AB150 Analyst: UW Analyzed: 03/23/2022 14:35

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-11 A  
Preparation Batch: BKC0572 Sample Size: 100 mL  
Prepared: 03/23/2022 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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**MW-8**  
**22C0365-11 (Water)**

**Wet Chemistry**

Method: SM 4500-H+ B-00 Sampled: 03/22/2022 15:05  
Instrument: Accumet AB150 Analyst: RMS Analyzed: 03/22/2022 17:15

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-11 C  
Preparation Batch: BKC0547 Sample Size: 50 mL  
Prepared: 03/22/2022 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-8**  
**22C0365-11 (Water)**

**Wet Chemistry**

Method: SM 4500-NH3 H-97 Sampled: 03/22/2022 15:05  
Instrument: LACHAT1 Analyst: CKI Analyzed: 03/31/2022 16:35

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-11 C  
Preparation Batch: BKC0832 Sample Size: 10 mL  
Prepared: 03/31/2022 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**  
**22C0365-11 (Water)**

**Microbiology**

Method: SM 9222B Sampled: 03/22/2022 15:05  
Instrument: N/A Analyst: UW Analyzed: 03/23/2022 16:45

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-11  
Preparation Batch: BKC0546 Sample Size: 100 mL  
Prepared: 03/22/2022 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**  
**22C0365-11 (Water)**

**Wet Chemistry**

Method: EPA 9060A Sampled: 03/22/2022 15:05  
Instrument: ALAB Analyst: NNL Analyzed: 03/31/2022 00:00

**Analysis by: AmTest Laboratories**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22C0365-11  
Preparation Batch: B220331  
Prepared: 03/31/2022 Final Volume:

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.5	0.5	2.0	mg/L	



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**MW-8**  
**22C0365-12 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 Sampled: 03/22/2022 15:05  
Instrument: ICPMS1 Analyst: MCB Analyzed: 04/09/2022 01:54

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0365-12 A 03  
Preparation Batch: BKD0162 Sample Size: 25 mL  
Prepared: 04/06/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	20.0	172	ug/L	



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**MW-8**  
**22C0365-12 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 UCT-KED Sampled: 03/22/2022 15:05  
Instrument: ICPMS1 Analyst: MCB Analyzed: 04/08/2022 23:15

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x Extract ID: 22C0365-12 A 01  
Preparation Batch: BKD0157 Sample Size: 100 mL  
Prepared: 04/06/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.697	ug/L	

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0365-12 A 03  
Preparation Batch: BKD0162 Sample Size: 25 mL  
Prepared: 04/06/2022 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



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**MW-8**  
**22C0365-12 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6010D Sampled: 03/22/2022 15:05  
Instrument: ICP2 Analyst: SKD Analyzed: 04/07/2022 19:39

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 22C0365-12 A 02  
Preparation Batch: BKD0176 Sample Size: 25 mL  
Prepared: 04/06/2022 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	1.07	mg/L	



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Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

Reported:  
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**TRIP BLANK**  
**22C0365-13 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 03/22/2022 09:35

Instrument: NT2 Analyst: PKC

Analyzed: 03/23/2022 14:13

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKC0569  
Prepared: 03/23/2022

Sample Size: 10 mL  
Final Volume: 10 mL

Extract ID: 22C0365-13 A

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: 466410  
Project Manager: Doug Kunkel

Reported:  
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**TRIP BLANK**  
**22C0365-13 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 03/22/2022 09:35

Instrument: NT2 Analyst: PKC

Analyzed: 03/23/2022 14:13

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: 466410  
Project Manager: Doug Kunkel

**Reported:**  
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**TRIP BLANK**  
**22C0365-13 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 03/22/2022 09:35

Instrument: NT2 Analyst: PKC

Analyzed: 03/23/2022 14:13

**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>96.9</i>	<i>%</i>	
<i>Surrogate: Toluene-d8</i>			<i>80-120 %</i>	<i>97.0</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>103</i>	<i>%</i>	





TRC Companies, Inc  
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Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

**Reported:**  
18-Apr-2022 10:25

**Analysis by: Analytical Resources, LLC**

**Volatile Organic Compounds - Quality Control**

**Batch BKC0569 - 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
<b>Blank (BKC0569-BLK1)</b>		Prepared: 23-Mar-2022 Analyzed: 23-Mar-2022 13:31								
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



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

**Reported:**  
18-Apr-2022 10:25

**Analysis by: Analytical Resources, LLC**

**Volatile Organic Compounds - Quality Control**

**Batch BKC0569 - 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
<b>Blank (BKC0569-BLK1)</b>		Prepared: 23-Mar-2022 Analyzed: 23-Mar-2022 13:31								
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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Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

Reported:  
18-Apr-2022 10:25

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKC0569 - 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
<b>Blank (BKC0569-BLK1)</b>										
					Prepared: 23-Mar-2022 Analyzed: 23-Mar-2022 13:31					
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>	4.91		ug/L	5.00		98.2	80-129			
<i>Surrogate: Toluene-d8</i>	4.72		ug/L	5.00		94.4	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	5.09		ug/L	5.00		102	80-120			
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	5.10		ug/L	5.00		102	80-120			
<b>LCS (BKC0569-BS1)</b>										
					Prepared: 23-Mar-2022 Analyzed: 23-Mar-2022 12:08					
Chloromethane	8.23	0.50	ug/L	10.0		82.3	60-138			
Vinyl Chloride	10.6	0.20	ug/L	10.0		106	66-133			
Bromomethane	9.06	1.00	ug/L	10.0		90.6	72-131			
Chloroethane	9.15	0.20	ug/L	10.0		91.5	60-155			
Trichlorofluoromethane	7.72	0.20	ug/L	10.0		77.2	62-141			Q
Acrolein	32.3	5.00	ug/L	50.0		64.6	52-190			Q
1,1,2-Trichloro-1,2,2-Trifluoroethane	8.70	0.20	ug/L	10.0		87.0	76-129			
Acetone	39.6	5.00	ug/L	50.0		79.2	58-142			Q
1,1-Dichloroethene	8.82	0.20	ug/L	10.0		88.2	69-135			
Iodomethane	8.73	1.00	ug/L	10.0		87.3	56-147			
Methylene Chloride	8.73	1.00	ug/L	10.0		87.3	65-135			
Acrylonitrile	8.65	1.00	ug/L	10.0		86.5	64-134			
Carbon Disulfide	9.02	0.20	ug/L	10.0		90.2	78-125			
trans-1,2-Dichloroethene	8.69	0.20	ug/L	10.0		86.9	78-128			
Vinyl Acetate	7.67	0.20	ug/L	10.0		76.7	55-138			Q
1,1-Dichloroethane	10.2	0.20	ug/L	10.0		102	76-124			
2-Butanone	44.6	5.00	ug/L	50.0		89.2	61-140			
2,2-Dichloropropane	10.1	0.20	ug/L	10.0		101	66-147			
cis-1,2-Dichloroethene	9.83	0.20	ug/L	10.0		98.3	80-121			
Chloroform	9.93	0.20	ug/L	10.0		99.3	80-122			
Bromochloromethane	9.76	0.20	ug/L	10.0		97.6	80-121			
1,1,1-Trichloroethane	9.75	0.20	ug/L	10.0		97.5	79-123			
1,1-Dichloropropene	9.62	0.20	ug/L	10.0		96.2	80-127			
Carbon tetrachloride	7.80	0.20	ug/L	10.0		78.0	53-137			Q
1,2-Dichloroethane	9.72	0.20	ug/L	10.0		97.2	75-123			



TRC Companies, Inc  
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Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

Reported:  
18-Apr-2022 10:25

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKC0569 - 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
<b>LCS (BKC0569-BS1)</b>				Prepared: 23-Mar-2022 Analyzed: 23-Mar-2022 12:08						
Benzene	9.85	0.20	ug/L	10.0		98.5	80-120			
Trichloroethene	9.64	0.20	ug/L	10.0		96.4	80-120			
1,2-Dichloropropane	9.93	0.20	ug/L	10.0		99.3	80-120			
Bromodichloromethane	9.56	0.20	ug/L	10.0		95.6	80-121			
Dibromomethane	9.32	0.20	ug/L	10.0		93.2	80-120			
2-Chloroethyl vinyl ether	8.50	1.00	ug/L	10.0		85.0	64-120			
4-Methyl-2-Pentanone	34.3	5.00	ug/L	50.0		68.7	67-133			Q
cis-1,3-Dichloropropene	8.39	0.20	ug/L	10.0		83.9	80-124			
Toluene	9.37	0.20	ug/L	10.0		93.7	80-120			
trans-1,3-Dichloropropene	7.18	0.20	ug/L	10.0		71.8	71-127			Q
2-Hexanone	49.3	5.00	ug/L	50.0		98.7	69-133			
1,1,2-Trichloroethane	9.93	0.20	ug/L	10.0		99.3	80-121			
1,3-Dichloropropane	10.5	0.20	ug/L	10.0		105	80-120			
Tetrachloroethene	9.49	0.20	ug/L	10.0		94.9	80-120			
Dibromochloromethane	8.53	0.20	ug/L	10.0		85.3	65-135			
1,2-Dibromoethane	8.73	0.20	ug/L	10.0		87.3	80-121			
Chlorobenzene	10.1	0.20	ug/L	10.0		101	80-120			
Ethylbenzene	10.0	0.20	ug/L	10.0		100	80-120			
1,1,1,2-Tetrachloroethane	8.45	0.20	ug/L	10.0		84.5	80-120			
m,p-Xylene	20.4	0.40	ug/L	20.0		102	80-121			
o-Xylene	10.3	0.20	ug/L	10.0		103	80-121			
Xylenes, total	30.7	0.60	ug/L	30.0		102	76-127			
Styrene	10.1	0.20	ug/L	10.0		101	80-124			
Bromoform	7.12	0.20	ug/L	10.0		71.2	51-134			Q
1,1,1,2-Tetrachloroethane	10.3	0.20	ug/L	10.0		103	77-123			
1,2,3-Trichloropropane	8.00	0.50	ug/L	10.0		80.0	76-125			
trans-1,4-Dichloro 2-Butene	8.46	1.00	ug/L	10.0		84.6	55-129			
n-Propylbenzene	10.5	0.20	ug/L	10.0		105	78-130			
Bromobenzene	9.81	0.20	ug/L	10.0		98.1	80-120			
Isopropyl Benzene	10.4	0.20	ug/L	10.0		104	80-128			
2-Chlorotoluene	9.83	0.20	ug/L	10.0		98.3	78-122			
4-Chlorotoluene	10.2	0.20	ug/L	10.0		102	80-121			
t-Butylbenzene	10.1	0.20	ug/L	10.0		101	78-125			
1,3,5-Trimethylbenzene	10.3	0.20	ug/L	10.0		103	80-129			
1,2,4-Trimethylbenzene	10.4	0.20	ug/L	10.0		104	80-127			



TRC Companies, Inc  
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Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

**Reported:**  
18-Apr-2022 10:25

**Analysis by: Analytical Resources, LLC**

**Volatile Organic Compounds - Quality Control**

**Batch BKC0569 - 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
<b>LCS (BKC0569-BS1)</b>				Prepared: 23-Mar-2022 Analyzed: 23-Mar-2022 12:08						
s-Butylbenzene	10.3	0.20	ug/L	10.0		103	78-129			
4-Isopropyl Toluene	10.7	0.20	ug/L	10.0		107	79-130			
1,3-Dichlorobenzene	10.4	0.20	ug/L	10.0		104	80-120			
1,4-Dichlorobenzene	9.49	0.20	ug/L	10.0		94.9	80-120			
n-Butylbenzene	10.6	0.20	ug/L	10.0		106	74-129			
1,2-Dichlorobenzene	10.1	0.20	ug/L	10.0		101	80-120			
1,2-Dibromo-3-chloropropane	8.42	0.50	ug/L	10.0		84.2	62-123			
1,2,4-Trichlorobenzene	9.25	0.50	ug/L	10.0		92.5	64-124			
Hexachloro-1,3-Butadiene	9.19	2.00	ug/L	10.0		91.9	58-123			
Naphthalene	9.20	0.50	ug/L	10.0		92.0	50-134			
1,2,3-Trichlorobenzene	9.24	0.50	ug/L	10.0		92.4	49-133			
Dichlorodifluoromethane	9.38	0.20	ug/L	10.0		93.8	48-147			
Methyl tert-butyl Ether	9.85	0.50	ug/L	10.0		98.5	71-132			
2-Pentanone	41.7	5.00	ug/L	50.0		83.4	69-134			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	4.97		ug/L	5.00		99.4	80-129			
<i>Surrogate: Toluene-d8</i>	5.01		ug/L	5.00		100	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	5.26		ug/L	5.00		105	80-120			
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	5.03		ug/L	5.00		101	80-120			
<b>LCS Dup (BKC0569-BS1)</b>				Prepared: 23-Mar-2022 Analyzed: 23-Mar-2022 12:50						
Chloromethane	8.18	0.50	ug/L	10.0		81.8	60-138	0.65	30	
Vinyl Chloride	11.1	0.20	ug/L	10.0		111	66-133	4.77	30	
Bromomethane	9.24	1.00	ug/L	10.0		92.4	72-131	1.91	30	
Chloroethane	9.33	0.20	ug/L	10.0		93.3	60-155	2.03	30	
Trichlorofluoromethane	7.72	0.20	ug/L	10.0		77.2	62-141	0.07	30	Q
Acrolein	34.6	5.00	ug/L	50.0		69.1	52-190	6.81	30	Q
1,1,2-Trichloro-1,2,2-Trifluoroethane	8.80	0.20	ug/L	10.0		88.0	76-129	1.18	30	
Acetone	41.2	5.00	ug/L	50.0		82.3	58-142	3.81	30	Q
1,1-Dichloroethene	9.03	0.20	ug/L	10.0		90.3	69-135	2.36	30	
Iodomethane	8.81	1.00	ug/L	10.0		88.1	56-147	0.96	30	
Methylene Chloride	9.05	1.00	ug/L	10.0		90.5	65-135	3.62	30	
Acrylonitrile	8.88	1.00	ug/L	10.0		88.8	64-134	2.58	30	
Carbon Disulfide	9.07	0.20	ug/L	10.0		90.7	78-125	0.52	30	
trans-1,2-Dichloroethene	9.00	0.20	ug/L	10.0		90.0	78-128	3.53	30	
Vinyl Acetate	7.88	0.20	ug/L	10.0		78.8	55-138	2.74	30	Q



TRC Companies, Inc  
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Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

Reported:  
18-Apr-2022 10:25

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKC0569 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Alyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BKC0569-BSD1)										
Prepared: 23-Mar-2022 Analyzed: 23-Mar-2022 12:50										
1,1-Dichloroethane	10.6	0.20	ug/L	10.0		106	76-124	3.48	30	
2-Butanone	46.7	5.00	ug/L	50.0		93.4	61-140	4.57	30	
2,2-Dichloropropane	10.5	0.20	ug/L	10.0		105	66-147	3.15	30	
cis-1,2-Dichloroethene	10.5	0.20	ug/L	10.0		105	80-121	6.32	30	
Chloroform	10.5	0.20	ug/L	10.0		105	80-122	5.08	30	
Bromochloromethane	10.0	0.20	ug/L	10.0		100	80-121	2.73	30	
1,1,1-Trichloroethane	10.1	0.20	ug/L	10.0		101	79-123	3.12	30	
1,1-Dichloropropene	9.85	0.20	ug/L	10.0		98.5	80-127	2.34	30	
Carbon tetrachloride	7.96	0.20	ug/L	10.0		79.6	53-137	2.07	30	Q
1,2-Dichloroethane	9.88	0.20	ug/L	10.0		98.8	75-123	1.68	30	
Benzene	10.2	0.20	ug/L	10.0		102	80-120	3.07	30	
Trichloroethene	9.83	0.20	ug/L	10.0		98.3	80-120	1.99	30	
1,2-Dichloropropane	10.1	0.20	ug/L	10.0		101	80-120	1.82	30	
Bromodichloromethane	9.93	0.20	ug/L	10.0		99.3	80-121	3.72	30	
Dibromomethane	9.64	0.20	ug/L	10.0		96.4	80-120	3.28	30	
2-Chloroethyl vinyl ether	9.52	1.00	ug/L	10.0		95.2	64-120	11.30	30	
4-Methyl-2-Pentanone	36.4	5.00	ug/L	50.0		72.8	67-133	5.80	30	Q
cis-1,3-Dichloropropene	8.77	0.20	ug/L	10.0		87.7	80-124	4.43	30	
Toluene	9.75	0.20	ug/L	10.0		97.5	80-120	3.91	30	
trans-1,3-Dichloropropene	7.56	0.20	ug/L	10.0		75.6	71-127	5.24	30	Q
2-Hexanone	51.0	5.00	ug/L	50.0		102	69-133	3.40	30	
1,1,2-Trichloroethane	10.4	0.20	ug/L	10.0		104	80-121	4.91	30	
1,3-Dichloropropane	10.8	0.20	ug/L	10.0		108	80-120	3.24	30	
Tetrachloroethene	9.56	0.20	ug/L	10.0		95.6	80-120	0.79	30	
Dibromochloromethane	8.82	0.20	ug/L	10.0		88.2	65-135	3.29	30	
1,2-Dibromoethane	9.10	0.20	ug/L	10.0		91.0	80-121	4.17	30	
Chlorobenzene	10.4	0.20	ug/L	10.0		104	80-120	2.84	30	
Ethylbenzene	10.2	0.20	ug/L	10.0		102	80-120	1.81	30	
1,1,1,2-Tetrachloroethane	8.69	0.20	ug/L	10.0		86.9	80-120	2.77	30	
m,p-Xylene	20.7	0.40	ug/L	20.0		104	80-121	1.65	30	
o-Xylene	10.4	0.20	ug/L	10.0		104	80-121	0.89	30	
Xylenes, total	31.1	0.60	ug/L	30.0		104	76-127	1.40	30	
Styrene	11.1	0.20	ug/L	10.0		111	80-124	9.43	30	
Bromoform	7.33	0.20	ug/L	10.0		73.3	51-134	3.02	30	Q
1,1,2,2-Tetrachloroethane	10.4	0.20	ug/L	10.0		104	77-123	1.22	30	



TRC Companies, Inc  
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Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

**Reported:**  
18-Apr-2022 10:25

**Analysis by: Analytical Resources, LLC**

**Volatile Organic Compounds - Quality Control**

**Batch BKC0569 - 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
<b>LCS Dup (BKC0569-BSD1)</b>				Prepared: 23-Mar-2022 Analyzed: 23-Mar-2022 12:50						
1,2,3-Trichloropropane	8.00	0.50	ug/L	10.0		80.0	76-125	0.01	30	
trans-1,4-Dichloro 2-Butene	8.21	1.00	ug/L	10.0		82.1	55-129	2.93	30	
n-Propylbenzene	10.4	0.20	ug/L	10.0		104	78-130	0.79	30	
Bromobenzene	9.81	0.20	ug/L	10.0		98.1	80-120	0.01	30	
Isopropyl Benzene	10.2	0.20	ug/L	10.0		102	80-128	1.83	30	
2-Chlorotoluene	9.81	0.20	ug/L	10.0		98.1	78-122	0.19	30	
4-Chlorotoluene	9.80	0.20	ug/L	10.0		98.0	80-121	4.30	30	
t-Butylbenzene	9.96	0.20	ug/L	10.0		99.6	78-125	1.36	30	
1,3,5-Trimethylbenzene	10.3	0.20	ug/L	10.0		103	80-129	0.50	30	
1,2,4-Trimethylbenzene	10.3	0.20	ug/L	10.0		103	80-127	1.55	30	
s-Butylbenzene	10.2	0.20	ug/L	10.0		102	78-129	0.76	30	
4-Isopropyl Toluene	10.5	0.20	ug/L	10.0		105	79-130	1.56	30	
1,3-Dichlorobenzene	10.2	0.20	ug/L	10.0		102	80-120	1.47	30	
1,4-Dichlorobenzene	9.48	0.20	ug/L	10.0		94.8	80-120	0.04	30	
n-Butylbenzene	10.4	0.20	ug/L	10.0		104	74-129	2.07	30	
1,2-Dichlorobenzene	10.2	0.20	ug/L	10.0		102	80-120	0.88	30	
1,2-Dibromo-3-chloropropane	8.44	0.50	ug/L	10.0		84.4	62-123	0.21	30	
1,2,4-Trichlorobenzene	9.22	0.50	ug/L	10.0		92.2	64-124	0.28	30	
Hexachloro-1,3-Butadiene	9.40	2.00	ug/L	10.0		94.0	58-123	2.30	30	
Naphthalene	9.43	0.50	ug/L	10.0		94.3	50-134	2.52	30	
1,2,3-Trichlorobenzene	9.30	0.50	ug/L	10.0		93.0	49-133	0.65	30	
Dichlorodifluoromethane	10.1	0.20	ug/L	10.0		101	48-147	6.96	30	
Methyl tert-butyl Ether	10.1	0.50	ug/L	10.0		101	71-132	2.72	30	
2-Pentanone	41.1	5.00	ug/L	50.0		82.2	69-134	1.40	30	
Surrogate: 1,2-Dichloroethane-d4	4.52		ug/L	5.00		90.3	80-129			
Surrogate: Toluene-d8	4.99		ug/L	5.00		99.7	80-120			
Surrogate: 4-Bromofluorobenzene	5.12		ug/L	5.00		102	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	5.00		ug/L	5.00		100	80-120			



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Analysis by: Analytical Resources, LLC

**Volatile Organic Compounds - SIM - Quality Control**

**Batch BKC0474 - 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
<b>Blank (BKC0474-BLK1)</b>				Prepared: 23-Mar-2022 Analyzed: 23-Mar-2022 11:28						
Vinyl chloride	ND	20.0	ng/L							U
<i>Surrogate: 1,2-Dichloroethane-d4</i>	5090		ng/L	5000	102		80-129			
<b>LCS (BKC0474-BS1)</b>				Prepared: 23-Mar-2022 Analyzed: 23-Mar-2022 09:55						
Vinyl chloride	2060	20.0	ng/L	2000		103	62-141			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	5020		ng/L	5000	100		80-129			
<b>LCS Dup (BKC0474-BSD1)</b>				Prepared: 23-Mar-2022 Analyzed: 23-Mar-2022 10:33						
Vinyl chloride	1870	20.0	ng/L	2000		93.6	62-141	9.58	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	5380		ng/L	5000	108		80-129			





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**Analysis by: Analytical Resources, LLC**

**Metals and Metallic Compounds - Quality Control**

**Batch BKD0153 - 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
<b>Blank (BKD0153-BLK1)</b>										
					Prepared: 06-Apr-2022 Analyzed: 06-Apr-2022 18:37					
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
<b>LCS (BKD0153-BS1)</b>										
					Prepared: 06-Apr-2022 Analyzed: 06-Apr-2022 19:05					
Calcium	10.1	0.0500	mg/L	10.0		101	80-120			
Potassium	10.4	0.500	mg/L	10.0		104	80-120			
Sodium	10.8	0.500	mg/L	10.0		108	80-120			
Sodium	ND	50.0	mg/L	10.0		117	80-120			U
<b>Duplicate (BKD0153-DUP1)</b>										
		<b>Source: 22C0365-01</b>		Prepared: 06-Apr-2022 Analyzed: 06-Apr-2022 18:53						
Calcium	12.0	0.0500	mg/L		12.0			0.47	20	
Potassium	0.616	0.500	mg/L		0.605			1.80	20	
Sodium	4.97	0.500	mg/L		4.97			0.12	20	
<b>Matrix Spike (BKD0153-MS1)</b>										
		<b>Source: 22C0365-01</b>		Prepared: 06-Apr-2022 Analyzed: 06-Apr-2022 18:59						
Calcium	22.0	0.0500	mg/L	10.0	12.0	101	75-125			
Potassium	10.8	0.500	mg/L	10.0	0.605	102	75-125			
Sodium	15.6	0.500	mg/L	10.0	4.97	107	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
<b>Matrix Spike Dup (BKD0153-MSD1)</b>										
		<b>Source: 22C0365-01</b>		Prepared: 06-Apr-2022 Analyzed: 06-Apr-2022 19:01						
Calcium	21.9	0.0500	mg/L	10.0	12.0	99.9	75-125	0.45	20	
Potassium	10.7	0.500	mg/L	10.0	0.605	101	75-125	0.75	20	
Sodium	15.5	0.500	mg/L	10.0	4.97	105	75-125	1.03	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 BKD0157 - 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
<b>Blank (BKD0157-BLK1)</b>						Prepared: 06-Apr-2022 Analyzed: 08-Apr-2022 20:33					
Arsenic, Dissolved	75a	ND	0.0400	ug/L							U
<b>LCS (BKD0157-BS1)</b>						Prepared: 06-Apr-2022 Analyzed: 08-Apr-2022 20:38					
Arsenic, Dissolved	75a	5.11	0.0400	ug/L	5.00		102	80-120			
<b>Duplicate (BKD0157-DUP1)</b>						Source: 22C0365-02 Prepared: 06-Apr-2022 Analyzed: 08-Apr-2022 23:26					
Arsenic, Dissolved	75a	0.100	0.0400	ug/L		0.110			9.16	20	
<b>Matrix Spike (BKD0157-MS1)</b>						Source: 22C0365-02 Prepared: 06-Apr-2022 Analyzed: 08-Apr-2022 23:31					
Arsenic, Dissolved	75a	4.98	0.0400	ug/L	5.00	0.110	97.4	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
<b>Matrix Spike Dup (BKD0157-MSD1)</b>						Source: 22C0365-02 Prepared: 06-Apr-2022 Analyzed: 08-Apr-2022 23:38					
Arsenic, Dissolved	75a	4.88	0.0400	ug/L	5.00	0.110	95.4	75-125	2.04	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: 466410  
Project Manager: Doug Kunkel

**Reported:**  
18-Apr-2022 10:25

**Analysis by: Analytical Resources, LLC**

**Metals and Metallic Compounds (dissolved) - Quality Control**

**Batch BKD0162 - 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
<b>Blank (BKD0162-BLK1)</b>			Prepared: 06-Apr-2022 Analyzed: 08-Apr-2022 20:46								
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
<b>LCS (BKD0162-BS1)</b>			Prepared: 06-Apr-2022 Analyzed: 08-Apr-2022 20:51								
Iron, Dissolved	54	5400	36.0	ug/L	5000		108	80-120			
Iron, Dissolved	57	5540	20.0	ug/L	5000		111	80-120			
Zinc, Dissolved	66	86.4	6.00	ug/L	80.0		108	80-120			
Zinc, Dissolved	67	82.0	6.00	ug/L	80.0		102	80-120			
<b>Duplicate (BKD0162-DUP1)</b>			<b>Source: 22C0365-04</b>			Prepared: 06-Apr-2022 Analyzed: 09-Apr-2022 02:05					
Iron, Dissolved	54	ND	36.0	ug/L		ND					U
Zinc, Dissolved	66	ND	6.00	ug/L		ND					U
<b>Matrix Spike (BKD0162-MS1)</b>			<b>Source: 22C0365-04</b>			Prepared: 06-Apr-2022 Analyzed: 09-Apr-2022 02:10					
Iron, Dissolved	54	5250	36.0	ug/L	5000	ND	105	75-125			
Zinc, Dissolved	66	82.4	6.00	ug/L	80.0	ND	103	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
<b>Matrix Spike Dup (BKD0162-MSD1)</b>			<b>Source: 22C0365-04</b>			Prepared: 06-Apr-2022 Analyzed: 09-Apr-2022 02:17					
Iron, Dissolved	54	5190	36.0	ug/L	5000	ND	104	75-125	1.15	20	
Zinc, Dissolved	66	80.7	6.00	ug/L	80.0	ND	101	75-125	2.15	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 BKD0176 - 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
<b>Blank (BKD0176-BLK1)</b>		Prepared: 06-Apr-2022 Analyzed: 07-Apr-2022 16:47								
Barium, Dissolved	ND	0.0060	mg/L							U
Manganese, Dissolved	ND	0.0040	mg/L							U
<b>LCS (BKD0176-BS1)</b>		Prepared: 06-Apr-2022 Analyzed: 07-Apr-2022 17:17								
Barium, Dissolved	1.95	0.0061	mg/L	2.00		97.6	80-120			
Manganese, Dissolved	0.480	0.0040	mg/L	0.500		96.0	80-120			
<b>Duplicate (BKD0176-DUP1)</b>		<b>Source: 22C0365-12</b>		Prepared: 06-Apr-2022 Analyzed: 07-Apr-2022 19:36						
Barium, Dissolved	ND	0.0060	mg/L		ND					U
Manganese, Dissolved	1.07	0.0040	mg/L		1.07			0.06	20	
<b>Matrix Spike (BKD0176-MS1)</b>		<b>Source: 22C0365-12</b>		Prepared: 06-Apr-2022 Analyzed: 07-Apr-2022 19:42						
Barium, Dissolved	2.10	0.0061	mg/L	2.00	ND	105	75-125			
Manganese, Dissolved	1.62	0.0040	mg/L	0.500	1.07	111	75-125			

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 BKC0547 - No Prep Wet Chem**

Instrument: Accumet AB150 Analyst: RMS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BKC0547-BS1)</b>						Prepared: 22-Mar-2022 Analyzed: 22-Mar-2022 17:15					
pH	7.00	0.01	0.01	pH Units	7.00		100	99.2-100.8			
<b>Duplicate (BKC0547-DUP1)</b>						Source: 22C0365-01 Prepared: 22-Mar-2022 Analyzed: 22-Mar-2022 17:15					
pH	6.45	0.01	0.01	pH Units		6.41			0.62	20	H



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**Analysis by: Analytical Resources, LLC**

**Wet Chemistry - Quality Control**

**Batch BKC0572 - 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
<b>Blank (BKC0572-BLK1)</b>						Prepared: 23-Mar-2022 Analyzed: 23-Mar-2022 14:35					
Alkalinity, Total	ND	1.00	1.00	mg/L CaCO3							U
<b>Duplicate (BKC0572-DUP1)</b>						Source: 22C0365-01 Prepared: 23-Mar-2022 Analyzed: 23-Mar-2022 14:35					
Alkalinity, Total	54.6	1.00	1.00	mg/L CaCO3		55.3			1.29	20	
<b>Reference (BKC0572-SRM1)</b>						Prepared: 23-Mar-2022 Analyzed: 23-Mar-2022 13:54					
Alkalinity, Total	125	1.00	1.00	mg/L CaCO3	127		98.3	85.04-114.96			



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**Analysis by: Analytical Resources, LLC**

**Wet Chemistry - Quality Control**

**Batch BKC0576 - 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
<b>Blank (BKC0576-BLK1)</b>						Prepared: 23-Mar-2022 Analyzed: 23-Mar-2022 15:22					
Nitrate + Nitrite as N	ND	0.010	0.010	mg/L							U
<b>LCS (BKC0576-BS1)</b>						Prepared: 23-Mar-2022 Analyzed: 23-Mar-2022 15:24					
Nitrate + Nitrite as N	0.501	0.010	0.010	mg/L	0.500		100	90-110			
<b>Duplicate (BKC0576-DUP1)</b>						Source: 22C0365-01 Prepared: 23-Mar-2022 Analyzed: 23-Mar-2022 15:26					
Nitrate + Nitrite as N	0.632	0.010	0.010	mg/L		0.631			0.16	20	
<b>Matrix Spike (BKC0576-MS2)</b>						Source: 22C0365-01 Prepared: 23-Mar-2022 Analyzed: 23-Mar-2022 15:41					
Nitrate + Nitrite as N	1.70	0.010	0.020	mg/L	1.00	0.631	107	75-125			D

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

<b>Matrix Spike Dup (BKC0576-MSD2)</b>						Source: 22C0365-01 Prepared: 23-Mar-2022 Analyzed: 23-Mar-2022 15:44					
Nitrate + Nitrite as N	1.70	0.010	0.020	mg/L	1.00	0.631	107	75-125	0.00		D

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 BKC0578 - No Prep Wet Chem**

Instrument: LACHAT2 Analyst: AGM

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BKC0578-BLK1)</b>						Prepared: 23-Mar-2022 Analyzed: 23-Mar-2022 16:50					
Nitrite-N	ND	0.010	0.010	mg/L							U
<b>LCS (BKC0578-BS1)</b>						Prepared: 23-Mar-2022 Analyzed: 23-Mar-2022 16:51					
Nitrite-N	0.491	0.010	0.010	mg/L	0.500		98.2	90-110			
<b>Duplicate (BKC0578-DUP1)</b>						Source: 22C0365-01 Prepared: 23-Mar-2022 Analyzed: 23-Mar-2022 16:53					
Nitrite-N	ND	0.010	0.010	mg/L		ND					U
<b>Matrix Spike (BKC0578-MS1)</b>						Source: 22C0365-01 Prepared: 23-Mar-2022 Analyzed: 23-Mar-2022 16:55					
Nitrite-N	0.512	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.

<b>Matrix Spike Dup (BKC0578-MSD1)</b>						Source: 22C0365-01 Prepared: 23-Mar-2022 Analyzed: 23-Mar-2022 16:56					
Nitrite-N	0.518	0.010	0.010	mg/L	0.500	ND	104	75-125	1.17	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 BKC0661 - 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
<b>Blank (BKC0661-BLK1)</b>						Prepared: 30-Mar-2022 Analyzed: 30-Mar-2022 15:34					
Chloride	ND	1.00	1.00	mg/L							U
<b>LCS (BKC0661-BS1)</b>						Prepared: 30-Mar-2022 Analyzed: 30-Mar-2022 15:36					
Chloride	4.68	1.00	1.00	mg/L	5.00		93.6	90-110			
<b>Duplicate (BKC0661-DUP1)</b>						Source: 22C0365-01 Prepared: 30-Mar-2022 Analyzed: 30-Mar-2022 15:54					
Chloride	3.94	1.00	1.00	mg/L		3.93			0.25	20	
<b>Matrix Spike (BKC0661-MS1)</b>						Source: 22C0365-01 Prepared: 30-Mar-2022 Analyzed: 30-Mar-2022 15:55					
Chloride	9.46	1.00	1.00	mg/L	5.00	3.93	111	75-125			

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 BKC0758 - 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
<b>Blank (BKC0758-BLK1)</b>						Prepared: 29-Mar-2022 Analyzed: 30-Mar-2022 15:46					
COD	ND	10.0	10.0	mg/L							U
<b>Blank (BKC0758-BLK2)</b>						Prepared: 29-Mar-2022 Analyzed: 30-Mar-2022 15:50					
COD	ND	10.0	10.0	mg/L							U
<b>Blank (BKC0758-BLK3)</b>						Prepared: 29-Mar-2022 Analyzed: 30-Mar-2022 15:56					
COD	ND	10.0	10.0	mg/L							U
<b>LCS (BKC0758-BS1)</b>						Prepared: 29-Mar-2022 Analyzed: 30-Mar-2022 15:47					
COD	95.4	10.0	10.0	mg/L	100		95.4	90-110			
<b>LCS (BKC0758-BS2)</b>						Prepared: 29-Mar-2022 Analyzed: 30-Mar-2022 15:51					
COD	96.3	10.0	10.0	mg/L	100		96.3	90-110			
<b>LCS (BKC0758-BS3)</b>						Prepared: 29-Mar-2022 Analyzed: 30-Mar-2022 15:56					
COD	94.5	10.0	10.0	mg/L	100		94.5	90-110			
<b>Duplicate (BKC0758-DUP1)</b>						Source: 22C0365-01 Prepared: 29-Mar-2022 Analyzed: 30-Mar-2022 15:47					
COD	ND	10.0	10.0	mg/L		ND					U
<b>Matrix Spike (BKC0758-MS1)</b>						Source: 22C0365-01 Prepared: 29-Mar-2022 Analyzed: 30-Mar-2022 15:48					
COD	93.7	20.0	20.0	mg/L	100	ND	93.7	90-110			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
<b>Matrix Spike Dup (BKC0758-MSD1)</b>						Source: 22C0365-01 Prepared: 29-Mar-2022 Analyzed: 30-Mar-2022 15:49					
COD	95.6	20.0	20.0	mg/L	100	ND	95.6	90-110	1.99	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 BKC0832 - No Prep Wet Chem**

Instrument: LCHAT1 Analyst: CKI

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BKC0832-BLK1)</b>						Prepared: 31-Mar-2022 Analyzed: 31-Mar-2022 16:16					
Ammonia-N	ND	0.040	0.040	mg/L							U
<b>LCS (BKC0832-BS1)</b>						Prepared: 31-Mar-2022 Analyzed: 31-Mar-2022 16:17					
Ammonia-N	0.461	0.040	0.040	mg/L	0.500		92.2	90-110			
<b>Duplicate (BKC0832-DUP1)</b>						Source: 22C0365-01 Prepared: 31-Mar-2022 Analyzed: 31-Mar-2022 16:19					
Ammonia-N	ND	0.040	0.040	mg/L		ND					U
<b>Matrix Spike (BKC0832-MS1)</b>						Source: 22C0365-01 Prepared: 31-Mar-2022 Analyzed: 31-Mar-2022 16:20					
Ammonia-N	0.510	0.040	0.040	mg/L	0.500	ND	102	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
<b>Matrix Spike Dup (BKC0832-MSD1)</b>						Source: 22C0365-01 Prepared: 31-Mar-2022 Analyzed: 31-Mar-2022 16:22					
Ammonia-N	0.510	0.040	0.040	mg/L	0.500	ND	102	75-125	0.00		

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 BKD0188 - No Prep Wet Chem**

Instrument: LACHAT2 Analyst: AGM

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BKD0188-BLK1)</b>						Prepared: 07-Apr-2022 Analyzed: 07-Apr-2022 11:06					
Sulfate	ND	2.00	2.00	mg/L							U
<b>LCS (BKD0188-BS1)</b>						Prepared: 07-Apr-2022 Analyzed: 07-Apr-2022 11:07					
Sulfate	14.9	2.00	2.00	mg/L	15.0		99.3	90-110			
<b>Duplicate (BKD0188-DUP1)</b>						Source: 22C0365-01 Prepared: 07-Apr-2022 Analyzed: 07-Apr-2022 11:12					
Sulfate	3.66	2.00	2.00	mg/L		3.65			0.27	20	
<b>Matrix Spike (BKD0188-MS1)</b>						Source: 22C0365-01 Prepared: 07-Apr-2022 Analyzed: 07-Apr-2022 11:13					
Sulfate	18.3	2.00	2.00	mg/L	15.0	3.65	97.7	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
<b>Matrix Spike Dup (BKD0188-MSD1)</b>						Source: 22C0365-01 Prepared: 07-Apr-2022 Analyzed: 07-Apr-2022 11:15					
Sulfate	19.0	2.00	2.00	mg/L	15.0	3.65	102	75-125	3.75	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: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 18-Apr-2022 10:25
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**Analysis by: Analytical Resources, LLC**

**Microbiology - Quality Control**

**Batch BKC0546 - 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
<b>Blank (BKC0546-BLK1)</b>						Prepared: 22-Mar-2022 Analyzed: 23-Mar-2022 16:45					
Total Coliforms	ND	1	1	CFU/100 ml							U



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Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

**Reported:**  
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**Analysis by: AmTest Laboratories**

**Wet Chemistry - Quality Control**

**Batch B220331 - No Prep Wet Chem**

Instrument: ALAB Analyst: NNL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>BLK (B220331-BLK1)</b>						Prepared: 30-Mar-2022 Analyzed: 30-Mar-2022 00:00					
Total Organic Carbon	ND	0.5	0.5	mg/L				-			
<b>BLK (B220331-BLK2)</b>						Prepared: 30-Mar-2022 Analyzed: 30-Mar-2022 00:00					
Total Organic Carbon	ND	0.5	0.5	mg/L				-			
<b>BS (B220331-BS1)</b>						Prepared: 30-Mar-2022 Analyzed: 30-Mar-2022 00:00					
Total Organic Carbon	25	0.5	0.5	mg/L			100	-			
<b>BS (B220331-BS2)</b>						Prepared: 30-Mar-2022 Analyzed: 30-Mar-2022 00:00					
Total Organic Carbon	26	0.5	0.5	mg/L			104	-			
<b>BS (B220331-BS3)</b>						Prepared: 30-Mar-2022 Analyzed: 30-Mar-2022 00:00					
Total Organic Carbon	26	0.5	0.5	mg/L			104	-			
<b>BS (B220331-BS4)</b>						Prepared: 30-Mar-2022 Analyzed: 30-Mar-2022 00:00					
Total Organic Carbon	25	0.5	0.5	mg/L			100	-			
<b>MS (B220331-MS1)</b>						Prepared: 30-Mar-2022 Analyzed: 30-Mar-2022 00:00					
Total Organic Carbon	51	0.5	0.5	mg/L		1.4	99.20	-			

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



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**Reported:**  
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**Certified Analyses included in this Report**

Analyte	Certifications
<b>EPA 200.8 in Water</b>	
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
<b>EPA 200.8 UCT-KED in Water</b>	
Arsenic-75a	NELAP,WADOE,WA-DW,DoD-ELAP
Zinc-66	NELAP,WADOE,WA-DW,DoD-ELAP
Zinc-67	NELAP,WADOE,WA-DW,DoD-ELAP
<b>EPA 353.2 in Water</b>	
Nitrate + Nitrite as N	NELAP,DoD-ELAP,WADOE
Nitrite-N	WADOE,NELAP,DoD-ELAP
<b>EPA 375.2 in Water</b>	
Sulfate	WADOE,NELAP
<b>EPA 410.4 in Water</b>	
COD	DoD-ELAP,NELAP,WADOE
<b>EPA 6010D in Water</b>	
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
<b>EPA 8260D in Water</b>	
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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**Reported:**  
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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

**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



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 18-Apr-2022 10:25
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Alkalinity, Total DoD-ELAP,WADOE,WA-DW,NELAP  
**SM 4500-H+ B-00 in Water**  
 pH WADOE,NELAP,WA-DW  
**SM 4500-NH3 H-97 in Water**  
 Ammonia-N WADOE,DoD-ELAP,NELAP  
**SM 9222B in Water**  
 Total Coliforms WADOE

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



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Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

**Reported:**  
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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.
- M Estimated value for a GC/MS analyte detected and confirmed by an analyst but with low spectral match parameters.
- Q Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20% RSD, <20% drift or minimum RRF)
- U This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- [2C] Indicates this result was quantified on the second column on a dual column analysis.



**Analytical Resources, LLC**  
Analytical Chemists and Consultants

07 July 2022

Doug Kunkel  
TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah, WA 98027

RE: Olalla Landfill (466410)

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)  
22F0166

Associated SDG ID(s)  
N/A

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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.

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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: <b>22F0144</b>	Turn-around Requested: <b>STD</b>	Page: <b>1</b> of <b>1</b>
ARI Client Company: <b>TRC</b>	Phone: <b>425-345-0090</b>	Date: <b>6-9-22</b>
Client Contact: <b>Eric Cardley</b>	No. of Coolers: <b>8.2</b>	Ice Present? <b>5.8</b>
Client Project Name: <b>Oxalla Landfill</b>	Cooler Temps: <b>8.2 5.8</b>	

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested										Notes/Comments
					VOC 4260	VOC 4260	Diss metals Fe, Zn, Ba, Mn	Tot. metals K, Na, Ca	Alk, Carb, bi-carb	NO <sub>3</sub> , SO <sub>4</sub> , NO <sub>2</sub> , PH <sub>3</sub> , chloride	TOD, COD + NH <sub>3</sub>	Total conform			
MW-1	6-9-22	0910	H <sub>2</sub> O	11	X	X	X	X	X	X	X	X			
MW-3	↓	1040	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓			
MW-10	↓	1130	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓			
MW-6	↓	1330	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓			
MW-8	↓	1430	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓			
MW-17	↓	1600	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓			
Field Blank	6-9-22			3	X										
Comments/Special Instructions					Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)							
					Printed Name: <b>Lathan Brient</b>	Printed Name: <b>Orlo Amos</b>	Printed Name:	Printed Name:							
					Company: <b>TRC</b>	Company: <b>ARI</b>	Company:	Company:							
					Date & Time: <b>6-9-22 @</b>	Date & Time: <b>6/9/22 15:54</b>	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: 466410  
Project Manager: Doug Kunkel

**Reported:**  
07-Jul-2022 18:11

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	22F0166-01	Water	09-Jun-2022 09:10	09-Jun-2022 15:54
MW-3	22F0166-02	Water	09-Jun-2022 10:40	09-Jun-2022 15:54
MW-10	22F0166-03	Water	09-Jun-2022 11:30	09-Jun-2022 15:54
MW-6	22F0166-04	Water	09-Jun-2022 13:30	09-Jun-2022 15:54
MW-8	22F0166-05	Water	09-Jun-2022 14:30	09-Jun-2022 15:54
MW-17	22F0166-06	Water	09-Jun-2022 12:30	09-Jun-2022 15:54
MW-1	22F0166-07	Water	09-Jun-2022 09:10	09-Jun-2022 15:54
MW-3	22F0166-08	Water	09-Jun-2022 10:40	09-Jun-2022 15:54
MW-10	22F0166-09	Water	09-Jun-2022 11:30	09-Jun-2022 15:54
MW-6	22F0166-10	Water	09-Jun-2022 13:30	09-Jun-2022 15:54
MW-8	22F0166-11	Water	09-Jun-2022 14:30	09-Jun-2022 15:54
MW-17	22F0166-12	Water	09-Jun-2022 12:30	09-Jun-2022 15:54
Trip Blank	22F0166-13	Water	09-Jun-2022 00:00	09-Jun-2022 15:54



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**Reported:**  
07-Jul-2022 18:11

## **Work Order Case Narrative**

### **Volatiles - EPA Method SW8260D**

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

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

### **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**

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



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
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Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

**Reported:**  
07-Jul-2022 18:11

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

Alkalinity was subcontracted due to sample load issues.





WORK ORDER

22F0166

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: 466410

Preservation Confirmation

Container ID	Container Type	pH	
22F0166-01 A	Corning Plastic, 125 mL, Na2S2O3		
22F0166-01 B	HDPE NM, 1000 mL		
22F0166-01 C	HDPE NM, 500 mL		
22F0166-01 D	HDPE NM, 500 mL, 1:1 HNO3	LL	PASS
22F0166-01 E	Glass NM, Amber, 250 mL, 9N H2SO4	LL	PASS
22F0166-01 F	VOA Vial, Clear, 40 mL, HCL		
22F0166-01 G	VOA Vial, Clear, 40 mL, HCL		
22F0166-01 H	VOA Vial, Clear, 40 mL, HCL		
22F0166-01 I	VOA Vial, Clear, 40 mL, HCL		
22F0166-01 J	VOA Vial, Clear, 40 mL, HCL		
22F0166-02 A	Corning Plastic, 125 mL, Na2S2O3		
22F0166-02 B	HDPE NM, 1000 mL		
22F0166-02 C	HDPE NM, 500 mL		
22F0166-02 D	HDPE NM, 500 mL, 1:1 HNO3	LL	PASS
22F0166-02 E	Glass NM, Amber, 250 mL, 9N H2SO4	LL	PASS
22F0166-02 F	VOA Vial, Clear, 40 mL, HCL		
22F0166-02 G	VOA Vial, Clear, 40 mL, HCL		
22F0166-02 H	VOA Vial, Clear, 40 mL, HCL		
22F0166-02 I	VOA Vial, Clear, 40 mL, HCL		
22F0166-02 J	VOA Vial, Clear, 40 mL, HCL		
22F0166-03 A	Corning Plastic, 125 mL, Na2S2O3		
22F0166-03 B	HDPE NM, 1000 mL		
22F0166-03 C	HDPE NM, 500 mL		
22F0166-03 D	HDPE NM, 500 mL, 1:1 HNO3	LL	PASS
22F0166-03 E	Glass NM, Amber, 250 mL, 9N H2SO4	LL	PASS
22F0166-03 F	VOA Vial, Clear, 40 mL, HCL		
22F0166-03 G	VOA Vial, Clear, 40 mL, HCL		
22F0166-03 H	VOA Vial, Clear, 40 mL, HCL		
22F0166-03 I	VOA Vial, Clear, 40 mL, HCL		
22F0166-03 J	VOA Vial, Clear, 40 mL, HCL		
22F0166-04 A	Corning Plastic, 125 mL, Na2S2O3		
22F0166-04 B	HDPE NM, 1000 mL		
22F0166-04 C	HDPE NM, 500 mL		
22F0166-04 D	HDPE NM, 500 mL, 1:1 HNO3	LL	PASS



WORK ORDER

22F0166

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: 466410

22F0166-04 E	Glass NM, Amber, 250 mL, 9N H2SO4	C2	Pass
22F0166-04 F	VOA Vial, Clear, 40 mL, HCL		
22F0166-04 G	VOA Vial, Clear, 40 mL, HCL		
22F0166-04 H	VOA Vial, Clear, 40 mL, HCL		
22F0166-04 I	VOA Vial, Clear, 40 mL, HCL		
22F0166-04 J	VOA Vial, Clear, 40 mL, HCL		
22F0166-05 A	Corning Plastic, 125 mL, Na2S2O3		
22F0166-05 B	HDPE NM, 1000 mL		
22F0166-05 C	HDPE NM, 500 mL		
22F0166-05 D	HDPE NM, 500 mL, 1:1 HNO3	C2	Pass
22F0166-05 E	Glass NM, Amber, 250 mL, 9N H2SO4	C2	Pass
22F0166-05 F	VOA Vial, Clear, 40 mL, HCL		
22F0166-05 G	VOA Vial, Clear, 40 mL, HCL		
22F0166-05 H	VOA Vial, Clear, 40 mL, HCL		
22F0166-05 I	VOA Vial, Clear, 40 mL, HCL		
22F0166-05 J	VOA Vial, Clear, 40 mL, HCL		
22F0166-06 A	Corning Plastic, 125 mL, Na2S2O3		
22F0166-06 B	HDPE NM, 1000 mL		
22F0166-06 C	HDPE NM, 500 mL		
22F0166-06 D	HDPE NM, 500 mL, 1:1 HNO3	C2	Pass
22F0166-06 E	Glass NM, Amber, 250 mL, 9N H2SO4	C2	Pass
22F0166-06 F	VOA Vial, Clear, 40 mL, HCL		
22F0166-06 G	VOA Vial, Clear, 40 mL, HCL		
22F0166-06 H	VOA Vial, Clear, 40 mL, HCL		
22F0166-06 I	VOA Vial, Clear, 40 mL, HCL		
22F0166-06 J	VOA Vial, Clear, 40 mL, HCL		
22F0166-07 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	C2	Pass
22F0166-08 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	C2	Pass
22F0166-09 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	C2	Pass
22F0166-10 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	C2	Pass
22F0166-11 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	C2	Pass
22F0166-12 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	C2	Pass
22F0166-13 A	VOA Vial, Clear, 40 mL, HCL		
22F0166-13 B	VOA Vial, Clear, 40 mL, HCL		
22F0166-13 C	VOA Vial, Clear, 40 mL, HCL		



**WORK ORDER**

22F0166

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

<b>Client: TRC Companies, Inc</b>	<b>Project Manager: Kelly Bottem</b>
<b>Project: Olalla Landfill</b>	<b>Project Number: 466410</b>

*KB*

Preservation Confirmed By

6/10/22

Date



# Cooler Receipt Form

ARI Client: trc

Project Name: Glatta landfill

COC No(s): \_\_\_\_\_ (NA)

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: \_\_\_\_\_

Assigned ARI Job No: 22F0166

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 \_\_\_\_\_

8.2 5.8

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

Temp Gun ID#: 2565

Cooler Accepted by: Orlo Amos

Date: 6/9/22

Time: 15:37

**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  YES

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

Samples Logged by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ 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: \_\_\_\_\_



# Cooler Temperature Compliance Form

ARI Work Order: 22F0166

Cooler#: 1 Temperature(°C): 8.2

Sample ID	Bottle Count	Bottle Type
temp was above		
6°C		
Chloro Amos		
6/9/22 15:37		

Cooler#: \_\_\_\_\_ Temperature(°C): \_\_\_\_\_

Sample ID	Bottle Count	Bottle Type

Cooler#: \_\_\_\_\_ Temperature(°C): \_\_\_\_\_

Sample ID	Bottle Count	Bottle Type

Cooler#: \_\_\_\_\_ Temperature(°C): \_\_\_\_\_

Sample ID	Bottle Count	Bottle Type

Completed by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_



Am Test Inc.  
13600 NE 126TH PL  
Suite C  
Kirkland, WA 98034  
(425) 885-1664

Professional  
Analytical  
Services

Jun 27 2022  
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
22F0166-01	Water	22-A009672	MIN
22F0166-02	Water	22-A009673	MIN
22F0166-03	Water	22-A009674	MIN
22F0166-04	Water	22-A009675	MIN
22F0166-05	Water	22-A009676	MIN
22F0166-06	Water	22-A009677	MIN

Your samples were received on Monday, June 13, 2022. At the time of receipt, the samples were logged in and properly maintained prior to the subsequent analysis.

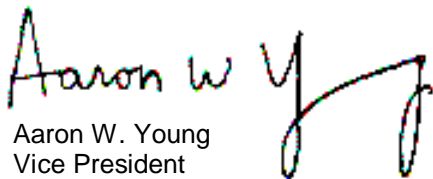
The analytical procedures used at AmTest are well documented and are typically derived from the protocols of the EPA, USDA, FDA or the Army Corps of Engineers.

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

Project #: 22F0166  
PO Number: 22F0166  
WO Number: 22F0166

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  
Project #: 22F0166  
PO Number: 22F0166  
All results reported on an as received basis.

Date Received: 06/13/22  
Date Reported: 6/27/22

---

**AMTEST Identification Number**      22-A009672  
**Client Identification**                22F0166-01  
**Sampling Date**                         06/09/22, 09:10

### Minerals

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Alkalinity (as CaCO <sub>3</sub> )	56.	mg/l		1	SM 2320B	FG	06/15/22
C-Alkalinity (as CaCO <sub>3</sub> )	< 1	mg/l		1	SM 2320B	FG	06/15/22
Hydroxide Alkalinity	< 1	mg/l		1	SM 2320B	FG	06/15/22
Bicarbonate	56.	mg/l		1	SM 2320B	FG	06/15/22

Analytical Resources LLC  
Project Name:  
AmTest ID: 22-A009673

---

**AMTEST Identification Number**      **22-A009673**  
**Client Identification**                **22F0166-02**  
**Sampling Date**                         **06/09/22, 10:40**

**Minerals**

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Alkalinity (as CaCO <sub>3</sub> )	110	mg/l		1	SM 2320B	FG	06/15/22
C-Alkalinity (as CaCO <sub>3</sub> )	< 1	mg/l		1	SM 2320B	FG	06/15/22
Hydroxide Alkalinity	< 1	mg/l		1	SM 2320B	FG	06/15/22
Bicarbonate	110	mg/l		1	SM 2320B	FG	06/15/22

---

**AMTEST Identification Number**      **22-A009674**  
**Client Identification**                **22F0166-03**  
**Sampling Date**                         **06/09/22, 11:30**

**Minerals**

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Alkalinity (as CaCO <sub>3</sub> )	220	mg/l		1	SM 2320B	FG	06/15/22
C-Alkalinity (as CaCO <sub>3</sub> )	< 1	mg/l		1	SM 2320B	FG	06/15/22
Hydroxide Alkalinity	< 1	mg/l		1	SM 2320B	FG	06/15/22
Bicarbonate	220	mg/l		1	SM 2320B	FG	06/15/22



**AMTEST Identification Number**      **22-A009675**  
**Client Identification**                **22F0166-04**  
**Sampling Date**                         **06/09/22, 13:30**

**Minerals**

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Alkalinity (as CaCO <sub>3</sub> )	170	mg/l		1	SM 2320B	FG	06/15/22
C-Alkalinity (as CaCO <sub>3</sub> )	< 1	mg/l		1	SM 2320B	FG	06/15/22
Hydroxide Alkalinity	< 1	mg/l		1	SM 2320B	FG	06/15/22
Bicarbonate	170	mg/l		1	SM 2320B	FG	06/15/22

---

**AMTEST Identification Number**      **22-A009676**  
**Client Identification**                **22F0166-05**  
**Sampling Date**                         **06/09/22, 14:30**

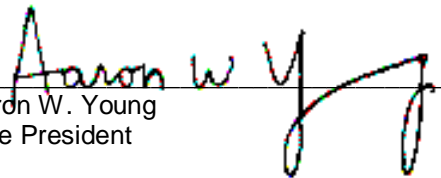
**Minerals**

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Alkalinity (as CaCO <sub>3</sub> )	120	mg/l		1	SM 2320B	FG	06/15/22
C-Alkalinity (as CaCO <sub>3</sub> )	< 1	mg/l		1	SM 2320B	FG	06/15/22
Hydroxide Alkalinity	< 1	mg/l		1	SM 2320B	FG	06/15/22
Bicarbonate	120	mg/l		1	SM 2320B	FG	06/15/22

**AMTEST Identification Number**      22-A009677  
**Client Identification**                22F0166-06  
**Sampling Date**                         06/09/22, 16:00

**Minerals**

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Alkalinity (as CaCO3)	190	mg/l		1	SM 2320B	FG	06/15/22
C-Alkalinity (as CaCO3)	< 1	mg/l		1	SM 2320B	FG	06/15/22
Hydroxide Alkalinity	< 1	mg/l		1	SM 2320B	FG	06/15/22
Bicarbonate	190	mg/l		1	SM 2320B	FG	06/15/22

  
Aaron W. Young  
Vice President

**QC Summary for sample numbers: 22-A009672 to 22-A009677**

**DUPLICATES**

SAMPLE #	ANALYTE	UNITS	SAMPLE VALUE	DUP VALUE	RPD
22-A009681	Alkalinity (as CaCO3)	mg/l	18.	18.	0.00
22-A009691	Alkalinity (as CaCO3)	mg/l	13.	13.	0.00
22-A009701	Alkalinity (as CaCO3)	mg/l	3.6	3.4	5.7
22-A009711	Alkalinity (as CaCO3)	mg/l	14.	13.	7.4
22-A009706	Alkalinity (as CaCO3)	mg/l	89.	95.	6.5
22-A009681	C-Alkalinity (as CaCO3)	mg/l	< 1	< 1	
22-A009711	C-Alkalinity (as CaCO3)	mg/l	< 1	< 1	
22-A009675	Hydroxide Alkalinity	mg/l	< 1	< 1	
22-A009681	Hydroxide Alkalinity	mg/l	< 1	< 1	
22-A009691	Hydroxide Alkalinity	mg/l	< 1	< 1	
22-A009701	Hydroxide Alkalinity	mg/l	< 1	< 1	
22-A009681	Bicarbonate	mg/l	18.	18.	0.00
22-A009691	Bicarbonate	mg/l	13.	13.	0.00

**STANDARD REFERENCE MATERIALS**

ANALYTE	UNITS	TRUE VALUE	MEASURED VALUE	RECOVERY
Alkalinity (as CaCO3)	mg/l	240	250	104. %
Alkalinity (as CaCO3)	mg/l	240	260	108. %
Alkalinity (as CaCO3)	mg/l	240	250	104. %
Alkalinity (as CaCO3)	mg/l	240	260	108. %

**BLANKS**

ANALYTE	UNITS	RESULT
Alkalinity (as CaCO3)	mg/l	< 1
Alkalinity (as CaCO3)	mg/l	< 1
Alkalinity (as CaCO3)	mg/l	< 1
Alkalinity (as CaCO3)	mg/l	< 1
C-Alkalinity (as CaCO3)	mg/l	< 1
C-Alkalinity (as CaCO3)	mg/l	< 1
Hydroxide Alkalinity	mg/l	< 1
Hydroxide Alkalinity	mg/l	< 1
Bicarbonate	mg/l	< 1
Bicarbonate	mg/l	< 1



**SUBCONTRACT ORDER**  
**To: AmTest Laboratories**  
**ARI Work Order:22F0166**

**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 AND INVOICE TO subdata@arilabs.com

Analysis	Due	Expires	Sub Laboratory ID	Comments
<b>Sample ID: 22F0166-01</b>				
<b>Sampled: 06/09/22 09:10 Matrix: Water</b>				
Alkalinity, Carbonate SM 2320 B-97	06/27/22	06/23/22 09:10	9672	
Alkalinity, Hydroxide SM 2320 B-97	06/27/22	06/23/22 09:10		
Alkalinity, Total SM 2320 B-97	06/27/22	06/23/22 09:10		
Alkalinity, Bicarbonate SM 2320 B-97	06/27/22	06/23/22 09:10		
<i>Containers Supplied:</i>				
22F0166-01 C HDPE NM, 500 mL				
<b>Sample ID: 22F0166-02</b>				
<b>Sampled: 06/09/22 10:40 Matrix: Water</b>				
Alkalinity, Bicarbonate SM 2320 B-97	06/27/22	06/23/22 10:40	9673	
Alkalinity, Carbonate SM 2320 B-97	06/27/22	06/23/22 10:40		
Alkalinity, Hydroxide SM 2320 B-97	06/27/22	06/23/22 10:40		
Alkalinity, Total SM 2320 B-97	06/27/22	06/23/22 10:40		
<i>Containers Supplied:</i>				
22F0166-02 C HDPE NM, 500 mL				
<b>Sample ID: 22F0166-03</b>				
<b>Sampled: 06/09/22 11:30 Matrix: Water</b>				
Alkalinity, Total SM 2320 B-97	06/27/22	06/23/22 11:30	9674	
Alkalinity, Bicarbonate SM 2320 B-97	06/27/22	06/23/22 11:30		
Alkalinity, Carbonate SM 2320 B-97	06/27/22	06/23/22 11:30		
Alkalinity, Hydroxide SM 2320 B-97	06/27/22	06/23/22 11:30		
<i>Containers Supplied:</i>				
22F0166-03 C HDPE NM, 500 mL				

Released By CB Date 6/13/22 1335 Received By VM Date 6/13/22 1335



**SUBCONTRACT ORDER**  
**To: AmTest Laboratories**  
**ARI Work Order:22F0166**

Analysis	Due	Expires	Sub Laboratory ID	Comments
<b>Sample ID: 22F0166-04</b>				
<b>Sampled: 06/09/22 13:30 Matrix: Water</b>				
Alkalinity, Carbonate SM 2320 B-97	06/27/22	06/23/22 13:30		
Alkalinity, Hydroxide SM 2320 B-97	06/27/22	06/23/22 13:30		
Alkalinity, Total SM 2320 B-97	06/27/22	06/23/22 13:30		9075
Alkalinity, Bicarbonate SM 2320 B-97	06/27/22	06/23/22 13:30		
<i>Containers Supplied:</i>				
22F0166-04 C HDPE NM, 500 mL				
<b>Sample ID: 22F0166-05</b>				
<b>Sampled: 06/09/22 14:30 Matrix: Water</b>				
Alkalinity, Bicarbonate SM 2320 B-97	06/27/22	06/23/22 14:30		
Alkalinity, Carbonate SM 2320 B-97	06/27/22	06/23/22 14:30		
Alkalinity, Hydroxide SM 2320 B-97	06/27/22	06/23/22 14:30		9676
Alkalinity, Total SM 2320 B-97	06/27/22	06/23/22 14:30		
<i>Containers Supplied:</i>				
22F0166-05 C HDPE NM, 500 mL				
<b>Sample ID: 22F0166-06</b>				
<b>Sampled: 06/09/22 16:00 Matrix: Water</b>				
Alkalinity, Hydroxide SM 2320 B-97	06/27/22	06/23/22 16:00		
Alkalinity, Total SM 2320 B-97	06/27/22	06/23/22 16:00		
Alkalinity, Bicarbonate SM 2320 B-97	06/27/22	06/23/22 16:00		9677
Alkalinity, Carbonate SM 2320 B-97	06/27/22	06/23/22 16:00		
<i>Containers Supplied:</i>				
22F0166-06 C HDPE NM, 500 mL				

Released By LB Date 6/13/22 1335 Received By VM Date 6/13/22 1335

Released By \_\_\_\_\_ Date \_\_\_\_\_ Received By \_\_\_\_\_ Date \_\_\_\_\_



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

**Reported:**  
07-Jul-2022 18:11

**MW-1**  
**22F0166-01 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/09/2022 09:10

Instrument: NT3 Analyst: PKC

Analyzed: 06/10/2022 18:46

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKF0280  
Prepared: 06/10/2022

Sample Size: 10 mL  
Final Volume: 10 mL

Extract ID: 22F0166-01 I

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	6.73	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	0.20	ug/L	
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: 466410  
Project Manager: Doug Kunkel

Reported:  
07-Jul-2022 18:11

MW-1  
22F0166-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 06/09/2022 09:10

Instrument: NT3 Analyst: PKC

Analyzed: 06/10/2022 18:46

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-1**  
**22F0166-01 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D Sampled: 06/09/2022 09:10  
Instrument: NT3 Analyst: PKC Analyzed: 06/10/2022 18:46

**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>104</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>102</i>	<i>%</i>	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			<i>80-120 %</i>	<i>101</i>	<i>%</i>	





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**MW-1**  
**22F0166-01 (Water)**

**Volatile Organic Compounds - SIM**

Method: EPA 8260D-SIM Sampled: 06/09/2022 09:10  
Instrument: NT16 Analyst: KOTT Analyzed: 06/13/2022 16:46

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22F0166-01 F  
Preparation Batch: BKF0301 Sample Size: 10 mL  
Prepared: 06/13/2022 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>	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**MW-1**  
**22F0166-01 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D Sampled: 06/09/2022 09:10  
Instrument: ICP2 Analyst: SKD Analyzed: 06/29/2022 01:14

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 22F0166-01 D 02  
Preparation Batch: BKF0586 Sample Size: 25 mL  
Prepared: 06/24/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	13.9	mg/L	
Potassium	7440-09-7	1	0.500	0.744	mg/L	
Sodium	7440-23-5	1	0.500	5.45	mg/L	



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**MW-1**  
**22F0166-01 (Water)**

**Wet Chemistry**

Method: EPA 325.2 Sampled: 06/09/2022 09:10  
Instrument: LACHAT2 Analyst: ENJ Analyzed: 06/28/2022 16:38

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-01 B  
Preparation Batch: BKF0653 Sample Size: 10 mL  
Prepared: 06/28/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	6.55	mg/L	



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**MW-1**  
**22F0166-01 (Water)**

**Wet Chemistry**

Method: EPA 353.2 Sampled: 06/09/2022 09:10  
Instrument: [CALC] Analyst: BF Analyzed: 06/27/2022 17:20

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: [CALC] Extract ID: 22F0166-01  
Preparation Batch: [CALC]  
Prepared: 06/27/2022 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
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Nitrate-N	14797-55-8	1	0.0200	0.115	mg/L	
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Instrument: LACHAT1 Analyst: BF Analyzed: 06/10/2022 17:21

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-01 B  
Preparation Batch: BKF0281 Sample Size: 10 mL  
Prepared: 06/10/2022 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	ND	mg/L	U
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Instrument: LACHAT2 Analyst: ENJ Analyzed: 06/27/2022 17:20

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-01 E  
Preparation Batch: BKF0613 Sample Size: 10 mL  
Prepared: 06/27/2022 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	0.115	mg/L	
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**MW-1**  
**22F0166-01 (Water)**

**Wet Chemistry**

Method: EPA 375.2 Sampled: 06/09/2022 09:10  
Instrument: LACHAT2 Analyst: RMS Analyzed: 06/22/2022 15:37

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-01 B  
Preparation Batch: BKF0513 Sample Size: 10 mL  
Prepared: 06/22/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	4.59	mg/L	



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**MW-1**  
**22F0166-01 (Water)**

**Wet Chemistry**

Method: EPA 410.4 Sampled: 06/09/2022 09:10  
Instrument: UV1800-1 Analyst: BF Analyzed: 06/24/2022 15:14

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-01 E  
Preparation Batch: BKF0566 Sample Size: 2 mL  
Prepared: 06/23/2022 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**  
**22F0166-01 (Water)**

**Wet Chemistry**

Method: EPA 9060A Sampled: 06/09/2022 09:10  
Instrument: TOC-LCSH Analyst: RMS Analyzed: 06/15/2022 20:19

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-01 E  
Preparation Batch: BKF0358 Sample Size: 20 mL  
Prepared: 06/15/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	0.74	mg/L	



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**MW-1**  
**22F0166-01 (Water)**

**Wet Chemistry**

Method: SM 4500-H+ B-00 Sampled: 06/09/2022 09:10  
Instrument: Accumet AB150 Analyst: ENJ Analyzed: 06/10/2022 17:11

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-01 B  
Preparation Batch: BKF0284 Sample Size: 50 mL  
Prepared: 06/10/2022 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**  
**22F0166-01 (Water)**

**Wet Chemistry**

Method: SM 4500-NH3 H-97 Sampled: 06/09/2022 09:10  
Instrument: LCHAT1 Analyst: RMS Analyzed: 06/28/2022 11:28

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-01 E  
Preparation Batch: BKF0630 Sample Size: 10 mL  
Prepared: 06/27/2022 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**  
**22F0166-01 (Water)**

**Microbiology**

Method: SM 9222B Sampled: 06/09/2022 09:10  
Instrument: N/A Analyst: UW Analyzed: 06/10/2022 18:50

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-01  
Preparation Batch: BKF0251 Sample Size: 90 mL  
Prepared: 06/09/2022 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**  
**22F0166-01 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97 Sampled: 06/09/2022 09:10  
Instrument: ALAB Analyst: Analyzed: 06/15/2022 00:00

**Analysis by: AmTest Laboratories**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-01  
Preparation Batch: B150622  
Prepared: 06/15/2022 Final Volume:

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1	1	56.0	mg/L CaCO3	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**MW-1**  
**22F0166-01 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97 Sampled: 06/09/2022 09:10  
Instrument: ALAB Analyst: Analyzed: 06/15/2022 00:00

**Analysis by: AmTest Laboratories**

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



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**MW-1**  
**22F0166-01 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97 Sampled: 06/09/2022 09:10  
Instrument: ALAB Analyst: Analyzed: 06/15/2022 00:00

**Analysis by: AmTest Laboratories**

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



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**MW-1**  
**22F0166-01 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97 Sampled: 06/09/2022 09:10  
Instrument: ALAB Analyst: Analyzed: 06/15/2022 00:00

**Analysis by: AmTest Laboratories**

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Total		1	1	1	56.0	mg/L CaCO3	



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

**Reported:**  
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**MW-3**  
**22F0166-02 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/09/2022 10:40

Instrument: NT3 Analyst: PKC

Analyzed: 06/10/2022 19:08

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKF0280  
Prepared: 06/10/2022

Sample Size: 10 mL  
Final Volume: 10 mL

Extract ID: 22F0166-02 H

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: 466410  
Project Manager: Doug Kunkel

Reported:  
07-Jul-2022 18:11

**MW-3**  
**22F0166-02 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/09/2022 10:40

Instrument: NT3 Analyst: PKC

Analyzed: 06/10/2022 19:08

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: 466410  
Project Manager: Doug Kunkel

**Reported:**  
07-Jul-2022 18:11

**MW-3**  
**22F0166-02 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/09/2022 10:40

Instrument: NT3 Analyst: PKC

Analyzed: 06/10/2022 19:08

**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>107</i>	<i>%</i>	
<i>Surrogate: Toluene-d8</i>			<i>80-120 %</i>	<i>99.1</i>	<i>%</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>			<i>80-120 %</i>	<i>98.2</i>	<i>%</i>	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			<i>80-120 %</i>	<i>95.6</i>	<i>%</i>	



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**MW-3**  
**22F0166-02 (Water)**

**Volatile Organic Compounds - SIM**

Method: EPA 8260D-SIM Sampled: 06/09/2022 10:40  
Instrument: NT16 Analyst: KOTT Analyzed: 06/13/2022 17:07

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22F0166-02 F  
Preparation Batch: BKF0301 Sample Size: 10 mL  
Prepared: 06/13/2022 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>III</i>	<i>%</i>	



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**MW-3**  
**22F0166-02 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D Sampled: 06/09/2022 10:40  
Instrument: ICP2 Analyst: SKD Analyzed: 06/29/2022 00:40

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 22F0166-02 D 02  
Preparation Batch: BKF0586 Sample Size: 25 mL  
Prepared: 06/24/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	28.0	mg/L	
Potassium	7440-09-7	1	0.500	0.685	mg/L	
Sodium	7440-23-5	1	0.500	6.68	mg/L	



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**MW-3**  
**22F0166-02 (Water)**

**Wet Chemistry**

Method: EPA 325.2 Sampled: 06/09/2022 10:40  
Instrument: LACHAT2 Analyst: ENJ Analyzed: 06/28/2022 16:43

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-02 B  
Preparation Batch: BKF0653 Sample Size: 10 mL  
Prepared: 06/28/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	5.00	mg/L	



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**MW-3**  
**22F0166-02 (Water)**

**Wet Chemistry**

Method: EPA 353.2 Sampled: 06/09/2022 10:40  
Instrument: [CALC] Analyst: BF Analyzed: 06/27/2022 17:30

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: [CALC] Extract ID: 22F0166-02  
Preparation Batch: [CALC]  
Prepared: 06/27/2022 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
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Nitrate-N	14797-55-8	1	0.0200	0.0201	mg/L	
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Instrument: LACHAT1 Analyst: BF Analyzed: 06/10/2022 17:25

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-02 B  
Preparation Batch: BKF0281 Sample Size: 10 mL  
Prepared: 06/10/2022 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	ND	mg/L	U
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Instrument: LACHAT2 Analyst: ENJ Analyzed: 06/27/2022 17:30

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-02 E  
Preparation Batch: BKF0613 Sample Size: 10 mL  
Prepared: 06/27/2022 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	0.020	mg/L	
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**MW-3**  
**22F0166-02 (Water)**

**Wet Chemistry**

Method: EPA 375.2 Sampled: 06/09/2022 10:40  
Instrument: LACHAT2 Analyst: RMS Analyzed: 06/22/2022 15:42

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-02 B  
Preparation Batch: BKF0513 Sample Size: 10 mL  
Prepared: 06/22/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	13.9	mg/L	



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**MW-3**  
**22F0166-02 (Water)**

**Wet Chemistry**

Method: EPA 410.4 Sampled: 06/09/2022 10:40  
Instrument: UV1800-1 Analyst: BF Analyzed: 06/24/2022 15:16

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-02 E  
Preparation Batch: BKF0566 Sample Size: 2 mL  
Prepared: 06/23/2022 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**  
**22F0166-02 (Water)**

**Wet Chemistry**

Method: EPA 9060A Sampled: 06/09/2022 10:40  
Instrument: TOC-LCSH Analyst: RMS Analyzed: 06/15/2022 22:34

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-02 E  
Preparation Batch: BKF0358 Sample Size: 20 mL  
Prepared: 06/15/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	1.89	mg/L	





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**MW-3**  
**22F0166-02 (Water)**

**Wet Chemistry**

Method: SM 4500-H+ B-00 Sampled: 06/09/2022 10:40  
Instrument: Accumet AB150 Analyst: ENJ Analyzed: 06/10/2022 17:11

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-02 B  
Preparation Batch: BKF0284 Sample Size: 50 mL  
Prepared: 06/10/2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.15	pH Units	H



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**MW-3**  
**22F0166-02 (Water)**

**Wet Chemistry**

Method: SM 4500-NH3 H-97 Sampled: 06/09/2022 10:40  
Instrument: LACHAT1 Analyst: RMS Analyzed: 06/28/2022 11:40

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-02 E  
Preparation Batch: BKF0630 Sample Size: 10 mL  
Prepared: 06/27/2022 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-3**  
**22F0166-02 (Water)**

**Microbiology**

Method: SM 9222B Sampled: 06/09/2022 10:40  
Instrument: N/A Analyst: UW Analyzed: 06/10/2022 18:50

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-02  
Preparation Batch: BKF0251 Sample Size: 100 mL  
Prepared: 06/09/2022 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-3**  
**22F0166-02 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97 Sampled: 06/09/2022 10:40  
Instrument: ALAB Analyst: Analyzed: 06/15/2022 00:00

**Analysis by: AmTest Laboratories**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-02  
Preparation Batch: B150622  
Prepared: 06/15/2022 Final Volume:

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1	1	110.0	mg/L CaCO3	



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**MW-3**  
**22F0166-02 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97

Sampled: 06/09/2022 10:40

Instrument: ALAB Analyst:

Analyzed: 06/15/2022 00:00

**Analysis by: AmTest Laboratories**

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



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**MW-3**  
**22F0166-02 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97 Sampled: 06/09/2022 10:40  
Instrument: ALAB Analyst: Analyzed: 06/15/2022 00:00

**Analysis by: AmTest Laboratories**

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



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**MW-3**  
**22F0166-02 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97

Sampled: 06/09/2022 10:40

Instrument: ALAB Analyst:

Analyzed: 06/15/2022 00:00

**Analysis by: AmTest Laboratories**

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Total		1	1	1	110.0	mg/L CaCO3	



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

**Reported:**  
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**MW-10**  
**22F0166-03 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/09/2022 11:30

Instrument: NT3 Analyst: PKC

Analyzed: 06/10/2022 19:30

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKF0280  
Prepared: 06/10/2022

Sample Size: 10 mL  
Final Volume: 10 mL

Extract ID: 22F0166-03 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  
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Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

**Reported:**  
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**MW-10**  
**22F0166-03 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/09/2022 11:30

Instrument: NT3 Analyst: PKC

Analyzed: 06/10/2022 19:30

**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**  
**22F0166-03 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/09/2022 11:30

Instrument: NT3 Analyst: PKC

Analyzed: 06/10/2022 19:30

**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>104</i>	<i>%</i>	
<i>Surrogate: Toluene-d8</i>			<i>80-120 %</i>	<i>99.1</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>100</i>	<i>%</i>	



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**MW-10**  
**22F0166-03 (Water)**

**Volatile Organic Compounds - SIM**

Method: EPA 8260D-SIM Sampled: 06/09/2022 11:30  
Instrument: NT16 Analyst: KOTT Analyzed: 06/13/2022 17:28

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22F0166-03 G  
Preparation Batch: BKF0301 Sample Size: 10 mL  
Prepared: 06/13/2022 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>114</i>	<i>%</i>	



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**MW-10**  
**22F0166-03 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D Sampled: 06/09/2022 11:30  
Instrument: ICP2 Analyst: SKD Analyzed: 06/29/2022 00:45

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 22F0166-03 D 02  
Preparation Batch: BKF0586 Sample Size: 25 mL  
Prepared: 06/24/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	48.7	mg/L	
Potassium	7440-09-7	1	0.500	1.41	mg/L	
Sodium	7440-23-5	1	0.500	22.9	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**MW-10**  
**22F0166-03 (Water)**

**Wet Chemistry**

Method: EPA 325.2 Sampled: 06/09/2022 11:30  
Instrument: LACHAT2 Analyst: ENJ Analyzed: 06/28/2022 16:44

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-03 B  
Preparation Batch: BKF0653 Sample Size: 10 mL  
Prepared: 06/28/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	4.20	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**MW-10**  
**22F0166-03 (Water)**

**Wet Chemistry**

Method: EPA 353.2 Sampled: 06/09/2022 11:30  
Instrument: [CALC] Analyst: BF Analyzed: 06/27/2022 17:31

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: [CALC] Extract ID: 22F0166-03  
Preparation Batch: [CALC]  
Prepared: 06/27/2022 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
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Nitrate-N	14797-55-8	1	0.0200	0.116	mg/L	
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Instrument: LACHAT1 Analyst: BF Analyzed: 06/10/2022 17:27

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-03 B  
Preparation Batch: BKF0281 Sample Size: 10 mL  
Prepared: 06/10/2022 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	ND	mg/L	U
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Instrument: LACHAT2 Analyst: ENJ Analyzed: 06/27/2022 17:31

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-03 E  
Preparation Batch: BKF0613 Sample Size: 10 mL  
Prepared: 06/27/2022 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	0.116	mg/L	
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TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**MW-10**  
**22F0166-03 (Water)**

**Wet Chemistry**

Method: EPA 410.4 Sampled: 06/09/2022 11:30  
Instrument: UV1800-1 Analyst: BF Analyzed: 06/24/2022 15:16

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-03 E  
Preparation Batch: BKF0566 Sample Size: 2 mL  
Prepared: 06/23/2022 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: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**MW-10**  
**22F0166-03 (Water)**

**Wet Chemistry**

Method: EPA 9060A Sampled: 06/09/2022 11:30  
Instrument: TOC-LCSH Analyst: RMS Analyzed: 06/15/2022 22:53

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-03 E  
Preparation Batch: BKF0358 Sample Size: 20 mL  
Prepared: 06/15/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	2.82	mg/L	





TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**MW-10**  
**22F0166-03 (Water)**

**Wet Chemistry**

Method: SM 4500-H+ B-00 Sampled: 06/09/2022 11:30  
Instrument: Accumet AB150 Analyst: ENJ Analyzed: 06/10/2022 17:11

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-03 C  
Preparation Batch: BKF0284 Sample Size: 50 mL  
Prepared: 06/10/2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.46	pH Units	H



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**MW-10**  
**22F0166-03 (Water)**

**Wet Chemistry**

Method: SM 4500-NH3 H-97 Sampled: 06/09/2022 11:30  
Instrument: LCHAT1 Analyst: RMS Analyzed: 06/28/2022 11:41

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-03 E  
Preparation Batch: BKF0630 Sample Size: 10 mL  
Prepared: 06/27/2022 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	0.059	mg/L	



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**MW-10**  
**22F0166-03 (Water)**

**Microbiology**

Method: SM 9222B Sampled: 06/09/2022 11:30  
Instrument: N/A Analyst: UW Analyzed: 06/10/2022 18:50

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-03  
Preparation Batch: BKF0251 Sample Size: 95 mL  
Prepared: 06/09/2022 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**  
**22F0166-03 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97 Sampled: 06/09/2022 11:30  
Instrument: ALAB Analyst: Analyzed: 06/15/2022 00:00

**Analysis by: AmTest Laboratories**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-03  
Preparation Batch: B150622  
Prepared: 06/15/2022 Final Volume:

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1	1	220.0	mg/L CaCO3	



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**MW-10**  
**22F0166-03 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97

Sampled: 06/09/2022 11:30

Instrument: ALAB Analyst:

Analyzed: 06/15/2022 00:00

**Analysis by: AmTest Laboratories**

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



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**MW-10**  
**22F0166-03 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97 Sampled: 06/09/2022 11:30  
Instrument: ALAB Analyst: Analyzed: 06/15/2022 00:00

**Analysis by: AmTest Laboratories**

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



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**MW-10**  
**22F0166-03 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97

Sampled: 06/09/2022 11:30

Instrument: ALAB Analyst:

Analyzed: 06/15/2022 00:00

**Analysis by: AmTest Laboratories**

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Total		1	1	1	220.0	mg/L CaCO3	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**MW-10**  
**22F0166-03RE1 (Water)**

**Wet Chemistry**

Method: EPA 375.2 Sampled: 06/09/2022 11:30  
Instrument: LACHAT2 Analyst: RMS Analyzed: 06/22/2022 17:10

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-03RE1 B  
Preparation Batch: BKF0513 Sample Size: 10 mL  
Prepared: 06/22/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	2	4.00	4.00	25.6	mg/L	D





TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

**Reported:**  
07-Jul-2022 18:11

**MW-6**  
**22F0166-04 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/09/2022 13:30

Instrument: NT3 Analyst: PKC

Analyzed: 06/10/2022 19:52

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKF0280  
Prepared: 06/10/2022

Sample Size: 10 mL  
Final Volume: 10 mL

Extract ID: 22F0166-04 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



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

Reported:  
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**MW-6**  
**22F0166-04 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/09/2022 13:30

Instrument: NT3 Analyst: PKC

Analyzed: 06/10/2022 19:52

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	1.35	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**  
**22F0166-04 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D Sampled: 06/09/2022 13:30  
Instrument: NT3 Analyst: PKC Analyzed: 06/10/2022 19:52

**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>105</i>	<i>%</i>	
<i>Surrogate: Toluene-d8</i>			<i>80-120 %</i>	<i>99.9</i>	<i>%</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>			<i>80-120 %</i>	<i>103</i>	<i>%</i>	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			<i>80-120 %</i>	<i>99.2</i>	<i>%</i>	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**MW-6**  
**22F0166-04 (Water)**

**Volatile Organic Compounds - SIM**

Method: EPA 8260D-SIM Sampled: 06/09/2022 13:30  
Instrument: NT16 Analyst: KOTT Analyzed: 06/13/2022 17:49

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22F0166-04 F  
Preparation Batch: BKF0301 Sample Size: 10 mL  
Prepared: 06/13/2022 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-6**  
**22F0166-04 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D Sampled: 06/09/2022 13:30  
Instrument: ICP2 Analyst: SKD Analyzed: 06/29/2022 00:51

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 22F0166-04 D 02  
Preparation Batch: BKF0586 Sample Size: 25 mL  
Prepared: 06/24/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	40.2	mg/L	
Potassium	7440-09-7	1	0.500	2.19	mg/L	
Sodium	7440-23-5	1	0.500	8.99	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**MW-6**  
**22F0166-04 (Water)**

**Wet Chemistry**

Method: EPA 325.2 Sampled: 06/09/2022 13:30  
Instrument: LACHAT2 Analyst: ENJ Analyzed: 06/28/2022 16:46

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-04 B  
Preparation Batch: BKF0653 Sample Size: 10 mL  
Prepared: 06/28/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	1.68	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**MW-6**  
**22F0166-04 (Water)**

**Wet Chemistry**

Method: EPA 353.2 Sampled: 06/09/2022 13:30  
Instrument: [CALC] Analyst: BF Analyzed: 06/27/2022 17:32

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: [CALC] Extract ID: 22F0166-04  
Preparation Batch: [CALC]  
Prepared: 06/27/2022 Final Volume: 1

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
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Nitrate-N	14797-55-8	1	0.0200	0.202	0.202	mg/L	
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Instrument: LACHAT1 Analyst: BF Analyzed: 06/10/2022 17:28

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-04 B  
Preparation Batch: BKF0281  
Prepared: 06/10/2022 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	0.021	mg/L	
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Instrument: LACHAT2 Analyst: ENJ Analyzed: 06/27/2022 17:32

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-04 E  
Preparation Batch: BKF0613  
Prepared: 06/27/2022 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	0.223	mg/L	
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**MW-6**  
**22F0166-04 (Water)**

**Wet Chemistry**

Method: EPA 375.2 Sampled: 06/09/2022 13:30  
Instrument: LACHAT2 Analyst: RMS Analyzed: 06/22/2022 15:44

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-04 B  
Preparation Batch: BKF0513 Sample Size: 10 mL  
Prepared: 06/22/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	11.7	mg/L	





TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**MW-6**  
**22F0166-04 (Water)**

**Wet Chemistry**

Method: EPA 410.4 Sampled: 06/09/2022 13:30  
Instrument: UV1800-1 Analyst: BF Analyzed: 06/24/2022 15:16

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-04 E  
Preparation Batch: BKF0566 Sample Size: 2 mL  
Prepared: 06/23/2022 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: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**MW-6**  
**22F0166-04 (Water)**

**Wet Chemistry**

Method: EPA 9060A Sampled: 06/09/2022 13:30  
Instrument: TOC-LCSH Analyst: RMS Analyzed: 06/15/2022 23:22

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-04 E  
Preparation Batch: BKF0358 Sample Size: 20 mL  
Prepared: 06/15/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	1.65	mg/L	



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**MW-6**  
**22F0166-04 (Water)**

**Wet Chemistry**

Method: SM 4500-H+ B-00 Sampled: 06/09/2022 13:30  
Instrument: Accumet AB150 Analyst: ENJ Analyzed: 06/10/2022 17:11

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-04 B  
Preparation Batch: BKF0284 Sample Size: 50 mL  
Prepared: 06/10/2022 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-6**  
**22F0166-04 (Water)**

**Wet Chemistry**

Method: SM 4500-NH3 H-97 Sampled: 06/09/2022 13:30  
Instrument: LCHAT1 Analyst: RMS Analyzed: 06/28/2022 11:43

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-04 E  
Preparation Batch: BKF0630 Sample Size: 10 mL  
Prepared: 06/27/2022 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	0.163	mg/L	



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**MW-6**  
**22F0166-04 (Water)**

**Microbiology**

Method: SM 9222B Sampled: 06/09/2022 13:30  
Instrument: N/A Analyst: UW Analyzed: 06/10/2022 18:50

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-04  
Preparation Batch: BKF0251 Sample Size: 100 mL  
Prepared: 06/09/2022 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**  
**22F0166-04 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97 Sampled: 06/09/2022 13:30  
Instrument: ALAB Analyst: Analyzed: 06/15/2022 00:00

**Analysis by: AmTest Laboratories**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-04  
Preparation Batch: B150622  
Prepared: 06/15/2022 Final Volume:

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1	1	170.0	mg/L CaCO3	



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**MW-6**  
**22F0166-04 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97

Sampled: 06/09/2022 13:30

Instrument: ALAB Analyst:

Analyzed: 06/15/2022 00:00

**Analysis by: AmTest Laboratories**

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Carbonate		1	1	1	ND	mg/L CaCO <sub>3</sub>	



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**MW-6**  
**22F0166-04 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97 Sampled: 06/09/2022 13:30  
Instrument: ALAB Analyst: Analyzed: 06/15/2022 00:00

**Analysis by: AmTest Laboratories**

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





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**MW-6**  
**22F0166-04 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97 Sampled: 06/09/2022 13:30  
Instrument: ALAB Analyst: Analyzed: 06/15/2022 00:00

**Analysis by: AmTest Laboratories**

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Total		1	1	1	170.0	mg/L CaCO3	



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Issaquah WA, 98027

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Project Number: 466410  
Project Manager: Doug Kunkel

**Reported:**  
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**MW-8**  
**22F0166-05 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/09/2022 14:30

Instrument: NT3 Analyst: PKC

Analyzed: 06/10/2022 20:14

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKF0280  
Prepared: 06/10/2022

Sample Size: 10 mL  
Final Volume: 10 mL

Extract ID: 22F0166-05 H

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 Number: 466410  
Project Manager: Doug Kunkel

Reported:  
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**MW-8**  
**22F0166-05 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/09/2022 14:30

Instrument: NT3 Analyst: PKC

Analyzed: 06/10/2022 20:14

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**  
**22F0166-05 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D Sampled: 06/09/2022 14:30  
Instrument: NT3 Analyst: PKC Analyzed: 06/10/2022 20:14

**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>101</i>	<i>%</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>			<i>80-120 %</i>	<i>99.1</i>	<i>%</i>	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			<i>80-120 %</i>	<i>96.3</i>	<i>%</i>	



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**MW-8**  
**22F0166-05 (Water)**

**Volatile Organic Compounds - SIM**

Method: EPA 8260D-SIM Sampled: 06/09/2022 14:30  
Instrument: NT16 Analyst: KOTT Analyzed: 06/13/2022 18:10

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22F0166-05 F  
Preparation Batch: BKF0301 Sample Size: 10 mL  
Prepared: 06/13/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	20.7	ng/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>113</i>	<i>%</i>	



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**MW-8**  
**22F0166-05 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D Sampled: 06/09/2022 14:30  
Instrument: ICP2 Analyst: SKD Analyzed: 06/29/2022 01:03

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 22F0166-05 D 02  
Preparation Batch: BKF0586 Sample Size: 25 mL  
Prepared: 06/24/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	22.5	mg/L	
Potassium	7440-09-7	1	0.500	1.15	mg/L	
Sodium	7440-23-5	1	0.500	7.42	mg/L	



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**MW-8**  
**22F0166-05 (Water)**

**Wet Chemistry**

Method: EPA 325.2 Sampled: 06/09/2022 14:30  
Instrument: LACHAT2 Analyst: ENJ Analyzed: 06/28/2022 16:54

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-05 B  
Preparation Batch: BKF0653 Sample Size: 10 mL  
Prepared: 06/28/2022 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**  
**22F0166-05 (Water)**

**Wet Chemistry**

Method: EPA 353.2 Sampled: 06/09/2022 14:30  
Instrument: [CALC] Analyst: BF Analyzed: 06/27/2022 17:34

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: [CALC] Extract ID: 22F0166-05  
Preparation Batch: [CALC]  
Prepared: 06/27/2022 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
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Nitrate-N	14797-55-8	1	0.0200	0.0226	mg/L	
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Instrument: LACHAT1 Analyst: BF Analyzed: 06/10/2022 17:34

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-05 B  
Preparation Batch: BKF0281 Sample Size: 10 mL  
Prepared: 06/10/2022 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	ND	mg/L	U
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Instrument: LACHAT2 Analyst: ENJ Analyzed: 06/27/2022 17:34

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-05 E  
Preparation Batch: BKF0613 Sample Size: 10 mL  
Prepared: 06/27/2022 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	0.023	mg/L	
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**MW-8**  
**22F0166-05 (Water)**

**Wet Chemistry**

Method: EPA 375.2 Sampled: 06/09/2022 14:30  
Instrument: LACHAT2 Analyst: RMS Analyzed: 06/22/2022 15:52

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-05 B  
Preparation Batch: BKF0513 Sample Size: 10 mL  
Prepared: 06/22/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	4.99	mg/L	



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**MW-8**  
**22F0166-05 (Water)**

**Wet Chemistry**

Method: EPA 410.4 Sampled: 06/09/2022 14:30  
Instrument: UV1800-1 Analyst: BF Analyzed: 06/24/2022 15:16

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-05 E  
Preparation Batch: BKF0566 Sample Size: 2 mL  
Prepared: 06/23/2022 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**  
**22F0166-05 (Water)**

**Wet Chemistry**

Method: EPA 9060A Sampled: 06/09/2022 14:30  
Instrument: TOC-LCSH Analyst: RMS Analyzed: 06/15/2022 23:49

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-05 E  
Preparation Batch: BKF0358 Sample Size: 20 mL  
Prepared: 06/15/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	0.75	mg/L	



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**MW-8**  
**22F0166-05 (Water)**

**Wet Chemistry**

Method: SM 4500-H+ B-00 Sampled: 06/09/2022 14:30  
Instrument: Accumet AB150 Analyst: ENJ Analyzed: 06/10/2022 17:11

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-05 B  
Preparation Batch: BKF0284 Sample Size: 50 mL  
Prepared: 06/10/2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.45	pH Units	H



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**MW-8**  
**22F0166-05 (Water)**

**Wet Chemistry**

Method: SM 4500-NH3 H-97 Sampled: 06/09/2022 14:30  
Instrument: LCHAT1 Analyst: RMS Analyzed: 06/28/2022 11:44

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-05 E  
Preparation Batch: BKF0630 Sample Size: 10 mL  
Prepared: 06/27/2022 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**  
**22F0166-05 (Water)**

**Microbiology**

Method: SM 9222B Sampled: 06/09/2022 14:30  
Instrument: N/A Analyst: UW Analyzed: 06/10/2022 18:50

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-05  
Preparation Batch: BKF0251 Sample Size: 95 mL  
Prepared: 06/09/2022 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**  
**22F0166-05 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97 Sampled: 06/09/2022 14:30  
Instrument: ALAB Analyst: Analyzed: 06/15/2022 00:00

**Analysis by: AmTest Laboratories**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-05  
Preparation Batch: B150622  
Prepared: 06/15/2022 Final Volume:

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1	1	120.0	mg/L CaCO3	



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**MW-8**  
**22F0166-05 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97

Sampled: 06/09/2022 14:30

Instrument: ALAB Analyst:

Analyzed: 06/15/2022 00:00

**Analysis by: AmTest Laboratories**

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





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**MW-8**  
**22F0166-05 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97 Sampled: 06/09/2022 14:30  
Instrument: ALAB Analyst: Analyzed: 06/15/2022 00:00

**Analysis by: AmTest Laboratories**

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



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**MW-8**  
**22F0166-05 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97

Sampled: 06/09/2022 14:30

Instrument: ALAB Analyst:

Analyzed: 06/15/2022 00:00

**Analysis by: AmTest Laboratories**

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Total		1	1	1	120.0	mg/L CaCO3	



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

**Reported:**  
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**MW-17**  
**22F0166-06 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/09/2022 12:30

Instrument: NT3 Analyst: PKC

Analyzed: 06/10/2022 20:37

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKF0280  
Prepared: 06/10/2022

Sample Size: 10 mL  
Final Volume: 10 mL

Extract ID: 22F0166-06 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



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Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

Reported:  
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MW-17  
22F0166-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 06/09/2022 12:30

Instrument: NT3 Analyst: PKC

Analyzed: 06/10/2022 20:37

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	1.42	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-17**  
**22F0166-06 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D Sampled: 06/09/2022 12:30  
Instrument: NT3 Analyst: PKC Analyzed: 06/10/2022 20:37

**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 %	102	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	101	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	103	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	102	%	



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**MW-17**  
**22F0166-06 (Water)**

**Volatile Organic Compounds - SIM**

Method: EPA 8260D-SIM Sampled: 06/09/2022 12:30  
Instrument: NT16 Analyst: KOTT Analyzed: 06/13/2022 18:32

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22F0166-06 G  
Preparation Batch: BKF0301 Sample Size: 10 mL  
Prepared: 06/13/2022 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-17**  
**22F0166-06 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D Sampled: 06/09/2022 12:30  
Instrument: ICP2 Analyst: SKD Analyzed: 06/29/2022 01:38

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 22F0166-06 D 02  
Preparation Batch: BKF0586 Sample Size: 25 mL  
Prepared: 06/24/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	37.8	mg/L	
Potassium	7440-09-7	1	0.500	2.10	mg/L	
Sodium	7440-23-5	1	0.500	8.83	mg/L	



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**MW-17**  
**22F0166-06 (Water)**

**Wet Chemistry**

Method: EPA 325.2 Sampled: 06/09/2022 12:30  
Instrument: LACHAT2 Analyst: ENJ Analyzed: 06/28/2022 16:55

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-06 B  
Preparation Batch: BKF0653 Sample Size: 10 mL  
Prepared: 06/28/2022 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	





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**MW-17**  
**22F0166-06 (Water)**

**Wet Chemistry**

Method: EPA 353.2 Sampled: 06/09/2022 12:30  
Instrument: [CALC] Analyst: BF Analyzed: 06/27/2022 17:35

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: [CALC] Extract ID: 22F0166-06  
Preparation Batch: [CALC]  
Prepared: 06/27/2022 Final Volume: 1

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
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Nitrate-N	14797-55-8	1	0.0200	0.201	mg/L	
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Instrument: LACHAT1 Analyst: BF Analyzed: 06/10/2022 17:35

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-06 B  
Preparation Batch: BKF0281 Sample Size: 10 mL  
Prepared: 06/10/2022 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	0.021	mg/L
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Instrument: LACHAT2 Analyst: ENJ Analyzed: 06/27/2022 17:35

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-06 E  
Preparation Batch: BKF0613 Sample Size: 10 mL  
Prepared: 06/27/2022 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	0.222	mg/L
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**MW-17**  
**22F0166-06 (Water)**

**Wet Chemistry**

Method: EPA 375.2 Sampled: 06/09/2022 12:30  
Instrument: LACHAT2 Analyst: RMS Analyzed: 06/22/2022 15:53

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-06 B  
Preparation Batch: BKF0513 Sample Size: 10 mL  
Prepared: 06/22/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	11.7	mg/L	



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**MW-17**  
**22F0166-06 (Water)**

**Wet Chemistry**

Method: EPA 410.4 Sampled: 06/09/2022 12:30  
Instrument: UV1800-1 Analyst: BF Analyzed: 06/24/2022 15:16

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-06 E  
Preparation Batch: BKF0566 Sample Size: 2 mL  
Prepared: 06/23/2022 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**  
**22F0166-06 (Water)**

**Wet Chemistry**

Method: EPA 9060A Sampled: 06/09/2022 12:30  
Instrument: TOC-LCSH Analyst: RMS Analyzed: 06/16/2022 00:08

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-06 E  
Preparation Batch: BKF0358 Sample Size: 20 mL  
Prepared: 06/15/2022 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**  
**22F0166-06 (Water)**

**Wet Chemistry**

Method: SM 4500-H+ B-00 Sampled: 06/09/2022 12:30  
Instrument: Accumet AB150 Analyst: ENJ Analyzed: 06/10/2022 17:11

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-06 B  
Preparation Batch: BKF0284 Sample Size: 50 mL  
Prepared: 06/10/2022 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-17**  
**22F0166-06 (Water)**

**Wet Chemistry**

Method: SM 4500-NH3 H-97 Sampled: 06/09/2022 12:30  
Instrument: LCHAT1 Analyst: RMS Analyzed: 06/28/2022 11:45

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-06 E  
Preparation Batch: BKF0630 Sample Size: 10 mL  
Prepared: 06/27/2022 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	0.151	mg/L	



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**MW-17**  
**22F0166-06 (Water)**

**Microbiology**

Method: SM 9222B Sampled: 06/09/2022 12:30  
Instrument: N/A Analyst: UW Analyzed: 06/10/2022 18:50

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-06  
Preparation Batch: BKF0251 Sample Size: 90 mL  
Prepared: 06/09/2022 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**  
**22F0166-06 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97 Sampled: 06/09/2022 12:30  
Instrument: ALAB Analyst: Analyzed: 06/15/2022 00:00

**Analysis by: AmTest Laboratories**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22F0166-06  
Preparation Batch: B150622  
Prepared: 06/15/2022 Final Volume:

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1	1	190.0	mg/L CaCO3	





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**MW-17**  
**22F0166-06 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97 Sampled: 06/09/2022 12:30  
Instrument: ALAB Analyst: Analyzed: 06/15/2022 00:00

**Analysis by: AmTest Laboratories**

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



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**MW-17**  
**22F0166-06 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97 Sampled: 06/09/2022 12:30  
Instrument: ALAB Analyst: Analyzed: 06/15/2022 00:00

**Analysis by: AmTest Laboratories**

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



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**MW-17**  
**22F0166-06 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97

Sampled: 06/09/2022 12:30

Instrument: ALAB Analyst:

Analyzed: 06/15/2022 00:00

**Analysis by: AmTest Laboratories**

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Total		1	1	1	190.0	mg/L CaCO3	



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**MW-1**  
**22F0166-07 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 Sampled: 06/09/2022 09:10  
Instrument: ICPMS1 Analyst: MCB Analyzed: 06/23/2022 22:27

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22F0166-07 A 01  
Preparation Batch: BKF0547 Sample Size: 25 mL  
Prepared: 06/23/2022 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: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**MW-1**  
**22F0166-07 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 UCT-KED Sampled: 06/09/2022 09:10  
Instrument: ICPMS1 Analyst: MCB Analyzed: 06/23/2022 22:27

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22F0166-07 A 01  
Preparation Batch: BKF0547 Sample Size: 25 mL  
Prepared: 06/23/2022 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: 22F0166-07 A 03  
Preparation Batch: BKF0618 Sample Size: 100 mL  
Prepared: 06/27/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.102	ug/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**MW-1**  
**22F0166-07 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6010D Sampled: 06/09/2022 09:10  
Instrument: ICP2 Analyst: SKD Analyzed: 06/28/2022 19:57

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 22F0166-07 A 02  
Preparation Batch: BKF0624 Sample Size: 25 mL  
Prepared: 06/27/2022 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**  
**22F0166-08 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 Sampled: 06/09/2022 10:40  
Instrument: ICPMS1 Analyst: MCB Analyzed: 06/23/2022 21:14

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22F0166-08 A 01  
Preparation Batch: BKF0547 Sample Size: 25 mL  
Prepared: 06/23/2022 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: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**MW-3**  
**22F0166-08 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 UCT-KED Sampled: 06/09/2022 10:40  
Instrument: ICPMS1 Analyst: MCB Analyzed: 06/23/2022 21:14

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22F0166-08 A 01  
Preparation Batch: BKF0547 Sample Size: 25 mL  
Prepared: 06/23/2022 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: 22F0166-08 A 03  
Preparation Batch: BKF0618 Sample Size: 100 mL  
Prepared: 06/27/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.101	ug/L	





TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**MW-3**  
**22F0166-08 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6010D Sampled: 06/09/2022 10:40  
Instrument: ICP2 Analyst: SKD Analyzed: 06/27/2022 22:58

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 22F0166-08 A 02  
Preparation Batch: BKF0624 Sample Size: 25 mL  
Prepared: 06/27/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	0.0090	mg/L	
Manganese, Dissolved	7439-96-5	1	0.0040	4.12	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**MW-10**  
**22F0166-09 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 Sampled: 06/09/2022 11:30  
Instrument: ICPMS1 Analyst: MCB Analyzed: 06/23/2022 21:18

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22F0166-09 A 01  
Preparation Batch: BKF0547 Sample Size: 25 mL  
Prepared: 06/23/2022 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: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**MW-10**  
**22F0166-09 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 UCT-KED Sampled: 06/09/2022 11:30  
Instrument: ICPMS1 Analyst: MCB Analyzed: 06/23/2022 21:18

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22F0166-09 A 01  
Preparation Batch: BKF0547 Sample Size: 25 mL  
Prepared: 06/23/2022 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: 22F0166-09 A 03  
Preparation Batch: BKF0618 Sample Size: 100 mL  
Prepared: 06/27/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	1.95	ug/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**MW-10**  
**22F0166-09 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6010D Sampled: 06/09/2022 11:30  
Instrument: ICP2 Analyst: SKD Analyzed: 06/27/2022 23:04

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 22F0166-09 A 02  
Preparation Batch: BKF0624 Sample Size: 25 mL  
Prepared: 06/27/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	0.0245	mg/L	
Manganese, Dissolved	7439-96-5	1	0.0040	5.23	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**MW-6**  
**22F0166-10 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 Sampled: 06/09/2022 13:30  
Instrument: ICPMS1 Analyst: MCB Analyzed: 06/23/2022 22:12

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22F0166-10 A 01  
Preparation Batch: BKF0547 Sample Size: 25 mL  
Prepared: 06/23/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	20.0	112	ug/L	



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**MW-6**  
**22F0166-10 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 UCT-KED Sampled: 06/09/2022 13:30  
Instrument: ICPMS1 Analyst: MCB Analyzed: 06/23/2022 22:12

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22F0166-10 A 01  
Preparation Batch: BKF0547 Sample Size: 25 mL  
Prepared: 06/23/2022 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: 22F0166-10 A 03  
Preparation Batch: BKF0618 Sample Size: 100 mL  
Prepared: 06/27/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.241	ug/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**MW-6**  
**22F0166-10 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6010D Sampled: 06/09/2022 13:30  
Instrument: ICP2 Analyst: SKD Analyzed: 06/28/2022 23:30

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 22F0166-10 A 02  
Preparation Batch: BKF0624 Sample Size: 25 mL  
Prepared: 06/27/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	0.0204	mg/L	
Manganese, Dissolved	7439-96-5	1	0.0040	0.377	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**MW-8**  
**22F0166-11 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 Sampled: 06/09/2022 14:30  
Instrument: ICPMS1 Analyst: MCB Analyzed: 06/23/2022 22:17

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22F0166-11 A 01  
Preparation Batch: BKF0547 Sample Size: 25 mL  
Prepared: 06/23/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	20.0	453	ug/L	





TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**MW-8**  
**22F0166-11 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 UCT-KED Sampled: 06/09/2022 14:30  
Instrument: ICPMS1 Analyst: MCB Analyzed: 06/23/2022 22:17

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22F0166-11 A 01  
Preparation Batch: BKF0547 Sample Size: 25 mL  
Prepared: 06/23/2022 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: 22F0166-11 A 03  
Preparation Batch: BKF0618 Sample Size: 100 mL  
Prepared: 06/27/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.916	ug/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**MW-8**  
**22F0166-11 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6010D Sampled: 06/09/2022 14:30  
Instrument: ICP2 Analyst: SKD Analyzed: 06/28/2022 23:36

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 22F0166-11 A 02  
Preparation Batch: BKF0624 Sample Size: 25 mL  
Prepared: 06/27/2022 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	2.56	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**MW-17**  
**22F0166-12 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 Sampled: 06/09/2022 12:30  
Instrument: ICPMS1 Analyst: MCB Analyzed: 06/23/2022 22:22

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22F0166-12 A 01  
Preparation Batch: BKF0547 Sample Size: 25 mL  
Prepared: 06/23/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	20.0	115	ug/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**MW-17**  
**22F0166-12 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 UCT-KED Sampled: 06/09/2022 12:30  
Instrument: ICPMS1 Analyst: MCB Analyzed: 06/23/2022 22:22

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22F0166-12 A 01  
Preparation Batch: BKF0547 Sample Size: 25 mL  
Prepared: 06/23/2022 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: 22F0166-12 A 03  
Preparation Batch: BKF0618 Sample Size: 100 mL  
Prepared: 06/27/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.233	ug/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**MW-17**  
**22F0166-12 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6010D Sampled: 06/09/2022 12:30  
Instrument: ICP2 Analyst: SKD Analyzed: 06/27/2022 23:15

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 22F0166-12 A 02  
Preparation Batch: BKF0624 Sample Size: 25 mL  
Prepared: 06/27/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	0.0227	mg/L	
Manganese, Dissolved	7439-96-5	1	0.0040	0.405	mg/L	



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

**Reported:**  
07-Jul-2022 18:11

**Trip Blank**  
**22F0166-13 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/09/2022 00:00

Instrument: NT3 Analyst: PKC

Analyzed: 06/10/2022 16:31

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKF0280  
Prepared: 06/10/2022

Sample Size: 10 mL  
Final Volume: 10 mL

Extract ID: 22F0166-13 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	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: 466410  
Project Manager: Doug Kunkel

Reported:  
07-Jul-2022 18:11

**Trip Blank**  
**22F0166-13 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/09/2022 00:00

Instrument: NT3 Analyst: PKC

Analyzed: 06/10/2022 16:31

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: 466410  
Project Manager: Doug Kunkel

**Reported:**  
07-Jul-2022 18:11

**Trip Blank**  
**22F0166-13 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/09/2022 00:00

Instrument: NT3 Analyst: PKC

Analyzed: 06/10/2022 16:31

**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>104</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>103</i>	<i>%</i>	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			<i>80-120 %</i>	<i>97.5</i>	<i>%</i>	





TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**Trip Blank**  
**22F0166-13 (Water)**

**Volatile Organic Compounds - SIM**

Method: EPA 8260D-SIM Sampled: 06/09/2022 00:00  
Instrument: NT16 Analyst: KOTT Analyzed: 06/13/2022 18:53

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22F0166-13 A  
Preparation Batch: BKF0301 Sample Size: 10 mL  
Prepared: 06/13/2022 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 %	110	%	



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**Reported:**  
07-Jul-2022 18:11

**Analysis by: Analytical Resources, LLC**

**Volatile Organic Compounds - Quality Control**

**Batch BKF0280 - 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
<b>Blank (BKF0280-BLK2)</b>		Prepared: 10-Jun-2022 Analyzed: 10-Jun-2022 16:09								
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 Manager: Doug Kunkel

**Reported:**  
07-Jul-2022 18:11

**Analysis by: Analytical Resources, LLC**

**Volatile Organic Compounds - Quality Control**

**Batch BKF0280 - 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
<b>Blank (BKF0280-BLK2)</b>		Prepared: 10-Jun-2022 Analyzed: 10-Jun-2022 16:09								
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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Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

**Reported:**  
07-Jul-2022 18:11

**Analysis by: Analytical Resources, LLC**

**Volatile Organic Compounds - Quality Control**

**Batch BKF0280 - 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
<b>Blank (BKF0280-BLK2)</b>		Prepared: 10-Jun-2022 Analyzed: 10-Jun-2022 16:09								
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>	5.02		ug/L	5.00		100	80-129			
<i>Surrogate: Toluene-d8</i>	4.94		ug/L	5.00		98.7	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	4.73		ug/L	5.00		94.7	80-120			
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	5.14		ug/L	5.00		103	80-120			
<b>LCS (BKF0280-BS2)</b>		Prepared: 10-Jun-2022 Analyzed: 10-Jun-2022 14:40								
Chloromethane	10.0	0.50	ug/L	10.0		100	60-138			
Vinyl Chloride	10.2	0.20	ug/L	10.0		102	66-133			
Bromomethane	9.89	1.00	ug/L	10.0		98.9	72-131			
Chloroethane	9.83	0.20	ug/L	10.0		98.3	60-155			
Trichlorofluoromethane	9.55	0.20	ug/L	10.0		95.5	62-141			
Acrolein	53.2	5.00	ug/L	50.0		106	52-190			
1,1,2-Trichloro-1,2,2-Trifluoroethane	10.3	0.20	ug/L	10.0		103	76-129			
Acetone	52.9	5.00	ug/L	50.0		106	58-142			
1,1-Dichloroethene	10.2	0.20	ug/L	10.0		102	69-135			
Iodomethane	10.1	1.00	ug/L	10.0		101	56-147			
Methylene Chloride	9.68	1.00	ug/L	10.0		96.8	65-135			
Acrylonitrile	10.3	1.00	ug/L	10.0		103	64-134			
Carbon Disulfide	9.89	0.20	ug/L	10.0		98.9	78-125			
trans-1,2-Dichloroethene	10.0	0.20	ug/L	10.0		100	78-128			
Vinyl Acetate	10.9	0.20	ug/L	10.0		109	55-138			
1,1-Dichloroethane	10.0	0.20	ug/L	10.0		100	76-124			
2-Butanone	54.7	5.00	ug/L	50.0		109	61-140			
2,2-Dichloropropane	10.0	0.20	ug/L	10.0		100	66-147			
cis-1,2-Dichloroethene	10.1	0.20	ug/L	10.0		101	80-121			
Chloroform	10.2	0.20	ug/L	10.0		102	80-122			
Bromochloromethane	10.1	0.20	ug/L	10.0		101	80-121			
1,1,1-Trichloroethane	9.99	0.20	ug/L	10.0		99.9	79-123			
1,1-Dichloropropene	9.51	0.20	ug/L	10.0		95.1	80-127			
Carbon tetrachloride	10.6	0.20	ug/L	10.0		106	53-137			
1,2-Dichloroethane	10.0	0.20	ug/L	10.0		100	75-123			



TRC Companies, Inc  
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Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

**Reported:**  
07-Jul-2022 18:11

**Analysis by: Analytical Resources, LLC**

**Volatile Organic Compounds - Quality Control**

**Batch BKF0280 - 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
<b>LCS (BKF0280-BS2)</b>		Prepared: 10-Jun-2022 Analyzed: 10-Jun-2022 14:40								
Benzene	10.2	0.20	ug/L	10.0		102	80-120			
Trichloroethene	9.71	0.20	ug/L	10.0		97.1	80-120			
1,2-Dichloropropane	9.85	0.20	ug/L	10.0		98.5	80-120			
Bromodichloromethane	10.2	0.20	ug/L	10.0		102	80-121			
Dibromomethane	9.88	0.20	ug/L	10.0		98.8	80-120			
2-Chloroethyl vinyl ether	10.4	1.00	ug/L	10.0		104	64-120			
4-Methyl-2-Pentanone	53.3	5.00	ug/L	50.0		107	67-133			
cis-1,3-Dichloropropene	10.1	0.20	ug/L	10.0		101	80-124			
Toluene	9.90	0.20	ug/L	10.0		99.0	80-120			
trans-1,3-Dichloropropene	10.1	0.20	ug/L	10.0		101	71-127			
2-Hexanone	52.9	5.00	ug/L	50.0		106	69-133			
1,1,2-Trichloroethane	10.1	0.20	ug/L	10.0		101	80-121			
1,3-Dichloropropane	9.68	0.20	ug/L	10.0		96.8	80-120			
Tetrachloroethene	10.1	0.20	ug/L	10.0		101	80-120			
Dibromochloromethane	10.4	0.20	ug/L	10.0		104	65-135			
1,2-Dibromoethane	9.91	0.20	ug/L	10.0		99.1	80-121			
Chlorobenzene	10.1	0.20	ug/L	10.0		101	80-120			
Ethylbenzene	10.0	0.20	ug/L	10.0		100	80-120			
1,1,1,2-Tetrachloroethane	10.5	0.20	ug/L	10.0		105	80-120			
m,p-Xylene	20.7	0.40	ug/L	20.0		103	80-121			
o-Xylene	10.1	0.20	ug/L	10.0		101	80-121			
Xylenes, total	30.8	0.60	ug/L	30.0		103	76-127			
Styrene	10.6	0.20	ug/L	10.0		106	80-124			
Bromoform	10.5	0.20	ug/L	10.0		105	51-134			
1,1,1,2-Tetrachloroethane	10.2	0.20	ug/L	10.0		102	77-123			
1,2,3-Trichloropropane	10.4	0.50	ug/L	10.0		104	76-125			
trans-1,4-Dichloro 2-Butene	8.81	1.00	ug/L	10.0		88.1	55-129			
n-Propylbenzene	10.4	0.20	ug/L	10.0		104	78-130			
Bromobenzene	9.87	0.20	ug/L	10.0		98.7	80-120			
Isopropyl Benzene	10.1	0.20	ug/L	10.0		101	80-128			
2-Chlorotoluene	10.3	0.20	ug/L	10.0		103	78-122			
4-Chlorotoluene	10.0	0.20	ug/L	10.0		100	80-121			
t-Butylbenzene	9.95	0.20	ug/L	10.0		99.5	78-125			
1,3,5-Trimethylbenzene	10.2	0.20	ug/L	10.0		102	80-129			
1,2,4-Trimethylbenzene	10.4	0.20	ug/L	10.0		104	80-127			



TRC Companies, Inc  
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Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

Reported:  
07-Jul-2022 18:11

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKF0280 - 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
<b>LCS (BKF0280-BS2)</b>										
					Prepared: 10-Jun-2022 Analyzed: 10-Jun-2022 14:40					
s-Butylbenzene	10.2	0.20	ug/L	10.0		102	78-129			
4-Isopropyl Toluene	10.2	0.20	ug/L	10.0		102	79-130			
1,3-Dichlorobenzene	10.1	0.20	ug/L	10.0		101	80-120			
1,4-Dichlorobenzene	10.1	0.20	ug/L	10.0		101	80-120			
n-Butylbenzene	10.6	0.20	ug/L	10.0		106	74-129			
1,2-Dichlorobenzene	10.1	0.20	ug/L	10.0		101	80-120			
1,2-Dibromo-3-chloropropane	9.58	0.50	ug/L	10.0		95.8	62-123			
1,2,4-Trichlorobenzene	10.3	0.50	ug/L	10.0		103	64-124			
Hexachloro-1,3-Butadiene	9.95	2.00	ug/L	10.0		99.5	58-123			
Naphthalene	10.5	0.50	ug/L	10.0		105	50-134			
1,2,3-Trichlorobenzene	10.4	0.50	ug/L	10.0		104	49-133			
Dichlorodifluoromethane	10.1	0.20	ug/L	10.0		101	48-147			
Methyl tert-butyl Ether	10.3	0.50	ug/L	10.0		103	71-132			
2-Pentanone	53.1	5.00	ug/L	50.0		106	69-134			
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Surrogate: 1,2-Dichloroethane-d4	5.22		ug/L	5.00		104	80-129			
Surrogate: Toluene-d8	5.11		ug/L	5.00		102	80-120			
Surrogate: 4-Bromofluorobenzene	4.85		ug/L	5.00		97.0	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	4.91		ug/L	5.00		98.2	80-120			
<hr/>										
<b>LCS Dup (BKF0280-BSD2)</b>										
					Prepared: 10-Jun-2022 Analyzed: 10-Jun-2022 15:24					
Chloromethane	8.79	0.50	ug/L	10.0		87.9	60-138	13.20	30	
Vinyl Chloride	9.21	0.20	ug/L	10.0		92.1	66-133	10.20	30	
Bromomethane	9.17	1.00	ug/L	10.0		91.7	72-131	7.49	30	
Chloroethane	8.70	0.20	ug/L	10.0		87.0	60-155	12.20	30	
Trichlorofluoromethane	8.51	0.20	ug/L	10.0		85.1	62-141	11.50	30	
Acrolein	48.8	5.00	ug/L	50.0		97.6	52-190	8.65	30	
1,1,2-Trichloro-1,2,2-Trifluoroethane	9.40	0.20	ug/L	10.0		94.0	76-129	9.04	30	
Acetone	46.9	5.00	ug/L	50.0		93.8	58-142	12.00	30	
1,1-Dichloroethene	8.93	0.20	ug/L	10.0		89.3	69-135	13.30	30	
Iodomethane	8.96	1.00	ug/L	10.0		89.6	56-147	11.70	30	
Methylene Chloride	9.04	1.00	ug/L	10.0		90.4	65-135	6.83	30	
Acrylonitrile	9.23	1.00	ug/L	10.0		92.3	64-134	11.40	30	
Carbon Disulfide	8.82	0.20	ug/L	10.0		88.2	78-125	11.50	30	
trans-1,2-Dichloroethene	8.58	0.20	ug/L	10.0		85.8	78-128	15.60	30	
Vinyl Acetate	9.56	0.20	ug/L	10.0		95.6	55-138	12.90	30	



TRC Companies, Inc  
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Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

**Reported:**  
07-Jul-2022 18:11

**Analysis by: Analytical Resources, LLC**

**Volatile Organic Compounds - Quality Control**

**Batch BKF0280 - 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
<b>LCS Dup (BKF0280-BSD2)</b>		Prepared: 10-Jun-2022 Analyzed: 10-Jun-2022 15:24								
1,1-Dichloroethane	8.93	0.20	ug/L	10.0		89.3	76-124	11.70	30	
2-Butanone	48.4	5.00	ug/L	50.0		96.9	61-140	12.10	30	
2,2-Dichloropropane	8.64	0.20	ug/L	10.0		86.4	66-147	14.90	30	
cis-1,2-Dichloroethene	8.94	0.20	ug/L	10.0		89.4	80-121	12.10	30	
Chloroform	9.02	0.20	ug/L	10.0		90.2	80-122	12.10	30	
Bromochloromethane	8.97	0.20	ug/L	10.0		89.7	80-121	11.90	30	
1,1,1-Trichloroethane	9.09	0.20	ug/L	10.0		90.9	79-123	9.48	30	
1,1-Dichloropropene	8.59	0.20	ug/L	10.0		85.9	80-127	10.20	30	
Carbon tetrachloride	9.38	0.20	ug/L	10.0		93.8	53-137	12.60	30	
1,2-Dichloroethane	8.96	0.20	ug/L	10.0		89.6	75-123	11.00	30	
Benzene	8.97	0.20	ug/L	10.0		89.7	80-120	12.50	30	
Trichloroethene	8.54	0.20	ug/L	10.0		85.4	80-120	12.80	30	
1,2-Dichloropropane	8.80	0.20	ug/L	10.0		88.0	80-120	11.20	30	
Bromodichloromethane	8.97	0.20	ug/L	10.0		89.7	80-121	13.10	30	
Dibromomethane	8.51	0.20	ug/L	10.0		85.1	80-120	14.90	30	
2-Chloroethyl vinyl ether	9.26	1.00	ug/L	10.0		92.6	64-120	11.60	30	
4-Methyl-2-Pentanone	47.2	5.00	ug/L	50.0		94.4	67-133	12.20	30	
cis-1,3-Dichloropropene	9.04	0.20	ug/L	10.0		90.4	80-124	11.40	30	
Toluene	8.79	0.20	ug/L	10.0		87.9	80-120	12.00	30	
trans-1,3-Dichloropropene	9.19	0.20	ug/L	10.0		91.9	71-127	9.70	30	
2-Hexanone	47.9	5.00	ug/L	50.0		95.9	69-133	9.92	30	
1,1,2-Trichloroethane	8.82	0.20	ug/L	10.0		88.2	80-121	13.30	30	
1,3-Dichloropropane	8.65	0.20	ug/L	10.0		86.5	80-120	11.30	30	
Tetrachloroethene	8.65	0.20	ug/L	10.0		86.5	80-120	15.90	30	
Dibromochloromethane	9.16	0.20	ug/L	10.0		91.6	65-135	12.60	30	
1,2-Dibromoethane	9.00	0.20	ug/L	10.0		90.0	80-121	9.64	30	
Chlorobenzene	8.69	0.20	ug/L	10.0		86.9	80-120	15.30	30	
Ethylbenzene	8.77	0.20	ug/L	10.0		87.7	80-120	13.40	30	
1,1,1,2-Tetrachloroethane	9.16	0.20	ug/L	10.0		91.6	80-120	14.00	30	
m,p-Xylene	18.0	0.40	ug/L	20.0		90.0	80-121	13.70	30	
o-Xylene	8.81	0.20	ug/L	10.0		88.1	80-121	13.70	30	
Xylenes, total	26.8	0.60	ug/L	30.0		89.4	76-127	13.70	30	
Styrene	9.41	0.20	ug/L	10.0		94.1	80-124	11.70	30	
Bromoform	9.01	0.20	ug/L	10.0		90.1	51-134	15.00	30	
1,1,2,2-Tetrachloroethane	8.64	0.20	ug/L	10.0		86.4	77-123	16.20	30	



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

**Reported:**  
07-Jul-2022 18:11

**Analysis by: Analytical Resources, LLC**

**Volatile Organic Compounds - Quality Control**

**Batch BKF0280 - 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
<b>LCS Dup (BKF0280-BSD2)</b>		Prepared: 10-Jun-2022 Analyzed: 10-Jun-2022 15:24								
1,2,3-Trichloropropane	8.86	0.50	ug/L	10.0		88.6	76-125	16.40	30	
trans-1,4-Dichloro 2-Butene	8.13	1.00	ug/L	10.0		81.3	55-129	8.00	30	
n-Propylbenzene	8.96	0.20	ug/L	10.0		89.6	78-130	15.20	30	
Bromobenzene	8.63	0.20	ug/L	10.0		86.3	80-120	13.40	30	
Isopropyl Benzene	8.60	0.20	ug/L	10.0		86.0	80-128	15.50	30	
2-Chlorotoluene	8.60	0.20	ug/L	10.0		86.0	78-122	17.60	30	
4-Chlorotoluene	8.76	0.20	ug/L	10.0		87.6	80-121	13.60	30	
t-Butylbenzene	8.65	0.20	ug/L	10.0		86.5	78-125	14.00	30	
1,3,5-Trimethylbenzene	8.81	0.20	ug/L	10.0		88.1	80-129	14.50	30	
1,2,4-Trimethylbenzene	8.83	0.20	ug/L	10.0		88.3	80-127	16.40	30	
s-Butylbenzene	8.71	0.20	ug/L	10.0		87.1	78-129	16.00	30	
4-Isopropyl Toluene	8.63	0.20	ug/L	10.0		86.3	79-130	16.50	30	
1,3-Dichlorobenzene	8.79	0.20	ug/L	10.0		87.9	80-120	13.90	30	
1,4-Dichlorobenzene	8.74	0.20	ug/L	10.0		87.4	80-120	14.60	30	
n-Butylbenzene	9.00	0.20	ug/L	10.0		90.0	74-129	16.50	30	
1,2-Dichlorobenzene	8.91	0.20	ug/L	10.0		89.1	80-120	12.80	30	
1,2-Dibromo-3-chloropropane	7.84	0.50	ug/L	10.0		78.4	62-123	20.00	30	
1,2,4-Trichlorobenzene	8.83	0.50	ug/L	10.0		88.3	64-124	15.20	30	
Hexachloro-1,3-Butadiene	8.57	2.00	ug/L	10.0		85.7	58-123	15.00	30	
Naphthalene	9.19	0.50	ug/L	10.0		91.9	50-134	13.60	30	
1,2,3-Trichlorobenzene	9.12	0.50	ug/L	10.0		91.2	49-133	13.00	30	
Dichlorodifluoromethane	8.78	0.20	ug/L	10.0		87.8	48-147	13.70	30	
Methyl tert-butyl Ether	9.33	0.50	ug/L	10.0		93.3	71-132	10.20	30	
2-Pentanone	47.1	5.00	ug/L	50.0		94.2	69-134	11.90	30	
Surrogate: 1,2-Dichloroethane-d4	4.99		ug/L	5.00		99.7	80-129			
Surrogate: Toluene-d8	5.05		ug/L	5.00		101	80-120			
Surrogate: 4-Bromofluorobenzene	4.99		ug/L	5.00		99.8	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	4.88		ug/L	5.00		97.6	80-120			





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Analysis by: Analytical Resources, LLC

**Volatile Organic Compounds - SIM - Quality Control**

**Batch BKF0301 - 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
<b>Blank (BKF0301-BLK1)</b>		Prepared: 13-Jun-2022 Analyzed: 13-Jun-2022 12:33								
Vinyl chloride	ND	20.0	ng/L							U
<i>Surrogate: 1,2-Dichloroethane-d4</i>	5230		ng/L	5000	105		80-129			
<b>LCS (BKF0301-BS1)</b>		Prepared: 13-Jun-2022 Analyzed: 13-Jun-2022 10:58								
Vinyl chloride	2350	20.0	ng/L	2000		118	62-141			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	5030		ng/L	5000	101		80-129			
<b>LCS Dup (BKF0301-BSD1)</b>		Prepared: 13-Jun-2022 Analyzed: 13-Jun-2022 11:43								
Vinyl chloride	2490	20.0	ng/L	2000		125	62-141	5.82	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	5390		ng/L	5000	108		80-129			



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**Analysis by: Analytical Resources, LLC**

**Metals and Metallic Compounds - Quality Control**

**Batch BKF0586 - 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
<b>Blank (BKF0586-BLK1)</b>		Prepared: 24-Jun-2022 Analyzed: 29-Jun-2022 00:28								
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
<b>LCS (BKF0586-BS1)</b>		Prepared: 24-Jun-2022 Analyzed: 29-Jun-2022 00:34								
Calcium	10.1	0.0500	mg/L	10.0		101	80-120			
Potassium	10.7	0.500	mg/L	10.0		107	80-120			
Sodium	10.8	0.500	mg/L	10.0		108	80-120			
Sodium	ND	50.0	mg/L	10.0		117	80-120			U
<b>Duplicate (BKF0586-DUP1)</b>		<b>Source: 22F0166-01</b>		Prepared: 24-Jun-2022 Analyzed: 29-Jun-2022 01:09						
Calcium	13.7	0.0500	mg/L		13.9			1.79	20	
Potassium	0.730	0.500	mg/L		0.744			1.83	20	
Sodium	5.37	0.500	mg/L		5.45			1.34	20	
<b>Matrix Spike (BKF0586-MS1)</b>		<b>Source: 22F0166-01</b>		Prepared: 24-Jun-2022 Analyzed: 29-Jun-2022 01:20						
Calcium	24.1	0.0500	mg/L	10.0	13.9	102	75-125			
Potassium	11.5	0.500	mg/L	10.0	0.744	108	75-125			
Sodium	16.2	0.500	mg/L	10.0	5.45	108	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
<b>Matrix Spike Dup (BKF0586-MSD1)</b>		<b>Source: 22F0166-01</b>		Prepared: 24-Jun-2022 Analyzed: 29-Jun-2022 01:25						
Calcium	23.9	0.0500	mg/L	10.0	13.9	100	75-125	0.69	20	
Potassium	11.4	0.500	mg/L	10.0	0.744	106	75-125	1.50	20	
Sodium	16.2	0.500	mg/L	10.0	5.45	107	75-125	0.26	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 BKF0547 - 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
<b>Blank (BKF0547-BLK1)</b>			Prepared: 23-Jun-2022 Analyzed: 23-Jun-2022 20:54								
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
<b>LCS (BKF0547-BS1)</b>			Prepared: 23-Jun-2022 Analyzed: 23-Jun-2022 20:59								
Iron, Dissolved	54	4980	36.0	ug/L	5000		99.5	80-120			
Iron, Dissolved	57	4980	20.0	ug/L	5000		99.7	80-120			
Zinc, Dissolved	66	82.9	6.00	ug/L	80.0		104	80-120			
Zinc, Dissolved	67	79.8	6.00	ug/L	80.0		99.7	80-120			
<b>Duplicate (BKF0547-DUP1)</b>			<b>Source: 22F0166-07</b>			Prepared: 23-Jun-2022 Analyzed: 23-Jun-2022 22:32					
Iron, Dissolved	54	ND	36.0	ug/L		ND					U
Zinc, Dissolved	66	ND	6.00	ug/L		ND					U
<b>Matrix Spike (BKF0547-MS1)</b>			<b>Source: 22F0166-07</b>			Prepared: 23-Jun-2022 Analyzed: 23-Jun-2022 22:37					
Iron, Dissolved	54	4590	36.0	ug/L	5000	ND	91.9	75-125			
Zinc, Dissolved	66	81.1	6.00	ug/L	80.0	ND	101	75-125			

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: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**Analysis by: Analytical Resources, LLC**

**Metals and Metallic Compounds (dissolved) - Quality Control**

**Batch BKF0618 - 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
<b>Blank (BKF0618-BLK1)</b>						Prepared: 27-Jun-2022 Analyzed: 29-Jun-2022 17:49					
Arsenic, Dissolved	75a	ND	0.0400	ug/L							U
<b>LCS (BKF0618-BS1)</b>						Prepared: 27-Jun-2022 Analyzed: 29-Jun-2022 17:55					
Arsenic, Dissolved	75a	5.02	0.0400	ug/L	5.00		100	80-120			
<b>Duplicate (BKF0618-DUP1)</b>						Source: 22F0166-07 Prepared: 27-Jun-2022 Analyzed: 28-Jun-2022 02:59					
Arsenic, Dissolved	75a	0.134	0.0400	ug/L		0.102			26.70	20	L
<b>Matrix Spike (BKF0618-MS1)</b>						Source: 22F0166-07 Prepared: 27-Jun-2022 Analyzed: 28-Jun-2022 03:03					
Arsenic, Dissolved	75a	4.71	0.0400	ug/L	5.00	0.102	92.1	75-125			

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

<b>Matrix Spike Dup (BKF0618-MSD1)</b>						Source: 22F0166-07 Prepared: 27-Jun-2022 Analyzed: 28-Jun-2022 03:09					
Arsenic, Dissolved	75a	4.74	0.0400	ug/L	5.00	0.102	92.8	75-125	0.69	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: 466410  
Project Manager: Doug Kunkel

**Reported:**  
07-Jul-2022 18:11

**Analysis by: Analytical Resources, LLC**

**Metals and Metallic Compounds (dissolved) - Quality Control**

**Batch BKF0624 - 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
<b>Blank (BKF0624-BLK1)</b>		Prepared: 27-Jun-2022 Analyzed: 27-Jun-2022 22:24								
Barium, Dissolved	ND	0.0060	mg/L							U
Manganese, Dissolved	ND	0.0040	mg/L							U
<b>LCS (BKF0624-BS1)</b>		Prepared: 27-Jun-2022 Analyzed: 27-Jun-2022 22:29								
Barium, Dissolved	2.31	0.0061	mg/L	2.00		116	80-120			
Manganese, Dissolved	0.562	0.0040	mg/L	0.500		112	80-120			
<b>Duplicate (BKF0624-DUP1)</b>		<b>Source: 22F0166-12</b>		Prepared: 27-Jun-2022 Analyzed: 27-Jun-2022 23:10						
Barium, Dissolved	0.0230	0.0060	mg/L		0.0227			1.43	20	
Manganese, Dissolved	0.407	0.0040	mg/L		0.405			0.35	20	
<b>Matrix Spike (BKF0624-MS1)</b>		<b>Source: 22F0166-12</b>		Prepared: 27-Jun-2022 Analyzed: 27-Jun-2022 23:21						
Barium, Dissolved	2.37	0.0061	mg/L	2.00	0.0227	117	75-125			
Manganese, Dissolved	0.988	0.0040	mg/L	0.500	0.405	117	75-125			

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: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**Analysis by: Analytical Resources, LLC**

**Wet Chemistry - Quality Control**

**Batch BKF0281 - 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
<b>Blank (BKF0281-BLK1)</b>						Prepared: 10-Jun-2022 Analyzed: 10-Jun-2022 17:18					
Nitrite-N	ND	0.010	0.010	mg/L							U
<b>LCS (BKF0281-BS1)</b>						Prepared: 10-Jun-2022 Analyzed: 10-Jun-2022 17:19					
Nitrite-N	0.473	0.010	0.010	mg/L	0.500		94.6	90-110			
<b>Duplicate (BKF0281-DUP1)</b>						Source: 22F0166-01 Prepared: 10-Jun-2022 Analyzed: 10-Jun-2022 17:22					
Nitrite-N	ND	0.010	0.010	mg/L		ND					U
<b>Matrix Spike (BKF0281-MS1)</b>						Source: 22F0166-01 Prepared: 10-Jun-2022 Analyzed: 10-Jun-2022 17:23					
Nitrite-N	0.510	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.											
<b>Matrix Spike Dup (BKF0281-MSD1)</b>						Source: 22F0166-01 Prepared: 10-Jun-2022 Analyzed: 10-Jun-2022 17:24					
Nitrite-N	0.515	0.010	0.010	mg/L	0.500	ND	103	75-125	0.98	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 BKF0284 - No Prep Wet Chem**

Instrument: Accumet AB150 Analyst: ENJ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BKF0284-BS1)</b>						Prepared: 10-Jun-2022 Analyzed: 10-Jun-2022 17:11					
pH	6.98	0.01	0.01	pH Units	7.00		99.7	99.2-100.8			
<b>Duplicate (BKF0284-DUP1)</b>						Source: 22F0166-01 Prepared: 10-Jun-2022 Analyzed: 10-Jun-2022 17:11					
pH	6.36	0.01	0.01	pH Units		6.25			1.74	20	H



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**Analysis by: Analytical Resources, LLC**

**Wet Chemistry - Quality Control**

**Batch BKF0358 - 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
<b>Blank (BKF0358-BLK1)</b>						Prepared: 15-Jun-2022 Analyzed: 15-Jun-2022 14:43					
Total Organic Carbon	ND	0.50	0.50	mg/L							U
<b>LCS (BKF0358-BS1)</b>						Prepared: 15-Jun-2022 Analyzed: 15-Jun-2022 15:02					
Total Organic Carbon	19.65	0.50	0.50	mg/L	20.00		98.3	90-110			
<b>Duplicate (BKF0358-DUP2)</b>						Source: 22F0166-01 Prepared: 15-Jun-2022 Analyzed: 15-Jun-2022 20:45					
Total Organic Carbon	0.73	0.50	0.50	mg/L		0.74			0.75	20	
<b>Matrix Spike (BKF0358-MS2)</b>						Source: 22F0166-01 Prepared: 15-Jun-2022 Analyzed: 15-Jun-2022 21:04					
Total Organic Carbon	18.28	0.50	0.50	mg/L	20.00	0.74	87.7	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
<b>Matrix Spike Dup (BKF0358-MSD2)</b>						Source: 22F0166-01 Prepared: 15-Jun-2022 Analyzed: 15-Jun-2022 21:24					
Total Organic Carbon	18.42	0.50	0.50	mg/L	20.00	0.74	88.4	75-125	0.76	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: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**Analysis by: Analytical Resources, LLC**

**Wet Chemistry - Quality Control**

**Batch BKF0513 - 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
<b>Blank (BKF0513-BLK1)</b>						Prepared: 22-Jun-2022 Analyzed: 22-Jun-2022 15:13					
Sulfate	ND	2.00	2.00	mg/L							U
<b>LCS (BKF0513-BS1)</b>						Prepared: 22-Jun-2022 Analyzed: 22-Jun-2022 15:14					
Sulfate	15.3	2.00	2.00	mg/L	15.0		102	90-110			
<b>Duplicate (BKF0513-DUP2)</b>						Source: 22F0166-01 Prepared: 22-Jun-2022 Analyzed: 22-Jun-2022 15:38					
Sulfate	4.39	2.00	2.00	mg/L		4.59			4.45	20	
<b>Matrix Spike (BKF0513-MS2)</b>						Source: 22F0166-01 Prepared: 22-Jun-2022 Analyzed: 22-Jun-2022 15:40					
Sulfate	18.8	2.00	2.00	mg/L	15.0	4.59	94.7	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
<b>Matrix Spike Dup (BKF0513-MSD2)</b>						Source: 22F0166-01 Prepared: 22-Jun-2022 Analyzed: 22-Jun-2022 15:41					
Sulfate	19.3	2.00	2.00	mg/L	15.0	4.59	98.0	75-125	2.62	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 BKF0566 - 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
<b>Blank (BKF0566-BLK1)</b>						Prepared: 23-Jun-2022 Analyzed: 24-Jun-2022 15:13					
COD	ND	10.0	10.0	mg/L							U
<b>Blank (BKF0566-BLK2)</b>						Prepared: 23-Jun-2022 Analyzed: 24-Jun-2022 15:17					
COD	ND	10.0	10.0	mg/L							U
<b>LCS (BKF0566-BS1)</b>						Prepared: 23-Jun-2022 Analyzed: 24-Jun-2022 15:13					
COD	103	10.0	10.0	mg/L	100		103	90-110			
<b>LCS (BKF0566-BS2)</b>						Prepared: 23-Jun-2022 Analyzed: 24-Jun-2022 15:17					
COD	103	10.0	10.0	mg/L	100		103	90-110			
<b>Duplicate (BKF0566-DUP1)</b>						Source: 22F0166-01 Prepared: 23-Jun-2022 Analyzed: 24-Jun-2022 15:14					
COD	ND	10.0	10.0	mg/L		ND					U
<b>Matrix Spike (BKF0566-MS1)</b>						Source: 22F0166-01 Prepared: 23-Jun-2022 Analyzed: 24-Jun-2022 15:14					
COD	89.5	20.0	20.0	mg/L	100	ND	89.5	90-110			*

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

<b>Matrix Spike Dup (BKF0566-MSD1)</b>						Source: 22F0166-01 Prepared: 23-Jun-2022 Analyzed: 24-Jun-2022 15:14					
COD	95.6	20.0	20.0	mg/L	100	ND	95.7	90-110	6.64	10	

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: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**Analysis by: Analytical Resources, LLC**

**Wet Chemistry - Quality Control**

**Batch BKF0613 - No Prep Wet Chem**

Instrument: LACHAT2 Analyst: ENJ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BKF0613-BLK1)</b>						Prepared: 27-Jun-2022 Analyzed: 27-Jun-2022 17:12					
Nitrate + Nitrite as N	ND	0.010	0.010	mg/L							U
<b>LCS (BKF0613-BS1)</b>						Prepared: 27-Jun-2022 Analyzed: 27-Jun-2022 17:14					
Nitrate + Nitrite as N	0.492	0.010	0.010	mg/L	0.500		98.4	90-110			
<b>Duplicate (BKF0613-DUP2)</b>						Source: 22F0166-01 Prepared: 27-Jun-2022 Analyzed: 27-Jun-2022 17:21					
Nitrate + Nitrite as N	0.099	0.010	0.010	mg/L		0.115			15.20	20	
<b>Matrix Spike (BKF0613-MS1)</b>						Source: 22F0166-01 Prepared: 27-Jun-2022 Analyzed: 27-Jun-2022 17:22					
Nitrate + Nitrite as N	0.592	0.010	0.010	mg/L	0.500	0.115	95.4	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
<b>Matrix Spike Dup (BKF0613-MSD1)</b>						Source: 22F0166-01 Prepared: 27-Jun-2022 Analyzed: 27-Jun-2022 17:29					
Nitrate + Nitrite as N	0.573	0.010	0.010	mg/L	0.500	0.115	91.6	75-125	3.26	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: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**Analysis by: Analytical Resources, LLC**

**Wet Chemistry - Quality Control**

**Batch BKF0630 - 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
<b>Blank (BKF0630-BLK1)</b>						Prepared: 27-Jun-2022 Analyzed: 28-Jun-2022 11:26					
Ammonia-N	ND	0.040	0.040	mg/L							U
<b>LCS (BKF0630-BS1)</b>						Prepared: 27-Jun-2022 Analyzed: 28-Jun-2022 11:27					
Ammonia-N	0.488	0.040	0.040	mg/L	0.500		97.6	90-110			
<b>Duplicate (BKF0630-DUP1)</b>						Source: 22F0166-01 Prepared: 27-Jun-2022 Analyzed: 28-Jun-2022 11:30					
Ammonia-N	ND	0.040	0.040	mg/L		ND					U
<b>Matrix Spike (BKF0630-MS1)</b>						Source: 22F0166-01 Prepared: 27-Jun-2022 Analyzed: 28-Jun-2022 11:31					
Ammonia-N	0.413	0.040	0.040	mg/L	0.500	ND	82.6	75-125			

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

<b>Matrix Spike Dup (BKF0630-MSD1)</b>						Source: 22F0166-01 Prepared: 27-Jun-2022 Analyzed: 28-Jun-2022 11:39					
Ammonia-N	0.426	0.040	0.040	mg/L	0.500	ND	85.2	75-125	3.10	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: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**Analysis by: Analytical Resources, LLC**

**Wet Chemistry - Quality Control**

**Batch BKF0653 - No Prep Wet Chem**

Instrument: LACHAT2 Analyst: ENJ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BKF0653-BLK1)</b>						Prepared: 28-Jun-2022 Analyzed: 28-Jun-2022 16:35					
Chloride	ND	1.00	1.00	mg/L							U
<b>LCS (BKF0653-BS1)</b>						Prepared: 28-Jun-2022 Analyzed: 28-Jun-2022 16:36					
Chloride	5.07	1.00	1.00	mg/L	5.00		101	90-110			
<b>Duplicate (BKF0653-DUP1)</b>						Source: 22F0166-01 Prepared: 28-Jun-2022 Analyzed: 28-Jun-2022 16:40					
Chloride	6.50	1.00	1.00	mg/L		6.55			0.77	20	
<b>Matrix Spike (BKF0653-MS3)</b>						Source: 22F0166-01 Prepared: 28-Jun-2022 Analyzed: 28-Jun-2022 18:53					
Chloride	18.0	1.00	2.00	mg/L	10.0	6.55	115	75-125			D

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

<b>Matrix Spike Dup (BKF0653-MSD3)</b>						Source: 22F0166-01 Prepared: 28-Jun-2022 Analyzed: 28-Jun-2022 18:54					
Chloride	16.4	1.00	2.00	mg/L	10.0	6.55	98.9	75-125	9.17	20	D

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: 466410 Project Manager: Doug Kunkel	<b>Reported:</b> 07-Jul-2022 18:11
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**Analysis by: Analytical Resources, LLC**

**Microbiology - Quality Control**

**Batch BKF0251 - 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
<b>Blank (BKF0251-BLK1)</b>						Prepared: 09-Jun-2022 Analyzed: 10-Jun-2022 18:50					
Total 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: 466410  
Project Manager: Doug Kunkel

**Reported:**  
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**Certified Analyses included in this Report**

Analyte	Certifications
<b>EPA 200.8 in Water</b>	
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
<b>EPA 200.8 UCT-KED in Water</b>	
Arsenic-75a	NELAP,WADOE,WA-DW,DoD-ELAP
Zinc-66	NELAP,WADOE,WA-DW,DoD-ELAP
Zinc-67	NELAP,WADOE,WA-DW,DoD-ELAP
<b>EPA 353.2 in Water</b>	
Nitrate + Nitrite as N	NELAP,DoD-ELAP,WADOE
Nitrite-N	WADOE,NELAP,DoD-ELAP
<b>EPA 375.2 in Water</b>	
Sulfate	WADOE,NELAP
<b>EPA 410.4 in Water</b>	
COD	DoD-ELAP,NELAP,WADOE
<b>EPA 6010D in Water</b>	
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
<b>EPA 8260D in Water</b>	
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



TRC Companies, Inc  
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Project Manager: Doug Kunkel

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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





TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

**Reported:**  
07-Jul-2022 18:11

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 4500-H+ B-00 in Water**

pH	WADOE,NELAP,WA-DW
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TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

**Reported:**  
07-Jul-2022 18:11

**SM 4500-NH3 H-97 in Water**

Ammonia-N WADOE,DoD-ELAP,NELAP

**SM 9222B in Water**

Total Coliforms WADOE

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



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Doug Kunkel

Reported:  
07-Jul-2022 18:11

### 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  $\leq 5$  times the reporting limit and the replicate control limit defaults to  $\pm$  RL instead of 20% RPD
- 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

26 October 2022

Eric Caddy  
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)  
22I0345

Associated SDG ID(s)  
N/A

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

ARI Assigned Number: 2210345	Turn-around Requested: Standard	Page: 1 of 1
ARI Client Company: TRC	Phone: 425-395-0010	Date: 9/21/22
Client Contact: Eric Caddrey e.caddrey@trcompanies.com	No. of Coolers:	Ice Present? Cooler Temps:

Client Project Name: Olalla Landfill Monitoring	Analysis Requested	Notes/Comments
Client Project #: 466410	Samplers: Wesley Weisberg	

Sample ID	Date	Time	Matrix	No. Containers	VOC	Vinyl Chloride	SIMS	Dissolved As, Fe, Zn, Cu, Mn	Total Metals K, Na, Ca	Alkalinity Carbonate Bicarbonate	Nitrate, nitrite Chloride Sulfide pH	TOC, LOD, Ammonia	Total Coliform	Notes/Comments
MW-1	9/21/22	0920	water	11	X	X	X	X	X	X	X	X	X	
MW-3		1045			X	X	X	X	X	X	X	X	X	
MW-10		1130			X	X	X	X	X	X	X	X	X	
MW-6		1340			X	X	X	X	X	X	X	X	X	
MW-8		1420			X	X	X	X	X	X	X	X	X	
MW-12					X	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: Wesley Weisberg	Printed Name: Phillip Bates	Printed Name:	Printed Name:
	Company: TRC	Company: AR	Company:	Company:
	Date & Time: 9/21/22	Date & Time: 9/21/22 15:39	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: Eric Caddy

**Reported:**  
26-Oct-2022 12:20

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	2210345-01	Water	21-Sep-2022 09:20	21-Sep-2022 15:44
MW-3	2210345-02	Water	21-Sep-2022 10:45	21-Sep-2022 15:44
MW-10	2210345-03	Water	21-Sep-2022 11:30	21-Sep-2022 15:44
MW-6	2210345-04	Water	21-Sep-2022 13:40	21-Sep-2022 15:44
MW-8	2210345-05	Water	21-Sep-2022 14:20	21-Sep-2022 15:44
MW-12	2210345-06	Water	21-Sep-2022 00:00	21-Sep-2022 15:44
MW-1	2210345-07	Water	21-Sep-2022 09:20	21-Sep-2022 15:44
MW-3	2210345-08	Water	21-Sep-2022 10:45	21-Sep-2022 15:44
MW-10	2210345-09	Water	21-Sep-2022 11:30	21-Sep-2022 15:44
MW-6	2210345-10	Water	21-Sep-2022 13:40	21-Sep-2022 15:44
MW-8	2210345-11	Water	21-Sep-2022 14:20	21-Sep-2022 15:44
MW-12	2210345-12	Water	21-Sep-2022 00:00	21-Sep-2022 15:44
Trip Blanks	2210345-13	Water	21-Sep-2022 09:20	21-Sep-2022 15:44



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: [none]  
Project Manager: Eric Caddy

**Reported:**  
26-Oct-2022 12:20

## **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.



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: [none]  
Project Manager: Eric Caddy

**Reported:**  
26-Oct-2022 12:20

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 select 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.





**WORK ORDER**

22I0345

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

<b>Client:</b> TRC Companies, Inc	<b>Project Manager:</b> Kelly Bottem
<b>Project:</b> Olalla Landfill	<b>Project Number:</b> [none]

<p><b>Report To:</b> TRC Companies, Inc Doug Kunkel 1180 NW Maple Street, Suite 310 Issaquah, WA 98027 Phone: (206) 757-3223 Fax:</p>	<p><b>Invoice To:</b> Environmental Partners, Inc. Doug Kunkel 1180 NW Maple St., Suite 310 Issaquah, WA 98027 Phone :425-395-0010 Fax: -</p>
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Date Due:	06-Oct-2022 18:00 (10 day TAT)	Date Received:	21-Sep-2022 15:44
Received By:	Phillip Bates	Date Logged In:	21-Sep-2022 16:13
Logged In By:	Phillip Bates		

Samples Received at: 6.6°C	
Intact, properly signed and dated custody seals attached to outside of cooler(s).....No	Custody papers included with the cooler..... Yes
Custody papers properly filled out(in, signed, analyses requested, etc).....Yes	Was a temperature blank included in the cooler..... No
Was sufficient ice used (if appropriate).....No	All bottles sealed in individual plastic bags..... No
All bottles arrived in good condition(unbroken).....Yes	All bottle labels complete and legible..... No
Number of containers listed on COC match number received.....Yes	Bottle labels and tags agree with COC..... Yes
Correct bottles used for the requested analyses.....Yes	All VOC vials free of air bubbles..... Yes
Analyses/bottles require preservation(attach preservation sheet excluding VOC)..Yes	Sufficient amount of sample sent in each bottle..... Yes
Sample split at ARI.....No	



**WORK ORDER**

22I0345

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

**Client:** TRC Companies, Inc  
**Project:** Olalla Landfill

**Project Manager:** Kelly Bottem  
**Project Number:** [none]

Analysis	Due	TAT	Expires	Comments
<b>22I0345-01 MW-1 [Water] Sampled 21-Sep-2022 09:20</b>				
8260D VOA	10/06/2022	10	10/5/2022	
8260D-SIM VOC	10/06/2022	10	10/5/2022	
Alkalinity, Bicarbonate SM 2320 B-97	10/06/2022	10	10/5/2022	
Alkalinity, Carbonate SM 2320 B-97	10/06/2022	10	10/5/2022	
Alkalinity, Hydroxide SM 2320 B-97	10/06/2022	10	10/5/2022	
Alkalinity, Total SM 2320 B-97	10/06/2022	10	10/5/2022	
Ammonia-N, FIASM 4500-NH3 H-97	10/06/2022	10	10/19/2022	
Carbon, Organic Total, 9060A	10/06/2022	10	10/19/2022	
Chemical Oxygen Demand (COD), EPA 410.	10/06/2022	10	10/19/2022	
Chloride, EPA 325.2	10/06/2022	10	10/19/2022	
Coliform, Total (MF) SM 9222B	10/06/2022	10	9/21/2022	
Met 6010D - Ca	10/06/2022	10	3/20/2023	
Met 6010D - K	10/06/2022	10	3/20/2023	
Met 6010D - Na	10/06/2022	10	3/20/2023	
Nitrate + Nitrite-N, EPA 353.2	10/06/2022	10	10/19/2022	
Nitrate-N Calc EPA 353.2	10/06/2022	10	9/23/2022	
Nitrite-N, EPA 353.2	10/06/2022	10	9/23/2022	
pH, SM 4500-H	10/06/2022	10	9/21/2022	
Sulfate, EPA 375.2	10/06/2022	10	10/19/2022	
<b>22I0345-02 MW-3 [Water] Sampled 21-Sep-2022 10:45</b>				
8260D VOA	10/06/2022	10	10/5/2022	
8260D-SIM VOC	10/06/2022	10	10/5/2022	
Alkalinity, Bicarbonate SM 2320 B-97	10/06/2022	10	10/5/2022	
Alkalinity, Carbonate SM 2320 B-97	10/06/2022	10	10/5/2022	
Alkalinity, Hydroxide SM 2320 B-97	10/06/2022	10	10/5/2022	
Alkalinity, Total SM 2320 B-97	10/06/2022	10	10/5/2022	
Ammonia-N, FIASM 4500-NH3 H-97	10/06/2022	10	10/19/2022	
Carbon, Organic Total, 9060A	10/06/2022	10	10/19/2022	
Chemical Oxygen Demand (COD), EPA 410.	10/06/2022	10	10/19/2022	
Chloride, EPA 325.2	10/06/2022	10	10/19/2022	
Coliform, Total (MF) SM 9222B	10/06/2022	10	9/21/2022	
Met 6010D - Ca	10/06/2022	10	3/20/2023	
Met 6010D - K	10/06/2022	10	3/20/2023	
Met 6010D - Na	10/06/2022	10	3/20/2023	
Nitrate + Nitrite-N, EPA 353.2	10/06/2022	10	10/19/2022	
Nitrate-N Calc EPA 353.2	10/06/2022	10	9/23/2022	
Nitrite-N, EPA 353.2	10/06/2022	10	9/23/2022	



**WORK ORDER**

22I0345

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<b>Client:</b> TRC Companies, Inc	<b>Project Manager:</b> Kelly Bottem
<b>Project:</b> Olalla Landfill	<b>Project Number:</b> [none]

Analysis	Due	TAT	Expires	Comments
pH, SM 4500-H	10/06/2022	10	9/21/2022	
Sulfate, EPA 375.2	10/06/2022	10	10/19/2022	

**22I0345-03 MW-10 [Water] Sampled 21-Sep-2022 11:30**

8260D VOA	10/06/2022	10	10/5/2022	
8260D-SIM VOC	10/06/2022	10	10/5/2022	
Alkalinity, Bicarbonate SM 2320 B-97	10/06/2022	10	10/5/2022	
Alkalinity, Carbonate SM 2320 B-97	10/06/2022	10	10/5/2022	
Alkalinity, Hydroxide SM 2320 B-97	10/06/2022	10	10/5/2022	
Alkalinity, Total SM 2320 B-97	10/06/2022	10	10/5/2022	
Ammonia-N, FIA SM 4500-NH3 H-97	10/06/2022	10	10/19/2022	
Carbon, Organic Total, 9060A	10/06/2022	10	10/19/2022	
Chemical Oxygen Demand (COD), EPA 410.	10/06/2022	10	10/19/2022	
Chloride, EPA 325.2	10/06/2022	10	10/19/2022	
Coliform, Total (MF) SM 9222B	10/06/2022	10	9/21/2022	
Met 6010D - Ca	10/06/2022	10	3/20/2023	
Met 6010D - K	10/06/2022	10	3/20/2023	
Met 6010D - Na	10/06/2022	10	3/20/2023	
Nitrate + Nitrite-N, EPA 353.2	10/06/2022	10	10/19/2022	
Nitrate-N Calc EPA 353.2	10/06/2022	10	9/23/2022	
Nitrite-N, EPA 353.2	10/06/2022	10	9/23/2022	
pH, SM 4500-H	10/06/2022	10	9/21/2022	
Sulfate, EPA 375.2	10/06/2022	10	10/19/2022	

**22I0345-04 MW-6 [Water] Sampled 21-Sep-2022 13:40**

8260D VOA	10/06/2022	10	10/5/2022	
8260D-SIM VOC	10/06/2022	10	10/5/2022	
Alkalinity, Bicarbonate SM 2320 B-97	10/06/2022	10	10/5/2022	
Alkalinity, Carbonate SM 2320 B-97	10/06/2022	10	10/5/2022	
Alkalinity, Hydroxide SM 2320 B-97	10/06/2022	10	10/5/2022	
Alkalinity, Total SM 2320 B-97	10/06/2022	10	10/5/2022	
Ammonia-N, FIA SM 4500-NH3 H-97	10/06/2022	10	10/19/2022	
Carbon, Organic Total, 9060A	10/06/2022	10	10/19/2022	
Chemical Oxygen Demand (COD), EPA 410.	10/06/2022	10	10/19/2022	
Chloride, EPA 325.2	10/06/2022	10	10/19/2022	
Coliform, Total (MF) SM 9222B	10/06/2022	10	9/21/2022	
Met 6010D - Ca	10/06/2022	10	3/20/2023	
Met 6010D - K	10/06/2022	10	3/20/2023	
Met 6010D - Na	10/06/2022	10	3/20/2023	
Nitrate + Nitrite-N, EPA 353.2	10/06/2022	10	10/19/2022	



**WORK ORDER**

22I0345

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

<b>Client:</b> TRC Companies, Inc	<b>Project Manager:</b> Kelly Bottem
<b>Project:</b> Olalla Landfill	<b>Project Number:</b> [none]

Analysis	Due	TAT	Expires	Comments
Nitrate-N Calc EPA 353.2	10/06/2022	10	9/23/2022	
Nitrite-N, EPA 353.2	10/06/2022	10	9/23/2022	
pH, SM 4500-H	10/06/2022	10	9/21/2022	
Sulfate, EPA 375.2	10/06/2022	10	10/19/2022	

**22I0345-05 MW-8 [Water] Sampled 21-Sep-2022 14:20**

8260D VOA	10/06/2022	10	10/5/2022	
8260D-SIM VOC	10/06/2022	10	10/5/2022	
Alkalinity, Bicarbonate SM 2320 B-97	10/06/2022	10	10/5/2022	
Alkalinity, Carbonate SM 2320 B-97	10/06/2022	10	10/5/2022	
Alkalinity, Hydroxide SM 2320 B-97	10/06/2022	10	10/5/2022	
Alkalinity, Total SM 2320 B-97	10/06/2022	10	10/5/2022	
Ammonia-N, FIA SM 4500-NH3 H-97	10/06/2022	10	10/19/2022	
Carbon, Organic Total, 9060A	10/06/2022	10	10/19/2022	
Chemical Oxygen Demand (COD), EPA 410.	10/06/2022	10	10/19/2022	
Chloride, EPA 325.2	10/06/2022	10	10/19/2022	
Coliform, Total (MF) SM 9222B	10/06/2022	10	9/21/2022	
Met 6010D - Ca	10/06/2022	10	3/20/2023	
Met 6010D - K	10/06/2022	10	3/20/2023	
Met 6010D - Na	10/06/2022	10	3/20/2023	
Nitrate + Nitrite-N, EPA 353.2	10/06/2022	10	10/19/2022	
Nitrate-N Calc EPA 353.2	10/06/2022	10	9/23/2022	
Nitrite-N, EPA 353.2	10/06/2022	10	9/23/2022	
pH, SM 4500-H	10/06/2022	10	9/21/2022	
Sulfate, EPA 375.2	10/06/2022	10	10/19/2022	

**22I0345-06 MW-12 [Water] Sampled 21-Sep-2022 00:00**

8260D VOA	10/06/2022	10	10/5/2022	
8260D-SIM VOC	10/06/2022	10	10/5/2022	
Alkalinity, Bicarbonate SM 2320 B-97	10/06/2022	10	10/5/2022	
Alkalinity, Carbonate SM 2320 B-97	10/06/2022	10	10/5/2022	
Alkalinity, Hydroxide SM 2320 B-97	10/06/2022	10	10/5/2022	
Alkalinity, Total SM 2320 B-97	10/06/2022	10	10/5/2022	
Ammonia-N, FIA SM 4500-NH3 H-97	10/06/2022	10	10/19/2022	
Carbon, Organic Total, 9060A	10/06/2022	10	10/19/2022	
Chemical Oxygen Demand (COD), EPA 410.	10/06/2022	10	10/19/2022	
Chloride, EPA 325.2	10/06/2022	10	10/19/2022	
Coliform, Total (MF) SM 9222B	10/06/2022	10	9/21/2022	
Met 6010D - Ca	10/06/2022	10	3/20/2023	
Met 6010D - K	10/06/2022	10	3/20/2023	



**WORK ORDER**

22I0345

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]**

Analysis	Due	TAT	Expires	Comments
Met 6010D - Na	10/06/2022	10	3/20/2023	
Nitrate + Nitrite-N, EPA 353.2	10/06/2022	10	10/19/2022	
Nitrate-N Calc EPA 353.2	10/06/2022	10	9/23/2022	
Nitrite-N, EPA 353.2	10/06/2022	10	9/23/2022	
pH, SM 4500-H	10/06/2022	10	9/21/2022	
Sulfate, EPA 375.2	10/06/2022	10	10/19/2022	
<b>22I0345-07 MW-1 [Water] Sampled 21-Sep-2022 09:20</b>				<b>Dissolved arsenic: 5x concentration!</b>
Met Diss 200.8 - As UCT	10/06/2022	10	3/20/2023	
Met Diss 200.8 - Fe	10/06/2022	10	3/20/2023	
Met Diss 200.8 - Zn UCT	10/06/2022	10	3/20/2023	
Met Diss 6010D - Ba	10/06/2022	10	3/20/2023	
Met Diss 6010D - Mn	10/06/2022	10	3/20/2023	
<b>22I0345-08 MW-3 [Water] Sampled 21-Sep-2022 10:45</b>				<b>Dissolved arsenic: 5x concentration!</b>
Met Diss 200.8 - As UCT	10/06/2022	10	3/20/2023	
Met Diss 200.8 - Fe	10/06/2022	10	3/20/2023	
Met Diss 200.8 - Zn UCT	10/06/2022	10	3/20/2023	
Met Diss 6010D - Ba	10/06/2022	10	3/20/2023	
Met Diss 6010D - Mn	10/06/2022	10	3/20/2023	
<b>22I0345-09 MW-10 [Water] Sampled 21-Sep-2022 11:30</b>				<b>Dissolved arsenic: 5x concentration!</b>
Met Diss 200.8 - As UCT	10/06/2022	10	3/20/2023	
Met Diss 200.8 - Fe	10/06/2022	10	3/20/2023	
Met Diss 200.8 - Zn UCT	10/06/2022	10	3/20/2023	
Met Diss 6010D - Ba	10/06/2022	10	3/20/2023	
Met Diss 6010D - Mn	10/06/2022	10	3/20/2023	
<b>22I0345-10 MW-6 [Water] Sampled 21-Sep-2022 13:40</b>				<b>Dissolved arsenic: 5x concentration!</b>
Met Diss 200.8 - As UCT	10/06/2022	10	3/20/2023	
Met Diss 200.8 - Fe	10/06/2022	10	3/20/2023	
Met Diss 200.8 - Zn UCT	10/06/2022	10	3/20/2023	
Met Diss 6010D - Ba	10/06/2022	10	3/20/2023	
Met Diss 6010D - Mn	10/06/2022	10	3/20/2023	
<b>22I0345-11 MW-8 [Water] Sampled 21-Sep-2022 14:20</b>				<b>Dissolved arsenic: 5x concentration!</b>
Met Diss 200.8 - As UCT	10/06/2022	10	3/20/2023	
Met Diss 200.8 - Fe	10/06/2022	10	3/20/2023	
Met Diss 200.8 - Zn UCT	10/06/2022	10	3/20/2023	
Met Diss 6010D - Ba	10/06/2022	10	3/20/2023	
Met Diss 6010D - Mn	10/06/2022	10	3/20/2023	
<b>22I0345-12 MW-12 [Water] Sampled 21-Sep-2022 00:00</b>				<b>Dissolved arsenic: 5x concentration!</b>
Met Diss 200.8 - As UCT	10/06/2022	10	3/20/2023	



**WORK ORDER**

22I0345

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<b>Client:</b> TRC Companies, Inc	<b>Project Manager:</b> Kelly Bottem
<b>Project:</b> Olalla Landfill	<b>Project Number:</b> [none]

Analysis	Due	TAT	Expires	Comments
Met Diss 200.8 - Fe	10/06/2022	10	3/20/2023	
Met Diss 200.8 - Zn UCT	10/06/2022	10	3/20/2023	
Met Diss 6010D - Ba	10/06/2022	10	3/20/2023	
Met Diss 6010D - Mn	10/06/2022	10	3/20/2023	

**22I0345-13 Trip Blanks [Water] Sampled 21-Sep-2022 09:20**

8260D VOA	10/06/2022	10	10/5/2022	
8260D-SIM VOC	10/06/2022	10	10/5/2022	

**Analysis groups included in this work order**

Nitrate-N Calc EPA 353.2

Nitrite-N, EPA 353.2      Nitrate + Nitrite-N, EPA 353.2



WORK ORDER

22I0345

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Client: TRC Companies, Inc	Project Manager: Kelly Bottem
Project: Olalla Landfill	Project Number: [none]

Preservation Confirmation

Container ID	Container Type	pH
22I0345-01 A	HDPE NM, 1000 mL	
22I0345-01 B	HDPE NM, 500 mL, 1:1 HNO3	LT P
22I0345-01 C	HDPE NM, 500 mL	
22I0345-01 D	Glass NM, Amber, 250 mL, 9N H2SO4	LT P
22I0345-01 E	Corning Plastic, 125 mL, Na2S2O3	
22I0345-01 F	VOA Vial, Clear, 40 mL, HCL	
22I0345-01 G	VOA Vial, Clear, 40 mL, HCL	
22I0345-01 H	VOA Vial, Clear, 40 mL, HCL	
22I0345-01 I	VOA Vial, Clear, 40 mL, HCL	
22I0345-01 J	VOA Vial, Clear, 40 mL, HCL	
22I0345-02 A	HDPE NM, 1000 mL	
22I0345-02 B	HDPE NM, 500 mL, 1:1 HNO3	LT P
22I0345-02 C	HDPE NM, 500 mL	
22I0345-02 D	Glass NM, Amber, 250 mL, 9N H2SO4	LT P
22I0345-02 E	Corning Plastic, 125 mL, Na2S2O3	
22I0345-02 F	VOA Vial, Clear, 40 mL, HCL	
22I0345-02 G	VOA Vial, Clear, 40 mL, HCL	
22I0345-02 H	VOA Vial, Clear, 40 mL, HCL	
22I0345-02 I	VOA Vial, Clear, 40 mL, HCL	
22I0345-02 J	VOA Vial, Clear, 40 mL, HCL	
22I0345-03 A	HDPE NM, 1000 mL	
22I0345-03 B	HDPE NM, 500 mL, 1:1 HNO3	LT P
22I0345-03 C	HDPE NM, 500 mL	
22I0345-03 D	Glass NM, Amber, 250 mL, 9N H2SO4	LT P
22I0345-03 E	Corning Plastic, 125 mL, Na2S2O3	
22I0345-03 F	VOA Vial, Clear, 40 mL, HCL	
22I0345-03 G	VOA Vial, Clear, 40 mL, HCL	
22I0345-03 H	VOA Vial, Clear, 40 mL, HCL	
22I0345-03 I	VOA Vial, Clear, 40 mL, HCL	
22I0345-03 J	VOA Vial, Clear, 40 mL, HCL	
22I0345-04 A	HDPE NM, 1000 mL	
22I0345-04 B	HDPE NM, 500 mL, 1:1 HNO3	LT P
22I0345-04 C	HDPE NM, 500 mL	
22I0345-04 D	Glass NM, Amber, 250 mL, 9N H2SO4	LT P



WORK ORDER

22I0345

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]

22I0345-04 E	Corning Plastic, 125 mL, Na2S2O3		
22I0345-04 F	VOA Vial, Clear, 40 mL, HCL		
22I0345-04 G	VOA Vial, Clear, 40 mL, HCL		
22I0345-04 H	VOA Vial, Clear, 40 mL, HCL		
22I0345-04 I	VOA Vial, Clear, 40 mL, HCL		
22I0345-04 J	VOA Vial, Clear, 40 mL, HCL		
22I0345-05 A	HDPE NM, 1000 mL		
22I0345-05 B	HDPE NM, 500 mL, 1:1 HNO3	L2	P
22I0345-05 C	HDPE NM, 500 mL		
22I0345-05 D	Glass NM, Amber, 250 mL, 9N H2SO4	L2	P
22I0345-05 E	Corning Plastic, 125 mL, Na2S2O3		
22I0345-05 F	VOA Vial, Clear, 40 mL, HCL		
22I0345-05 G	VOA Vial, Clear, 40 mL, HCL		
22I0345-05 H	VOA Vial, Clear, 40 mL, HCL		
22I0345-05 I	VOA Vial, Clear, 40 mL, HCL		
22I0345-05 J	VOA Vial, Clear, 40 mL, HCL		
22I0345-06 A	HDPE NM, 1000 mL		
22I0345-06 B	HDPE NM, 500 mL, 1:1 HNO3	L2	P
22I0345-06 C	HDPE NM, 500 mL		
22I0345-06 D	Glass NM, Amber, 250 mL, 9N H2SO4	L2	P
22I0345-06 E	Corning Plastic, 125 mL, Na2S2O3		
22I0345-06 F	VOA Vial, Clear, 40 mL, HCL		
22I0345-06 G	VOA Vial, Clear, 40 mL, HCL		
22I0345-06 H	VOA Vial, Clear, 40 mL, HCL		
22I0345-06 I	VOA Vial, Clear, 40 mL, HCL		
22I0345-06 J	VOA Vial, Clear, 40 mL, HCL		
22I0345-07 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	L2	P
22I0345-08 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	L2	P
22I0345-09 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	L2	P
22I0345-10 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	L2	P
22I0345-11 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	L2	P
22I0345-12 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	L2	P
22I0345-13 A	VOA Vial, Clear, 40 mL, HCL		
22I0345-13 B	VOA Vial, Clear, 40 mL, HCL		
22I0345-13 C	VOA Vial, Clear, 40 mL, HCL		





**WORK ORDER**

22I0345

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

<b>Client:</b> TRC Companies, Inc	<b>Project Manager:</b> Kelly Bottem
<b>Project:</b> Olalla Landfill	<b>Project Number:</b> [none]

Philip Bates  
Preservation Confirmed By

9/21/22  
Date



# Cooler Receipt Form

ARI Client: TAC

Project Name: Olalla landfill monitors

COC No(s): \_\_\_\_\_ (NA)

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: \_\_\_\_\_

Assigned ARI Job No: 2210345

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 15:44 6.6 8.5 7.2

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID# 5009708

Cooler Accepted by: Phillip Bates Date: 4/21/22 Time: 15:44

**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: Phillip Bates Date: 4/21/22 Time: 16:13 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
	<u>Trip Blanks</u>		

**Additional Notes, Discrepancies, & Resolutions:**

Bottle missing label. only 10 bottles were labeled for MW-1 and there are 11 bottles for MW-1, sticking the bottle with no label with MW-1, only unlabeled bottle and only sample missing.

By: PB Date: 4/21/22



# Cooler Temperature Compliance Form

ARI Work Order: 2210345		
Cooler#:	Temperature(°C):	
Sample ID	Bottle Count	Bottle Type
All Samples		All samples above 6°C
Cooler#:	Temperature(°C):	
Sample ID	Bottle Count	Bottle Type
Cooler#:	Temperature(°C):	
Sample ID	Bottle Count	Bottle Type
Cooler#:	Temperature(°C):	
Sample ID	Bottle Count	Bottle Type

Completed by: Philip Bates Date: 9/21/22 Time: 15:44



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: [none]  
Project Manager: Eric Caddy

**Reported:**  
26-Oct-2022 12:20

**MW-1**  
**22I0345-01 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 09/21/2022 09:20

Instrument: NT2 Analyst: PKC

Analyzed: 09/23/2022 16:59

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BK10536  
Prepared: 09/23/2022

Sample Size: 10 mL  
Final Volume: 10 mL

Extract ID: 22I0345-01 I

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: Eric Caddy

Reported:  
26-Oct-2022 12:20

**MW-1**  
**22I0345-01 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 09/21/2022 09:20

Instrument: NT2 Analyst: PKC

Analyzed: 09/23/2022 16:59

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: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-1**  
**22I0345-01 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D Sampled: 09/21/2022 09:20  
Instrument: NT2 Analyst: PKC Analyzed: 09/23/2022 16:59

**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 %	113	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	94.1	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	91.6	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	104	%	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-1**  
**22I0345-01 (Water)**

**Volatile Organic Compounds - SIM**

Method: EPA 8260D-SIM Sampled: 09/21/2022 09:20  
Instrument: NT16 Analyst: KOTT Analyzed: 09/22/2022 13:49

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22I0345-01 F  
Preparation Batch: BKI0510 Sample Size: 10 mL  
Prepared: 09/22/2022 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>	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-1**  
**22I0345-01 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D Sampled: 09/21/2022 09:20  
Instrument: ICP2 Analyst: SKD Analyzed: 10/06/2022 20:35

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 22I0345-01 B 01  
Preparation Batch: BKJ0009 Sample Size: 25 mL  
Prepared: 10/03/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	13.8	mg/L	
Potassium	7440-09-7	1	0.500	0.681	mg/L	
Sodium	7440-23-5	1	0.500	5.47	mg/L	





TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-1**  
**22I0345-01 (Water)**

**Wet Chemistry**

Method: EPA 325.2 Sampled: 09/21/2022 09:20  
Instrument: LACHAT2 Analyst: ENJ Analyzed: 09/28/2022 15:59

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-01 A  
Preparation Batch: BKI0655 Sample Size: 10 mL  
Prepared: 09/28/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	6.25	mg/L	



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**MW-1**  
**22I0345-01 (Water)**

**Wet Chemistry**

Method: EPA 353.2 Sampled: 09/21/2022 09:20  
Instrument: [CALC] Analyst: ENJ Analyzed: 09/22/2022 16:17

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: [CALC] Extract ID: 22I0345-01  
Preparation Batch: [CALC]  
Prepared: 09/22/2022 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.0200	0.225	mg/L	

Instrument: LACHAT2 Analyst: ENJ Analyzed: 09/22/2022 16:17

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-01 A  
Preparation Batch: BKI0513  
Prepared: 09/22/2022 Sample Size: 10 mL  
Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		1	0.010	0.010	0.225	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



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-1**  
**22I0345-01 (Water)**

**Wet Chemistry**

Method: EPA 375.2 Sampled: 09/21/2022 09:20  
Instrument: LACHAT2 Analyst: ENJ Analyzed: 10/12/2022 13:23

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-01 C  
Preparation Batch: BKJ0305 Sample Size: 10 mL  
Prepared: 10/12/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	4.16	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-1**  
**22I0345-01 (Water)**

**Wet Chemistry**

Method: EPA 410.4 Sampled: 09/21/2022 09:20  
Instrument: UV1800-1 Analyst: KLD Analyzed: 10/10/2022 17:36

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-01 D  
Preparation Batch: BKJ0182 Sample Size: 2 mL  
Prepared: 10/07/2022 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: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-1**  
**22I0345-01 (Water)**

**Wet Chemistry**

Method: EPA 9060A Sampled: 09/21/2022 09:20  
Instrument: TOC-LCSH Analyst: RMS Analyzed: 09/23/2022 09:46

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-01 D  
Preparation Batch: BKI0502 Sample Size: 20 mL  
Prepared: 09/22/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	0.91	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-1**  
**22I0345-01 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97 Sampled: 09/21/2022 09:20  
Instrument: Accumet AB150 Analyst: UW Analyzed: 09/26/2022 10:52

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-01 C  
Preparation Batch: BKI0585 Sample Size: 100 mL  
Prepared: 09/26/2022 Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	59.7	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	59.7	mg/L CaCO3	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-1**  
**22I0345-01 (Water)**

**Wet Chemistry**

Method: SM 4500-H+ B-00 Sampled: 09/21/2022 09:20  
Instrument: Accumet AB150 Analyst: UW Analyzed: 09/21/2022 17:40

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-01 A  
Preparation Batch: BKI0485 Sample Size: 50 mL  
Prepared: 09/21/2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.71	pH Units	H



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-1**  
**22I0345-01 (Water)**

**Wet Chemistry**

Method: SM 4500-NH3 H-97 Sampled: 09/21/2022 09:20  
Instrument: LCHAT1 Analyst: ENJ Analyzed: 10/03/2022 13:02

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-01 D  
Preparation Batch: BKI0723 Sample Size: 10 mL  
Prepared: 09/30/2022 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: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-1**  
**22I0345-01 (Water)**

**Microbiology**

Method: SM 9222B Sampled: 09/21/2022 09:20  
Instrument: N/A Analyst: BF Analyzed: 09/22/2022 16:22

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-01  
Preparation Batch: BKI0483 Sample Size: 97 mL  
Prepared: 09/21/2022 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: Eric Caddy

**Reported:**  
26-Oct-2022 12:20

**MW-3**  
**22I0345-02 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 09/21/2022 10:45

Instrument: NT2 Analyst: PKC

Analyzed: 09/23/2022 17:19

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BK10536  
Prepared: 09/23/2022

Sample Size: 10 mL  
Final Volume: 10 mL

Extract ID: 22I0345-02 H

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: Eric Caddy

Reported:  
26-Oct-2022 12:20

**MW-3**  
**22I0345-02 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 09/21/2022 10:45

Instrument: NT2 Analyst: PKC

Analyzed: 09/23/2022 17:19

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-3**  
**22I0345-02 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D Sampled: 09/21/2022 10:45  
Instrument: NT2 Analyst: PKC Analyzed: 09/23/2022 17:19

**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>112</i>	<i>%</i>	
<i>Surrogate: Toluene-d8</i>			<i>80-120 %</i>	<i>96.0</i>	<i>%</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>			<i>80-120 %</i>	<i>88.4</i>	<i>%</i>	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			<i>80-120 %</i>	<i>103</i>	<i>%</i>	



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**MW-3**  
**22I0345-02 (Water)**

**Volatile Organic Compounds - SIM**

Method: EPA 8260D-SIM Sampled: 09/21/2022 10:45  
Instrument: NT16 Analyst: KOTT Analyzed: 09/22/2022 14:10

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22I0345-02 G  
Preparation Batch: BKI0510 Sample Size: 10 mL  
Prepared: 09/22/2022 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>108</i>	<i>%</i>	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-3**  
**22I0345-02 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D Sampled: 09/21/2022 10:45  
Instrument: ICP2 Analyst: SKD Analyzed: 10/06/2022 19:12

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 22I0345-02 B 01  
Preparation Batch: BKJ0009 Sample Size: 25 mL  
Prepared: 10/03/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	52.5	mg/L	
Potassium	7440-09-7	1	0.500	0.824	mg/L	
Sodium	7440-23-5	1	0.500	9.58	mg/L	



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**MW-3**  
**22I0345-02 (Water)**

**Wet Chemistry**

Method: EPA 325.2 Sampled: 09/21/2022 10:45  
Instrument: LACHAT2 Analyst: ENJ Analyzed: 09/28/2022 16:04

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-02 A  
Preparation Batch: BKI0655 Sample Size: 10 mL  
Prepared: 09/28/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	5.71	mg/L	



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**MW-3**  
**22I0345-02 (Water)**

**Wet Chemistry**

Method: EPA 353.2 Sampled: 09/21/2022 10:45  
Instrument: [CALC] Analyst: ENJ Analyzed: 09/22/2022 16:22

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: [CALC] Extract ID: 22I0345-02  
Preparation Batch: [CALC]  
Prepared: 09/22/2022 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: ENJ Analyzed: 09/22/2022 16:22

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-02 A  
Preparation Batch: BKI0513 Sample Size: 10 mL  
Prepared: 09/22/2022 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-3**  
**22I0345-02 (Water)**

**Wet Chemistry**

Method: EPA 375.2 Sampled: 09/21/2022 10:45  
Instrument: LACHAT2 Analyst: ENJ Analyzed: 10/12/2022 13:27

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-02 C  
Preparation Batch: BKJ0305 Sample Size: 10 mL  
Prepared: 10/12/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	19.1	mg/L	



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**MW-3**  
**22I0345-02 (Water)**

**Wet Chemistry**

Method: EPA 410.4 Sampled: 09/21/2022 10:45  
Instrument: UV1800-1 Analyst: KLD Analyzed: 10/10/2022 17:37

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-02 D  
Preparation Batch: BKJ0182 Sample Size: 2 mL  
Prepared: 10/07/2022 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**  
**22I0345-02 (Water)**

**Wet Chemistry**

Method: EPA 9060A Sampled: 09/21/2022 10:45  
Instrument: TOC-LCSH Analyst: RMS Analyzed: 09/23/2022 11:21

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-02 D  
Preparation Batch: BKI0502 Sample Size: 20 mL  
Prepared: 09/22/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	3.07	mg/L	



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**MW-3**  
**22I0345-02 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97 Sampled: 09/21/2022 10:45  
Instrument: Accumet AB150 Analyst: UW Analyzed: 09/26/2022 10:52

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-02 C  
Preparation Batch: BKI0585 Sample Size: 50 mL  
Prepared: 09/26/2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	225	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	225	mg/L CaCO3	



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**MW-3**  
**22I0345-02 (Water)**

**Wet Chemistry**

Method: SM 4500-H+ B-00 Sampled: 09/21/2022 10:45  
Instrument: Accumet AB150 Analyst: UW Analyzed: 09/21/2022 17:40

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-02 A  
Preparation Batch: BKI0485 Sample Size: 50 mL  
Prepared: 09/21/2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.14	pH Units	H



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-3**  
**22I0345-02 (Water)**

**Wet Chemistry**

Method: SM 4500-NH3 H-97 Sampled: 09/21/2022 10:45  
Instrument: LCHAT1 Analyst: ENJ Analyzed: 10/03/2022 13:05

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-02 D  
Preparation Batch: BKI0723 Sample Size: 10 mL  
Prepared: 09/30/2022 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: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-3**  
**22I0345-02 (Water)**

**Microbiology**

Method: SM 9222B Sampled: 09/21/2022 10:45  
Instrument: N/A Analyst: BF Analyzed: 09/22/2022 16:22

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-02  
Preparation Batch: BKI0483 Sample Size: 96 mL  
Prepared: 09/21/2022 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  
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Project: Olalla Landfill  
Project Number: [none]  
Project Manager: Eric Caddy

**Reported:**  
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**MW-10**  
**22I0345-03 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 09/21/2022 11:30

Instrument: NT2 Analyst: PKC

Analyzed: 09/23/2022 17:40

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BK10536  
Prepared: 09/23/2022

Sample Size: 10 mL  
Final Volume: 10 mL

Extract ID: 22I0345-03 H

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: Eric Caddy

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**MW-10**  
**22I0345-03 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 09/21/2022 11:30

Instrument: NT2 Analyst: PKC

Analyzed: 09/23/2022 17:40

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**  
**22I0345-03 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D Sampled: 09/21/2022 11:30  
Instrument: NT2 Analyst: PKC Analyzed: 09/23/2022 17:40

**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>114</i>	<i>%</i>	
<i>Surrogate: Toluene-d8</i>			<i>80-120 %</i>	<i>94.7</i>	<i>%</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>			<i>80-120 %</i>	<i>88.2</i>	<i>%</i>	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			<i>80-120 %</i>	<i>105</i>	<i>%</i>	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-10**  
**22I0345-03 (Water)**

**Volatile Organic Compounds - SIM**

Method: EPA 8260D-SIM Sampled: 09/21/2022 11:30  
Instrument: NT16 Analyst: KOTT Analyzed: 09/22/2022 14:32

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22I0345-03 F  
Preparation Batch: BKI0510 Sample Size: 10 mL  
Prepared: 09/22/2022 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>108</i>	<i>%</i>	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-10**  
**22I0345-03 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D Sampled: 09/21/2022 11:30  
Instrument: ICP2 Analyst: SKD Analyzed: 10/06/2022 19:15

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 22I0345-03 B 01  
Preparation Batch: BKJ0009 Sample Size: 25 mL  
Prepared: 10/03/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	34.9	mg/L	
Potassium	7440-09-7	1	0.500	1.04	mg/L	
Sodium	7440-23-5	1	0.500	16.1	mg/L	



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**MW-10**  
**22I0345-03 (Water)**

**Wet Chemistry**

Method: EPA 325.2 Sampled: 09/21/2022 11:30  
Instrument: LACHAT2 Analyst: ENJ Analyzed: 09/28/2022 16:05

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-03 A  
Preparation Batch: BKI0655 Sample Size: 10 mL  
Prepared: 09/28/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	1.39	mg/L	



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**MW-10**  
**22I0345-03 (Water)**

**Wet Chemistry**

Method: EPA 353.2 Sampled: 09/21/2022 11:30  
Instrument: [CALC] Analyst: ENJ Analyzed: 09/22/2022 16:31

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: [CALC] Extract ID: 22I0345-03  
Preparation Batch: [CALC]  
Prepared: 09/22/2022 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: ENJ Analyzed: 09/22/2022 16:31

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-03 A  
Preparation Batch: BKI0513 Sample Size: 10 mL  
Prepared: 09/22/2022 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**  
**22I0345-03 (Water)**

**Wet Chemistry**

Method: EPA 375.2 Sampled: 09/21/2022 11:30  
Instrument: LACHAT2 Analyst: ENJ Analyzed: 10/12/2022 13:29

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-03 C  
Preparation Batch: BKJ0305 Sample Size: 10 mL  
Prepared: 10/12/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	19.5	mg/L	



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**MW-10**  
**22I0345-03 (Water)**

**Wet Chemistry**

Method: EPA 410.4 Sampled: 09/21/2022 11:30  
Instrument: UV1800-1 Analyst: KLD Analyzed: 10/10/2022 17:39

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-03 D  
Preparation Batch: BKJ0182 Sample Size: 2 mL  
Prepared: 10/07/2022 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**  
**22I0345-03 (Water)**

**Wet Chemistry**

Method: EPA 9060A Sampled: 09/21/2022 11:30  
Instrument: TOC-LCSH Analyst: RMS Analyzed: 09/23/2022 11:44

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-03 D  
Preparation Batch: BKI0502 Sample Size: 20 mL  
Prepared: 09/22/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	3.01	mg/L	



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**MW-10**  
**22I0345-03 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97 Sampled: 09/21/2022 11:30  
Instrument: Accumet AB150 Analyst: UW Analyzed: 09/26/2022 10:52

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-03 C  
Preparation Batch: BKI0585 Sample Size: 50 mL  
Prepared: 09/26/2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	196	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	196	mg/L CaCO3	



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**MW-10**  
**22I0345-03 (Water)**

**Wet Chemistry**

Method: SM 4500-H+ B-00 Sampled: 09/21/2022 11:30  
Instrument: Accumet AB150 Analyst: UW Analyzed: 09/21/2022 17:40

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-03 A  
Preparation Batch: BKI0485 Sample Size: 50 mL  
Prepared: 09/21/2022 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**  
**22I0345-03 (Water)**

**Wet Chemistry**

Method: SM 4500-NH3 H-97 Sampled: 09/21/2022 11:30  
Instrument: LCHAT1 Analyst: ENJ Analyzed: 10/03/2022 13:06

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-03 D  
Preparation Batch: BKI0723 Sample Size: 10 mL  
Prepared: 09/30/2022 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	0.056	mg/L	



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**MW-10**  
**22I0345-03 (Water)**

**Microbiology**

Method: SM 9222B Sampled: 09/21/2022 11:30  
Instrument: N/A Analyst: BF Analyzed: 09/22/2022 16:22

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-03  
Preparation Batch: BKI0483 Sample Size: 97 mL  
Prepared: 09/21/2022 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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Project: Olalla Landfill  
Project Number: [none]  
Project Manager: Eric Caddy

**Reported:**  
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**MW-6**  
**22I0345-04 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 09/21/2022 13:40

Instrument: NT2 Analyst: PKC

Analyzed: 09/23/2022 18:01

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BK10536  
Prepared: 09/23/2022

Sample Size: 10 mL  
Final Volume: 10 mL

Extract ID: 22I0345-04 I

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	5.68	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: Olalla Landfill  
Project Number: [none]  
Project Manager: Eric Caddy

**Reported:**  
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**MW-6**  
**22I0345-04 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 09/21/2022 13:40

Instrument: NT2 Analyst: PKC

Analyzed: 09/23/2022 18:01

**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	1.80	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**  
**22I0345-04 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D Sampled: 09/21/2022 13:40  
Instrument: NT2 Analyst: PKC Analyzed: 09/23/2022 18:01

**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>116</i>	<i>%</i>	
<i>Surrogate: Toluene-d8</i>			<i>80-120 %</i>	<i>93.9</i>	<i>%</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>			<i>80-120 %</i>	<i>89.1</i>	<i>%</i>	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			<i>80-120 %</i>	<i>103</i>	<i>%</i>	





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**MW-6**  
**22I0345-04 (Water)**

**Volatile Organic Compounds - SIM**

Method: EPA 8260D-SIM Sampled: 09/21/2022 13:40  
Instrument: NT16 Analyst: KOTT Analyzed: 09/22/2022 14:54

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22I0345-04 G  
Preparation Batch: BKI0510 Sample Size: 10 mL  
Prepared: 09/22/2022 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>109</i>	<i>%</i>	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-6**  
**22I0345-04 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D Sampled: 09/21/2022 13:40  
Instrument: ICP2 Analyst: SKD Analyzed: 10/06/2022 19:18

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 22I0345-04 B 01  
Preparation Batch: BKJ0009 Sample Size: 25 mL  
Prepared: 10/03/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	48.5	mg/L	
Potassium	7440-09-7	1	0.500	2.69	mg/L	
Sodium	7440-23-5	1	0.500	9.79	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-6**  
**22I0345-04 (Water)**

**Wet Chemistry**

Method: EPA 325.2 Sampled: 09/21/2022 13:40  
Instrument: LACHAT2 Analyst: ENJ Analyzed: 09/28/2022 16:07

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-04 A  
Preparation Batch: BKI0655 Sample Size: 10 mL  
Prepared: 09/28/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	2.40	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-6**  
**22I0345-04 (Water)**

**Wet Chemistry**

Method: EPA 353.2 Sampled: 09/21/2022 13:40  
Instrument: [CALC] Analyst: ENJ Analyzed: 09/22/2022 16:33

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: [CALC] Extract ID: 22I0345-04  
Preparation Batch: [CALC]  
Prepared: 09/22/2022 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
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Nitrate-N	14797-55-8	1	0.0200	0.0203	mg/L	
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Instrument: LACHAT2 Analyst: ENJ Analyzed: 09/22/2022 16:33

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-04 A  
Preparation Batch: BKI0513  
Prepared: 09/22/2022 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	0.020	mg/L	
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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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TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-6**  
**22I0345-04 (Water)**

**Wet Chemistry**

Method: EPA 375.2 Sampled: 09/21/2022 13:40  
Instrument: LACHAT2 Analyst: ENJ Analyzed: 10/12/2022 13:36

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-04 C  
Preparation Batch: BKJ0305 Sample Size: 10 mL  
Prepared: 10/12/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	8.26	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-6**  
**22I0345-04 (Water)**

**Wet Chemistry**

Method: EPA 410.4 Sampled: 09/21/2022 13:40  
Instrument: UV1800-1 Analyst: KLD Analyzed: 10/10/2022 17:41

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-04 D  
Preparation Batch: BKJ0182 Sample Size: 2 mL  
Prepared: 10/07/2022 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: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-6**  
**22I0345-04 (Water)**

**Wet Chemistry**

Method: EPA 9060A Sampled: 09/21/2022 13:40  
Instrument: TOC-LCSH Analyst: RMS Analyzed: 09/23/2022 12:02

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-04 D  
Preparation Batch: BKI0502 Sample Size: 20 mL  
Prepared: 09/22/2022 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-6**  
**22I0345-04 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97 Sampled: 09/21/2022 13:40  
Instrument: Accumet AB150 Analyst: UW Analyzed: 09/26/2022 10:52

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-04 C  
Preparation Batch: BKI0585 Sample Size: 50 mL  
Prepared: 09/26/2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	232	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	232	mg/L CaCO3	





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**MW-6**  
**22I0345-04 (Water)**

**Wet Chemistry**

Method: SM 4500-H+ B-00 Sampled: 09/21/2022 13:40  
Instrument: Accumet AB150 Analyst: UW Analyzed: 09/21/2022 17:40

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-04 A  
Preparation Batch: BKI0485 Sample Size: 50 mL  
Prepared: 09/21/2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.40	pH Units	H



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**MW-6**  
**22I0345-04 (Water)**

**Wet Chemistry**

Method: SM 4500-NH3 H-97 Sampled: 09/21/2022 13:40  
Instrument: LCHAT1 Analyst: ENJ Analyzed: 10/03/2022 13:07

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-04 D  
Preparation Batch: BK10723 Sample Size: 10 mL  
Prepared: 09/30/2022 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	0.548	mg/L	



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**MW-6**  
**22I0345-04 (Water)**

**Microbiology**

Method: SM 9222B Sampled: 09/21/2022 13:40  
Instrument: N/A Analyst: BF Analyzed: 09/22/2022 16:22

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-04  
Preparation Batch: BKI0483 Sample Size: 98 mL  
Prepared: 09/21/2022 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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Project: Olalla Landfill  
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Project Manager: Eric Caddy

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**MW-8**  
**22I0345-05 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 09/21/2022 14:20

Instrument: NT2 Analyst: PKC

Analyzed: 09/23/2022 18:22

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BK10536  
Prepared: 09/23/2022

Sample Size: 10 mL  
Final Volume: 10 mL

Extract ID: 22I0345-05 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	20.6	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: Eric Caddy

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**MW-8**  
**22I0345-05 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 09/21/2022 14:20

Instrument: NT2 Analyst: PKC

Analyzed: 09/23/2022 18:22

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**  
**22I0345-05 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D Sampled: 09/21/2022 14:20  
Instrument: NT2 Analyst: PKC Analyzed: 09/23/2022 18:22

**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>115</i>	<i>%</i>	
<i>Surrogate: Toluene-d8</i>			<i>80-120 %</i>	<i>98.3</i>	<i>%</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>			<i>80-120 %</i>	<i>88.4</i>	<i>%</i>	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			<i>80-120 %</i>	<i>105</i>	<i>%</i>	



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**MW-8**  
**22I0345-05 (Water)**

**Volatile Organic Compounds - SIM**

Method: EPA 8260D-SIM Sampled: 09/21/2022 14:20  
Instrument: NT16 Analyst: KOTT Analyzed: 09/22/2022 15:15

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22I0345-05 I  
Preparation Batch: BKI0510 Sample Size: 10 mL  
Prepared: 09/22/2022 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>109</i>	<i>%</i>	



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**MW-8**  
**22I0345-05 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D Sampled: 09/21/2022 14:20  
Instrument: ICP2 Analyst: SKD Analyzed: 10/06/2022 20:21

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 22I0345-05 B 01  
Preparation Batch: BKJ0009 Sample Size: 25 mL  
Prepared: 10/03/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	13.2	mg/L	
Potassium	7440-09-7	1	0.500	0.958	mg/L	
Sodium	7440-23-5	1	0.500	6.71	mg/L	





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**MW-8**  
**22I0345-05 (Water)**

**Wet Chemistry**

Method: EPA 325.2 Sampled: 09/21/2022 14:20  
Instrument: LACHAT2 Analyst: ENJ Analyzed: 09/28/2022 16:10

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-05 A  
Preparation Batch: BK10655 Sample Size: 10 mL  
Prepared: 09/28/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	1.85	mg/L	



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**MW-8**  
**22I0345-05 (Water)**

**Wet Chemistry**

Method: EPA 353.2 Sampled: 09/21/2022 14:20  
Instrument: [CALC] Analyst: ENJ Analyzed: 09/22/2022 16:34

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: [CALC] Extract ID: 22I0345-05  
Preparation Batch: [CALC]  
Prepared: 09/22/2022 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: ENJ Analyzed: 09/22/2022 16:34

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-05 A  
Preparation Batch: BKI0513  
Prepared: 09/22/2022 Sample Size: 10 mL  
Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		1	0.010	0.010	0.014	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**  
**22I0345-05 (Water)**

**Wet Chemistry**

Method: EPA 375.2 Sampled: 09/21/2022 14:20  
Instrument: LACHAT2 Analyst: ENJ Analyzed: 10/12/2022 13:38

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-05 C  
Preparation Batch: BKJ0305 Sample Size: 10 mL  
Prepared: 10/12/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	3.85	mg/L	



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**MW-8**  
**22I0345-05 (Water)**

**Wet Chemistry**

Method: EPA 410.4 Sampled: 09/21/2022 14:20  
Instrument: UV1800-1 Analyst: KLD Analyzed: 10/10/2022 17:41

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-05 D  
Preparation Batch: BKJ0182 Sample Size: 2 mL  
Prepared: 10/07/2022 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**  
**22I0345-05 (Water)**

**Wet Chemistry**

Method: EPA 9060A Sampled: 09/21/2022 14:20  
Instrument: TOC-LCSH Analyst: RMS Analyzed: 09/23/2022 12:32

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-05 D  
Preparation Batch: BKI0502 Sample Size: 20 mL  
Prepared: 09/22/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	0.95	mg/L	



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**MW-8**  
**22I0345-05 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97 Sampled: 09/21/2022 14:20  
Instrument: Accumet AB150 Analyst: UW Analyzed: 09/26/2022 10:52

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-05 C  
Preparation Batch: BKI0585 Sample Size: 50 mL  
Prepared: 09/26/2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	83.4	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	83.4	mg/L CaCO3	



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**MW-8**  
**22I0345-05 (Water)**

**Wet Chemistry**

Method: SM 4500-H+ B-00 Sampled: 09/21/2022 14:20  
Instrument: Accumet AB150 Analyst: UW Analyzed: 09/21/2022 17:40

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-05 A  
Preparation Batch: BKI0485 Sample Size: 50 mL  
Prepared: 09/21/2022 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-8**  
**22I0345-05 (Water)**

**Wet Chemistry**

Method: SM 4500-NH3 H-97 Sampled: 09/21/2022 14:20  
Instrument: LCHAT1 Analyst: ENJ Analyzed: 10/03/2022 13:09

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-05 D  
Preparation Batch: BK10723 Sample Size: 10 mL  
Prepared: 09/30/2022 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: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-8**  
**22I0345-05 (Water)**

**Microbiology**

Method: SM 9222B Sampled: 09/21/2022 14:20  
Instrument: N/A Analyst: BF Analyzed: 09/22/2022 16:22

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-05  
Preparation Batch: BKI0483 Sample Size: 96 mL  
Prepared: 09/21/2022 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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Project: Olalla Landfill  
Project Number: [none]  
Project Manager: Eric Caddy

**Reported:**  
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**MW-12**  
**22I0345-06 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 09/21/2022 00:00

Instrument: NT2 Analyst: PKC

Analyzed: 09/23/2022 18:43

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BK10536  
Prepared: 09/23/2022

Sample Size: 10 mL  
Final Volume: 10 mL

Extract ID: 22I0345-06 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



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: [none]  
Project Manager: Eric Caddy

Reported:  
26-Oct-2022 12:20

**MW-12**  
**22I0345-06 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 09/21/2022 00:00

Instrument: NT2 Analyst: PKC

Analyzed: 09/23/2022 18:43

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: Eric Caddy

**Reported:**  
26-Oct-2022 12:20

**MW-12**  
**22I0345-06 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 09/21/2022 00:00

Instrument: NT2 Analyst: PKC

Analyzed: 09/23/2022 18:43

**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>116</i>	<i>%</i>	
<i>Surrogate: Toluene-d8</i>			<i>80-120 %</i>	<i>95.7</i>	<i>%</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>			<i>80-120 %</i>	<i>85.7</i>	<i>%</i>	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			<i>80-120 %</i>	<i>106</i>	<i>%</i>	



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**MW-12**  
**22I0345-06 (Water)**

**Volatile Organic Compounds - SIM**

Method: EPA 8260D-SIM Sampled: 09/21/2022 00:00  
Instrument: NT16 Analyst: KOTT Analyzed: 09/22/2022 15:37

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22I0345-06 I  
Preparation Batch: BKI0510 Sample Size: 10 mL  
Prepared: 09/22/2022 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>109</i>	<i>%</i>	



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**MW-12**  
**22I0345-06 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D Sampled: 09/21/2022 00:00  
Instrument: ICP2 Analyst: SKD Analyzed: 10/06/2022 20:24

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 22I0345-06 B 01  
Preparation Batch: BKJ0009 Sample Size: 25 mL  
Prepared: 10/03/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	12.8	mg/L	
Potassium	7440-09-7	1	0.500	0.962	mg/L	
Sodium	7440-23-5	1	0.500	6.72	mg/L	



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**MW-12**  
**22I0345-06 (Water)**

**Wet Chemistry**

Method: EPA 325.2 Sampled: 09/21/2022 00:00  
Instrument: LCHAT2 Analyst: ENJ Analyzed: 09/28/2022 16:11

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-06 A  
Preparation Batch: BKI0655 Sample Size: 10 mL  
Prepared: 09/28/2022 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-12**  
**22I0345-06 (Water)**

**Wet Chemistry**

Method: EPA 353.2 Sampled: 09/21/2022 00:00  
Instrument: [CALC] Analyst: ENJ Analyzed: 09/22/2022 16:35

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: [CALC] Extract ID: 22I0345-06  
Preparation Batch: [CALC]  
Prepared: 09/22/2022 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: ENJ Analyzed: 09/22/2022 16:35

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-06 A  
Preparation Batch: BKI0513 Sample Size: 10 mL  
Prepared: 09/22/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		1	0.010	0.010	0.011	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**  
**22I0345-06 (Water)**

**Wet Chemistry**

Method: EPA 375.2 Sampled: 09/21/2022 00:00  
Instrument: LACHAT2 Analyst: ENJ Analyzed: 10/12/2022 13:39

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-06 C  
Preparation Batch: BKJ0305 Sample Size: 10 mL  
Prepared: 10/12/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	3.77	mg/L	



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**MW-12**  
**22I0345-06 (Water)**

**Wet Chemistry**

Method: EPA 410.4 Sampled: 09/21/2022 00:00  
Instrument: UV1800-1 Analyst: KLD Analyzed: 10/10/2022 17:45

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-06 D  
Preparation Batch: BKJ0182 Sample Size: 2 mL  
Prepared: 10/07/2022 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**  
**22I0345-06 (Water)**

**Wet Chemistry**

Method: EPA 9060A Sampled: 09/21/2022 00:00  
Instrument: TOC-LCSH Analyst: RMS Analyzed: 09/23/2022 12:57

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-06 D  
Preparation Batch: BKI0502 Sample Size: 20 mL  
Prepared: 09/22/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	0.91	mg/L	



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**MW-12**  
**22I0345-06 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97 Sampled: 09/21/2022 00:00  
Instrument: Accumet AB150 Analyst: UW Analyzed: 09/26/2022 10:52

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-06 C  
Preparation Batch: BKI0585 Sample Size: 50 mL  
Prepared: 09/26/2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	81.8	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	81.8	mg/L CaCO3	



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**MW-12**  
**22I0345-06 (Water)**

**Wet Chemistry**

Method: SM 4500-H+ B-00 Sampled: 09/21/2022 00:00  
Instrument: Accumet AB150 Analyst: UW Analyzed: 09/21/2022 17:40

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-06 A  
Preparation Batch: BKI0485 Sample Size: 50 mL  
Prepared: 09/21/2022 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-12**  
**22I0345-06 (Water)**

**Wet Chemistry**

Method: SM 4500-NH3 H-97 Sampled: 09/21/2022 00:00  
Instrument: LCHAT1 Analyst: ENJ Analyzed: 10/03/2022 13:17

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-06 D  
Preparation Batch: BKI0723 Sample Size: 10 mL  
Prepared: 09/30/2022 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**  
**22I0345-06 (Water)**

**Microbiology**

Method: SM 9222B Sampled: 09/21/2022 00:00  
Instrument: N/A Analyst: BF Analyzed: 09/22/2022 16:22

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22I0345-06  
Preparation Batch: BKI0483 Sample Size: 100 mL  
Prepared: 09/21/2022 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**  
**22I0345-07 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 Sampled: 09/21/2022 09:20  
Instrument: ICPMS1 Analyst: MCB Analyzed: 10/13/2022 20:09

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22I0345-07 A 02  
Preparation Batch: BKJ0240 Sample Size: 25 mL  
Prepared: 10/10/2022 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: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-1**  
**22I0345-07 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 UCT-KED Sampled: 09/21/2022 09:20  
Instrument: ICPMS1 Analyst: MCB Analyzed: 10/12/2022 01:08

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22I0345-07 A 02  
Preparation Batch: BKJ0240 Sample Size: 25 mL  
Prepared: 10/10/2022 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



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**MW-1**  
**22I0345-07 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6010D Sampled: 09/21/2022 09:20  
Instrument: ICP2 Analyst: SKD Analyzed: 10/10/2022 17:25

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 22I0345-07 A 01  
Preparation Batch: BKI0654 Sample Size: 25 mL  
Prepared: 09/28/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	0.0061	mg/L	
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: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-1**  
**22I0345-07RE2 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 UCT-KED Sampled: 09/21/2022 09:20  
Instrument: ICPMS1 Analyst: MCB Analyzed: 10/20/2022 11:00

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: RHN EPA 600/4-79-020 4.1.4 HNO3 matrix 5x Extract ID: 22I0345-07RE2 A 03  
Preparation Batch: BKJ0461 Sample Size: 100 mL  
Prepared: 10/18/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.103	ug/L	



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**MW-3**  
**22I0345-08 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 Sampled: 09/21/2022 10:45  
Instrument: ICPMS1 Analyst: MCB Analyzed: 10/13/2022 20:42

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22I0345-08 A 02  
Preparation Batch: BKJ0240 Sample Size: 25 mL  
Prepared: 10/10/2022 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: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-3**  
**22I0345-08 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 UCT-KED Sampled: 09/21/2022 10:45  
Instrument: ICPMS1 Analyst: MCB Analyzed: 10/12/2022 01:41

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22I0345-08 A 02  
Preparation Batch: BKJ0240 Sample Size: 25 mL  
Prepared: 10/10/2022 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: 22I0345-08 A 03  
Preparation Batch: BKJ0461 Sample Size: 100 mL  
Prepared: 10/18/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.115	ug/L	



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**MW-3**  
**22I0345-08 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6010D Sampled: 09/21/2022 10:45  
Instrument: ICP2 Analyst: SKD Analyzed: 10/10/2022 17:23

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 22I0345-08 A 01  
Preparation Batch: BKI0654 Sample Size: 25 mL  
Prepared: 09/28/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	0.0174	mg/L	
Manganese, Dissolved	7439-96-5	1	0.0040	7.24	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-10**  
**22I0345-09 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 Sampled: 09/21/2022 11:30  
Instrument: ICPMS1 Analyst: MCB Analyzed: 10/13/2022 20:46

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22I0345-09 A 02  
Preparation Batch: BKJ0240 Sample Size: 25 mL  
Prepared: 10/10/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	20.0	20.8	ug/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-10**  
**22I0345-09 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 UCT-KED Sampled: 09/21/2022 11:30  
Instrument: ICPMS1 Analyst: MCB Analyzed: 10/12/2022 01:45

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22I0345-09 A 02  
Preparation Batch: BKJ0240 Sample Size: 25 mL  
Prepared: 10/10/2022 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: 22I0345-09 A 03  
Preparation Batch: BKJ0461 Sample Size: 100 mL  
Prepared: 10/18/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	1.87	ug/L	





TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-10**  
**22I0345-09 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6010D Sampled: 09/21/2022 11:30  
Instrument: ICP2 Analyst: SKD Analyzed: 10/10/2022 17:50

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 22I0345-09 A 01  
Preparation Batch: BKI0654 Sample Size: 25 mL  
Prepared: 09/28/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	0.0152	mg/L	
Manganese, Dissolved	7439-96-5	1	0.0040	3.50	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-6**  
**22I0345-10 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 Sampled: 09/21/2022 13:40  
Instrument: ICPMS1 Analyst: MCB Analyzed: 10/13/2022 20:28

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22I0345-10 A 02  
Preparation Batch: BKJ0240 Sample Size: 25 mL  
Prepared: 10/10/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	5	100	260	ug/L	D



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-6**  
**22I0345-10 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 UCT-KED Sampled: 09/21/2022 13:40  
Instrument: ICPMS1 Analyst: MCB Analyzed: 10/12/2022 01:49

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22I0345-10 A 02  
Preparation Batch: BKJ0240 Sample Size: 25 mL  
Prepared: 10/10/2022 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: 22I0345-10 A 03  
Preparation Batch: BKJ0461 Sample Size: 100 mL  
Prepared: 10/18/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.414	ug/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-6**  
**22I0345-10 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6010D Sampled: 09/21/2022 13:40  
Instrument: ICP2 Analyst: SKD Analyzed: 10/10/2022 17:53

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 22I0345-10 A 01  
Preparation Batch: BKI0654 Sample Size: 25 mL  
Prepared: 09/28/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	0.0279	mg/L	
Manganese, Dissolved	7439-96-5	1	0.0040	0.413	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-8**  
**22I0345-11 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 Sampled: 09/21/2022 14:20  
Instrument: ICPMS1 Analyst: MCB Analyzed: 10/13/2022 20:33

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22I0345-11 A 02  
Preparation Batch: BKJ0240 Sample Size: 25 mL  
Prepared: 10/10/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	5	100	239	ug/L	D



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-8**  
**22I0345-11 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 UCT-KED Sampled: 09/21/2022 14:20  
Instrument: ICPMS1 Analyst: MCB Analyzed: 10/12/2022 01:54

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22I0345-11 A 02  
Preparation Batch: BKJ0240 Sample Size: 25 mL  
Prepared: 10/10/2022 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: 22I0345-11 A 03  
Preparation Batch: BKJ0461 Sample Size: 100 mL  
Prepared: 10/18/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.837	ug/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-8**  
**22I0345-11 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6010D Sampled: 09/21/2022 14:20  
Instrument: ICP2 Analyst: SKD Analyzed: 10/10/2022 17:56

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 22I0345-11 A 01  
Preparation Batch: BKI0654 Sample Size: 25 mL  
Prepared: 09/28/2022 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	2.88	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-12**  
**22I0345-12 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 Sampled: 09/21/2022 00:00  
Instrument: ICPMS1 Analyst: MCB Analyzed: 10/13/2022 20:37

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22I0345-12 A 02  
Preparation Batch: BKJ0240 Sample Size: 25 mL  
Prepared: 10/10/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	2	40.0	167	ug/L	D





TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-12**  
**22I0345-12 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 UCT-KED Sampled: 09/21/2022 00:00  
Instrument: ICPMS1 Analyst: MCB Analyzed: 10/12/2022 02:00

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22I0345-12 A 02  
Preparation Batch: BKJ0240 Sample Size: 25 mL  
Prepared: 10/10/2022 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: 22I0345-12 A 03  
Preparation Batch: BKJ0461 Sample Size: 100 mL  
Prepared: 10/18/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.698	ug/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**MW-12**  
**22I0345-12 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6010D Sampled: 09/21/2022 00:00  
Instrument: ICP2 Analyst: SKD Analyzed: 10/10/2022 17:58

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 22I0345-12 A 01  
Preparation Batch: BKI0654 Sample Size: 25 mL  
Prepared: 09/28/2022 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	2.85	mg/L	



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: [none]  
Project Manager: Eric Caddy

**Reported:**  
26-Oct-2022 12:20

**Trip Blanks**  
**22I0345-13 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 09/21/2022 09:20

Instrument: NT2 Analyst: PKC

Analyzed: 09/23/2022 15:14

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BK10536  
Prepared: 09/23/2022

Sample Size: 10 mL  
Final Volume: 10 mL

Extract ID: 22I0345-13 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	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: Eric Caddy

**Reported:**  
26-Oct-2022 12:20

**Trip Blanks**  
**22I0345-13 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 09/21/2022 09:20

Instrument: NT2 Analyst: PKC

Analyzed: 09/23/2022 15:14

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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**Trip Blanks**  
**22I0345-13 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 09/21/2022 09:20

Instrument: NT2 Analyst: PKC

Analyzed: 09/23/2022 15:14

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 %	104	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	95.5	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	93.5	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	105	%	



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**Trip Blanks**  
**22I0345-13 (Water)**

**Volatile Organic Compounds - SIM**

Method: EPA 8260D-SIM Sampled: 09/21/2022 09:20  
Instrument: NT16 Analyst: KOTT Analyzed: 09/22/2022 13:28

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22I0345-13 A  
Preparation Batch: BKI0510 Sample Size: 10 mL  
Prepared: 09/22/2022 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>	



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: [none]  
Project Manager: Eric Caddy

**Reported:**  
26-Oct-2022 12:20

**Analysis by: Analytical Resources, LLC**

**Volatile Organic Compounds - Quality Control**

**Batch BKI0536 - EPA 8260D**

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BKI0536-BLK1)</b>		Prepared: 23-Sep-2022 Analyzed: 23-Sep-2022 13:50								
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



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: [none]  
Project Manager: Eric Caddy

**Reported:**  
26-Oct-2022 12:20

**Analysis by: Analytical Resources, LLC**

**Volatile Organic Compounds - Quality Control**

**Batch BKI0536 - EPA 8260D**

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BKI0536-BLK1)</b>		Prepared: 23-Sep-2022 Analyzed: 23-Sep-2022 13:50								
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  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: [none]  
Project Manager: Eric Caddy

**Reported:**  
26-Oct-2022 12:20

**Analysis by: Analytical Resources, LLC**

**Volatile Organic Compounds - Quality Control**

**Batch BKI0536 - EPA 8260D**

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BKI0536-BLK1)</b>										
					Prepared: 23-Sep-2022		Analyzed: 23-Sep-2022 13:50			
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>	4.95		ug/L	5.00		99.0	80-129			
<i>Surrogate: Toluene-d8</i>	4.88		ug/L	5.00		97.7	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	4.82		ug/L	5.00		96.5	80-120			
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	5.19		ug/L	5.00		104	80-120			
<b>LCS (BKI0536-BS1)</b>										
					Prepared: 23-Sep-2022		Analyzed: 23-Sep-2022 12:26			
Chloromethane	9.07	0.50	ug/L	10.0		90.7	60-138			
Vinyl Chloride	9.03	0.20	ug/L	10.0		90.3	66-133			
Bromomethane	9.02	1.00	ug/L	10.0		90.2	72-131			
Chloroethane	8.41	0.20	ug/L	10.0		84.1	60-155			
Trichlorofluoromethane	8.74	0.20	ug/L	10.0		87.4	62-141			
Acrolein	43.0	5.00	ug/L	50.0		86.1	52-190			
1,1,2-Trichloro-1,2,2-Trifluoroethane	9.17	0.20	ug/L	10.0		91.7	76-129			
Acetone	43.1	5.00	ug/L	50.0		86.1	58-142			
1,1-Dichloroethene	8.68	0.20	ug/L	10.0		86.8	69-135			
Iodomethane	9.18	1.00	ug/L	10.0		91.8	56-147			
Methylene Chloride	8.37	1.00	ug/L	10.0		83.7	65-135			
Acrylonitrile	9.36	1.00	ug/L	10.0		93.6	64-134			
Carbon Disulfide	8.48	0.20	ug/L	10.0		84.8	78-125			
trans-1,2-Dichloroethene	8.44	0.20	ug/L	10.0		84.4	78-128			
Vinyl Acetate	8.72	0.20	ug/L	10.0		87.2	55-138			
1,1-Dichloroethane	8.75	0.20	ug/L	10.0		87.5	76-124			
2-Butanone	47.7	5.00	ug/L	50.0		95.3	61-140			
2,2-Dichloropropane	9.34	0.20	ug/L	10.0		93.4	66-147			
cis-1,2-Dichloroethene	9.13	0.20	ug/L	10.0		91.3	80-121			
Chloroform	8.74	0.20	ug/L	10.0		87.4	80-122			
Bromochloromethane	8.98	0.20	ug/L	10.0		89.8	80-121			
1,1,1-Trichloroethane	9.05	0.20	ug/L	10.0		90.5	79-123			
1,1-Dichloropropene	10.3	0.20	ug/L	10.0		103	80-127			
Carbon tetrachloride	9.35	0.20	ug/L	10.0		93.5	53-137			
1,2-Dichloroethane	9.00	0.20	ug/L	10.0		90.0	75-123			



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: [none]  
Project Manager: Eric Caddy

Reported:  
26-Oct-2022 12:20

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKI0536 - EPA 8260D

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BKI0536-BS1)</b>				Prepared: 23-Sep-2022 Analyzed: 23-Sep-2022 12:26						
Benzene	9.63	0.20	ug/L	10.0		96.3	80-120			
Trichloroethene	8.99	0.20	ug/L	10.0		89.9	80-120			
1,2-Dichloropropane	9.06	0.20	ug/L	10.0		90.6	80-120			
Bromodichloromethane	9.26	0.20	ug/L	10.0		92.6	80-121			
Dibromomethane	9.24	0.20	ug/L	10.0		92.4	80-120			
2-Chloroethyl vinyl ether	7.92	1.00	ug/L	10.0		79.2	64-120			Q
4-Methyl-2-Pentanone	50.0	5.00	ug/L	50.0		100	67-133			
cis-1,3-Dichloropropene	10.1	0.20	ug/L	10.0		101	80-124			
Toluene	9.49	0.20	ug/L	10.0		94.9	80-120			
trans-1,3-Dichloropropene	9.97	0.20	ug/L	10.0		99.7	71-127			
2-Hexanone	46.0	5.00	ug/L	50.0		92.0	69-133			
1,1,2-Trichloroethane	9.08	0.20	ug/L	10.0		90.8	80-121			
1,3-Dichloropropane	9.57	0.20	ug/L	10.0		95.7	80-120			
Tetrachloroethene	9.41	0.20	ug/L	10.0		94.1	80-120			
Dibromochloromethane	9.70	0.20	ug/L	10.0		97.0	65-135			
1,2-Dibromoethane	9.83	0.20	ug/L	10.0		98.3	80-121			
Chlorobenzene	9.24	0.20	ug/L	10.0		92.4	80-120			
Ethylbenzene	9.92	0.20	ug/L	10.0		99.2	80-120			
1,1,1,2-Tetrachloroethane	9.33	0.20	ug/L	10.0		93.3	80-120			
m,p-Xylene	21.1	0.40	ug/L	20.0		105	80-121			
o-Xylene	10.2	0.20	ug/L	10.0		102	80-121			
Xylenes, total	31.3	0.60	ug/L	30.0		104	76-127			
Styrene	9.64	0.20	ug/L	10.0		96.4	80-124			
Bromoform	9.80	0.20	ug/L	10.0		98.0	51-134			
1,1,1,2-Tetrachloroethane	9.14	0.20	ug/L	10.0		91.4	77-123			
1,2,3-Trichloropropane	9.59	0.50	ug/L	10.0		95.9	76-125			
trans-1,4-Dichloro 2-Butene	8.67	1.00	ug/L	10.0		86.7	55-129			
n-Propylbenzene	11.1	0.20	ug/L	10.0		111	78-130			
Bromobenzene	9.84	0.20	ug/L	10.0		98.4	80-120			
Isopropyl Benzene	10.7	0.20	ug/L	10.0		107	80-128			
2-Chlorotoluene	10.4	0.20	ug/L	10.0		104	78-122			
4-Chlorotoluene	10.2	0.20	ug/L	10.0		102	80-121			
t-Butylbenzene	10.2	0.20	ug/L	10.0		102	78-125			
1,3,5-Trimethylbenzene	11.4	0.20	ug/L	10.0		114	80-129			
1,2,4-Trimethylbenzene	10.5	0.20	ug/L	10.0		105	80-127			



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: [none]  
Project Manager: Eric Caddy

Reported:  
26-Oct-2022 12:20

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKI0536 - EPA 8260D

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BKI0536-BS1)</b>										
					Prepared: 23-Sep-2022 Analyzed: 23-Sep-2022 12:26					
s-Butylbenzene	11.4	0.20	ug/L	10.0		114	78-129			
4-Isopropyl Toluene	10.4	0.20	ug/L	10.0		104	79-130			
1,3-Dichlorobenzene	9.80	0.20	ug/L	10.0		98.0	80-120			
1,4-Dichlorobenzene	9.21	0.20	ug/L	10.0		92.1	80-120			
n-Butylbenzene	11.1	0.20	ug/L	10.0		111	74-129			
1,2-Dichlorobenzene	9.50	0.20	ug/L	10.0		95.0	80-120			
1,2-Dibromo-3-chloropropane	9.36	0.50	ug/L	10.0		93.6	62-123			
1,2,4-Trichlorobenzene	10.5	0.50	ug/L	10.0		105	64-124			
Hexachloro-1,3-Butadiene	10.1	2.00	ug/L	10.0		101	58-123			
Naphthalene	10.4	0.50	ug/L	10.0		104	50-134			
1,2,3-Trichlorobenzene	10.2	0.50	ug/L	10.0		102	49-133			
Dichlorodifluoromethane	10.2	0.20	ug/L	10.0		102	48-147			
Methyl tert-butyl Ether	9.07	0.50	ug/L	10.0		90.7	71-132			
2-Pentanone	44.0	5.00	ug/L	50.0		88.0	69-134			
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Surrogate: 1,2-Dichloroethane-d4	4.63		ug/L	5.00		92.6	80-129			
Surrogate: Toluene-d8	5.06		ug/L	5.00		101	80-120			
Surrogate: 4-Bromofluorobenzene	5.27		ug/L	5.00		105	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	5.07		ug/L	5.00		101	80-120			
<hr/>										
<b>LCS Dup (BKI0536-BSD1)</b>										
					Prepared: 23-Sep-2022 Analyzed: 23-Sep-2022 13:08					
Chloromethane	9.52	0.50	ug/L	10.0		95.2	60-138	4.90	30	
Vinyl Chloride	9.45	0.20	ug/L	10.0		94.5	66-133	4.60	30	
Bromomethane	9.44	1.00	ug/L	10.0		94.4	72-131	4.54	30	
Chloroethane	8.87	0.20	ug/L	10.0		88.7	60-155	5.32	30	
Trichlorofluoromethane	9.60	0.20	ug/L	10.0		96.0	62-141	9.34	30	
Acrolein	46.1	5.00	ug/L	50.0		92.1	52-190	6.79	30	
1,1,2-Trichloro-1,2,2-Trifluoroethane	9.32	0.20	ug/L	10.0		93.2	76-129	1.64	30	
Acetone	45.9	5.00	ug/L	50.0		91.8	58-142	6.40	30	
1,1-Dichloroethene	9.18	0.20	ug/L	10.0		91.8	69-135	5.52	30	
Iodomethane	9.70	1.00	ug/L	10.0		97.0	56-147	5.53	30	
Methylene Chloride	8.96	1.00	ug/L	10.0		89.6	65-135	6.83	30	
Acrylonitrile	9.15	1.00	ug/L	10.0		91.5	64-134	2.35	30	
Carbon Disulfide	8.95	0.20	ug/L	10.0		89.5	78-125	5.45	30	
trans-1,2-Dichloroethene	9.18	0.20	ug/L	10.0		91.8	78-128	8.40	30	
Vinyl Acetate	9.58	0.20	ug/L	10.0		95.8	55-138	9.36	30	



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: [none]  
Project Manager: Eric Caddy

**Reported:**  
26-Oct-2022 12:20

**Analysis by: Analytical Resources, LLC**

**Volatile Organic Compounds - Quality Control**

**Batch BKI0536 - EPA 8260D**

Instrument: NT2 Analyst: PKC

QC Sample/Alyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BKI0536-BSD1)</b>		Prepared: 23-Sep-2022 Analyzed: 23-Sep-2022 13:08								
1,1-Dichloroethane	9.36	0.20	ug/L	10.0		93.6	76-124	6.74	30	
2-Butanone	51.8	5.00	ug/L	50.0		104	61-140	8.22	30	
2,2-Dichloropropane	9.68	0.20	ug/L	10.0		96.8	66-147	3.54	30	
cis-1,2-Dichloroethene	9.90	0.20	ug/L	10.0		99.0	80-121	8.05	30	
Chloroform	9.45	0.20	ug/L	10.0		94.5	80-122	7.89	30	
Bromochloromethane	9.67	0.20	ug/L	10.0		96.7	80-121	7.36	30	
1,1,1-Trichloroethane	9.72	0.20	ug/L	10.0		97.2	79-123	7.14	30	
1,1-Dichloropropene	11.1	0.20	ug/L	10.0		111	80-127	7.20	30	
Carbon tetrachloride	10.1	0.20	ug/L	10.0		101	53-137	7.79	30	
1,2-Dichloroethane	10.0	0.20	ug/L	10.0		100	75-123	10.60	30	
Benzene	10.4	0.20	ug/L	10.0		104	80-120	8.10	30	
Trichloroethene	9.73	0.20	ug/L	10.0		97.3	80-120	7.86	30	
1,2-Dichloropropane	10.0	0.20	ug/L	10.0		100	80-120	10.10	30	
Bromodichloromethane	10.0	0.20	ug/L	10.0		100	80-121	8.03	30	
Dibromomethane	10.1	0.20	ug/L	10.0		101	80-120	9.23	30	
2-Chloroethyl vinyl ether	8.93	1.00	ug/L	10.0		89.3	64-120	12.00	30	Q
4-Methyl-2-Pentanone	55.9	5.00	ug/L	50.0		112	67-133	11.10	30	
cis-1,3-Dichloropropene	11.2	0.20	ug/L	10.0		112	80-124	10.10	30	
Toluene	10.2	0.20	ug/L	10.0		102	80-120	7.35	30	
trans-1,3-Dichloropropene	10.9	0.20	ug/L	10.0		109	71-127	8.85	30	
2-Hexanone	51.0	5.00	ug/L	50.0		102	69-133	10.30	30	
1,1,2-Trichloroethane	10.1	0.20	ug/L	10.0		101	80-121	10.80	30	
1,3-Dichloropropane	10.5	0.20	ug/L	10.0		105	80-120	8.99	30	
Tetrachloroethene	10.2	0.20	ug/L	10.0		102	80-120	7.79	30	
Dibromochloromethane	10.5	0.20	ug/L	10.0		105	65-135	7.71	30	
1,2-Dibromoethane	10.9	0.20	ug/L	10.0		109	80-121	10.60	30	
Chlorobenzene	9.90	0.20	ug/L	10.0		99.0	80-120	6.86	30	
Ethylbenzene	10.7	0.20	ug/L	10.0		107	80-120	7.97	30	
1,1,1,2-Tetrachloroethane	10.1	0.20	ug/L	10.0		101	80-120	8.01	30	
m,p-Xylene	22.8	0.40	ug/L	20.0		114	80-121	7.91	30	
o-Xylene	11.0	0.20	ug/L	10.0		110	80-121	7.26	30	
Xylenes, total	33.8	0.60	ug/L	30.0		113	76-127	7.70	30	
Styrene	10.3	0.20	ug/L	10.0		103	80-124	6.92	30	
Bromoform	10.6	0.20	ug/L	10.0		106	51-134	7.42	30	
1,1,2,2-Tetrachloroethane	9.93	0.20	ug/L	10.0		99.3	77-123	8.28	30	



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: [none]  
Project Manager: Eric Caddy

Reported:  
26-Oct-2022 12:20

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKI0536 - EPA 8260D

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BKI0536-BSD1)</b>				Prepared: 23-Sep-2022 Analyzed: 23-Sep-2022 13:08						
1,2,3-Trichloropropane	10.1	0.50	ug/L	10.0		101	76-125	5.20	30	
trans-1,4-Dichloro 2-Butene	9.49	1.00	ug/L	10.0		94.9	55-129	9.04	30	
n-Propylbenzene	11.5	0.20	ug/L	10.0		115	78-130	3.89	30	
Bromobenzene	10.4	0.20	ug/L	10.0		104	80-120	5.54	30	
Isopropyl Benzene	11.3	0.20	ug/L	10.0		113	80-128	5.57	30	
2-Chlorotoluene	10.9	0.20	ug/L	10.0		109	78-122	4.33	30	
4-Chlorotoluene	10.7	0.20	ug/L	10.0		107	80-121	4.72	30	
t-Butylbenzene	10.6	0.20	ug/L	10.0		106	78-125	3.87	30	
1,3,5-Trimethylbenzene	11.9	0.20	ug/L	10.0		119	80-129	4.32	30	
1,2,4-Trimethylbenzene	11.0	0.20	ug/L	10.0		110	80-127	4.51	30	
s-Butylbenzene	11.9	0.20	ug/L	10.0		119	78-129	4.70	30	
4-Isopropyl Toluene	10.9	0.20	ug/L	10.0		109	79-130	5.02	30	
1,3-Dichlorobenzene	10.3	0.20	ug/L	10.0		103	80-120	5.39	30	
1,4-Dichlorobenzene	9.79	0.20	ug/L	10.0		97.9	80-120	6.10	30	
n-Butylbenzene	11.5	0.20	ug/L	10.0		115	74-129	3.38	30	
1,2-Dichlorobenzene	10.1	0.20	ug/L	10.0		101	80-120	6.09	30	
1,2-Dibromo-3-chloropropane	10.4	0.50	ug/L	10.0		104	62-123	10.30	30	
1,2,4-Trichlorobenzene	11.2	0.50	ug/L	10.0		112	64-124	6.05	30	
Hexachloro-1,3-Butadiene	10.6	2.00	ug/L	10.0		106	58-123	5.12	30	
Naphthalene	11.5	0.50	ug/L	10.0		115	50-134	9.74	30	
1,2,3-Trichlorobenzene	10.9	0.50	ug/L	10.0		109	49-133	6.66	30	
Dichlorodifluoromethane	10.8	0.20	ug/L	10.0		108	48-147	4.84	30	
Methyl tert-butyl Ether	9.95	0.50	ug/L	10.0		99.5	71-132	9.28	30	
2-Pentanone	48.8	5.00	ug/L	50.0		97.6	69-134	10.40	30	
Surrogate: 1,2-Dichloroethane-d4	4.48		ug/L	5.00		89.7	80-129			
Surrogate: Toluene-d8	5.07		ug/L	5.00		101	80-120			
Surrogate: 4-Bromofluorobenzene	5.20		ug/L	5.00		104	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	4.98		ug/L	5.00		99.6	80-120			



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
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Project: Olalla Landfill  
Project Number: [none]  
Project Manager: Eric Caddy

**Reported:**  
26-Oct-2022 12:20

**Analysis by: Analytical Resources, LLC**

**Volatile Organic Compounds - SIM - Quality Control**

**Batch BKI0510 - EPA 8260D-SIM**

Instrument: NT16 Analyst: KOTT

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BKI0510-BLK1)</b>				Prepared: 22-Sep-2022 Analyzed: 22-Sep-2022 12:03						
Vinyl chloride	ND	20.0	ng/L							U
<i>Surrogate: 1,2-Dichloroethane-d4</i>	5370		ng/L	5000	107		80-129			
<b>LCS (BKI0510-BS1)</b>				Prepared: 22-Sep-2022 Analyzed: 22-Sep-2022 11:20						
Vinyl chloride	1910	20.0	ng/L	2000		95.3	62-141			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	4970		ng/L	5000		99.5	80-129			
<b>LCS Dup (BKI0510-BSD1)</b>				Prepared: 22-Sep-2022 Analyzed: 22-Sep-2022 11:41						
Vinyl chloride	1750	20.0	ng/L	2000		87.4	62-141	8.60	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	5060		ng/L	5000		101	80-129			



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**Analysis by: Analytical Resources, LLC**

**Metals and Metallic Compounds - Quality Control**

**Batch BKJ0009 - EPA 6010D**

Instrument: ICP2 Analyst: SKD

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BKJ0009-BLK1)</b>										
					Prepared: 03-Oct-2022 Analyzed: 06-Oct-2022 19:01					
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
<b>LCS (BKJ0009-BS1)</b>										
					Prepared: 03-Oct-2022 Analyzed: 06-Oct-2022 19:04					
Calcium	10.1	0.0500	mg/L	10.0		101	80-120			
Potassium	10.5	0.500	mg/L	10.0		105	80-120			
Sodium	10.5	0.500	mg/L	10.0		105	80-120			
Sodium	ND	50.0	mg/L	10.0		126	80-120			U
<b>Duplicate (BKJ0009-DUP1)</b>										
		<b>Source: 22I0345-01</b>		Prepared: 03-Oct-2022 Analyzed: 06-Oct-2022 20:38						
Calcium	13.6	0.0500	mg/L		13.8			1.43	20	
Potassium	0.638	0.500	mg/L		0.681			6.57	20	
Sodium	5.40	0.500	mg/L		5.47			1.38	20	
<b>Matrix Spike (BKJ0009-MS1)</b>										
		<b>Source: 22I0345-01</b>		Prepared: 03-Oct-2022 Analyzed: 06-Oct-2022 20:40						
Calcium	24.3	0.0500	mg/L	10.0	13.8	106	75-125			
Potassium	11.4	0.500	mg/L	10.0	0.681	107	75-125			
Sodium	16.1	0.500	mg/L	10.0	5.47	107	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
<b>Matrix Spike Dup (BKJ0009-MSD1)</b>										
		<b>Source: 22I0345-01</b>		Prepared: 03-Oct-2022 Analyzed: 06-Oct-2022 20:43						
Calcium	23.9	0.0500	mg/L	10.0	13.8	101	75-125	1.76	20	
Potassium	11.4	0.500	mg/L	10.0	0.681	107	75-125	0.00		
Sodium	16.0	0.500	mg/L	10.0	5.47	105	75-125	1.09	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: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**Analysis by: Analytical Resources, LLC**

**Metals and Metallic Compounds (dissolved) - Quality Control**

**Batch BKI0654 - EPA 6010D**

Instrument: ICP2 Analyst: SKD

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BKI0654-BLK1)</b>		Prepared: 28-Sep-2022 Analyzed: 30-Sep-2022 16:02								
Barium, Dissolved	ND	0.0060	mg/L							U
Manganese, Dissolved	ND	0.0040	mg/L							U
<b>LCS (BKI0654-BS1)</b>		Prepared: 28-Sep-2022 Analyzed: 30-Sep-2022 16:05								
Barium, Dissolved	1.95	0.0061	mg/L	2.00		97.6	80-120			
Manganese, Dissolved	0.507	0.0040	mg/L	0.500		101	80-120			
<b>Duplicate (BKI0654-DUP1)</b>		<b>Source: 2210345-07</b>		Prepared: 28-Sep-2022 Analyzed: 10-Oct-2022 17:28						
Barium, Dissolved	ND	0.0060	mg/L		0.0061			50.90	20	L, U
Manganese, Dissolved	ND	0.0040	mg/L		ND					U
<b>Matrix Spike (BKI0654-MS1)</b>		<b>Source: 2210345-07</b>		Prepared: 28-Sep-2022 Analyzed: 10-Oct-2022 17:31						
Barium, Dissolved	2.12	0.0061	mg/L	2.00	0.0061	106	75-125			
Manganese, Dissolved	0.518	0.0040	mg/L	0.500	ND	104	75-125			

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

<b>Matrix Spike Dup (BKI0654-MSD1)</b>		<b>Source: 2210345-07</b>		Prepared: 28-Sep-2022 Analyzed: 10-Oct-2022 17:35						
Barium, Dissolved	2.10	0.0061	mg/L	2.00	0.0061	105	75-125	0.78	20	
Manganese, Dissolved	0.512	0.0040	mg/L	0.500	ND	102	75-125	1.18	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: Eric Caddy

Reported:  
26-Oct-2022 12:20

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BKJ0240 - EPA 200.8 UCT-KED

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BKJ0240-BLK1)</b>			Prepared: 10-Oct-2022 Analyzed: 11-Oct-2022 19:10								
Arsenic, Dissolved	75a	ND	0.200	ug/L							U
Zinc, Dissolved	66	ND	6.00	ug/L							U
<b>Blank (BKJ0240-BLK2)</b>			Prepared: 10-Oct-2022 Analyzed: 13-Oct-2022 19:13								
Iron, Dissolved	54	ND	36.0	ug/L							U
<b>LCS (BKJ0240-BS1)</b>			Prepared: 10-Oct-2022 Analyzed: 11-Oct-2022 19:15								
Arsenic, Dissolved	75a	24.9	0.200	ug/L	25.0		99.5	80-120			
Zinc, Dissolved	66	79.7	6.00	ug/L	80.0		99.6	80-120			
<b>LCS (BKJ0240-BS2)</b>			Prepared: 10-Oct-2022 Analyzed: 13-Oct-2022 19:18								
Iron, Dissolved	54	4900	36.0	ug/L	5000		97.9	80-120			
<b>Duplicate (BKJ0240-DUP1)</b>			Source: 2210345-07			Prepared: 10-Oct-2022 Analyzed: 12-Oct-2022 01:12					
Arsenic, Dissolved	75a	ND	0.200	ug/L		0.104			0.97	20	U
Zinc, Dissolved	66	ND	6.00	ug/L		ND					U
<b>Duplicate (BKJ0240-DUP3)</b>			Source: 2210345-07			Prepared: 10-Oct-2022 Analyzed: 13-Oct-2022 20:13					
Iron, Dissolved	54	ND	36.0	ug/L		ND					U
<b>Matrix Spike (BKJ0240-MS1)</b>			Source: 2210345-07			Prepared: 10-Oct-2022 Analyzed: 12-Oct-2022 01:16					
Arsenic, Dissolved	75a	25.5	0.200	ug/L	25.0	0.104	102	75-125			
Zinc, Dissolved	66	75.0	6.00	ug/L	80.0	ND	93.8	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
<b>Matrix Spike (BKJ0240-MS3)</b>			Source: 2210345-07			Prepared: 10-Oct-2022 Analyzed: 13-Oct-2022 20:18					
Iron, Dissolved	54	4700	36.0	ug/L	5000	ND	94.0	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
<b>Matrix Spike Dup (BKJ0240-MSD1)</b>			Source: 2210345-07			Prepared: 10-Oct-2022 Analyzed: 12-Oct-2022 01:22					
Arsenic, Dissolved	75a	24.5	0.200	ug/L	25.0	0.104	97.5	75-125	4.13	20	
Zinc, Dissolved	66	75.7	6.00	ug/L	80.0	ND	94.6	75-125	0.86	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
<b>Matrix Spike Dup (BKJ0240-MSD3)</b>			Source: 2210345-07			Prepared: 10-Oct-2022 Analyzed: 13-Oct-2022 20:22					
Iron, Dissolved	54	4750	36.0	ug/L	5000	ND	95.1	75-125	1.08	20	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**Analysis by: Analytical Resources, LLC**

**Metals and Metallic Compounds (dissolved) - Quality Control**

**Batch BKJ0240 - EPA 200.8**

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	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.



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**Analysis by: Analytical Resources, LLC**

**Metals and Metallic Compounds (dissolved) - Quality Control**

**Batch BKJ0461 - EPA 200.8 UCT-KED**

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BKJ0461-BLK1)</b>						Prepared: 18-Oct-2022 Analyzed: 20-Oct-2022 06:35					
Arsenic, Dissolved	75a	ND	0.0400	ug/L							U
<b>LCS (BKJ0461-BS1)</b>						Prepared: 18-Oct-2022 Analyzed: 20-Oct-2022 06:40					
Arsenic, Dissolved	75a	4.85	0.0400	ug/L	5.00		96.9	80-120			
<b>Duplicate (BKJ0461-DUP1)</b>						Source: 2210345-09 Prepared: 18-Oct-2022 Analyzed: 20-Oct-2022 11:33					
Arsenic, Dissolved	75a	1.87	0.0400	ug/L		1.87			0.19	20	
<b>Matrix Spike (BKJ0461-MS1)</b>						Source: 2210345-09 Prepared: 18-Oct-2022 Analyzed: 20-Oct-2022 11:39					
Arsenic, Dissolved	75a	6.35	0.0400	ug/L	5.00	1.87	89.5	75-125			

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

<b>Matrix Spike Dup (BKJ0461-MSD1)</b>						Source: 2210345-09 Prepared: 18-Oct-2022 Analyzed: 20-Oct-2022 11:44					
Arsenic, Dissolved	75a	6.32	0.0400	ug/L	5.00	1.87	89.0	75-125	0.40	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: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**Analysis by: Analytical Resources, LLC**

**Wet Chemistry - Quality Control**

**Batch BKI0485 - SM 4500-H+ B-00**

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
<b>LCS (BKI0485-BS1)</b>						Prepared: 21-Sep-2022 Analyzed: 21-Sep-2022 17:40					
pH	6.97	0.01	0.01	pH Units	7.00		99.6	99.2-100.8			



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**Analysis by: Analytical Resources, LLC**

**Wet Chemistry - Quality Control**

**Batch BKI0502 - EPA 9060A**

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
<b>Blank (BKI0502-BLK1)</b>						Prepared: 22-Sep-2022 Analyzed: 23-Sep-2022 03:30					
Total Organic Carbon	ND	0.50	0.50	mg/L							U
<b>LCS (BKI0502-BS1)</b>						Prepared: 22-Sep-2022 Analyzed: 23-Sep-2022 03:56					
Total Organic Carbon	19.89	0.50	0.50	mg/L	20.00		99.5	90-110			
<b>Duplicate (BKI0502-DUP2)</b>						Source: 22I0345-01 Prepared: 22-Sep-2022 Analyzed: 23-Sep-2022 10:07					
Total Organic Carbon	0.90	0.50	0.50	mg/L		0.91			1.79	20	
<b>Matrix Spike (BKI0502-MS2)</b>						Source: 22I0345-01 Prepared: 22-Sep-2022 Analyzed: 23-Sep-2022 10:34					
Total Organic Carbon	20.61	0.50	0.50	mg/L	20.00	0.91	98.5	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
<b>Matrix Spike Dup (BKI0502-MSD2)</b>						Source: 22I0345-01 Prepared: 22-Sep-2022 Analyzed: 23-Sep-2022 10:54					
Total Organic Carbon	19.02	0.50	0.50	mg/L	20.00	0.91	90.5	75-125	8.02	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: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**Analysis by: Analytical Resources, LLC**

**Wet Chemistry - Quality Control**

**Batch BKI0513 - EPA 353.2**

Instrument: LCHAT2 Analyst: ENJ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BKI0513-BLK1)</b>						Prepared: 22-Sep-2022 Analyzed: 22-Sep-2022 16:14					
Nitrate + Nitrite as N	ND	0.010	0.010	mg/L							U
Nitrite-N	ND	0.010	0.010	mg/L							U
<b>LCS (BKI0513-BS1)</b>						Prepared: 22-Sep-2022 Analyzed: 22-Sep-2022 16:15					
Nitrate + Nitrite as N	0.507	0.010	0.010	mg/L	0.500		101	90-110			
<b>LCS (BKI0513-BS2)</b>						Prepared: 22-Sep-2022 Analyzed: 22-Sep-2022 16:16					
Nitrite-N	0.511	0.010	0.010	mg/L	0.500		102	90-110			
<b>Duplicate (BKI0513-DUP1)</b>						Source: 22I0345-01 Prepared: 22-Sep-2022 Analyzed: 22-Sep-2022 16:18					
Nitrate + Nitrite as N	0.228	0.010	0.010	mg/L		0.225			1.32	20	
Nitrite-N	ND	0.010	0.010	mg/L		ND					U
<b>Matrix Spike (BKI0513-MS1)</b>						Source: 22I0345-01 Prepared: 22-Sep-2022 Analyzed: 22-Sep-2022 16:20					
Nitrate + Nitrite as N	0.727	0.010	0.010	mg/L	0.500	0.225	100	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
<b>Matrix Spike (BKI0513-MS2)</b>						Source: 22I0345-01 Prepared: 22-Sep-2022 Analyzed: 22-Sep-2022 16:21					
Nitrite-N	0.526	0.010	0.010	mg/L	0.500	ND	105	75-125			
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: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**Analysis by: Analytical Resources, LLC**

**Wet Chemistry - Quality Control**

**Batch BKI0585 - SM 2320 B-97**

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
<b>Blank (BKI0585-BLK1)</b>						Prepared: 26-Sep-2022 Analyzed: 26-Sep-2022 10:52					
Alkalinity, Total	ND	1.00	1.00	mg/L CaCO3							U
<b>Reference (BKI0585-SRM1)</b>						Prepared: 26-Sep-2022 Analyzed: 26-Sep-2022 10:52					
Alkalinity, Total	94.0	1.00	1.00	mg/L CaCO3	93.6		100	85.04-114.96			



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**Analysis by: Analytical Resources, LLC**

**Wet Chemistry - Quality Control**

**Batch BKI0655 - EPA 325.2**

Instrument: LCHAT2 Analyst: ENJ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BKI0655-BLK1)</b>						Prepared: 28-Sep-2022 Analyzed: 28-Sep-2022 15:35					
Chloride	ND	1.00	1.00	mg/L							U
<b>LCS (BKI0655-BS1)</b>						Prepared: 28-Sep-2022 Analyzed: 28-Sep-2022 15:37					
Chloride	4.79	1.00	1.00	mg/L	5.00		95.8	90-110			
<b>Duplicate (BKI0655-DUP1)</b>						Source: 22I0345-01 Prepared: 28-Sep-2022 Analyzed: 28-Sep-2022 16:01					
Chloride	6.30	1.00	1.00	mg/L		6.25			0.80	20	
<b>Matrix Spike (BKI0655-MS3)</b>						Source: 22I0345-01 Prepared: 28-Sep-2022 Analyzed: 28-Sep-2022 16:29					
Chloride	16.8	2.00	2.00	mg/L	10.0	6.25	106	75-125			D

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

<b>Matrix Spike Dup (BKI0655-MSD3)</b>						Source: 22I0345-01 Prepared: 28-Sep-2022 Analyzed: 28-Sep-2022 16:30					
Chloride	16.3	2.00	2.00	mg/L	10.0	6.25	100	75-125	3.14	20	D

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: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**Analysis by: Analytical Resources, LLC**

**Wet Chemistry - Quality Control**

**Batch BKI0723 - SM 4500-NH3 H-97**

Instrument: LCHAT1 Analyst: ENJ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BKI0723-BLK1)</b>						Prepared: 30-Sep-2022 Analyzed: 03-Oct-2022 12:37					
Ammonia-N	ND	0.040	0.040	mg/L							U
<b>LCS (BKI0723-BS2)</b>						Prepared: 30-Sep-2022 Analyzed: 03-Oct-2022 13:26					
Ammonia-N	0.499	0.040	0.040	mg/L	0.500		99.8	90-110			
<b>Matrix Spike (BKI0723-MS2)</b>						Source: 2210345-01 Prepared: 30-Sep-2022 Analyzed: 03-Oct-2022 13:04					
Ammonia-N	0.282	0.040	0.040	mg/L	0.500	ND	56.4	75-125			*

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: Eric Caddy

**Reported:**  
26-Oct-2022 12:20

**Analysis by: Analytical Resources, LLC**

**Wet Chemistry - Quality Control**

**Batch BKJ0182 - EPA 410.4**

Instrument: UV1800-1 Analyst: KLD

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BKJ0182-BLK1)</b>						Prepared: 07-Oct-2022 Analyzed: 10-Oct-2022 17:05					
COD	ND	10.0	10.0	mg/L							U
<b>Blank (BKJ0182-BLK2)</b>						Prepared: 07-Oct-2022 Analyzed: 10-Oct-2022 17:39					
COD	ND	10.0	10.0	mg/L							U
<b>Blank (BKJ0182-BLK3)</b>						Prepared: 07-Oct-2022 Analyzed: 10-Oct-2022 17:48					
COD	ND	10.0	10.0	mg/L							U
<b>Blank (BKJ0182-BLK4)</b>						Prepared: 07-Oct-2022 Analyzed: 10-Oct-2022 17:49					
COD	ND	10.0	10.0	mg/L							U
<b>LCS (BKJ0182-BS1)</b>						Prepared: 07-Oct-2022 Analyzed: 10-Oct-2022 17:05					
COD	104	10.0	10.0	mg/L	100	104	100	90-110			
<b>LCS (BKJ0182-BS2)</b>						Prepared: 07-Oct-2022 Analyzed: 10-Oct-2022 17:40					
COD	105	10.0	10.0	mg/L	100	105	100	90-110			
<b>LCS (BKJ0182-BS3)</b>						Prepared: 07-Oct-2022 Analyzed: 10-Oct-2022 17:48					
COD	105	10.0	10.0	mg/L	100	105	100	90-110			
<b>LCS (BKJ0182-BS4)</b>						Prepared: 07-Oct-2022 Analyzed: 10-Oct-2022 17:50					
COD	105	10.0	10.0	mg/L	100	105	100	90-110			
<b>Duplicate (BKJ0182-DUP2)</b>						Source: 22I0345-02 Prepared: 07-Oct-2022 Analyzed: 10-Oct-2022 17:37					
COD	ND	10.0	10.0	mg/L		ND					U
<b>Matrix Spike (BKJ0182-MS2)</b>						Source: 22I0345-02 Prepared: 07-Oct-2022 Analyzed: 10-Oct-2022 17:38					
COD	108	20.0	20.0	mg/L	100	ND	108	90-110			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
<b>Matrix Spike Dup (BKJ0182-MSD2)</b>						Source: 22I0345-02 Prepared: 07-Oct-2022 Analyzed: 10-Oct-2022 17:38					
COD	108	20.0	20.0	mg/L	100	ND	108	90-110	0.16	10	
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: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**Analysis by: Analytical Resources, LLC**

**Wet Chemistry - Quality Control**

**Batch BKJ0305 - EPA 375.2**

Instrument: LACHAT2 Analyst: ENJ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BKJ0305-BLK1)</b>						Prepared: 12-Oct-2022 Analyzed: 12-Oct-2022 14:02					
Sulfate	ND	2.00	2.00	mg/L							U
<b>LCS (BKJ0305-BS1)</b>						Prepared: 12-Oct-2022 Analyzed: 12-Oct-2022 13:20					
Sulfate	15.2	2.00	2.00	mg/L	15.0		101	90-110			
<b>Duplicate (BKJ0305-DUP1)</b>						Source: 22I0345-01 Prepared: 12-Oct-2022 Analyzed: 12-Oct-2022 13:24					
Sulfate	3.87	2.00	2.00	mg/L		4.16			7.22	20	
<b>Matrix Spike (BKJ0305-MS1)</b>						Source: 22I0345-01 Prepared: 12-Oct-2022 Analyzed: 12-Oct-2022 13:25					
Sulfate	19.4	2.00	2.00	mg/L	15.0	4.16	102	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
<b>Matrix Spike Dup (BKJ0305-MSD1)</b>						Source: 22I0345-01 Prepared: 12-Oct-2022 Analyzed: 12-Oct-2022 13:26					
Sulfate	18.4	2.00	2.00	mg/L	15.0	4.16	94.9	75-125	5.29	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: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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**Analysis by: Analytical Resources, LLC**

**Microbiology - Quality Control**

**Batch BKI0483 - SM 9222B**

Instrument: N/A

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BKI0483-BLK1)</b>						Prepared: 21-Sep-2022 Analyzed: 22-Sep-2022 16:22					
Total 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: [none]  
Project Manager: Eric Caddy

**Reported:**  
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**Certified Analyses included in this Report**

Analyte	Certifications
<b>EPA 200.8 in Water</b>	
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
<b>EPA 200.8 UCT-KED in Water</b>	
Arsenic-75a	NELAP,WADOE,WA-DW,DoD-ELAP
Zinc-66	NELAP,WADOE,WA-DW,DoD-ELAP
Zinc-67	NELAP,WADOE,WA-DW,DoD-ELAP
<b>EPA 353.2 in Water</b>	
Nitrate + Nitrite as N	NELAP,DoD-ELAP,WADOE
Nitrite-N	WADOE,NELAP,DoD-ELAP
<b>EPA 375.2 in Water</b>	
Sulfate	WADOE,NELAP
<b>EPA 410.4 in Water</b>	
COD	DoD-ELAP,NELAP,WADOE
<b>EPA 6010D in Water</b>	
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
<b>EPA 8260D in Water</b>	
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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Project: Olalla Landfill  
Project Number: [none]  
Project Manager: Eric Caddy

Reported:  
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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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TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: [none] Project Manager: Eric Caddy	<b>Reported:</b> 26-Oct-2022 12:20
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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
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2023





TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: [none]  
Project Manager: Eric Caddy

**Reported:**  
26-Oct-2022 12:20

### 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  $\leq 5$  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

14 January 2023

Eric Caddy  
TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah, WA 98027

RE: Olalla Landfill (466410)

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)  
22L0402

Associated SDG ID(s)  
N/A

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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

ARI Assigned Number: <b>2260702</b>	Turn-around Requested: <b>Standard</b>	Page: <b>1</b> of <b>1</b>
ARI Client Company: <b>TRC</b>	Phone: <b>425-395-0010</b>	Date: <b>12/15/2022</b>
Client Contact: <b>Eric Caddy</b>		Ice Present? <b>Y</b>
Client Project Name: <b>Olalla</b>		No. of Coolers: <b>2</b>
Client Project #: <b>466410</b>	Samplers: <b>Wesley Weisberg</b>	Cooler Temps: <b>7.3, 6.5</b>



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

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested						Notes/Comments
					VOC & VC 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	
MW-1	12/15/22	0925	Water	11	X	X	X	X	X	X	
MW-5A		1035		3	X	X					Dissolved metals & VC by SIMs only
MW-3		1110		11	X	X	X	X	X	X	
MW-10		1150		11	X	X	X	X	X	X	
MW-13		1228		11	X	X	X	X	X	X	
MW-6		1340		11	X	X	X	X	X	X	
MW-8		1420		11	X	X	X	X	X	X	
MW-7		1500		3	X	X					Dissolved metals & VC by SIMs only
Comments/Special Instructions					Relinquished by: (Signature) <i>[Signature]</i> Printed Name: <b>Wesley Weisberg</b> Company: <b>TRC</b> Date & Time: <b>12/15/2022 4:25pm</b>	Received by: (Signature) <i>[Signature]</i> Printed Name: <b>Phillip Bates</b> Company: <b>AR</b> Date & Time: <b>12/15/22 16:25</b>	Relinquished by: (Signature)	Received by: (Signature)			

**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.



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Eric Caddy

**Reported:**  
14-Jan-2023 13:58

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	22L0402-01	Water	15-Dec-2022 09:25	15-Dec-2022 16:25
MW-1	22L0402-02	Water	15-Dec-2022 09:25	15-Dec-2022 16:25
MW-5A	22L0402-03	Water	15-Dec-2022 10:35	15-Dec-2022 16:25
MW-3	22L0402-04	Water	15-Dec-2022 11:10	15-Dec-2022 16:25
MW-3	22L0402-05	Water	15-Dec-2022 11:10	15-Dec-2022 16:25
MW-10	22L0402-06	Water	15-Dec-2022 11:50	15-Dec-2022 16:25
MW-10	22L0402-07	Water	15-Dec-2022 11:50	15-Dec-2022 16:25
MW-13	22L0402-08	Water	15-Dec-2022 12:20	15-Dec-2022 16:25
MW-13	22L0402-09	Water	15-Dec-2022 12:20	15-Dec-2022 16:25
MW-6	22L0402-10	Water	15-Dec-2022 13:40	15-Dec-2022 16:25
MW-6	22L0402-11	Water	15-Dec-2022 13:40	15-Dec-2022 16:25
MW-8	22L0402-12	Water	15-Dec-2022 14:20	15-Dec-2022 16:25
MW-8	22L0402-13	Water	15-Dec-2022 14:20	15-Dec-2022 16:25
MW-7	22L0402-14	Water	15-Dec-2022 15:00	15-Dec-2022 16:25
Trip Blanks	22L0402-15	Water	15-Dec-2022 00:00	15-Dec-2022 16:25



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Eric Caddy

**Reported:**  
14-Jan-2023 13:58

## **Work Order Case Narrative**

### **Volatiles - EPA Method SW8260D**

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

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

### **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.

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



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Eric Caddy

**Reported:**  
14-Jan-2023 13:58

control limits.

**Wet Chemistry**

The sample(s) were prepared and analyzed within the recommended holding times with the exception of pH and select total coliform samples which was sent to the lab outside of the holding time. Samples have been flagged with a "H" qualifer.

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

22L0402

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: 466410

Preservation Confirmation

Container ID	Container Type	pH
22L0402-01 A	HDPE NM, 1000 mL	
22L0402-01 B	HDPE NM, 500 mL	
22L0402-01 C	Glass NM, Amber, 250 mL, 9N H2SO4	<2 pass (P)
22L0402-01 D	Corning Plastic, 125 mL, Na2S2O3	
22L0402-01 E	VOA Vial, Clear, 40 mL, HCL	
22L0402-01 F	VOA Vial, Clear, 40 mL, HCL	
22L0402-01 G	VOA Vial, Clear, 40 mL, HCL	
22L0402-01 H	VOA Vial, Clear, 40 mL, HCL	
22L0402-01 I	VOA Vial, Clear, 40 mL, HCL	
22L0402-01 J	HDPE NM, 500 mL, 1:1 HNO3	<2 P
22L0402-02 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2 P
22L0402-03 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2 P
22L0402-03 B	VOA Vial, Clear, 40 mL, HCL	
22L0402-03 C	VOA Vial, Clear, 40 mL, HCL	
22L0402-04 A	HDPE NM, 1000 mL	
22L0402-04 B	HDPE NM, 500 mL	
22L0402-04 C	Glass NM, Amber, 250 mL, 9N H2SO4	<2 P
22L0402-04 D	Corning Plastic, 125 mL, Na2S2O3	
22L0402-04 E	VOA Vial, Clear, 40 mL, HCL	
22L0402-04 F	VOA Vial, Clear, 40 mL, HCL	
22L0402-04 G	VOA Vial, Clear, 40 mL, HCL	
22L0402-04 H	VOA Vial, Clear, 40 mL, HCL	
22L0402-04 I	VOA Vial, Clear, 40 mL, HCL	
22L0402-04 J	HDPE NM, 500 mL, 1:1 HNO3	<2 P
22L0402-05 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2 P
22L0402-06 A	HDPE NM, 1000 mL	
22L0402-06 B	HDPE NM, 500 mL	
22L0402-06 C	Glass NM, Amber, 250 mL, 9N H2SO4	<2 P
22L0402-06 D	Corning Plastic, 125 mL, Na2S2O3	
22L0402-06 E	VOA Vial, Clear, 40 mL, HCL	
22L0402-06 F	VOA Vial, Clear, 40 mL, HCL	
22L0402-06 G	VOA Vial, Clear, 40 mL, HCL	
22L0402-06 H	VOA Vial, Clear, 40 mL, HCL	
22L0402-06 I	VOA Vial, Clear, 40 mL, HCL	



WORK ORDER

22L0402

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

<b>Client: TRC Companies, Inc</b>		<b>Project Manager: Kelly Bottem</b>	
<b>Project: Olalla Landfill</b>		<b>Project Number: 466410</b>	
22L0402-06 J	HDPE NM, 500 mL, 1:1 HNO3	CZ	P
22L0402-07 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	CZ	P
22L0402-08 A	HDPE NM, 1000 mL		
22L0402-08 B	HDPE NM, 500 mL		
22L0402-08 C	Glass NM, Amber, 250 mL, 9N H2SO4	CZ	P
22L0402-08 D	Corning Plastic, 125 mL, Na2S2O3		
22L0402-08 E	VOA Vial, Clear, 40 mL, HCL		
22L0402-08 F	VOA Vial, Clear, 40 mL, HCL		
22L0402-08 G	VOA Vial, Clear, 40 mL, HCL		
22L0402-08 H	VOA Vial, Clear, 40 mL, HCL		
22L0402-08 I	VOA Vial, Clear, 40 mL, HCL		
22L0402-08 J	HDPE NM, 500 mL, 1:1 HNO3	CZ	P
22L0402-09 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	CZ	P
22L0402-10 A	HDPE NM, 1000 mL		
22L0402-10 B	HDPE NM, 500 mL		
22L0402-10 C	Glass NM, Amber, 250 mL, 9N H2SO4	CZ	P
22L0402-10 D	Corning Plastic, 125 mL, Na2S2O3		
22L0402-10 E	VOA Vial, Clear, 40 mL, HCL		
22L0402-10 F	VOA Vial, Clear, 40 mL, HCL		
22L0402-10 G	VOA Vial, Clear, 40 mL, HCL		
22L0402-10 H	VOA Vial, Clear, 40 mL, HCL		
22L0402-10 I	VOA Vial, Clear, 40 mL, HCL		
22L0402-10 J	HDPE NM, 500 mL, 1:1 HNO3	CZ	P
22L0402-11 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	CZ	P
22L0402-12 A	HDPE NM, 1000 mL		
22L0402-12 B	HDPE NM, 500 mL		
22L0402-12 C	Glass NM, Amber, 250 mL, 9N H2SO4	CZ	P
22L0402-12 D	Corning Plastic, 125 mL, Na2S2O3		
22L0402-12 E	VOA Vial, Clear, 40 mL, HCL		
22L0402-12 F	VOA Vial, Clear, 40 mL, HCL		
22L0402-12 G	VOA Vial, Clear, 40 mL, HCL		
22L0402-12 H	VOA Vial, Clear, 40 mL, HCL		
22L0402-12 I	VOA Vial, Clear, 40 mL, HCL		
22L0402-12 J	HDPE NM, 500 mL, 1:1 HNO3	CZ	P
22L0402-13 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	CZ	P
22L0402-14 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	CZ	P





**WORK ORDER**

22L0402

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: 466410**

22L0402-14 B	VOA Vial, Clear, 40 mL, HCL
22L0402-14 C	VOA Vial, Clear, 40 mL, HCL
22L0402-15 A	VOA Vial, Clear, 40 mL, HCL
22L0402-15 B	VOA Vial, Clear, 40 mL, HCL
22L0402-15 C	VOA Vial, Clear, 40 mL, HCL

PIB

12/15/22

Preservation Confirmed By

Date



# Cooler Receipt Form

ARI Client: TAC

Project Name: PIB Otta Olalla

COC No(s): \_\_\_\_\_ (NA)

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: \_\_\_\_\_

Assigned ARI Job No: 22L0402

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 (YES) NO

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

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

Time 16:25 7.3 6.5

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

Temp Gun ID#: 7009708

Cooler Accepted by: PIB Date: 12/15/22 Time: 16:25

**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 (YES) NO

Were all bottle labels complete and legible? ..... YES (YES) NO

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

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

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

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

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

Was sufficient amount of sample sent in each bottle? ..... PIB YES (YES) NO

Date VOC Trip Blank was made at ARI ..... NA 10/14 & 12/06

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

Samples Logged by: PIB Date: 12/15/22 Time: 16:52 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:**

Client does not request fecal coliform on COC, however coming bottles with samples inside were provided and the client called to let sample receiving know they were dropping off fecal coliforms,

By: PIB Date: 12/15/22



# Cooler Temperature Compliance Form

ARI Work Order: 22L0402

Cooler#: \_\_\_\_\_ Temperature(°C): 7.3

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

Cooler#: \_\_\_\_\_ Temperature(°C): 6.5

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

Cooler#: \_\_\_\_\_ Temperature(°C): \_\_\_\_\_

Sample ID	Bottle Count	Bottle Type

Cooler#: \_\_\_\_\_ Temperature(°C): \_\_\_\_\_

Sample ID	Bottle Count	Bottle Type

Completed by: PIB Date: 12/15/22 Time: 16:25



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Eric Caddy

**Reported:**  
14-Jan-2023 13:58

**MW-1**  
**22L0402-01 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 12/15/2022 09:25

Instrument: NT2 Analyst: PKC

Analyzed: 12/19/2022 13:02

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKL0465  
Prepared: 12/19/2022

Sample Size: 10 mL  
Final Volume: 10 mL

Extract ID: 22L0402-01 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	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: 466410  
Project Manager: Eric Caddy

Reported:  
14-Jan-2023 13:58

**MW-1**  
**22L0402-01 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 12/15/2022 09:25

Instrument: NT2 Analyst: PKC

Analyzed: 12/19/2022 13:02

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: 466410 Project Manager: Eric Caddy	<b>Reported:</b> 14-Jan-2023 13:58
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**MW-1**  
**22L0402-01 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 12/15/2022 09:25

Instrument: NT2 Analyst: PKC

Analyzed: 12/19/2022 13:02

**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>122</i>	<i>%</i>	
<i>Surrogate: Toluene-d8</i>			<i>80-120 %</i>	<i>95.4</i>	<i>%</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>			<i>80-120 %</i>	<i>88.5</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: 466410 Project Manager: Eric Caddy	<b>Reported:</b> 14-Jan-2023 13:58
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**MW-1**  
**22L0402-01 (Water)**

**Volatile Organic Compounds - SIM**

Method: EPA 8260D-SIM Sampled: 12/15/2022 09:25  
Instrument: NT16 Analyst: KOTT Analyzed: 12/16/2022 18:10

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22L0402-01 E  
Preparation Batch: BKL0443 Sample Size: 10 mL  
Prepared: 12/16/2022 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>98.6</i>	<i>%</i>	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Eric Caddy	<b>Reported:</b> 14-Jan-2023 13:58
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**MW-1**  
**22L0402-01 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D Sampled: 12/15/2022 09:25  
Instrument: ICP3 Analyst: SKD Analyzed: 01/04/2023 21:23

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 22L0402-01 J 01  
Preparation Batch: BLA0014 Sample Size: 25 mL  
Prepared: 01/03/2023 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	12.0	mg/L	
Potassium	7440-09-7	1	0.500	0.675	mg/L	
Sodium	7440-23-5	1	0.500	4.80	mg/L	





TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Eric Caddy	<b>Reported:</b> 14-Jan-2023 13:58
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**MW-1**  
**22L0402-01 (Water)**

**Wet Chemistry**

Method: EPA 325.2 Sampled: 12/15/2022 09:25  
Instrument: LACHAT2 Analyst: EJK Analyzed: 01/03/2023 16:52

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-01 A  
Preparation Batch: BLA0017 Sample Size: 10 mL  
Prepared: 01/03/2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	5.03	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Eric Caddy	<b>Reported:</b> 14-Jan-2023 13:58
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**MW-1**  
**22L0402-01 (Water)**

**Wet Chemistry**

Method: EPA 353.2 Sampled: 12/15/2022 09:25  
Instrument: [CALC] Analyst: RMS Analyzed: 12/15/2022 20:15

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: [CALC] Extract ID: 22L0402-01  
Preparation Batch: [CALC]  
Prepared: 12/15/2022 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
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Nitrate-N	14797-55-8	1	0.0200	0.778	NA	
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Instrument: LACHAT2 Analyst: RMS Analyzed: 12/15/2022 20:15

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-01 A  
Preparation Batch: BKL0417  
Prepared: 12/15/2022 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	0.778	mg/L	
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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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TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Eric Caddy	<b>Reported:</b> 14-Jan-2023 13:58
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**MW-1**  
**22L0402-01 (Water)**

**Wet Chemistry**

Method: EPA 375.2 Sampled: 12/15/2022 09:25  
Instrument: LACHAT2 Analyst: RMS Analyzed: 12/27/2022 16:17

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-01 B  
Preparation Batch: BKL0621 Sample Size: 10 mL  
Prepared: 12/27/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	3.67	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Eric Caddy	<b>Reported:</b> 14-Jan-2023 13:58
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**MW-1**  
**22L0402-01 (Water)**

**Wet Chemistry**

Method: EPA 410.4 Sampled: 12/15/2022 09:25  
Instrument: UV1800-1 Analyst: KLD Analyzed: 12/28/2022 16:40

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-01 C  
Preparation Batch: BKL0634 Sample Size: 2 mL  
Prepared: 12/27/2022 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: 466410 Project Manager: Eric Caddy	<b>Reported:</b> 14-Jan-2023 13:58
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**MW-1**  
**22L0402-01 (Water)**

**Wet Chemistry**

Method: EPA 9060A Sampled: 12/15/2022 09:25  
Instrument: TOC-LCSH Analyst: RMS Analyzed: 12/30/2022 20:20

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-01 C  
Preparation Batch: BKL0721 Sample Size: 20 mL  
Prepared: 12/30/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	0.72	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Eric Caddy	<b>Reported:</b> 14-Jan-2023 13:58
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**MW-1**  
**22L0402-01 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97 Sampled: 12/15/2022 09:25  
Instrument: Accumet AB150 Analyst: UW Analyzed: 12/19/2022 14:33

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-01 B  
Preparation Batch: BKL0485 Sample Size: 100 mL  
Prepared: 12/19/2022 Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	54.1	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	54.1	mg/L CaCO3	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Eric Caddy	<b>Reported:</b> 14-Jan-2023 13:58
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**MW-1**  
**22L0402-01 (Water)**

**Wet Chemistry**

Method: SM 4500-H+ B-00 Sampled: 12/15/2022 09:25  
Instrument: Accumet AB150 Analyst: UW Analyzed: 12/15/2022 17:55

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-01 A  
Preparation Batch: BKL0414 Sample Size: 50 mL  
Prepared: 12/15/2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.04	pH Units	H



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Eric Caddy	<b>Reported:</b> 14-Jan-2023 13:58
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**MW-1**  
**22L0402-01 (Water)**

**Wet Chemistry**

Method: SM 4500-NH3 H-97 Sampled: 12/15/2022 09:25  
Instrument: LCHAT1 Analyst: RMS Analyzed: 12/29/2022 16:32

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-01 C  
Preparation Batch: BKL0690 Sample Size: 10 mL  
Prepared: 12/29/2022 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: 466410 Project Manager: Eric Caddy	<b>Reported:</b> 14-Jan-2023 13:58
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**MW-1**  
**22L0402-01 (Water)**

**Microbiology**

Method: SM 9222B Sampled: 12/15/2022 09:25  
Instrument: N/A Analyst: BF Analyzed: 12/16/2022 17:40

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-01  
Preparation Batch: BKL0415 Sample Size: 100 mL  
Prepared: 12/15/2022 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**  
**22L0402-02 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 Sampled: 12/15/2022 09:25  
Instrument: ICPMS2 Analyst: MCB Analyzed: 01/07/2023 02:15

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22L0402-02 A 02  
Preparation Batch: BLA0016 Sample Size: 25 mL  
Prepared: 01/03/2023 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**  
**22L0402-02 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 UCT-KED Sampled: 12/15/2022 09:25  
Instrument: ICPMS2 Analyst: MCB Analyzed: 01/07/2023 02:15

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22L0402-02 A 02  
Preparation Batch: BLA0016 Sample Size: 25 mL  
Prepared: 01/03/2023 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: 22L0402-02 A 03  
Preparation Batch: BLA0035 Sample Size: 100 mL  
Prepared: 01/03/2023 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.0982	ug/L	



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**MW-1**  
**22L0402-02 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6010D Sampled: 12/15/2022 09:25  
Instrument: ICP3 Analyst: SKD Analyzed: 01/04/2023 22:20

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 22L0402-02 A 01  
Preparation Batch: BLA0025 Sample Size: 25 mL  
Prepared: 01/03/2023 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-5A**  
**22L0402-03 (Water)**

**Volatile Organic Compounds - SIM**

Method: EPA 8260D-SIM Sampled: 12/15/2022 10:35  
Instrument: NT16 Analyst: KOTT Analyzed: 12/16/2022 18:31

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22L0402-03 B  
Preparation Batch: BKL0443 Sample Size: 10 mL  
Prepared: 12/16/2022 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 %	99.0	%	



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**MW-5A**  
**22L0402-03 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 Sampled: 12/15/2022 10:35  
Instrument: ICPMS2 Analyst: MCB Analyzed: 01/07/2023 01:23

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22L0402-03 A 02  
Preparation Batch: BLA0016 Sample Size: 25 mL  
Prepared: 01/03/2023 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	20.0	61.8	ug/L	



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**MW-5A**  
**22L0402-03 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 UCT-KED Sampled: 12/15/2022 10:35  
Instrument: ICPMS2 Analyst: MCB Analyzed: 01/07/2023 01:23

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22L0402-03 A 02  
Preparation Batch: BLA0016 Sample Size: 25 mL  
Prepared: 01/03/2023 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: 22L0402-03 A 03  
Preparation Batch: BLA0035 Sample Size: 100 mL  
Prepared: 01/03/2023 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.181	ug/L	



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**MW-5A**  
**22L0402-03 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6010D Sampled: 12/15/2022 10:35  
Instrument: ICP3 Analyst: SKD Analyzed: 01/04/2023 22:22

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 22L0402-03 A 01  
Preparation Batch: BLA0025 Sample Size: 25 mL  
Prepared: 01/03/2023 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 Number: 466410  
Project Manager: Eric Caddy

**Reported:**  
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**MW-3**  
**22L0402-04 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 12/15/2022 11:10

Instrument: NT2 Analyst: PKC

Analyzed: 12/19/2022 13:23

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKL0465  
Prepared: 12/19/2022

Sample Size: 10 mL  
Final Volume: 10 mL

Extract ID: 22L0402-04 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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**MW-3**  
**22L0402-04 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 12/15/2022 11:10

Instrument: NT2 Analyst: PKC

Analyzed: 12/19/2022 13:23

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 Number: 466410  
Project Manager: Eric Caddy

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**MW-3**  
**22L0402-04 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 12/15/2022 11:10

Instrument: NT2 Analyst: PKC

Analyzed: 12/19/2022 13:23

**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>125</i>	<i>%</i>	
<i>Surrogate: Toluene-d8</i>			<i>80-120 %</i>	<i>95.4</i>	<i>%</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>			<i>80-120 %</i>	<i>87.8</i>	<i>%</i>	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			<i>80-120 %</i>	<i>101</i>	<i>%</i>	



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**MW-3**  
**22L0402-04 (Water)**

**Volatile Organic Compounds - SIM**

Method: EPA 8260D-SIM Sampled: 12/15/2022 11:10  
Instrument: NT16 Analyst: KOTT Analyzed: 12/16/2022 18:52

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22L0402-04 E  
Preparation Batch: BKL0443 Sample Size: 10 mL  
Prepared: 12/16/2022 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>99.5</i>	<i>%</i>	



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**MW-3**  
**22L0402-04 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D Sampled: 12/15/2022 11:10  
Instrument: ICP3 Analyst: SKD Analyzed: 01/04/2023 21:12

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 22L0402-04 J 01  
Preparation Batch: BLA0014 Sample Size: 25 mL  
Prepared: 01/03/2023 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	48.7	mg/L	
Potassium	7440-09-7	1	0.500	0.816	mg/L	
Sodium	7440-23-5	1	0.500	9.00	mg/L	



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**MW-3**  
**22L0402-04 (Water)**

**Wet Chemistry**

Method: EPA 325.2 Sampled: 12/15/2022 11:10  
Instrument: LACHAT2 Analyst: EJK Analyzed: 01/03/2023 16:53

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-04 A  
Preparation Batch: BLA0017 Sample Size: 10 mL  
Prepared: 01/03/2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	2.19	mg/L	



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**MW-3**  
**22L0402-04 (Water)**

**Wet Chemistry**

Method: EPA 353.2 Sampled: 12/15/2022 11:10  
Instrument: [CALC] Analyst: RMS Analyzed: 12/15/2022 20:18

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: [CALC] Extract ID: 22L0402-04  
Preparation Batch: [CALC]  
Prepared: 12/15/2022 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
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Nitrate-N	14797-55-8	1	0.0200	ND	NA	U
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Instrument: LACHAT2 Analyst: RMS Analyzed: 12/15/2022 20:18

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-04 A  
Preparation Batch: BKL0417 Sample Size: 10 mL  
Prepared: 12/15/2022 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	ND	mg/L	U
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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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**MW-3**  
**22L0402-04 (Water)**

**Wet Chemistry**

Method: EPA 375.2 Sampled: 12/15/2022 11:10  
Instrument: LACHAT2 Analyst: RMS Analyzed: 12/27/2022 16:22

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-04 B  
Preparation Batch: BKL0621 Sample Size: 10 mL  
Prepared: 12/27/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	21.9	mg/L	





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**MW-3**  
**22L0402-04 (Water)**

**Wet Chemistry**

Method: EPA 410.4 Sampled: 12/15/2022 11:10  
Instrument: UV1800-1 Analyst: KLD Analyzed: 12/28/2022 16:41

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-04 C  
Preparation Batch: BKL0634 Sample Size: 2 mL  
Prepared: 12/27/2022 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**  
**22L0402-04 (Water)**

**Wet Chemistry**

Method: EPA 9060A Sampled: 12/15/2022 11:10  
Instrument: TOC-LCSH Analyst: RMS Analyzed: 12/30/2022 22:31

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-04 C  
Preparation Batch: BKL0721 Sample Size: 20 mL  
Prepared: 12/30/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	3.71	mg/L	



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**MW-3**  
**22L0402-04 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97 Sampled: 12/15/2022 11:10  
Instrument: Accumet AB150 Analyst: UW Analyzed: 12/19/2022 14:33

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-04 B  
Preparation Batch: BKL0485 Sample Size: 100 mL  
Prepared: 12/19/2022 Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	212	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	212	mg/L CaCO3	



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**MW-3**  
**22L0402-04 (Water)**

**Wet Chemistry**

Method: SM 4500-H+ B-00 Sampled: 12/15/2022 11:10  
Instrument: Accumet AB150 Analyst: UW Analyzed: 12/15/2022 17:55

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-04 A  
Preparation Batch: BKL0414 Sample Size: 50 mL  
Prepared: 12/15/2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	5.99	pH Units	H



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**MW-3**  
**22L0402-04 (Water)**

**Microbiology**

Method: SM 9222B Sampled: 12/15/2022 11:10  
Instrument: N/A Analyst: BF Analyzed: 12/16/2022 17:40

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-04  
Preparation Batch: BKL0415 Sample Size: 100 mL  
Prepared: 12/15/2022 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-3**  
**22L0402-04RE1 (Water)**

**Wet Chemistry**

Method: SM 4500-NH3 H-97 Sampled: 12/15/2022 11:10  
Instrument: LCHAT1 Analyst: RMS Analyzed: 12/29/2022 17:20

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-04RE1 C  
Preparation Batch: BKL0690 Sample Size: 10 mL  
Prepared: 12/29/2022 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-3**  
**22L0402-05 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 Sampled: 12/15/2022 11:10  
Instrument: ICPMS2 Analyst: MCB Analyzed: 01/07/2023 01:28

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22L0402-05 A 02  
Preparation Batch: BLA0016 Sample Size: 25 mL  
Prepared: 01/03/2023 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**  
**22L0402-05 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 UCT-KED Sampled: 12/15/2022 11:10  
Instrument: ICPMS2 Analyst: MCB Analyzed: 01/07/2023 01:28

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22L0402-05 A 02  
Preparation Batch: BLA0016 Sample Size: 25 mL  
Prepared: 01/03/2023 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: 22L0402-05 A 03  
Preparation Batch: BLA0035 Sample Size: 100 mL  
Prepared: 01/03/2023 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.129	ug/L	





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**MW-3**  
**22L0402-05 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6010D Sampled: 12/15/2022 11:10  
Instrument: ICP3 Analyst: SKD Analyzed: 01/04/2023 22:25

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 22L0402-05 A 01  
Preparation Batch: BLA0025 Sample Size: 25 mL  
Prepared: 01/03/2023 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	0.0150	mg/L	
Manganese, Dissolved	7439-96-5	1	0.0040	5.92	mg/L	



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Project Number: 466410  
Project Manager: Eric Caddy

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**MW-10**  
**22L0402-06 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 12/15/2022 11:50

Instrument: NT2 Analyst: PKC

Analyzed: 12/19/2022 13:43

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKL0465  
Prepared: 12/19/2022

Sample Size: 10 mL  
Final Volume: 10 mL

Extract ID: 22L0402-06 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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**MW-10**  
**22L0402-06 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 12/15/2022 11:50

Instrument: NT2 Analyst: PKC

Analyzed: 12/19/2022 13:43

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**  
**22L0402-06 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D Sampled: 12/15/2022 11:50  
Instrument: NT2 Analyst: PKC Analyzed: 12/19/2022 13:43

**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>125</i>	<i>%</i>	
<i>Surrogate: Toluene-d8</i>			<i>80-120 %</i>	<i>95.8</i>	<i>%</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>			<i>80-120 %</i>	<i>86.9</i>	<i>%</i>	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			<i>80-120 %</i>	<i>102</i>	<i>%</i>	



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**MW-10**  
**22L0402-06 (Water)**

**Volatile Organic Compounds - SIM**

Method: EPA 8260D-SIM Sampled: 12/15/2022 11:50  
Instrument: NT16 Analyst: KOTT Analyzed: 12/16/2022 19:13

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22L0402-06 E  
Preparation Batch: BKL0443 Sample Size: 10 mL  
Prepared: 12/16/2022 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>100</i>	<i>%</i>	



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**MW-10**  
**22L0402-06 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D Sampled: 12/15/2022 11:50  
Instrument: ICP3 Analyst: SKD Analyzed: 01/04/2023 21:15

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 22L0402-06 J 01  
Preparation Batch: BLA0014 Sample Size: 25 mL  
Prepared: 01/03/2023 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	38.6	mg/L	
Potassium	7440-09-7	1	0.500	1.15	mg/L	
Sodium	7440-23-5	1	0.500	15.2	mg/L	



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**MW-10**  
**22L0402-06 (Water)**

**Wet Chemistry**

Method: EPA 325.2 Sampled: 12/15/2022 11:50  
Instrument: LCHAT2 Analyst: EJK Analyzed: 01/03/2023 16:57

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-06 A  
Preparation Batch: BLA0017 Sample Size: 10 mL  
Prepared: 01/03/2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	5.99	mg/L	



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**MW-10**  
**22L0402-06 (Water)**

**Wet Chemistry**

Method: EPA 353.2 Sampled: 12/15/2022 11:50  
Instrument: [CALC] Analyst: RMS Analyzed: 12/15/2022 20:19

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: [CALC] Extract ID: 22L0402-06  
Preparation Batch: [CALC]  
Prepared: 12/15/2022 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
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Nitrate-N	14797-55-8	1	0.0200	ND	NA	U
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Instrument: LACHAT2 Analyst: RMS Analyzed: 12/15/2022 20:19

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-06 A  
Preparation Batch: BKL0417  
Prepared: 12/15/2022 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	ND	mg/L	U
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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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**MW-10**  
**22L0402-06 (Water)**

**Wet Chemistry**

Method: EPA 375.2 Sampled: 12/15/2022 11:50  
Instrument: LACHAT2 Analyst: RMS Analyzed: 12/27/2022 16:23

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-06 B  
Preparation Batch: BKL0621 Sample Size: 10 mL  
Prepared: 12/27/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	7.41	mg/L	



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**MW-10**  
**22L0402-06 (Water)**

**Wet Chemistry**

Method: EPA 410.4 Sampled: 12/15/2022 11:50  
Instrument: UV1800-1 Analyst: KLD Analyzed: 12/28/2022 16:41

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-06 C  
Preparation Batch: BKL0634 Sample Size: 2 mL  
Prepared: 12/27/2022 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**  
**22L0402-06 (Water)**

**Wet Chemistry**

Method: EPA 9060A Sampled: 12/15/2022 11:50  
Instrument: TOC-LCSH Analyst: RMS Analyzed: 12/30/2022 22:49

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-06 C  
Preparation Batch: BKL0721 Sample Size: 20 mL  
Prepared: 12/30/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	3.38	mg/L	



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**MW-10**  
**22L0402-06 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97 Sampled: 12/15/2022 11:50  
Instrument: Accumet AB150 Analyst: UW Analyzed: 12/19/2022 14:33

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-06 B  
Preparation Batch: BKL0485 Sample Size: 100 mL  
Prepared: 12/19/2022 Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	217	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	217	mg/L CaCO3	



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**MW-10**  
**22L0402-06 (Water)**

**Wet Chemistry**

Method: SM 4500-H+ B-00 Sampled: 12/15/2022 11:50  
Instrument: Accumet AB150 Analyst: UW Analyzed: 12/15/2022 17:55

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-06 A  
Preparation Batch: BKL0414 Sample Size: 50 mL  
Prepared: 12/15/2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.37	pH Units	H



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**MW-10**  
**22L0402-06 (Water)**

**Wet Chemistry**

Method: SM 4500-NH3 H-97 Sampled: 12/15/2022 11:50  
Instrument: LCHAT1 Analyst: RMS Analyzed: 12/29/2022 16:45

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-06 C  
Preparation Batch: BKL0690 Sample Size: 10 mL  
Prepared: 12/29/2022 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	0.060	mg/L	



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**MW-10**  
**22L0402-06 (Water)**

**Microbiology**

Method: SM 9222B Sampled: 12/15/2022 11:50  
Instrument: N/A Analyst: BF Analyzed: 12/16/2022 17:40

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-06  
Preparation Batch: BKL0415 Sample Size: 100 mL  
Prepared: 12/15/2022 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**  
**22L0402-07 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 Sampled: 12/15/2022 11:50  
Instrument: ICPMS2 Analyst: MCB Analyzed: 01/11/2023 05:21

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22L0402-07 A 03  
Preparation Batch: BLA0016 Sample Size: 25 mL  
Prepared: 01/03/2023 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





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**MW-10**  
**22L0402-07 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 UCT-KED Sampled: 12/15/2022 11:50  
Instrument: ICPMS2 Analyst: MCB Analyzed: 01/07/2023 01:51

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22L0402-07 A 02  
Preparation Batch: BLA0016 Sample Size: 25 mL  
Prepared: 01/03/2023 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: 22L0402-07 A 03  
Preparation Batch: BLA0035 Sample Size: 100 mL  
Prepared: 01/03/2023 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	1.93	ug/L	



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**MW-10**  
**22L0402-07 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6010D Sampled: 12/15/2022 11:50  
Instrument: ICP3 Analyst: SKD Analyzed: 01/04/2023 22:28

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 22L0402-07 A 01  
Preparation Batch: BLA0025 Sample Size: 25 mL  
Prepared: 01/03/2023 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	0.0150	mg/L	
Manganese, Dissolved	7439-96-5	1	0.0040	3.82	mg/L	



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Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Eric Caddy

**Reported:**  
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**MW-13**  
**22L0402-08 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 12/15/2022 12:20

Instrument: NT2 Analyst: PKC

Analyzed: 12/19/2022 14:04

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKL0465  
Prepared: 12/19/2022

Sample Size: 10 mL  
Final Volume: 10 mL

Extract ID: 22L0402-08 H

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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**MW-13**  
**22L0402-08 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 12/15/2022 12:20

Instrument: NT2 Analyst: PKC

Analyzed: 12/19/2022 14:04

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 Manager: Eric Caddy

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**MW-13**  
**22L0402-08 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 12/15/2022 12:20

Instrument: NT2 Analyst: PKC

Analyzed: 12/19/2022 14:04

**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>126</i>	<i>%</i>	
<i>Surrogate: Toluene-d8</i>			<i>80-120 %</i>	<i>95.8</i>	<i>%</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>			<i>80-120 %</i>	<i>87.7</i>	<i>%</i>	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			<i>80-120 %</i>	<i>101</i>	<i>%</i>	



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**MW-13**  
**22L0402-08 (Water)**

**Volatile Organic Compounds - SIM**

Method: EPA 8260D-SIM Sampled: 12/15/2022 12:20  
Instrument: NT16 Analyst: KOTT Analyzed: 12/16/2022 19:34

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22L0402-08 E  
Preparation Batch: BKL0443 Sample Size: 10 mL  
Prepared: 12/16/2022 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>100</i>	<i>%</i>	



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**MW-13**  
**22L0402-08 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D Sampled: 12/15/2022 12:20  
Instrument: ICP3 Analyst: SKD Analyzed: 01/04/2023 21:18

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 22L0402-08 J 01  
Preparation Batch: BLA0014 Sample Size: 25 mL  
Prepared: 01/03/2023 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	38.5	mg/L	
Potassium	7440-09-7	1	0.500	1.16	mg/L	
Sodium	7440-23-5	1	0.500	15.4	mg/L	



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**MW-13**  
**22L0402-08 (Water)**

**Wet Chemistry**

Method: EPA 325.2 Sampled: 12/15/2022 12:20  
Instrument: LCHAT2 Analyst: EJK Analyzed: 01/03/2023 16:58

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-08 A  
Preparation Batch: BLA0017 Sample Size: 10 mL  
Prepared: 01/03/2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	6.29	mg/L	





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**MW-13**  
**22L0402-08 (Water)**

**Wet Chemistry**

Method: EPA 353.2 Sampled: 12/15/2022 12:20  
Instrument: [CALC] Analyst: RMS Analyzed: 12/15/2022 20:20

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: [CALC] Extract ID: 22L0402-08  
Preparation Batch: [CALC]  
Prepared: 12/15/2022 Final Volume: 1

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

Instrument: LACHAT2 Analyst: RMS Analyzed: 12/15/2022 20:20

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-08 A  
Preparation Batch: BKL0417  
Prepared: 12/15/2022 Sample Size: 10 mL  
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-13**  
**22L0402-08 (Water)**

**Wet Chemistry**

Method: EPA 375.2 Sampled: 12/15/2022 12:20  
Instrument: LACHAT2 Analyst: RMS Analyzed: 12/27/2022 16:24

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-08 B  
Preparation Batch: BKL0621 Sample Size: 10 mL  
Prepared: 12/27/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	7.64	mg/L	



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**MW-13**  
**22L0402-08 (Water)**

**Wet Chemistry**

Method: EPA 410.4 Sampled: 12/15/2022 12:20  
Instrument: UV1800-1 Analyst: KLD Analyzed: 12/28/2022 16:43

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-08 C  
Preparation Batch: BKL0634 Sample Size: 2 mL  
Prepared: 12/27/2022 Final Volume: 2 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
COD		1	10.0	10.0	10.1	mg/L	



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**MW-13**  
**22L0402-08 (Water)**

**Wet Chemistry**

Method: EPA 9060A Sampled: 12/15/2022 12:20  
Instrument: TOC-LCSH Analyst: RMS Analyzed: 12/30/2022 23:08

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-08 C  
Preparation Batch: BKL0721 Sample Size: 20 mL  
Prepared: 12/30/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	3.38	mg/L	



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**MW-13**  
**22L0402-08 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97 Sampled: 12/15/2022 12:20  
Instrument: Accumet AB150 Analyst: UW Analyzed: 12/19/2022 14:33

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-08 B  
Preparation Batch: BKL0485 Sample Size: 50 mL  
Prepared: 12/19/2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	220	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	220	mg/L CaCO3	



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**MW-13**  
**22L0402-08 (Water)**

**Wet Chemistry**

Method: SM 4500-H+ B-00 Sampled: 12/15/2022 12:20  
Instrument: Accumet AB150 Analyst: UW Analyzed: 12/15/2022 17:55

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-08 A  
Preparation Batch: BKL0414 Sample Size: 50 mL  
Prepared: 12/15/2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.40	pH Units	H



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**MW-13**  
**22L0402-08 (Water)**

**Wet Chemistry**

Method: SM 4500-NH3 H-97 Sampled: 12/15/2022 12:20  
Instrument: LCHAT1 Analyst: RMS Analyzed: 12/29/2022 16:46

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-08 C  
Preparation Batch: BKL0690 Sample Size: 10 mL  
Prepared: 12/29/2022 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	0.054	mg/L	



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**MW-13**  
**22L0402-08 (Water)**

**Microbiology**

Method: SM 9222B Sampled: 12/15/2022 12:20  
Instrument: N/A Analyst: BF Analyzed: 12/16/2022 17:40

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-08  
Preparation Batch: BKL0415 Sample Size: 100 mL  
Prepared: 12/15/2022 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**  
**22L0402-09 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 Sampled: 12/15/2022 12:20  
Instrument: ICPMS2 Analyst: MCB Analyzed: 01/11/2023 05:27

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22L0402-09 A 03  
Preparation Batch: BLA0016 Sample Size: 25 mL  
Prepared: 01/03/2023 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



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**MW-13**  
**22L0402-09 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 UCT-KED Sampled: 12/15/2022 12:20  
Instrument: ICPMS2 Analyst: MCB Analyzed: 01/07/2023 01:55

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22L0402-09 A 02  
Preparation Batch: BLA0016 Sample Size: 25 mL  
Prepared: 01/03/2023 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: 22L0402-09 A 03  
Preparation Batch: BLA0035 Sample Size: 100 mL  
Prepared: 01/03/2023 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	1.86	ug/L	



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**MW-13**  
**22L0402-09 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6010D Sampled: 12/15/2022 12:20  
Instrument: ICP3 Analyst: SKD Analyzed: 01/04/2023 22:47

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 22L0402-09 A 01  
Preparation Batch: BLA0025 Sample Size: 25 mL  
Prepared: 01/03/2023 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	3.82	mg/L	



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Eric Caddy

**Reported:**  
14-Jan-2023 13:58

**MW-6**  
**22L0402-10 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 12/15/2022 13:40

Instrument: NT2 Analyst: PKC

Analyzed: 12/19/2022 14:25

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKL0465  
Prepared: 12/19/2022

Sample Size: 10 mL  
Final Volume: 10 mL

Extract ID: 22L0402-10 I

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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**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 12/15/2022 13:40

Instrument: NT2 Analyst: PKC

Analyzed: 12/19/2022 14:25

**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	2.41	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**  
**22L0402-10 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D Sampled: 12/15/2022 13:40  
Instrument: NT2 Analyst: PKC Analyzed: 12/19/2022 14:25

**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>125</i>	<i>%</i>	
<i>Surrogate: Toluene-d8</i>			<i>80-120 %</i>	<i>97.2</i>	<i>%</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>			<i>80-120 %</i>	<i>85.7</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**  
**22L0402-10 (Water)**

**Volatile Organic Compounds - SIM**

Method: EPA 8260D-SIM Sampled: 12/15/2022 13:40  
Instrument: NT16 Analyst: KOTT Analyzed: 12/16/2022 19:55

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22L0402-10 G  
Preparation Batch: BKL0443 Sample Size: 10 mL  
Prepared: 12/16/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	29.5	ng/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>101</i>	<i>%</i>	



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**Reported:**  
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**MW-6**  
**22L0402-10 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D

Sampled: 12/15/2022 13:40

Instrument: ICP3 Analyst: SKD

Analyzed: 01/04/2023 21:21

**Analysis by: Analytical Resources, LLC**

Sample Preparation:

Preparation Method: TWC EPA 3010A

Extract ID: 22L0402-10 J 01

Preparation Batch: BLA0014

Sample Size: 25 mL

Prepared: 01/03/2023

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	37.3	mg/L	
Potassium	7440-09-7	1	0.500	2.56	mg/L	
Sodium	7440-23-5	1	0.500	7.89	mg/L	





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**MW-6**  
**22L0402-10 (Water)**

**Wet Chemistry**

Method: EPA 325.2 Sampled: 12/15/2022 13:40  
Instrument: LACHAT2 Analyst: EJK Analyzed: 01/03/2023 16:59

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-10 A  
Preparation Batch: BLA0017 Sample Size: 10 mL  
Prepared: 01/03/2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	3.23	mg/L	



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**MW-6**  
**22L0402-10 (Water)**

**Wet Chemistry**

Method: EPA 353.2 Sampled: 12/15/2022 13:40  
Instrument: [CALC] Analyst: RMS Analyzed: 12/15/2022 20:21

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: [CALC] Extract ID: 22L0402-10  
Preparation Batch: [CALC]  
Prepared: 12/15/2022 Final Volume: 1

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

Instrument: LACHAT2 Analyst: RMS Analyzed: 12/15/2022 20:21

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-10 A  
Preparation Batch: BKL0417 Sample Size: 10 mL  
Prepared: 12/15/2022 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-6**  
**22L0402-10 (Water)**

**Wet Chemistry**

Method: EPA 375.2 Sampled: 12/15/2022 13:40  
Instrument: LACHAT2 Analyst: RMS Analyzed: 12/27/2022 16:25

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-10 B  
Preparation Batch: BKL0621 Sample Size: 10 mL  
Prepared: 12/27/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	6.53	mg/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Eric Caddy	<b>Reported:</b> 14-Jan-2023 13:58
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**MW-6**  
**22L0402-10 (Water)**

**Wet Chemistry**

Method: EPA 410.4 Sampled: 12/15/2022 13:40  
Instrument: UV1800-1 Analyst: KLD Analyzed: 12/28/2022 16:43

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-10 C  
Preparation Batch: BKL0634 Sample Size: 2 mL  
Prepared: 12/27/2022 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**  
**22L0402-10 (Water)**

**Wet Chemistry**

Method: EPA 9060A Sampled: 12/15/2022 13:40  
Instrument: TOC-LCSH Analyst: RMS Analyzed: 12/30/2022 23:30

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-10 C  
Preparation Batch: BKL0721 Sample Size: 20 mL  
Prepared: 12/30/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	2.34	mg/L	



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**MW-6**  
**22L0402-10 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97 Sampled: 12/15/2022 13:40  
Instrument: Accumet AB150 Analyst: UW Analyzed: 12/19/2022 14:33

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-10 B  
Preparation Batch: BKL0485 Sample Size: 50 mL  
Prepared: 12/19/2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	197	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	197	mg/L CaCO3	



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**MW-6**  
**22L0402-10 (Water)**

**Wet Chemistry**

Method: SM 4500-H+ B-00 Sampled: 12/15/2022 13:40  
Instrument: Accumet AB150 Analyst: UW Analyzed: 12/15/2022 17:55

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-10 A  
Preparation Batch: BKL0414 Sample Size: 50 mL  
Prepared: 12/15/2022 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



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**MW-6**  
**22L0402-10 (Water)**

**Wet Chemistry**

Method: SM 4500-NH3 H-97 Sampled: 12/15/2022 13:40  
Instrument: LCHAT1 Analyst: RMS Analyzed: 12/29/2022 16:48

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-10 C  
Preparation Batch: BKL0690 Sample Size: 10 mL  
Prepared: 12/29/2022 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	0.667	mg/L	





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**MW-6**  
**22L0402-10 (Water)**

**Microbiology**

Method: SM 9222B Sampled: 12/15/2022 13:40  
Instrument: N/A Analyst: BF Analyzed: 12/16/2022 17:40

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-10  
Preparation Batch: BKL0415 Sample Size: 100 mL  
Prepared: 12/15/2022 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**  
**22L0402-11 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 Sampled: 12/15/2022 13:40  
Instrument: ICPMS2 Analyst: MCB Analyzed: 01/07/2023 02:00

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22L0402-11 A 02  
Preparation Batch: BLA0016 Sample Size: 25 mL  
Prepared: 01/03/2023 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	20.0	204	ug/L	



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**MW-6**  
**22L0402-11 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 UCT-KED Sampled: 12/15/2022 13:40  
Instrument: ICPMS2 Analyst: MCB Analyzed: 01/07/2023 02:00

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22L0402-11 A 02  
Preparation Batch: BLA0016 Sample Size: 25 mL  
Prepared: 01/03/2023 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: 22L0402-11 A 03  
Preparation Batch: BLA0035 Sample Size: 100 mL  
Prepared: 01/03/2023 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.332	ug/L	



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**MW-6**  
**22L0402-11 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6010D Sampled: 12/15/2022 13:40  
Instrument: ICP3 Analyst: SKD Analyzed: 01/04/2023 22:50

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 22L0402-11 A 01  
Preparation Batch: BLA0025 Sample Size: 25 mL  
Prepared: 01/03/2023 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0060	0.0229	mg/L	
Manganese, Dissolved	7439-96-5	1	0.0040	0.461	mg/L	



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Reported:  
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**MW-8**  
**22L0402-12 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 12/15/2022 14:20

Instrument: NT2 Analyst: PKC

Analyzed: 12/19/2022 14:46

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKL0465  
Prepared: 12/19/2022

Sample Size: 10 mL  
Final Volume: 10 mL

Extract ID: 22L0402-12 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: 466410  
Project Manager: Eric Caddy

Reported:  
14-Jan-2023 13:58

**MW-8**  
**22L0402-12 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 12/15/2022 14:20

Instrument: NT2 Analyst: PKC

Analyzed: 12/19/2022 14:46

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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**Reported:**  
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**MW-8**  
**22L0402-12 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 12/15/2022 14:20

Instrument: NT2 Analyst: PKC

Analyzed: 12/19/2022 14:46

**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>128</i>	<i>%</i>	
<i>Surrogate: Toluene-d8</i>			<i>80-120 %</i>	<i>95.9</i>	<i>%</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>			<i>80-120 %</i>	<i>85.2</i>	<i>%</i>	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			<i>80-120 %</i>	<i>101</i>	<i>%</i>	



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**MW-8**  
**22L0402-12 (Water)**

**Volatile Organic Compounds - SIM**

Method: EPA 8260D-SIM Sampled: 12/15/2022 14:20  
Instrument: NT16 Analyst: KOTT Analyzed: 12/16/2022 20:17

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22L0402-12 I  
Preparation Batch: BKL0443 Sample Size: 10 mL  
Prepared: 12/16/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	20.0	32.4	ng/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>100</i>	<i>%</i>	





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**MW-8**  
**22L0402-12 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D Sampled: 12/15/2022 14:20  
Instrument: ICP3 Analyst: SKD Analyzed: 01/04/2023 21:40

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 22L0402-12 J 01  
Preparation Batch: BLA0014 Sample Size: 25 mL  
Prepared: 01/03/2023 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0500	18.7	mg/L	
Potassium	7440-09-7	1	0.500	0.899	mg/L	
Sodium	7440-23-5	1	0.500	7.52	mg/L	



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**MW-8**  
**22L0402-12 (Water)**

**Wet Chemistry**

Method: EPA 325.2 Sampled: 12/15/2022 14:20  
Instrument: LACHAT2 Analyst: EJK Analyzed: 01/03/2023 17:00

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-12 A  
Preparation Batch: BLA0017 Sample Size: 10 mL  
Prepared: 01/03/2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	1.00	1.00	2.26	mg/L	



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**MW-8**  
**22L0402-12 (Water)**

**Wet Chemistry**

Method: EPA 353.2 Sampled: 12/15/2022 14:20  
Instrument: [CALC] Analyst: RMS Analyzed: 12/15/2022 20:25

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: [CALC] Extract ID: 22L0402-12  
Preparation Batch: [CALC]  
Prepared: 12/15/2022 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
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Nitrate-N	14797-55-8	1	0.0200	ND	NA	U
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Instrument: LACHAT2 Analyst: RMS Analyzed: 12/15/2022 20:25

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-12 A  
Preparation Batch: BKL0417  
Prepared: 12/15/2022 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	ND	mg/L	U
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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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**MW-8**  
**22L0402-12 (Water)**

**Wet Chemistry**

Method: EPA 375.2 Sampled: 12/15/2022 14:20  
Instrument: LACHAT2 Analyst: RMS Analyzed: 12/27/2022 16:27

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-12 B  
Preparation Batch: BKL0621 Sample Size: 10 mL  
Prepared: 12/27/2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	2.00	2.00	4.09	mg/L	



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**MW-8**  
**22L0402-12 (Water)**

**Wet Chemistry**

Method: EPA 410.4 Sampled: 12/15/2022 14:20  
Instrument: UV1800-1 Analyst: KLD Analyzed: 12/28/2022 16:43

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-12 C  
Preparation Batch: BKL0634 Sample Size: 2 mL  
Prepared: 12/27/2022 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**  
**22L0402-12 (Water)**

**Wet Chemistry**

Method: EPA 9060A Sampled: 12/15/2022 14:20  
Instrument: TOC-LCSH Analyst: RMS Analyzed: 12/30/2022 23:52

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-12 C  
Preparation Batch: BKL0721 Sample Size: 20 mL  
Prepared: 12/30/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	1.08	mg/L	



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**MW-8**  
**22L0402-12 (Water)**

**Wet Chemistry**

Method: SM 2320 B-97 Sampled: 12/15/2022 14:20  
Instrument: Accumet AB150 Analyst: UW Analyzed: 12/19/2022 14:33

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-12 B  
Preparation Batch: BKL0485 Sample Size: 50 mL  
Prepared: 12/19/2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Alkalinity, Bicarbonate		1	1.00	1.00	129	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	129	mg/L CaCO3	



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**MW-8**  
**22L0402-12 (Water)**

**Wet Chemistry**

Method: SM 4500-H+ B-00 Sampled: 12/15/2022 14:20  
Instrument: Accumet AB150 Analyst: UW Analyzed: 12/15/2022 17:55

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-12 A  
Preparation Batch: BKL0414 Sample Size: 50 mL  
Prepared: 12/15/2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
pH		1	0.01	0.01	6.40	pH Units	H





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**MW-8**  
**22L0402-12 (Water)**

**Wet Chemistry**

Method: SM 4500-NH3 H-97 Sampled: 12/15/2022 14:20  
Instrument: LCHAT1 Analyst: RMS Analyzed: 12/29/2022 16:49

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-12 C  
Preparation Batch: BKL0690 Sample Size: 10 mL  
Prepared: 12/29/2022 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**  
**22L0402-12 (Water)**

**Microbiology**

Method: SM 9222B Sampled: 12/15/2022 14:20  
Instrument: N/A Analyst: BF Analyzed: 12/16/2022 17:40

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 22L0402-12  
Preparation Batch: BKL0415 Sample Size: 100 mL  
Prepared: 12/15/2022 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**  
**22L0402-13 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 Sampled: 12/15/2022 14:20  
Instrument: ICPMS2 Analyst: MCB Analyzed: 01/07/2023 02:05

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22L0402-13 A 02  
Preparation Batch: BLA0016 Sample Size: 25 mL  
Prepared: 01/03/2023 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	20.0	230	ug/L	



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Eric Caddy	<b>Reported:</b> 14-Jan-2023 13:58
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**MW-8**  
**22L0402-13 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 UCT-KED Sampled: 12/15/2022 14:20  
Instrument: ICPMS2 Analyst: MCB Analyzed: 01/07/2023 02:05

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22L0402-13 A 02  
Preparation Batch: BLA0016 Sample Size: 25 mL  
Prepared: 01/03/2023 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: 22L0402-13 A 03  
Preparation Batch: BLA0035 Sample Size: 100 mL  
Prepared: 01/03/2023 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	1.30	ug/L	



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**MW-8**  
**22L0402-13 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6010D Sampled: 12/15/2022 14:20  
Instrument: ICP3 Analyst: SKD Analyzed: 01/04/2023 22:53

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 22L0402-13 A 01  
Preparation Batch: BLA0025 Sample Size: 25 mL  
Prepared: 01/03/2023 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	2.08	mg/L	



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**MW-7**  
**22L0402-14 (Water)**

**Volatile Organic Compounds - SIM**

Method: EPA 8260D-SIM Sampled: 12/15/2022 15:00  
Instrument: NT16 Analyst: KOTT Analyzed: 12/16/2022 20:38

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22L0402-14 B  
Preparation Batch: BKL0443 Sample Size: 10 mL  
Prepared: 12/16/2022 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 %	99.2	%	



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**MW-7**  
**22L0402-14 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 Sampled: 12/15/2022 15:00  
Instrument: ICPMS2 Analyst: MCB Analyzed: 01/07/2023 02:10

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22L0402-14 A 02  
Preparation Batch: BLA0016 Sample Size: 25 mL  
Prepared: 01/03/2023 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-7**  
**22L0402-14 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 200.8 UCT-KED Sampled: 12/15/2022 15:00  
Instrument: ICPMS2 Analyst: MCB Analyzed: 01/07/2023 02:10

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: REN - EPA 3010A M Extract ID: 22L0402-14 A 02  
Preparation Batch: BLA0016 Sample Size: 25 mL  
Prepared: 01/03/2023 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: 22L0402-14 A 03  
Preparation Batch: BLA0035 Sample Size: 100 mL  
Prepared: 01/03/2023 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0400	0.476	ug/L	





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**MW-7**  
**22L0402-14 (Water)**

**Metals and Metallic Compounds (dissolved)**

Method: EPA 6010D Sampled: 12/15/2022 15:00  
Instrument: ICP3 Analyst: SKD Analyzed: 01/04/2023 22:31

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: WMN (No Prep) Extract ID: 22L0402-14 A 01  
Preparation Batch: BLA0025 Sample Size: 25 mL  
Prepared: 01/03/2023 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: 466410  
Project Manager: Eric Caddy

**Reported:**  
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**Trip Blanks**  
**22L0402-15 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 12/15/2022 00:00

Instrument: NT2 Analyst: PKC

Analyzed: 12/19/2022 11:18

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKL0465  
Prepared: 12/19/2022

Sample Size: 10 mL  
Final Volume: 10 mL

Extract ID: 22L0402-15 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	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: 466410  
Project Manager: Eric Caddy

Reported:  
14-Jan-2023 13:58

**Trip Blanks**  
**22L0402-15 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 12/15/2022 00:00

Instrument: NT2 Analyst: PKC

Analyzed: 12/19/2022 11:18

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: 466410 Project Manager: Eric Caddy	<b>Reported:</b> 14-Jan-2023 13:58
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**Trip Blanks**  
**22L0402-15 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D Sampled: 12/15/2022 00:00  
Instrument: NT2 Analyst: PKC Analyzed: 12/19/2022 11:18

**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>118</i>	<i>%</i>	
<i>Surrogate: Toluene-d8</i>			<i>80-120 %</i>	<i>97.2</i>	<i>%</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>			<i>80-120 %</i>	<i>88.4</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: 466410 Project Manager: Eric Caddy	<b>Reported:</b> 14-Jan-2023 13:58
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**Trip Blanks**  
**22L0402-15 (Water)**

**Volatile Organic Compounds - SIM**

Method: EPA 8260D-SIM Sampled: 12/15/2022 00:00  
Instrument: NT16 Analyst: KOTT Analyzed: 12/16/2022 16:24

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 22L0402-15 A  
Preparation Batch: BKL0443 Sample Size: 10 mL  
Prepared: 12/16/2022 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 %	92.0	%	



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
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Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Eric Caddy

**Reported:**  
14-Jan-2023 13:58

**Analysis by: Analytical Resources, LLC**

**Volatile Organic Compounds - Quality Control**

**Batch BKL0465 - EPA 8260D**

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BKL0465-BLK1)</b>		Prepared: 19-Dec-2022 Analyzed: 19-Dec-2022 10:57								
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



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
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Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Eric Caddy

**Reported:**  
14-Jan-2023 13:58

**Analysis by: Analytical Resources, LLC**

**Volatile Organic Compounds - Quality Control**

**Batch BKL0465 - EPA 8260D**

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BKL0465-BLK1)</b>										
Prepared: 19-Dec-2022 Analyzed: 19-Dec-2022 10:57										
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  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Eric Caddy

**Reported:**  
14-Jan-2023 13:58

**Analysis by: Analytical Resources, LLC**

**Volatile Organic Compounds - Quality Control**

**Batch BKL0465 - EPA 8260D**

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BKL0465-BLK1)</b>										
					Prepared: 19-Dec-2022 Analyzed: 19-Dec-2022 10:57					
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>	5.85		ug/L	5.00		117	80-129			
<i>Surrogate: Toluene-d8</i>	4.82		ug/L	5.00		96.4	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	4.52		ug/L	5.00		90.4	80-120			
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	5.08		ug/L	5.00		102	80-120			
<b>LCS (BKL0465-BS1)</b>										
					Prepared: 19-Dec-2022 Analyzed: 19-Dec-2022 09:34					
Chloromethane	8.59	0.50	ug/L	10.0		85.9	60-138			
Vinyl Chloride	9.49	0.20	ug/L	10.0		94.9	66-133			
Bromomethane	9.94	1.00	ug/L	10.0		99.4	72-131			
Chloroethane	9.31	0.20	ug/L	10.0		93.1	60-155			
Trichlorofluoromethane	10.3	0.20	ug/L	10.0		103	62-141			
Acrolein	44.8	5.00	ug/L	50.0		89.6	52-190			
1,1,2-Trichloro-1,2,2-Trifluoroethane	11.0	0.20	ug/L	10.0		110	76-129			
Acetone	52.2	5.00	ug/L	50.0		104	58-142			
1,1-Dichloroethene	10.7	0.20	ug/L	10.0		107	69-135			
Iodomethane	10.9	1.00	ug/L	10.0		109	56-147			
Methylene Chloride	9.92	1.00	ug/L	10.0		99.2	65-135			
Acrylonitrile	10.8	1.00	ug/L	10.0		108	64-134			
Carbon Disulfide	10.7	0.20	ug/L	10.0		107	78-125			
trans-1,2-Dichloroethene	9.76	0.20	ug/L	10.0		97.6	78-128			
Vinyl Acetate	9.31	0.20	ug/L	10.0		93.1	55-138			
1,1-Dichloroethane	10.6	0.20	ug/L	10.0		106	76-124			
2-Butanone	56.5	5.00	ug/L	50.0		113	61-140			
2,2-Dichloropropane	9.60	0.20	ug/L	10.0		96.0	66-147			
cis-1,2-Dichloroethene	10.4	0.20	ug/L	10.0		104	80-121			
Chloroform	10.6	0.20	ug/L	10.0		106	80-122			
Bromochloromethane	10.1	0.20	ug/L	10.0		101	80-121			
1,1,1-Trichloroethane	9.91	0.20	ug/L	10.0		99.1	79-123			
1,1-Dichloropropene	9.70	0.20	ug/L	10.0		97.0	80-127			
Carbon tetrachloride	8.47	0.20	ug/L	10.0		84.7	53-137			
1,2-Dichloroethane	10.0	0.20	ug/L	10.0		100	75-123			





TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Eric Caddy

**Reported:**  
14-Jan-2023 13:58

**Analysis by: Analytical Resources, LLC**

**Volatile Organic Compounds - Quality Control**

**Batch BKL0465 - EPA 8260D**

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BKL0465-BS1)</b>		Prepared: 19-Dec-2022 Analyzed: 19-Dec-2022 09:34								
Benzene	10.4	0.20	ug/L	10.0		104	80-120			
Trichloroethene	9.83	0.20	ug/L	10.0		98.3	80-120			
1,2-Dichloropropane	10.3	0.20	ug/L	10.0		103	80-120			
Bromodichloromethane	9.58	0.20	ug/L	10.0		95.8	80-121			
Dibromomethane	10.0	0.20	ug/L	10.0		100	80-120			
2-Chloroethyl vinyl ether	8.47	1.00	ug/L	10.0		84.7	64-120			
4-Methyl-2-Pentanone	54.2	5.00	ug/L	50.0		108	67-133			
cis-1,3-Dichloropropene	9.86	0.20	ug/L	10.0		98.6	80-124			
Toluene	10.4	0.20	ug/L	10.0		104	80-120			
trans-1,3-Dichloropropene	9.61	0.20	ug/L	10.0		96.1	71-127			
2-Hexanone	52.1	5.00	ug/L	50.0		104	69-133			
1,1,2-Trichloroethane	10.2	0.20	ug/L	10.0		102	80-121			
1,3-Dichloropropane	9.69	0.20	ug/L	10.0		96.9	80-120			
Tetrachloroethene	9.98	0.20	ug/L	10.0		99.8	80-120			
Dibromochloromethane	8.90	0.20	ug/L	10.0		89.0	65-135			
1,2-Dibromoethane	9.88	0.20	ug/L	10.0		98.8	80-121			
Chlorobenzene	9.96	0.20	ug/L	10.0		99.6	80-120			
Ethylbenzene	9.83	0.20	ug/L	10.0		98.3	80-120			
1,1,1,2-Tetrachloroethane	9.00	0.20	ug/L	10.0		90.0	80-120			
m,p-Xylene	20.0	0.40	ug/L	20.0		100	80-121			
o-Xylene	9.64	0.20	ug/L	10.0		96.4	80-121			
Xylenes, total	29.7	0.60	ug/L	30.0		98.9	76-127			
Styrene	10.2	0.20	ug/L	10.0		102	80-124			
Bromoform	8.79	0.20	ug/L	10.0		87.9	51-134			
1,1,2,2-Tetrachloroethane	9.88	0.20	ug/L	10.0		98.8	77-123			
1,2,3-Trichloropropane	9.75	0.50	ug/L	10.0		97.5	76-125			
trans-1,4-Dichloro 2-Butene	9.27	1.00	ug/L	10.0		92.7	55-129			
n-Propylbenzene	10.2	0.20	ug/L	10.0		102	78-130			
Bromobenzene	9.81	0.20	ug/L	10.0		98.1	80-120			
Isopropyl Benzene	9.88	0.20	ug/L	10.0		98.8	80-128			
2-Chlorotoluene	9.96	0.20	ug/L	10.0		99.6	78-122			
4-Chlorotoluene	9.87	0.20	ug/L	10.0		98.7	80-121			
t-Butylbenzene	9.46	0.20	ug/L	10.0		94.6	78-125			
1,3,5-Trimethylbenzene	10.0	0.20	ug/L	10.0		100	80-129			
1,2,4-Trimethylbenzene	10.0	0.20	ug/L	10.0		100	80-127			



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Eric Caddy

**Reported:**  
14-Jan-2023 13:58

**Analysis by: Analytical Resources, LLC**

**Volatile Organic Compounds - Quality Control**

**Batch BKL0465 - EPA 8260D**

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BKL0465-BS1)</b>										
					Prepared: 19-Dec-2022 Analyzed: 19-Dec-2022 09:34					
s-Butylbenzene	9.80	0.20	ug/L	10.0		98.0	78-129			
4-Isopropyl Toluene	9.83	0.20	ug/L	10.0		98.3	79-130			
1,3-Dichlorobenzene	9.95	0.20	ug/L	10.0		99.5	80-120			
1,4-Dichlorobenzene	9.88	0.20	ug/L	10.0		98.8	80-120			
n-Butylbenzene	9.93	0.20	ug/L	10.0		99.3	74-129			
1,2-Dichlorobenzene	9.75	0.20	ug/L	10.0		97.5	80-120			
1,2-Dibromo-3-chloropropane	8.08	0.50	ug/L	10.0		80.8	62-123			
1,2,4-Trichlorobenzene	9.08	0.50	ug/L	10.0		90.8	64-124			
Hexachloro-1,3-Butadiene	8.61	2.00	ug/L	10.0		86.1	58-123			
Naphthalene	8.56	0.50	ug/L	10.0		85.6	50-134			
1,2,3-Trichlorobenzene	8.72	0.50	ug/L	10.0		87.2	49-133			
Dichlorodifluoromethane	8.46	0.20	ug/L	10.0		84.6	48-147			
Methyl tert-butyl Ether	10.2	0.50	ug/L	10.0		102	71-132			
2-Pentanone	48.5	5.00	ug/L	50.0		97.0	69-134			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	5.40		ug/L	5.00		108	80-129			
<i>Surrogate: Toluene-d8</i>	5.01		ug/L	5.00		100	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	4.75		ug/L	5.00		95.0	80-120			
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	4.95		ug/L	5.00		99.0	80-120			

<b>LCS Dup (BKL0465-BS1)</b>										
					Prepared: 19-Dec-2022 Analyzed: 19-Dec-2022 10:16					
Chloromethane	8.11	0.50	ug/L	10.0		81.1	60-138	5.80	30	
Vinyl Chloride	8.97	0.20	ug/L	10.0		89.7	66-133	5.71	30	
Bromomethane	9.51	1.00	ug/L	10.0		95.1	72-131	4.44	30	
Chloroethane	8.79	0.20	ug/L	10.0		87.9	60-155	5.78	30	
Trichlorofluoromethane	9.72	0.20	ug/L	10.0		97.2	62-141	5.71	30	
Acrolein	43.7	5.00	ug/L	50.0		87.4	52-190	2.49	30	
1,1,2-Trichloro-1,2,2-Trifluoroethane	10.3	0.20	ug/L	10.0		103	76-129	6.56	30	
Acetone	50.3	5.00	ug/L	50.0		101	58-142	3.79	30	
1,1-Dichloroethene	10.2	0.20	ug/L	10.0		102	69-135	4.77	30	
Iodomethane	10.4	1.00	ug/L	10.0		104	56-147	3.94	30	
Methylene Chloride	9.65	1.00	ug/L	10.0		96.5	65-135	2.75	30	
Acrylonitrile	10.5	1.00	ug/L	10.0		105	64-134	2.50	30	
Carbon Disulfide	10.3	0.20	ug/L	10.0		103	78-125	4.15	30	
trans-1,2-Dichloroethene	9.11	0.20	ug/L	10.0		91.1	78-128	6.89	30	
Vinyl Acetate	9.31	0.20	ug/L	10.0		93.1	55-138	0.06	30	



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Eric Caddy

**Reported:**  
14-Jan-2023 13:58

**Analysis by: Analytical Resources, LLC**

**Volatile Organic Compounds - Quality Control**

**Batch BKL0465 - EPA 8260D**

Instrument: NT2 Analyst: PKC

QC Sample/Alyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BKL0465-BSD1)</b>		Prepared: 19-Dec-2022 Analyzed: 19-Dec-2022 10:16								
1,1-Dichloroethane	10.2	0.20	ug/L	10.0	102	76-124	4.09	30		
2-Butanone	54.9	5.00	ug/L	50.0	110	61-140	2.78	30		
2,2-Dichloropropane	9.15	0.20	ug/L	10.0	91.5	66-147	4.84	30		
cis-1,2-Dichloroethene	9.96	0.20	ug/L	10.0	99.6	80-121	4.63	30		
Chloroform	10.3	0.20	ug/L	10.0	103	80-122	3.54	30		
Bromochloromethane	9.70	0.20	ug/L	10.0	97.0	80-121	4.18	30		
1,1,1-Trichloroethane	9.60	0.20	ug/L	10.0	96.0	79-123	3.23	30		
1,1-Dichloropropene	9.46	0.20	ug/L	10.0	94.6	80-127	2.51	30		
Carbon tetrachloride	8.35	0.20	ug/L	10.0	83.5	53-137	1.44	30		
1,2-Dichloroethane	9.66	0.20	ug/L	10.0	96.6	75-123	3.85	30		
Benzene	10.1	0.20	ug/L	10.0	101	80-120	2.46	30		
Trichloroethene	9.57	0.20	ug/L	10.0	95.7	80-120	2.77	30		
1,2-Dichloropropane	9.99	0.20	ug/L	10.0	99.9	80-120	2.69	30		
Bromodichloromethane	9.31	0.20	ug/L	10.0	93.1	80-121	2.80	30		
Dibromomethane	9.65	0.20	ug/L	10.0	96.5	80-120	3.59	30		
2-Chloroethyl vinyl ether	8.23	1.00	ug/L	10.0	82.3	64-120	2.85	30		
4-Methyl-2-Pentanone	53.4	5.00	ug/L	50.0	107	67-133	1.49	30		
cis-1,3-Dichloropropene	9.71	0.20	ug/L	10.0	97.1	80-124	1.57	30		
Toluene	9.94	0.20	ug/L	10.0	99.4	80-120	4.09	30		
trans-1,3-Dichloropropene	9.42	0.20	ug/L	10.0	94.2	71-127	2.05	30		
2-Hexanone	51.8	5.00	ug/L	50.0	104	69-133	0.59	30		
1,1,2-Trichloroethane	9.82	0.20	ug/L	10.0	98.2	80-121	3.85	30		
1,3-Dichloropropane	9.58	0.20	ug/L	10.0	95.8	80-120	1.10	30		
Tetrachloroethene	9.66	0.20	ug/L	10.0	96.6	80-120	3.25	30		
Dibromochloromethane	8.90	0.20	ug/L	10.0	89.0	65-135	0.02	30		
1,2-Dibromoethane	9.76	0.20	ug/L	10.0	97.6	80-121	1.19	30		
Chlorobenzene	9.80	0.20	ug/L	10.0	98.0	80-120	1.59	30		
Ethylbenzene	9.63	0.20	ug/L	10.0	96.3	80-120	2.08	30		
1,1,1,2-Tetrachloroethane	8.93	0.20	ug/L	10.0	89.3	80-120	0.86	30		
m,p-Xylene	19.6	0.40	ug/L	20.0	98.0	80-121	2.10	30		
o-Xylene	9.39	0.20	ug/L	10.0	93.9	80-121	2.64	30		
Xylenes, total	29.0	0.60	ug/L	30.0	96.7	76-127	2.27	30		
Styrene	9.89	0.20	ug/L	10.0	98.9	80-124	2.96	30		
Bromoform	8.55	0.20	ug/L	10.0	85.5	51-134	2.72	30		
1,1,2,2-Tetrachloroethane	9.71	0.20	ug/L	10.0	97.1	77-123	1.74	30		



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Eric Caddy

**Reported:**  
14-Jan-2023 13:58

**Analysis by: Analytical Resources, LLC**

**Volatile Organic Compounds - Quality Control**

**Batch BKL0465 - EPA 8260D**

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BKL0465-BSD1)</b>				Prepared: 19-Dec-2022 Analyzed: 19-Dec-2022 10:16						
1,2,3-Trichloropropane	9.64	0.50	ug/L	10.0		96.4	76-125	1.17	30	
trans-1,4-Dichloro 2-Butene	9.63	1.00	ug/L	10.0		96.3	55-129	3.84	30	
n-Propylbenzene	9.95	0.20	ug/L	10.0		99.5	78-130	2.16	30	
Bromobenzene	9.68	0.20	ug/L	10.0		96.8	80-120	1.29	30	
Isopropyl Benzene	9.69	0.20	ug/L	10.0		96.9	80-128	1.95	30	
2-Chlorotoluene	9.67	0.20	ug/L	10.0		96.7	78-122	2.98	30	
4-Chlorotoluene	9.50	0.20	ug/L	10.0		95.0	80-121	3.82	30	
t-Butylbenzene	9.21	0.20	ug/L	10.0		92.1	78-125	2.68	30	
1,3,5-Trimethylbenzene	9.74	0.20	ug/L	10.0		97.4	80-129	2.71	30	
1,2,4-Trimethylbenzene	9.86	0.20	ug/L	10.0		98.6	80-127	1.77	30	
s-Butylbenzene	9.42	0.20	ug/L	10.0		94.2	78-129	4.02	30	
4-Isopropyl Toluene	9.48	0.20	ug/L	10.0		94.8	79-130	3.66	30	
1,3-Dichlorobenzene	9.75	0.20	ug/L	10.0		97.5	80-120	2.00	30	
1,4-Dichlorobenzene	9.71	0.20	ug/L	10.0		97.1	80-120	1.71	30	
n-Butylbenzene	9.43	0.20	ug/L	10.0		94.3	74-129	5.11	30	
1,2-Dichlorobenzene	9.54	0.20	ug/L	10.0		95.4	80-120	2.22	30	
1,2-Dibromo-3-chloropropane	8.05	0.50	ug/L	10.0		80.5	62-123	0.27	30	
1,2,4-Trichlorobenzene	8.78	0.50	ug/L	10.0		87.8	64-124	3.44	30	
Hexachloro-1,3-Butadiene	8.35	2.00	ug/L	10.0		83.5	58-123	3.09	30	
Naphthalene	8.60	0.50	ug/L	10.0		86.0	50-134	0.42	30	
1,2,3-Trichlorobenzene	8.52	0.50	ug/L	10.0		85.2	49-133	2.28	30	
Dichlorodifluoromethane	8.19	0.20	ug/L	10.0		81.9	48-147	3.21	30	
Methyl tert-butyl Ether	10.2	0.50	ug/L	10.0		102	71-132	0.15	30	
2-Pentanone	47.3	5.00	ug/L	50.0		94.6	69-134	2.51	30	
Surrogate: 1,2-Dichloroethane-d4	5.41		ug/L	5.00		108	80-129			
Surrogate: Toluene-d8	4.95		ug/L	5.00		99.0	80-120			
Surrogate: 4-Bromofluorobenzene	4.79		ug/L	5.00		95.8	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	4.95		ug/L	5.00		98.9	80-120			



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Eric Caddy	<b>Reported:</b> 14-Jan-2023 13:58
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Analysis by: Analytical Resources, LLC

**Volatile Organic Compounds - SIM - Quality Control**

**Batch BKL0443 - EPA 8260D-SIM**

Instrument: NT16 Analyst: KOTT

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BKL0443-BLK1)</b>				Prepared: 16-Dec-2022 Analyzed: 16-Dec-2022 15:19						
Vinyl chloride	ND	20.0	ng/L							U
<i>Surrogate: 1,2-Dichloroethane-d4</i>	4660		ng/L	5000		93.2	80-129			
<b>LCS (BKL0443-BS1)</b>				Prepared: 16-Dec-2022 Analyzed: 16-Dec-2022 12:38						
Vinyl chloride	2260	20.0	ng/L	2000		113	62-141			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	4660		ng/L	5000		93.2	80-129			
<b>LCS Dup (BKL0443-BSD1)</b>				Prepared: 16-Dec-2022 Analyzed: 16-Dec-2022 13:44						
Vinyl chloride	2210	20.0	ng/L	2000		110	62-141	2.36	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	4620		ng/L	5000		92.4	80-129			



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Eric Caddy	<b>Reported:</b> 14-Jan-2023 13:58
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**Analysis by: Analytical Resources, LLC**

**Metals and Metallic Compounds - Quality Control**

**Batch BLA0014 - EPA 6010D**

Instrument: ICP3 Analyst: SKD

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BLA0014-BLK1)</b>		Prepared: 03-Jan-2023 Analyzed: 04-Jan-2023 21:06								
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
<b>LCS (BLA0014-BS1)</b>		Prepared: 03-Jan-2023 Analyzed: 04-Jan-2023 21:09								
Calcium	10.7	0.0500	mg/L	10.0		107	80-120			
Potassium	10.6	0.500	mg/L	10.0		106	80-120			
Sodium	10.5	0.500	mg/L	10.0		105	80-120			
Sodium	ND	50.0	mg/L	10.0		165	80-120			U
<b>Duplicate (BLA0014-DUP1)</b>		<b>Source: 22L0402-01</b>		Prepared: 03-Jan-2023 Analyzed: 04-Jan-2023 21:26						
Calcium	11.9	0.0500	mg/L		12.0			0.35	20	
Potassium	0.624	0.500	mg/L		0.675			7.73	20	
Sodium	4.78	0.500	mg/L		4.80			0.29	20	
<b>Matrix Spike (BLA0014-MS1)</b>		<b>Source: 22L0402-01</b>		Prepared: 03-Jan-2023 Analyzed: 04-Jan-2023 21:29						
Calcium	22.5	0.0500	mg/L	10.0	12.0	105	75-125			
Potassium	11.2	0.500	mg/L	10.0	0.675	105	75-125			
Sodium	15.1	0.500	mg/L	10.0	4.80	103	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
<b>Matrix Spike Dup (BLA0014-MSD1)</b>		<b>Source: 22L0402-01</b>		Prepared: 03-Jan-2023 Analyzed: 04-Jan-2023 21:32						
Calcium	22.0	0.0500	mg/L	10.0	12.0	100	75-125	2.25	20	
Potassium	10.9	0.500	mg/L	10.0	0.675	102	75-125	2.30	20	
Sodium	14.8	0.500	mg/L	10.0	4.80	101	75-125	1.96	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: 466410 Project Manager: Eric Caddy	<b>Reported:</b> 14-Jan-2023 13:58
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**Analysis by: Analytical Resources, LLC**

**Metals and Metallic Compounds (dissolved) - Quality Control**

**Batch BLA0016 - EPA 200.8**

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BLA0016-BLK1)</b>			Prepared: 03-Jan-2023 Analyzed: 06-Jan-2023 00:51								
Iron, Dissolved	54	ND	36.0	ug/L							U
Zinc, Dissolved	66	ND	6.00	ug/L							U

**LCS (BLA0016-BS1)**

Prepared: 03-Jan-2023 Analyzed: 06-Jan-2023 00:57

Iron, Dissolved	54	4960	36.0	ug/L	5000		99.3	80-120			
Zinc, Dissolved	66	82.0	6.00	ug/L	80.0		102	80-120			

Instrument: ICPMS2 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Duplicate (BLA0016-DUP1)</b>			Source: 22L0402-02 Prepared: 03-Jan-2023 Analyzed: 07-Jan-2023 02:20								
Iron, Dissolved	54	ND	36.0	ug/L		ND					U
Zinc, Dissolved	66	ND	6.00	ug/L		ND					U

**Matrix Spike (BLA0016-MS1)**

Source: 22L0402-02

Prepared: 03-Jan-2023 Analyzed: 07-Jan-2023 02:25

Iron, Dissolved	54	4400	36.0	ug/L	5000	ND	87.9	75-125			
Zinc, Dissolved	66	75.8	6.00	ug/L	80.0	ND	94.7	75-125			

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

**Matrix Spike Dup (BLA0016-MSD1)**

Source: 22L0402-02

Prepared: 03-Jan-2023 Analyzed: 07-Jan-2023 02:31

Iron, Dissolved	54	4470	36.0	ug/L	5000	ND	89.5	75-125	1.75	20	
Zinc, Dissolved	66	78.6	6.00	ug/L	80.0	ND	98.3	75-125	3.69	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: 466410 Project Manager: Eric Caddy	<b>Reported:</b> 14-Jan-2023 13:58
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**Analysis by: Analytical Resources, LLC**

**Metals and Metallic Compounds (dissolved) - Quality Control**

**Batch BLA0025 - EPA 6010D**

Instrument: ICP3 Analyst: SKD

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BLA0025-BLK1)</b>		Prepared: 03-Jan-2023 Analyzed: 04-Jan-2023 22:14								
Barium, Dissolved	ND	0.0060	mg/L							U
Manganese, Dissolved	ND	0.0040	mg/L							U
<b>LCS (BLA0025-BS1)</b>		Prepared: 03-Jan-2023 Analyzed: 04-Jan-2023 22:17								
Barium, Dissolved	1.96	0.0061	mg/L	2.00		98.1	80-120			
Manganese, Dissolved	0.492	0.0040	mg/L	0.500		98.5	80-120			
<b>Duplicate (BLA0025-DUP1)</b>		<b>Source: 22L0402-14</b>		Prepared: 03-Jan-2023 Analyzed: 04-Jan-2023 22:34						
Barium, Dissolved	ND	0.0060	mg/L		ND					U
Manganese, Dissolved	ND	0.0040	mg/L		ND					U
<b>Matrix Spike (BLA0025-MS1)</b>		<b>Source: 22L0402-14</b>		Prepared: 03-Jan-2023 Analyzed: 04-Jan-2023 22:36						
Barium, Dissolved	2.20	0.0061	mg/L	2.00	ND	110	75-125			
Manganese, Dissolved	0.550	0.0040	mg/L	0.500	ND	110	75-125			

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: 466410 Project Manager: Eric Caddy	<b>Reported:</b> 14-Jan-2023 13:58
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**Analysis by: Analytical Resources, LLC**

**Metals and Metallic Compounds (dissolved) - Quality Control**

**Batch BLA0035 - EPA 200.8 UCT-KED**

Instrument: ICPMS2 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BLA0035-BLK1)</b>			Prepared: 03-Jan-2023 Analyzed: 04-Jan-2023 17:53								
Arsenic, Dissolved	75a	ND	0.0400	ug/L							U
<b>LCS (BLA0035-BS1)</b>			Prepared: 03-Jan-2023 Analyzed: 04-Jan-2023 17:58								
Arsenic, Dissolved	75a	4.83	0.0400	ug/L	5.00		96.5	80-120			
<b>LCS Dup (BLA0035-BSD1)</b>			Prepared: 03-Jan-2023 Analyzed: 04-Jan-2023 18:03								
Arsenic, Dissolved	75a	4.83	0.0400	ug/L	5.00		96.5	80-120	0.02	20	
<b>Duplicate (BLA0035-DUP1)</b>			<b>Source: 22L0402-03</b>			Prepared: 03-Jan-2023 Analyzed: 05-Jan-2023 09:23					
Arsenic, Dissolved	75a	0.186	0.0400	ug/L		0.181			2.84	20	
<b>Matrix Spike (BLA0035-MS1)</b>			<b>Source: 22L0402-03</b>			Prepared: 03-Jan-2023 Analyzed: 05-Jan-2023 09:29					
Arsenic, Dissolved	75a	4.40	0.0400	ug/L	5.00	0.181	84.3	75-125			

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: 466410 Project Manager: Eric Caddy	<b>Reported:</b> 14-Jan-2023 13:58
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**Analysis by: Analytical Resources, LLC**

**Wet Chemistry - Quality Control**

**Batch BKL0414 - SM 4500-H+ B-00**

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
<b>LCS (BKL0414-BS1)</b>						Prepared: 15-Dec-2022 Analyzed: 15-Dec-2022 17:55					
pH	7.02	0.01	0.01	pH Units	7.00		100	99.2-100.8			
<b>Duplicate (BKL0414-DUP1)</b>						Source: 22L0402-01 Prepared: 15-Dec-2022 Analyzed: 15-Dec-2022 17:55					
pH	6.05	0.01	0.01	pH Units		6.04			0.17	20	H



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Eric Caddy	<b>Reported:</b> 14-Jan-2023 13:58
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**Analysis by: Analytical Resources, LLC**

**Wet Chemistry - Quality Control**

**Batch BKL0417 - EPA 353.2**

Instrument: LCHAT2 Analyst: RMS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BKL0417-BLK1)</b>						Prepared: 15-Dec-2022 Analyzed: 15-Dec-2022 20:12					
Nitrate + Nitrite as N	ND	0.010	0.010	mg/L							U
Nitrite-N	ND	0.010	0.010	mg/L							U
<b>LCS (BKL0417-BS1)</b>						Prepared: 15-Dec-2022 Analyzed: 15-Dec-2022 20:13					
Nitrate + Nitrite as N	0.519	0.010	0.010	mg/L	0.500		104	90-110			
<b>Duplicate (BKL0417-DUP1)</b>						Source: 22L0402-01 Prepared: 15-Dec-2022 Analyzed: 15-Dec-2022 20:17					
Nitrate + Nitrite as N	0.778	0.010	0.010	mg/L		0.778			0.00		
Nitrite-N	ND	0.010	0.010	mg/L		ND					U
<b>Matrix Spike (BKL0417-MS1)</b>						Source: 22L0402-01 Prepared: 15-Dec-2022 Analyzed: 15-Dec-2022 20:45					
Nitrate + Nitrite as N	3.27	0.010	0.050	mg/L	2.48	0.778	100	75-125			D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
<b>Matrix Spike (BKL0417-MS2)</b>						Source: 22L0402-01 Prepared: 15-Dec-2022 Analyzed: 15-Dec-2022 20:46					
Nitrite-N	0.517	0.010	0.010	mg/L	0.508	ND	102	75-125			
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 BKL0485 - SM 2320 B-97**

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
<b>Blank (BKL0485-BLK1)</b>						Prepared: 19-Dec-2022 Analyzed: 19-Dec-2022 14:33					
Alkalinity, Total	ND	1.00	1.00	mg/L CaCO3							U
<b>Reference (BKL0485-SRM1)</b>						Prepared: 19-Dec-2022 Analyzed: 19-Dec-2022 14:33					
Alkalinity, Total	93.2	1.00	1.00	mg/L CaCO3	93.6		99.6	85.04-114.96			



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**Analysis by: Analytical Resources, LLC**

**Wet Chemistry - Quality Control**

**Batch BKL0621 - EPA 375.2**

Instrument: LCHAT2 Analyst: RMS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BKL0621-BLK1)</b>						Prepared: 27-Dec-2022 Analyzed: 27-Dec-2022 16:08					
Sulfate	ND	2.00	2.00	mg/L							U
<b>LCS (BKL0621-BS1)</b>						Prepared: 27-Dec-2022 Analyzed: 27-Dec-2022 16:09					
Sulfate	13.7	2.00	2.00	mg/L	15.0		91.3	90-110			
<b>Duplicate (BKL0621-DUP1)</b>						Source: 22L0402-01 Prepared: 27-Dec-2022 Analyzed: 27-Dec-2022 16:18					
Sulfate	4.07	2.00	2.00	mg/L		3.67			10.30	20	
<b>Matrix Spike (BKL0621-MS1)</b>						Source: 22L0402-01 Prepared: 27-Dec-2022 Analyzed: 27-Dec-2022 16:19					
Sulfate	17.1	2.00	2.00	mg/L	15.0	3.67	89.5	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
<b>Matrix Spike (BKL0621-MS4)</b>						Source: 22L0402-01 Prepared: 27-Dec-2022 Analyzed: 27-Dec-2022 17:01					
Sulfate	112	2.00	10.0	mg/L	100	3.67	108	75-125			D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
<b>Matrix Spike Dup (BKL0621-MSD1)</b>						Source: 22L0402-01 Prepared: 27-Dec-2022 Analyzed: 27-Dec-2022 16:21					
Sulfate	16.2	2.00	2.00	mg/L	15.0	3.67	83.5	75-125	5.41	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
<b>Matrix Spike Dup (BKL0621-MSD4)</b>						Source: 22L0402-01 Prepared: 27-Dec-2022 Analyzed: 27-Dec-2022 17:02					
Sulfate	124	2.00	10.0	mg/L	100	3.67	120	75-125	9.77	20	D

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 BKL0634 - EPA 410.4**

Instrument: UV1800-1 Analyst: KLD

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BKL0634-BLK1)</b>						Prepared: 27-Dec-2022 Analyzed: 28-Dec-2022 16:36					
COD	ND	10.0	10.0	mg/L							U
<b>Blank (BKL0634-BLK2)</b>						Prepared: 27-Dec-2022 Analyzed: 28-Dec-2022 16:42					
COD	ND	10.0	10.0	mg/L							U
<b>Blank (BKL0634-BLK3)</b>						Prepared: 27-Dec-2022 Analyzed: 28-Dec-2022 16:44					
COD	ND	10.0	10.0	mg/L							U
<b>LCS (BKL0634-BS1)</b>						Prepared: 27-Dec-2022 Analyzed: 28-Dec-2022 16:36					
COD	101	10.0	10.0	mg/L	100		101	90-110			
<b>LCS (BKL0634-BS2)</b>						Prepared: 27-Dec-2022 Analyzed: 28-Dec-2022 16:42					
COD	102	10.0	10.0	mg/L	100		102	90-110			
<b>LCS (BKL0634-BS3)</b>						Prepared: 27-Dec-2022 Analyzed: 28-Dec-2022 16:44					
COD	101	10.0	10.0	mg/L	100		101	90-110			
<b>Duplicate (BKL0634-DUP1)</b>						Source: 22L0402-01 Prepared: 27-Dec-2022 Analyzed: 28-Dec-2022 16:41					
COD	ND	10.0	10.0	mg/L		ND					U
<b>Matrix Spike (BKL0634-MS1)</b>						Source: 22L0402-01 Prepared: 27-Dec-2022 Analyzed: 28-Dec-2022 16:41					
COD	103	20.0	20.0	mg/L	100	ND	103	90-110			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
<b>Matrix Spike Dup (BKL0634-MSD1)</b>						Source: 22L0402-01 Prepared: 27-Dec-2022 Analyzed: 28-Dec-2022 16:41					
COD	102	20.0	20.0	mg/L	100	ND	102	90-110	0.86	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 BKL0690 - SM 4500-NH3 H-97**

Instrument: LCHAT1 Analyst: RMS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BKL0690-BLK1)</b>						Prepared: 29-Dec-2022 Analyzed: 29-Dec-2022 16:30					
Ammonia-N	ND	0.040	0.040	mg/L							U
<b>LCS (BKL0690-BS2)</b>						Prepared: 29-Dec-2022 Analyzed: 29-Dec-2022 17:16					
Ammonia-N	0.504	0.040	0.040	mg/L	0.500		101	90-110			
<b>Duplicate (BKL0690-DUP1)</b>						Source: 22L0402-01 Prepared: 29-Dec-2022 Analyzed: 29-Dec-2022 16:33					
Ammonia-N	ND	0.040	0.040	mg/L		ND					U
<b>Matrix Spike (BKL0690-MS2)</b>						Source: 22L0402-01 Prepared: 29-Dec-2022 Analyzed: 29-Dec-2022 17:17					
Ammonia-N	0.487	0.040	0.040	mg/L	0.500	ND	97.4	75-125			

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

<b>Matrix Spike Dup (BKL0690-MSD2)</b>						Source: 22L0402-01 Prepared: 29-Dec-2022 Analyzed: 29-Dec-2022 17:19					
Ammonia-N	0.503	0.040	0.040	mg/L	0.500	ND	101	75-125	3.23	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 BKL0721 - EPA 9060A**

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
<b>Blank (BKL0721-BLK1)</b>						Prepared: 30-Dec-2022 Analyzed: 30-Dec-2022 18:09					
Total Organic Carbon	ND	0.50	0.50	mg/L							U
<b>LCS (BKL0721-BS1)</b>						Prepared: 30-Dec-2022 Analyzed: 30-Dec-2022 18:27					
Total Organic Carbon	20.44	0.50	0.50	mg/L	20.00		102	90-110			
<b>Duplicate (BKL0721-DUP1)</b>						Source: 22L0402-01 Prepared: 30-Dec-2022 Analyzed: 30-Dec-2022 20:41					
Total Organic Carbon	0.73	0.50	0.50	mg/L		0.72			1.30	20	
<b>Matrix Spike (BKL0721-MS1)</b>						Source: 22L0402-01 Prepared: 30-Dec-2022 Analyzed: 30-Dec-2022 21:52					
Total Organic Carbon	21.47	0.50	0.50	mg/L	20.00	0.72	104	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
<b>Matrix Spike Dup (BKL0721-MSD1)</b>						Source: 22L0402-01 Prepared: 30-Dec-2022 Analyzed: 30-Dec-2022 22:12					
Total Organic Carbon	21.57	0.50	0.50	mg/L	20.00	0.72	104	75-125	0.47	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 BLA0017 - EPA 325.2**

Instrument: LCHAT2 Analyst: EJK

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BLA0017-BLK1)</b>						Prepared: 03-Jan-2023 Analyzed: 03-Jan-2023 16:28					
Chloride	ND	1.00	1.00	mg/L							U
<b>LCS (BLA0017-BS1)</b>						Prepared: 03-Jan-2023 Analyzed: 03-Jan-2023 16:29					
Chloride	5.13	1.00	1.00	mg/L	5.00		103	90-110			



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Eric Caddy	<b>Reported:</b> 14-Jan-2023 13:58
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**Analysis by: Analytical Resources, LLC**

**Microbiology - Quality Control**

**Batch BKL0415 - SM 9222B**

Instrument: N/A

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BKL0415-BLK1)</b>						Prepared: 15-Dec-2022 Analyzed: 16-Dec-2022 17:40					
Total Coliforms	ND	1	1	CFU/100 ml							U



TRC Companies, Inc  
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Issaquah WA, 98027

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Project Number: 466410  
Project Manager: Eric Caddy

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**Certified Analyses included in this Report**

Analyte	Certifications
<b>EPA 200.8 in Water</b>	
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
<b>EPA 200.8 UCT-KED in Water</b>	
Arsenic-75a	NELAP,WADOE,WA-DW,DoD-ELAP
Zinc-66	NELAP,WADOE,WA-DW,DoD-ELAP
Zinc-67	NELAP,WADOE,WA-DW,DoD-ELAP
<b>EPA 353.2 in Water</b>	
Nitrate + Nitrite as N	NELAP,DoD-ELAP,WADOE
Nitrite-N	WADOE,NELAP,DoD-ELAP
<b>EPA 375.2 in Water</b>	
Sulfate	WADOE,NELAP
<b>EPA 410.4 in Water</b>	
COD	DoD-ELAP,NELAP,WADOE
<b>EPA 6010D in Water</b>	
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
<b>EPA 8260D in Water</b>	
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



TRC Companies, Inc  
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Project: Olalla Landfill  
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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



TRC Companies, Inc  
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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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TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Eric Caddy	<b>Reported:</b> 14-Jan-2023 13:58
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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

**SM 4500-NH3 H-97 in Water**

Ammonia-N WADOE,DoD-ELAP,NELAP

**SM 9222B in Water**

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	02/28/2023
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2023
WADOE	WA Dept of Ecology	C558	06/30/2023
WA-DW	Ecology - Drinking Water	C558	06/30/2023



TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah WA, 98027

Project: Olalla Landfill  
Project Number: 466410  
Project Manager: Eric Caddy

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



**Analytical Resources, LLC**  
Analytical Chemists and Consultants

24 February 2023

Eric Caddy  
TRC Companies, Inc  
1180 NW Maple Street, Suite 310  
Issaquah, WA 98027

RE: Olalla Landfill (466410)

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)  
23A0260

Associated SDG ID(s)  
N/A

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

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

Analytical Resources, LLC

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

Kelly Bottem, Client Services Manager





# 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: <b>23A0260</b>	Turn-around Requested: <b>Standard</b>	Page: <b>1</b> of <b>1</b>
ARI Client Company: <b>TDC</b>	Phone: <b>425-385-0010</b>	Date: <b>1-13-23</b>
Client Contact: <b>Eric Caddy</b> <small>ecaddy@trccompanies.com lbrent@trccompanies.com</small>	No. of Coolers:	Ice Present? <b>No</b>
Client Project Name: <b>Okalla Landfill</b>	Cooler Temps:	

Client Project #: <b>466410</b>	Samplers: <b>LB</b>	Analysis Requested						Notes/Comments
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Sample ID	Date	Time	Matrix	No. Containers	Fecal conform	PH	Nitrogen- Nitrates									
<b>SW-2</b>	<b>1-13-23</b>	<b>1030</b>	<b>Water</b>	<b>3</b>	<b>X</b>	<b>X</b>	<b>X</b>									

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: <b>Lauren Briant</b>	Printed Name: <b>Brett Smith</b>	Printed Name:	Printed Name:
	Company: <b>TDC</b>	Company: <b>ARI LLC</b>	Company:	Company:
	Date & Time: <b>1-13-23 @ 1140</b>	Date & Time: <b>01/13/23 11:42</b>	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: 466410  
Project Manager: Eric Caddy

**Reported:**  
24-Feb-2023 15:31

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SW-2	23A0260-01	Water	13-Jan-2023 10:30	13-Jan-2023 11:42



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## **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: JRC  
 COC No(s): \_\_\_\_\_ (NA)  
 Assigned ARI Job No: 23A0260

Project Name: dalle Lind final  
 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 11:45 8.8  
 If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 2009108

Cooler Accepted by: [Signature] Date: 11/13/23 Time: 11:42

**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: PJB Date: 11/13/23 Time: 11:52 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: \_\_\_\_\_



# Cooler Temperature Compliance Form

ARI Work Order: <u>23A0260</u>		
Cooler#:	Temperature(°C): <u>6.8</u>	
Sample ID	Bottle Count	Bottle Type
		<u>24 bottles over 6°C</u>
Cooler#:	Temperature(°C):	
Sample ID	Bottle Count	Bottle Type
Cooler#:	Temperature(°C):	
Sample ID	Bottle Count	Bottle Type
Cooler#:	Temperature(°C):	
Sample ID	Bottle Count	Bottle Type

Completed by: [Signature] Date: 01/13/23 Time: 11:45



TRC Companies, Inc 1180 NW Maple Street, Suite 310 Issaquah WA, 98027	Project: Olalla Landfill Project Number: 466410 Project Manager: Eric Caddy	<b>Reported:</b> 24-Feb-2023 15:31
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**SW-2**  
**23A0260-01 (Water)**

**Wet Chemistry**

Method: EPA 353.2 Sampled: 01/13/2023 10:30  
Instrument: [CALC] Analyst: EJK Analyzed: 01/18/2023 18:23

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: [CALC] Extract ID: 23A0260-01  
Preparation Batch: [CALC]  
Prepared: 01/18/2023 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
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Nitrate-N	14797-55-8	1	0.0200	0.0453	mg/L	
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Instrument: LACHAT2 Analyst: EJK Analyzed: 01/18/2023 18:23

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 23A0260-01 D  
Preparation Batch: BLA0448 Sample Size: 10 mL  
Prepared: 01/18/2023 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	0.045	mg/L	
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**SW-2**  
**23A0260-01 (Water)**

**Wet Chemistry**

Method: SM 4500-H+ B-00 Sampled: 01/13/2023 10:30  
Instrument: Accumet AB150 Analyst: BF Analyzed: 01/13/2023 14:10

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 23A0260-01 A  
Preparation Batch: BLA0345 Sample Size: 50 mL  
Prepared: 01/13/2023 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



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**SW-2**  
**23A0260-01 (Water)**

**Microbiology**

Method: SM 9222D Sampled: 01/13/2023 10:30  
Instrument: N/A Analyst: BF Analyzed: 01/14/2023 13:50

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 23A0260-01  
Preparation Batch: BLA0333 Sample Size: 20 mL  
Prepared: 01/13/2023 Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Fecal Coliforms		1	5	5	125	CFU/100 ml	





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**SW-2**  
**23A0260-01RE1 (Water)**

**Wet Chemistry**

Method: EPA 353.2 Sampled: 01/13/2023 10:30  
Instrument: LCHAT1 Analyst: EJK Analyzed: 01/13/2023 14:24

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 23A0260-01RE1 D  
Preparation Batch: BLA0338 Sample Size: 10 mL  
Prepared: 01/13/2023 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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**Analysis by: Analytical Resources, LLC**

**Wet Chemistry - Quality Control**

**Batch BLA0338 - EPA 353.2**

Instrument: LCHAT1 Analyst: EJK

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BLA0338-BLK1)</b>						Prepared: 13-Jan-2023 Analyzed: 13-Jan-2023 14:16					
Nitrite-N	ND	0.010	0.010	mg/L							U
<b>LCS (BLA0338-BS2)</b>						Prepared: 13-Jan-2023 Analyzed: 13-Jan-2023 14:23					
Nitrite-N	0.475	0.010	0.010	mg/L	0.500		95.0	90-110			
<b>Duplicate (BLA0338-DUP1)</b>						Source: 23A0260-01RE1 Prepared: 13-Jan-2023 Analyzed: 13-Jan-2023 14:20					
Nitrite-N	ND	0.010	0.010	mg/L		ND					U
<b>Matrix Spike (BLA0338-MS1)</b>						Source: 23A0260-01RE1 Prepared: 13-Jan-2023 Analyzed: 13-Jan-2023 14:21					
Nitrite-N	0.512	0.010	0.010	mg/L	0.508	ND	101	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
<b>Matrix Spike Dup (BLA0338-MSD1)</b>						Source: 23A0260-01RE1 Prepared: 13-Jan-2023 Analyzed: 13-Jan-2023 14:22					
Nitrite-N	0.495	0.010	0.010	mg/L	0.508	ND	97.5	75-125	3.38	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 BLA0345 - SM 4500-H+ B-00**

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
<b>LCS (BLA0345-BS1)</b>						Prepared: 13-Jan-2023 Analyzed: 13-Jan-2023 14:10					
pH	6.99	0.01	0.01	pH Units	7.00		99.9	99.2-100.8			
<b>Duplicate (BLA0345-DUP1)</b>						Source: 23A0260-01 Prepared: 13-Jan-2023 Analyzed: 13-Jan-2023 14:10					
pH	6.80	0.01	0.01	pH Units		6.78			0.30	20	H



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**Analysis by: Analytical Resources, LLC**

**Wet Chemistry - Quality Control**

**Batch BLA0448 - EPA 353.2**

Instrument: LCHAT2 Analyst: EJK

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BLA0448-BLK1)</b>						Prepared: 18-Jan-2023 Analyzed: 18-Jan-2023 18:21					
Nitrate + Nitrite as N	ND	0.010	0.010	mg/L							U
<b>LCS (BLA0448-BS2)</b>						Prepared: 18-Jan-2023 Analyzed: 18-Jan-2023 18:53					
Nitrate + Nitrite as N	0.514	0.010	0.010	mg/L	0.500		103	90-110			
<b>Duplicate (BLA0448-DUP1)</b>						Source: 23A0260-01 Prepared: 18-Jan-2023 Analyzed: 18-Jan-2023 18:24					
Nitrate + Nitrite as N	0.043	0.010	0.010	mg/L		0.045			5.21	20	
<b>Matrix Spike (BLA0448-MS1)</b>						Source: 23A0260-01 Prepared: 18-Jan-2023 Analyzed: 18-Jan-2023 18:25					
Nitrate + Nitrite as N	0.529	0.010	0.010	mg/L	0.500	0.045	96.8	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
<b>Matrix Spike Dup (BLA0448-MSD1)</b>						Source: 23A0260-01 Prepared: 18-Jan-2023 Analyzed: 18-Jan-2023 18:26					
Nitrate + Nitrite as N	0.530	0.010	0.010	mg/L	0.500	0.045	97.0	75-125	0.19	20	
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 BLA0333 - SM 9222D**

Instrument: N/A

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BLA0333-BLK1)</b>						Prepared: 13-Jan-2023 Analyzed: 14-Jan-2023 13:50					
Fecal Coliforms	ND	1	1	CFU/100 ml							U



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**Certified Analyses included in this Report**

Analyte	Certifications
<b>EPA 353.2 in Water</b>	
Nitrate + Nitrite as N	NELAP,DoD-ELAP,WADOE
Nitrite-N	WADOE,NELAP,DoD-ELAP
<b>SM 4500-H+ B-00 in Water</b>	
pH	WADOE,NELAP,WA-DW
<b>SM 9222D in Water</b>	
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, PJLA Testing	66169	02/28/2023
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2023
WADOE	WA Dept of Ecology	C558	06/30/2023
WA-DW	Ecology - Drinking Water	C558	06/30/2023



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**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.