Rocky Top Environmental Limited Purpose Landfill 2024 Annual Groundwater Monitoring Report

Prepared for

DTG Recycling

March 2025

Parametrix

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Certification

The technical material and data contained in this document were prepared under the supervision and direction of the undersigned, whose seal, as a professional hydrogeologist licensed to practice as such, is affixed below.

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Acronyms and Abbreviations

AA	Alluvial Aquifer
AO	Agreed Order
AMSL	above mean sea level
CULs	cleanup levels
CUSUM	cumulative sum
cm/sec	centimeters per second
DA	Deep Aquifer
DTG	DTG Recycling
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
Facility	41 Rocky Top Road in Yakima, Washington
GWQS	Groundwater Quality Criteria (Chapter 173-200 WAC)
h	control limit for CUSUM comparisons
HWA	HWA GeoSciences, Inc.
IZ	Interflow Zone
LPL	Limited Purpose Landfill
MCLs	Maximum Contaminant Levels (Chapter 246-290 WAC)
meq/L	milliequivalents per liter
mg/L	milligrams per liter
MTCA	Model Toxics Control Act (Chapter 173-340 WAC)
MRF	Materials Recovery Facility
On-Site	On-Site Environmental, Inc.
PCS	Petroleum-contaminated soil
PFAS	Per- and polyfluoroalkyl substances
RI	remedial investigation
RL	reporting limit
SA	Shallow Aquifer
SAP	Sampling and Analysis Plan

Acronyms and Abbreviations (continued)

SCL	Shewhart Control Limit
TDS	total dissolved solids
TPH	total petroleum hydrocarbons
µg	micrograms
µmhos/cm	micromhos per centimeter
UPLs	upper prediction limits
USACE	US Army Corps of Engineers
VOCs	volatile organic compounds
WAC	Washington Administrative Code
YHD	Yakima Health District
YRCAA	Yakima Regional Clean Air Agency

1. Introduction

This report presents the results of the 2024 environmental monitoring completed at the Rocky Top Environmental Limited Purpose Landfill (LPL) located at 41 Rocky Top Road in Yakima, Washington (Facility). The Facility is owned and operated by DTG Recycling (DTG). Figure 1 shows the overall location of the Facility. Figure 2 shows the details of the Facility including the monitoring well locations, lined and unlined cells, the leachate pond, and other operations.

1.1 LPL Description

The Facility was permitted for sand and gravel mining operations beginning in 1983. In 1991, the Facility permit was modified to include petroleum-contaminated soil (PCS) remediation and re-use of treated PCS for cover or crushed into rock for asphalt and used as fill material. The Facility was later permitted as an unlined construction, demolition, and land-clearing debris (landfill that began operation in 1997 as Anderson Rock and Demolition Pits) under Chapter 173-304 of the Washington Administrative Code (WAC). The Facility was reclassified as an LPL in 2007, with the southern expansion area permitted in 2015. The LPL accepted treated PCS that was stockpiled in a separate area on the northeast portion of the Facility and managed until soil concentrations were below the Model Toxics Control Act (MTCA) Method A cleanup levels (CULs) for unrestricted land use. Once soils in the stockpiles were below MTCA CULs, they were used as daily cover in the LPL following approval from Yakima Health District (YHD).

In October 2019, DTG purchased the Facility and overtook operations of the LPL. Phase 1 is the historical fill area and is unlined (Figure 2). Filling of Phase 1 continued through 2022, and then waste was placed in a permitted unlined expansion cell south of Phase 1. It was discovered that the expansion cell had hydrogeologic physical conditions differing from those estimated for original site permitting. This south area became known as the temporary fill area and DTG began plans for a lined expansion cell (Phase 2). Filling of the temporary fill area continued through June 2023 when the permit renewal for the LPL was denied primarily due to the need for an air permit from the Yakima Regional Clean Air Agency (YRCAA). By September 2024, DTG constructed Phase 2 with a liner system and leachate collection system which is located on the southern portion of the Facility. The Facility permit was renewed in December 2024 (YHD, 2024) and DTG began placing LPL waste in Phase 2 and moving waste from the temporary fill area into the new lined cell.

1.1.1 MTCA Site

The Washington State Department of Ecology (Ecology) listed the northwest slope of Phase 1 of the LPL as a MTCA cleanup site in September 2022 related to ambient air found above MTCA CULs. DTG and Ecology negotiated an Agreed Order (AO) that was executed in February 2023. A subsurface fire beneath the northwest slope of the LPL was confirmed in March 2023. Based on the potential contaminants related to the fire, Ecology requested the installation of additional downgradient monitoring wells. These wells were installed in 2024 related to the MTCA limited remedial investigation (RI). Ecology also requested additional chemicals of potential concern (COPCs) in groundwater to be investigated.

Groundwater monitoring related to MTCA releases includes analysis for additional parameters and is being reported separately. This includes analysis of per- and polyfluoroalkyl substances (PFAS), dioxins/furans, and semi-volatile organic compounds including carcinogenic polycyclic aromatic hydrocarbons, and U.S. Environmental Protection Agency (EPA) priority pollutant metals which are suspected to be present related to the MTCA site.

1.1.2 Additional Facility Operations

There is a materials recovery Facility (MRF) operating in the central portion of the Facility adjacent to the LPL. In 2023, YHD and Ecology required the MRF to develop a covered receiving area which was installed in 2024. In 2024, the MRF area requirements include an additional impervious receiving floor and leachate controls. DTG is in the process of designing and constructing these systems for the MRF. Figure 1 displays the current MRF location. An active rock quarry also operates in the western portion of the Facility and is permitted separately (Figure 1). A PCS remediation area is located on the eastern portion of the Facility. The PCS remediation area is currently undergoing closure with YHD so that the MRF can be developed at this location. Three 10-foot monitoring wells were installed around the PCS remediation area in 1991. The wells are dry and planned to be decommissioned during the closure process.

2. Physical Setting

The Facility is located northwest of Yakima in Section 10, Township 13 North, Range 17 East, Willamette Meridian, in Yakima County, Washington. The area of the LPL is within the Yakima fold and thrust belt of the Columbia Plateau which is a series of east-west trending thrust faults and folds on the westernmost portion of the Columbia Plateau. The anticlines are usually formed over a thrust fault and typically form topographic ridges. The Facility is located on the northeast flank of Cowiche Mountain, which is an east-west trending anticlinal structure that extends from Cowiche Mountain to under the City of Yakima and forms Yakima Ridge to the east of the LPL. The axis of the anticline is located approximately 1,600 feet (ft) to the south of the LPL (Bentley and Campbell 1983).

2.1 Topography

The topography of the Facility slopes northerly from an elevation of approximately 2,000 ft above sea level on the southern border of the Facility down to approximately 1,800 ft above sea level on the northern border of the Facility. The Facility has an average slope, from southwest to northeast, of approximately 15% to 25%.

2.2 Soils

Soils on the Facility consist of silt loams up to 14-inches thick derived from Ellensburg Formation undifferentiated deposits and breakdown of basalt bedrock. Some areas of the Facility surface soils consist solely of weathered basalt fragments. The thickness of unconsolidated soil above bedrock varies up to approximately 14 ft; however, it is as much as 35 ft in some areas of the Facility due to regrading.

2.3 Geology

Below the surface soils of the Ellensburg Formation undifferentiated deposits, the geology of the Facility is comprised of Columbia River Basalt bedrock with sedimentary interbeds. The Yakima Basalt Subgroup comprises the uppermost (youngest) portion of the regional Columbia River Basalt Group and includes (from youngest to oldest): the Saddle Mountain Basalt, the Wanapum Basalt, and the Grande Ronde Basalt.

Locally, the Saddle Mountain Basalt is absent. The Ellensburg Formation is interbedded with the Yakima Basalt subgroup and is comprised of surficial formations of silt above bedrock as well as a significant interbed, known as the Vantage member of the Ellensburg Formation (Vantage Interbed).

The surface geology of the LPL (Bentley and Campbell 1983) is mapped as the Kelley Hollow flow of the Frenchman Springs Member of the Wanapum Basalt with a thin band of the Vantage Interbed separating the Wanapum Basalt (north) from the Grande Ronde Basalt (south). Mining has since uncovered large portions of the Vantage Interbed at the Facility including within the current temporary fill area.

The Wanapum Basalt is the shallow bedrock below the Facility, and is comprised of massive basalt, fractured basalt, columnar zones, pillow basalt, and palagonite. The thickness varies across the Facility but has been identified to be up to 260 ft thick at the Facility. The Wanapum Basalt is underlain by the Vantage Interbed of the Ellensburg Formation. The Vantage Interbed consists of sandstone, silt, and sand lenses and is approximately 30 to 35 ft thick. Below the Vantage Interbed is the Grande Ronde Basalt consisting of massive, columnar, and fractured basalt. The Grande Ronde Basalt has been observed up to 900 ft thick below the Facility.

2.4 Hydrogeology

There are two aquifers that are currently monitored below the LPL including a Shallow Aquifer (SA) and Interflow Zone (IZ) located within the Columbia River Basalt bedrock. There is also a Deep Aquifer (DA) occurring in the basalt that was monitored for four quarters in 2023. The SA and DA are the primary drinking water aquifers for neighboring Group B and domestic wells.

The basalt is dipping northerly at the Facility due to the Cowiche Mountain anticline. The natural dip places the SA as the first groundwater unit below the northern portion of the Facility and the IZ as the first groundwater unit below the southern portion of the Facility. There is an Alluvial Aquifer (AA) north and downgradient of the Facility within the Cowiche Valley that is the ultimate discharge of the SA. The AA is locally up to 350 ft thick based on well logs from Ecology.

The SA occurs within the bottom flow zone of the Wanapum Basalt, saturated portions of the Vantage Interbed, and saturated portions of the flow top zone of the Grande Ronde basalt. The SA is partially to fully confined. Five monitoring wells have been completed in the SA. All five wells are located downgradient of the Facility due to the SA pinching out and being exposed at land surface near Rocky Top Road. MW-2S and MW-3S were completed between 2005 and 2007 and background monitoring events were conducted in 2008 and 2009. MW-4S was completed in July 2022 and background monitoring events were completed through 2024. MW-5S and MW-6S were completed in 2024 and background monitoring is being conducted on an accelerated basis in 2025.

The IZ occurs approximately 150 to 200 ft below the Grande Ronde-Vantage Interbed interface. The IZ is fully confined. Four monitoring wells have been completed in the IZ, one upgradient and three downgradient. MW-7D, MW-8D, MW-9D, and MW-10D were completed in 2024 and background monitoring is being conducted on an accelerated basis in 2025.

The DA occurs approximately 200 to 400 ft below the IZ within the Grande Ronde Basalt. The DA is fully confined with water levels approximately 200 ft above the source zone. The DA was monitored for four quarters in 2023 with samples collected from the Bertheas ’95 well located east of the Facility (Figure 2). No water levels could be measured in the well; however, the log indicates water levels were 600 ft below ground, or approximately elevation 1325 ft above sea level. The Bertheas ’95 well was decommissioned in 2024.

2.4.1 Recharge and Discharge

The Yakima area (including the LPL area) is classified as a “zone of little groundwater recharge potential from direct precipitation sources” (Myers et al 1979), which is the lowest of three relative groundwater recharge classifications in their study. Recharge to groundwater in the basalt aquifers occurs primarily between Cowiche Mountain and Bethel Ridge to the northwest, with some recharge north of the sub-basin boundary (USACE 1978). The reach of Yakima River east of the LPL is also classified as a suspected recharge area (Myers et al 1979). The SA in the Wanapum Basalt and IZ within the Grande Ronde Basalt discharge to the AA at lower elevations to the north, and ultimately to Cowiche Creek, which flows into Naches River, and then into the Yakima River. The DA in the Grande Ronde Basalt likely continues below the AA north of the facility and discharges to AA within the Yakima River Valley to the east-northeast.

2.4.2 Groundwater Flow

Shallow Aquifer

The groundwater gradient for the SA is predominantly northerly following the topographic slope and dip of the Vantage Interbed. In March 2022, HWA Geosciences (HWA) measured groundwater depths in 18 private residential and orchard wells surrounding the LPL completed in the SA, as well as in DTG monitoring wells MW-2S and MW-3S. Methods and results are detailed in the Groundwater Gradient Study, DTG/Anderson Pit Limited Purpose Landfill, Yakima, Washington (HWA 2022b). The interpreted groundwater elevation contour maps showed hydraulic gradients of 0.07 to 0.17 ft/ft, or approximately 370 to 900 ft per mile, with flow generally to the north, downslope and down-dip, as expected.

The gradient from the existing monitoring well network shows the SA is steeper below the Facility (0.23 to 0.28 ft/ft) and flattens slightly further north where the SA meets the Cowiche Valley.

Interflow Zone

The groundwater gradient for the IZ is described in Section 5.1 and has been observed to be northerly around 0.20 ft/ft following topography and the dip of the anticline. The third quarter 2024 was the first monitoring event where static water level elevations for the IZ were evaluated.

Deep Aquifer

Parametrix reviewed domestic well logs in the vicinity of the LPL to develop an approximate groundwater gradient map for the DA to support future well drilling. The gradient map developed from the domestic wells (Parametrix 2023b) showed a similar approximately north-northwesterly gradient for the DA near the LPL at a rate of approximately 0.11 ft/ft, or approximately 600 ft per mile. The gradient map also demonstrated there is a local groundwater divide located 1,500 ft south of the LPL along the anticline axis of Cowiche Mountain.

2.4.3 Hydraulic Conductivity

HWA performed aquifer testing on MW-3S (HWA 2015) and MW-4S (HWA 2022) identifying the hydraulic conductivities to be 0.4 to 3.2 ft/day for the SA. Parametrix performed aquifer testing on MW-5S, MW-6S, MW-7D, MW-8D, MW-9D, and MW-10D in 2024 (Parametrix 2025a). For the two new SA wells hydraulic conductivities were found to range from 0.7 to 76 ft/day. For the IZ wells hydraulic conductivities were found to range from 0.04 to 10 ft/day.

Results for MW-5S were an order of magnitude higher than the maximum published values for the Grande Ronde Basalt (Vaccaro 1999). The results may have been affected by the inability to properly stress the aquifer at that location. The updated hydrogeologic characterization report (Parametrix 2025e) adjusted the MW-5S hydraulic conductivity values to the maximum published values identified for the Wanapum of 7.8 ft/day. Averages for the SA were then calculated to be 3.1 ft/day with a known range from 0.4 to 7.8 ft/day. For the IZ wells, the average hydraulic conductivity was calculated to be 2 ft/day with a range of 0.05 to 7.5 ft/day.

2.5 Surface Water

Surface water at the Facility is comprised of ephemeral drainages flowing north off Cowiche Mountain periodically towards Cowiche Creek located in the valley north of the Facility. Surface water for the Facility is generally captured and evaporated on the Facility through surface water evaporation ponds.

3. Monitoring History

Groundwater monitoring for the LPL is completed quarterly for compliance with WAC 173-350-100 and permit requirements. Groundwater monitoring well locations at the LPL are shown on Figure 2. Table 1 summarizes the monitoring well details.

Well MW-2S was installed in December 2005. MW-3S was installed in September 2007. A third location, BH-1, was drilled in 2005 and was observed to be dry so no monitoring well was installed. Eight background monitoring events were conducted at MW-2S and MW-3S between August 2008 and August 2009 to establish baseline groundwater quality conditions. Background monitoring is described in the Groundwater Monitoring Report, Anderson Pit Limited Purpose Landfill, Yakima, Washington (HWA 2010). Since 2009, quarterly groundwater monitoring has been conducted at MW-2S and MW-3S and the results have been documented in annual reports. Quarterly groundwater reporting began in 2023.

Monitoring well MW-4S was installed in 2022 to update the hydrogeologic characterization and monitoring at the Facility (HWA 2022). It was initially sampled in October 2022 and has been monitored quarterly since installation. The initial results were presented in the 2022 annual report (Parametrix 2023a) and subsequent results were presented in quarterly and annual reports (Parametrix 2024a).

The Bertheas ’95 domestic well in the DA (Figure 2) was sampled for four quarters in 2023 and results were presented in the 2023 quarterly and annual reports (Parametrix 2024a). The Bertheas ’95 well was decommissioned in September 2024 and is no longer available for sampling.

In May 2023, DTG presented a work plan (Parametrix in association with HWA 2023) for additional hydrogeologic characterization of the LPL related to the Phase 2 development. Drilling of two new SA wells and four new IZ wells commenced in May 2024. The two new SA wells MW-5S and MW-6S were installed prior to the second quarter 2024 sampling event in June. Four new IZ monitoring wells were installed prior to the third quarter 2024 sampling event in September. IZ wells MW-7D, MW-8D, MW-9D, and MW-10 are utilized for groundwater compliance. Background sampling of the new wells will continue until eight events have been completed. As discussed in this report, sampling of new wells in 2024 included non-routine events during initial hydraulic testing as well as routine sampling with dedicated bladder pumps.

3.1 Recent Changes

The Sampling and Analysis Plan (SAP) was updated in September 2024 (Parametrix 2024b) to reflect the revised statistical analysis approach for the groundwater monitoring program as well as to include information for the additional monitoring wells. An additional MTCA-related groundwater SAP (Parametrix 2025b) was developed for required monitoring under the AO for additional contaminants.

The SAPs include protocols for analysis of PFAS and dioxins/furans. Dedicated PFAS-free pumps were installed in the SA wells following the second quarter 2024 event and sampling for PFAS for the SA wells was completed in the third quarter 2024 event. The results for MTCA-related contaminants are not included in this report and are presented in other reporting for the MTCA site as part of the AO.

PFAS were confirmed in MW-3S above CULs during the third and fourth quarter of 2024 (Parametrix 2024f, 2025c). An RI work plan (Parametrix 2025d) was developed for two additional monitoring wells within the SA related to characterization of PFAS and impacts to the SA. There are no downgradient monitoring wells between MW-3S and neighboring domestic and Group B wells. The wells will be drilled in the spring of 2025 and added to the SA monitoring well network.

In September 2024, the Phase 2 lined cell was completed and began receiving waste in December 2024. The lined cell includes an on-site lined leachate evaporation pond located east of Phase 2 (Figure 2). The SAP was amended to include leachate sampling during the first quarter of each monitoring year that will be analyzed for groundwater parameters. The leachate pond level will be recorded on field sheets every quarter and the leachate leak detection sump will be measured for the presence of liquids. If liquids are detected, often an additional sample (leachate underdrain) will be collected and analyzed for groundwater parameters. The first sampling event will be in the first quarter of 2025.

3.2 Objectives

This report documents the 2024 groundwater monitoring at the Rocky Top Environmental LPL. Reporting requirements, as required by the LPL operating permit and WAC 173-350-500, entail quarterly groundwater monitoring and submission of an annual groundwater monitoring report to the YHD and Ecology by April 1 of each year.

Groundwater sampling and analysis was conducted in accordance with the revised Groundwater SAP (Parametrix 2024b).

3.3 Compliance

If statistical analyses determine a significant increase over background (as described in Section 5.2.5), DTG will notify YHD and Ecology within 30 days of the evaluation finding. If the increase is not demonstrated to be attributable to a source other than the landfill, natural variation in groundwater quality, or an error in sampling, analyses, or statistical evaluation, and the concentrations of constituents exceed the groundwater quality criteria established by Chapter 173-200 WAC, Water Quality Standards for Groundwaters of the State of Washington, DTG in consultation with YHD and Ecology, will determine additional measures. Additional measures to be considered are to characterize the chemical composition of the release and the contaminant fate and transport characteristics by installing additional monitoring wells; assess and, if necessary, implement appropriate intermediate measures to remedy the release; and evaluate, select, and implement remedial measures as required by Chapter 173-340 WAC, MTCA, where applicable.

4. Sampling and Analysis

The 2024 groundwater sampling and analysis was conducted in accordance with the SAP (Parametrix 2024b).

4.1 Routine Groundwater Sampling

SA monitoring wells MW-2S through MW-4S were sampled during the first quarter of 2024. Newly installed monitoring wells MW-5S and MW-6S were added to the routine sampling beginning with the second quarter 2024 event. Newly installed IZ wells MW-7D through MW-10D were added to routine sampling beginning with the fourth quarter 2024 event.

Parametrix collected groundwater samples at SA monitoring wells on the following dates:

- First Quarter 2024: March 5, 2024.
- Second Quarter: June 12, 13, and 18, 2024.
- Third Quarter: September 11 and 12, 2024.
- Fourth Quarter: December 10, 11, 12, 18, and 19, 2024.

The monitoring wells were purged and sampled using recently installed dedicated PFAS-free QED bladder pumps with an electronic pump control unit (QED Micropurge MP10/MP10H) and external nitrogen tank. Low flow purging methods were utilized in accordance with the SAP. Samples to be tested for dissolved metals were field filtered through a 0.45-micron filter. A duplicate sample, MW-13S, was collected at a different well during each event.

4.2 Nonroutine Groundwater Sampling

The initial samples from the IZ wells were collected via atypical methods in the third quarter of 2024. Due to scheduling and the absence of dedicated pumps at the IZ, samples were collected during hydraulic pump tests using the drilling contractor’s pumps. The samples for wells MW-7D, MW-8D, and MW-10D were collected on August 28, September 9, and September 11, 2024, respectively. Development and hydraulic testing of MW-9D could not be completed due to a combination of an extremely low head and low groundwater production. Samples were collected with a bailer on September 10, 2024; however, no water had been removed from the well since the time of drilling indicating the sample may not reflect the true water chemistry at that location.

Groundwater levels in all the monitoring wells were measured to the nearest 0.01-foot prior to well purging using a decontaminated electronic well probe. Groundwater level measurement data are presented in Section 5.1.

Samples from SA wells were also collected for PFAS and dioxins/furans. As noted above, the results for these analytes are presented separately for the MTCA site.

4.3 Groundwater Analysis

The 2024 samples were analyzed by On-Site Environmental, Inc. (On-Site) located in Redmond, Washington. The analytical methods used are listed in Table 2. In addition to the parameters required by WAC 173-350-500, the samples were analyzed for the volatile organic compounds (VOCs) included in WAC 173-351-990 Appendix I and naphthalene, and gasoline and diesel/oil range total petroleum hydrocarbons (TPH).

5. Results

5.1 Groundwater Elevations and Flow

5.1.1 Groundwater Elevations

Table 3 summarizes the groundwater depths and elevations measured at the LPL during 2024 and previous groundwater monitoring events. Figure 3 presents a hydrograph of groundwater elevation and the cumulative deviation from average monthly precipitation recorded at the Yakima Air Terminal. The water levels appear consistent with deviations in precipitation over time (Figure 3).

Water levels declined over 50 ft at MW-2S between 2006 and 2015; however, since that time water levels have slightly increased and stabilized. The apparent increase in the MW-2S water level of over 10 ft observed in December 2022 continued through 2024. Water levels at MW-2S are slightly depressed compared to the rest of the SA wells as MW-2S is completed in the bottom of the aquifer within the flow top zone of the Grande Ronde Basalt.

Water levels at well MW-3S also showed decreases of over 20 ft between 2006 and 2015 and since that time increased slightly and stabilized with some substantial short-term changes including increases of approximately 20 ft in June and September 2017. An apparent decrease in the MW-3S water level of over 10 ft observed in December 2022 continued through the second quarter of 2024 another decrease of 14 ft beginning in the third quarter 2024 event.

The water level at MW-4S increased by over 10 ft in the first through third quarters of 2023 compared to the previous two quarters but decreased approximately 8 ft in the fourth quarter of 2023 to within the previous range observed during 2022. An increase in the MW-4S water level of approximately 6 ft to a level in the range of the first through third quarter 2023 measurements continued through the second quarter 2024 event. A decrease of 6 ft was observed during the third and fourth quarter 2024 events to levels similar to the fourth quarter of 2023. This well is anticipated to have the quickest response to recharge due to the depth to the SA at that location, approximately 50 ft.

The initial water levels at new SA (MW-5S and MW-6S) and IZ wells (MW-7D though MW-10D) are also shown on Figure 3. Although most of the wells' water levels remained relatively consistent, MW-7D had a 17-ft decrease and MW-8D had a 5-ft increase since their initial measurements in the third quarter of 2024. However, trends will be further determined with more data from future monitoring events.

5.1.2 Groundwater Gradient

Based on the water levels measured in the five SA monitoring wells, an approximate potentiometric surface was developed showing the interpreted direction and gradient of groundwater flow in the SA at the LPL. The SA gradient from the fourth quarter of 2024 is shown on Figure 4 and was calculated to be 0.25 ft/ft, or 1,320 ft per mile. The northerly flow direction is consistent with the area wide direction of flow observed at the LPL monitoring wells following topography and the dip of the anticline.

An approximate potentiometric surface was developed for the IZ from the four monitoring wells. The IZ gradient from the fourth quarter of 2024 is shown on Figure 5 and was calculated to be 0.21 ft/ft, or 1,109 ft per mile. The northerly flow direction is consistent with topography and the dip of the anticline. The IZ gradient is slightly lower than the SA. As discussed in Section 2.4.2, the DA gradient is even flatter. This is anticipated and is consistent with groundwater discharge north into the AA of the Cowiche Valley and further east-northeast to the Yakima River Valley.

Gradients from 2024:

	Q1	Q2	Q3	Q4
SA:	0.230 ft/ft	0.230 ft/ft	0.270 ft/ft	0.250 ft/ft
IZ:	N/A	N/A	0.197 ft/ft	0.210 ft/ft

5.1.3 Groundwater Flow

Groundwater particle velocity is described by the following relationship: V = K i / n, where:

V = particle velocity

K = hydraulic conductivity

i = gradient

n = effective porosity

Groundwater flow velocities were calculated using the average, minimum, and maximum hydraulic conductivities for the SA and IZ (see Section 2.4.3), an assumed effective porosity of 0.2 (Nimmo et al 2003), and the calculated gradients (Section 5.1.2, above).

Shallow Aquifer

Average	3.54 to 4.16 ft/day (1,292 to 1,518 ft/year)
Minimum	0.46 to 0.54 ft/day
Maximum	8.97 to 10.53 ft/day

Interflow Zone

Average	1.95 to 2.08 ft/day (712 to 759 ft/ year)
Minimum	0.04 to 0.05 ft/day
Maximum	7.42 to 7.91 ft/day

5.2 Groundwater Quality

5.2.1 Data Quality Evaluation

For the fourth quarter 2024 event, field data sheets are presented in Appendix A and laboratory reports are presented in Appendix B. Appendix C presents an evaluation of the fourth quarter 2024 analytical and field data quality. Field data sheets, laboratory reports, and the respective data review memoranda for the first, second, and third quarter 2024 events were presented in quarterly reports (Parametrix 2024d,e,f).

5.2.2 Comparison of Data to Water Quality Criteria

5.2.2.1 Shallow Aquifer Sampling

The data from the SA wells for 2024 are presented in Table 4 and were compared to Water Quality Standards for Groundwaters of the State of Washington (GWQS; Chapter 173-200 WAC) and Maximum Contaminant Levels (MCLs; Chapter 246-290 WAC). TPH and naphthalene concentrations were compared to MTCA Method A CULs. Table 5 summarizes the compounds for which one or more of the above standards were exceeded and indicates the SA wells in which the standards were exceeded.

The following concentrations in the shallow wells above these criteria were observed in 2024:

Well MW-3S:

- Nitrate was above the GWQS of 10 mg/L in the third and fourth quarters.

Well MW-4S:

- Specific conductivity was above the GWQS of 700 µmhos/cm in all four quarters.
- Nitrate was above the GWQS of 10 mg/L in all four quarters.
- Total dissolved solids (TDS) was above the MCL of 500 mg/L in all four quarters.

Well MW-5S:

- Total iron was above the GWQS and MCL of 0.3 mg/L in the third and fourth quarters.
- Total and dissolved manganese were above the GWQS and MCL of 0.05 mg/L in the third and fourth quarters.

No VOCs were detected above laboratory reporting limits (RLs, Table 4). No gasoline or diesel/oil-range TPH were detected. TPH has been sampled since 2022 and has not been detected in the SA.

During the fourth quarter 2024 event, elevated pH levels were observed. It was discovered this was due to a field error relating to an impaired pH probe, and the readings were rejected accordingly.

Specific conductivity, TDS, and nitrate exceedances at MW-4S are potential impacts related to the LPL. Since eight quarters of data for MW-4S have been acquired, a statistical evaluation of the background data has been completed and is discussed in Section 5.2.5.3. Statistical comparisons will be included in future monitoring reports beginning with the first quarter of 2025. Background sampling is still occurring for SA wells MW-5S and MW-6S.

5.2.2.2 Interflow Zone Sampling

The data from the IZ wells are presented in Table 6 and were compared to GWQS (Chapter 173-200 WAC) and MCLs (Chapter 246-290 WAC). TPH and naphthalene concentrations were compared to MTCA Method A CULs. Table 7 summarizes the compounds for which one or more of the above standards were exceeded and indicates the IZ wells in which the standards were exceeded.

The following concentrations in the IZ wells above these criteria were observed in 2024:

MW-7D:

- Total iron was above the GWQS and MCL of 0.3 mg/L in the fourth quarter.
- Total manganese was above the GWQS and MCL of 0.05 mg/L in the fourth quarter.

MW-8D:

- Total iron was above the GWQS and MCL of 0.3 mg/L in the fourth quarter.

MW-9D:

- Total and dissolved iron were above the GWQS and MCL of 0.3 mg/L in the third quarter.
- Total and dissolved manganese were above the GWQS and MCL of 0.05 mg/L in the third quarter.
- Diesel range organics were above the MTCA Method A CUL of 0.5 mg/L in the third quarter.

Well MW-9D had multiple exceedances during the third quarter 2024 event (total and dissolved iron, total and dissolved manganese, and diesel range organics). However, well MW-9D was not properly developed prior to sampling, turbidity was recorded at 109.5 NTU, and samples are not likely representative. The TPH appears related to a broken hammer that occurred during drilling. The well was redeveloped prior to the fourth quarter 2024 event, and samples collected in the fourth quarter 2024 did not exceed water quality standards.

All the IZ wells had detections of toluene ranging from 1.4 to 11 µg/L in the third quarter of 2024. The detections of TPH in MW-9D and toluene in all IZ wells appear related to cross contamination from the drilling and hydraulic testing equipment. All drilling and hydraulic testing equipment was to be free of petroleum hydrocarbons and VOCs and decontaminated prior to use, however, these detections show the driller may have been inefficient in decontamination.

In the fourth quarter 2024 event, no VOCs were detected above laboratory RLs, therefore the VOCs detected in the third quarter 2024 event were not confirmed (Table 6).

5.2.3 Time-Series Plots

Time-series plots for inorganic parameters are presented in Appendix D. The data show a considerable degree of variability in TDS and some other analytes. It should be noted that the analytical laboratory has changed several times over the history of monitoring.

Historically, specific conductivity has typically been higher in MW-3S than MW-2S, consistent with the TDS concentrations. However, during the period between 2020 and second quarter 2022, specific conductivity was lower in MW-3S.

Alkalinity/bicarbonate concentrations began decreasing in wells MW-2S and MW-3S in 2018 but were again within historical ranges beginning in the fourth quarter of 2022. These changes at MW-3S correspond to the change to the current analytical laboratory On-Site.

In MW-3S, over the past approximately 2 years apparent increasing trends have been observed in specific conductivity, bicarbonate, alkalinity, chloride, dissolved calcium, dissolved and total magnesium, nitrate, sulfate, and TDS. The nitrate concentrations have been increasing since approximately 2014. MW-3S has also been confirmed to have impacts from PFAS believed to be from a leachate source (Parametrix 2025c). These parameters appear to confirm impacts at MW-3S are related to leachate.

Specific conductivity measurements and the concentrations of many analytes were typically higher in well MW-4S than in the other monitoring wells including alkalinity/bicarbonate, dissolved cations (calcium, magnesium, potassium, and sodium), nitrate, sulfate, and TDS. Nitrate concentrations have recently fluctuated within a range below the two historic highs observed during the second quarters of 2023 and 2024.

Concentrations of some parameters in the IZ wells including cations (calcium, magnesium, potassium), chloride, nitrate, sulfate, and TDS were lower than in SA wells MW-3S and MW-4S, but in a similar range or higher than SA well MW-2S.

In MW-9D, the fourth quarter 2024 concentrations of all analytes were lower compared to the third quarter 2024 except for total alkalinity, bicarbonate, and dissolved potassium. The fourth quarter results are likely more representative due to the atypical sampling that occurred during the third quarter 2024 event. MW-9D was drilled adjacent to MW-3S prior to the third quarter 2024 event. The effects of drilling the adjacent well through the SA could have impacted the water quality at MW-3S. For example, water quality changes were confirmed at MW-5S when the adjacent well (MW-7D) was drilled through the aquifer and MW-5S was subsequently further developed. Water quality in these wells will continue to be evaluated in 2025.

Data for all the newly installed wells will be further observed as more data is acquired during future monitoring events.

5.2.4 Geochemical Evaluation

5.2.4.1 Cation/Anion Balances

Cation/anion balance evaluations for the 2024 data are presented in Appendix E. Cation/anion balances are a standard check of inorganic water quality data. When all the major anions and cations have been accurately determined, the sum of the anions in milliequivalents per liter (meq/L) should equal the sum of the cations expressed in the same units. WAC 173-351-420(5)(a) specifies that a 5 percent difference is acceptable if the anion plus cation sum of the sample is greater than 5 meq/L, while a 10 percent difference is acceptable if the anion plus cation sum of the sample is less than 5 meq/L.

The 2024 cation/anion balance differences were within acceptable limits except for MW-4S (6.76 meq/L) in the first quarter, and MW-3S (-8.56 meg/L) and MW-6S (-5.60 meq/L) in the second quarter. Possible explanations for the cation/anion imbalances in the groundwater samples are the presence of other ions not analyzed for or suspended solids in the water samples.

5.2.4.2 Trilinear Diagram

A trilinear (Piper) diagram showing the 2024 data is presented in Appendix E. Piper diagrams are trilinear graphical representations of inorganic water quality, where major anions (chloride, sulfate, and bicarbonate+carbonate) and cations (calcium, magnesium, and sodium+potassium) are plotted on a molar equivalent basis, on two triangular graphs, and the combined data projected onto a quadrilateral field, or four-sided graph. The Piper diagram can be used to compare different water samples to evaluate the degree of similarity, mixing relationships, time trends, etc.

Groundwater quality in the monitoring wells shows some variations in cation and anion distributions suggesting slightly differing geochemical conditions. The cation distributions in all monitoring wells fell within a similar zone with the principal cations being calcium and magnesium. The anion distributions were more variable.

Anions in SA well MW-2S and IZ wells MW-7D and MW-10D were dominantly bicarbonate, while the other wells had varying proportions of bicarbonate, sulfate and chloride. Wells MW-4S, MW-5S, and MW-8D had slightly higher proportions of bicarbonate with respect to sulfate and chloride compared to wells MW-3S, MW-6S, and MW-9D.

MW-2S is screened slightly lower in the SA than the other monitoring wells and includes the flow top zone of the Grande Ronde Basalt. The Piper diagram is consistent with the slight differences in geochemistry anticipated due to differing positions of these wells and more closely resembles the geochemistry of the other wells completed in the IZ of the Grande Ronde Basalt.

The chemistry of MW-9D appeared different from the other IZ wells during the third quarter of 2024. The well had not been properly developed and was sampled using a bailer and it appeared that residual water present from drilling the well affected the data. During the fourth quarter 2024 sampling, the well was sampled using a dedicated pump and its chemistry now appears more consistent with the other wells.

5.2.5 Statistical Analysis of Groundwater Quality Data

Washington's Solid Waste Landfill regulations (Chapter 173-350 WAC) require evaluation of groundwater monitoring data to identify if a statistically significant indication of a release has occurred. Because there are no established background groundwater quality data, either from an upgradient location or from downgradient locations predating the active use of the Facility, an intrawell (i.e., within the same well) statistical approach is being used to determine compliance within the SA wells (Parametrix 2024b).

5.2.5.1 Statistical Approach

The statistical approach for evaluating data at the LPL consists of establishing a subset of parameters for formal detection monitoring and conducting quarterly comparisons of data to intrawell upper prediction limits (UPLs) calculated for each well/parameter case. Control charts are used to supplement the UPLs to evaluate whether any trends are occurring that could potentially be attributable to the landfill. The control charts show the cumulative sum (CUSUM) and the compliance data since the background period. These are compared to the respective control limit (h) and upper Shewhart control limit (SCL) calculated using background data to determine whether a statistically significant increase has occurred. The data are evaluated on occasion for trends using the Mann-Kendall/Sen's Slope test, and the results are used to support periodic updates of the control chart and prediction limit background data sets. The UPL and SCL limits are presented in in Appendix F1.

As recommended by Ecology guidance (Ecology 2018), EPA's Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Unified Guidance (Unified Guidance; EPA 2009) was used for guidance on statistical analysis of landfill groundwater monitoring data. The Unified Guidance (EPA 2009) provides a suggested rule for evaluating constituents that are "never detected," including the VOCs. Any constituent that has never been previously detected should be evaluated by the following simple, quasi-statistical rule: A confirmed exceedance is registered if any well-constituent pair in the '100% non-detect' group exhibits quantified measurements (i.e., at or above the RL) in two consecutive sample and resample events.

A technical memorandum presented in the SAP (Parametrix 2024b) provided statistical limits to be used for evaluating the 2024 data for wells MW-2S and MW-3S. The statistical approach was revised from the initial approach presented in the 2023 annual report (Parametrix 2024a) based on recommendations from Ecology (Ecology 2024). UPLs were developed by removing statistical outliers as well as visual outliers for data sets with a high percentage of non-detects that invalidated the statistical outlier test.

As summarized in the SAP, the Unified Guidance recommends selecting a subset of monitoring parameters to balance the Facility-wide false positive rate and the power of the statistical program. These parameters should be limited to a few representative constituents thought to be reliable indicators of a contaminant release, that exhibit a large concentration contrast between leachate and groundwater and are relatively mobile in groundwater. Because leachate was not available in 2024 at the LPL, the following parameters listed in Chapter 173-350 WAC were selected for formal statistical analysis:

- pH
- chloride
- nitrate
- sulfate
- ammonia
- TDS
- total and dissolved iron
- total and dissolved manganese

Since 2020, both total and dissolved fractions of iron and manganese have been monitored. Both fractions were included in this evaluation, for a total of 10 parameters at two wells. Leachate samples are anticipated to be available once Phase 2 receives waste. This may alter the current statistical analysis program.

A 1-of-2 retesting scheme (EPA 2009) is used to compare the new sample value(s) to the UPL. The 1-of-2 scheme assumes that two samples will be collected for a particular constituent at a given well, including the initial groundwater sample and one resample. The initial groundwater sample is collected in the first and third quarters, and the resamples will be collected in the second and fourth quarters. Statistical comparisons are made in the first and third quarters and, if necessary, in the second and fourth quarters for retests. However, because groundwater is sampled quarterly, any measured concentrations above the UPL during the second and fourth quarters will also be confirmed or disconfirmed using samples collected in the third and first quarters, respectively.

These limits are used in the following way to evaluate groundwater quality at the Rocky Top Environmental LPL:

- For a statistically significant increase (monitoring data exceeding a limit for two consecutive quarters) that cannot be attributed to sampling error, the monitoring data will be compared to the water quality standard in Chapter 173-200 WAC (if available).
- If the water quality standard is exceeded, the monitoring data will be compared to any historical data values that were flagged as outliers to determine whether the monitoring data are within the range of historical data. Because historical outliers were flagged based on statistical tests and visual assessments but could not be verified as outliers through additional data evaluation such as resampling or laboratory review, those values may actually represent a portion of the background population.

5.2.5.2 2024 Statistical Evaluation

The statistical approach for evaluating data at the LPL as detailed in the SAP (Parametrix 2024b) was used to evaluate whether any statistically significant increases are present that could potentially be attributable to the landfill. The 2024 quarterly data collected at wells MW-2S and MW-3S were compared to the calculated UPLs and SCLs presented in Appendix F1. Comparison of the 2024 quarterly results with the calculated UPLs and SCLs for the wells MW-2S and MW-3S are presented in Tables F2-1 through F2-4 in Appendix F2. Table F2-5 provides a summary of the 2024 data that exceeded the UPLs and control limits including the SCL and CUSUM.

The MW-2S result for pH exceeded the upper range of the calculated UPL beginning in the third quarter of 2024. Due to pH probe errors in the fourth quarter of 2024, this exceedance could not be confirmed and will be verified in the first quarter of 2025. The sulfate result for well MW-3S exceeded the UPL for all four quarters in 2024. The MW-3S results for chloride, nitrate and TDS exceeded the calculated UPLs for three consecutive quarters beginning in the second quarter of 2024.

Control charts were calculated for the 2024 data and are included in Appendix F2. The nitrate CUSUM in well MW-3S exceeded the h value for two consecutive quarters beginning in the third quarter of 2024, indicating a potential increasing trend.

Statistical limits were not available for 2024 comparisons for wells MW-4S, MW-5S, MW-6S, MW-7D, MW-8D, MW-9D, or MW-10D. For well MW-4S, sufficient background data for establishing UPLs was completed in the third quarter of 2024 and statistical limits for 2025 monitoring are presented in Appendix F3 of this report. Statistical limits for the new wells will be calculated once eight data points have been collected (i.e. following the 2025 annual environmental monitoring).

5.2.5.3 Statistical Limits for 2025 Comparisons

A technical memorandum presenting the statistical limits for 2025 data comparisons for wells MW-2S, MW-3S, and MW-4S is presented in Appendix F3. The technical memorandum details the process used to establish background data sets for well MW-4S, update background data sets for wells MW-2S and MW-3S with 2024 monitoring data, and calculate intrawell UPLs and control charts for 2025 detection monitoring.

5.3 Conclusions

- In 2024, six new wells were installed for the detection monitoring program of the LPL. Two wells (MW-5S and MW-6S) were set in the SA and four wells (MW-7D, MW-8D, MW-9D, and MW-10D) were set in the IZ. The SA wells are also being used for characterization of the potential MTCA release to groundwater at the Facility.
- The SA wells were added to the routine groundwater monitoring beginning in the second quarter of 2024 with the IZ wells added in the third quarter of 2024.
- Anions in SA well MW-2S and IZ wells MW-7D and MW-10D were dominantly bicarbonate, while the other wells had varying proportions of bicarbonate, sulfate and chloride. Wells MW-4S, MW-5S, and MW-8D had slightly higher proportions of bicarbonate with respect to sulfate and chloride compared to wells MW-3S, MW-6S, and MW-9D.

5.3.1 Shallow Aquifer Conclusions

The following conclusions are based on the data presented in this report.

- Quarterly sampling of the SA wells occurred in March, June, September, and December of 2024. New SA monitoring wells MW-5S and MW-6S were added to the routine monitoring beginning with the second quarter 2024 event.
- The groundwater gradient for the SA is predominantly northerly and ranged from 0.230 to 0.270 ft/ft and the average groundwater flow velocity was calculated to be 3.54 to 4.16 ft/day (1,292 to 1,518 ft/year)
- No TPH or VOCs were detected in any of the SA wells.
- In well MW-2S, pH results exceeded the calculated upper range of the UPL in the third and fourth quarters of 2024. Due to pH probe errors in the fourth quarter of 2024, the third quarter exceedance could not be confirmed and will be verified in the first quarter of 2025.
- MW-3S shows impacts from the LPL:
    1. Over the past approximately 2 years (since 2022) apparent increasing trends have been observed in specific conductivity, bicarbonate, alkalinity, chloride, dissolved calcium, dissolved and total magnesium, nitrate, sulfate, and TDS. Nitrate concentrations have been increasing since approximately 2014.
    2. Nitrate concentrations exceeded the calculated UPL in the second through fourth quarters of 2024, and the third and fourth quarter nitrate concentrations were above the GWQS and MCL. The nitrate CUSUM, calculated from the control charts, exceeded the h value in the fourth quarter, indicating a potential increasing trend. The nitrate exceedances were higher than historical data even considering outliers.
    3. Chloride and TDS concentrations exceeded the calculated UPL in the second through fourth quarters of 2024 and the sulfate results exceeded the UPL for all four quarters. Concentrations of these parameters were all below the GWQS and MCL.

4. PFAS were confirmed above the MCL in the third and fourth quarters of 2024 (Parametrix 2024f, 2025c).
5. The PFAS signature and the leachate indicators found from the 2024 monitoring are consistent with releases related to leachate from an LPL.

- MW-4S is being evaluated for impacts related to the LPL:
  1. Specific conductivity measurements, TDS, and nitrate concentrations exceeded the GWQS and MCL in all four quarters of 2024.
  2. Total iron and total and dissolved manganese exceeded the GWQS and MCL in the third and fourth quarters of 2024.
  3. MW-4S has sufficient background data and statistical limits for 2025 comparisons were developed and are presented in Appendix F3 of this report.

  4. Nitrate concentrations were above the GWQS and MCL at well MW-4S during all four quarters of 2024.

5.3.2 Interflow Zone Conclusions

- Four new monitoring wells were installed in 2024 to monitor the IZ which is the shallowest groundwater below the Phase 2 lined LPL.
- Quarterly sampling of the IZ wells occurred in August, September, and December of 2024, beginning in the third quarter of 2024. The third quarter 2024 sampling of the IZ wells was atypical due to drilling schedules. The fourth quarter 2024 sampling methodology was more consistent with the routine sampling events and performed with dedicated bladder pumps.
- The groundwater gradient in the IZ was observed to be primarily northerly and ranged from 0.197 to 0.210 ft/ft. The average groundwater flow velocity was calculated to be 1.95 to 2.08 ft/day (712 to 759 ft/ year).
- MW-7D had exceedances of total iron and total manganese during the fourth quarter of 2024.
- MW-8D had a total iron exceedance in the fourth quarter 2024 event.
- MW-9D had multiple exceedances during the third quarter of 2024 (total and dissolved iron, total and dissolved manganese, and diesel range organics). These exceedances were likely due to improper development of the well. After proper development, no exceedances were observed in the fourth quarter of 2024.
- Toluene was detected in all wells in the third quarter of 2024, likely due to cross contamination from drilling equipment. However, no VOCs were detected in the fourth quarter of 2024.
- In MW-9D, the fourth quarter 2024 concentrations of all analytes were lower compared to the third quarter 2024 except for total alkalinity, bicarbonate, and dissolved potassium. The fourth quarter results are likely to be more representative due to the atypical sampling that occurred during the third quarter 2024 event.
- Statistical limits for the new wells, MW-7D, MW-8D, MW-9D, and MW-10D, will be developed in the 2025 annual report.

5.4 Recommendations

The following recommendations and planned activities are based on the data presented in this report:

- Two additional monitoring wells (MW-1S and MW-11S) are proposed to be installed downgradient of MW-3S and the LPL in 2025 to further monitor the confirmed nitrate exceedances and PFAS release.
- The 2025 data for wells MW-2S, MW-3S, and MW-4S should be compared to the updated statistical limits presented in Appendix F of this report.
- TPHs have been monitored in the SA wells since 2022 and have been non-detect to date. TPH should be removed from the WAC-173-350 routine monitoring program and the SAP should be revised to reflect the changes. TPH is being addressed under MTCA.
- DTG should continue removing waste from the temporary fill area to reduce potential leachate related contaminants from reaching the water table.

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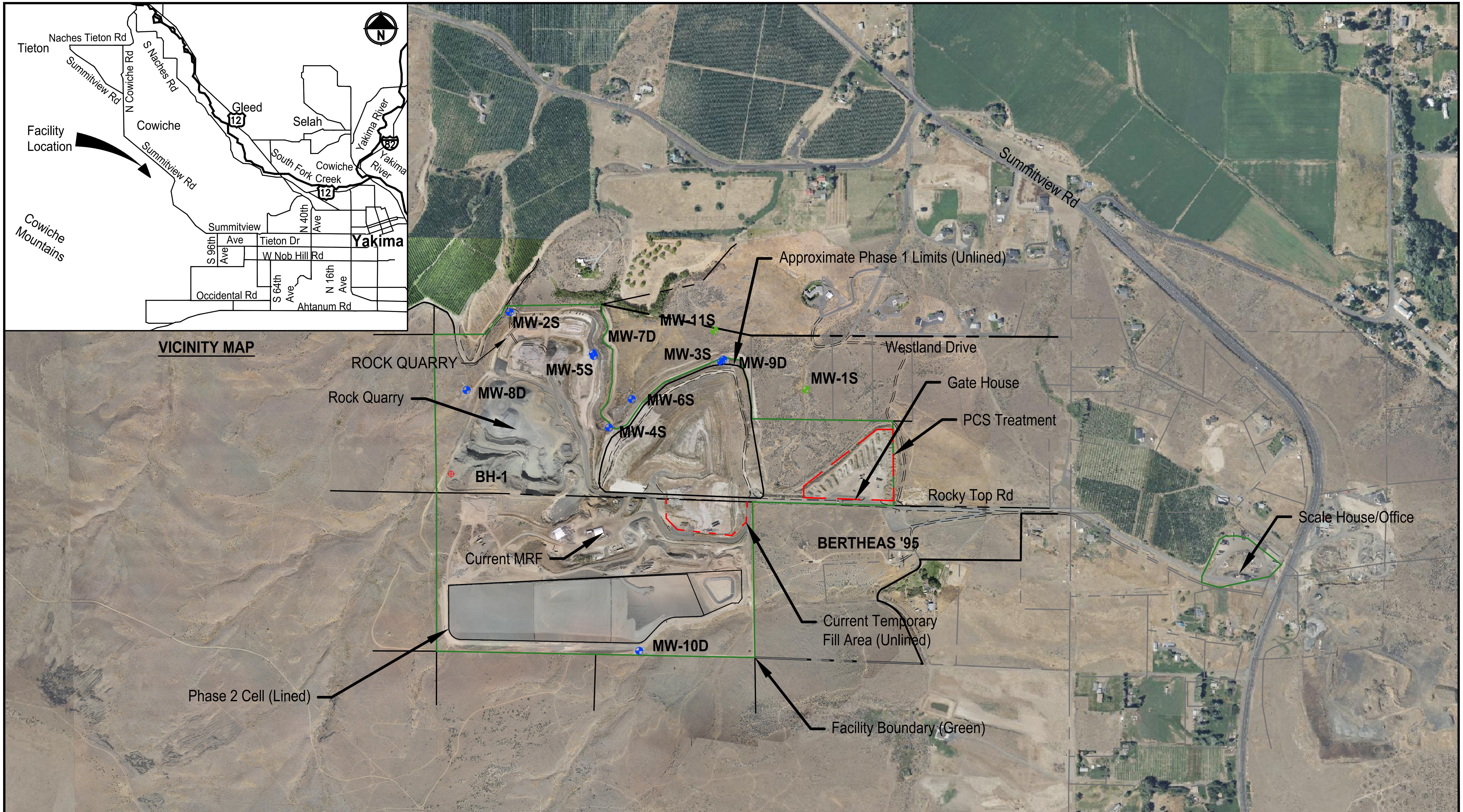
7. Limitations

The conclusions expressed herein are based solely on material referenced in this report. Observations were made under the conditions stated. Within the limitations of scope, schedule and budget, these services were executed in accordance with generally accepted professional principles and practices in the area at the time the report was prepared. No warranty, expressed or implied, is made. Experience has shown that subsurface soil and groundwater conditions can vary significantly over small distances. The findings and conclusions must not be considered as scientific or engineering certainties, but rather as our professional opinion concerning the significance of the limited data gathered and interpreted during the course of the assessment.

This study and report have been prepared on behalf of DTG, for the specific application to the subject property. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

Figures



Parametrix DATE: March 7, 2025 FILE: PS8472008-FIGURE 1 – VICINITY MAP

N

0 750

SCALE: 1"=750'

Monitoring Well

Proposed Monitoring Well

Borehole

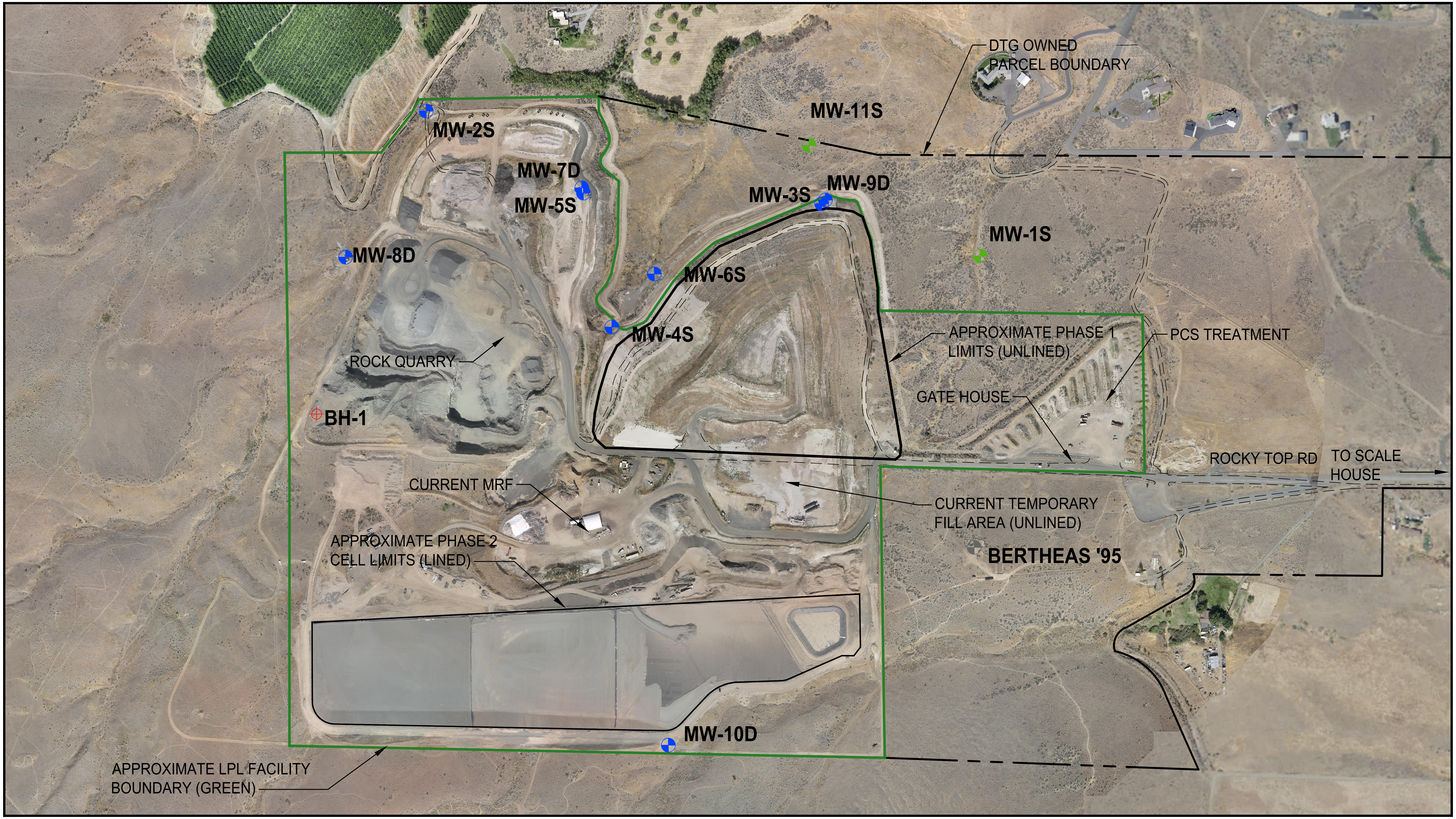
Domestic Well

Decommissioned Well

Figure 1

Facility Vicinity Map

Rocky Top Environmental Limited Purpose Landfill



Parametrix

DATE: March 7, 2025 FILE: PS8472008–FIGURE 1 – VICINITY MAP

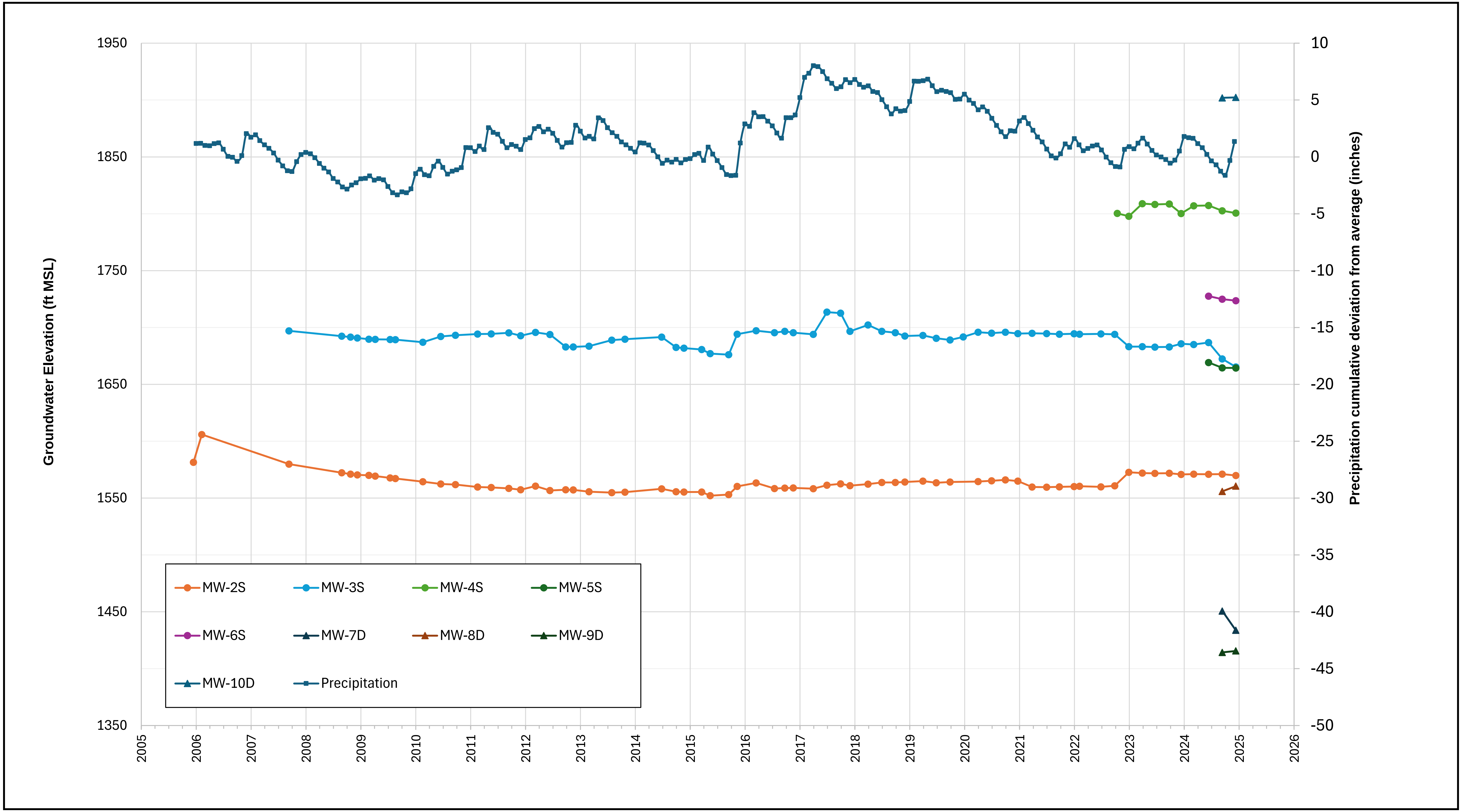
N

0 400

1 INCH = 400 FT.

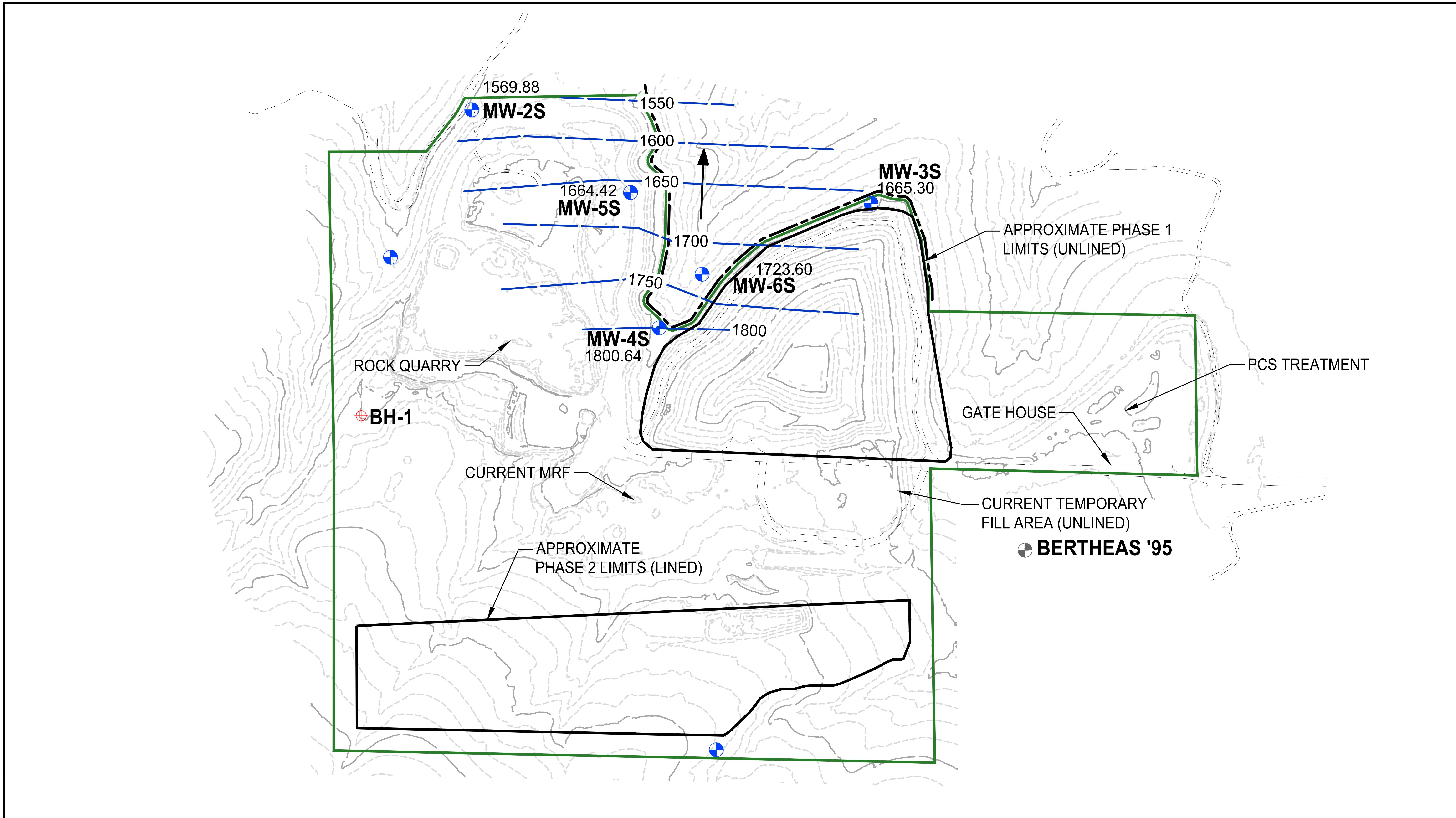
Monitoring Well
Proposed Monitoring Well
Borehole
Domestic Well
Decommissioned Well

Figure 2
Well Location Map
Rocky Top Environmental Limited Purpose Landfill



Parametrix

Figure 3
Water Level Summary
Rocky Top Environmental Limited Purpose Landfill



Parametrix DATE: March 7, 2025 FILE: QUARTERLY REPORT FIGURE Q4-2024

N
0 400
1 INCH = 400 FT.

1807.34 Monitoring Well with Water Level Elevation in feet measured on December 10, 2024

Decommissioned Well

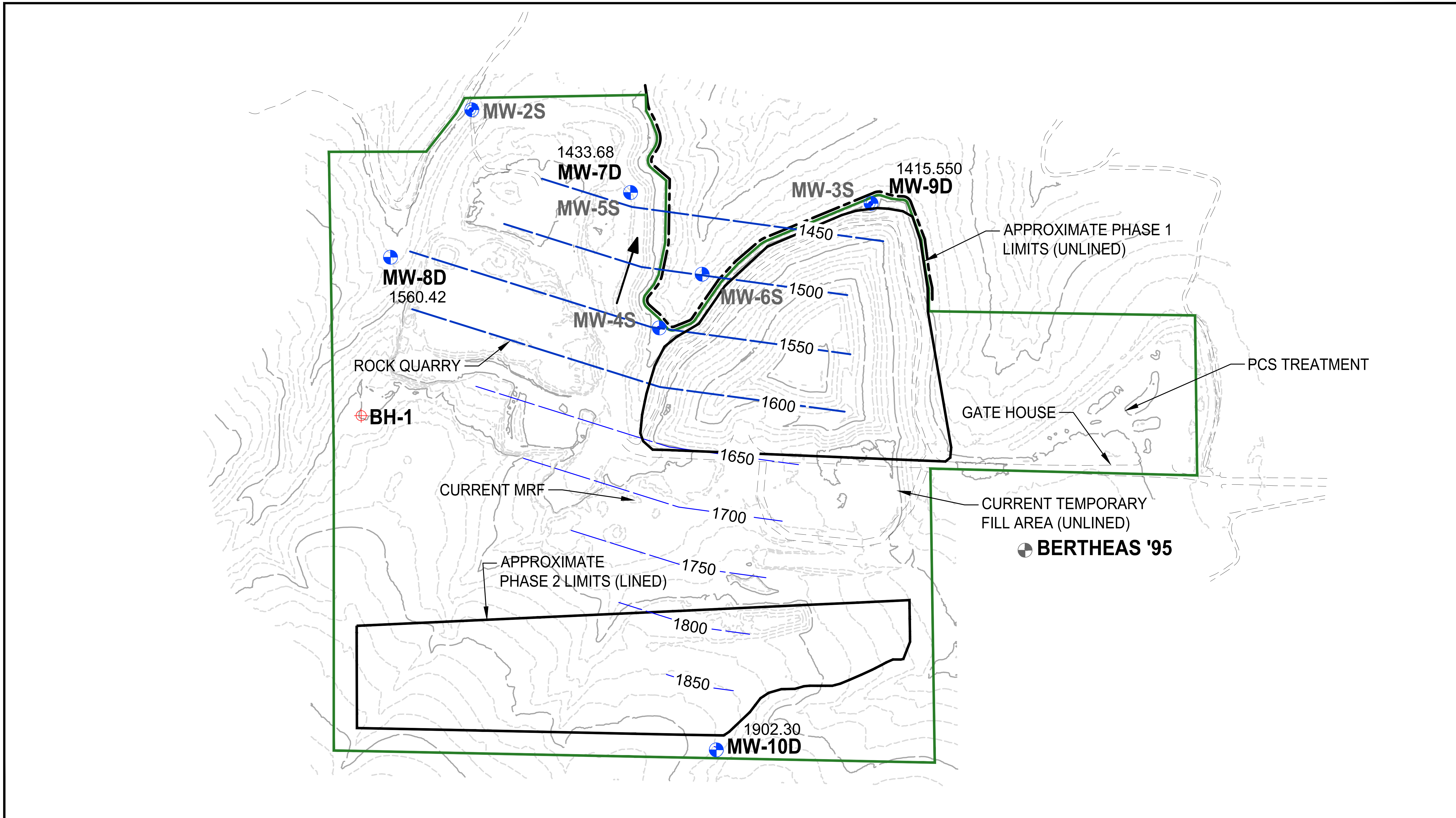
Borehole

Approximate Groundwater flow direction

1700 Groundwater Elevation Contour (ft)

LPL Facility Boundary

Figure 4
Fourth Quarter 2024
Shallow Aquifer Potentiometric Surface
Rocky Top Environmental Limited Purpose Landfill



Parametrix DATE: March 7, 2025 FILE: QUARTERLY REPORT FIGURE Q4-2024

N
0 400
1 INCH = 400 FT.

1433.68 Monitoring Well with Water Level Elevation in feet measured on December 10, 2024

Decommissioned Well

Borehole

Approximate Groundwater flow direction

1700 Groundwater Elevation Contour (ft)

LPL Facility Boundary

Figure 5
Fourth Quarter 2024
Intermediate Zone Potentiometric Surface
Rocky Top Environmental Limited Purpose Landfill

Tables

Table 1. Well Detail Summary

Well ID	Northing	Easting	Ground Elevation (ft)	TOC Elevation (ft)	Screen Interval (ft bgs)	Completion Zone	Pump Type	Pump Depth (ft bgs)
MW-2S	473814.19	1591095.99	1856.31	1858.36	310-330	SA	P1101HM-Z	316.5
MW-3S	473404.76	1592840.90	1843.82	1845.92	188-198	SA	P1101M-Z	189.5
MW-4S	472860.94	1591915.35	1843.44	1845.59	49-69	SA	P1101M-Z	56.5
MW-5S	473452.58	1591789.89	1881.53	1883.88	222-242	SA	P1101M-Z	236
MW-6S	473095.44	1592102.50	1822.97	1825.31	110-130	SA	P1101M-Z	123
MW-7D	473475.06	1591782.75	1881.68	1883.88	475-495	IZ	P1101HM-Z	485.5
MW-8D	473169.85	1590740.82	1861.60	1863.94	375-405	IZ	P1101HM-Z	390.5
MW-9D	473421.50	1592857.26	1845.25	1847.49	420-440	IZ	P1101HM-Z	439.5
MW-10D	471017.47	1592164.59	1986.47	1988.77	150-170	IZ	P1101M-Z	160.5

SA = Shallow Aquifer
bgs = below ground surface
IZ = Interflow zone

Table 2. Groundwater Analyses and Analytical Methods

Analyte	Methods
Temperature	field
pH	field
Specific conductivity	field
Alkalinity as $CaCO_3$	SM 2520B
Ammonia	EPA 350.1
Bicarbonate as $CaCO_3$	Calculation
Calcium (D)	SM3111B
Chloride	SM4500-Cl E
Iron (D&T)	SM3111B
Magnesium (D&T)	SM3111B
Manganese (D&T)	SM3111B
Nitrate as N	EPA 353.2
Potassium (D)	SM3111B
Sodium (D)	SM3111B
Sulfate	ASTM D516-90
Total Dissolved Solids	SM2540C
Total Organic Carbon	SM 2550B
Volatile Organic Compounds	EPA 8260D*
Total Petroleum Hydrocarbons – Gasoline range	NWTPH-Gx
Total Petroleum Hydrocarbons – Diesel/Oil range	NWTPH-Dx

D = dissolved
T = Total
*WAC 173-351-430 parameter list

Table 3. Groundwater Elevations, Fourth Quarter 2024, Rocky Top Environmental Limited Purpose Landfill

Well Number	Measurement Date	Elevation Top of PVC Casing (feet)	Depth to Groundwater (feet below top of casing)	Groundwater Elevation (feet)
MW-2S	12/10/2024	1858.36	288.48	1569.88
MW-3S	12/10/2024	1845.92	180.62	1665.30
MW-4S	12/10/2024	1845.59	44.95	1800.64
MW-5S	12/10/2024	1883.88	219.46	1664.42
MW-6S	12/10/2024	1825.31	101.71	1723.60
MW-7D	12/19/2024	1883.88	450.20	1433.68
MW-8D	12/19/2024	1863.94	303.52	1560.42
MW-9D	12/18/2024	1847.49	431.94	1415.55
MW-10D	12/18/2024	1988.77	86.47	1902.30

Notes:

Elevation datum based on NAD83

Water levels were taken on different dates due to aquifer testing and sampling event scheduling

Table 4. 2024 Shallow Aquifer Groundwater Quality Monitoring Results, Rocky Top Environmental Limited Purpose Landfill

Analyte	GWQS		MCL		Units	MW-2S 3/5/2024	MW-2S 6/12/2024	MW-2S 9/12/2024	MW-2S 12/11/2024	MW-3S 3/5/2024	MW-5S (MW-3S Dup) 3/5/2024	MW-3S 6/18/2024	MW-3S 9/12/2024	MW-3S 12/11/2024	MW-4S 3/5/2024	MW-4S 6/12/2024	MW-13S (MW-4S Dup) 6/12/2024	MW-4S 9/11/2024	MW-4S 12/12/2024
Field Data																			
pH	6.5-8.5					7.56	7.73	7.91	8.36 R	7.31	--	7.17	7.69	7.90 R	7.12	7.45	--	7.76	8.12 R
Conductivity			700	**	µmhos/cm	161.8	178.1	176.8	161.4	421.7	--	400	630	563	890	1,089	--	973	786
Temperature					C	12.7	14.4	14.2	13.0	13.3	--	21.02	14.4	13.6	12.2	13.5	--	13.1	10.8
Redox					mv	150.2	-124.7	-72.1	-186.0	125.9	--	112	-73.9	-185.4	170.1	-113.3	--	-96.9	-181.2
Dissolved Oxygen					mg/L	46.6	6.2	6.04	6.93	64.9	--	5.02	4.88	4.65	51.1	4.39	--	4.04	4.33
Turbidity					NTU	1.87	0	0.00	0.00	3.47	--	5.1	0.00	0.44	2.27	0.00	--	0.00	0.59
Metals																			
Calcium, Dissolved					mg/L	12	12	13	13	32	33	28	49	48	85	87	75	85	74
Iron, Total	0.3	**	0.3	**	mg/L	0.078	<0.050	<0.050	<0.050	<0.050	0.10	0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Iron, Dissolved					mg/L	<0.056	<0.056	<0.056	<0.056	<0.056	<0.056	<0.056	<0.056	<0.056	<0.056	<0.056	<0.056	<0.056	<0.056
Magnesium, Total					mg/L	9.1	8.0	8.5	9.5	24	24	22	32	38	60	68	70	58	53
Magnesium, Dissolved					mg/L	9.0	8.4	9.1	9.3	25	25	21	35	36	64	63	59	58	52
Manganese, Total	0.05	**	0.05	**	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Manganese, Dissolved					mg/L	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011
Potassium, Dissolved					mg/L	3.3	2.7	2.9	3.3	4.3	4.2	3.2	4.6	5.2	6.7	6.1	5.6	6.3	6.6
Sodium, Dissolved					mg/L	8.9	8.8	9.5	10	14	14	14	18	20	20	22	21	21	21
Water Quality Parameters																			
Alkalinity, Total					mg CaCO3/L	80	80	80	82	72	70	68	96	86	160	190	190	180	150
Ammonia (NH3) as Nitrogen (N)					mg/L	<0.053	<0.053	<0.053	0.067	<0.053	<0.053	<0.053	<0.053	0.059	<0.053	<0.053	<0.053	<0.053	0.085
Bicarbonate					mg CaCO3/L	80	80	80	82	72	70	68	96	86	160	190	190	180	150
Chloride	250	**	250	**	mg/L	<2.0	<2.0	<2.0	2.6	46	48	51	73	66	51	50	50	41	34
Nitrate	10	*	10	*	mg/L-N	0.48	0.61	0.60	0.64	6.6	7.2	9.4	11	12	32	53	54	47	37
Sulfate	250	**	250	**	mg/L	6.6	6.4	5.1	6.9	54	50	51	96	70	110	120	120	100	85
Total Dissolved Solids	500	**	500	**	mg/L	110	120	140	140	170 J	<13 J	290	320	380	550	690	730	590	540
Total Organic Carbon					mg/L	<1.0	<1.0	<1.0	<1.0	2.6	2.6	2.5	3.0	2.7	5.2	6.3	6.3	4.8	3.2
Total Petroleum Hydrocarbons																			
Gasoline Range Organics [a]	MTCA Metl		1000		µg/L	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
TPHDx																			
Diesel Range Organics					mg/L	<0.22	<0.24	<0.21	<0.21	<0.24	<0.21	<0.20	<0.21	<0.22	<0.21	<0.20	<0.23	<0.21	<0.22
Lube Oil Range Organics					mg/L	<0.22	<0.24	<0.21	<0.21	<0.24	<0.21	<0.20	<0.21	<0.22	<0.21	<0.20	<0.23	<0.21	<0.22
Total TPHDx	MTCA Metl		0.5		mg/L			<0.21	<0.21				<0.21	<0.22				<0.21	<0.22
Volatile Organic Compounds																			
Chloromethane					µg/L	<1.5	<1.0	<1.3	<1.0	<1.5	<1.5	<1.0	<1.3	<1.0	<1.5	<1.0	<1.0	<1.3	<1.0
Vinyl Chloride	0.02	***	2	*	µg/L	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Bromomethane					µg/L	<1.8	<1.0	<1.0	<1.0	<1.8	<1.8	<1.0	<1.0	<1.0	<1.8	<1.0	<1.0	<1.0	<1.0
Chloroethane					µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
CFC-11, Trichlorofluoromethane					µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1-Dichloroethene			7	*	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Acetone					µg/L	<5.0	<6.7	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<6.7	<6.7	<5.0	<5.0
Methyl Iodide					µg/L	<1.0	<1.4	<1.0	<1.0	<1.0	<1.0	<1.4	<1.0	<1.0	<1.0	<1.4	<1.4	<1.0	<1.0
Carbon Disulfide					µg/L	<0.20	<0.26	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.26	<0.26	<0.20	<0.20
Methylene Chloride	5	***	5	*	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Acrylonitrile	0.07	***			µg/L	<0.50	<1.0	<0.50	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<1.0	<1.0	<0.50	<0.50
Trans-1,2-Dichloroethene			100	*	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1-Dichloroethane	1	***			µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Vinyl Acetate					µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene			70	*	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
2-Butanone					µg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Bromochloromethane					µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chloroform	7	***	80	* THM	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	200	*	200	*	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Carbon Tetrachloride	0.3	***	5	*	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Benzene	1	***	5	*	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichloroethane	0.5	***	5	*	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Trichloroethene	3	***	5	*	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichloropropane	0.6	***	5	*	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Table 4. 2024 Shallow Aquifer Groundwater Quality Monitoring Results, Rocky Top Environmental Limited Purpose Landfill

Analyte	GWQS		MCL		Units	MW-5S 6/13/2024	MW-5S 9/11/2024	MW-13S (MW-5S Dup) 9/11/2024	MW-5S 12/11/2024	MW-6S 6/13/2024	MW-6S 9/11/2024	MW-6S 12/12/2024	MW-13S (MW-6S Dup) 12/12/2024	Trip Blank 6/13/2024	Trip Blank 9/12/2024	Trip Blank 12/11/2024
Field Data																
pH	6.5-8.5					8.27	8.49	- -	8.46 R	7.62	8.25	8.38 R	- -	- -	- -	- -
Conductivity			700	**	µmhos/cm	233.5	356.6	- -	362.3	457	501	504	- -	- -	- -	- -
Temperature					C	21.6	15.6	- -	13.9	16.0	13.3	11.5	- -	- -	- -	- -
Redox					mv	-474.3	-149.7	- -	-218.1	-132.9	-104.2	-194.5	- -	- -	- -	- -
Dissolved Oxygen					mg/L	0.09	0.14	- -	0.10	7.13	4.06	4.19	- -	- -	- -	- -
Turbidity					NTU	101.5	2.52	- -	2.14	0.00	0.00	1.78	- -	- -	- -	- -
Metals																
Calcium, Dissolved					mg/L	- -	24	24	29	31	41	43	42	- -	- -	- -
Iron, Total	0.3	**	0.3	**	mg/L	- -	0.55 J	0.85 J	0.43	0.076	<0.050	<0.050	<0.050	- -	- -	- -
Iron, Dissolved					mg/L	- -	0.26	0.27	0.35	<0.056	<0.056	<0.056	<0.056	- -	- -	- -
Magnesium, Total					mg/L	- -	13 J	17 J	20	22	27	31	31	- -	- -	- -
Magnesium, Dissolved					mg/L	- -	15	15	20	22	27	30	30	- -	- -	- -
Manganese, Total	0.05	**	0.05	**	mg/L	- -	0.11 J	0.16 J	0.080	0.012	<0.010	<0.010	<0.010	- -	- -	- -
Manganese, Dissolved					mg/L	- -	0.13	0.13	0.077	<0.011	<0.011	<0.011	<0.011	- -	- -	- -
Potassium, Dissolved					mg/L	- -	2.6	2.7	3.6	3.4	4.1	4.9	4.9	- -	- -	- -
Sodium, Dissolved					mg/L	- -	14	14	18	13	15	17	17	- -	- -	- -
Water Quality Parameters																
Alkalinity, Total					mg CaCO3/L	- -	92	92	96	82	82	88	84	- -	- -	- -
Ammonia (NH3) as Nitrogen (N)					mg/L	- -	<0.053	<0.053	0.062	<0.053	<0.053	<0.053	<0.053	- -	- -	- -
Bicarbonate					mg CaCO3/L	- -	92	92	96	82	82	88	84	- -	- -	- -
Chloride	250	**	250	**	mg/L	4.2	19 J	27 J	22	50	62	66	63	- -	- -	- -
Nitrate	10	*	10	*	mg/L-N	<0.050	<0.050	0.051	0.092	6.7	9.2	8.6	9.9	- -	- -	- -
Sulfate	250	**	250	**	mg/L	17	39	42	60	46	52	51	54	- -	- -	- -
Total Dissolved Solids	500	**	500	**	mg/L	- -	190	170	230	280	170	360	340	- -	- -	- -
Total Organic Carbon					mg/L	- -	<1.0	<1.0	<1.0	2.4	2.9	2.9	2.8	- -	- -	- -
Total Petroleum Hydrocarbons																
Gasoline Range Organics [a]	MTCA Metl		1000		µg/L	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
TPHDx																
Diesel Range Organics					mg/L	<0.21	<0.22	<0.21	<0.21	<0.20	<0.20	<0.21	<0.22	- -	- -	- -
Lube Oil Range Organics					mg/L	<0.21	<0.22	<0.21	<0.21	<0.20	<0.20	<0.21	<0.22	- -	- -	- -
Total TPHDx	MTCA Metl		0.5		mg/L		<0.22	<0.21	<0.21		<0.20	<0.21	<0.22		- -	- -
Volatile Organic Compounds														- -	- -	- -
Chloromethane					µg/L	<1.0	<1.3	<1.3	<1.0	<1.0	<1.3	<1.0	<1.3	<1.0	<1.4	<1.0
Vinyl Chloride	0.02	***	2	*	µg/L	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Bromomethane					µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane					µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
CFC-11, Trichlorofluoromethane					µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1-Dichloroethene			7	*	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Acetone					µg/L	<6.7	<5.0	<5.0	<5.0	<6.7	<5.0	<5.0	<5.0	<6.7	<5.0	<5.0
Methyl Iodide					µg/L	<1.4	<1.0	<1.0	<1.0	<1.4	<1.0	<1.0	<1.0	<1.4	<1.0	<1.0
Carbon Disulfide					µg/L	<0.26	<0.20	<0.20	<0.20	<0.26	<0.20	<0.20	<0.20	<0.26	<0.20	<0.20
Methylene Chloride	5	***	5	*	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Acrylonitrile	0.07	***			µg/L	<1.0	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50
Trans-1,2-Dichloroethene			100	*	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1-Dichloroethane	1	***			µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Vinyl Acetate					µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene			70	*	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
2-Butanone					µg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Bromochloromethane					µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chloroform	7	***	80	* THM	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	200	*	200	*	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Carbon Tetrachloride	0.3	***	5	*	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Benzene	1	***	5	*	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichloroethane	0.5	***	5	*	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Trichloroethene	3	***	5	*	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichloropropane	0.6	***	5	*	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Table 4. 2024 Shallow Aquifer Groundwater Quality Monitoring Results, Rocky Top Environmental Limited Purpose Landfill

Analyte	GWQS		MCL		Units	MW-2S 3/5/2024	MW-2S 6/12/2024	MW-2S 9/12/2024	MW-2S 12/11/2024	MW-3S 3/5/2024	MW-5S (MW-3S Dup) 3/5/2024	MW-3S 6/18/2024	MW-3S 9/12/2024	MW-3S 12/11/2024	MW-4S 3/5/2024	MW-4S 6/12/2024	MW-13S (MW-4S Dup) 6/12/2024	MW-4S 9/11/2024	MW-4S 12/12/2024
Dibromomethane					µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichlorobromomethane	0.3	***	80	* THM	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
cis-1,3-Dichloropropene					µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
4-methyl-2-pentanone					µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Toluene			1000	*	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trans-1,3-Dichloropropene					µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,2-Trichloroethane			5	*	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Tetrachloroethene	0.8	***	5	*	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
2-Hexanone					µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Dibromochloromethane			80	* THM	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromoethane (EDB)	0.001	***	0.05	*	µg/L	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Chlorobenzene			100	*	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1,2-Tetrachloroethane					µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene			700	*	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
m, p-Xylene					µg/L	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
o-Xylene					µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Styrene			100	*	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Bromoform	5	***	80	* THM	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2,2-Tetrachloroethane					µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichloropropane					µg/L	<0.20	<0.20	<0.20	<0.27	<0.20	<0.20	<0.20	<0.20	<0.27	<0.20	<0.20	<0.20	<0.20	<0.27
trans-1,4-Dichloro-2-butene					µg/L	<0.50	<1.0	<0.50	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<1.0	<1.0	<0.50	<0.50
1,4-Dichlorobenzene	4	***	75	*	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene			600	*	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane			0.2	*	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Naphthalene	MTCA Metl		160		µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Notes:

GWQS = Water Quality Standards for Ground Waters of the State of Washington (WAC 173-200)
MCL = Maximum Contaminant Level, State Drinking Water Regulations (WAC 246-290)
MTCA = Model Toxics Control Act (WAC 173-340)
[a] = Gasoline with no benzene present
* = Primary
** = Secondary
*** = Carcinogen
*THM = Primary MCL for the sum of all trihalomethanes
*XYL = Primary MCL for the sum of all xylenes
(shaded) = Does not meet GWQS or MCL
- - = Not analyzed
J = Estimated value
R = Rejected due to field meter anomalies

Table 4. 2024 Shallow Aquifer Groundwater Quality Monitoring Results, Rocky Top Environmental Limited Purpose Landfill

Analyte	GWQS		MCL		Units	MW-5S 6/13/2024	MW-5S 9/11/2024	MW-13S (MW-5S Dup) 9/11/2024	MW-5S 12/11/2024	MW-6S 6/13/2024	MW-6S 9/11/2024	MW-6S 12/12/2024	MW-13S (MW-6S Dup) 12/12/2024	Trip Blank 6/13/2024	Trip Blank 9/12/2024	Trip Blank 12/11/2024
Dibromomethane					µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichlorobromomethane	0.3	***	80	* THM	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
cis-1,3-Dichloropropene					µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
4-methyl-2-pentanone					µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Toluene			1000	*	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trans-1,3-Dichloropropene					µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,2-Trichloroethane			5	*	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Tetrachloroethene	0.8	***	5	*	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
2-Hexanone					µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Dibromochloromethane			80	* THM	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromoethane (EDB)	0.001	***	0.05	*	µg/L	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Chlorobenzene			100	*	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1,2-Tetrachloroethane					µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene			700	*	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
m, p-Xylene					µg/L	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
o-Xylene					µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Styrene			100	*	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Bromoform	5	***	80	* THM	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2,2-Tetrachloroethane					µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichloropropane					µg/L	<0.20	<0.20	<0.20	<0.27	<0.20	<0.20	<0.27	<0.20	<0.20	<0.20	<0.27
trans-1,4-Dichloro-2-butene					µg/L	<1.0	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50
1,4-Dichlorobenzene	4	***	75	*	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene			600	*	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane			0.2	*	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Naphthalene	MTCA Metl		160		µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Notes:

GWQS = Water Quality Standards for Ground Waters of the State of Washington (WAC
MCL = Maximum Contaminant Level, State Drinking Water Regulations (WAC 246-2
MTCA = Model Toxics Control Act (WAC 173-340)
[a] = Gasoline with no benzene present
* = Primary
** = Secondary
*** = Carcinogen
*THM = Primary MCL for the sum of all trihalomethanes
*XYL = Primary MCL for the sum of all xylenes
= Does not meet GWQS or MCL
-- = Not analyzed
J = Estimated value
R = Rejected due to field meter anomalies

Table 5. Shallow Aquifer Groundwater Samples that Failed to Meet Applicable Groundwater Standards in 2024

	Type of Standard						
Analyte	GWQS	MCL	MW-2S	MW-3S	MW-4S	MW-5S	MW-6S
Specific Conductivity	--	Secondary	--	--	1, 2, 3, 4	--	--
Iron, Total	Secondary	Secondary	--	1 J, 2	--	3 J, 4 J	--
Manganese, Total	Secondary	Secondary	--	--	--	3 J, 4	--
Manganese, Dissolved	Secondary	Secondary	--	--	--	3, 4	--
Nitrate	Primary	Primary	--	3, 4	1, 2, 3, 4	--	--
Total Dissolved Solids	Secondary	Secondary	--	--	1, 2, 3, 4	--	--

1 = March 2024
2 = June 2024
3 = September 2024
4 = December 2024
-- = Data did not exceed groundwater standard
GWQS = Water Quality Standards for Groundwaters of the State of Washington (WAC 173-200)
MCL = State Maximum Contaminant Levels (WAC 246-290)
J = Estimated value

Table 6. 2024 Interflow Zone Groundwater Quality Monitoring Results, Rocky Top Environmental Limited Purpose Landfill

Analyte	GWQS	MCL	Units	MW-7D 8/28/2024	MW-7D 12/19/2024	MW-8D 9/9/2024	MW-8D 12/19/2024	MW-9D 9/10/2024	MW-9D 12/19/2024	MW-10D 9/11/2024	MW-10D 12/18/2024	Trip Blank 9/11/2024	Trip Blank 12/18/2024
Field Data													
pH[1]	6.5-8.5			8.23	7.9 H	8.50	7.8 H	8.56	7.6 H	8.21	7.7 H	- -	- -
Conductivity		700 **	µmhos/cm	204.7	176.6	406.8	320.5	680	387.9	227.8	209.8	- -	- -
Temperature			C	19.4	13.6	23.2	14.0	18.2	9.0	17.2	12.0	- -	- -
Redox			mv	-251.5	-186.1	1.40	-202.1	-158.6	-197.3	-101.7	-213.1	- -	- -
Dissolved Oxygen			mg/L	0.70	1.14	1.38	1.27	6.74	2.23	7.74	3.97	- -	- -
Turbidity			NTU	0.0	2.49	1.27	6.05	109.5	7.54	- -	0.00	- -	- -
Metals													
Calcium, Dissolved			mg/L	15	15	24	26	48	30	17	19	- -	- -
Iron, Total	0.3 **	0.3 **	mg/L	0.067	4.0	0.12	1.3	23	0.28	0.15	0.063	- -	- -
Iron, Dissolved			mg/L	0.071	0.14	<0.056	<0.056	0.39	<0.056	<0.056	<0.056	- -	- -
Magnesium, Total			mg/L	10	12	16	20	28	21	10	11	- -	- -
Magnesium, Dissolved			mg/L	11	11	16	18	27	19	10	11	- -	- -
Manganese, Total	0.05 **	0.05 **	mg/L	0.032	0.061	0.026	0.020	0.42	0.033	0.022	<0.010	- -	- -
Manganese, Dissolved			mg/L	0.035	0.040	0.026	<0.011	0.17	0.032	0.021	<0.011	- -	- -
Potassium, Dissolved			mg/L	2.8	2.6	3.0	3.1	<1.1	2.1	2.2	2.2	- -	- -
Sodium, Dissolved			mg/L	11	11	18	20	52	23	15	14	- -	- -
Water Quality Parameters													
Alkalinity, Total			mg CaCO3/L	100	100	94	94	68	96	94	98	- -	- -
Ammonia (NH3) as Nitrogen (N)			mg/L	0.065	<0.053	<0.053	0.081	0.78	0.095	<0.053	<0.053	- -	- -
Bicarbonate			mg CaCO3/L	100	100	94	94	68	96	94	98	- -	- -
Chloride	250 **	250 **	mg/L	3.2	2.4	12	15	74	41	4.9	3.0	- -	- -
Nitrate	10 *	10 *	mg/L-N	<0.050	0.070	0.85	1.6	0.17 H	0.12	1.5	1.3	- -	- -
Sulfate	250 **	250 **	mg/L	<5.0	<5.0	46	48	200	62	12	13	- -	- -
Total Dissolved Solids	500 **	500 **	mg/L	100	140 H	230	250 H	460	260	160	170 H	- -	- -
Total Organic Carbon			mg/L	<1.0	<1.0	1.3	<1.0	4.0	1.9	<1.0	<1.0	- -	- -
Total Petroleum Hydrocarbons													
Gasoline Range Organics [a]	MTCA Method A:	1000	µg/L	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
TPHDx													
Diesel Range Organics			mg/L	<0.20	<0.22	<0.21	<0.22	0.46	<0.24	<0.20	<0.23	- -	- -
Lube Oil Range Organics			mg/L	<0.20	<0.22	<0.21	<0.22	0.073	<0.24	<0.20	<0.23	- -	- -
Total TPHDx	MTCA Method A:	0.5	mg/L	<0.20	<0.22	<0.21	<0.22	0.533	<0.24	<0.20	<0.23		
Volatile Organic Compounds												- -	- -
Chloromethane			µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	0.02 ***	2 *	µg/L	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Bromomethane			µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane			µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
CFC-11, Trichlorofluoromethane			µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1-Dichloroethene		7 *	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Acetone			µg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.1
Methyl Iodide			µg/L	<1.0	<1.0	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3
Carbon Disulfide			µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Methylene Chloride	5 ***	5 *	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Acrylonitrile	0.07 ***		µg/L	<0.69	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trans-1,2-Dichloroethene		100 *	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1-Dichloroethane	1 ***		µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Vinyl Acetate			µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Table 6. 2024 Interflow Zone Groundwater Quality Monitoring Results, Rocky Top Environmental Limited Purpose Landfill

cis-1,2-Dichloroethene		70 *	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
2-Butanone			µg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Bromochloromethane			µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chloroform	7 ***	80 * THM	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	200 *	200 *	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Carbon Tetrachloride	0.3 ***	5 *	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Benzene	1 ***	5 *	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichloroethane	0.5 ***	5 *	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Trichloroethene	3 ***	5 *	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichloropropane	0.6 ***	5 *	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dibromomethane			µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichlorobromomethane	0.3 ***	80 * THM	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
cis-1,3-Dichloropropene			µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
4-methyl-2-pentanone			µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Toluene		1000 *	µg/L	11	<1.0	4.5	<1.0	2.7	<1.0	1.4	<1.0	<1.0	<1.0
Trans-1,3-Dichloropropene			µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,2-Trichloroethane		5 *	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Tetrachloroethene	0.8 ***	5 *	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
2-Hexanone			µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Dibromochloromethane		80 * THM	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromoethane (EDB)	0.001 ***	0.05 *	µg/L	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Chlorobenzene		100 *	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1,2-Tetrachloroethane			µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene		700 *	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
m, p-Xylene			µg/L	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
o-Xylene			µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Styrene		100 *	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Bromoform	5 ***	80 * THM	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2,2-Tetrachloroethane			µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trichloropropane			µg/L	<0.20	<0.27	<0.20	<0.27	<0.20	<0.27	<0.20	<0.27	<0.20	<0.27
trans-1,4-Dichloro-2-butene			µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	4 ***	75 *	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene		600 *	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dibromo-3-chloropropane		0.2 *	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Naphthalene	MTCA Method A:	160	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Notes:

GWQS = Water Quality Standards for Ground Waters of the State of Washington (WAC 173-200)
MCL = Maximum Contaminant Level, State Drinking Water Regulations (WAC 246-290)
MTCA = Model Toxics Control Act (WAC 173-340)

[a] = Gasoline with no benzene present
* = Primary
** = Secondary
*** = Carcinogen
*THM = Primary MCL for the sum of all trihalomethanes
*XYL = Primary MCL for the sum of all xylenes

= Does not meet GWQS, MCL, or MTCA
- - = Not analyzed
J = Estimated value
H = Holding time exceeded
1 = pH was measured by the laboratory

Table 7. Interflow Zone Groundwater Samples that Failed to Meet Applicable Groundwater Standards in 2024

	Type of Standard					
Analyte	GWQS	MCL	MW-7D	MW-8D	MW-9D	MW-10D
Iron, Total	Secondary	Secondary	4	4	3	--
Iron, Dissolved	Secondary	Secondary	--	--	3	--
Manganese, Total	Secondary	Secondary	4	--	3	--
Manganese, Dissolved	Secondary	Secondary	--	--	3	--
Diesel Range Organics*	--	--	--	--	3	--

3 = August and September 2024

4 = December 2024

-- = Data did not exceed groundwater standard

GWQS = Water Quality Standards for Groundwaters of the State of Washington (WAC 173-200)

MCL = State Maximum Contaminant Levels (WAC 246-290)

J = Estimated value

*Compared to MTCA Method A Cleanup Levels

Appendix A

Fourth Quarter 2024
Field Data Sheets

DTG Recycle

Water Level Measurement Field Report

DATE 12/10/24	JOB NO. 553 8472 005		
PROJECT: Yakima LPL	COMPANY NAME: PMX		
LOCATION: Rocky Top			
WEATHER cold, overcast	TEMP mid 30's	° at 1030 ° at 1145	AM AM ~~PM~~
PERSONNEL C. Bourgeois			

THE FOLLOWING WAS NOTED:

WELL NUMBER	Time	Depth to Water (ft below top of casing)	Measuring Point	Screen Interval (ft bgs)
MW-2S	1117	288.48	TOC * *	310-330
MW-3S	1045	180.62	TOC * *	188-198
MW-4S	1055	44.95	TOC *	49.5 – 69.5
MW-5S	1110	219.48	TOC	222-243
MW-6S	1100	114.75	TOC * *	110-130
MW-7D	—	—	TOC	475-495
MW-8D	—	—	TOC	375-405
MW-9D	—	—	TOC	420-440
MW-10D	—	—	TOC	150-170

* solinist cap.

* * QED top

MW-6S had very weak signal.

CCB

DTG Recycle

Groundwater Sampling Field Data Sheet

Well #: **MW-2S**

Project Number:	553 8472 005	**Date:**	12/11/24
Project Name:	Yakima LPL	**Company Name:**	PMW
Project Address:	Rocky Top	**Sampled By:**	Chris Bourgeois

Casing Diameter: 2" _ 4" ✓ 6" ____ Other ____

Initial Depth to Water (feet below TOC):	288.22	**Purge Rate Measurement Method:**	graduated cylinder
Top of Screen (feet bgs):	310	**Date Purged:**	12/11/24
Bottom of Screen (feet bgs)	330	**Purge Time (from/to):**	1030 - 1100
Reference Point (surveyor's notch, etc.):	N pvc	**Time Sampled:**	1105

1030

TIME (2400 hr)	DEPTH TO WATER (ft)	pH (units)	Ec (µmhos/cm 25°C)	TEMP °C	Redox (mv)	Dissolved Oxygen mg/L	TURBIDITY (visual)	PUMP SETTING
Initial								MN - 30/30 175 psi
1030	288.38	8.78	161.7	10.0	-192.6	6.98	0.00	"
1035	288.54	8.67	160.8	11.7	-199.3	4.25	0.00	"
1040	288.75	8.51	160.7	12.5	-198.8	5.12	0.00	"
1045	288.86	8.44	162.6	12.4	-194.8	6.99	0.00	"
1050	288.6	8.44	162.8	12.9	-197.1	6.76	0.00	"
1055	288.4	8.41	161.2	13.1	-194.2	6.80	0.00	"
1100	288.0	8.36	161.4	13.0	-186.0	6.93	0.00	"
Stabilization Criteria		± 0.1	3%	3%	± 10 mv	10%, or 3 <0.5	10%, or 3<5.0	

Purge Equipment:	dedicated bladder	**Flow Rate:**	330 mL/min
Laboratory:	On site	**Date Sent to Lab:**	12/13/24
Shipment Method	in-person	**Field QC Sample Number:**	—

Remarks: Top of QED well head / pvc.

15 bottles

Signature: ChB

Groundwater Sampling Field Data Sheet

Well #:**MW-3S**

Project Number: 553 8472 005
Date: 12/11/24
Project Name: Yakima LPL
Company Name: Pmx
Project Address: Rocky Top
Sampled By: Chris Bourgeois

Casing Diameter: 2" _ 4" ✓ 6" ______ Other ______

Initial Depth to Water (feet below TOC): 180.50
Purge Rate Measurement Method: graduated cylinder
Top of Screen (feet bgs): 188
Date Purged: ~~1446~~ 12/11/24
Bottom of Screen (feet bgs) 198
Purge Time (from/to): 1446 – 1505
Reference Point (surveyor's notch, etc.): N PVC
Time Sampled: 1510

TIME (2400 hr)	DEPTH TO WATER (ft)	pH (units)	Ec (µmhos/cm 25°C)	TEMP °C	Redox (mv)	Dissolved Oxygen mg/L	TURBIDITY (visual)	PUMP SETTING
Initial	180.50							40/20 160 PSI
1450	180.77	8.25	569	13.2	-177.4	8.42	0.00	
1455	180.81	7.92	565	13.6	-182.9	~~7.92~~ 4.55	0.06	"
1500	180.87	7.91	563	13.5	-184.9	4.65	1.49	"
1505	180.90	7.90	563	13.6	-185.4	4.65	0.44	"
Stabilization Criteria		± 0.1	3%	3%	± 10 mv	10%, or 3 <0.5	10%, or 3<5.0	

Purge Equipment: dedicated bladder
Flow Rate: 400 mL/min
Laboratory: ~~[illegible]~~ OnSite
Date Sent to Lab: 12/13/24
Shipment Method in-person
Field QC Sample Number: —

Remarks:

Signature: ChrB

DTG Recycle

Groundwater Sampling Field Data Sheet

Well #:**MW-4S**

Project Number:	553 8472 005	**Date:**	12/12/24
Project Name:	Yakima LPL	**Company Name:**	PMX
Project Address:	Rocky Top	**Sampled By:**	Chris Bourgeois

Casing Diameter: 2" _ 4" ✓ 6" ______ Other ______

Initial Depth to Water (feet below TOC):	44.~~47~~ 33'	**Purge Rate Measurement Method:**	graduated cylinder
Top of Screen (feet bgs):	49.5	**Date Purged:**	12/12/24
Bottom of Screen (feet bgs)	69.5	**Purge Time (from/to):**	747-805
Reference Point (surveyor's notch, etc.):	N TOC	**Time Sampled:**	810

TIME (2400 hr)	DEPTH TO WATER (ft)	pH (units)	Ec (μmhos/cm 25°C)	TEMP °C	Redox (mv)	Dissolved Oxygen mg/L	TURBIDITY (visual)	PUMP SETTING 10/5
Initial	44.33							
750	44.50	8.01	797	11.1	-167.6	4.69	2.79	66 Hz
755	44.50	8.08	787	11.0	176.4	4.43	1.72	"
800	44.50	8.10	783	10.8	-180.7	4.40	1.24	"
805	44.50	8.12	786	10.8	-181.2	4.33	0.59	"
Stabilization Criteria		± 0.1	3%	3%	± 10 mv	10%, or 3 <0.5	10%, or 3<5.0	

Purge Equipment: dedicated bladder **Flow Rate:** 310 mL/min

Laboratory:	OnSite	**Date Sent to Lab:**	12/13/24
Shipment Method	In-person	**Field QC Sample Number:**	——

Remarks: DTW measured from ~~bottom~~ top of QED cap.

Signature: [signature]

DTG Recycle

Groundwater Sampling Field Data Sheet

Well #: **MW-5S**

Project Number:	553 8472 005	**Date:**	12/11/24
Project Name:	Yakima LPL	**Company Name:**	PMX
Project Address:	Rocky Top	**Sampled By:**	Chris Bourgeois

Casing Diameter: 2" _ 4" ✓ 6" ____ Other ____

Initial Depth to Water (feet below TOC):	219.05	**Purge Rate Measurement Method:**	graduated cylinder
Top of Screen (feet bgs):	222	**Date Purged:**	12/11/24
Bottom of Screen (feet bgs)	243	**Purge Time (from/to):**	1247 - 1340
Reference Point (surveyor's notch, etc.):	N PVC	**Time Sampled:**	1345

TIME (2400 hr)	DEPTH TO WATER (ft)	pH (units)	Ec (µmhos/cm 25°C)	TEMP °C	Redox (mv)	Dissolved Oxygen mg/L	TURBIDITY (visual)	PUMP SETTING
Initial	219.05							40/20
1255	219.05	8.20	298.6	13.6	-177.6	7.20	0.72	152 PSI
1300	219.05	8.35	457.9	13.8	-200.6	1.26	1.23	"
1305	219.05	8.47	497	13.7	-210.3	0.36	1.52	"
1310	219.05	8.47	501	13.8	-213.4	0.22	0.62	"
1315	219.05	8.49	450.7	13.7	-212.9	0.17	1.50	"
1320	219.05	8.44	374.9	13.9	-212.6	0.13	1.91	"
1325	219.05	8.45	367.2	13.8	-214.4	0.11	1.93	"
1330	219.05	8.51	361.9	13.8	-215.8	0.12	2.33	"
1340	219.05	8.46	362.3	13.9	-218.1	0.10	2.14	"
Stabilization Criteria		± 0.1	3%	3%	± 10 mv	10%, or 3 <0.5	10%, or 3<5.0	

Purge Equipment: dedicated bladder **Flow Rate:** 340 mL/min

Laboratory:	On site	**Date Sent to Lab:**	12/13/24
Shipment Method	in-person	**Field QC Sample Number:**	—

Remarks: sampled @ 1345

Signature: ChrisB

Groundwater Sampling Field Data Sheet

Well #:**MW-6S**

Project Number:	553 8472 005	**Date:**	12/12/24
Project Name:	Yakima LPL	**Company Name:**	PMX
Project Address:	Rocky Top	**Sampled By:**	Chris Bourgeois

Casing Diameter: 2" _ 4" ✓ 6" ____ Other ____

Initial Depth to Water (feet below TOC):	101.71	**Purge Rate Measurement Method:**	graduated cylinder
Top of Screen (feet bgs):	110	**Date Purged:**	12/12/24
Bottom of Screen (feet bgs)	130	**Purge Time (from/to):**	953 - 1010
Reference Point (surveyor's notch, etc.):	N. PVC	**Time Sampled:**	1015

TIME (2400 hr)	DEPTH TO WATER (ft)	pH (units)	Ec (µmhos/cm 25°C)	TEMP °C	Redox (mv)	Dissolved Oxygen mg/L	TURBIDITY (visual)	PUMP SETTING
Initial	101.71							11/9
955	—	8.63	481	9.6	-178.9	9.64	—	80 PSI
1000	102.32	8.31	504	11.8	-189.8	4.30	2.52	"
1005	102.49	8.35	507	11.6	-192.2	4.31	1.17	"
1010	102.68	8.38	504	11.5	-194.5	4.19	1.78	"
Stabilization Criteria		± 0.1	3%	3%	± 10 mv	10%, or 3 <0.5	10%, or 3<5.0	

Purge Equipment: dedicated bladder **Flow Rate:** 300 mL/min

Laboratory:	onsite	**Date Sent to Lab:**	12/13/24
Shipment Method	in-person	**Field QC Sample Number:**	see below

Remarks: DUP, MW-13S- 1212 collected here, at: 1100

+ MS/MSD & extra PFAS QC sample

Signature: ChrB

DTG Debris to Green Recycling

Water Level Measurement Field Report

DATE 12/18 – 12/19/2024	JOB NO. 553-8472-005 08.02
PROJECT: Yakima LPL	COMPANY NAME: Parametrix
LOCATION: Rocky Top	
WEATHER SNOW MELT	TEMP 45° ° at AM ° at PM
PERSONNEL ~~C. Bourgeois~~ M. Brady	

THE FOLLOWING WAS NOTED:

WELL NUMBER	Time	Depth to Water (ft below top of casing)	Measuring Point	Screen Interval (ft bgs)
MW-2S	—	—	TOC	310-330
MW-3S	—	—	TOC	188-198
MW-4S	—	—	TOC	49.5 – 69.5
MW-5S	—	—	TOC	222-243
MW-6S	—	—	TOC	110-130
MW-7D	12/19 1048	450.20	TOC	475-495
MW-8D	12/19 1237	303.52	TOC	375-405
MW-9D	12/18 1055	431.94	TOC	420-440
MW-10D	12/18 1154	86.47	TOC	150-170

M Brady

DTG Debris to Green Recycling

Groundwater Sampling Field Data Sheet

Well #: **MW-7D**

Project Number:	553-8472-005 08.03	**Date:**	12/19/2024
Project Name:	Yakima LPL	**Company Name:**	
Project Address:	Rocky Top	**Sampled By:**	~~Chris Bourgeois~~ M Brady

Casing Diameter: 2" _ 4" X 6" ______ Other ______

Initial Depth to Water (feet below TOC):	450.20 1048	**Purge Rate Measurement Method:**	
Top of Screen (feet bgs):	475	**Date Purged:**	12/19/24
Bottom of Screen (feet bgs)	495	**Purge Time (from/to):**	1140-1210
Reference Point (surveyor's notch, etc.):		**Time Sampled:**	1210

TIME (2400 hr)		DEPTH TO WATER (ft)	pH (units)	Ec (µmhos/cm 25°C)	TEMP °C	Redox (mv)	Dissolved Oxygen mg/L	TURBIDITY (~~visual~~) NTU	PUMP SETTING
Initial	t	450.20							
1145	5	450.15	7.94	174.8	13.9	-120.1	3.92	2.28	40/35
1150	10	450.15	8.74	176.6	13.6	-173.9	1.49		"
1155	15	450.15	8.81	176.5	13.4	-183.7	1.23		"
1200	20	450.15	8.83	176.4	13.5	-185.5	1.15	2.48	"
1205	25	450.16	8.82	176.6	13.6	-186.1	1.14	2.49	"
Stabilization Criteria			± 0.1	3%	3%	± 10 mv	10%, or 3 <0.5	10%, or 3<5.0	

Purge Equipment:	H.P. Bladder	**Flow Rate:**	250 ml/min
Laboratory:	Onsite	**Date Sent to Lab:**	12/20/24
Shipment Method	Hand Delivery	**Field QC Sample Number:**	

Remarks: pH OUT OF CALIBRATION, COULD NOT RECAL
SUBMITTED FOR LAB ANALYSIS

Signature: M Brady

DTG Debris to Green Recycling

Groundwater Sampling Field Data Sheet

Well #: **MW-8D**

Project Number:	553-8472-005 08.02	**Date:**	12/19/24
Project Name:	Yakima LPL	**Company Name:**	Parametrix
Project Address:	Rocky Top	**Sampled By:**	~~Chris Bourgeois~~ M Brady

Casing Diameter: 2" _ 4" _ 6" ______ Other ______

Initial Depth to Water (feet below TOC):		**Purge Rate Measurement Method:**	
Top of Screen (feet bgs):	375	**Date Purged:**	12/19/24
Bottom of Screen (feet bgs)	405	**Purge Time (from/to):**	1241-1317
Reference Point (surveyor's notch, etc.):		**Time Sampled:**	1320

TIME (2400 hr)	t	DEPTH TO WATER (ft)	pH (units)	Ec (µmhos/cm 25°C)	TEMP °C	Redox (mv)	Dissolved Oxygen mg/L	TURBIDITY (visual)	PUMP SETTING
Initial	0	303.52							
1250	9	304.32	8.40	322.6	12.8	-148.2	14.49	2.40	30/30
1255	14	304.52	8.47	322.4	13.6	-170.1	6.81	5.33	
1300	19	304.61	8.73	322.2	13.8	-186.9	3.48	5.24	
1305	24	304.83	8.84	323.8	14.0	-195.9	2.11	—	
1310	29	305.41	8.80	323.4	13.0	-197.9	1.55	5.92	
1315	34		8.83	322.1	14.0	-201.4	1.26	6.05	
1317	36		8.82	320.5	14.0	-202.1	1.27	—	
Stabilization Criteria			± 0.1	3%	3%	± 10 mv	10%, or 3 <0.5	10%, or 3<5.0	

Purge Equipment:		**Flow Rate:**	
Laboratory:	ONSITE	**Date Sent to Lab:**	12/20
Shipment Method	Hand	**Field QC Sample Number:**	

Remarks: pH OUT OF CAL

Signature: M Br

DTG Debris to Green Recycling

Groundwater Sampling Field Data Sheet

Well #:**MW-9D**

Project Number:	553-8472-005 08.02	**Date:**	12/18-12/19/2024
Project Name:	Yakima LPL	**Company Name:**	Parametrix
Project Address:	Rocky Top	**Sampled By:**	~~Chris Bourgeois~~ M. Brady

Casing Diameter: 2" _ 4" _ 6" ______ Other ______

Initial Depth to Water (feet below TOC):	431.94	**Purge Rate Measurement Method:**	
Top of Screen (feet bgs):	420	**Date Purged:**	12/18
Bottom of Screen (feet bgs)	440	**Purge Time (from/to):**	1100-1500
Reference Point (surveyor's notch, etc.):		**Time Sampled:**	12/19 845

TIME (2400 hr)	DEPTH TO WATER (ft)	pH (units)	Ec (µmhos/cm 25°C)	TEMP °C	Redox (mv)	Dissolved Oxygen mg/L	TURBIDITY (~~visual~~) NTU	PUMP SETTING
Initial	t 431.94							
1100	0 —	—						40/40
1430	—	9.45	386.5	8.6	-201.1	2.60		40/30
1435	—	9.29	389.1	8.7	-200.2	2.39	8.48	
1440	—	9.16	388.8	9.0	-197.7	2.23	8.28	
1445	—	9.11	389.8	9.2	-197.1	2.24	7.33	
1450	—	9.09	391.9	8.9	-197.1	2.28	7.57	
1455	—	9.10	391.3	8.7	-197.3	2.21	7.52	
1500	433.25	9.07	387.9	9.0	-197.3	2.23	7.54	
Stabilization Criteria		± 0.1	3%	3%	± 10 mv	10%, or 3 <0.5	10%, or 3<5.0	

Purge Equipment:		**Flow Rate:**	
Laboratory:	ONSITE	**Date Sent to Lab:**	12/20
Shipment Method	Hand	**Field QC Sample Number:**	

Remarks: pH OUT OF CAL
1100-1415 70ml/80 SEC, RAN OUT OF GAS BEFORE 1415

Signature: [signature]

DTG Debris to Green Recycling

Groundwater Sampling Field Data Sheet

Well #:**MW-10D**

Project Number:	553-8472-005 08.02	**Date:**	12/18/2024
Project Name:	Yakima LPL	**Company Name:**	Parametrix
Project Address:	Rocky Top	**Sampled By:**	~~Chris Bourgeois~~ M Brady

Casing Diameter: 2" _ 4" _ 6" ______ Other ______

Initial Depth to Water (feet below TOC):	86.47 11:54	**Purge Rate Measurement Method:**	
Top of Screen (feet bgs):	147	**Date Purged:**	
Bottom of Screen (feet bgs)	167	**Purge Time (from/to):**	
Reference Point (surveyor's notch, etc.):		**Time Sampled:**	13:30

TIME (2400 hr)		DEPTH TO WATER (ft)	pH (units)	Ec (µmhos/cm 25°C)	TEMP °C	Redox (mv)	Dissolved Oxygen mg/L	TURBIDITY (~~visual~~) NTU	PUMP SETTING
1244 Initial	t	86.47							
1249	5	86.98	9.09	213.0	12.0	-208.1	4.12	0.67	20/10-70PSI
1255	11	87.00	9.08	210.0	12.2	-208.9	3.31	0.77	
1305	21	87.12	9.54	211.5	12.3	-238.6	4.23	0.59	
1310	26	87.16	9.53	210.9	12.0	-234.9	4.03	0.58	
1315	31	87.2	9.36	210.5	12.2	-225.4	3.94	0.50	
1320	36	87.24	9.25	210.5	12.1	-217.7	3.94	0.20	
1325	41	87.27	9.22	210.7	11.7	-214.1	3.98	0.20	
1330	46	87.30	9.21	209.8	12.0	-213.1	3.97	0.00	
Stabilization Criteria			± 0.1	3%	3%	± 10 mv	10%, or 3 <0.5	10%, or 3<5.0	

Purge Equipment:		**Flow Rate:**	
Laboratory:	ONSITE	**Date Sent to Lab:**	12/20
Shipment Method	Hand Delivery	**Field QC Sample Number:**	

Remarks: 150 ml/min
pH OUT OF CAL

Signature: M Br

Appendix B

Fourth Quarter 2024
Laboratory Analytical Report

OnSite
Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

December 30, 2024

Michael Brady
Parametrix, Inc.
719 2nd Avenue, Suite 200
Seattle, WA 98104

Re: Analytical Data for Project 553-8472-005 08.02
Laboratory Reference No. 2412-199

Dear Michael:

Enclosed are the analytical results and associated quality control data for samples submitted on December 13, 2024.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: December 30, 2024
Samples Submitted: December 13, 2024
Laboratory Reference: 2412-199
Project: 553-8472-005 08.02

Case Narrative

Samples were collected on December 11 and 12, 2024 and received by the laboratory on December 13, 2024. They were maintained at the laboratory at a temperature of 2^oC to 6^oC.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below. However the soil results for the QA/QC samples are reported on a wet-weight basis.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Volatiles EPA 8260D Analysis

The percent recovery for (trans) 1,3-Dichloropropene is outside the control limits in the Spike Blank Duplicate. The method allows for a percentage of the compounds to fall outside of the control limits due to the large number of analytes being spiked.

The RPD for Acetone is outside the control limits for the Spike Blank/Spike Blank Duplicate. The percent recoveries on both spike blanks are within recovery limits. The method allows for a percentage of the compounds to fall outside of the control limits due to the large number of analytes being spiked.

The percent recovery for Vinyl Acetate, Dibromomethane, (cis) 1,3-Dichloropropene and (trans) 1,3-Dichloropropene is outside the control limits in the Matrix Spike. The method allows for a percentage of the compounds to fall outside of the control limits due to the large number of analytes being spiked.

The RPD for Dibromochloromethane is outside the control limits for the Matrix Spike/Matrix Spike Duplicate. The percent recoveries on both matrix spikes are within recovery limits. The method allows for a percentage of the compounds to fall outside of the control limits due to the large number of analytes being spiked.

Nitrate (as Nitrogen) EPA 353.2 Analysis

The reported Nitrate results are a calculated value based on the subtraction of Nitrite from the Nitrate plus Nitrite result. The Nitrite analysis, which has a 48-hour holding time, was performed within the holding time. Immediately after this analysis, an aliquot from each sample was preserved with concentrated sulfuric acid and stored at 4 degrees C. The preserved samples were then analyzed within the maximum 28-day holding time for the Nitrate plus Nitrite analysis.

Date of Report: December 30, 2024
Samples Submitted: December 13, 2024
Laboratory Reference: 2412-199
Project: 553-8472-005 08.02

VOLATILE ORGANICS EPA 8260D/SIM
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-2S-1211**					
Laboratory ID:	12-199-01					
Chloromethane	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Vinyl Chloride	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Vinyl Chloride (SIM)	ND	0.020	EPA 8260D/SIM	12-16-24	12-16-24	
Bromomethane	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Chloroethane	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Trichlorofluoromethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,1-Dichloroethene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Acetone	ND	5.0	EPA 8260D	12-16-24	12-16-24	
Iodomethane	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Carbon Disulfide	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Methylene Chloride	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Acrylonitrile	ND	0.50	EPA 8260D	12-16-24	12-16-24	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,1-Dichloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Vinyl Acetate	ND	1.0	EPA 8260D	12-16-24	12-16-24	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
2-Butanone	ND	5.0	EPA 8260D	12-16-24	12-16-24	
Bromochloromethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Chloroform	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Carbon Tetrachloride	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Benzene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dichloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Trichloroethene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dichloropropane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Dibromomethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Bromodichloromethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260D	12-16-24	12-16-24	
Toluene	ND	1.0	EPA 8260D	12-16-24	12-16-24	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Tetrachloroethene	ND	0.20	EPA 8260D	12-16-24	12-16-24	

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VOLATILE ORGANICS EPA 8260D/SIM
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-2S-1211**					
Laboratory ID:	12-199-01					
2-Hexanone	ND	2.0	EPA 8260D	12-16-24	12-16-24	
Dibromochloromethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dibromoethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dibromoethane (SIM)	ND	0.020	EPA 8260D/SIM	12-16-24	12-16-24	
Chlorobenzene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Ethylbenzene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
m,p-Xylene	ND	0.40	EPA 8260D	12-16-24	12-16-24	
o-Xylene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Styrene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Bromoform	ND	1.0	EPA 8260D	12-16-24	12-16-24	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2,3-Trichloropropane	ND	0.27	EPA 8260D	12-16-24	12-16-24	
(trans) 1,4-Dichloro-2-butene	ND	0.50	EPA 8260D	12-16-24	12-16-24	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Naphthalene	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*109*	*68-133*				
Toluene-d8	*103*	*79-123*				
4-Bromofluorobenzene	*98*	*78-117*				

Date of Report: December 30, 2024
Samples Submitted: December 13, 2024
Laboratory Reference: 2412-199
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VOLATILE ORGANICS EPA 8260D/SIM
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-3S-1211**					
Laboratory ID:	12-199-02					
Chloromethane	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Vinyl Chloride	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Vinyl Chloride (SIM)	ND	0.020	EPA 8260D/SIM	12-16-24	12-16-24	
Bromomethane	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Chloroethane	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Trichlorofluoromethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,1-Dichloroethene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Acetone	ND	5.0	EPA 8260D	12-16-24	12-16-24	
Iodomethane	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Carbon Disulfide	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Methylene Chloride	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Acrylonitrile	ND	0.50	EPA 8260D	12-16-24	12-16-24	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,1-Dichloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Vinyl Acetate	ND	1.0	EPA 8260D	12-16-24	12-16-24	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
2-Butanone	ND	5.0	EPA 8260D	12-16-24	12-16-24	
Bromochloromethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Chloroform	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Carbon Tetrachloride	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Benzene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dichloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Trichloroethene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dichloropropane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Dibromomethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Bromodichloromethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260D	12-16-24	12-16-24	
Toluene	ND	1.0	EPA 8260D	12-16-24	12-16-24	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Tetrachloroethene	ND	0.20	EPA 8260D	12-16-24	12-16-24	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-3S-1211**					
Laboratory ID:	12-199-02					
2-Hexanone	ND	2.0	EPA 8260D	12-16-24	12-16-24	
Dibromochloromethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dibromoethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dibromoethane (SIM)	ND	0.020	EPA 8260D/SIM	12-16-24	12-16-24	
Chlorobenzene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Ethylbenzene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
m,p-Xylene	ND	0.40	EPA 8260D	12-16-24	12-16-24	
o-Xylene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Styrene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Bromoform	ND	1.0	EPA 8260D	12-16-24	12-16-24	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2,3-Trichloropropane	ND	0.27	EPA 8260D	12-16-24	12-16-24	
(trans) 1,4-Dichloro-2-butene	ND	0.50	EPA 8260D	12-16-24	12-16-24	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Naphthalene	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*109*	*68-133*				
Toluene-d8	*103*	*79-123*				
4-Bromofluorobenzene	*98*	*78-117*				

Date of Report: December 30, 2024
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-4S-1212**					
Laboratory ID:	12-199-03					
Chloromethane	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Vinyl Chloride	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Vinyl Chloride (SIM)	ND	0.020	EPA 8260D/SIM	12-16-24	12-16-24	
Bromomethane	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Chloroethane	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Trichlorofluoromethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,1-Dichloroethene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Acetone	ND	5.0	EPA 8260D	12-16-24	12-16-24	
Iodomethane	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Carbon Disulfide	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Methylene Chloride	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Acrylonitrile	ND	0.50	EPA 8260D	12-16-24	12-16-24	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,1-Dichloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Vinyl Acetate	ND	1.0	EPA 8260D	12-16-24	12-16-24	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
2-Butanone	ND	5.0	EPA 8260D	12-16-24	12-16-24	
Bromochloromethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Chloroform	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Carbon Tetrachloride	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Benzene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dichloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Trichloroethene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dichloropropane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Dibromomethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Bromodichloromethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260D	12-16-24	12-16-24	
Toluene	ND	1.0	EPA 8260D	12-16-24	12-16-24	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Tetrachloroethene	ND	0.20	EPA 8260D	12-16-24	12-16-24	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-4S-1212**					
Laboratory ID:	12-199-03					
2-Hexanone	ND	2.0	EPA 8260D	12-16-24	12-16-24	
Dibromochloromethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dibromoethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dibromoethane (SIM)	ND	0.020	EPA 8260D/SIM	12-16-24	12-16-24	
Chlorobenzene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Ethylbenzene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
m,p-Xylene	ND	0.40	EPA 8260D	12-16-24	12-16-24	
o-Xylene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Styrene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Bromoform	ND	1.0	EPA 8260D	12-16-24	12-16-24	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2,3-Trichloropropane	ND	0.27	EPA 8260D	12-16-24	12-16-24	
(trans) 1,4-Dichloro-2-butene	ND	0.50	EPA 8260D	12-16-24	12-16-24	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Naphthalene	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*110*	*68-133*				
Toluene-d8	*105*	*79-123*				
4-Bromofluorobenzene	*99*	*78-117*				

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Samples Submitted: December 13, 2024
Laboratory Reference: 2412-199
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VOLATILE ORGANICS EPA 8260D/SIM
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-5S-1211**					
Laboratory ID:	12-199-04					
Chloromethane	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Vinyl Chloride	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Vinyl Chloride (SIM)	ND	0.020	EPA 8260D/SIM	12-16-24	12-16-24	
Bromomethane	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Chloroethane	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Trichlorofluoromethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,1-Dichloroethene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Acetone	ND	5.0	EPA 8260D	12-16-24	12-16-24	
Iodomethane	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Carbon Disulfide	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Methylene Chloride	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Acrylonitrile	ND	0.50	EPA 8260D	12-16-24	12-16-24	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,1-Dichloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Vinyl Acetate	ND	1.0	EPA 8260D	12-16-24	12-16-24	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
2-Butanone	ND	5.0	EPA 8260D	12-16-24	12-16-24	
Bromochloromethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Chloroform	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Carbon Tetrachloride	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Benzene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dichloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Trichloroethene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dichloropropane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Dibromomethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Bromodichloromethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260D	12-16-24	12-16-24	
Toluene	ND	1.0	EPA 8260D	12-16-24	12-16-24	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Tetrachloroethene	ND	0.20	EPA 8260D	12-16-24	12-16-24	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-5S-1211**					
Laboratory ID:	12-199-04					
2-Hexanone	ND	2.0	EPA 8260D	12-16-24	12-16-24	
Dibromochloromethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dibromoethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dibromoethane (SIM)	ND	0.020	EPA 8260D/SIM	12-16-24	12-16-24	
Chlorobenzene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Ethylbenzene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
m,p-Xylene	ND	0.40	EPA 8260D	12-16-24	12-16-24	
o-Xylene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Styrene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Bromoform	ND	1.0	EPA 8260D	12-16-24	12-16-24	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2,3-Trichloropropane	ND	0.27	EPA 8260D	12-16-24	12-16-24	
(trans) 1,4-Dichloro-2-butene	ND	0.50	EPA 8260D	12-16-24	12-16-24	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Naphthalene	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*110*	*68-133*				
Toluene-d8	*105*	*79-123*				
4-Bromofluorobenzene	*99*	*78-117*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-6S-1212**					
Laboratory ID:	12-199-05					
Chloromethane	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Vinyl Chloride	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Vinyl Chloride (SIM)	ND	0.020	EPA 8260D/SIM	12-16-24	12-16-24	
Bromomethane	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Chloroethane	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Trichlorofluoromethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,1-Dichloroethene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Acetone	ND	5.0	EPA 8260D	12-16-24	12-16-24	
Iodomethane	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Carbon Disulfide	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Methylene Chloride	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Acrylonitrile	ND	0.50	EPA 8260D	12-16-24	12-16-24	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,1-Dichloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Vinyl Acetate	ND	1.0	EPA 8260D	12-16-24	12-16-24	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
2-Butanone	ND	5.0	EPA 8260D	12-16-24	12-16-24	
Bromochloromethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Chloroform	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Carbon Tetrachloride	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Benzene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dichloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Trichloroethene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dichloropropane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Dibromomethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Bromodichloromethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260D	12-16-24	12-16-24	
Toluene	ND	1.0	EPA 8260D	12-16-24	12-16-24	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Tetrachloroethene	ND	0.20	EPA 8260D	12-16-24	12-16-24	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-6S-1212**					
Laboratory ID:	12-199-05					
2-Hexanone	ND	2.0	EPA 8260D	12-16-24	12-16-24	
Dibromochloromethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dibromoethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dibromoethane (SIM)	ND	0.020	EPA 8260D/SIM	12-16-24	12-16-24	
Chlorobenzene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Ethylbenzene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
m,p-Xylene	ND	0.40	EPA 8260D	12-16-24	12-16-24	
o-Xylene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Styrene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Bromoform	ND	1.0	EPA 8260D	12-16-24	12-16-24	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2,3-Trichloropropane	ND	0.27	EPA 8260D	12-16-24	12-16-24	
(trans) 1,4-Dichloro-2-butene	ND	0.50	EPA 8260D	12-16-24	12-16-24	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Naphthalene	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*108*	*68-133*				
Toluene-d8	*103*	*79-123*				
4-Bromofluorobenzene	*98*	*78-117*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-13S-1212**					
Laboratory ID:	12-199-06					
Chloromethane	ND	1.3	EPA 8260D	12-17-24	12-17-24	
Vinyl Chloride	ND	0.20	EPA 8260D	12-17-24	12-17-24	
Vinyl Chloride (SIM)	ND	0.020	EPA 8260D/SIM	12-17-24	12-17-24	
Bromomethane	ND	1.0	EPA 8260D	12-17-24	12-17-24	
Chloroethane	ND	1.0	EPA 8260D	12-17-24	12-17-24	
Trichlorofluoromethane	ND	0.20	EPA 8260D	12-17-24	12-17-24	
1,1-Dichloroethene	ND	0.20	EPA 8260D	12-17-24	12-17-24	
Acetone	ND	5.0	EPA 8260D	12-17-24	12-17-24	
Iodomethane	ND	1.0	EPA 8260D	12-17-24	12-17-24	
Carbon Disulfide	ND	0.20	EPA 8260D	12-17-24	12-17-24	
Methylene Chloride	ND	1.0	EPA 8260D	12-17-24	12-17-24	
Acrylonitrile	ND	0.50	EPA 8260D	12-17-24	12-17-24	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	12-17-24	12-17-24	
1,1-Dichloroethane	ND	0.20	EPA 8260D	12-17-24	12-17-24	
Vinyl Acetate	ND	1.0	EPA 8260D	12-17-24	12-17-24	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	12-17-24	12-17-24	
2-Butanone	ND	5.0	EPA 8260D	12-17-24	12-17-24	
Bromochloromethane	ND	0.20	EPA 8260D	12-17-24	12-17-24	
Chloroform	ND	0.20	EPA 8260D	12-17-24	12-17-24	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	12-17-24	12-17-24	
Carbon Tetrachloride	ND	0.20	EPA 8260D	12-17-24	12-17-24	
Benzene	ND	0.20	EPA 8260D	12-17-24	12-17-24	
1,2-Dichloroethane	ND	0.20	EPA 8260D	12-17-24	12-17-24	
Trichloroethene	ND	0.20	EPA 8260D	12-17-24	12-17-24	
1,2-Dichloropropane	ND	0.20	EPA 8260D	12-17-24	12-17-24	
Dibromomethane	ND	0.20	EPA 8260D	12-17-24	12-17-24	
Bromodichloromethane	ND	0.20	EPA 8260D	12-17-24	12-17-24	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	12-17-24	12-17-24	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260D	12-17-24	12-17-24	
Toluene	ND	1.0	EPA 8260D	12-17-24	12-17-24	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	12-17-24	12-17-24	
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	12-17-24	12-17-24	
Tetrachloroethene	ND	0.20	EPA 8260D	12-17-24	12-17-24	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-13S-1212**					
Laboratory ID:	12-199-06					
2-Hexanone	ND	2.0	EPA 8260D	12-17-24	12-17-24	
Dibromochloromethane	ND	0.20	EPA 8260D	12-17-24	12-17-24	
1,2-Dibromoethane	ND	0.20	EPA 8260D	12-17-24	12-17-24	
1,2-Dibromoethane (SIM)	ND	0.020	EPA 8260D/SIM	12-17-24	12-17-24	
Chlorobenzene	ND	0.20	EPA 8260D	12-17-24	12-17-24	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	12-17-24	12-17-24	
Ethylbenzene	ND	0.20	EPA 8260D	12-17-24	12-17-24	
m,p-Xylene	ND	0.40	EPA 8260D	12-17-24	12-17-24	
o-Xylene	ND	0.20	EPA 8260D	12-17-24	12-17-24	
Styrene	ND	0.20	EPA 8260D	12-17-24	12-17-24	
Bromoform	ND	1.0	EPA 8260D	12-17-24	12-17-24	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	12-17-24	12-17-24	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	12-17-24	12-17-24	
(trans) 1,4-Dichloro-2-butene	ND	0.50	EPA 8260D	12-17-24	12-17-24	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	12-17-24	12-17-24	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	12-17-24	12-17-24	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	12-17-24	12-17-24	
Naphthalene	ND	1.0	EPA 8260D	12-17-24	12-17-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*106*	*68-133*				
Toluene-d8	*104*	*79-123*				
4-Bromofluorobenzene	*100*	*78-117*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**Trip Blank**					
Laboratory ID:	12-199-07					
Chloromethane	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Vinyl Chloride	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Vinyl Chloride (SIM)	ND	0.020	EPA 8260D/SIM	12-16-24	12-16-24	
Bromomethane	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Chloroethane	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Trichlorofluoromethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,1-Dichloroethene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Acetone	ND	5.0	EPA 8260D	12-16-24	12-16-24	
Iodomethane	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Carbon Disulfide	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Methylene Chloride	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Acrylonitrile	ND	0.50	EPA 8260D	12-16-24	12-16-24	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,1-Dichloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Vinyl Acetate	ND	1.0	EPA 8260D	12-16-24	12-16-24	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
2-Butanone	ND	5.0	EPA 8260D	12-16-24	12-16-24	
Bromochloromethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Chloroform	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Carbon Tetrachloride	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Benzene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dichloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Trichloroethene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dichloropropane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Dibromomethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Bromodichloromethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260D	12-16-24	12-16-24	
Toluene	ND	1.0	EPA 8260D	12-16-24	12-16-24	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Tetrachloroethene	ND	0.20	EPA 8260D	12-16-24	12-16-24	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**Trip Blank**					
Laboratory ID:	12-199-07					
2-Hexanone	ND	2.0	EPA 8260D	12-16-24	12-16-24	
Dibromochloromethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dibromoethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dibromoethane (SIM)	ND	0.020	EPA 8260D/SIM	12-16-24	12-16-24	
Chlorobenzene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Ethylbenzene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
m,p-Xylene	ND	0.40	EPA 8260D	12-16-24	12-16-24	
o-Xylene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Styrene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Bromoform	ND	1.0	EPA 8260D	12-16-24	12-16-24	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2,3-Trichloropropane	ND	0.27	EPA 8260D	12-16-24	12-16-24	
(trans) 1,4-Dichloro-2-butene	ND	0.50	EPA 8260D	12-16-24	12-16-24	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Naphthalene	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*109*	*68-133*				
Toluene-d8	*104*	*79-123*				
4-Bromofluorobenzene	*100*	*78-117*				

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QUALITY CONTROL
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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1216W1					
Chloromethane	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Vinyl Chloride	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Vinyl Chloride (SIM)	ND	0.020	EPA 8260D/SIM	12-16-24	12-16-24	
Bromomethane	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Chloroethane	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Trichlorofluoromethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,1-Dichloroethene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Acetone	ND	5.0	EPA 8260D	12-16-24	12-16-24	
Iodomethane	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Carbon Disulfide	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Methylene Chloride	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Acrylonitrile	ND	0.50	EPA 8260D	12-16-24	12-16-24	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,1-Dichloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Vinyl Acetate	ND	1.0	EPA 8260D	12-16-24	12-16-24	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
2-Butanone	ND	5.0	EPA 8260D	12-16-24	12-16-24	
Bromochloromethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Chloroform	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Carbon Tetrachloride	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Benzene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dichloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Trichloroethene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dichloropropane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Dibromomethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Bromodichloromethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260D	12-16-24	12-16-24	
Toluene	ND	1.0	EPA 8260D	12-16-24	12-16-24	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Tetrachloroethene	ND	0.20	EPA 8260D	12-16-24	12-16-24	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1216W1					
2-Hexanone	ND	2.0	EPA 8260D	12-16-24	12-16-24	
Dibromochloromethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dibromoethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dibromoethane (SIM)	ND	0.020	EPA 8260D/SIM	12-16-24	12-16-24	
Chlorobenzene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Ethylbenzene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
m,p-Xylene	ND	0.40	EPA 8260D	12-16-24	12-16-24	
o-Xylene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Styrene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
Bromoform	ND	1.0	EPA 8260D	12-16-24	12-16-24	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2,3-Trichloropropane	ND	0.27	EPA 8260D	12-16-24	12-16-24	
(trans) 1,4-Dichloro-2-butene	ND	0.50	EPA 8260D	12-16-24	12-16-24	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	12-16-24	12-16-24	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Naphthalene	ND	1.0	EPA 8260D	12-16-24	12-16-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*110*	*68-133*				
Toluene-d8	*105*	*79-123*				
4-Bromofluorobenzene	*100*	*78-117*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1217W2					
Chloromethane	ND	1.3	EPA 8260D	12-17-24	12-17-24	
Vinyl Chloride	ND	0.20	EPA 8260D	12-17-24	12-17-24	
Vinyl Chloride (SIM)	ND	0.020	EPA 8260D/SIM	12-17-24	12-17-24	
Bromomethane	ND	1.0	EPA 8260D	12-17-24	12-17-24	
Chloroethane	ND	1.0	EPA 8260D	12-17-24	12-17-24	
Trichlorofluoromethane	ND	0.20	EPA 8260D	12-17-24	12-17-24	
1,1-Dichloroethene	ND	0.20	EPA 8260D	12-17-24	12-17-24	
Acetone	ND	5.0	EPA 8260D	12-17-24	12-17-24	
Iodomethane	ND	1.0	EPA 8260D	12-17-24	12-17-24	
Carbon Disulfide	ND	0.20	EPA 8260D	12-17-24	12-17-24	
Methylene Chloride	ND	1.0	EPA 8260D	12-17-24	12-17-24	
Acrylonitrile	ND	0.50	EPA 8260D	12-17-24	12-17-24	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	12-17-24	12-17-24	
1,1-Dichloroethane	ND	0.20	EPA 8260D	12-17-24	12-17-24	
Vinyl Acetate	ND	1.0	EPA 8260D	12-17-24	12-17-24	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	12-17-24	12-17-24	
2-Butanone	ND	5.0	EPA 8260D	12-17-24	12-17-24	
Bromochloromethane	ND	0.20	EPA 8260D	12-17-24	12-17-24	
Chloroform	ND	0.20	EPA 8260D	12-17-24	12-17-24	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	12-17-24	12-17-24	
Carbon Tetrachloride	ND	0.20	EPA 8260D	12-17-24	12-17-24	
Benzene	ND	0.20	EPA 8260D	12-17-24	12-17-24	
1,2-Dichloroethane	ND	0.20	EPA 8260D	12-17-24	12-17-24	
Trichloroethene	ND	0.20	EPA 8260D	12-17-24	12-17-24	
1,2-Dichloropropane	ND	0.20	EPA 8260D	12-17-24	12-17-24	
Dibromomethane	ND	0.20	EPA 8260D	12-17-24	12-17-24	
Bromodichloromethane	ND	0.20	EPA 8260D	12-17-24	12-17-24	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	12-17-24	12-17-24	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260D	12-17-24	12-17-24	
Toluene	ND	1.0	EPA 8260D	12-17-24	12-17-24	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	12-17-24	12-17-24	
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	12-17-24	12-17-24	
Tetrachloroethene	ND	0.20	EPA 8260D	12-17-24	12-17-24	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1217W2					
2-Hexanone	ND	2.0	EPA 8260D	12-17-24	12-17-24	
Dibromochloromethane	ND	0.20	EPA 8260D	12-17-24	12-17-24	
1,2-Dibromoethane	ND	0.20	EPA 8260D	12-17-24	12-17-24	
1,2-Dibromoethane (SIM)	ND	0.020	EPA 8260D/SIM	12-17-24	12-17-24	
Chlorobenzene	ND	0.20	EPA 8260D	12-17-24	12-17-24	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	12-17-24	12-17-24	
Ethylbenzene	ND	0.20	EPA 8260D	12-17-24	12-17-24	
m,p-Xylene	ND	0.40	EPA 8260D	12-17-24	12-17-24	
o-Xylene	ND	0.20	EPA 8260D	12-17-24	12-17-24	
Styrene	ND	0.20	EPA 8260D	12-17-24	12-17-24	
Bromoform	ND	1.0	EPA 8260D	12-17-24	12-17-24	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	12-17-24	12-17-24	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	12-17-24	12-17-24	
(trans) 1,4-Dichloro-2-butene	ND	0.50	EPA 8260D	12-17-24	12-17-24	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	12-17-24	12-17-24	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	12-17-24	12-17-24	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	12-17-24	12-17-24	
Naphthalene	ND	1.0	EPA 8260D	12-17-24	12-17-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*107*	*68-133*				
Toluene-d8	*104*	*79-123*				
4-Bromofluorobenzene	*100*	*78-117*				

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QUALITY CONTROL
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Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES											
Laboratory ID:	12-199-05										
	MS	MSD	MS	MSD		MS	MSD				
Chloromethane	**9.28**	**8.33**	10.0	10.0	ND	93	83	36-162	11	19	
Vinyl Chloride	**10.5**	**9.53**	10.0	10.0	ND	105	95	62-121	10	15	
Bromomethane	**11.7**	**10.6**	10.0	10.0	ND	117	106	48-166	10	22	
Chloroethane	**10.5**	**10.0**	10.0	10.0	ND	105	100	62-129	5	14	
Trichlorofluoromethane	**11.1**	**9.95**	10.0	10.0	ND	111	100	77-120	11	16	
1,1-Dichloroethene	**11.5**	**10.7**	10.0	10.0	ND	115	107	76-119	7	15	
Acetone	**13.0**	**11.6**	10.0	10.0	ND	130	116	56-132	11	17	
Iodomethane	**8.33**	**7.76**	10.0	10.0	ND	83	78	54-121	7	21	
Carbon Disulfide	**8.53**	**8.43**	10.0	10.0	ND	85	84	47-123	1	16	
Methylene Chloride	**11.3**	**10.5**	10.0	10.0	ND	113	105	74-114	7	16	
(trans) 1,2-Dichloroethene	**11.5**	**10.7**	10.0	10.0	ND	115	107	79-120	7	16	
1,1-Dichloroethane	**11.6**	**10.9**	10.0	10.0	ND	116	109	77-122	6	15	
Vinyl Acetate	**12.5**	**11.7**	10.0	10.0	ND	125	117	54-123	7	17	V
(cis) 1,2-Dichloroethene	**12.2**	**11.4**	10.0	10.0	ND	122	114	81-128	7	16	
2-Butanone	**11.2**	**10.6**	10.0	10.0	ND	112	106	57-142	6	15	
Bromochloromethane	**12.5**	**11.7**	10.0	10.0	ND	125	117	80-129	7	17	
Chloroform	**12.0**	**11.1**	10.0	10.0	ND	120	111	75-126	8	16	
1,1,1-Trichloroethane	**12.4**	**11.6**	10.0	10.0	ND	124	116	74-126	7	17	
Carbon Tetrachloride	**12.8**	**11.9**	10.0	10.0	ND	128	119	70-128	7	18	
Benzene	**11.7**	**11.1**	10.0	10.0	ND	117	111	80-122	5	16	
1,2-Dichloroethane	**12.4**	**11.4**	10.0	10.0	ND	124	114	70-126	8	17	
Trichloroethene	**11.8**	**11.3**	10.0	10.0	ND	118	113	80-130	4	12	
1,2-Dichloropropane	**11.5**	**10.7**	10.0	10.0	ND	115	107	79-121	7	17	
Dibromomethane	**12.3**	**11.5**	10.0	10.0	ND	123	115	81-122	7	16	V
Bromodichloromethane	**11.9**	**11.2**	10.0	10.0	ND	119	112	82-127	6	17	
(cis) 1,3-Dichloropropene	**13.0**	**12.3**	10.0	10.0	ND	130	123	81-128	6	17	V
Methyl Isobutyl Ketone	**12.1**	**11.2**	10.0	10.0	ND	121	112	62-130	8	14	
Toluene	**11.3**	**10.7**	10.0	10.0	ND	113	107	75-124	5	19	
(trans) 1,3-Dichloropropene	**13.1**	**12.4**	10.0	10.0	ND	131	124	71-124	5	18	V
1,1,2-Trichloroethane	**11.7**	**10.9**	10.0	10.0	ND	117	109	76-126	7	16	
Tetrachloroethene	**11.6**	**11.0**	10.0	10.0	ND	116	110	84-126	5	19	
2-Hexanone	**11.2**	**10.6**	10.0	10.0	ND	112	106	41-156	6	23	
Dibromochloromethane	**11.2**	**7.52**	10.0	10.0	ND	112	75	74-131	39	18	W

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Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES											
Laboratory ID:	12-199-05										
	MS	MSD	MS	MSD		MS	MSD				
1,2-Dibromoethane	**11.9**	**11.2**	10.0	10.0	ND	119	112	74-131	6	16	
Chlorobenzene	**11.5**	**10.8**	10.0	10.0	ND	115	108	84-121	6	16	
1,1,1,2-Tetrachloroethane	**12.1**	**11.4**	10.0	10.0	ND	121	114	82-125	6	17	
Ethylbenzene	**11.2**	**10.7**	10.0	10.0	ND	112	107	85-125	5	17	
m,p-Xylene	**22.7**	**21.5**	20.0	20.0	ND	114	108	84-124	5	17	
o-Xylene	**11.4**	**10.8**	10.0	10.0	ND	114	108	84-126	5	17	
Styrene	**11.7**	**11.0**	10.0	10.0	ND	117	110	83-131	6	19	
Bromoform	**13.0**	**12.2**	10.0	10.0	ND	130	122	67-137	6	18	
1,1,2,2-Tetrachloroethane	**11.8**	**11.0**	10.0	10.0	ND	118	110	56-143	7	15	
1,2,3-Trichloropropane	**9.26**	**8.50**	10.0	10.0	ND	93	85	61-125	9	15	
1,4-Dichlorobenzene	**11.6**	**11.1**	10.0	10.0	ND	116	111	80-126	4	15	
1,2-Dichlorobenzene	**11.6**	**11.2**	10.0	10.0	ND	116	112	79-127	4	16	
1,2-Dibromo-3-chloropropane	**12.5**	**11.6**	10.0	10.0	ND	125	116	54-143	7	19	
Naphthalene	**10.6**	**10.3**	10.0	10.0	ND	106	103	48-143	3	17	
Surrogate:											
Dibromofluoromethane						*114*	*114*	*68-133*			
Toluene-d8						*105*	*105*	*79-123*			
4-Bromofluorobenzene						*101*	*100*	*78-117*			

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VOLATILE ORGANICS EPA 8260D/SIM
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Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB1217W2									
	SB	SBD	SB	SBD	SB	SBD				
Chloromethane	**7.89**	**8.52**	10.0	10.0	79	85	45-145	8	19	
Vinyl Chloride	**8.97**	**9.81**	10.0	10.0	90	98	67-130	9	15	
Bromomethane	**9.83**	**11.1**	10.0	10.0	98	111	27-165	12	36	
Chloroethane	**8.92**	**10.2**	10.0	10.0	89	102	61-132	13	18	
Trichlorofluoromethane	**9.66**	**10.4**	10.0	10.0	97	104	67-136	7	17	
1,1-Dichloroethene	**10.6**	**11.2**	10.0	10.0	106	112	74-125	6	15	
Acetone	**12.9**	**9.61**	10.0	10.0	129	96	49-140	29	20	L
Iodomethane	**9.17**	**9.63**	10.0	10.0	92	96	15-154	5	49	
Carbon Disulfide	**10.0**	**8.71**	10.0	10.0	100	87	58-122	14	18	
Methylene Chloride	**10.7**	**11.0**	10.0	10.0	107	110	70-123	3	15	
(trans) 1,2-Dichloroethene	**10.5**	**11.3**	10.0	10.0	105	113	77-125	7	15	
1,1-Dichloroethane	**10.9**	**11.4**	10.0	10.0	109	114	75-125	4	15	
Vinyl Acetate	**10.6**	**12.2**	10.0	10.0	106	122	61-138	14	16	
(cis) 1,2-Dichloroethene	**10.6**	**11.8**	10.0	10.0	106	118	78-130	11	15	
2-Butanone	**10.4**	**11.0**	10.0	10.0	104	110	58-144	6	16	
Bromochloromethane	**11.2**	**12.2**	10.0	10.0	112	122	79-132	9	15	
Chloroform	**11.1**	**11.7**	10.0	10.0	111	117	73-128	5	15	
1,1,1-Trichloroethane	**11.2**	**12.1**	10.0	10.0	112	121	72-127	8	15	
Carbon Tetrachloride	**11.8**	**12.3**	10.0	10.0	118	123	68-131	4	15	
Benzene	**10.9**	**11.6**	10.0	10.0	109	116	76-124	6	15	
1,2-Dichloroethane	**11.4**	**11.8**	10.0	10.0	114	118	68-133	3	15	
Trichloroethene	**11.3**	**12.1**	10.0	10.0	113	121	80-126	7	15	
1,2-Dichloropropane	**10.9**	**11.5**	10.0	10.0	109	115	78-124	5	15	
Dibromomethane	**11.5**	**12.3**	10.0	10.0	115	123	76-131	7	15	
Bromodichloromethane	**11.1**	**12.1**	10.0	10.0	111	121	81-128	9	15	
(cis) 1,3-Dichloropropene	**11.2**	**12.9**	10.0	10.0	112	129	80-131	14	15	
Methyl Isobutyl Ketone	**11.1**	**11.7**	10.0	10.0	111	117	67-133	5	16	
Toluene	**10.9**	**11.6**	10.0	10.0	109	116	75-120	6	15	
(trans) 1,3-Dichloropropene	**11.2**	**12.9**	10.0	10.0	112	129	77-128	14	15	I
1,1,2-Trichloroethane	**11.0**	**11.6**	10.0	10.0	110	116	80-124	5	15	
Tetrachloroethene	**10.7**	**11.7**	10.0	10.0	107	117	80-125	9	15	
2-Hexanone	**10.3**	**12.2**	10.0	10.0	103	122	65-134	17	20	
Dibromochloromethane	**10.2**	**11.0**	10.0	10.0	102	110	81-131	8	15	

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Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB1217W2									
	SB	SBD	SB	SBD	SB	SBD				
1,2-Dibromoethane	**11.1**	**12.0**	10.0	10.0	111	120	82-129	8	15	
Chlorobenzene	**10.7**	**11.6**	10.0	10.0	107	116	80-119	8	15	
1,1,1,2-Tetrachloroethane	**11.3**	**12.2**	10.0	10.0	113	122	80-124	8	15	
Ethylbenzene	**10.8**	**11.4**	10.0	10.0	108	114	80-121	5	15	
m,p-Xylene	**21.4**	**22.9**	20.0	20.0	107	115	80-122	7	15	
o-Xylene	**10.7**	**11.5**	10.0	10.0	107	115	80-121	7	15	
Styrene	**11.2**	**11.9**	10.0	10.0	112	119	82-128	6	15	
Bromoform	**12.4**	**13.0**	10.0	10.0	124	130	77-131	5	15	
1,1,2,2-Tetrachloroethane	**11.2**	**11.5**	10.0	10.0	112	115	66-138	3	15	
1,2,3-Trichloropropane	**8.53**	**8.88**	10.0	10.0	85	89	67-127	4	18	
1,4-Dichlorobenzene	**10.4**	**11.3**	10.0	10.0	104	113	78-127	8	15	
1,2-Dichlorobenzene	**10.6**	**11.4**	10.0	10.0	106	114	79-129	7	15	
1,2-Dibromo-3-chloropropane	**11.0**	**11.4**	10.0	10.0	110	114	62-140	4	18	
Naphthalene	**9.36**	**9.90**	10.0	10.0	94	99	53-144	6	25	
Surrogate:										
Dibromofluoromethane					*109*	*109*	*68-133*			
Toluene-d8					*104*	*104*	*79-123*			
4-Bromofluorobenzene					*100*	*100*	*78-117*			

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GASOLINE RANGE ORGANICS
NWTPH-Gx

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-2S-1211**					
Laboratory ID:	12-199-01					
Gasoline	**ND**	100	NWTPH-Gx	12-17-24	12-17-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*91*	*61-122*				
Client ID:	**MW-3S-1211**					
Laboratory ID:	12-199-02					
Gasoline	**ND**	100	NWTPH-Gx	12-17-24	12-17-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*90*	*61-122*				
Client ID:	**MW-4S-1212**					
Laboratory ID:	12-199-03					
Gasoline	**ND**	100	NWTPH-Gx	12-17-24	12-17-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*90*	*61-122*				
Client ID:	**MW-5S-1211**					
Laboratory ID:	12-199-04					
Gasoline	**ND**	100	NWTPH-Gx	12-17-24	12-17-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*91*	*61-122*				
Client ID:	**MW-6S-1212**					
Laboratory ID:	12-199-05					
Gasoline	**ND**	100	NWTPH-Gx	12-17-24	12-17-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*92*	*61-122*				
Client ID:	**MW-13S-1212**					
Laboratory ID:	12-199-06					
Gasoline	**ND**	100	NWTPH-Gx	12-17-24	12-17-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*90*	*61-122*				
Client ID:	**Trip Blank**					
Laboratory ID:	12-199-07					
Gasoline	**ND**	100	NWTPH-Gx	12-17-24	12-17-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*90*	*61-122*				

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GASOLINE RANGE ORGANICS
NWTPH-Gx
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1217W1					
Gasoline	**ND**	100	NWTPH-Gx	12-17-24	12-17-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*92*	*61-122*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	12-199-05										
	ORIG	DUP									
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*92*	*89*	*61-122*			

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DIESEL AND HEAVY OIL RANGE ORGANICS
NWTPH-Dx

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-2S-1211**					
Laboratory ID:	12-199-01					
Diesel Range Organics	**ND**	0.21	NWTPH-Dx	12-19-24	12-20-24	
Lube Oil Range Organics	**ND**	0.21	NWTPH-Dx	12-19-24	12-20-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*99*	*50-150*				
Client ID:	**MW-3S-1211**					
Laboratory ID:	12-199-02					
Diesel Range Organics	**ND**	0.22	NWTPH-Dx	12-19-24	12-20-24	
Lube Oil Range Organics	**ND**	0.22	NWTPH-Dx	12-19-24	12-20-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*105*	*50-150*				
Client ID:	**MW-4S-1212**					
Laboratory ID:	12-199-03					
Diesel Range Organics	**ND**	0.22	NWTPH-Dx	12-19-24	12-20-24	
Lube Oil Range Organics	**ND**	0.22	NWTPH-Dx	12-19-24	12-20-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*98*	*50-150*				
Client ID:	**MW-5S-1211**					
Laboratory ID:	12-199-04					
Diesel Range Organics	**ND**	0.21	NWTPH-Dx	12-19-24	12-19-24	
Lube Oil Range Organics	**ND**	0.21	NWTPH-Dx	12-19-24	12-19-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*126*	*50-150*				
Client ID:	**MW-6S-1212**					
Laboratory ID:	12-199-05					
Diesel Range Organics	**ND**	0.21	NWTPH-Dx	12-19-24	12-20-24	
Lube Oil Range Organics	**ND**	0.21	NWTPH-Dx	12-19-24	12-20-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*117*	*50-150*				
Client ID:	**MW-13S-1212**					
Laboratory ID:	12-199-06					
Diesel Range Organics	**ND**	0.22	NWTPH-Dx	12-19-24	12-19-24	
Lube Oil Range Organics	**ND**	0.22	NWTPH-Dx	12-19-24	12-19-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*120*	*50-150*				

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DIESEL AND HEAVY OIL RANGE ORGANICS
NWTPH-Dx
QUALITY CONTROL

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1219W1					
Diesel Range Organics	**ND**	0.16	NWTPH-Dx	12-19-24	12-19-24	
Lube Oil Range Organics	**ND**	0.16	NWTPH-Dx	12-19-24	12-19-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*106*	*50-150*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	12-284-04										
	ORIG	DUP									
Diesel Range	**ND**	**ND**	NA	NA		NA		NA	NA	40	
Lube Oil Range	**ND**	**ND**	NA	NA		NA		NA	NA	40	
Surrogate:											
o-Terphenyl						*114*	*114*	*50-150*			
MATRIX SPIKES											
Laboratory ID:	12-199-05										
	MS	MSD	MS	MSD		MS	MSD				
Diesel Range	**0.523**	**0.440**	0.500	0.500	**ND**	**105**	**88**	50-129	17	40	
Surrogate:											
o-Terphenyl						*117*	*96*	*50-150*			

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TOTAL METALS
EPA 6010D

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-2S-1211**					
Laboratory ID:	12-199-01					
Iron	**ND**	0.050	EPA 6010D	12-16-24	12-16-24	
Magnesium	**9.5**	1.0	EPA 6010D	12-16-24	12-16-24	
Manganese	**ND**	0.010	EPA 6010D	12-16-24	12-16-24	
Client ID:	**MW-3S-1211**					
Laboratory ID:	12-199-02					
Iron	**ND**	0.050	EPA 6010D	12-16-24	12-16-24	
Magnesium	**38**	1.0	EPA 6010D	12-16-24	12-16-24	
Manganese	**ND**	0.010	EPA 6010D	12-16-24	12-16-24	
Client ID:	**MW-4S-1212**					
Laboratory ID:	12-199-03					
Iron	**ND**	0.050	EPA 6010D	12-16-24	12-16-24	
Magnesium	**53**	1.0	EPA 6010D	12-16-24	12-16-24	
Manganese	**ND**	0.010	EPA 6010D	12-16-24	12-16-24	
Client ID:	**MW-5S-1211**					
Laboratory ID:	12-199-04					
Iron	**0.43**	0.050	EPA 6010D	12-16-24	12-16-24	
Magnesium	**20**	1.0	EPA 6010D	12-16-24	12-16-24	
Manganese	**0.080**	0.010	EPA 6010D	12-16-24	12-16-24	
Client ID:	**MW-6S-1212**					
Laboratory ID:	12-199-05					
Iron	**ND**	0.050	EPA 6010D	12-16-24	12-16-24	
Magnesium	**31**	1.0	EPA 6010D	12-16-24	12-16-24	
Manganese	**ND**	0.010	EPA 6010D	12-16-24	12-16-24	
Client ID:	**MW-13S-1212**					
Laboratory ID:	12-199-06					
Iron	**ND**	0.050	EPA 6010D	12-16-24	12-16-24	
Magnesium	**31**	1.0	EPA 6010D	12-16-24	12-16-24	
Manganese	**ND**	0.010	EPA 6010D	12-16-24	12-16-24	

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TOTAL METALS
EPA 6010D
QUALITY CONTROL

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1216WH1					
Iron	**ND**	0.050	EPA 6010D	12-16-24	12-16-24	
Magnesium	**ND**	1.0	EPA 6010D	12-16-24	12-16-24	
Manganese	**ND**	0.010	EPA 6010D	12-16-24	12-16-24	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	12-199-05										
	ORIG	DUP									
Iron	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Magnesium	**30.8**	**32.0**	NA	NA		NA		NA	4	20	
Manganese	**ND**	**ND**	NA	NA		NA		NA	NA	20	
MATRIX SPIKES											
Laboratory ID:	12-199-05										
	MS	MSD	MS	MSD		MS	MSD				
Iron	**21.5**	**20.8**	20.0	20.0	ND	**107**	**104**	75-125	3	20	
Magnesium	**51.6**	**49.9**	20.0	20.0	30.8	**104**	**95**	75-125	3	20	
Manganese	**0.541**	**0.526**	0.500	0.500	ND	**108**	**105**	75-125	3	20	

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DISSOLVED METALS
EPA 6010D

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-2S-1211**					
Laboratory ID:	12-199-01					
Calcium	**13**	1.1	EPA 6010D		12-18-24	
Iron	**ND**	0.056	EPA 6010D		12-18-24	
Magnesium	**9.3**	1.1	EPA 6010D		12-18-24	
Manganese	**ND**	0.011	EPA 6010D		12-18-24	
Potassium	**3.3**	1.1	EPA 6010D		12-18-24	
Sodium	**10**	1.1	EPA 6010D		12-18-24	
Client ID:	**MW-3S-1211**					
Laboratory ID:	12-199-02					
Calcium	**48**	1.1	EPA 6010D		12-18-24	
Iron	**ND**	0.056	EPA 6010D		12-18-24	
Magnesium	**36**	1.1	EPA 6010D		12-18-24	
Manganese	**ND**	0.011	EPA 6010D		12-18-24	
Potassium	**5.2**	1.1	EPA 6010D		12-18-24	
Sodium	**20**	1.1	EPA 6010D		12-18-24	
Client ID:	**MW-4S-1212**					
Laboratory ID:	12-199-03					
Calcium	**74**	5.0	EPA 6010D		12-18-24	
Iron	**ND**	0.056	EPA 6010D		12-18-24	
Magnesium	**52**	1.1	EPA 6010D		12-18-24	
Manganese	**ND**	0.011	EPA 6010D		12-18-24	
Potassium	**6.6**	1.1	EPA 6010D		12-18-24	
Sodium	**21**	1.1	EPA 6010D		12-18-24	
Client ID:	**MW-5S-1211**					
Laboratory ID:	12-199-04					
Calcium	**29**	1.1	EPA 6010D		12-18-24	
Iron	**0.35**	0.056	EPA 6010D		12-18-24	
Magnesium	**20**	1.1	EPA 6010D		12-18-24	
Manganese	**0.077**	0.011	EPA 6010D		12-18-24	
Potassium	**3.6**	1.1	EPA 6010D		12-18-24	
Sodium	**18**	1.1	EPA 6010D		12-18-24	

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DISSOLVED METALS
EPA 6010D

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-6S-1212**					
Laboratory ID:	12-199-05					
Calcium	**43**	1.1	EPA 6010D		12-18-24	
Iron	**ND**	0.056	EPA 6010D		12-18-24	
Magnesium	**30**	1.1	EPA 6010D		12-18-24	
Manganese	**ND**	0.011	EPA 6010D		12-18-24	
Potassium	**4.9**	1.1	EPA 6010D		12-18-24	
Sodium	**17**	1.1	EPA 6010D		12-18-24	

Client ID:	**MW-13S-1212**					
Laboratory ID:	12-199-06					
Calcium	**42**	1.1	EPA 6010D		12-18-24	
Iron	**ND**	0.056	EPA 6010D		12-18-24	
Magnesium	**30**	1.1	EPA 6010D		12-18-24	
Manganese	**ND**	0.011	EPA 6010D		12-18-24	
Potassium	**4.9**	1.1	EPA 6010D		12-18-24	
Sodium	**17**	1.1	EPA 6010D		12-18-24	

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DISSOLVED METALS
EPA 6010D
QUALITY CONTROL

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1218D1					
Calcium	**ND**	1.1	EPA 6010D		12-18-24	
Iron	**ND**	0.056	EPA 6010D		12-18-24	
Magnesium	**ND**	1.1	EPA 6010D		12-18-24	
Manganese	**ND**	0.011	EPA 6010D		12-18-24	
Potassium	**ND**	1.1	EPA 6010D		12-18-24	
Sodium	**ND**	1.1	EPA 6010D		12-18-24	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	12-199-05										
	ORIG	DUP									
Calcium	**42.8**	**44.1**	NA	NA		NA		NA	3	20	
Iron	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Magnesium	**30.1**	**30.4**	NA	NA		NA		NA	1	20	
Manganese	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Potassium	**4.86**	**4.98**	NA	NA		NA		NA	2	20	
Sodium	**17.5**	**17.4**	NA	NA		NA		NA	0	20	
MATRIX SPIKES											
Laboratory ID:	12-199-05										
	MS	MSD	MS	MSD		MS	MSD				
Calcium	**136**	**138**	100	100	42.8	**94**	**95**	75-125	1	20	
Iron	**24.4**	**24.3**	22.2	22.2	ND	**110**	**109**	75-125	1	20	
Magnesium	**54.1**	**53.7**	22.2	22.2	30.1	**108**	**106**	75-125	1	20	
Manganese	**0.670**	**0.681**	0.556	0.556	ND	**121**	**123**	75-125	2	20	
Potassium	**31.4**	**31.4**	22.2	22.2	4.86	**120**	**120**	75-125	0	20	
Sodium	**41.8**	**41.4**	22.2	22.2	17.5	**110**	**108**	75-125	1	20	

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NITRATE (as Nitrogen)
EPA 353.2

Matrix: Water
Units: mg/L-N

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-2S-1211**					
Laboratory ID:	12-199-01					
Nitrate	**0.64**	0.050	EPA 353.2	12-24-24	12-24-24	
Client ID:	**MW-3S-1211**					
Laboratory ID:	12-199-02					
Nitrate	**12**	0.20	EPA 353.2	12-24-24	12-24-24	
Client ID:	**MW-4S-1212**					
Laboratory ID:	12-199-03					
Nitrate	**37**	0.50	EPA 353.2	12-24-24	12-24-24	
Client ID:	**MW-5S-1211**					
Laboratory ID:	12-199-04					
Nitrate	**0.092**	0.050	EPA 353.2	12-24-24	12-24-24	
Client ID:	**MW-6S-1212**					
Laboratory ID:	12-199-05					
Nitrate	**8.6**	0.25	EPA 353.2	12-24-24	12-24-24	
Client ID:	**MW-13S-1212**					
Laboratory ID:	12-199-06					
Nitrate	**9.9**	0.20	EPA 353.2	12-24-24	12-24-24	

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NITRATE (as Nitrogen)
EPA 353.2
QUALITY CONTROL

Matrix: Water
Units: mg/L-N

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1224W2					
Nitrate	**ND**	0.050	EPA 353.2	12-24-24	12-24-24	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	12-199-05										
	ORIG	DUP									
Nitrate	**8.56**	**9.26**	NA		NA	NA		NA	8	22	
MATRIX SPIKES											
Laboratory ID:	12-199-05										
	MS	MSD	MS	MSD		MS	MSD				
Nitrate	**18.8**	**18.3**	10.00	10.00	8.56	102	97	86-119	3	20	
SPIKE BLANK											
Laboratory ID:	SB1224W2										
	SB		SB			SB					
Nitrate	**1.89**		2.00		NA	95		85-117	NA	NA	

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CHLORIDE
SM 4500-Cl E

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-2S-1211**					
Laboratory ID:	12-199-01					
Chloride	**2.6**	2.0	SM 4500-Cl E	12-23-24	12-23-24	
Client ID:	**MW-3S-1211**					
Laboratory ID:	12-199-02					
Chloride	**66**	2.0	SM 4500-Cl E	12-23-24	12-23-24	
Client ID:	**MW-4S-1212**					
Laboratory ID:	12-199-03					
Chloride	**34**	2.0	SM 4500-Cl E	12-23-24	12-23-24	
Client ID:	**MW-5S-1211**					
Laboratory ID:	12-199-04					
Chloride	**22**	2.0	SM 4500-Cl E	12-23-24	12-23-24	
Client ID:	**MW-6S-1212**					
Laboratory ID:	12-199-05					
Chloride	**66**	2.0	SM 4500-Cl E	12-23-24	12-23-24	
Client ID:	**MW-13S-1212**					
Laboratory ID:	12-199-06					
Chloride	**63**	2.0	SM 4500-Cl E	12-23-24	12-23-24	

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CHLORIDE
SM 4500-Cl E
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1223W1					
Chloride	**ND**	2.0	SM 4500-Cl E	12-23-24	12-23-24	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	12-199-05										
	ORIG	DUP									
Chloride	**66.1**	**64.9**	NA		NA	NA		NA	2	21	
MATRIX SPIKES											
Laboratory ID:	12-199-05										
	MS	MSD	MS	MSD		MS	MSD				
Chloride	**175**	**175**	100	100	66.1	109	109	81-115	0	20	
SPIKE BLANK											
Laboratory ID:	SB1223W1										
	SB		SB			SB					
Chloride	**51.8**		50.0		NA	104		77-115	NA	NA	

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SULFATE
ASTM D516-11

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-2S-1211**					
Laboratory ID:	12-199-01					
Sulfate	**6.9**	5.0	ASTM D516-11	12-16-24	12-16-24	
Client ID:	**MW-3S-1211**					
Laboratory ID:	12-199-02					
Sulfate	**70**	20	ASTM D516-11	12-16-24	12-16-24	
Client ID:	**MW-4S-1212**					
Laboratory ID:	12-199-03					
Sulfate	**85**	25	ASTM D516-11	12-16-24	12-16-24	
Client ID:	**MW-5S-1211**					
Laboratory ID:	12-199-04					
Sulfate	**60**	20	ASTM D516-11	12-16-24	12-16-24	
Client ID:	**MW-6S-1212**					
Laboratory ID:	12-199-05					
Sulfate	**51**	20	ASTM D516-11	12-16-24	12-16-24	
Client ID:	**MW-13S-1212**					
Laboratory ID:	12-199-06					
Sulfate	**54**	20	ASTM D516-11	12-16-24	12-16-24	

Date of Report: December 30, 2024
Samples Submitted: December 13, 2024
Laboratory Reference: 2412-199
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SULFATE
ASTM D516-11
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1216W1					
Sulfate	**ND**	5.0	ASTM D516-11	12-16-24	12-16-24	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	12-199-05										
	ORIG	DUP									
Sulfate	**50.9**	**53.7**	NA		NA	NA		NA	5	11	
MATRIX SPIKES											
Laboratory ID:	12-199-05										
	MS	MSD	MS	MSD		MS	MSD				
Sulfate	**90.8**	**91.3**	40.0	40.0	50.9	100	101	69-134	1	20	
SPIKE BLANK											
Laboratory ID:	SB1216W1										
	SB		SB			SB					
Sulfate	**9.41**		10.0		NA	94		81-106	NA	NA	

Date of Report: December 30, 2024
Samples Submitted: December 13, 2024
Laboratory Reference: 2412-199
Project: 553-8472-005 08.02

TOTAL DISSOLVED SOLIDS
SM 2540C

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-2S-1211**					
Laboratory ID:	12-199-01					
Total Dissolved Solids	**140**	13	SM 2540C	12-16-24	12-16-24	
Client ID:	**MW-3S-1211**					
Laboratory ID:	12-199-02					
Total Dissolved Solids	**380**	13	SM 2540C	12-16-24	12-16-24	
Client ID:	**MW-4S-1212**					
Laboratory ID:	12-199-03					
Total Dissolved Solids	**540**	13	SM 2540C	12-16-24	12-16-24	
Client ID:	**MW-5S-1211**					
Laboratory ID:	12-199-04					
Total Dissolved Solids	**230**	13	SM 2540C	12-16-24	12-16-24	
Client ID:	**MW-6S-1212**					
Laboratory ID:	12-199-05					
Total Dissolved Solids	**360**	13	SM 2540C	12-16-24	12-16-24	
Client ID:	**MW-13S-1212**					
Laboratory ID:	12-199-06					
Total Dissolved Solids	**340**	13	SM 2540C	12-16-24	12-16-24	

Date of Report: December 30, 2024
Samples Submitted: December 13, 2024
Laboratory Reference: 2412-199
Project: 553-8472-005 08.02

TOTAL DISSOLVED SOLIDS
SM 2540C
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1216W1					
Total Dissolved Solids	**ND**	13	SM 2540C	12-16-24	12-16-24	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	12-199-05								
	ORIG	DUP							
Total Dissolved Solids	**359**	**341**	NA	NA	NA	NA	5	29	
SPIKE BLANK									
Laboratory ID:	SB1216W1								
	SB		SB		SB				
Total Dissolved Solids	**453**		500	NA	91	76-120	NA	NA	

Date of Report: December 30, 2024
Samples Submitted: December 13, 2024
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TOTAL ALKALINITY
SM 2320B

Matrix: Water
Units: mg CaCO3/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-2S-1211**					
Laboratory ID:	12-199-01					
Total Alkalinity	**82**	2.0	SM 2320B	12-17-24	12-17-24	
Client ID:	**MW-3S-1211**					
Laboratory ID:	12-199-02					
Total Alkalinity	**86**	2.0	SM 2320B	12-17-24	12-17-24	
Client ID:	**MW-4S-1212**					
Laboratory ID:	12-199-03					
Total Alkalinity	**150**	2.0	SM 2320B	12-17-24	12-17-24	
Client ID:	**MW-5S-1211**					
Laboratory ID:	12-199-04					
Total Alkalinity	**96**	2.0	SM 2320B	12-17-24	12-17-24	
Client ID:	**MW-6S-1212**					
Laboratory ID:	12-199-05					
Total Alkalinity	**88**	2.0	SM 2320B	12-17-24	12-17-24	
Client ID:	**MW-13S-1212**					
Laboratory ID:	12-199-06					
Total Alkalinity	**84**	2.0	SM 2320B	12-17-24	12-17-24	

Date of Report: December 30, 2024
Samples Submitted: December 13, 2024
Laboratory Reference: 2412-199
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TOTAL ALKALINITY
SM 2320B
QUALITY CONTROL

Matrix: Water
Units: mg CaCO3/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1227W1					
Total Alkalinity	**ND**	2.0	SM 2320B	12-17-24	12-17-24	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	12-199-05										
	ORIG	DUP									
Total Alkalinity	**88.0**	**86.0**	NA		NA	NA		NA	2	10	
MATRIX SPIKES											
Laboratory ID:	12-199-05										
	MS	MSD	MS	MSD		MS	MSD				
Total Alkalinity	**170**	**172**	100	100	88.0	82	84	80-120	1	20	
SPIKE BLANK											
Laboratory ID:	SB1217W1										
	SB		SB			SB					
Total Alkalinity	**96.0**		100		NA	96		82-101	NA	NA	

Date of Report: December 30, 2024
Samples Submitted: December 13, 2024
Laboratory Reference: 2412-199
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BICARBONATE
SM 2320B

Matrix: Water
Units: mg CaCO3/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-2S-1211**					
Laboratory ID:	12-199-01					
Bicarbonate	**82**	2.0	SM 2320B	12-17-24	12-17-24	
Client ID:	**MW-3S-1211**					
Laboratory ID:	12-199-02					
Bicarbonate	**86**	2.0	SM 2320B	12-17-24	12-17-24	
Client ID:	**MW-4S-1212**					
Laboratory ID:	12-199-03					
Bicarbonate	**150**	2.0	SM 2320B	12-17-24	12-17-24	
Client ID:	**MW-5S-1211**					
Laboratory ID:	12-199-04					
Bicarbonate	**96**	2.0	SM 2320B	12-17-24	12-17-24	
Client ID:	**MW-6S-1212**					
Laboratory ID:	12-199-05					
Bicarbonate	**88**	2.0	SM 2320B	12-17-24	12-17-24	
Client ID:	**MW-13S-1212**					
Laboratory ID:	12-199-06					
Bicarbonate	**84**	2.0	SM 2320B	12-17-24	12-17-24	

Date of Report: December 30, 2024
Samples Submitted: December 13, 2024
Laboratory Reference: 2412-199
Project: 553-8472-005 08.02

BICARBONATE
SM 2320B
QUALITY CONTROL

Matrix: Water
Units: mg CaCO3/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1227W1					
Bicarbonate	**1.0**	2.0	SM 2320B	12-17-24	12-17-24	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	12-199-05										
	ORIG	DUP									
Bicarbonate	**88.0**	**86.0**	NA		NA	NA		NA	2	10	
MATRIX SPIKES											
Laboratory ID:	12-199-05										
	MS	MSD	MS	MSD		MS	MSD				
Total Alkalinity	**170**	**172**	100	100	88.0	82	84	80-120	1	20	
SPIKE BLANK											
Laboratory ID:	SB1217W1										
	SB		SB			SB					
Bicarbonate	**96.0**		100		NA	96		82-101	NA	NA	

Date of Report: December 30, 2024
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AMMONIA (as Nitrogen)
SM 4500-NH_3 D

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-2S-1211**					
Laboratory ID:	12-199-01					
Ammonia	**0.067**	0.053	SM 4500-NH3 D	12-23-24	12-23-24	
Client ID:	**MW-3S-1211**					
Laboratory ID:	12-199-02					
Ammonia	**0.059**	0.053	SM 4500-NH3 D	12-23-24	12-23-24	
Client ID:	**MW-4S-1212**					
Laboratory ID:	12-199-03					
Ammonia	**0.085**	0.053	SM 4500-NH3 D	12-23-24	12-23-24	
Client ID:	**MW-5S-1211**					
Laboratory ID:	12-199-04					
Ammonia	**0.062**	0.053	SM 4500-NH3 D	12-23-24	12-23-24	
Client ID:	**MW-6S-1212**					
Laboratory ID:	12-199-05					
Ammonia	**ND**	0.053	SM 4500-NH3 D	12-23-24	12-23-24	
Client ID:	**MW-13S-1212**					
Laboratory ID:	12-199-06					
Ammonia	**ND**	0.053	SM 4500-NH3 D	12-23-24	12-23-24	

Date of Report: December 30, 2024
Samples Submitted: December 13, 2024
Laboratory Reference: 2412-199
Project: 553-8472-005 08.02

AMMONIA (as Nitrogen)
SM 4500-NH_3 D
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1224W1					
Ammonia	**ND**	0.053	SM 4500-NH3 D	12-23-24	12-23-24	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	12-199-05										
	ORIG	DUP									
Ammonia	**ND**	**ND**	NA		NA	NA		NA	NA	15	
MATRIX SPIKES											
Laboratory ID:	12-199-05										
	MS	MSD	MS	MSD		MS	MSD				
Ammonia	**4.83**	**5.40**	5.00	5.00	ND	97	108	75-111	11	20	
SPIKE BLANK											
Laboratory ID:	SB1224W1										
	SB		SB			SB					
Ammonia	**5.20**		5.00		NA	104		81-110	NA	NA	

Date of Report: December 30, 2024
Samples Submitted: December 13, 2024
Laboratory Reference: 2412-199
Project: 553-8472-005 08.02

TOTAL ORGANIC CARBON
SM 5310B

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-2S-1211**					
Laboratory ID:	12-199-01					
Total Organic Carbon	**ND**	1.0	SM 5310B	12-23-24	12-23-24	
Client ID:	**MW-3S-1211**					
Laboratory ID:	12-199-02					
Total Organic Carbon	**2.7**	1.0	SM 5310B	12-23-24	12-23-24	
Client ID:	**MW-4S-1212**					
Laboratory ID:	12-199-03					
Total Organic Carbon	**3.2**	1.0	SM 5310B	12-23-24	12-23-24	
Client ID:	**MW-5S-1211**					
Laboratory ID:	12-199-04					
Total Organic Carbon	**ND**	1.0	SM 5310B	12-23-24	12-23-24	
Client ID:	**MW-6S-1212**					
Laboratory ID:	12-199-05					
Total Organic Carbon	**2.9**	1.0	SM 5310B	12-23-24	12-23-24	
Client ID:	**MW-13S-1212**					
Laboratory ID:	12-199-06					
Total Organic Carbon	**2.8**	1.0	SM 5310B	12-23-24	12-23-24	

Date of Report: December 30, 2024
Samples Submitted: December 13, 2024
Laboratory Reference: 2412-199
Project: 553-8472-005 08.02

TOTAL ORGANIC CARBON
SM 5310B
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1223W1					
Total Organic Carbon	**ND**	1.0	SM 5310B	12-23-24	12-23-24	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	12-199-05										
	ORIG	DUP									
Total Organic Carbon	**2.91**	**2.68**	NA		NA	NA		NA	8	11	
MATRIX SPIKES											
Laboratory ID:	12-199-05										
	MS	MSD	MS	MSD		MS	MSD				
Total Organic Carbon	**11.7**	**12.6**	10.0	10.0	2.91	88	97	85-120	7	20	
SPIKE BLANK											
Laboratory ID:	SB1223W1										
	SB		SB			SB					
Total Organic Carbon	**9.88**		10.0		NA	99		79-120	NA	NA	

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical ____________.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

X1 - Sample extract treated with a sulfuric acid/silica gel cleanup procedure.

X2 - Sample extract treated with a silica gel cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in methods 8260 & 8270, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.

Y1 - Negative effects of the matrix from this sample on the instrument caused values for this analyte in the bracketing continuing calibration verification standard (CCVs) to be outside of 20% acceptance criteria. Because of this, quantitation limits and sample concentrations should be considered estimates.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

OnSite Environmental Inc.
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Chain of Custody

Laboratory Number: 12-199

Company: Parametrix MV 12/13/24

Project Number: 553-8472-00~~0~~5 08.02

Project Name: DTG Yakima LPL

Project Manager: Mike Brady

Sampled by: Chris Bourgeois

Turnaround Request (in working days)

(Check One)

- ☐ Same Day
- ☐ 1 Day
- ☐ 2 Days
- ☐ 3 Days
- ☒ Standard (7 Days) (TPH analysis 5 Days)
- ☐ ______ (other)

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	VOCs (8260D – WAC 173-351 Appendix I) Naphthalene; SIM-VC and 1,2-EDB	NWTPH-Gx	NWTPH-Dx	Total Metals (Fe, Mn, Mg)	Dissolved Metals (Fe, Mn, Mg, Ca, K, Na)	Nitrate, chloride, sulfate	TDS, Alkalinity, Bicarbonate	Ammonia	TOC			% Moisture
1	MW-2S-1211	12/11/24	1105	Water	13	X	X	X	X	X	X	X	X	X	~~X~~	~~X~~	
2	MW-3S-1211	12/11/24	1510	Water	13	X	X	X	X	X	X	X	X	X	~~X~~	~~X~~	
3	MW-4S-1212	12/12/24	810	Water	13	X	X	X	X	X	X	X	X	X	~~X~~	~~X~~	
4	MW-5S-1211	12/11/24	1345	Water	13	X	X	X	X	X	X	X	X	X	~~X~~	~~X~~	
5	MW-6S-1212	12/12/24	1015	Water	23	X	X	X	X	X	X	X	X	X	~~X~~	~~X~~	
6	MW-13S-1212	12/12/24	1100	Water	13	X	X	X	X	X	X	X	X	X	~~X~~	~~X~~	
					CV												
7	Trip Blank			Water	6	X	X										

CB

	Signature	Company	Date	Time
Relinquished	[signature]	Parametrix	12/13/24	0850
Received	Nichelle B[illegible]	OSE	12/13/24	0850
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions

MS/MSD extra volume provided for MW-6S-1212

Chromatograms with final report ☐

Data Package: Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐ ______

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

January 21, 2025

Michael Brady
Parametrix, Inc.
719 2nd Avenue, Suite 200
Seattle, WA 98104

Re: Analytical Data for Project 553-8472-005 08.02
Laboratory Reference No. 2412-332

Dear Michael:

Enclosed are the analytical results and associated quality control data for samples submitted on December 20, 2024.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: January 21, 2025
Samples Submitted: December 20, 2024
Laboratory Reference: 2412-332
Project: 553-8472-005 08.02

Case Narrative

Samples were collected on December 18 and 19, 2024 and received by the laboratory on December 20, 2024. They were maintained at the laboratory at a temperature of 2^oC to 6^oC.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below. However the soil results for the QA/QC samples are reported on a wet-weight basis.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

<u>Nitrate (as Nitrogen) EPA 353.2 Analysis</u>

The reported Nitrate results are a calculated value based on the subtraction of Nitrite from the Nitrate plus Nitrite result. The Nitrite analysis, which has a 48-hour holding time, was performed within the holding time. Immediately after this analysis, an aliquot from each sample was preserved with concentrated sulfuric acid and stored at 4 degrees C. The preserved samples were then analyzed within the maximum 28-day holding time for the Nitrate plus Nitrite analysis.

<u>Total Dissolved Solids, SM 2540 C</u>

All samples were reanalyzed outside of holding time due to initial low sample recoveries.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page

Date of Report: January 21, 2025
Samples Submitted: December 20, 2024
Laboratory Reference: 2412-332
Project: 553-8472-005 08.02

VOLATILE ORGANICS EPA 8260D/SIM
page 1 of 2

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-7D**					
Laboratory ID:	12-332-01					
Chloromethane	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Vinyl Chloride (SIM)	ND	0.020	EPA 8260D/SIM	12-23-24	12-23-24	
Bromomethane	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Chloroethane	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Trichlorofluoromethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,1-Dichloroethene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Acetone	ND	5.0	EPA 8260D	12-23-24	12-23-24	
Iodomethane	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Carbon Disulfide	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Methylene Chloride	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Acrylonitrile	ND	0.50	EPA 8260D	12-23-24	12-23-24	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,1-Dichloroethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Vinyl Acetate	ND	1.0	EPA 8260D	12-23-24	12-23-24	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
2-Butanone	ND	5.0	EPA 8260D	12-23-24	12-23-24	
Bromochloromethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Chloroform	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Carbon Tetrachloride	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Benzene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,2-Dichloroethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Trichloroethene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,2-Dichloropropane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Dibromomethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Bromodichloromethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260D	12-23-24	12-23-24	
Toluene	ND	1.0	EPA 8260D	12-23-24	12-23-24	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Tetrachloroethene	ND	0.20	EPA 8260D	12-23-24	12-23-24	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-7D**					
Laboratory ID:	12-332-01					
2-Hexanone	ND	2.0	EPA 8260D	12-23-24	12-23-24	
Dibromochloromethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,2-Dibromoethane (SIM)	ND	0.020	EPA 8260D/SIM	12-23-24	12-23-24	
Chlorobenzene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Ethylbenzene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
m,p-Xylene	ND	0.40	EPA 8260D	12-23-24	12-23-24	
o-Xylene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Styrene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Bromoform	ND	1.0	EPA 8260D	12-23-24	12-23-24	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,2,3-Trichloropropane	ND	0.27	EPA 8260D	12-23-24	12-23-24	
(trans) 1,4-Dichloro-2-butene	ND	0.50	EPA 8260D	12-23-24	12-23-24	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Naphthalene	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*109*	*68-133*				
Toluene-d8	*105*	*79-123*				
4-Bromofluorobenzene	*99*	*78-117*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-8D**					
Laboratory ID:	12-332-02					
Chloromethane	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Vinyl Chloride (SIM)	ND	0.020	EPA 8260D/SIM	12-23-24	12-23-24	
Bromomethane	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Chloroethane	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Trichlorofluoromethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,1-Dichloroethene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Acetone	ND	5.0	EPA 8260D	12-23-24	12-23-24	
Iodomethane	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Carbon Disulfide	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Methylene Chloride	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Acrylonitrile	ND	0.50	EPA 8260D	12-23-24	12-23-24	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,1-Dichloroethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Vinyl Acetate	ND	1.0	EPA 8260D	12-23-24	12-23-24	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
2-Butanone	ND	5.0	EPA 8260D	12-23-24	12-23-24	
Bromochloromethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Chloroform	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Carbon Tetrachloride	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Benzene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,2-Dichloroethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Trichloroethene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,2-Dichloropropane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Dibromomethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Bromodichloromethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260D	12-23-24	12-23-24	
Toluene	ND	1.0	EPA 8260D	12-23-24	12-23-24	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Tetrachloroethene	ND	0.20	EPA 8260D	12-23-24	12-23-24	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-8D**					
Laboratory ID:	12-332-02					
2-Hexanone	ND	2.0	EPA 8260D	12-23-24	12-23-24	
Dibromochloromethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,2-Dibromoethane (SIM)	ND	0.020	EPA 8260D/SIM	12-23-24	12-23-24	
Chlorobenzene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Ethylbenzene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
m,p-Xylene	ND	0.40	EPA 8260D	12-23-24	12-23-24	
o-Xylene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Styrene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Bromoform	ND	1.0	EPA 8260D	12-23-24	12-23-24	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,2,3-Trichloropropane	ND	0.27	EPA 8260D	12-23-24	12-23-24	
(trans) 1,4-Dichloro-2-butene	ND	0.50	EPA 8260D	12-23-24	12-23-24	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Naphthalene	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*108*	*68-133*				
Toluene-d8	*105*	*79-123*				
4-Bromofluorobenzene	*98*	*78-117*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-9D**					
Laboratory ID:	12-332-03					
Chloromethane	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Vinyl Chloride (SIM)	ND	0.020	EPA 8260D/SIM	12-23-24	12-23-24	
Bromomethane	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Chloroethane	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Trichlorofluoromethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,1-Dichloroethene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Acetone	ND	5.0	EPA 8260D	12-23-24	12-23-24	
Iodomethane	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Carbon Disulfide	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Methylene Chloride	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Acrylonitrile	ND	0.50	EPA 8260D	12-23-24	12-23-24	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,1-Dichloroethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Vinyl Acetate	ND	1.0	EPA 8260D	12-23-24	12-23-24	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
2-Butanone	ND	5.0	EPA 8260D	12-23-24	12-23-24	
Bromochloromethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Chloroform	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Carbon Tetrachloride	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Benzene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,2-Dichloroethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Trichloroethene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,2-Dichloropropane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Dibromomethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Bromodichloromethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260D	12-23-24	12-23-24	
Toluene	ND	1.0	EPA 8260D	12-23-24	12-23-24	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Tetrachloroethene	ND	0.20	EPA 8260D	12-23-24	12-23-24	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-9D**					
Laboratory ID:	12-332-03					
2-Hexanone	ND	2.0	EPA 8260D	12-23-24	12-23-24	
Dibromochloromethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,2-Dibromoethane (SIM)	ND	0.020	EPA 8260D/SIM	12-23-24	12-23-24	
Chlorobenzene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Ethylbenzene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
m,p-Xylene	ND	0.40	EPA 8260D	12-23-24	12-23-24	
o-Xylene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Styrene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Bromoform	ND	1.0	EPA 8260D	12-23-24	12-23-24	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,2,3-Trichloropropane	ND	0.27	EPA 8260D	12-23-24	12-23-24	
(trans) 1,4-Dichloro-2-butene	ND	0.50	EPA 8260D	12-23-24	12-23-24	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Naphthalene	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*108*	*68-133*				
Toluene-d8	*105*	*79-123*				
4-Bromofluorobenzene	*98*	*78-117*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-10D**					
Laboratory ID:	12-332-04					
Chloromethane	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Vinyl Chloride (SIM)	ND	0.020	EPA 8260D/SIM	12-23-24	12-23-24	
Bromomethane	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Chloroethane	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Trichlorofluoromethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,1-Dichloroethene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Acetone	ND	5.0	EPA 8260D	12-23-24	12-23-24	
Iodomethane	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Carbon Disulfide	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Methylene Chloride	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Acrylonitrile	ND	0.50	EPA 8260D	12-23-24	12-23-24	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,1-Dichloroethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Vinyl Acetate	ND	1.0	EPA 8260D	12-23-24	12-23-24	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
2-Butanone	ND	5.0	EPA 8260D	12-23-24	12-23-24	
Bromochloromethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Chloroform	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Carbon Tetrachloride	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Benzene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,2-Dichloroethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Trichloroethene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,2-Dichloropropane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Dibromomethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Bromodichloromethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260D	12-23-24	12-23-24	
Toluene	ND	1.0	EPA 8260D	12-23-24	12-23-24	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Tetrachloroethene	ND	0.20	EPA 8260D	12-23-24	12-23-24	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-10D**					
Laboratory ID:	12-332-04					
2-Hexanone	ND	2.0	EPA 8260D	12-23-24	12-23-24	
Dibromochloromethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,2-Dibromoethane (SIM)	ND	0.020	EPA 8260D/SIM	12-23-24	12-23-24	
Chlorobenzene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Ethylbenzene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
m,p-Xylene	ND	0.40	EPA 8260D	12-23-24	12-23-24	
o-Xylene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Styrene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Bromoform	ND	1.0	EPA 8260D	12-23-24	12-23-24	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,2,3-Trichloropropane	ND	0.27	EPA 8260D	12-23-24	12-23-24	
(trans) 1,4-Dichloro-2-butene	ND	0.50	EPA 8260D	12-23-24	12-23-24	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Naphthalene	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*108*	*68-133*				
Toluene-d8	*105*	*79-123*				
4-Bromofluorobenzene	*98*	*78-117*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**Trip Blanks**					
Laboratory ID:	12-332-05					
Chloromethane	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Vinyl Chloride (SIM)	ND	0.020	EPA 8260D/SIM	12-23-24	12-23-24	
Bromomethane	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Chloroethane	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Trichlorofluoromethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,1-Dichloroethene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Acetone	5.1	5.0	EPA 8260D	12-23-24	12-23-24	
Iodomethane	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Carbon Disulfide	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Methylene Chloride	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Acrylonitrile	ND	0.50	EPA 8260D	12-23-24	12-23-24	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,1-Dichloroethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Vinyl Acetate	ND	1.0	EPA 8260D	12-23-24	12-23-24	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
2-Butanone	ND	5.0	EPA 8260D	12-23-24	12-23-24	
Bromochloromethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Chloroform	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Carbon Tetrachloride	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Benzene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,2-Dichloroethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Trichloroethene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,2-Dichloropropane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Dibromomethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Bromodichloromethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260D	12-23-24	12-23-24	
Toluene	ND	1.0	EPA 8260D	12-23-24	12-23-24	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Tetrachloroethene	ND	0.20	EPA 8260D	12-23-24	12-23-24	

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Laboratory Reference: 2412-332
Project: 553-8472-005 08.02

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**Trip Blanks**					
Laboratory ID:	12-332-05					
2-Hexanone	ND	2.0	EPA 8260D	12-23-24	12-23-24	
Dibromochloromethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,2-Dibromoethane (SIM)	ND	0.020	EPA 8260D/SIM	12-23-24	12-23-24	
Chlorobenzene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Ethylbenzene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
m,p-Xylene	ND	0.40	EPA 8260D	12-23-24	12-23-24	
o-Xylene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Styrene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Bromoform	ND	1.0	EPA 8260D	12-23-24	12-23-24	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,2,3-Trichloropropane	ND	0.27	EPA 8260D	12-23-24	12-23-24	
(trans) 1,4-Dichloro-2-butene	ND	0.50	EPA 8260D	12-23-24	12-23-24	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Naphthalene	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*108*	*68-133*				
Toluene-d8	*105*	*79-123*				
4-Bromofluorobenzene	*98*	*78-117*				

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Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1223W2					
Chloromethane	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Vinyl Chloride (SIM)	ND	0.020	EPA 8260D/SIM	12-23-24	12-23-24	
Bromomethane	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Chloroethane	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Trichlorofluoromethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,1-Dichloroethene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Acetone	ND	5.0	EPA 8260D	12-23-24	12-23-24	
Iodomethane	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Carbon Disulfide	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Methylene Chloride	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Acrylonitrile	ND	0.50	EPA 8260D	12-23-24	12-23-24	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,1-Dichloroethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Vinyl Acetate	ND	1.0	EPA 8260D	12-23-24	12-23-24	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
2-Butanone	ND	5.0	EPA 8260D	12-23-24	12-23-24	
Bromochloromethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Chloroform	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Carbon Tetrachloride	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Benzene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,2-Dichloroethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Trichloroethene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,2-Dichloropropane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Dibromomethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Bromodichloromethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260D	12-23-24	12-23-24	
Toluene	ND	1.0	EPA 8260D	12-23-24	12-23-24	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Tetrachloroethene	ND	0.20	EPA 8260D	12-23-24	12-23-24	

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1223W2					
2-Hexanone	ND	2.0	EPA 8260D	12-23-24	12-23-24	
Dibromochloromethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,2-Dibromoethane (SIM)	ND	0.020	EPA 8260D/SIM	12-23-24	12-23-24	
Chlorobenzene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Ethylbenzene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
m,p-Xylene	ND	0.40	EPA 8260D	12-23-24	12-23-24	
o-Xylene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Styrene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
Bromoform	ND	1.0	EPA 8260D	12-23-24	12-23-24	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,2,3-Trichloropropane	ND	0.27	EPA 8260D	12-23-24	12-23-24	
(trans) 1,4-Dichloro-2-butene	ND	0.50	EPA 8260D	12-23-24	12-23-24	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	12-23-24	12-23-24	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Naphthalene	ND	1.0	EPA 8260D	12-23-24	12-23-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*109*	*68-133*				
Toluene-d8	*105*	*79-123*				
4-Bromofluorobenzene	*99*	*78-117*				

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Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB1223W2									
	SB	SBD	SB	SBD	SB	SBD				
Chloromethane	**9.54**	**9.98**	10.0	10.0	95	100	45-145	5	19	
Vinyl Chloride	**10.1**	**10.5**	10.0	10.0	101	105	67-130	4	15	
Bromomethane	**10.8**	**11.2**	10.0	10.0	108	112	27-165	4	36	
Chloroethane	**9.45**	**9.92**	10.0	10.0	95	99	61-132	5	18	
Trichlorofluoromethane	**9.84**	**10.3**	10.0	10.0	98	103	67-136	5	17	
1,1-Dichloroethene	**9.91**	**10.3**	10.0	10.0	99	103	74-125	4	15	
Acetone	**9.35**	**9.56**	10.0	10.0	94	96	49-140	2	20	
Iodomethane	**9.73**	**10.1**	10.0	10.0	97	101	15-154	4	49	
Carbon Disulfide	**10.2**	**10.0**	10.0	10.0	102	100	58-122	2	18	
Methylene Chloride	**9.29**	**9.62**	10.0	10.0	93	96	70-123	3	15	
(trans) 1,2-Dichloroethene	**9.78**	**10.1**	10.0	10.0	98	101	77-125	3	15	
1,1-Dichloroethane	**9.86**	**10.2**	10.0	10.0	99	102	75-125	3	15	
Vinyl Acetate	**11.2**	**11.4**	10.0	10.0	112	114	61-138	2	16	
(cis) 1,2-Dichloroethene	**10.0**	**10.5**	10.0	10.0	100	105	78-130	5	15	
2-Butanone	**10.3**	**10.4**	10.0	10.0	103	104	58-144	1	16	
Bromochloromethane	**10.1**	**10.8**	10.0	10.0	101	108	79-132	7	15	
Chloroform	**9.74**	**10.3**	10.0	10.0	97	103	73-128	6	15	
1,1,1-Trichloroethane	**10.0**	**10.4**	10.0	10.0	100	104	72-127	4	15	
Carbon Tetrachloride	**10.6**	**11.0**	10.0	10.0	106	110	68-131	4	15	
Benzene	**10.1**	**10.5**	10.0	10.0	101	105	76-124	4	15	
1,2-Dichloroethane	**9.77**	**10.2**	10.0	10.0	98	102	68-133	4	15	
Trichloroethene	**10.5**	**10.8**	10.0	10.0	105	108	80-126	3	15	
1,2-Dichloropropane	**9.96**	**10.3**	10.0	10.0	100	103	78-124	3	15	
Dibromomethane	**10.4**	**10.8**	10.0	10.0	104	108	76-131	4	15	
Bromodichloromethane	**9.89**	**10.3**	10.0	10.0	99	103	81-128	4	15	
(cis) 1,3-Dichloropropene	**10.9**	**11.4**	10.0	10.0	109	114	80-131	4	15	
Methyl Isobutyl Ketone	**10.8**	**10.9**	10.0	10.0	108	109	67-133	1	16	
Toluene	**10.0**	**10.4**	10.0	10.0	100	104	75-120	4	15	
(trans) 1,3-Dichloropropene	**10.6**	**10.9**	10.0	10.0	106	109	77-128	3	15	
1,1,2-Trichloroethane	**9.69**	**10.1**	10.0	10.0	97	101	80-124	4	15	
Tetrachloroethene	**10.0**	**10.5**	10.0	10.0	100	105	80-125	5	15	
2-Hexanone	**10.9**	**11.1**	10.0	10.0	109	111	65-134	2	20	
Dibromochloromethane	**9.08**	**9.48**	10.0	10.0	91	95	81-131	4	15	

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QUALITY CONTROL
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Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB1223W2									
	SB	SBD	SB	SBD	SB	SBD				
1,2-Dibromoethane	**9.75**	**10.1**	10.0	10.0	98	101	82-129	4	15	
Chlorobenzene	**9.59**	**9.98**	10.0	10.0	96	100	80-119	4	15	
1,1,1,2-Tetrachloroethane	**10.0**	**10.6**	10.0	10.0	100	106	80-124	6	15	
Ethylbenzene	**9.66**	**10.2**	10.0	10.0	97	102	80-121	5	15	
m,p-Xylene	**19.3**	**20.1**	20.0	20.0	97	101	80-122	4	15	
o-Xylene	**9.48**	**9.93**	10.0	10.0	95	99	80-121	5	15	
Styrene	**10.1**	**10.5**	10.0	10.0	101	105	82-128	4	15	
Bromoform	**11.1**	**11.5**	10.0	10.0	111	115	77-131	4	15	
1,1,2,2-Tetrachloroethane	**9.67**	**9.90**	10.0	10.0	97	99	66-138	2	15	
1,2,3-Trichloropropane	**7.28**	**7.52**	10.0	10.0	73	75	67-127	3	18	
1,4-Dichlorobenzene	**9.36**	**9.92**	10.0	10.0	94	99	78-127	6	15	
1,2-Dichlorobenzene	**9.33**	**9.79**	10.0	10.0	93	98	79-129	5	15	
1,2-Dibromo-3-chloropropane	**9.44**	**9.72**	10.0	10.0	94	97	62-140	3	18	
Naphthalene	**8.01**	**8.40**	10.0	10.0	80	84	53-144	5	25	
Surrogate:										
Dibromofluoromethane					*107*	*108*	*68-133*			
Toluene-d8					*106*	*105*	*79-123*			
4-Bromofluorobenzene					*101*	*100*	*78-117*			

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GASOLINE RANGE ORGANICS
NWTPH-Gx

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-7D**					
Laboratory ID:	12-332-01					
Gasoline	**ND**	100	NWTPH-Gx	12-23-24	12-23-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*87*	*61-122*				
Client ID:	**MW-8D**					
Laboratory ID:	12-332-02					
Gasoline	**ND**	100	NWTPH-Gx	12-23-24	12-23-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*84*	*61-122*				
Client ID:	**MW-9D**					
Laboratory ID:	12-332-03					
Gasoline	**ND**	100	NWTPH-Gx	12-23-24	12-23-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*83*	*61-122*				
Client ID:	**MW-10D**					
Laboratory ID:	12-332-04					
Gasoline	**ND**	100	NWTPH-Gx	12-23-24	12-23-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*85*	*61-122*				
Client ID:	**Trip Blanks**					
Laboratory ID:	12-332-05					
Gasoline	**ND**	100	NWTPH-Gx	12-23-24	12-23-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*100*	*61-122*				

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GASOLINE RANGE ORGANICS
NWTPH-Gx
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1223W4					
Gasoline	**ND**	100	NWTPH-Gx	12-23-24	12-23-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*90*	*61-122*				

Analyte	Result		Spike Level		Source Result		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE												
Laboratory ID:	12-293-01											
	ORIG	DUP										
GRO	**746**	**719**	NA	NA			NA		NA	4	30	
Surrogate:												
Fluorobenzene							*87*	*87*	*61-122*			

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DIESEL AND HEAVY OIL RANGE ORGANICS
NWTPH-Dx

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-7D**					
Laboratory ID:	12-332-01					
Diesel Range Organics	**ND**	0.22	NWTPH-Dx	12-27-24	12-28-24	
Lube Oil Range Organics	**ND**	0.22	NWTPH-Dx	12-27-24	12-28-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*108*	*50-150*				
Client ID:	**MW-8D**					
Laboratory ID:	12-332-02					
Diesel Range Organics	**ND**	0.22	NWTPH-Dx	12-27-24	12-28-24	
Lube Oil Range Organics	**ND**	0.22	NWTPH-Dx	12-27-24	12-28-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*107*	*50-150*				
Client ID:	**MW-9D**					
Laboratory ID:	12-332-03					
Diesel Range Organics	**ND**	0.24	NWTPH-Dx	12-27-24	12-28-24	
Lube Oil Range Organics	**ND**	0.24	NWTPH-Dx	12-27-24	12-28-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*120*	*50-150*				
Client ID:	**MW-10D**					
Laboratory ID:	12-332-04					
Diesel Range Organics	**ND**	0.23	NWTPH-Dx	12-27-24	12-27-24	
Lube Oil Range Organics	**ND**	0.23	NWTPH-Dx	12-27-24	12-27-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*122*	*50-150*				

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DIESEL AND HEAVY OIL RANGE ORGANICS
NWTPH-Dx
QUALITY CONTROL

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1227W1					
Diesel Range Organics	**ND**	0.16	NWTPH-Dx	12-27-24	12-27-24	
Lube Oil Range Organics	**ND**	0.16	NWTPH-Dx	12-27-24	12-27-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*118*	*50-150*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	12-361-02										
	ORIG	DUP									
Diesel Range Organics	**1.66**	**1.60**	NA	NA		NA		NA	4	40	
Lube Oil Range Organics	**0.979**	**0.894**	NA	NA		NA		NA	9	40	
Surrogate:											
o-Terphenyl						*124*	*120*	*50-150*			

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TOTAL METALS
EPA 200.8

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-7D**					
Laboratory ID:	12-332-01					
Iron	**4.0**	0.050	EPA 6010D	12-23-24	12-24-24	
Magnesium	**12**	1.0	EPA 6010D	12-23-24	12-24-24	
Manganese	**0.061**	0.010	EPA 6010D	12-23-24	12-24-24	
Client ID:	**MW-8D**					
Laboratory ID:	12-332-02					
Iron	**1.3**	0.050	EPA 6010D	12-23-24	12-24-24	
Magnesium	**20**	1.0	EPA 6010D	12-23-24	12-24-24	
Manganese	**0.020**	0.010	EPA 6010D	12-23-24	12-24-24	
Client ID:	**MW-9D**					
Laboratory ID:	12-332-03					
Iron	**0.28**	0.050	EPA 6010D	12-23-24	12-24-24	
Magnesium	**21**	1.0	EPA 6010D	12-23-24	12-24-24	
Manganese	**0.033**	0.010	EPA 6010D	12-23-24	12-24-24	
Client ID:	**MW-10D**					
Laboratory ID:	12-332-04					
Iron	**0.063**	0.050	EPA 6010D	12-23-24	12-24-24	
Magnesium	**11**	1.0	EPA 6010D	12-23-24	12-24-24	
Manganese	**ND**	0.010	EPA 6010D	12-23-24	12-24-24	

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TOTAL METALS
EPA 200.8
QUALITY CONTROL

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1223WH1					
Iron	**ND**	0.050	EPA 6010D	12-23-24	12-24-24	
Magnesium	**ND**	1.0	EPA 6010D	12-23-24	12-24-24	
Manganese	**ND**	0.010	EPA 6010D	12-23-24	12-24-24	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	12-332-01										
	ORIG	DUP									
Iron	**4.05**	**3.66**	NA	NA		NA		NA	10	20	
Magnesium	**11.6**	**11.0**	NA	NA		NA		NA	5	20	
Manganese	**0.0611**	**0.0575**	NA	NA		NA		NA	6	20	
MATRIX SPIKES											
Laboratory ID:	12-332-01										
	MS	MSD	MS	MSD		MS	MSD				
Iron	**25.3**	**25.2**	20.0	20.0	4.05	**106**	**106**	75-125	1	20	
Magnesium	**34.4**	**34.5**	20.0	20.0	11.6	**114**	**115**	75-125	0	20	
Manganese	**0.596**	**0.596**	0.500	0.500	0.0611	**107**	**107**	75-125	0	20	

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Samples Submitted: December 20, 2024
Laboratory Reference: 2412-332
Project: 553-8472-005 08.02

DISSOLVED METALS
EPA 200.8

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-7D**					
Laboratory ID:	12-332-01					
Calcium	**15**	1.1	EPA 6010D		12-31-24	
Iron	**0.14**	0.056	EPA 6010D		12-31-24	
Magnesium	**11**	1.1	EPA 6010D		12-31-24	
Manganese	**0.040**	0.011	EPA 6010D		12-31-24	
Potassium	**2.6**	1.1	EPA 6010D		12-31-24	
Sodium	**11**	1.1	EPA 6010D		12-31-24	
Client ID:	**MW-8D**					
Laboratory ID:	12-332-02					
Calcium	**26**	1.1	EPA 6010D		12-31-24	
Iron	**ND**	0.056	EPA 6010D		12-31-24	
Magnesium	**18**	1.1	EPA 6010D		12-31-24	
Manganese	**ND**	0.011	EPA 6010D		12-31-24	
Potassium	**3.1**	1.1	EPA 6010D		12-31-24	
Sodium	**20**	1.1	EPA 6010D		12-31-24	
Client ID:	**MW-9D**					
Laboratory ID:	12-332-03					
Calcium	**30**	1.1	EPA 6010D		12-31-24	
Iron	**ND**	0.056	EPA 6010D		12-31-24	
Magnesium	**19**	1.1	EPA 6010D		12-31-24	
Manganese	**0.032**	0.011	EPA 6010D		12-31-24	
Potassium	**2.1**	1.1	EPA 6010D		12-31-24	
Sodium	**23**	1.1	EPA 6010D		12-31-24	
Client ID:	**MW-10D**					
Laboratory ID:	12-332-04					
Calcium	**19**	1.1	EPA 6010D		12-31-24	
Iron	**ND**	0.056	EPA 6010D		12-31-24	
Magnesium	**11**	1.1	EPA 6010D		12-31-24	
Manganese	**ND**	0.011	EPA 6010D		12-31-24	
Potassium	**2.2**	1.1	EPA 6010D		12-31-24	
Sodium	**14**	1.1	EPA 6010D		12-31-24	

Date of Report: January 21, 2025
Samples Submitted: December 20, 2024
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DISSOLVED METALS
EPA 200.8

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1231D1					
Calcium	**ND**	1.1	EPA 6010D		12-31-24	
Iron	**ND**	0.056	EPA 6010D		12-31-24	
Magnesium	**ND**	1.1	EPA 6010D		12-31-24	
Manganese	**ND**	0.011	EPA 6010D		12-31-24	
Potassium	**ND**	1.1	EPA 6010D		12-31-24	
Sodium	**ND**	1.1	EPA 6010D		12-31-24	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	12-332-01										
	ORIG	DUP									
Calcium	**14.7**	**15.3**	NA	NA		NA		NA	4	20	
Iron	**0.136**	**0.140**	NA	NA		NA		NA	3	20	
Magnesium	**10.6**	**10.9**	NA	NA		NA		NA	2	20	
Manganese	**0.0397**	**0.0413**	NA	NA		NA		NA	4	20	
Potassium	**2.64**	**2.66**	NA	NA		NA		NA	1	20	
Sodium	**11.4**	**10.8**	NA	NA		NA		NA	6	20	
MATRIX SPIKES											
Laboratory ID:	12-332-01										
	MS	MSD	MS	MSD		MS	MSD				
Calcium	**37.7**	**38.3**	22.2	22.2	14.7	**103**	**106**	75-125	2	20	
Iron	**23.8**	**23.9**	22.2	22.2	0.136	**106**	**107**	75-125	1	20	
Magnesium	**33.7**	**34.2**	22.2	22.2	10.6	**104**	**106**	75-125	1	20	
Manganese	**0.583**	**0.595**	0.556	0.556	0.0397	**98**	**100**	75-125	2	20	
Potassium	**25.6**	**25.8**	22.2	22.2	2.64	**103**	**104**	75-125	1	20	
Sodium	**33.2**	**33.4**	22.2	22.2	11.4	**98**	**99**	75-125	1	20	

Date of Report: January 21, 2025
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NITRATE (as Nitrogen)
EPA 353.2

Matrix: Water
Units: mg/L-N

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-7D**					
Laboratory ID:	12-332-01					
Nitrate	**0.070**	0.050	EPA 353.2	12-24-24	12-24-24	
Client ID:	**MW-8D**					
Laboratory ID:	12-332-02					
Nitrate	**1.6**	0.050	EPA 353.2	12-24-24	12-24-24	
Client ID:	**MW-9D**					
Laboratory ID:	12-332-03					
Nitrate	**0.12**	0.050	EPA 353.2	12-24-24	12-24-24	
Client ID:	**MW-10D**					
Laboratory ID:	12-332-04					
Nitrate	**1.3**	0.050	EPA 353.2	12-24-24	12-24-24	

Date of Report: January 21, 2025
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NITRATE (as Nitrogen)
EPA 353.2
QUALITY CONTROL

Matrix: Water
Units: mg/L-N

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1224W2					
Nitrate	**ND**	0.050	EPA 353.2	12-24-24	12-24-24	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	12-199-05								
	ORIG	DUP							
Nitrate	**8.56**	**9.26**	NA	NA	NA	NA	8	22	
MATRIX SPIKE									
Laboratory ID:	12-199-05								
	MS		MS		MS				
Nitrate	**18.8**		10.00	8.56	102	86-119	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB1224W2								
	SB		SB		SB				
Nitrate	**1.89**		2.00	NA	95	85-117	NA	NA	

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CHLORIDE
SM 4500-Cl E

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-7D**					
Laboratory ID:	12-332-01					
Chloride	**2.4**	2.0	SM 4500-Cl E	12-23-24	12-23-24	
Client ID:	**MW-8D**					
Laboratory ID:	12-332-02					
Chloride	**15**	2.0	SM 4500-Cl E	12-23-24	12-23-24	
Client ID:	**MW-9D**					
Laboratory ID:	12-332-03					
Chloride	**41**	2.0	SM 4500-Cl E	12-23-24	12-23-24	
Client ID:	**MW-10D**					
Laboratory ID:	12-332-04					
Chloride	**3.0**	2.0	SM 4500-Cl E	12-23-24	12-23-24	

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CHLORIDE
SM 4500-Cl E
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1223W1					
Chloride	**ND**	2.0	SM 4500-Cl E	12-23-24	12-23-24	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	12-199-05								
	ORIG	DUP							
Chloride	**66.1**	**64.9**	NA	NA	NA	NA	2	21	
MATRIX SPIKE									
Laboratory ID:	12-199-05								
	MS		MS		MS				
Chloride	**175**		100.0	66.1	109	81-115	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB1223W1								
	SB		SB		SB				
Chloride	**51.8**		50.0	NA	104	77-115	NA	NA	

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SULFATE
ASTM D516-11

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-7D**					
Laboratory ID:	12-332-01					
Sulfate	**ND**	5.0	ASTM D516-11	12-27-24	12-27-24	
Client ID:	**MW-8D**					
Laboratory ID:	12-332-02					
Sulfate	**48**	20	ASTM D516-11	12-27-24	12-27-24	
Client ID:	**MW-9D**					
Laboratory ID:	12-332-03					
Sulfate	**62**	20	ASTM D516-11	12-27-24	12-27-24	
Client ID:	**MW-10D**					
Laboratory ID:	12-332-04					
Sulfate	**13**	5.0	ASTM D516-11	12-27-24	12-27-24	

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SULFATE
ASTM D516-11
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1227W1					
Sulfate	**ND**	5.0	ASTM D516-11	12-27-24	12-27-24	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	12-332-01								
	ORIG	DUP							
Sulfate	**ND**	**ND**	NA	NA	NA	NA	NA	11	
MATRIX SPIKE									
Laboratory ID:	12-332-01								
	MS		MS		MS				
Sulfate	**8.61**		10.0	ND	86	69-134	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB1227W1								
	SB		SB		SB				
Sulfate	**9.41**		10.0	NA	94	81-106	NA	NA	

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TOTAL DISSOLVED SOLIDS
SM 2540C

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-7D**					
Laboratory ID:	12-332-01					
Total Dissolved Solids	**140**	13	SM 2540C	1-15-25	1-15-25	
Client ID:	**MW-8D**					
Laboratory ID:	12-332-02					
Total Dissolved Solids	**250**	13	SM 2540C	1-15-25	1-15-25	
Client ID:	**MW-9D**					
Laboratory ID:	12-332-03					
Total Dissolved Solids	**280**	13	SM 2540C	1-15-25	1-15-25	
Client ID:	**MW-10D**					
Laboratory ID:	12-332-04					
Total Dissolved Solids	**170**	13	SM 2540C	1-15-25	1-15-25	

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TOTAL DISSOLVED SOLIDS
SM 2540C
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0115W1					
Total Dissolved Solids	**ND**	13	SM 2540C	1-15-25	1-15-25	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	01-092-02								
	ORIG	DUP							
Total Dissolved Solids	**116**	**125**	NA	NA	NA	NA	7	29	
SPIKE BLANK									
Laboratory ID:	SB0115W1								
	SB		SB		SB				
Total Dissolved Solids	**467**		500	NA	93	76-120	NA	NA	

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TOTAL ALKALINITY
SM 2320B

Matrix: Water
Units: mg CaCO3/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-7D**					
Laboratory ID:	12-332-01					
Total Alkalinity	**100**	2.0	SM 2320B	12-27-24	12-27-24	
Client ID:	**MW-8D**					
Laboratory ID:	12-332-02					
Total Alkalinity	**94**	2.0	SM 2320B	12-27-24	12-27-24	
Client ID:	**MW-9D**					
Laboratory ID:	12-332-03					
Total Alkalinity	**96**	2.0	SM 2320B	12-27-24	12-27-24	
Client ID:	**MW-10D**					
Laboratory ID:	12-332-04					
Total Alkalinity	**98**	2.0	SM 2320B	12-27-24	12-27-24	

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TOTAL ALKALINITY
SM 2320B
QUALITY CONTROL

Matrix: Water
Units: mg CaCO3/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1227W1					
Total Alkalinity	**ND**	2.0	SM 2320B	12-27-24	12-27-24	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	12-332-01								
	ORIG	DUP							
Total Alkalinity	**104**	**102**	NA	NA	NA	NA	2	10	
SPIKE BLANK									
Laboratory ID:	SB1227W1								
	SB		SB		SB				
Total Alkalinity	**94.0**		100	NA	94	82-101	NA	NA	

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BICARBONATE
SM 2320B

Matrix: Water
Units: mg CaCO3/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-7D**					
Laboratory ID:	12-332-01					
Bicarbonate	**100**	2.0	SM 2320B	12-27-24	12-27-24	
Client ID:	**MW-8D**					
Laboratory ID:	12-332-02					
Bicarbonate	**94**	2.0	SM 2320B	12-27-24	12-27-24	
Client ID:	**MW-9D**					
Laboratory ID:	12-332-03					
Bicarbonate	**96**	2.0	SM 2320B	12-27-24	12-27-24	
Client ID:	**MW-10D**					
Laboratory ID:	12-332-04					
Bicarbonate	**98**	2.0	SM 2320B	12-27-24	12-27-24	

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BICARBONATE
SM 2320B
QUALITY CONTROL

Matrix: Water
Units: mg CaCO3/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1227W1					
Bicarbonate	**ND**	2.0	SM 2320B	12-27-24	12-27-24	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	12-332-01								
	ORIG	DUP							
Bicarbonate	**104**	**102**	NA	NA	NA	NA	2	10	
SPIKE BLANK									
Laboratory ID:	SB1227W1								
	SB		SB		SB				
Bicarbonate	**94.0**		100	NA	94	82-101	NA	NA	

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AMMONIA (as Nitrogen)
SM 4500-NH_3 D

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-7D**					
Laboratory ID:	12-332-01					
Ammonia	**ND**	0.053	SM 4500-NH3 D	12-23-24	12-23-24	
Client ID:	**MW-8D**					
Laboratory ID:	12-332-02					
Ammonia	**0.081**	0.053	SM 4500-NH3 D	12-23-24	12-23-24	
Client ID:	**MW-9D**					
Laboratory ID:	12-332-03					
Ammonia	**0.095**	0.053	SM 4500-NH3 D	12-23-24	12-23-24	
Client ID:	**MW-10D**					
Laboratory ID:	12-332-04					
Ammonia	**ND**	0.053	SM 4500-NH3 D	12-23-24	12-23-24	

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AMMONIA (as Nitrogen)
SM 4500-NH_3 D
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1224W1					
Ammonia	**ND**	0.053	SM 4500-NH3 D	12-23-24	12-23-24	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	12-199-05								
	ORIG	DUP							
Ammonia	**ND**	**ND**	NA	NA	NA	NA	NA	15	
MATRIX SPIKE									
Laboratory ID:	12-199-05								
	MS		MS		MS				
Ammonia	**4.83**		5.00	ND	97	75-111	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB1224W1								
	SB		SB		SB				
Ammonia	**5.20**		5.00	NA	104	81-110	NA	NA	

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TOTAL ORGANIC CARBON
SM 5310B

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-7D**					
Laboratory ID:	12-332-01					
Total Organic Carbon	**ND**	1.0	SM 5310B	12-23-24	12-23-24	
Client ID:	**MW-8D**					
Laboratory ID:	12-332-02					
Total Organic Carbon	**ND**	1.0	SM 5310B	12-23-24	12-23-24	
Client ID:	**MW-9D**					
Laboratory ID:	12-332-03					
Total Organic Carbon	**1.9**	1.0	SM 5310B	12-23-24	12-23-24	
Client ID:	**MW-10D**					
Laboratory ID:	12-332-04					
Total Organic Carbon	**ND**	1.0	SM 5310B	12-23-24	12-23-24	

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TOTAL ORGANIC CARBON
SM 5310B
QUALITY CONTROL

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1223W1					
Total Organic Carbon	**ND**	1.0	SM 5310B	12-23-24	12-23-24	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	12-199-05								
	ORIG	DUP							
Total Organic Carbon	**2.91**	**2.68**	NA	NA	NA	NA	8	11	
MATRIX SPIKE									
Laboratory ID:	12-199-05								
	MS		MS		MS				
Total Organic Carbon	**11.7**		10.0	2.91	88	85-120	NA	NA	
SPIKE BLANK									
Laboratory ID:	SB1223W1								
	SB		SB		SB				
Total Organic Carbon	**9.88**		10.0	NA	99	79-120	NA	NA	

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pH
SM 4500-H B

Matrix: Water
Units: pH (@ 25ºC)

Analyte	Result	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-7D**				
Laboratory ID:	12-332-01				
pH	**7.9**	SM 4500-H B	12-20-24	12-20-24	
Client ID:	**MW-8D**				
Laboratory ID:	12-332-02				
pH	**7.8**	SM 4500-H B	12-20-24	12-20-24	
Client ID:	**MW-9D**				
Laboratory ID:	12-332-03				
pH	**7.6**	SM 4500-H B	12-20-24	12-20-24	
Client ID:	**MW-10D**				
Laboratory ID:	12-332-04				
pH	**7.7**	SM 4500-H B	12-20-24	12-20-24	

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical ____________.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

X1 - Sample extract treated with a sulfuric acid/silica gel cleanup procedure.

X2 - Sample extract treated with a silica gel cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in methods 8260 & 8270, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.

Y1 - Negative effects of the matrix from this sample on the instrument caused values for this analyte in the bracketing continuing calibration verification standard (CCVs) to be outside of 20% acceptance criteria. Because of this, quantitation limits and sample concentrations should be considered estimates.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Appendix C

Fourth Quarter 2024 Data Quality Evaluation

Parametrix
let's create tomorrow, together

Memorandum

DATE: January 8, 2025
TO: Project File
FROM: Sally Nguyen
SUBJECT: Fourth Quarter 2024 Data Quality Evaluation
CC: Lisa Gilbert
PROJECT NUMBER: 553-8472-005
PROJECT NAME: Rocky Top Environmental Limited Purpose Landfill

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A data quality evaluation was conducted for the Fourth Quarter 2024 sampling event at the Rocky Top Environmental Limited Purpose Landfill (LPL). Samples were collected between December 11 and December 19, 2024, by Parametrix under contract to Rocky Top Environmental. The samples were analyzed by OnSite Environmental under two associated work orders:

- Work Order 2412-199 (MW-2S, MW-3S, MW-4S, MW-5S, MW-6S, MW-13S, Trip Blank)
- Work Order 2412-322 (MW-7D, MW-8D, MW-9D, MW-10D, Trip Blank)

The data were evaluated in accordance with EPA guidance (EPA 2020a, 2020b, and 2009) at a Stage 2A level. Sample MW-13S is a field duplicate of MW-6S.

Field Narrative

Groundwater sampling field data sheets were provided by Parametrix. There are multiple work orders for this sampling event because the shallow aquifer and interflow aquifer samples were collected during separate events.

Laboratory Case Narrative

Work Order 2412-199 (MW-2S, MW-3S, MW-4S, MW-5S, MW-6S, MW-13S, Trip Blank)

Samples collected on December 11 and 12, 2024 were received by the laboratory on December 13, 2024. They were maintained at the laboratory at a temperature of 2 to 6 degrees Celsius.

Volatiles - EPA Method SW8260D

No VOCs were detected in the trip blank.

The surrogate percent recoveries were within control limits.

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

The spike blank recoveries and relative percent differences (RPDs) were within control limits.

The percent recovery for (trans) 1,3-Dichloropropene is outside the control limits (high) in the Spike Blank Duplicate and the data was qualified "I" by the laboratory. The method allows for a percentage of the compounds to fall outside of the control limits due to the large number of analytes being spiked.

The RPD for Acetone is outside the control limits (high) for the Spike Blank/Spike Blank Duplicate and the data was qualified "L" by the laboratory. The percent recoveries on both spike blanks are within recovery limits. The method allows for a percentage of the compounds to fall outside of the control limits due to the large number of analytes being spiked.

The percent recoveries for Vinyl Acetate, Dibromomethane, (cis) 1,3-Dichloropropene and (trans) 1,3-Dichloropropene were outside the control limits (high) in the Matrix Spike and the data were qualified "V" by the laboratory. The method allows for a percentage of the compounds to fall outside of the control limits due to the large number of analytes being spiked.

The RPD for Dibromochloromethane is outside the control limits (high) for the Matrix Spike/Matrix Spike Duplicate and the data was qualified "W" by the laboratory. The percent recoveries on both matrix spikes are within recovery limits. The method allows for a percentage of the compounds to fall outside of the control limits due to the large number of analytes being spiked.

Total Petroleum Hydrocarbons (NWTPH-Gx and Dx)

No TPH-Gx was detected in the trip blank.

The surrogate percent recoveries were within control limits.

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

The duplicate RPDs were within control limits.

Total and Dissolved Metals (EPA Method 6010D)

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

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

The duplicate RPDs were within control limits.

The MS recoveries and relative percent differences (RPDs) were within advisory control limits; however, the MS for total and dissolved metals were not associated with the project.

Wet Chemistry

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

Bicarbonate was detected in the method blank (1.0 mg/L). Since all sample detections were greater than 10 times the method blank detection, no data were qualified.

The duplicate RPDs were within control limits.

The MS (if required) and spike blank recoveries and RPDs were within control limits; however, the MS for the nitrate was not associated with the project.

Work Order 2412-322 & 2412-322R2 (MW-7D, MW-8D, MW-9D, MW-10D, Trip Blank)

Samples collected on December 18 and 19, 2024 were received by the laboratory on December 20, 2024. They were maintained at the laboratory at a temperature of 2 to 6 degrees Celsius.

Volatiles - EPA Method SW8260D

Acetone was detected in the trip blank (5.1 ug/L). Since acetone was not detected in any of the samples, no data were qualified.

The surrogate percent recoveries were within control limits.

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

Total Petroleum Hydrocarbons (NWTPH-Gx and Dx)

No TPH-Gx was detected in the trip blank.

The surrogate percent recoveries were within control limits.

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

The duplicate RPDs were within control limits.

Total and Dissolved Metals (EPA Method 6010D)

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

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

The duplicate RPDs were within control limits.

The MS recoveries and relative percent differences (RPDs) were within advisory control limits.

Wet Chemistry

The sample(s) were prepared and analyzed within the recommended holding times, except for pH, which was analyzed outside of the 15-minute holding time for all wells. pH data for MW-7D, MW-8D, MW—9D, MW-10D were qualified “H”.

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

The duplicate RPDs were within control limits.

The MS (if required) and spike blank recoveries and RPDs were within control limits.

Analytical results for total dissolved solids (TDS) for wells MW-7D, MW-8D, and MW-10D were non-detects, which was unexpected. The laboratory re-ran analysis for TDS out of holding time and provided a revised report (2412-332R2). The out-of-hold TDS results for these wells were more in the expected range. These data were qualified “H” to reflect the analysis outside holding times. The reanalysis for MW-9D (280 mg/L) was in a similar range to the original analysis (260 mg/L), so the original in-hold result was used for MW-9D.

Field Duplicate Evaluation

Relative Percent Differences (RPDs) were calculated for the results of sample MW-6S and duplicate MW-13S. Field Duplicate Relative Percent Difference Calculations are included in Attachment A.

The duplicate percent RPDs were within control limits for all analytes.

Data Qualification

- pH data for wells MW-7D, MW-8D, MW—9D, MW-10D were qualified “H” due to out-of-hold analysis.

- TDS data for wells MW-7D, MW-8D, and MW-10D were qualified “H” due to out-of-hold analysis.

References

EPA (U.S. Environmental Protection Agency). 2002. Guidance on Environmental Data Verification and Data Validation. EPA QA/G-8. EPA240R-02/004.

EPA. 2020a. National Functional Guidelines for Inorganic Superfund Data Review. EPA 540R- 2017-001. November.

EPA. 2020b. National Functional Guidelines for Organic Superfund Data Review. EPA 542-R-20-006. November.

Attachment A

Fourth Quarter 2024 Field Duplicate Relative Percent Difference Calculations

Rocky Top Environmental LPL Field Duplicate Relative Percent Difference Calculations

553-8472-005

Fourth Quarter 2024

Sample Dates: 12/11/2024, 12/12/2024, 12/18/2024, 12/19/2024

Sample numbers: On-Site Environmental 2412-199: MW-2S, MW-3S, MW-4S, MW-5S, MW-6S

On-Site Environmental 2412-322: MW-7D, MW-8D, MW-9D, MW-10D

DUP MW-13S collected at MW-6S

Completed by: Sally Nguyen 1/8/2025

Groundwater	sample	duplicate	avg	diff	RPD	=/<25%?	RL	[1]w/in RL?
units = mg/L	**MW-6S**	**MW-13S**						
Iron, Total	<0.050	<0.050	n/a	n/a	n/a	y	0.050	
Magnesium, Total	31	31	31.00	0	0.0	y	1.0	
Manganese, Total	<0.010	<0.010	n/a	n/a	n/a	y	0.010	
Calcium, Dissolved	43	42	42.50	1	2.4	y	1.1	
Iron, Dissolved	<0.056	<0.056	n/a	n/a	n/a		0.056	y
Magnesium, Dissolved	30	30	30.00	0	0.0	y	1.1	
Manganese, Dissolved	<0.011	<0.011	n/a	n/a	n/a		0.011	y
Potassium, Dissolved	4.9	4.9	4.90	0	0.0	y	1.1	
Sodium, Dissolved	17	17	17.00	0	0.0	y	1.1	
Nitrate	8.6	9.9	9.25	-1.3	14.1	y	0.25/0.20	
Chloride	66	63	64.50	3	4.7	y	2.0	
Sulfate	51	54	52.50	-3	5.7	y	20	
TDS	360	340	350.00	20	5.7	y	13	
Alkalinity	88	84	86.00	4	4.7	y	2.0	
Bicarbonate	88	84	86.00	4	4.7	y	2.0	
Ammonia	<0.053	<0.053	n/a	n/a	n/a		0.053	y
TOC	2.9	2.8	2.85	0.1	3.5	y	1.0	
TPH-Gasoline (ug/L)	<100	<100	n/a	n/a	n/a		100	y
TPH-Diesel	<0.21	<0.22	n/a	n/a	n/a		0.21/0.22	y
TPH-Oil	<0.21	<0.22	n/a	n/a	n/a		0.21/0.22	y
VOCs	None detected							
Comments:	No data qualified.							

Notes

[1] = Secondary comparison. When a RPD calculation is not available or is above limits, a reportling limit comparison is done.

RPD = Relative percent difference

RL = Reporting limit

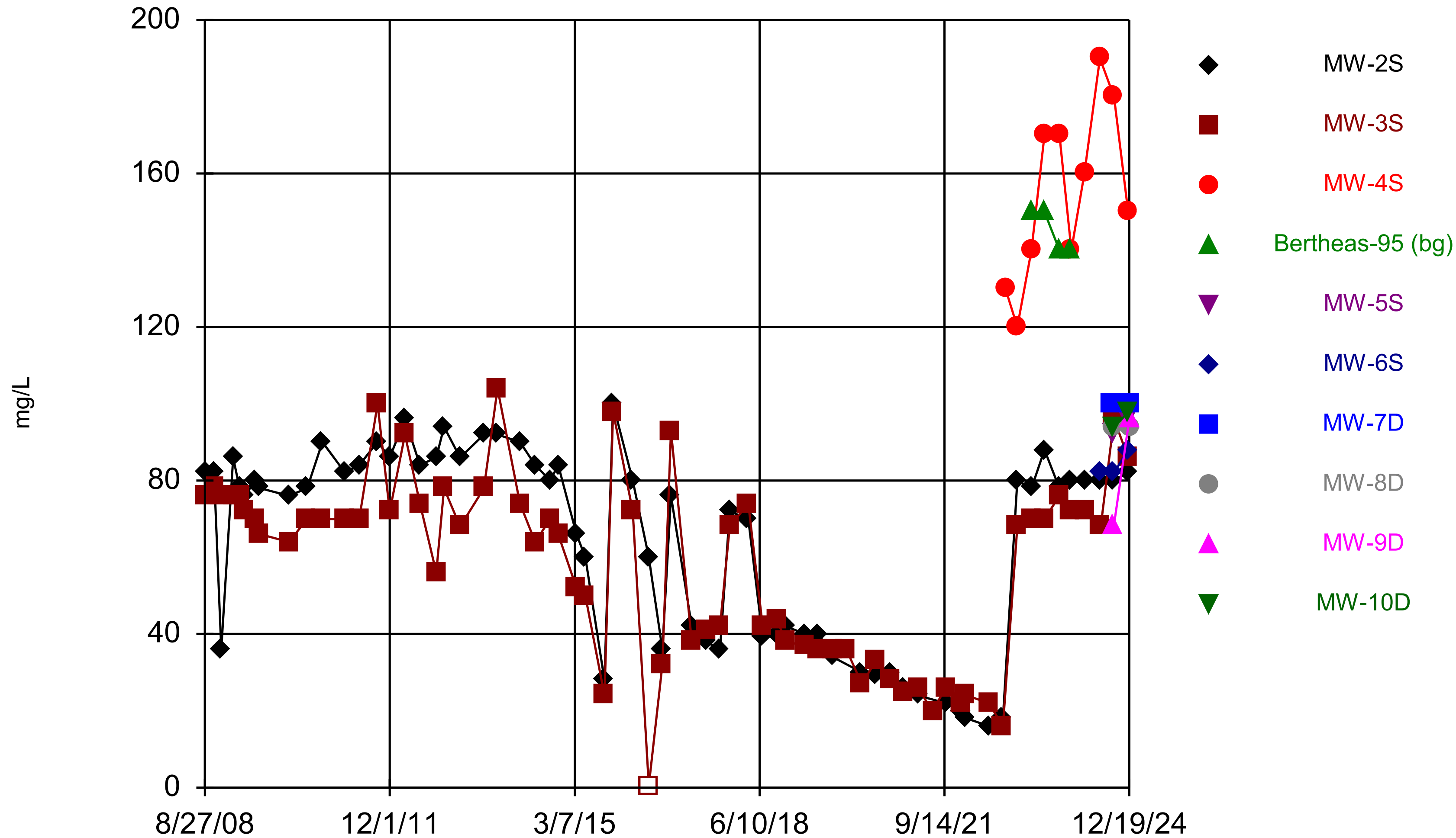
n/a = Not applicable

Appendix D

Time-Series Plots

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

Time Series

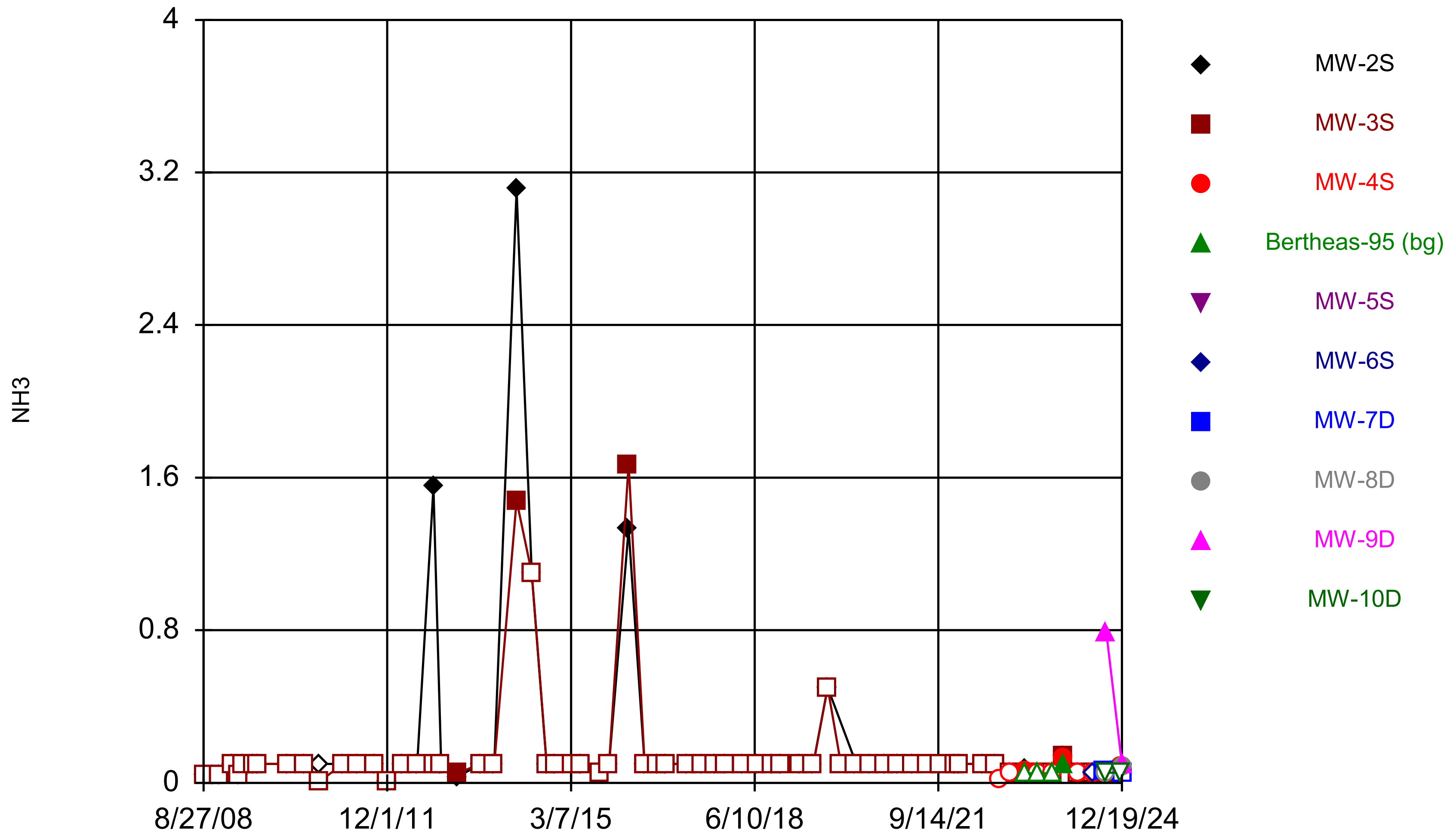


Constituent: Alkalinity, Total Analysis Run 1/18/2025 7:43 PM View: TSPs

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

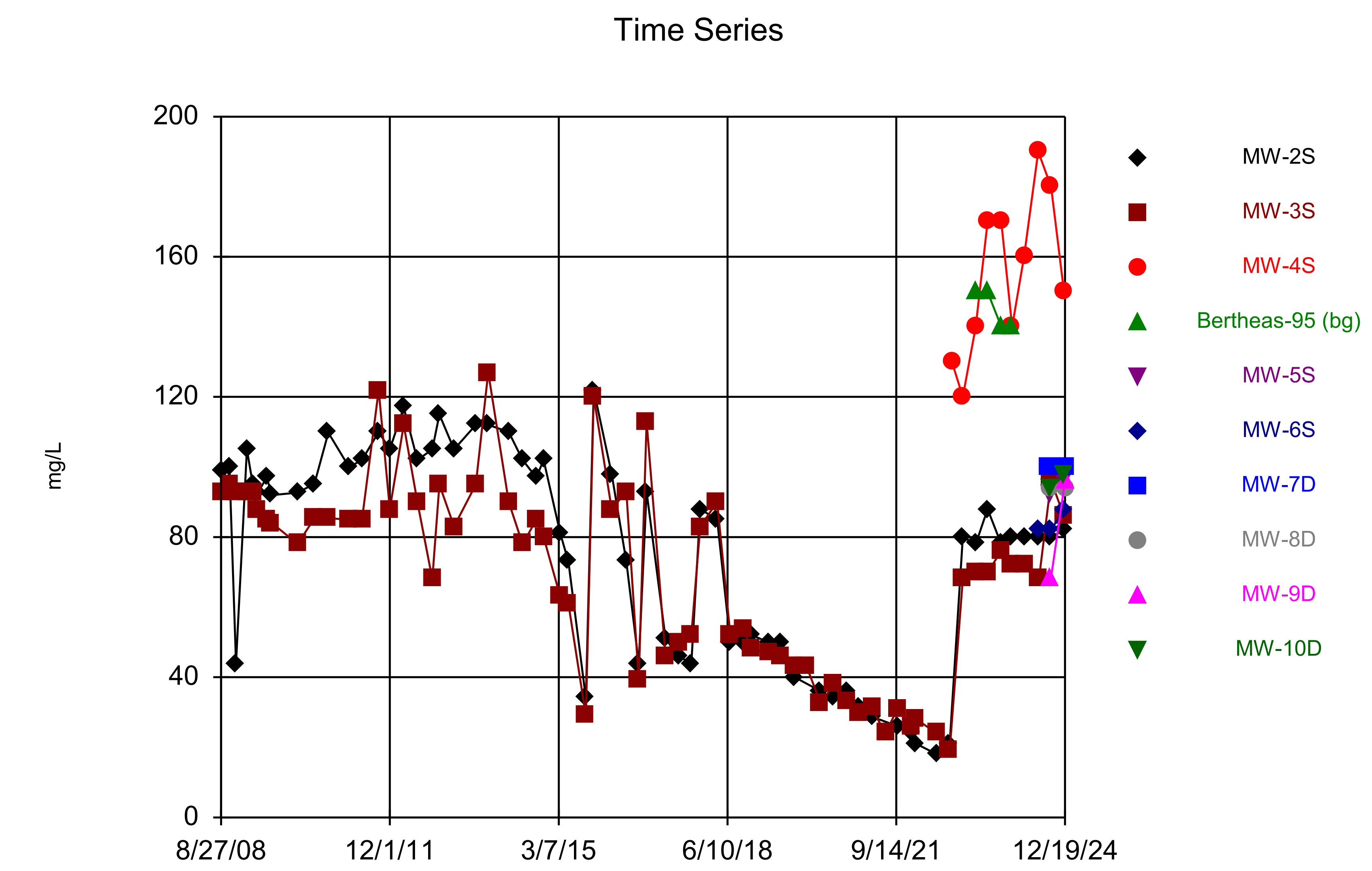
Time Series



Constituent: Ammonia   Analysis Run 1/18/2025 7:43 PM   View: TSPs

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG

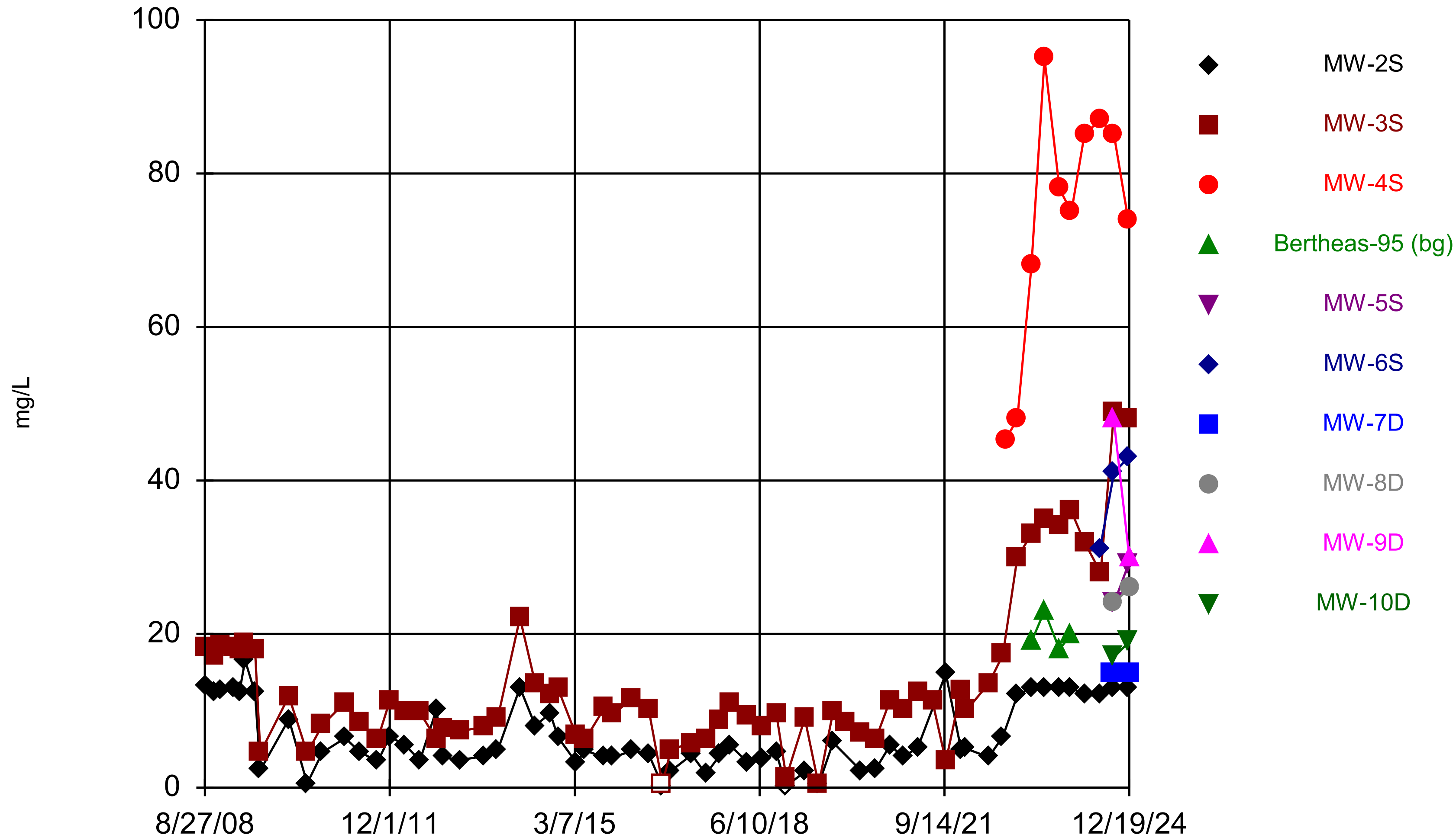


Constituent: Bicarbonate Analysis Run 1/18/2025 7:43 PM View: TSPs

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

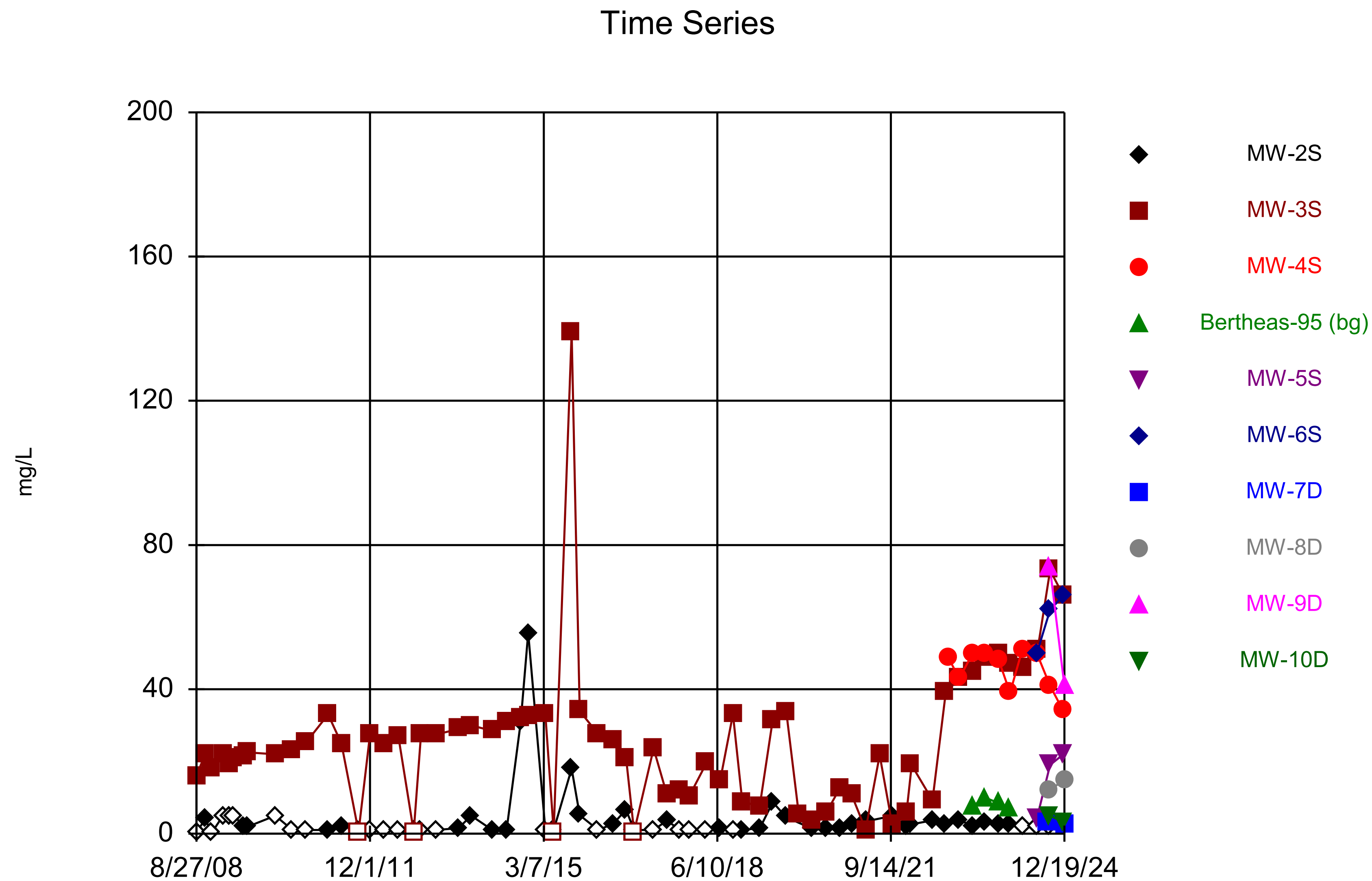
Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

Time Series



Constituent: Calcium, Dissolved   Analysis Run 1/18/2025 7:43 PM   View: TSPs
Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

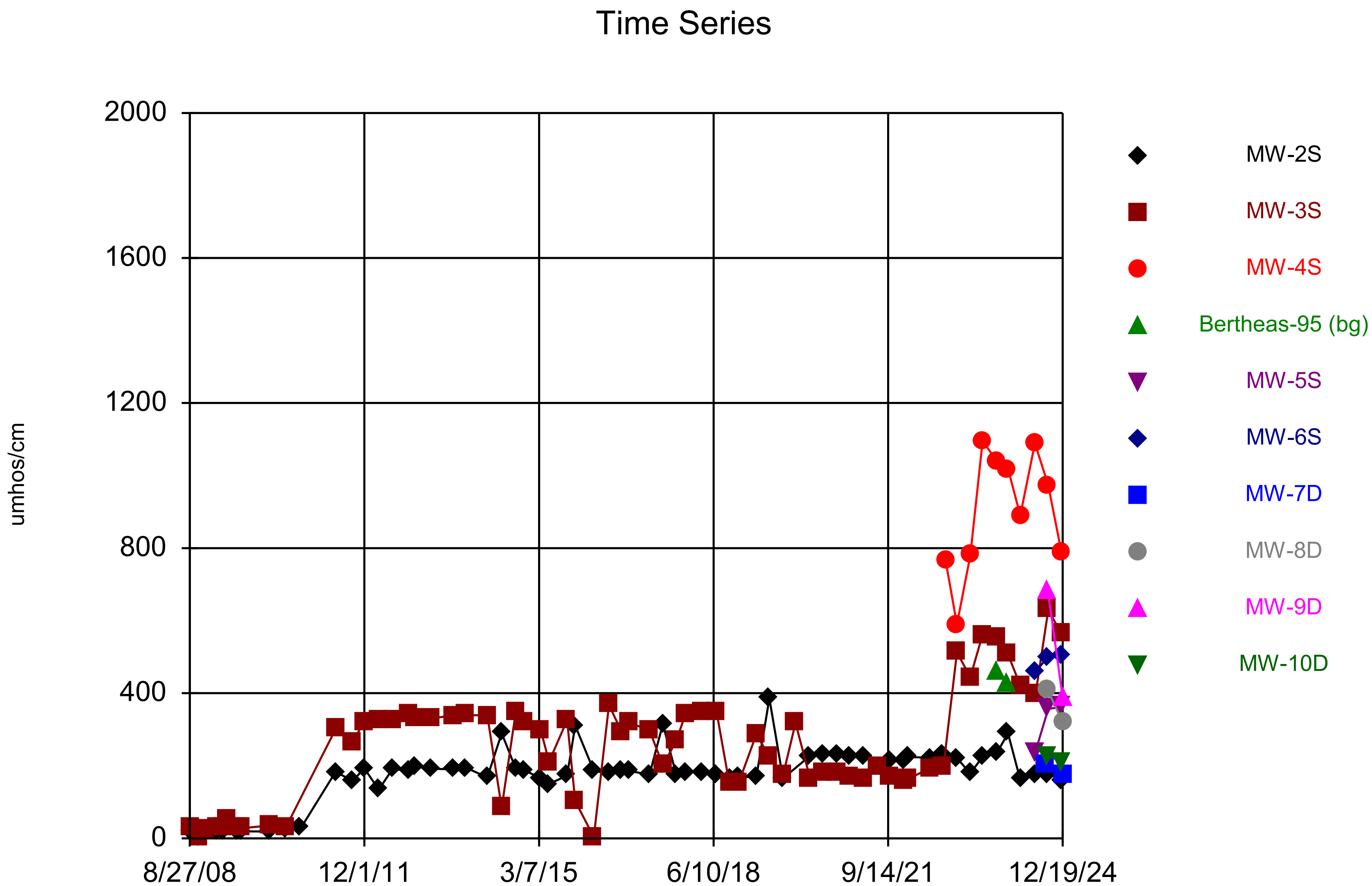
Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.



Constituent: Chloride Analysis Run 1/18/2025 7:43 PM View: TSPs

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG



Constituent: Conductivity   Analysis Run 1/18/2025 7:43 PM   View: TSPs

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

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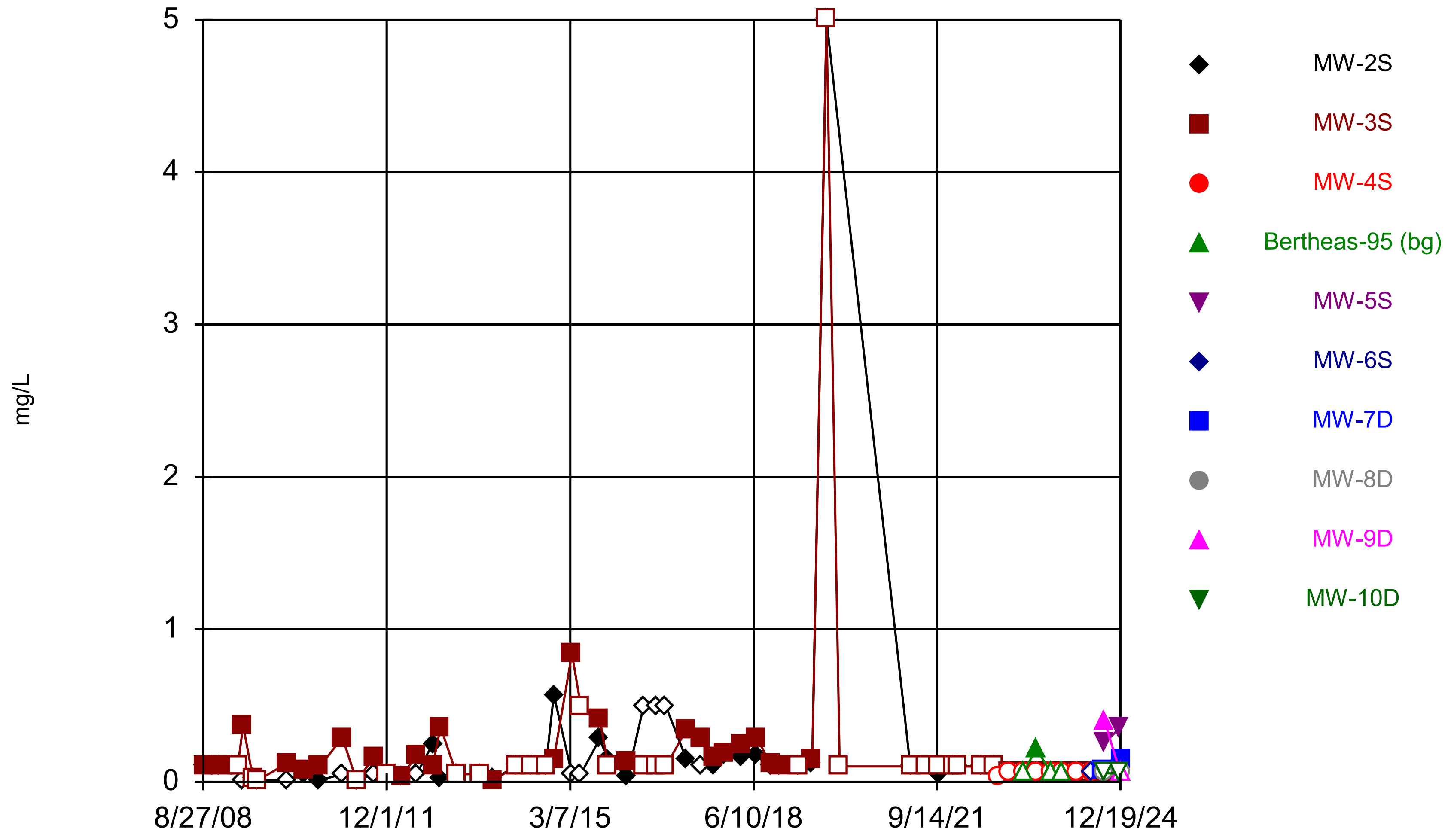
Hollow symbols indicate censored values.

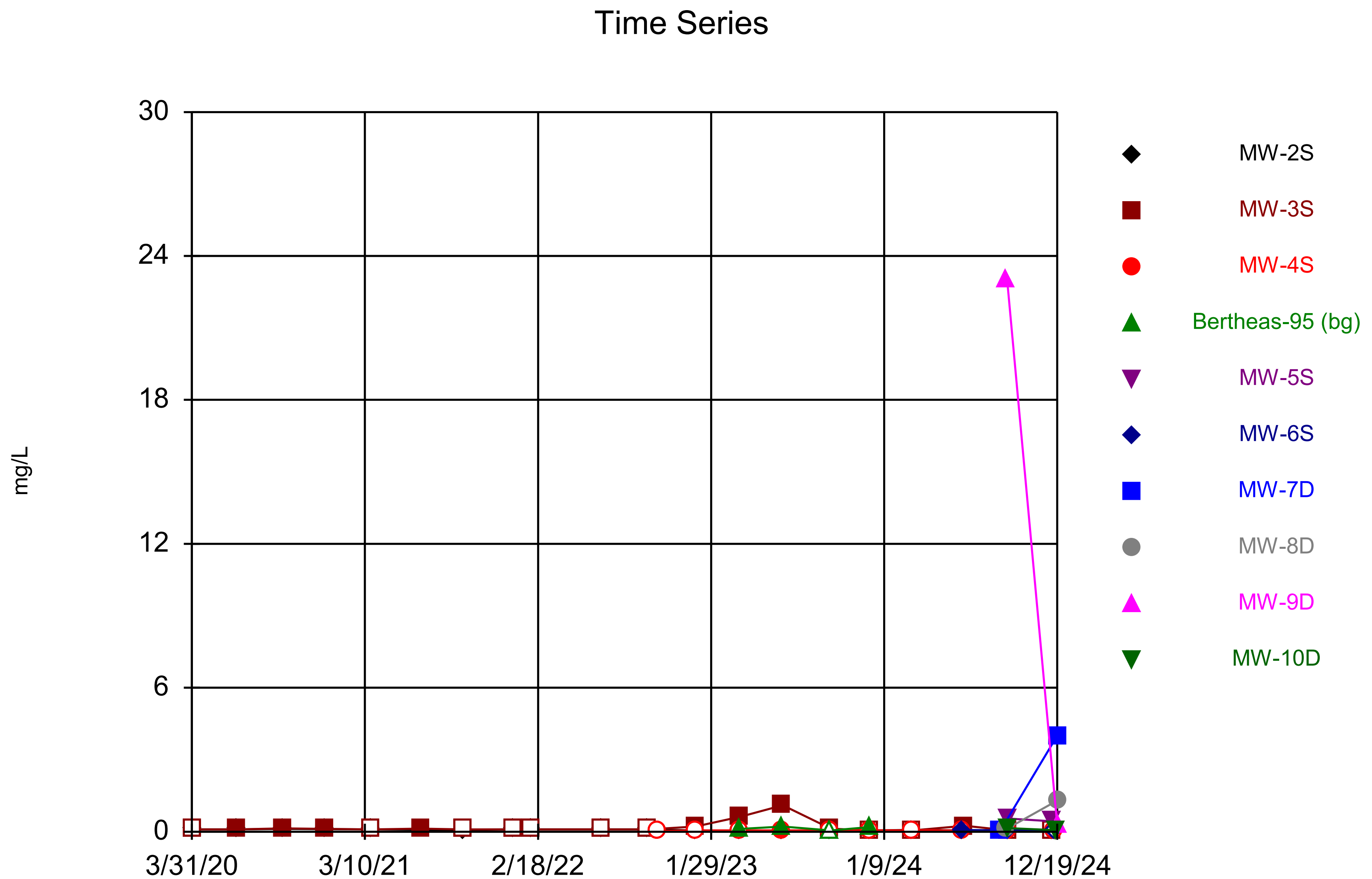
Time Series



Constituent: Iron, Dissolved   Analysis Run 1/18/2025 7:43 PM   View: TSPs

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.



Constituent: Iron, Total   Analysis Run 1/18/2025 7:44 PM   View: TSPs

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

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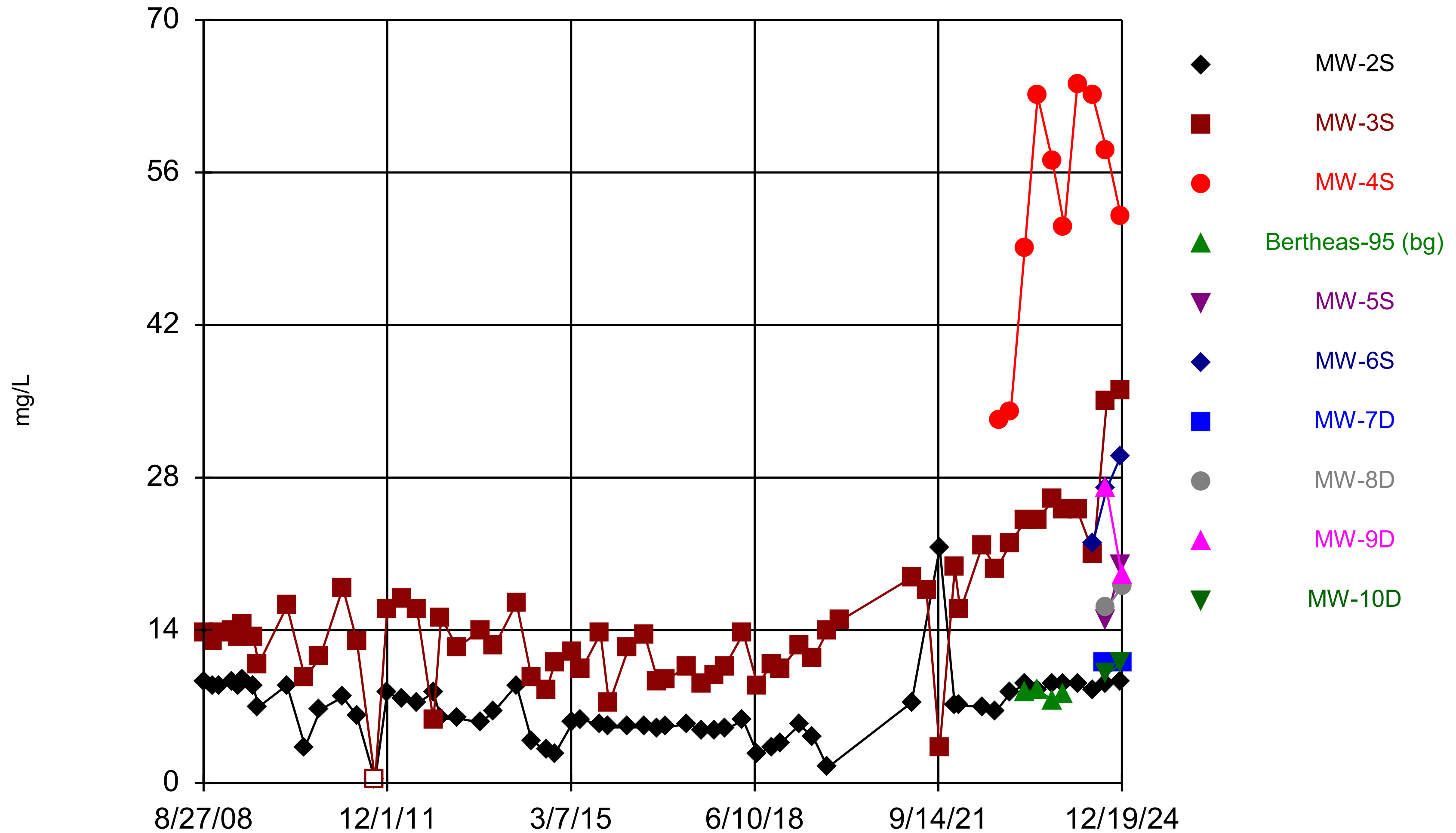
Hollow symbols indicate censored values.

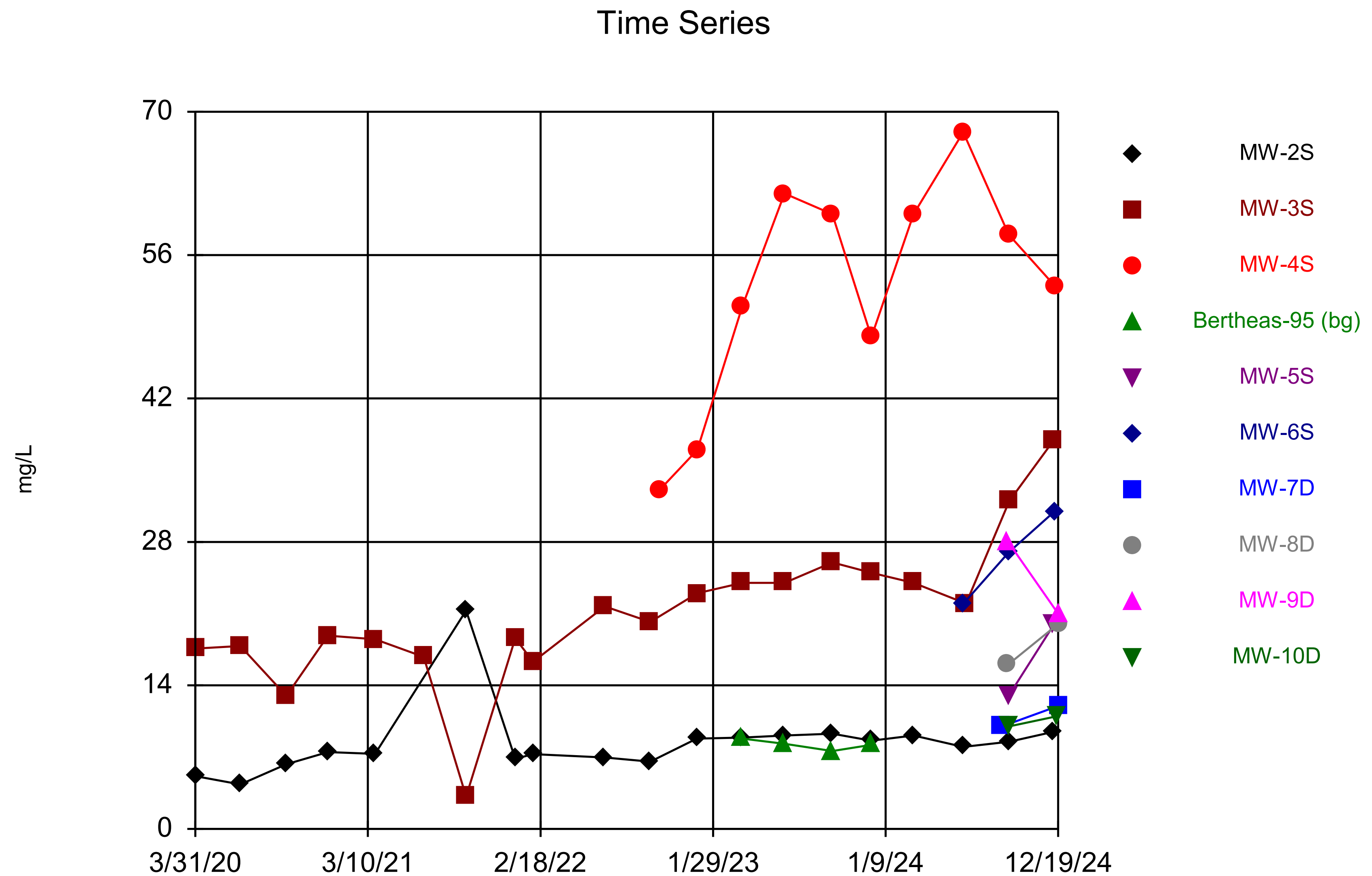
Time Series



Constituent: Magnesium, Dissolved   Analysis Run 1/18/2025 7:44 PM   View: TSPs

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG

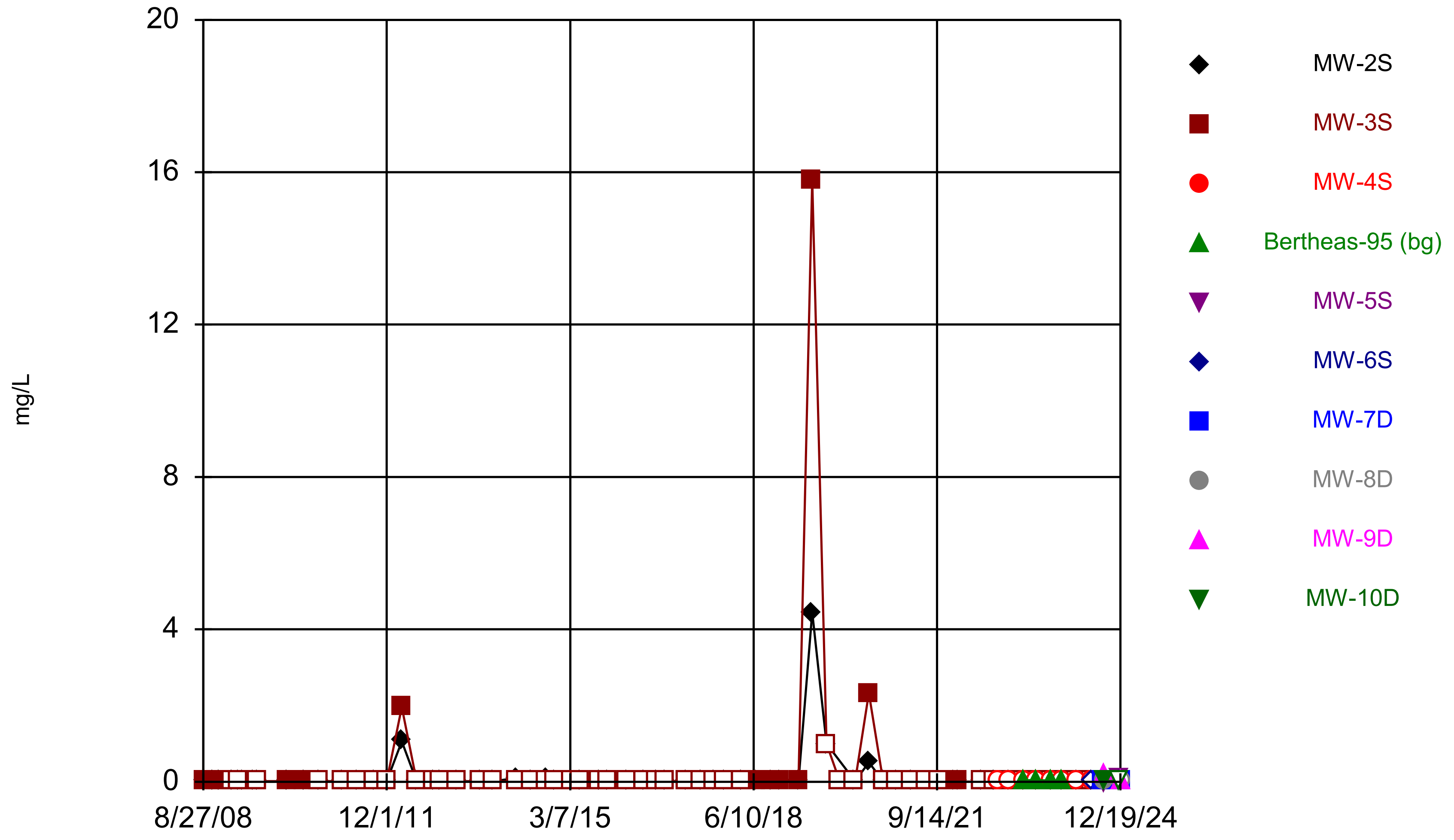


Constituent: Magnesium, Total   Analysis Run 1/18/2025 7:44 PM   View: TSPs

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

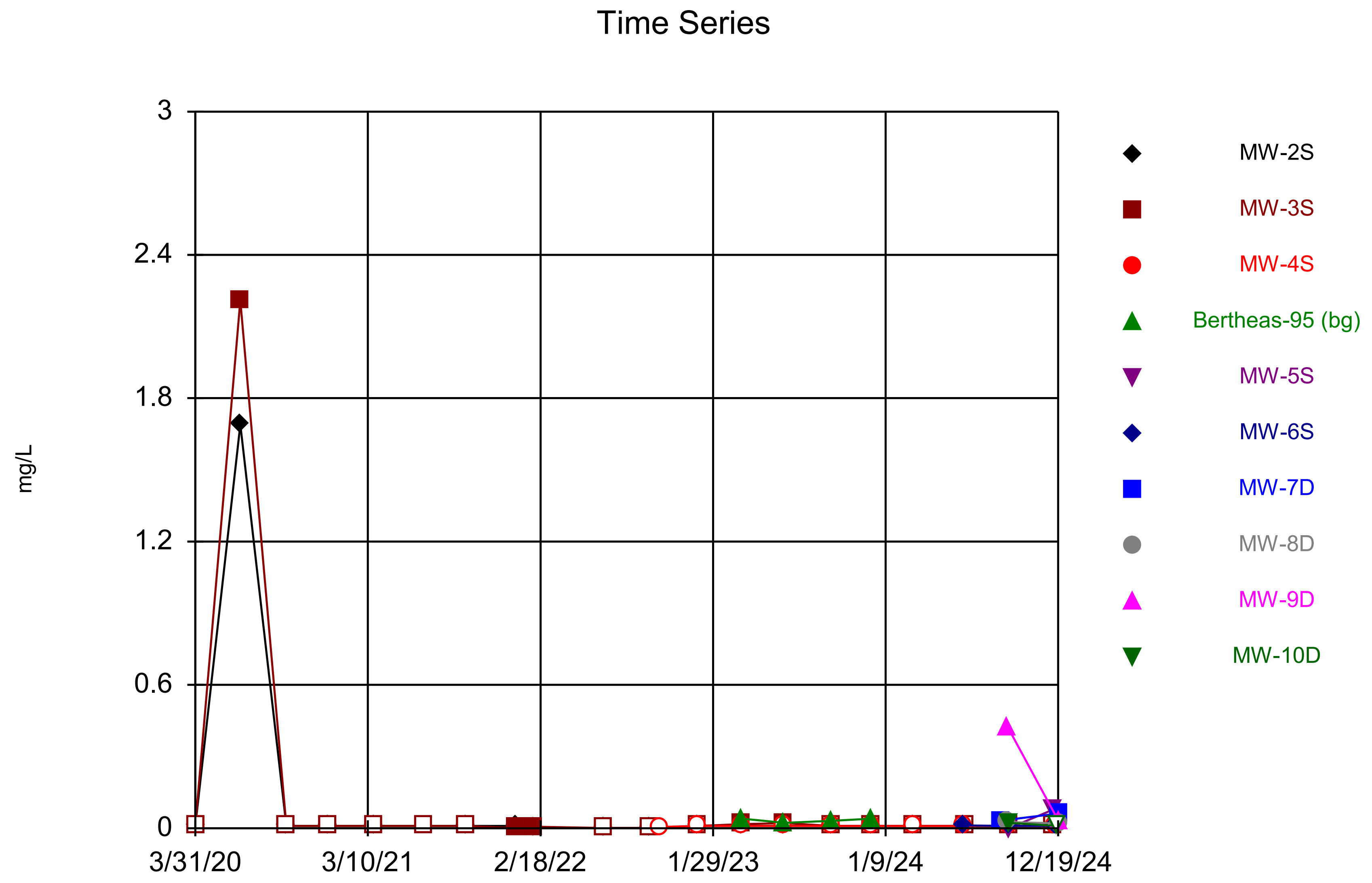
Time Series



Constituent: Manganese, Dissolved   Analysis Run 1/18/2025 7:44 PM   View: TSPs

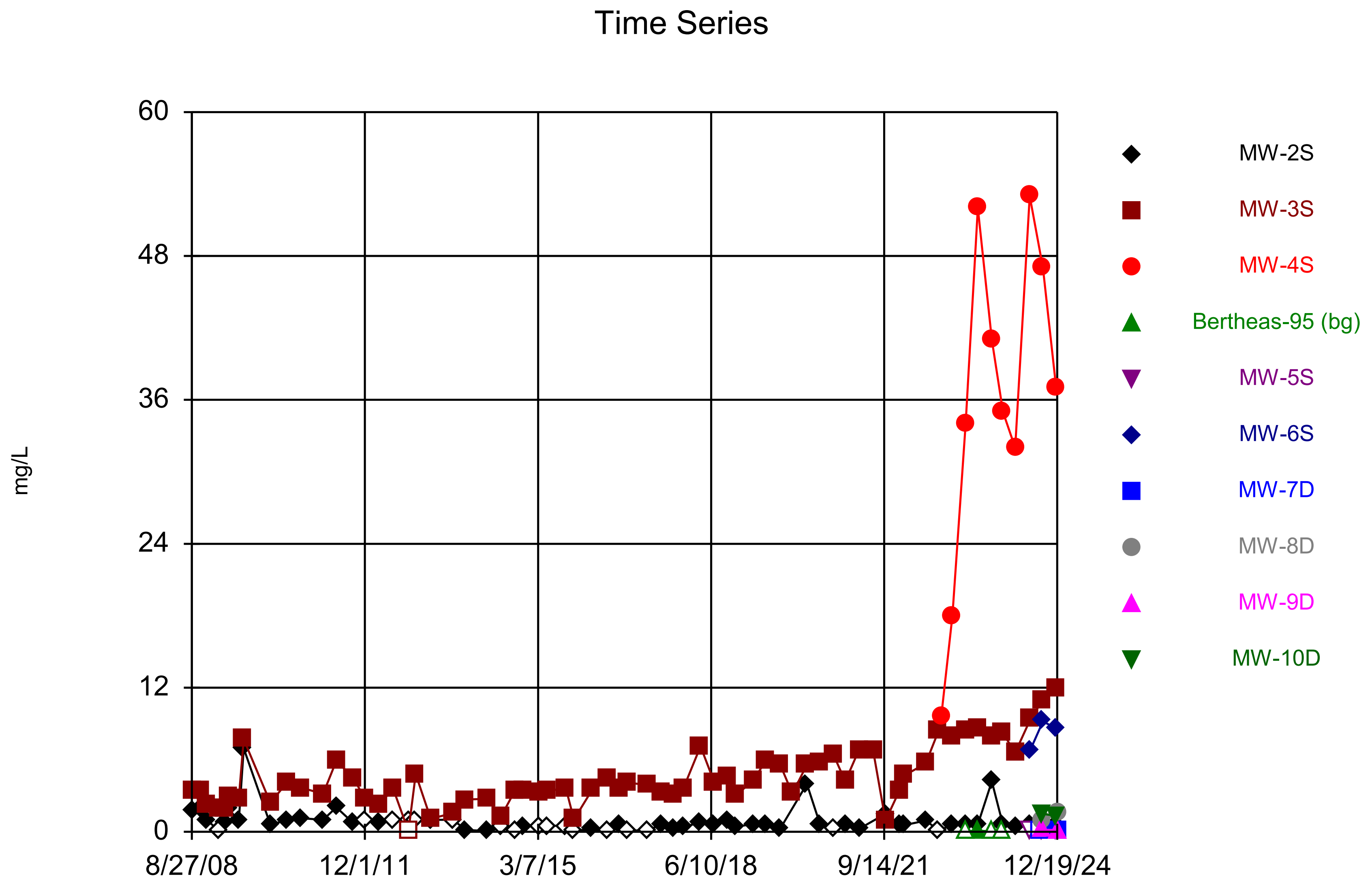
Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.



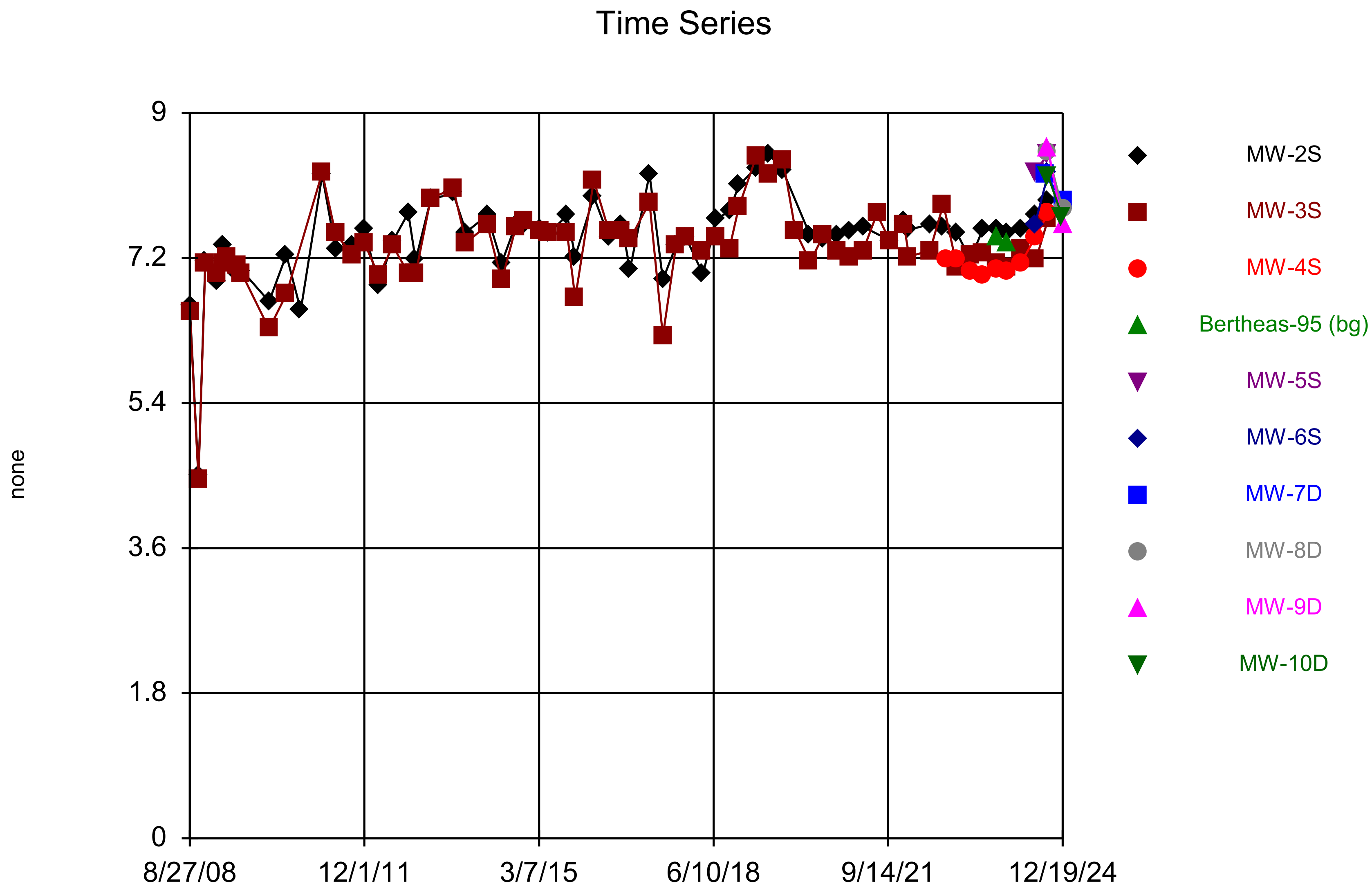
Constituent: Manganese, Total   Analysis Run 1/18/2025 7:44 PM   View: TSPs
Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.



Constituent: Nitrate Analysis Run 1/18/2025 7:44 PM View: TSPs
Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

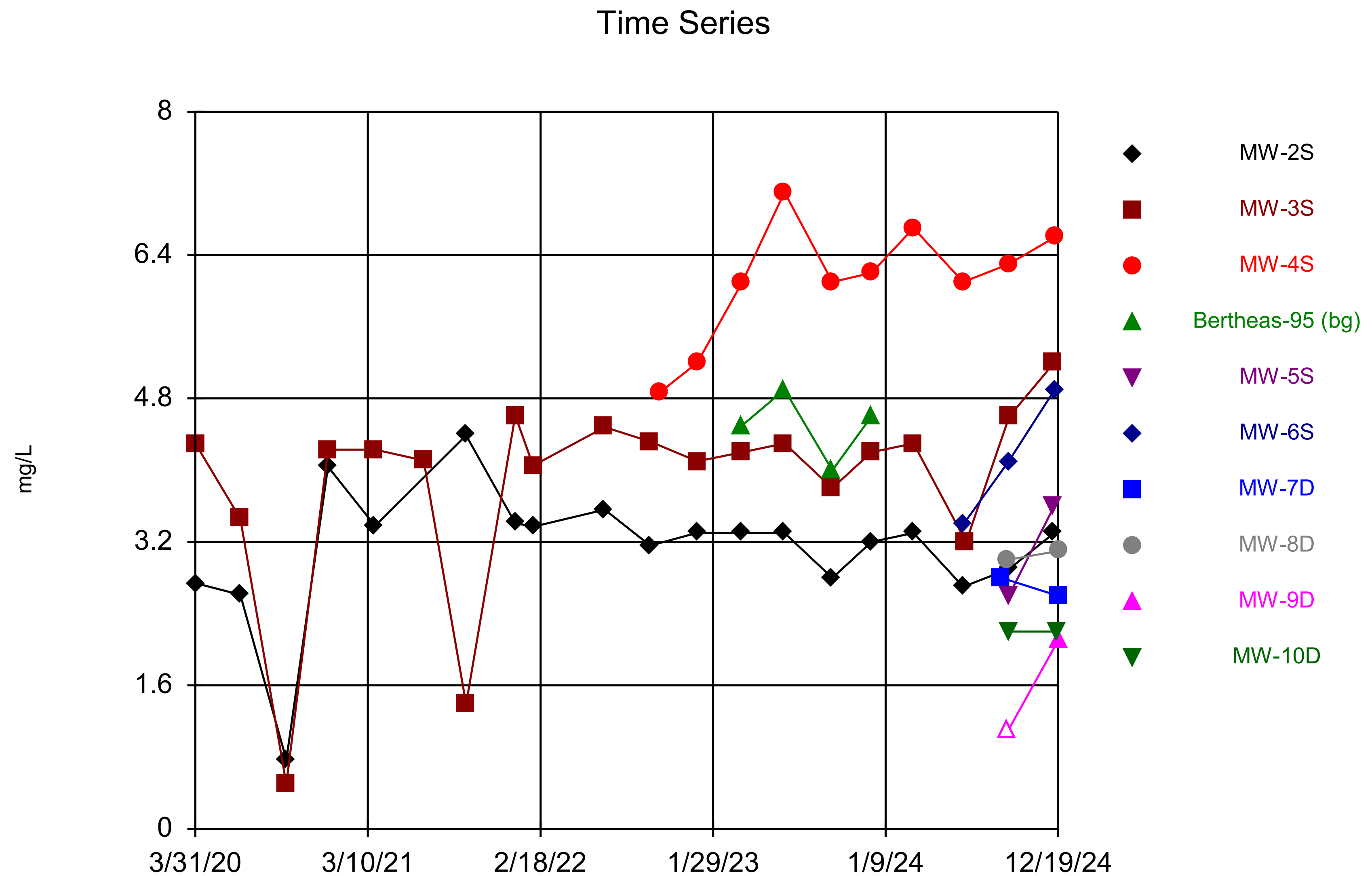
Sanitas™ v.10.0.24 Software licensed to Parametrix. UG



Constituent: pH Analysis Run 1/18/2025 7:44 PM View: TSPs

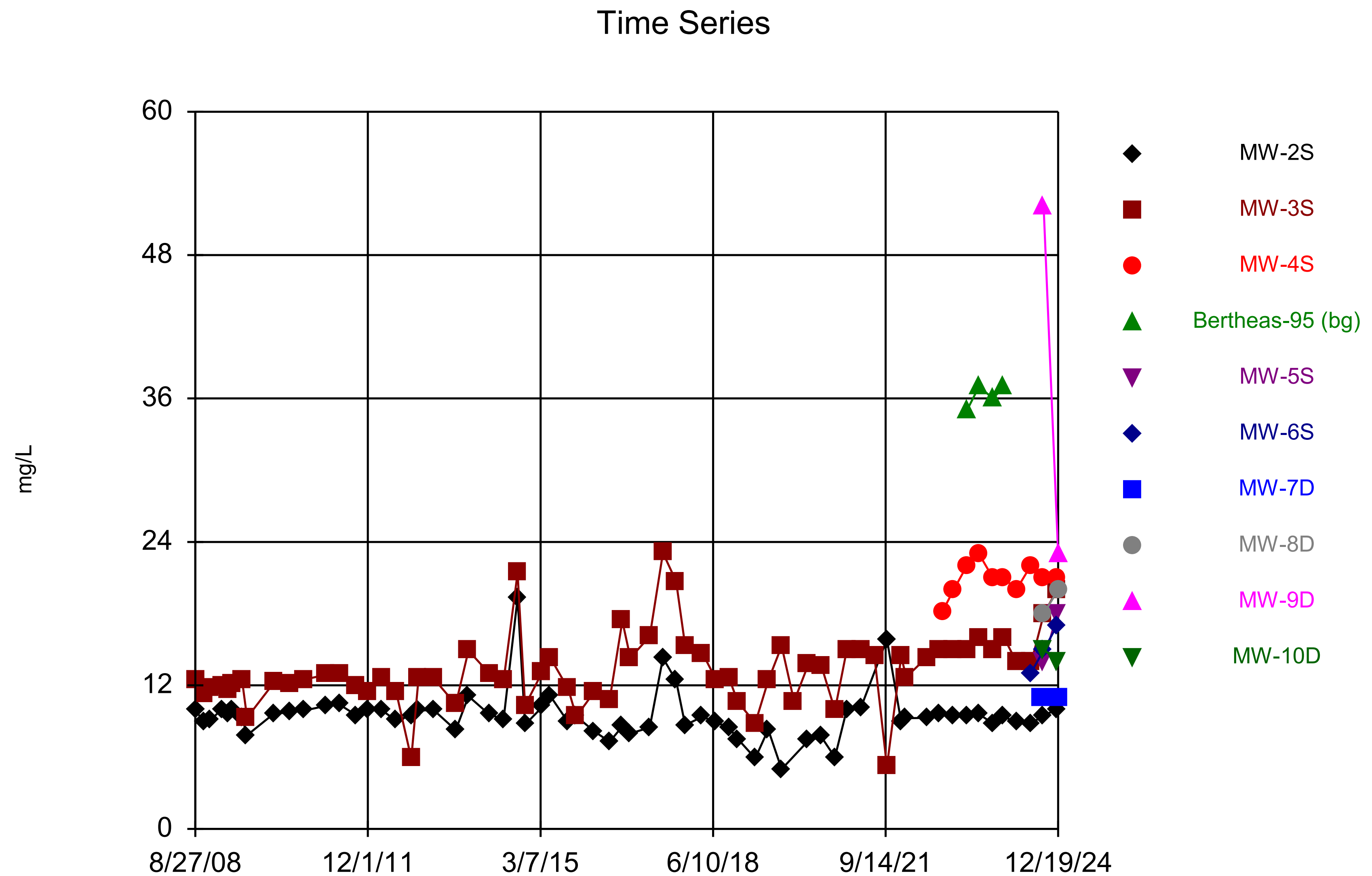
Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.



Constituent: Potassium, Dissolved Analysis Run 1/18/2025 7:44 PM View: TSPs
Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG



Constituent: Sodium, Dissolved Analysis Run 1/18/2025 7:44 PM View: TSPs

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

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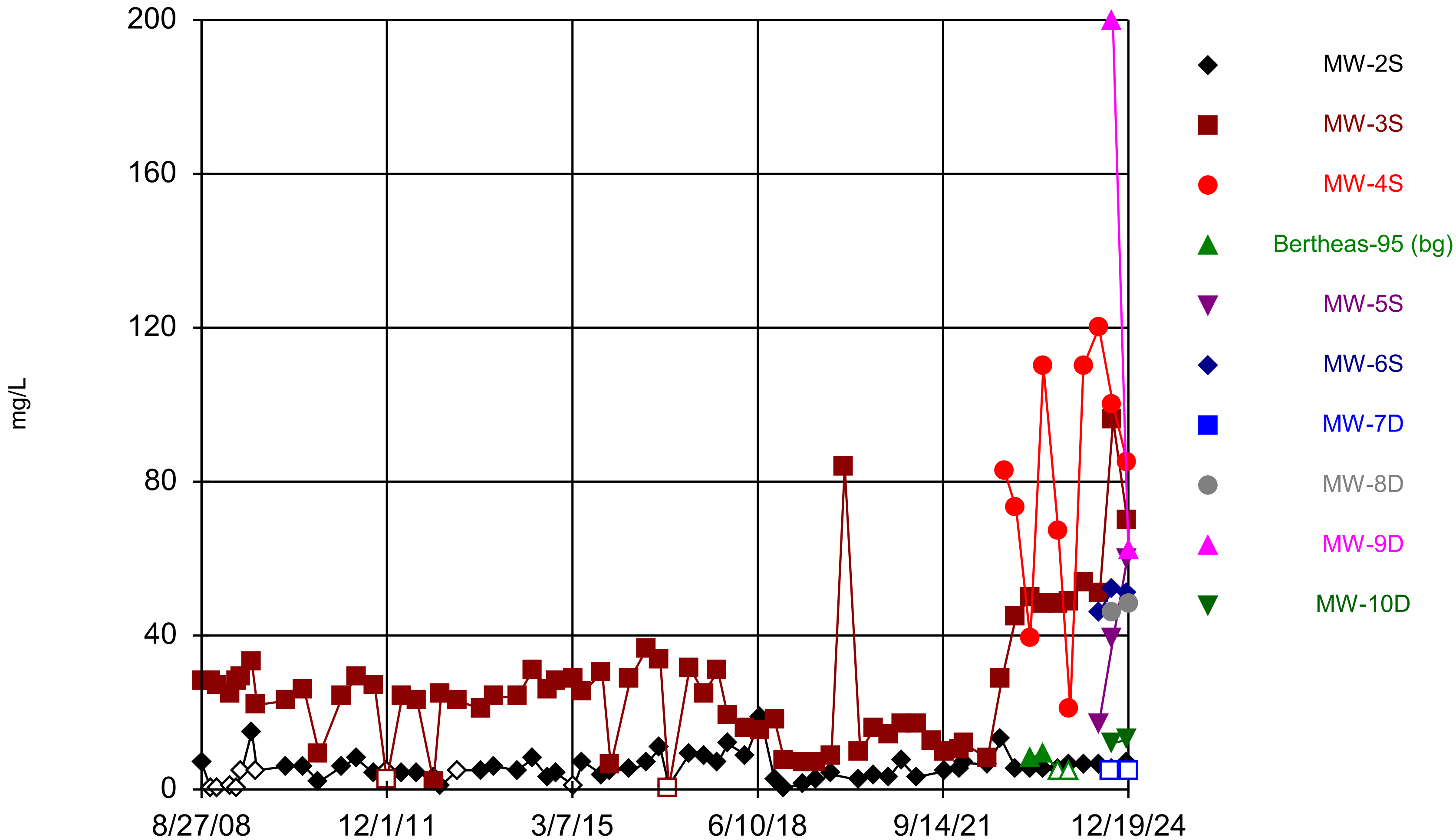
Hollow symbols indicate censored values.

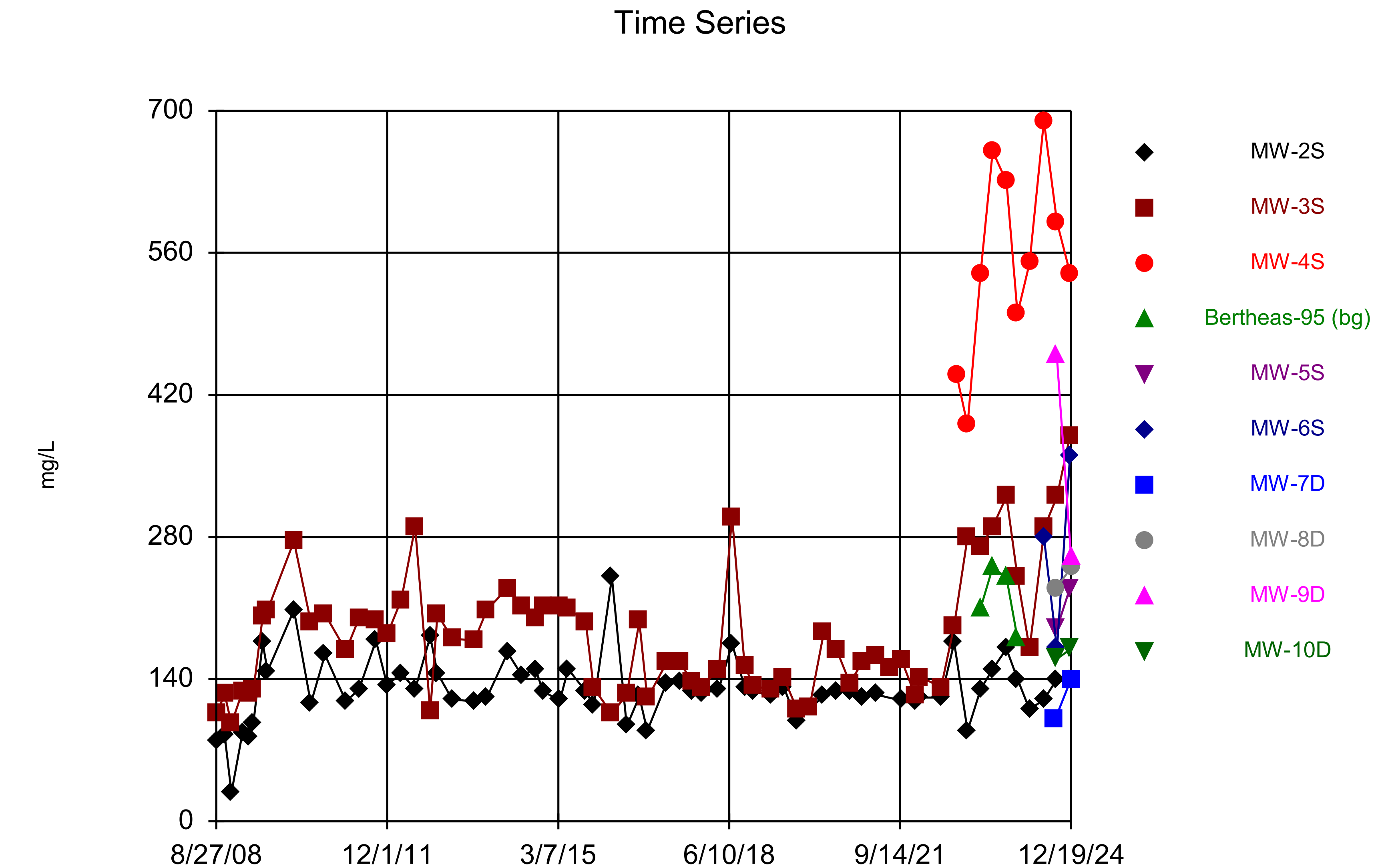
Time Series



Constituent: Sulfate   Analysis Run 1/18/2025 7:44 PM   View: TSPs

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

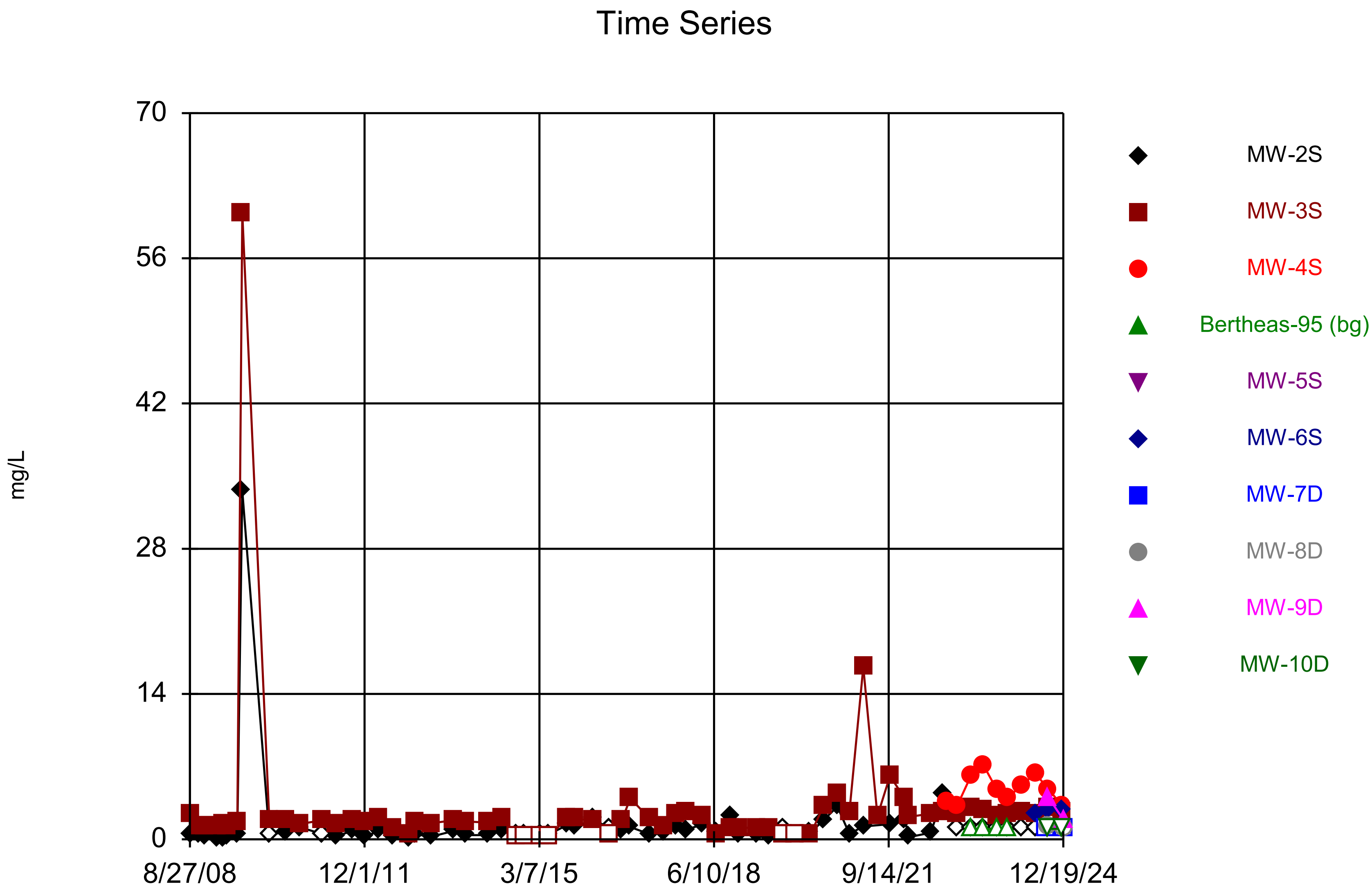
Sanitas™ v.10.0.24 Software licensed to Parametrix. UG



Constituent: TDS   Analysis Run 1/22/2025 10:06 AM   View: TSPs

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.



Constituent: Total Organic Carbon Analysis Run 1/18/2025 7:44 PM View: TSPs
Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Appendix E

Geochemistry

Summary of Cation/Anion Charge Balance Differences, 2024 Groundwater Data, Rocky Top Environmental Limited Purpose Landfill

Monitoring Well	First Quarter RPD[1]	Second Quarter RPD[1]	Third Quarter RPD[1]	Fourth Quarter RPD[1]
MW-2S	0.34	-1.74	2.97	0.83
MW-3S	0.47	$\boxed{-8.56}$	-4.13	3.80
MW-4S	$\boxed{6.76}$	-3.86	-0.51	3.93
MW-5S	0.00	NA	-1.08	2.40
MW-6S	0.00	$\boxed{-5.60}$	-1.01	1.70
MW-7D	NA	NA	1.46	1.86
MW-8D	NA	NA	2.10	4.37
MW-9D	NA	NA	-4.89	-3.05
MW-10D	NA	NA	0.14	2.27

Note:

[1] Reported in relative percent difference (RPD). For each sample the analytical results were converted into milliequivalents per liter (meq/L) and the cation meq/L summed (C) and the anion meq/L summed (A).

$$RPD = \frac{2(C-A)}{C+A} \times 100$$

$\boxed{}$ = Outside WAC 173-351-420(5)(a) acceptable range

NA = Not analyzed

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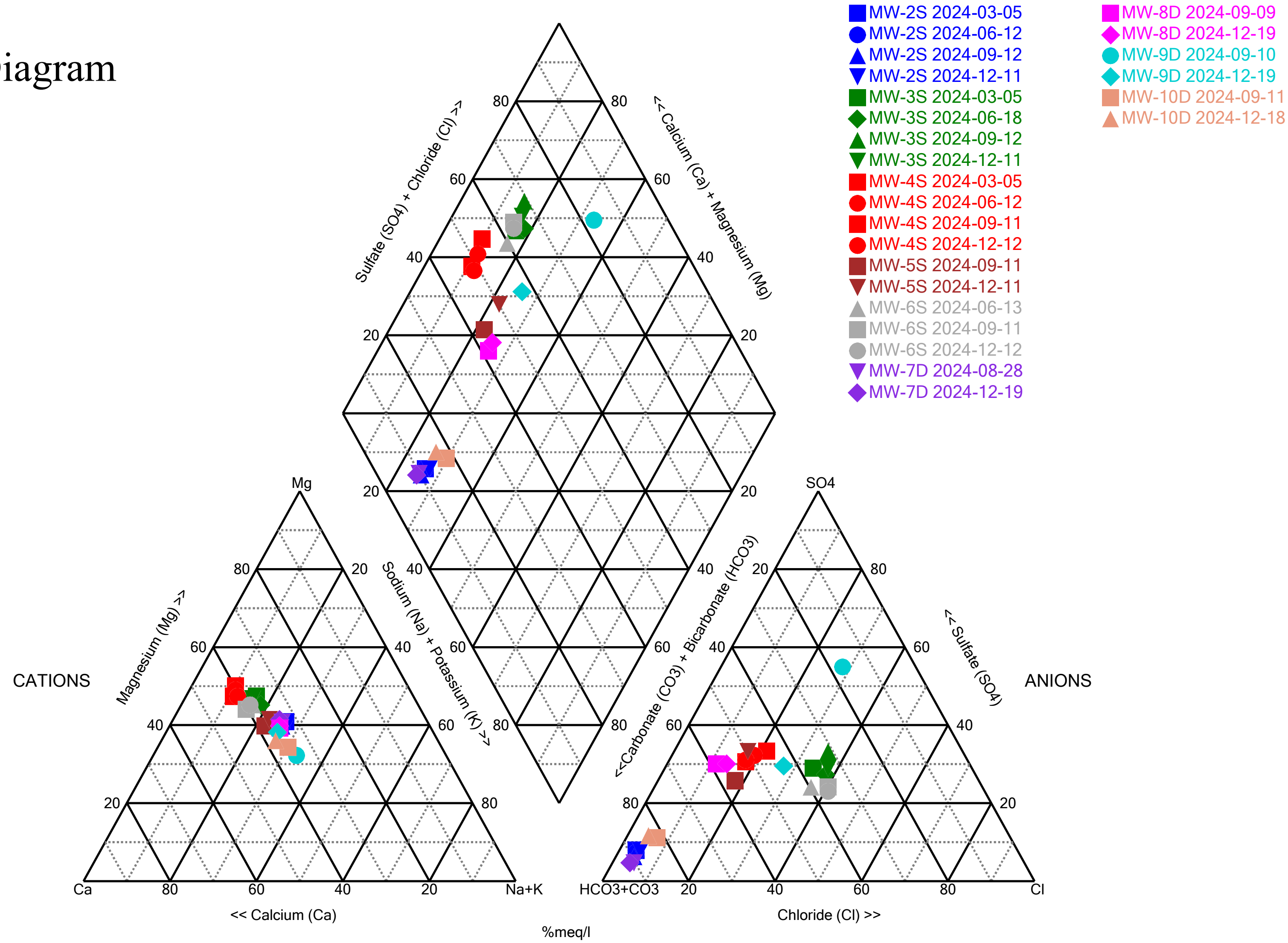
Piper Diagram



Analysis Run 3/3/2025 11:17 AM

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Piper

Cation/Anion Balance Calculations, DTG Yakima Limited Purpose Landfill, First Quarter 2024

	Conversion Factor[1] (mg/L to meq/L)	MW-2S Value (mg/L)	MW-2S Value (meq/L)	MW-2S Percent of Total (meq/L)	MW-3S Value (mg/L)	MW-3S Value (meq/L)	MW-3S Percent of Total (meq/L)	MW-4S Value (mg/L)	MW-4S Value (meq/L)	MW-4S Percent of Total (meq/L)
CATIONS										
Na	0.0435	8.9	0.39	21.36	14	0.61	13.92	20	0.87	8.25
Ca	0.0499	12	0.60	33.04	32	1.60	36.50	85	4.24	40.20
Mg	0.08229	9.0	0.74	40.87	25	2.06	47.03	64	5.27	49.92
Fe(+2)	0.03581	0.028	0.00	0.06	0.028	0.00	0.02	0.028	0.00	0.01
K	0.02558	3.3	0.08	4.66	4.3	0.11	2.51	6.7	0.17	1.62
Mn	0.0364	0.0055	0.00	0.01	0.0055	0.00	0.00	0.0055	0.00	0.00
		TOTAL	1.81	100.00	TOTAL	4.37	100.00	TOTAL	10.55	100.00
ANIONS										
HCO_3[2]	0.02	80	1.60	88.89	72	1.44	33.23	160	3.20	34.73
SO_4	0.02082	6.6	0.14	7.63	54	1.12	25.95	110	2.29	24.86
Cl	0.02821	1.0	0.03	1.57	46	1.30	29.95	51	1.44	15.61
CO_3[2]	0.02	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
NO_3[3]	0.0714	0.48	0.03	1.90	6.6	0.47	10.88	32	2.28	24.80
		TOTAL	1.80	100.00	TOTAL	4.33	100.00	TOTAL	9.21	100.00
anion + cation Sum (meq/L)			3.61			8.71			19.76	
(meq/L cations-anions)/(meq/L cations+anions)*100				0.34			0.47			$\boxed{6.76}$

[1]Reference: Hem 1985.

[2]HCO_3 and CO_3 reported as $CaCO_3$, conversion factor adjusted accordingly.

[3]NO_3 reported as NO_3-N, conversion factor adjusted accordingly.

$\boxed{\quad}$ = Outside WAC 173-351-420(5)(a) acceptable range

+/-5 percent (for anion plus cation sums greater than 5 meq/L), or

+/-10 percent (for anion plus cation sums less than 5 meq/L)

Note: Values for cations in groundwater samples are measured as dissolved (field-filtered).

Cation/Anion Balance Calculations, DTG Yakima Limited Purpose Landfill, Second Quarter 2024

	Conversion Factor[1] (mg/L to meq/L)	MW-2S			MW-3S			MW-4S			MW-6S		
		Value (mg/L)	Value (meq/L)	Percent of Total (meq/L)	Value (mg/L)	Value (meq/L)	Percent of Total (meq/L)	Value (mg/L)	Value (meq/L)	Percent of Total (meq/L)	Value (mg/L)	Value (meq/L)	Percent of Total (meq/L)
CATIONS													
Na	0.0435	8.8	0.38	21.96	14	0.61	15.95	22	0.96	8.99	13	0.57	14.10
Ca	0.0499	12	0.60	34.35	28	1.40	36.60	87	4.34	40.80	31	1.55	38.57
Mg	0.08229	8.4	0.69	39.66	21	1.73	45.27	63	5.18	48.73	22	1.81	45.14
Fe(+2)	0.03581	0.028	0.00	0.06	0.028	0.00	0.03	0.028	0.00	0.01	0.028	0.00	0.02
K	0.02558	2.7	0.07	3.96	3.2	0.08	2.14	6.1	0.16	1.47	3.4	0.09	2.17
Mn	0.0364	0.0055	0.00	0.01	0.0055	0.00	0.01	0.0055	0.00	0.00	0.0055	0.00	0.00
		TOTAL	1.74	100.00	TOTAL	3.82	100.00	TOTAL	10.64	100.00	TOTAL	4.01	100.00
ANIONS													
HCO_3[2]	0.02	80	1.60	88.64	68	1.36	30.01	190	3.80	33.06	82	1.64	36.55
SO_4	0.02082	6.4	0.13	7.38	51	1.06	23.43	120	2.50	21.74	46	0.96	21.35
Cl	0.02821	1	0.03	1.56	51	1.44	31.75	50	1.41	12.27	50	1.41	31.44
CO_3[2]	0.02	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
NO_3[3]	0.0714	0.61	0.04	2.41	9.4	0.67	14.81	53	3.78	32.93	6.7	0.48	10.66
		TOTAL	1.81	100.00	TOTAL	4.53	100.00	TOTAL	11.49	100.00	TOTAL	4.49	100.00
anion + cation Sum (meq/L)			3.55			8.35			22.13			8.50	
(meq/L cations-anions)/(meq/L cations+anions)*100				-1.74			-8.56			-3.86			-5.60

[1]Reference: Hem 1985.

[2]HCO_3 and CO_3 reported as $CaCO_3$, conversion factor adjusted accordingly.

[3]NO_3 reported as NO_3-N, conversion factor adjusted accordingly.

= Outside WAC 173-351-420(5)(a) acceptable range

+/-5 percent (for anion plus cation sums greater than 5 meq/L), or

+/-10 percent (for anion plus cation sums less than 5 meq/L)

Note: Values for cations in groundwater samples are measured as dissolved (field-filtered).

Cation/Anion Balance Calculations, Rocky Top Environmental Limited Purpose Landfill, Third Quarter 2024

	Conversion Factor[1] (mg/L to meq/L)	MW-2S Value (mg/L)	MW-2S Value (meq/L)	MW-2S Percent of Total (meq/L)	MW-3S Value (mg/L)	MW-3S Value (meq/L)	MW-3S Percent of Total (meq/L)	MW-4S Value (mg/L)	MW-4S Value (meq/L)	MW-4S Percent of Total (meq/L)	MW-5S Value (mg/L)	MW-5S Value (meq/L)	MW-5S Percent of Total (meq/L)	MW-6S Value (mg/L)	MW-6S Value (meq/L)	MW-6S Percent of Total (meq/L)
CATIONS																
Na	0.0435	9.5	0.41	21.91	18	0.78	12.57	21	0.91	9.05	14	0.61	19.51	15	0.65	12.98
Ca	0.0499	13	0.65	34.39	49	2.45	39.27	85	4.24	42.04	24	1.20	38.37	41	2.05	40.70
Mg	0.08229	9.1	0.75	39.70	35	2.88	46.25	58	4.77	47.30	15	1.23	39.54	27	2.22	44.20
Fe(+2)	0.03581	0.028	0.00	0.05	0.028	0.00	0.02	0.028	0.00	0.01	0.26	0.01	0.30	0.028	0.00	0.02
K	0.02558	2.9	0.07	3.93	4.6	0.12	1.89	6.3	0.16	1.60	2.6	0.07	2.13	4.1	0.10	2.09
Mn	0.0364	0.0055	0.00	0.01	0.0055	0.00	0.00	0.0055	0.00	0.00	0.13	0.00	0.15	0.0055	0.00	0.00
		TOTAL	1.89	100.00	TOTAL	6.23	100.00	TOTAL	10.09	100.00	TOTAL	3.12	100.00	TOTAL	5.03	100.00
ANIONS																
HCO_3[2]	0.02	80	1.60	90.03	96	1.92	28.39	180	3.60	35.31	92	1.84	57.68	82	1.64	31.98
SO_4	0.02082	5.1	0.11	5.97	96	2.00	29.55	100	2.08	20.42	39	0.81	25.46	52	1.08	21.11
Cl	0.02821	1.0	0.03	1.59	73	2.06	30.45	41	1.16	11.35	19	0.54	16.80	62	1.75	34.10
CO_3[2]	0.02	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
NO_3[3]	0.0714	0.60	0.04	2.41	11	0.79	11.61	47	3.36	32.92	0.025	0.00	0.06	9.2	0.66	12.81
		TOTAL	1.78	100.00	TOTAL	6.76	100.00	TOTAL	10.19	100.00	TOTAL	3.19	100.00	TOTAL	5.13	100.00
anion + cation Sum (meq/L)			3.66			12.99			20.28			6.31			10.15	
(meq/L cations-anions)/(meq/L cations+anions)*100				2.97			-4.13			-0.51			-1.08			-1.01

Cation/Anion Balance Calculations, Rocky Top Environmental Limited Purpose Landfill, Third Quarter 2024

	Conversion Factor[1] (mg/L to meq/L)	MW-7D Value (mg/L)	MW-7D Value (meq/L)	MW-7D Percent of Total (meq/L)	MW-8D Value (mg/L)	MW-8D Value (meq/L)	MW-8D Percent of Total (meq/L)	MW-9D Value (mg/L)	MW-9D Value (meq/L)	MW-9D Percent of Total (meq/L)	MW-10D Value (mg/L)	MW-10D Value (meq/L)	MW-10D Percent of Total (meq/L)
CATIONS													
Na	0.0435	11	0.48	21.67	18	0.78	23.19	52	2.26	32.72	15	0.65	27.40
Ca	0.0499	15	0.75	33.91	24	1.20	35.47	48	2.40	34.65	17	0.85	35.62
Mg	0.08229	11	0.91	41.00	16	1.32	39.00	27	2.22	32.14	10	0.82	34.55
Fe(+2)	0.03581	0.071	0.00	0.12	0.028	0.00	0.03	0.39	0.01	0.20	0.028	0.00	0.04
K	0.02558	2.8	0.07	3.24	3.0	0.08	2.27	0.55	0.01	0.20	2.2	0.06	2.36
Mn	0.0364	0.035	0.00	0.06	0.026	0.00	0.03	0.17	0.01	0.09	0.021	0.00	0.03
		TOTAL	2.21	100.00	TOTAL	3.38	100.00	TOTAL	6.91	100.00	TOTAL	2.38	100.00
ANIONS													
HCO_3[2]	0.02	100	2.00	93.28	94	1.88	58.08	68	1.36	17.84	94	1.88	79.15
SO_4	0.02082	2.5	0.05	2.43	46	0.96	29.59	200	4.16	54.62	12	0.25	10.52
Cl	0.02821	3.2	0.09	4.21	12	0.34	10.46	74	2.09	27.38	4.9	0.14	5.82
CO_3[2]	0.02	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
NO_3[3]	0.0714	0.025	0.00	0.08	0.85	0.06	1.87	0.17	0.01	0.16	1.5	0.11	4.51
		TOTAL	2.14	100.00	TOTAL	3.24	100.00	TOTAL	7.62	100.00	TOTAL	2.38	100.00
anion + cation Sum (meq/L)			4.35			6.61			14.54			4.76	
(meq/L cations-anions)/(meq/L cations+anions)*100				1.46			2.10			-4.89			0.14

[1]Reference: Hem 1985.

[2]HCO_3 and CO_3 reported as $CaCO_3$, conversion factor adjusted accordingly.

[3]NO_3 reported as NO_3-N, conversion factor adjusted accordingly.

= Outside WAC 173-351-420(5)(a) acceptable range

+/-5 percent (for anion plus cation sums greater than 5 meq/L), or

+/-10 percent (for anion plus cation sums less than 5 meq/L)

Note: Values for cations in groundwater samples are measured as dissolved (field-filtered).

5 percent if anion plus cation sum greater than 5 meq/L; 10 percent if anion plus cation sum less than 5 meq/L

Cation/Anion Balance Calculations, Rocky Top Environmental Limited Purpose Landfill, Fourth Quarter 2024

	Conversion Factor[1] (mg/L to meq/L)	MW-2S Value (mg/L)	MW-2S Value (meq/L)	MW-2S Percent of Total (meq/L)	MW-3S Value (mg/L)	MW-3S Value (meq/L)	MW-3S Percent of Total (meq/L)	MW-4S Value (mg/L)	MW-4S Value (meq/L)	MW-4S Percent of Total (meq/L)	MW-5S Value (mg/L)	MW-5S Value (meq/L)	MW-5S Percent of Total (meq/L)	MW-6S Value (mg/L)	MW-6S Value (meq/L)	MW-6S Percent of Total (meq/L)
CATIONS																
Na	0.0435	10	0.44	22.49	20	0.87	13.68	21	0.91	10.09	18	0.78	19.66	17	0.74	13.49
Ca	0.0499	13	0.65	33.53	48	2.40	37.65	74	3.69	40.78	29	1.45	36.33	43	2.15	39.15
Mg	0.08229	9.3	0.77	39.56	36	2.96	46.57	52	4.28	47.26	20	1.65	41.32	30	2.47	45.05
Fe(+2)	0.03581	0.028	0.00	0.05	0.028	0.00	0.02	0.028	0.00	0.01	0.35	0.01	0.31	0.028	0.00	0.02
K	0.02558	3.3	0.08	4.36	5.2	0.13	2.09	6.6	0.17	1.86	3.6	0.09	2.31	4.9	0.13	2.29
Mn	0.0364	0.0055	0.00	0.01	0.0055	0.00	0.00	0.0055	0.00	0.00	0.077	0.00	0.07	0.0055	0.00	0.00
		TOTAL	1.93	100.00	TOTAL	6.36	100.00	TOTAL	9.06	100.00	TOTAL	3.98	100.00	TOTAL	5.48	100.00
ANIONS																
HCO_3[2]	0.02	82	1.64	86.19	86	1.72	29.17	150	3.00	35.84	96	1.92	50.57	88	1.76	33.22
SO_4	0.02082	6.9	0.14	7.55	70	1.46	24.72	85	1.77	21.14	60	1.25	32.90	51	1.06	20.04
Cl	0.02821	2.6	0.07	3.85	66	1.86	31.58	34	0.96	11.46	22	0.62	16.35	66	1.86	35.14
CO_3[2]	0.02	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
NO_3[3]	0.0714	0.64	0.05	2.40	12	0.86	14.53	37	2.64	31.56	0.092	0.01	0.17	8.6	0.61	11.59
		TOTAL	1.90	100.00	TOTAL	5.90	100.00	TOTAL	8.37	100.00	TOTAL	3.80	100.00	TOTAL	5.30	100.00
anion + cation Sum (meq/L)			3.84			12.26			17.43			7.78			10.78	
(meq/L cations-anions)/(meq/L cations+anions)*100				0.83			3.80			3.93			2.40			1.70

Cation/Anion Balance Calculations, Rocky Top Environmental Limited Purpose Landfill, Fourth Quarter 2024

	Conversion Factor[1] (mg/L to meq/L)	MW-7D Value (mg/L)	MW-7D Value (meq/L)	MW-7D Percent of Total (meq/L)	MW-8D Value (mg/L)	MW-8D Value (meq/L)	MW-8D Percent of Total (meq/L)	MW-9D Value (mg/L)	MW-9D Value (meq/L)	MW-9D Percent of Total (meq/L)	MW-10D Value (mg/L)	MW-10D Value (meq/L)	MW-10D Percent of Total (meq/L)
CATIONS													
Na	0.0435	11	0.48	21.70	20	0.87	23.33	23	1.00	24.30	14	0.61	24.17
Ca	0.0499	15	0.75	33.94	26	1.30	34.79	30	1.50	36.36	19	0.95	37.63
Mg	0.08229	11	0.91	41.05	18	1.48	39.72	19	1.56	37.98	11	0.91	35.92
Fe(+2)	0.03581	0.14	0.01	0.23	0.028	0.00	0.03	0.028	0.00	0.02	0.028	0.00	0.04
K	0.02558	2.6	0.07	3.02	3.1	0.08	2.13	2.1	0.05	1.30	2.2	0.06	2.23
Mn	0.0364	0.04	0.00	0.07	0.0055	0.00	0.01	0.032	0.00	0.03	0.0055	0.00	0.01
		TOTAL	2.21	100.00	TOTAL	3.73	100.00	TOTAL	4.12	100.00	TOTAL	2.52	100.00
ANIONS													
HCO_3[2]	0.02	100	2.00	94.13	94	1.88	55.02	96	1.92	43.88	98	1.96	81.39
SO_4	0.02082	2.5	0.05	2.45	48	1.00	29.25	62	1.29	29.50	13	0.27	11.24
Cl	0.02821	2.4	0.07	3.19	15	0.42	12.38	41	1.16	26.43	3.0	0.08	3.51
CO_3[2]	0.02	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
NO_3[3]	0.0714	0.070	0.00	0.24	1.6	0.11	3.34	0.12	0.01	0.20	1.3	0.09	3.85
		TOTAL	2.12	100.00	TOTAL	3.42	100.00	TOTAL	4.38	100.00	TOTAL	2.41	100.00
anion + cation Sum (meq/L)			4.33			7.15			8.49			4.93	
(meq/L cations-anions)/(meq/L cations+anions)*100				1.86			4.37			-3.05			2.27

[1]Reference: Hem 1985.

[2]HCO_3 and CO_3 reported as $CaCO_3$, conversion factor adjusted accordingly.

[3]NO_3 reported as NO_3-N, conversion factor adjusted accordingly.

$\boxed{\quad}$ = Outside WAC 173-351-420(5)(a) acceptable range

+/-5 percent (for anion plus cation sums greater than 5 meq/L), or

+/-10 percent (for anion plus cation sums less than 5 meq/L)

Note: Values for cations in groundwater samples are measured as dissolved (field-filtered).

5 percent if anion plus cation sum greater than 5 meq/L; 10 percent if anion plus cation sum less than 5 meq/L

Appendix F

Statistics

F-1

Limits

Calculated UPLs for 1-of-2 2024 Groundwater Monitoring

Constituent Name	Background Data Set	Upper Limit	Lower Limit	Observation	Background N	Background Mean	Standard Deviation	% Non-detects	Non-detect Adjustment	Transformation	Alpha	Method
MW-2S												
Ammonia (NH3)	2008–2009 only	0.1	n/a	1 future	8	n/a	n/a	100	n/a	n/a	0.0201	NP Intra (NDs) 1 of 2
Chloride (mg/L)	All data	18	n/a	1 future	58	n/a	n/a	41.38	n/a	n/a	0.0005716	NP Intra (normality) 1 of 2
Iron, Dissolved (mg/L)	All data	0.281	n/a	1 future	51	n/a	n/a	68.63	n/a	n/a	0.000728	NP Intra (NDs) 1 of 2
Iron, Total (mg/L)	All data	0.118	n/a	1 future	15	n/a	n/a	80	n/a	n/a	0.007314	NP Intra (NDs) 1 of 2
Manganese, Dissolved (mg/L)	All data	0.1	n/a	1 future	56	n/a	n/a	89.29	n/a	n/a	0.0006163	NP Intra (NDs) 1 of 2
Manganese, Total (mg/L)	All data	0.01	n/a	1 future	14	n/a	n/a	85.71	n/a	n/a	0.008332	NP Intra (NDs) 1 of 2
Nitrate (mg/L)	All data	1.995	n/a	1 future	57	0.5657	0.4465	31.58	Aitchison`s	sqrt(x)	0.001316	Param Intra 1 of 2
pH (none)	2008–2009 only	7.79	6.281	1 future	7	7.036	0.2418	0	None	No	0.0006581	Param Intra 1 of 2
Sulfate (mg/L)	All data	10.51	n/a	1 future	58	4.5	3.175	17.24	Aitchison`s	No	0.001316	Param Intra 1 of 2
TDS (mg/L)	All data	176.8	n/a	1 future	57	129.3	25.07	0	None	No	0.001316	Param Intra 1 of 2
MW-3S												
Ammonia (NH3)	2008–2009 only	0.1	n/a	1 future	8	n/a	n/a	100	n/a	n/a	0.0201	NP Intra (NDs) 1 of 2
Chloride (mg/L)	All data	45.99	n/a	1 future	61	21.8	12.81	6.557	None	No	0.001316	Param Intra 1 of 2
Iron, Dissolved (mg/L)	All data	0.37	n/a	1 future	54	n/a	n/a	51.85	n/a	n/a	0.000661	NP Intra (NDs) 1 of 2
Iron, Total (mg/L)	All data	0.138	n/a	1 future	13	n/a	n/a	61.54	n/a	n/a	0.009354	NP Intra (NDs) 1 of 2
Manganese, Dissolved (mg/L)	All data	0.03	n/a	1 future	58	n/a	n/a	77.59	n/a	n/a	0.0005716	NP Intra (NDs) 1 of 2
Manganese, Total (mg/L)	All data	0.01	n/a	1 future	13	n/a	n/a	84.62	n/a	n/a	0.009354	NP Intra (NDs) 1 of 2
Nitrate (mg/L)	2008–2009 only	9.201	n/a	1 future	8	1.765	0.448	0	None	sqrt(x)	0.001316	Param Intra 1 of 2
pH (none)	2008–2009 only	7.701	6.325	1 future	7	7.013	0.2205	0	None	No	0.0006581	Param Intra 1 of 2
Sulfate (mg/L)	All data	44.84	n/a	1 future	61	22.68	11.73	3.279	None	No	0.001316	Param Intra 1 of 2
TDS (mg/L)	All data	286.3	n/a	1 future	62	13.18	1.982	0	None	sqrt(x)	0.001316	Param Intra 1 of 2

Calculated Control Charts for 1-of-2 2024 Groundwater Monitoring

Constituent Name	Background Data Set	h	SCL	Background N	Background Mean	Standard Deviation	% Non-detects	Adjustment for NDs	Deseasonalized	Transformation	Method
MW-2S											
Ammonia (NH3)	2008–2009 only	PL=0.1	n/a	8	n/a	n/a	100	None	No	No	NP Intra PL (NDs)
Chloride (mg/L)	All data	PL=18	n/a	58	n/a	n/a	41.38	None	No	No	NP Intra PL (normality)
Iron, Dissolved (mg/L)	All data	PL=0.281	n/a	51	n/a	n/a	68.63	None	No	No	NP Intra PL (NDs)
Iron, Total (mg/L)	All data	PL=0.118	n/a	15	n/a	n/a	80	None	No	No	NP Intra PL (NDs)
Manganese, Dissolved (mg/L)	All data	PL=0.1	n/a	56	n/a	n/a	89.29	None	No	No	NP Intra PL (NDs)
Manganese, Total (mg/L)	All data	PL=0.01	n/a	14	n/a	n/a	85.71	None	No	No	NP Intra PL (NDs)
Nitrate (mg/L)	All data	PL=2.04	n/a	57	n/a	n/a	31.58	None	No	No	NP Intra PL (xf/Cohens)
pH (none)	2008–2009 only	8.245 & 5.827	8.245 & 5.827	7	7.036	0.2418	0	None	No	No	Param Intra
Sulfate (mg/L)	All data	19.01	19.01	58	4.912	2.819	17.24	None	No	No	Param Intra
TDS (mg/L)	All data	PL=182	n/a	57	n/a	n/a	0	None	No	No	NP Intra PL (normality)
MW-3S											
Ammonia (NH3)	2008–2009 only	PL=0.1	n/a	8	n/a	n/a	100	None	No	No	NP Intra PL (NDs)
Chloride (mg/L)	All data	85.84	85.84	61	21.8	12.81	6.557	None	No	No	Param Intra
Iron, Dissolved (mg/L)	All data	PL=0.37	n/a	54	n/a	n/a	51.85	None	No	No	NP Intra PL (NDs)
Iron, Total (mg/L)	All data	PL=0.138	n/a	13	n/a	n/a	61.54	None	No	No	NP Intra PL (NDs)
Manganese, Dissolved (mg/L)	All data	PL=0.03	n/a	58	n/a	n/a	77.59	None	No	No	NP Intra PL (NDs)
Manganese, Total (mg/L)	All data	PL=0.01	n/a	13	n/a	n/a	84.62	None	No	No	NP Intra PL (NDs)
Nitrate (mg/L)	2008–2009 only	18.23	18.23	8	1.453	0.2359	0	None	No	x^(1/3)	Param Intra
pH (none)	2008–2009 only	PL=7.2 & 6.54	n/a	7	n/a	n/a	0	None	No	No	NP Intra PL (normality)
Sulfate (mg/L)	All data	81.34	81.34	61	22.68	11.73	3.279	None	No	No	Param Intra
TDS (mg/L)	All data	533.1	533.1	62	13.18	1.982	0	None	No	sqrt(x)	Param Intra

Note: PL = prediction limit (two values indicate upper and lower limits)

F-2

Limit Comparisons

Table F2-1. Comparison of First Quarter 2024 Groundwater Quality Data to Upper Prediction Limits (UPLs) and Shewhart Control Limits (SCLs) Calculated from Background Data, Rocky Top Environmental Limited Purpose Landfill

Parameter	Units	Value	Qualifier	UPL	SCL
Well MW-2S					
Ammonia	mg/L	0.053	U	0.1	- -
Chloride	mg/L	2.0	U	18	- -
Iron, dissolved	mg/L	0.056	U	0.281	- -
Iron, total	mg/L	0.078		0.118	- -
Manganese, dissolved	mg/L	0.011	U	0.1	- -
Manganese, total	mg/L	0.010	U	0.01	- -
Nitrate	mg/L	0.48		1.995	8.245 & 5.827
pH		7.56		7.79	19.01
Sulfate	mg/L	6.6		10.51	- -
Total Dissolved Solids	mg/L	110		176.8	- -
Well MW-3S					
Ammonia	NH3	0.053	U	0.1	- -
Chloride	mg/L	46		45.99	85.84
Iron, dissolved	mg/L	0.056	U	0.37	- -
Iron, total	mg/L	0.050	U	0.138	- -
Manganese, dissolved	mg/L	0.011	U	0.03	- -
Manganese, total	mg/L	0.010	U	0.01	18.23
Nitrate	mg/L	6.6		9.201	- -
pH		7.31		7.701	81.34
Sulfate	mg/L	**54**		44.84	533.1
Total Dissolved Solids	mg/L	170	J	286.3	- -

* = WAC 173-351 Appendix I parameter.
BOLD = Value exceeds UPL or SCL
U = Undetected at the specified detection limit
J = Estimated value

Table F2-2. Comparison of Second Quarter 2024 Groundwater Quality Data to Upper Prediction Limits (UPLs) and Shewhart Control Limits (SCLs) Calculated from Background Data, Rocky Top Environmental Limited Purpose Landfill

Parameter	Units	Value	Qualifier	UPL	SCL
Well MW-2S					
Ammonia	mg/L	0.053	U	0.1	- -
Chloride	mg/L	2.0	U	18	- -
Iron, dissolved	mg/L	0.056	U	0.281	- -
Iron, total	mg/L	0.050	U	0.118	- -
Manganese, dissolved	mg/L	0.011	U	0.1	- -
Manganese, total	mg/L	0.010	U	0.01	- -
Nitrate	mg/L	0.61		1.995	- -
pH		7.73		7.79	8.245 & 5.827
Sulfate	mg/L	6.4		10.51	19.01
Total Dissolved Solids	mg/L	120		176.8	- -
Well MW-3S					
Ammonia	NH3	0.053	U	0.1	- -
Chloride	mg/L	**51**		45.99	85.84
Iron, dissolved	mg/L	0.056	U	0.37	- -
Iron, total	mg/L	**0.25**		0.138	- -
Manganese, dissolved	mg/L	0.011	U	0.03	- -
Manganese, total	mg/L	0.010	U	0.01	- -
Nitrate	mg/L	**9.4**		9.201	18.23
pH		7.17		7.701	- -
Sulfate	mg/L	**51**		44.84	81.34
Total Dissolved Solids	mg/L	**290**	J	286.3	533.1

* = WAC 173-351 Appendix I parameter.
BOLD = Value exceeds UPL or SCL

U = Undetected at the specified detection limit
J = Estimated value

Table F2-3. Comparison of Third Quarter 2024 Groundwater Quality Data to Upper Prediction Limits (UPLs) and Shewhart Control Limits (SCLs) Calculated from Background Data, Rocky Top Environmental Limited Purpose Landfill

Parameter	Units	Value	Qualifier	UPL	SCL
Well MW-2S					
Ammonia	mg/L	0.053	U	0.1	- -
Chloride	mg/L	2.0	U	18	- -
Iron, dissolved	mg/L	0.056	U	0.281	- -
Iron, total	mg/L	0.050	U	0.118	- -
Manganese, dissolved	mg/L	0.011	U	0.1	- -
Manganese, total	mg/L	0.010	U	0.01	- -
Nitrate	mg/L	0.60		1.995	- -
pH		**7.91**		7.79	8.245 & 5.827
Sulfate	mg/L	5.1		10.51	19.01
Total Dissolved Solids	mg/L	140		176.8	- -
Well MW-3S					
Ammonia	NH3	0.053	U	0.1	- -
Chloride	mg/L	**73**		45.99	85.84
Iron, dissolved	mg/L	0.056	U	0.37	- -
Iron, total	mg/L	0.050	U	0.138	- -
Manganese, dissolved	mg/L	0.011	U	0.03	- -
Manganese, total	mg/L	0.010	U	0.01	- -
Nitrate	mg/L	**11**		9.201	18.23
pH		7.69		7.701	- -
Sulfate	mg/L	**96**		44.84	81.34
Total Dissolved Solids	mg/L	**320**		286.3	533.1

* = WAC 173-351 Appendix I parameter. U = Undetected at the specified detection limit

BOLD = Value exceeds UPL or SCL **BOLD** = Value exceeds UPL and SCL

Table F2-4. Comparison of Fourth Quarter 2024 Groundwater Quality Data to Upper Prediction Limits (UPLs) and Shewhart Control Limits (SCLs) Calculated from Background Data, Rocky Top Environmental Limited Purpose Landfill

Parameter	Units	Value	Qualifier	UPL	SCL
Well MW-2S					
Ammonia	mg/L	0.053	U	0.1	- -
Chloride	mg/L	2.0	U	18	- -
Iron, dissolved	mg/L	0.056	U	0.281	- -
Iron, total	mg/L	0.050	U	0.118	- -
Manganese, dissolved	mg/L	0.011	U	0.1	- -
Manganese, total	mg/L	0.010	U	0.01	- -
Nitrate	mg/L	0.60		1.995	- -
pH		**7.91**		7.79	8.245 & 5.827
Sulfate	mg/L	5.1		10.51	19.01
Total Dissolved Solids	mg/L	140		176.8	- -
Well MW-3S					
Ammonia	NH3	0.053	U	0.1	- -
Chloride	mg/L	**73**		45.99	85.84
Iron, dissolved	mg/L	0.056	U	0.37	- -
Iron, total	mg/L	0.050	U	0.138	- -
Manganese, dissolved	mg/L	0.011	U	0.03	- -
Manganese, total	mg/L	0.010	U	0.01	- -
Nitrate	mg/L	**11**		9.201	18.23
pH		7.69		7.701	- -
Sulfate	mg/L	**96**		44.84	81.34
Total Dissolved Solids	mg/L	**320**		286.3	533.1

* = WAC 173-351 Appendix I parameter.   U = Undetected at the specified detection limit

BOLD = Value exceeds UPL or SCL

Table F2-5. Quarterly Groundwater Samples that Exceeded 2024 Upper Prediction Limits (UPLs) and Shewhart Control Limits (SCLs), Rocky Top Environmental Limited Purpose Landfill

Parameter	UPL	SCL	h
MW-2S			
pH	3, 4	--	--
MW-3S			
Chloride	2, 3, 4	--	3
Iron, total	2	--	--
Nitrate	2, 3, 4	--	4
pH	4	--	--
Sulfate	1, 2, 3, 4	3	3, 4
Total Dissolved Solids	2 J, 3, 4	--	--

1 = March 2024
2 = June 2024
3 = September 2024
4 = December 2024
J = Estimated
Quarterly data are compared to UPL and SCL
CUSUM is compared to h

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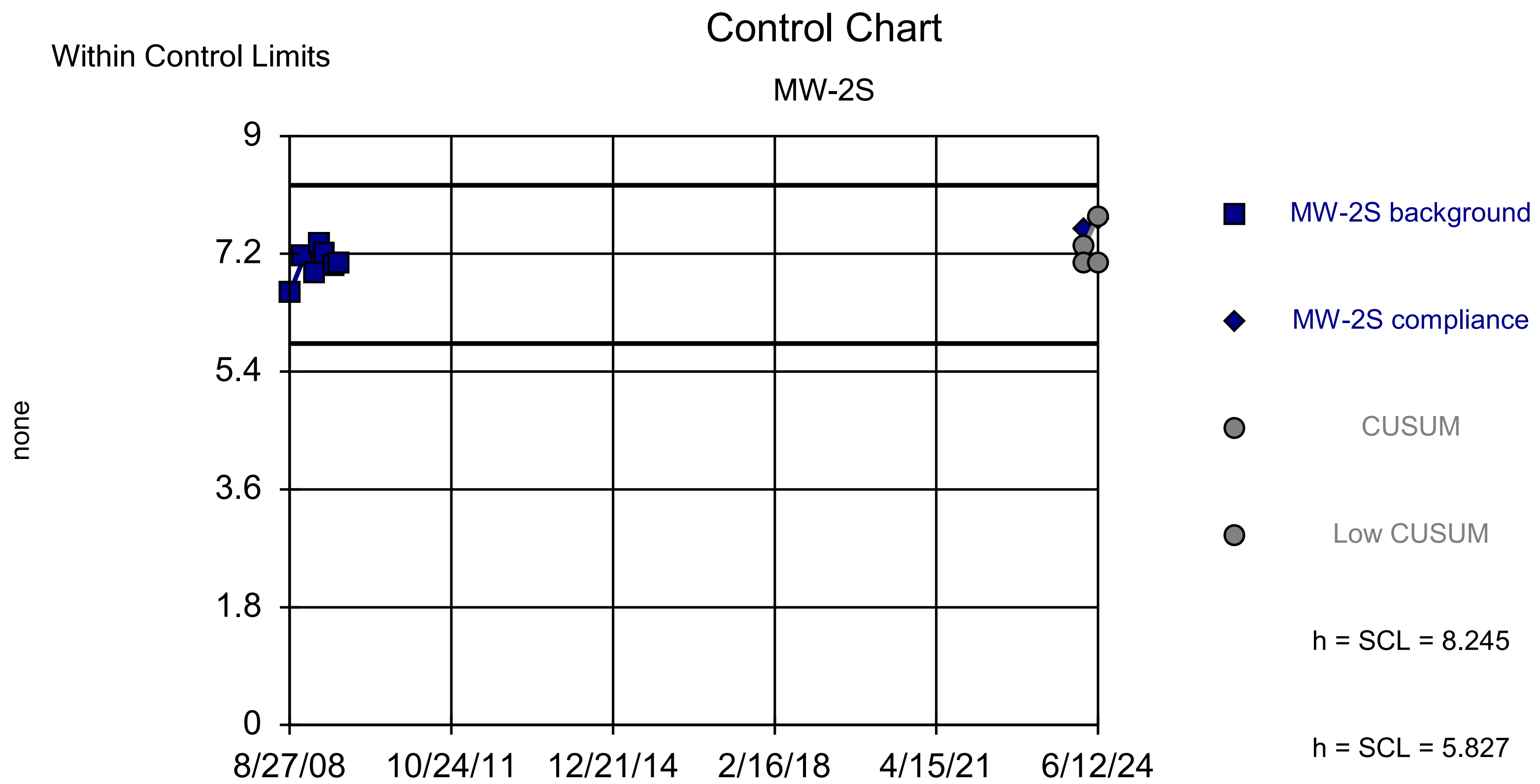


Background Data Summary: Mean=7.036, Std. Dev.=0.2418, n=7. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9617, critical = 0.803. Report alpha = 0.002898. Dates ending 8/19/2009 used for control stats. Standardized h=5, SCL=5.

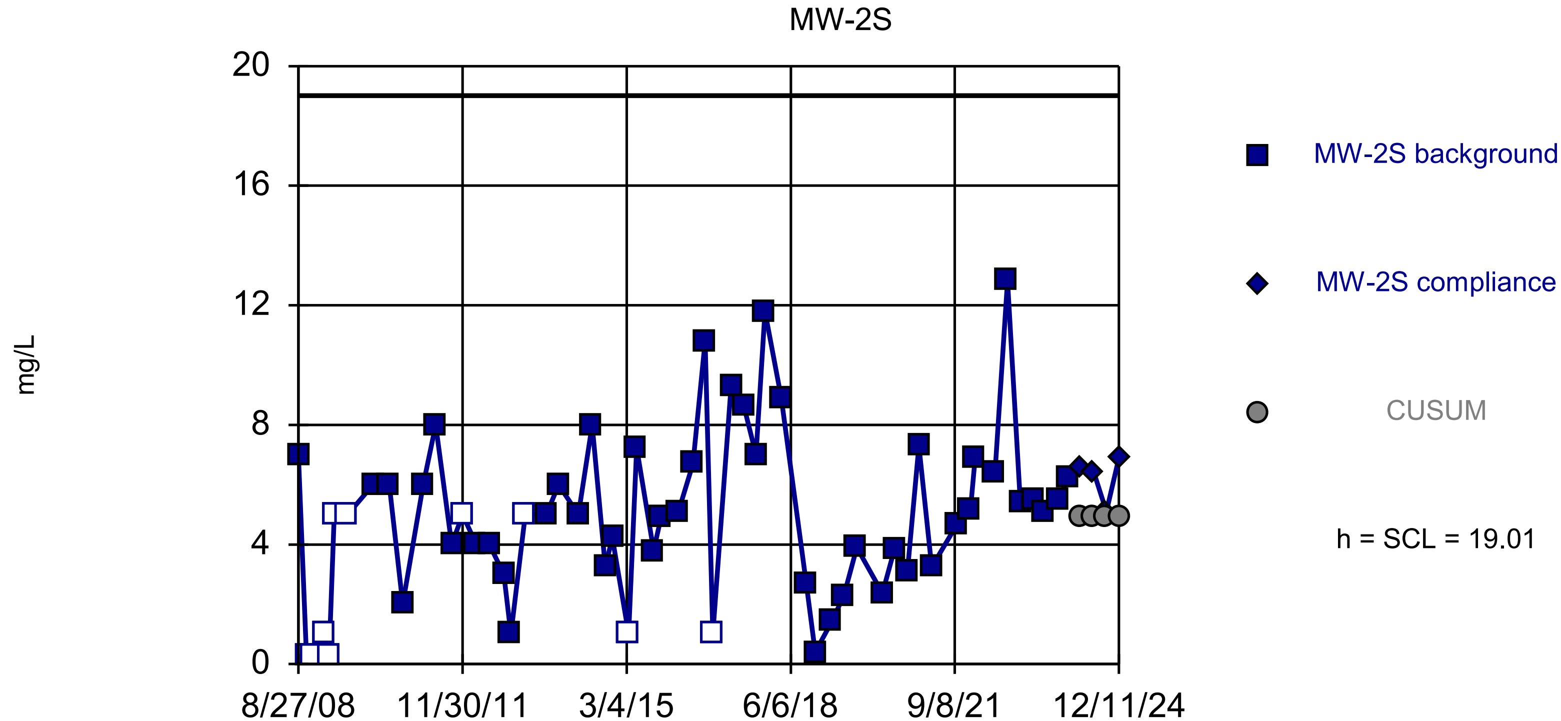
Constituent: pH Analysis Run 3/11/2025 4:10 PM View: Control Charts - Ammonia, pH 2S, 3S; Nitrate 3S;

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

Control Chart

Within Control Limits



Background Data Summary: Mean=4.912, Std. Dev.=2.819, n=58, 17.24% NDs. Seasonality was not detected with 95% confidence. Normality test: Shapiro Francia @alpha = 0.05, calculated = 0.9674, critical = 0.961. Report alpha = 0.000052. Dates ending 12/12/2023 used for control stats. Standardized h=5, SCL=5.

Constituent: Sulfate Analysis Run 3/11/2025 4:12 PM View: Control Charts - 2S, 3S all other params

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

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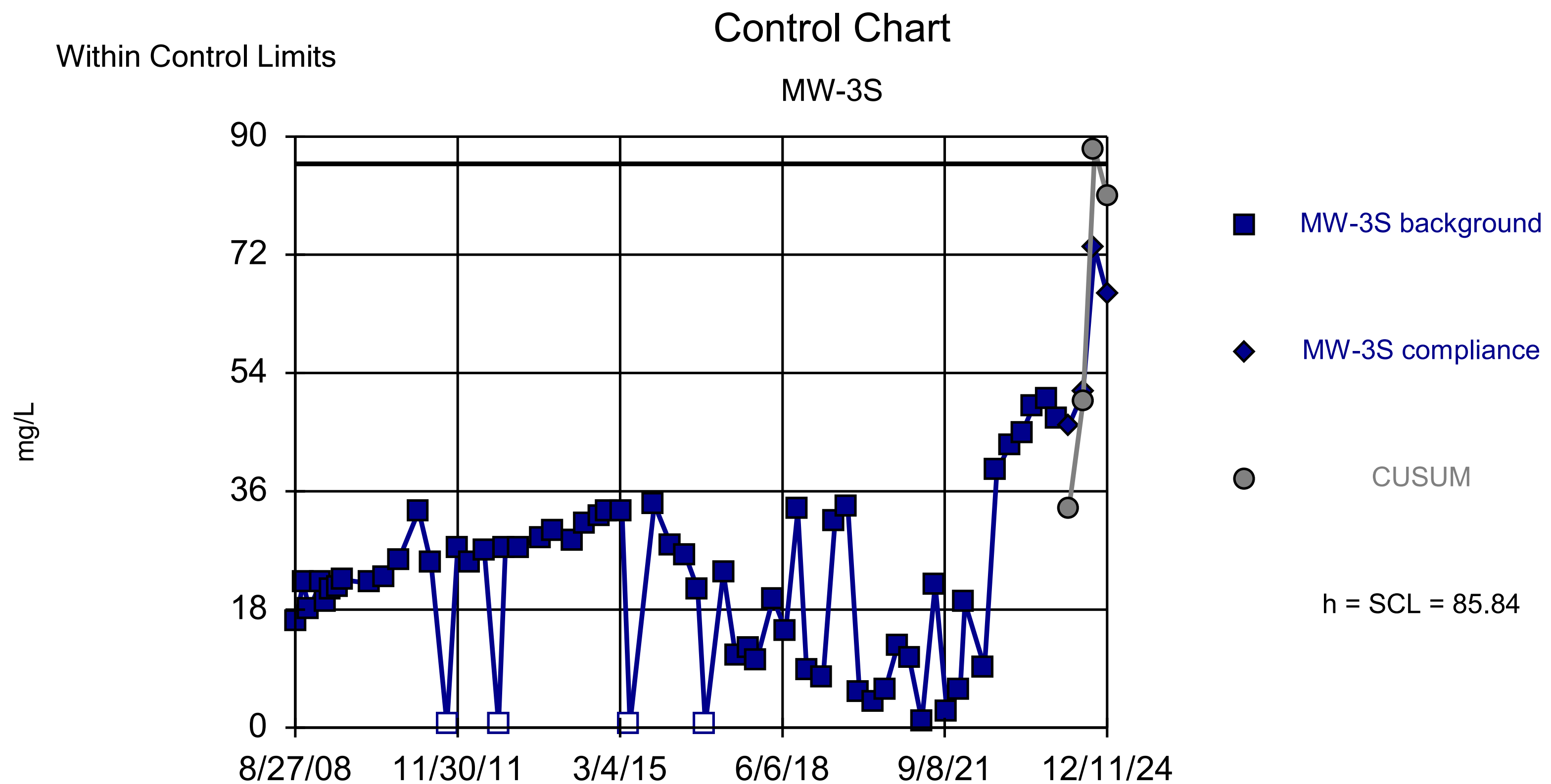
Hollow symbols indicate censored values.



Background Data Summary: Mean=21.8, Std. Dev.=12.81, n=61. Exceedance nullified by following point per option settings, 6.557% NDs. Seasonality was not detected with 95% confidence. Normality test: Shapiro Francia @alpha = 0.05, calculated = 0.977, critical = 0.962. Report alpha = 0.00005. Dates ending 12/12/2023 used for control stats. Standardized h=5, SCL=5.

Constituent: Chloride Analysis Run 3/17/2025 11:13 AM View: Control Charts - 2S, 3S all other params

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

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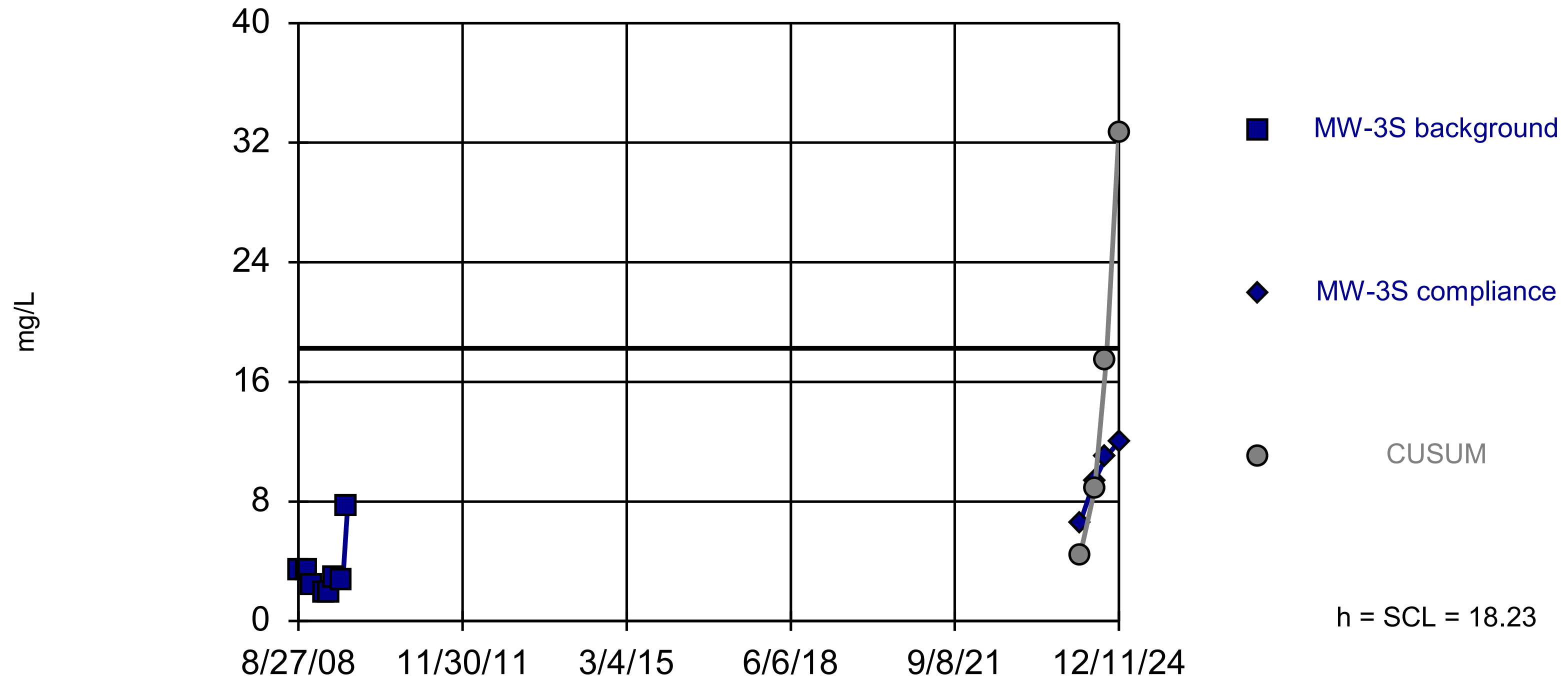
Control Chart

Exceeds Control Limits

MW-3S



Background Data Summary (based on cube root transformation): Mean=1.453, Std. Dev.=0.2359, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8192, critical = 0.818. Report alpha = 0.003966. Dates ending 8/19/2009 used for control stats. Standardized h=5, SCL=5.

Constituent: Nitrate Analysis Run 3/17/2025 11:18 AM View: Control Charts - Ammonia, pH 2S, 3S; Nitrat

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

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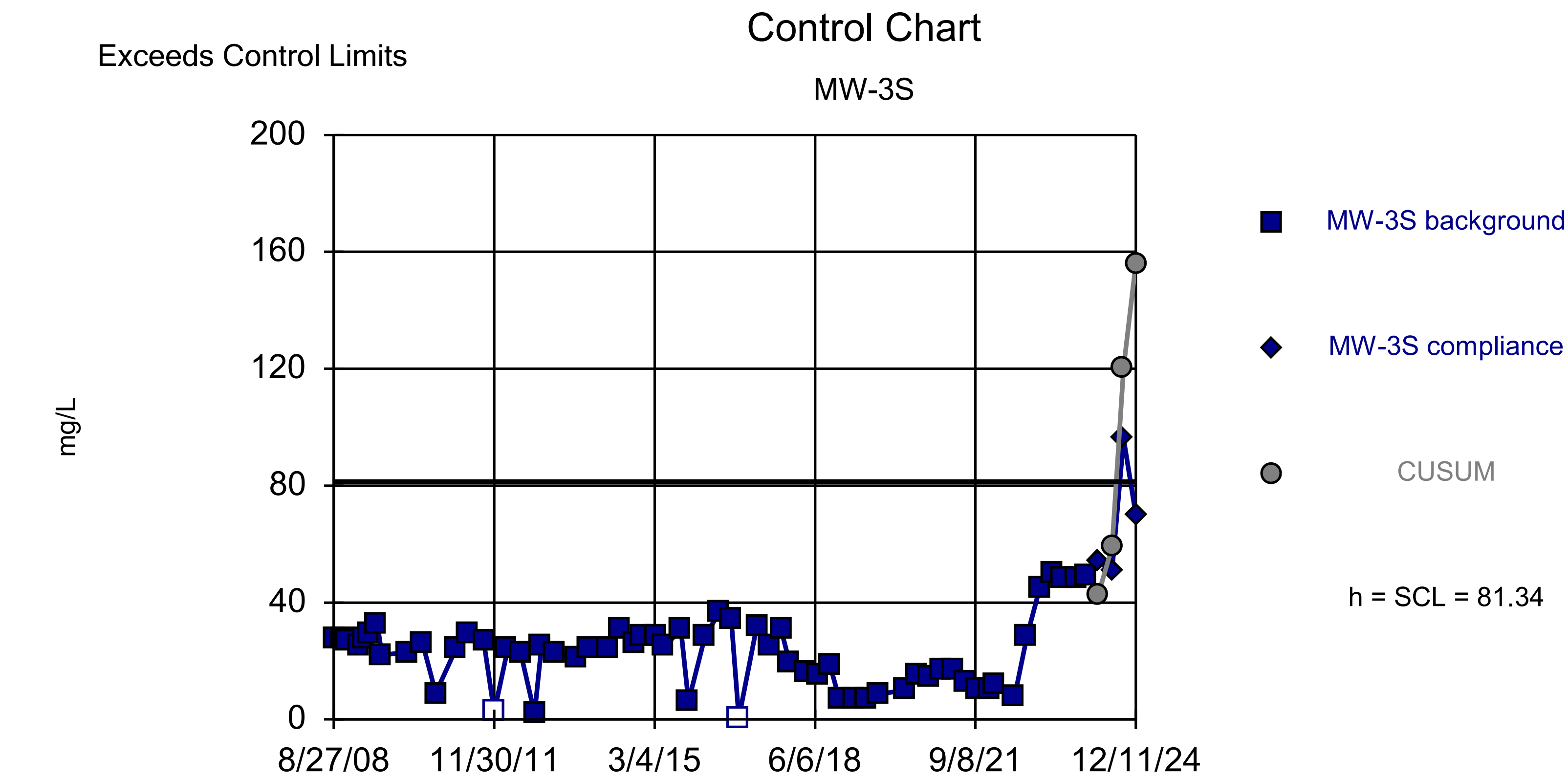
Hollow symbols indicate censored values.

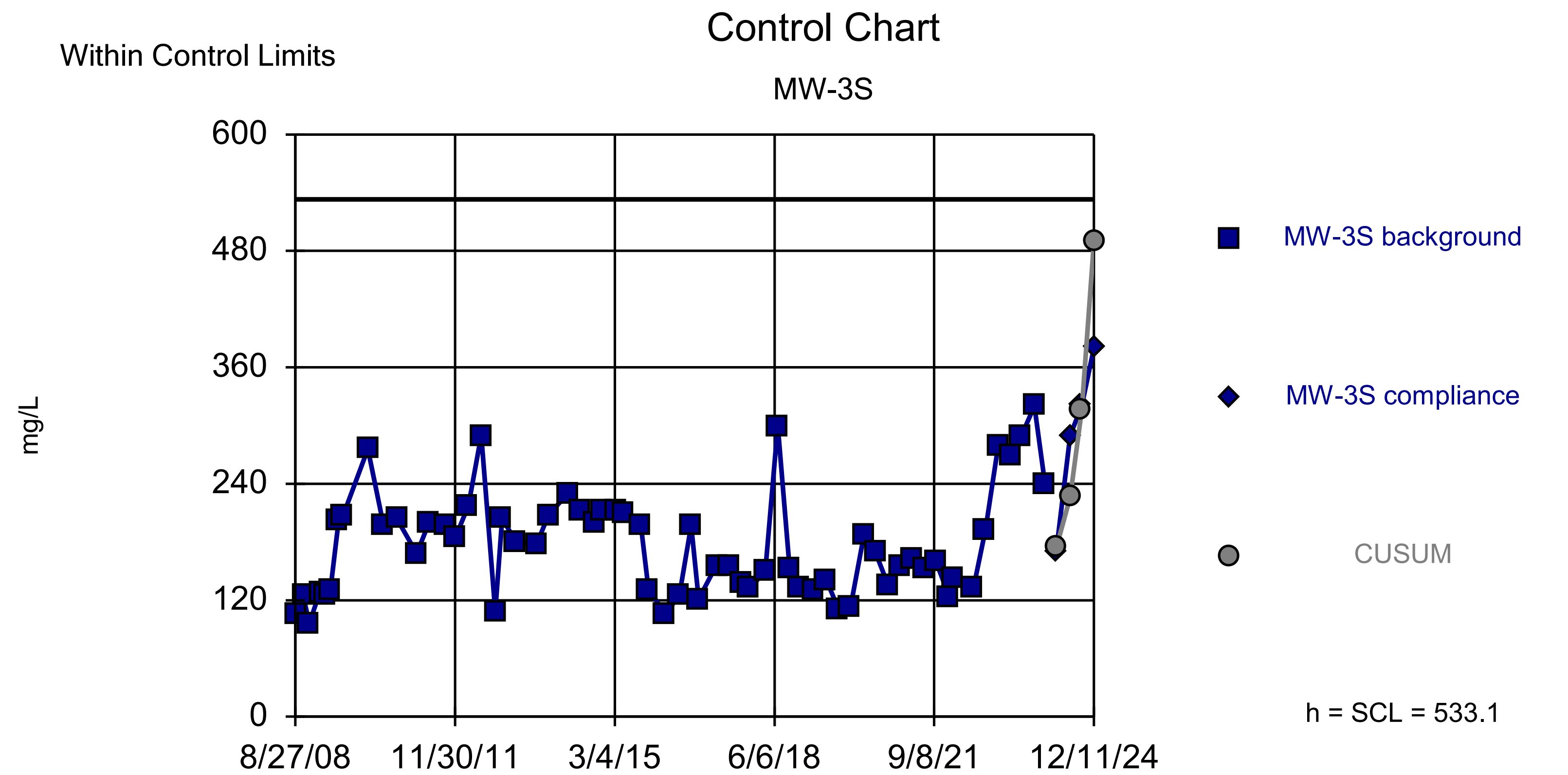
Exceeds Control Limits



Background Data Summary: Mean=22.68, Std. Dev.=11.73, n=61, 3.279% NDs. Seasonality was not detected with 95% confidence. Normality test: Shapiro Francia @alpha = 0.05, calculated = 0.9621, critical = 0.962. Report alpha = 0.00005. Dates ending 12/12/2023 used for control stats. Standardized h=5, SCL=5.

Constituent: Sulfate Analysis Run 3/17/2025 11:13 AM View: Control Charts - 2S, 3S all other params
Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG



Background Data Summary (based on square root transformation): Mean=13.18, Std. Dev.=1.982, n=62. Seasonality was not detected with 95% confidence. Normality test: Shapiro Francia @alpha = 0.05, calculated = 0.9641, critical = 0.963. Report alpha = 0.00002. Dates ending 12/12/2023 used for control stats. Standardized h=5, SCL=5.

Constituent: TDS Analysis Run 3/17/2025 11:13 AM View: Control Charts - 2S, 3S all other params

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

F-3

2025 Limits

Parametrix
let's create tomorrow, together

Technical Memorandum

DATE:	February 20, 2025
TO:	Lisa Gilbert, Mike Brady
FROM:	Margaret Spence
SUBJECT:	Revised UPLs and Control Charts for 2025 Groundwater Monitoring, Rocky Top Environmental Limited Purpose Landfill
CC:	Laura Lee, Sally Nguyen, Project File
PROJECT NUMBER:	553-8472-005
PROJECT NAME:	DTG Annual Services

Introduction

The purpose of this technical memorandum is to summarize the process followed to establish background data sets for well MW-4S, update background data sets for wells MW-2S and MW-3S with 2024 monitoring data, and calculate intrawell upper prediction limits (UPLs) and control charts for 2025 detection monitoring at DTG Recyling's Rocky Top Environmental Limited Purpose Landfill (LPL). The methodology follows U.S. Environmental Protection Agency's (U.S. EPA's) Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Unified Guidance, March 2009 (Unified Guidance; U.S. EPA 2009); Washington State Department of Ecology's (Ecology's) landfill monitoring guidance (Ecology 2018); and the statistical approach presented in the Sampling and Analysis Plan (SAP; Parametrix 2024).

As described in the SAP, background data sets, UPLs, and control charts for MW-2S and MW-3S were developed for 10 indicator parameters: ammonia, chloride, dissolved iron, total iron, dissolved manganese, total manganese, nitrate, pH, sulfate, and total dissolved solids (TDS). These same indicator parameters were used to establish background data sets for well MW-4S and update background data sets for wells MW-2S and MW-3S. Time-series plots showing 2008–2024 data for the three wells and 10 indicator parameters are provided in Attachment A. These time-series plots and all statistical tests were completed using Sanitas™ (Sanitas Technologies 2024).

Background Data Sets for MW-4S

For MW-4S, sampling began in Third Quarter 2022, resulting in 10 data points through Fourth Quarter 2024 for 9 of the 10 indicator parameters (all except pH). Because the last two data points (Third and Fourth Quarters 2024) were within the range of the first eight data points for these nine indicator parameters, all 10 data points were used to establish background data sets.

For pH, the Fourth Quarter 2024 result was rejected and not included in this evaluation. The Third Quarter 2024 value was not within the range of the first 8 data points but was included for the outlier analysis summarized below.

The MW-4S data set for each indicator parameter was evaluated first to identify any statistical outliers, then to identify any significant increasing trends. These evaluations are described in more detail below and summarized in Table 1.

Identification of Potential Outliers

No visual outliers in the MW-4S data sets were identified from the time-series plots (Attachment A). Outlier testing was conducted to identify any statistical outliers. Consistent with Ecology (2018) guidance and the revised statistical approach (Parametrix 2024), an interquartile range (IQR) multiplier of 1.5 (1.5*IQR) was used to identify statistical outliers for data sets tested using non-parametric (Tukey's) outlier tests. The low statistical outlier identified for ammonia (Third Quarter 2022) was a non-detect and was retained in the data set.

Four of the data sets had a high percentage of non-detects (90% or 100%) that invalidated the statistical outlier tests. The data sets for these parameters, dissolved and total iron and manganese, were examined for visual outliers. For each of these data sets, the first data point (Third Quarter 2022) was a lower non-detect value than the other non-detects but was retained.

Results of the statistical outlier tests are summarized in Table 2 and Attachment B. The following statistical outliers were identified and excluded from further evaluation in the background data sets:

- Ammonia: Third Quarter 2023
- pH: Second Quarter 2024, Third Quarter 2024

Sen's Slope/Mann-Kendall Trend Tests

A Sen's Slope/Mann-Kendall test was used to determine whether increasing trends were present in the MW-4S data sets. Results of these tests are summarized in Table 3 and Attachment C. No significant increasing trends were found. All data, other than identified outliers, were used to calculate 2025 UPLs and control charts for MW-4S.

Background Data Set Updates for MW-2S and MW-3S

The 2024 data for MW-2S and MW-3S were evaluated to determine whether these data could be included in the background data sets used to calculate UPLs and control charts for 2025 groundwater monitoring. Prior to statistical testing, any values exceeding 2024 UPLs that weren't disconfirmed were excluded from evaluation:

- MW-2S
  - → pH: Third Quarter (exceedance not disconfirmed because the Fourth Quarter result was rejected)
- MW-3S
  - → Chloride: Second, Third, and Fourth Quarter
  - → Nitrate: Second, Third, and Fourth Quarter
  - → Sulfate: all 2024 values
  - → TDS: Second, Third, and Fourth Quarter

Rejected results (Fourth Quarter pH at both wells) were also excluded from all evaluations. Well/parameter cases for which parametric control charts were calculated for 2024 monitoring did not identify any other values to exclude (values exceeding control charts limits also exceeded UPLs).

As a result of these exclusions, background data sets containing data from 2008–2023 for the following MW-3S parameters were not updated:

- Chloride
- Sulfate
- TDS

The approach to updating background data sets was different for those based on only 2008–2009 data and those based on 2008–2023 data. The following subsections describe how these two types of background data sets were updated.

2008–2009 Background Data Set Updates

As described by the refined statistical approach (Parametrix 2024), background data sets for several well/parameter cases included only 2008–2009 data. In these cases, either the 2010–2023 data were significantly higher than the 2008–2009 data or the combined data set exhibited a significantly increasing trend.

Rather than exclude the 2010–2023 data from future consideration as background data, the 2024 data were added to the 2010–2023 data and the analyses conducted for the refined statistical approach (Parametrix 2024) were repeated:

1. Identify any significant outliers.
2. Identify any significant differences between the current background data set (2008–2009) and subsequent compliance data (2010–2024).
3. For those well/parameter cases with no significant differences, identify any significant increasing trends; otherwise, retain the 2008–2009 data as background.
4. For those well/parameter cases with no significant trends, use the 2010–2024 data as background; otherwise, retain the 2008–2009 data as background.

These evaluations are summarized in Table 1.

Identification of Potential Outliers

Each data set was tested to identify potential statistical outliers based on the 1.5*IQR threshold, as well as visual outliers. Results of the statistical outlier tests are summarized in Table 4 and Attachment D. Low statistical outliers that were non-detects were retained in the data sets. Four visual outliers were identified for ammonia at well MW-2S.

Welch's/Mann-Whitney Tests

A Welch's/Mann-Whitney test was conducted for each well/parameter case to determine whether 2010–2024 data were significantly different from (higher than) the 2008–2009 data. Results of these tests are summarized in Table 5 and Attachment E. For those well/parameter cases where the difference was significant, UPLs and control charts were calculated using the 2008–2009 data as the background data set (Table 1).

Sen's Slope/Mann-Kendall Trend Tests

A Sen's Slope/Mann-Kendall test was used to determine whether increasing trends were present in the data for those well/parameter cases where the difference between the 2008–2009 data and 2010–2024 data were not significant. Results of these tests are summarized in Table 6 and Attachment F. For those well/parameter cases where the increasing trend was significant, UPLs and control charts were calculated using the 2008–2009 data as the background data set. For the other cases, UPLs and control charts were calculated using the 2008–2024 data as the background data set (Table 1).

2008–2023 Background Data Set Updates

Following the approach for updating background data sets presented in the SAP (Parametrix 2024), the 2024 data were compared to the 2008–2023 data to determine whether the 2024 data could be added to those background data sets.

1. Identify any significant differences between the current background data set (2008–2023) and the 2024 data.
2. For those well/parameter cases with no significant differences, identify any significant increasing trends; otherwise, retain the 2008–2023 data as background.
3. For those well/parameter cases with no significant trends, use the 2008–2024 data as background; otherwise, retain the 2008–2023 data as background.

These evaluations are summarized in Table 1.

Welch's/Mann-Whitney Tests

A Welch's/Mann-Whitney test was conducted for each well/parameter case to determine whether the 2024 data were significantly different from (higher than) the 2008–2023 data. Results of these tests are summarized in Table 5 and Attachment E. For those well/parameter cases where the difference was significant, UPLs and control charts were calculated using the 2008–2023 data as the background data set (Table 1).

As summarized in Table 1, the Welch's/Mann-Whitney tests for dissolved manganese indicated that the 2024 data were significantly higher than the 2008–2023 data. However, all 2024 data points were non-detects, and this difference was due to a slightly higher reporting limit (0.011 mg/L) starting in Fourth Quarter 2022 versus the reporting limit for most of the previous non-detects (0.01 mg/L). Because all the 2024 data points were non-detects and the reporting limit of 0.011 mg/L will be reported for future non-detects, the 2024 data were not excluded based on the Welch's/Mann-Whitney test results.

Sen's Slope/Mann-Kendall Trend Tests

A Sen's Slope/Mann-Kendall test was used to determine whether increasing trends were present in the data for those well/parameter cases where the difference between the 2008–2023 data and 2024 data were not significant. Results of these tests are summarized in Table 6 and Attachment F. For those well/parameter cases where the increasing trend was significant, UPLs and control charts were calculated using the 2008–2023 data as the background data set. For the other cases, UPLs and control charts were calculated using the 2008–2024 data as the background data set (Table 1).

UPLs

Intrawell UPLs were calculated using the background data sets determined from the previous steps. As specified in the SAP, these calculations were based on a 1-of-2 retesting scheme, which assumes that two samples will be collected for a particular constituent at a given well, including the initial groundwater sample and one resample. Unlike the UPLs calculated for 2024 monitoring at MW-2S and MW-3S, the sitewide false positive rate for the 2025 monitoring UPLs was based on these two wells along with MW-4S. Because MW-4S was not included in UPL calculations for 2024 monitoring, UPLs calculated for 2025 monitoring at MW-2S and MW-3S using the same background data sets (nitrate at MW-3S, pH at both wells, sulfate at MW-2S) are slightly higher. UPL calculations are summarized in Table 7 and Attachment G.

Control Charts

Control charts were also calculated using the background data sets determined from the previous steps and a 1-of-2 retesting scheme. As for the UPLs, the sitewide false positive rate for the 2025 monitoring control charts was based on three wells instead of two, so control chart limits calculated for 2025 monitoring at MW-2S and MW-3S using the same background data sets (nitrate at MW-3S, pH at both wells, sulfate at MW-2S) are slightly higher than the limits calculated for 2024 monitoring.

Because control charts can only be calculated if data are normally distributed (either raw or transformed) and there are fewer than 50% non-detects, Sanitas calculated prediction limits where these assumptions were not met. Only the following control charts could be calculated:

- Chloride at MW-3S and MW-4S
- Nitrate at MW-3S and MW-4S
- pH at MW-2S and MW-4S
- Sulfate at MW-2S, MW-3S, and MW-4S
- TDS at MW-3S and MW-4S

Prediction limits were calculated for all other well/parameter cases. Results of these tests are summarized in Table 8.

References

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Ecology (Washington Department of Ecology). 2018. Guidance for Monitoring at Landfills and Other Facilities Regulated Under Chapters 173-304, 173-306, 173-350, and 173-351 WAC. Publication No. 12-07-072. Revised December 2018.

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Attachments

Tables

Table 1. Summary of Statistical Evaluations for MW-2S and MW-3S Supporting Calculation of UPLs and Control Charts for 2025 Groundwater Monitoring

Parameter	MW-2S (Background Update)	MW-3S (Background Update)	MW-4S (Background Development)
Ammonia	**Previous background data set: 2008–2009** Add 2024 to 2010–2023 data and re-evaluate No outliers (too many nondetects for valid test; flagged visual outliers ≥ 0.5) Background not significantly different from compliance Test for trend - no significant trend Calculate UPL and Control Chart using all data	**Previous background data set: 2008–2009** Add 2024 to 2010–2023 data and re-evaluate Outliers: 4 high; 12 low (flagged high outliers; kept low outliers) Background not significantly different from compliance Test for trend - no significant trend Calculate UPL and Control Chart using all data	Initial data set: 3Q22–2024 Outliers: 1 high; 1 low (flagged high outlier; kept low outlier) Test for trend - no significant trend Calculate UPL and Control Chart using all data
Chloride	**Previous background data set: 2008–2023** Evaluate 2008–2023 versus 2024 2024 data not significantly different from background Test for trend - no significant trend Update UPL and Control Chart using all data	**Previous background data set: 2008–2023** *No update (too few values < UPL)* Calculate UPL and Control Chart using 2008–2023 data only	Initial data set: 3Q22–2024 No outliers Test for trend - no significant trend Calculate UPL and Control Chart using all data
Iron, Dissolved	**Previous background data set: 2008–2023** Evaluate 2008–2023 versus 2024 2024 data not significantly different from background Test for trend - no significant trend Update UPL and Control Chart using all data	**Previous background data set: 2008–2023** Evaluate 2008–2023 versus 2024 2024 data not significantly different from background Test for trend - no significant trend Update UPL and Control Chart using all data	Initial data set: 3Q22–2024 No outliers (too many nondetects for valid test; no visual outliers) Test for trend - no significant trend Calculate UPL and Control Chart using all data
Iron, Total (NOTE: no data for 2008–2019)	**Previous background data set: 2020–2023** Evaluate 2020–2023 versus 2024 2024 data not significantly different from background Test for trend - significant trend is decreasing not increasing Update UPL and Control Chart using all data	**Previous background data set: 2020–2023** Evaluate 2020–2023 versus 2024 2024 data not significantly different from background Test for trend - no significant trend Update UPL and Control Chart using all data	Initial data set: 3Q22–2024 No outliers (too many nondetects for valid test; no visual outliers) Test for trend - no significant trend Calculate UPL and Control Chart using all data
Manganese, Dissolved	**Previous background data set: 2008–2023** Evaluate 2008–2023 versus 2024 2024 data significantly higher than background—THIS IS AN ARTIFACT DUE TO INCREASED RL STARTING 4Q2022 (0.011 vs 0.01); CONTINUED TO TREND TEST Test for trend - no significant trend Update UPL and Control Chart using all data	**Previous background data set: 2008–2023** Evaluate 2008–2023 versus 2024 2024 data significantly higher than background—THIS IS AN ARTIFACT DUE TO INCREASED RL STARTING 4Q2022 (0.011 vs 0.01); CONTINUED TO TREND TEST Test for trend - no significant trend Update UPL and Control Chart using all data	Initial data set: 3Q22–2024 No outliers (too many nondetects for valid test; no visual outliers) Test for trend - no significant trend Calculate UPL and Control Chart using all data
Manganese, Total (NOTE: no data for 2008–2019)	**Previous background data set: 2020–2023** Evaluate 2020–2023 versus 2024 2024 data not significantly different from background Test for trend - no significant trend Update UPL and Control Chart using all data	**Previous background data set: 2020–2023** Evaluate 2020–2023 versus 2024 2024 data not significantly different from background Test for trend - no significant trend Update UPL and Control Chart using all data	Initial data set: 3Q22–2024 No outliers (too many nondetects for valid test; no visual outliers) Test for trend - no significant trend Calculate UPL and Control Chart using all data
Nitrate	**Previous background data set: 2008–2023** Evaluate 2008–2023 versus 2024 2024 data not significantly different from background Test for trend - significant trend is decreasing not increasing Update UPL and Control Chart using all data	**Previous background data set: 2008–2009** Add 1Q2024 data point to 2010–2023 data and re-evaluate Outliers: 1 low (kept) Background not significantly different from compliance Test for trend - significant increasing trend Calculate UPL and Control Chart using 2008–2009 data only	Initial data set: 3Q22–2024 No outliers Test for trend - no significant trend Calculate UPL and Control Chart using all data
pH	**Previous background data set: 2008–2009** Add 1Q2024 and 2Q2024 data to 2010–2023 data and re-evaluate Outliers: 1 low (flagged) Background significantly different from compliance Calculate UPL and Control Chart using 2008–2009 data only	**Previous background data set: 2008–2009** Add 1Q2024 through 3Q2024 to 2010–2023 data and re-evaluate Outliers: 5 high; 2 low (flagged all) Background significantly different from compliance Calculate UPL and Control Chart using 2008–2009 data only	Initial data set: 3Q22–2024 Outliers: 2 high (flagged) Test for trend - no significant trend Calculate UPL and Control Chart using all data
Sulfate	**Previous background data set: 2008–2023** Evaluate 2008–2023 versus 2024 2024 data not significantly different from background Test for trend - significant increasing trend Calculate UPL and Control Chart using 2008–2023 data only	**Previous background data set: 2008–2023** *No update (too few values < UPL)* Calculate UPL and Control Chart using 2008–2023 data only	Initial data set: 3Q22–2024 No outliers Test for trend - no significant trend Calculate UPL and Control Chart using all data

Table 1. Summary of Statistical Evaluations for MW-2S and MW-3S Supporting Calculation of UPLs and Control Charts for 2025 Groundwater Monitoring

Parameter	MW-2S (Background Update)	MW-3S (Background Update)	MW-4S (Background Development)
TDS	Previous background data set: 2008–2023 Evaluate 2008–2023 versus 2024 2024 data not significantly different from background Test for trend - no significant trend Update UPL and Control Chart using all data	Previous background data set: 2008–2023 *No update (too few values < UPL)* Calculate UPL and Control Chart using 2008–2023 data only	Initial data set: 3Q22–2024 No outliers Test for trend - no significant trend Calculate UPL and Control Chart using all data

Notes:

Outlier tests excluded 2024 data values > UPLs that were not disconfirmed.

Two-sample (Welch's/Mann-Whitney) and trend (Sen's Slope/Mann-Kendall) tests excluded 2024 data values > UPLs that were not disconfirmed and data values flagged as outliers.

Data sets used to calculate UPLs and control charts excluded 2024 data values > UPLs that were not disconfirmed and data values flagged as outliers.

Table 1. Summary of Statistical Outlier Analysis for MW-4S

Constituent Name	Outlier Found?	Outlier Value(s)	Date(s)	Method	Alpha	N	Mean	Standard Deviation	Distribution	Normality Test
Ammonia (NH3)	Yes	0.02 0.13	10/13/2022 12/12/2023	NP (nrm)	NaN	10	0.0609	0.02904	unknown	ShapiroWilk
Chloride (mg/L)	No	n/a	n/a	NP (nrm)	NaN	10	45.49	5.867	unknown	ShapiroWilk
Iron, Dissolved (mg/L)	n/a	n/a	n/a	NP (nrm)	NaN	10	0.0534	0.008222	unknown	ShapiroWilk
Iron, Total (mg/L)	n/a	n/a	n/a	NP (nrm)	NaN	10	0.0485	0.006687	unknown	ShapiroWilk
Manganese, Dissolved (mg/L)	n/a	n/a	n/a	NP (nrm)	NaN	10	0.0109	0.0003162	unknown	ShapiroWilk
Manganese, Total (mg/L)	n/a	n/a	n/a	NP (nrm)	NaN	10	0.0095	0.001581	unknown	ShapiroWilk
Nitrate (mg/L)	No	n/a	n/a	Dixon`s	0.05	10	35.86	13.88	normal	ShapiroWilk
pH (none)	Yes	7.45 7.76	6/12/2024 9/11/2024	Dixon`s	0.05	9	7.198	0.253	normal	ShapiroWilk
Sulfate (mg/L)	No	n/a	n/a	Dixon`s	0.05	10	80.8	31.99	normal	ShapiroWilk
TDS (mg/L)	No	n/a	n/a	EPA 1989	0.05	10	553	94.29	normal	ShapiroWilk

Table 2. Summary of Sen's Slope/Mann-Kendall Trend Tests for MW-4S

Constituent Name	Slope	Calculated Statistic	Critical Value	Trend?	N	% Non-detects	Normality	Transformation	Alpha	Method
Ammonia (NH3)	0.00422	20	23	No	9	77.78	n/a	n/a	0.02	NP
Chloride (mg/L)	-4.056	-10	-27	No	10	0	n/a	n/a	0.02	NP
Iron, Dissolved (mg/L)	0	9	27	No	10	100	n/a	n/a	0.02	NP
Iron, Total (mg/L)	0	5	27	No	10	90	n/a	n/a	0.02	NP
Manganese, Dissolved (mg/L)	0	9	27	No	10	100	n/a	n/a	0.02	NP
Manganese, Total (mg/L)	0	9	27	No	10	100	n/a	n/a	0.02	NP
Nitrate (mg/L)	12.64	19	27	No	10	0	n/a	n/a	0.02	NP
pH (none)	-0.05914	-4	-17	No	7	0	n/a	n/a	0.02	NP
Sulfate (mg/L)	10.22	8	27	No	10	0	n/a	n/a	0.02	NP
TDS (mg/L)	76.68	14	27	No	10	0	n/a	n/a	0.02	NP

Table 4. Summary of Statistical Outlier Analysis for MW-2S and MW-3S 2008–2009 Background Data Set Updates

Constituent Name	Outlier Found?	Outlier Value(s)	Date(s)	Method	Alpha	N	Mean	Standard Deviation	Distribution	Normality Test
MW-2S										
Ammonia (NH3)	n/a	n/a	n/a	NP (nrm)	NaN	64	0.1989	0.4587	unknown	ShapiroFrancia
pH (none)	Yes	4.49	10/24/2008	Rosner`s	0.01	62	7.437	0.5554	normal	ShapiroFrancia
MW-3S										
Ammonia (NH3)	Yes	0.04, 0.04, 0.04, 0.04, 0.01, 0.01, 0.05, 0.05, 0.05, 0.05, 0.05, 0.05, 0.5, 1.1, 1.48, 1.67	8/27/2008, 10/24/2008, 12/9/2008, 4/7/2009, 9/23/2010, 11/30/2011, 2/27/2013, 9/15/2015, 12/29/2022, 3/29/2023, 6/21/2023, 9/25/2023, 9/27/2019, 6/26/2014, 3/20/2014, 3/15/2016	NP (nrm)	NaN	66	0.1528	0.2882	unknown	ShapiroFrancia
Nitrate (mg/L)	Yes	0.05	9/25/2012	NP (nrm)	NaN	63	4.207	2.081	unknown	ShapiroFrancia
pH (none)	Yes	4.46, 8.26, 8.16, 6.23, 8.46, 8.23, 8.42	10/24/2008, 2/17/2011, 3/15/2016, 6/29/2017, 3/30/2019, 6/27/2019, 9/27/2019	NP (nrm)	NaN	64	7.335	0.571	unknown	ShapiroFrancia

Table 5. Summary of Welch's/Mann-Whitney Tests Comparing Background Data Sets to 2024 Data for MW-2S and MW-3S

Constituent Name	Background Data Set for 2024 Monitoring	Calculated Statistic	Significant @ 0.1?	Significant @ 0.05?	Significant @ 0.025?	Significant @ 0.01?	Alpha	Significant?	Method
MW-2S									
Ammonia (NH3)	2008–2009	2.08	Yes	Yes	Yes	No	0.01	No	Mann-W (NDs)
Chloride (mg/L)	2008–2023	0.585	No	No	No	No	0.01	No	Mann-W (normality)
Iron, Dissolved (mg/L)	2008–2023	-0.4129	No	No	No	No	0.01	No	Mann-W (normality)
Iron, Total (mg/L)	2020–2023	-1.815	No	No	No	No	0.01	No	Mann-W (NDs)
Manganese, Dissolved (mg/L)	**2008–2023**	**3.078**	**Yes**	**Yes**	**Yes**	**Yes**	**0.01**	**Yes**	**Mann-W (NDs)**
Manganese, Total (mg/L)	2020–2023	1.095	No	No	No	No	0.01	No	Mann-W (NDs)
Nitrate (mg/L)	2008–2023	-0.1139	No	No	No	No	0.01	No	Welch`s
pH (none)	**2008–2009**	**4.81**	**Yes**	**Yes**	**Yes**	**Yes**	**0.01**	**Yes**	**Welch`s**
Sulfate (mg/L)	2008–2023	2.465	Yes	Yes	Yes	No	0.01	No	Welch`s
TDS (mg/L)	2008–2023	-0.1749	No	No	No	No	0.01	No	Mann-W (normality)
MW-3S									
Ammonia (NH3)	2008–2009	2.072	Yes	Yes	Yes	No	0.01	No	Mann-W (NDs)
Chloride (mg/L)	2008–2023	Background update not evaluated (too few 2024 data points < UPL).							
Iron, Dissolved (mg/L)	2008–2023	-2.072	No	No	No	No	0.01	No	Mann-W (normality)
Iron, Total (mg/L)	2020–2023	0.4085	No	No	No	No	0.01	No	Welch`s
Manganese, Dissolved (mg/L)	**2008–2023**	**3.06**	**Yes**	**Yes**	**Yes**	**Yes**	**0.01**	**Yes**	**Mann-W (NDs)**
Manganese, Total (mg/L)	2020–2023	1.142	No	No	No	No	0.01	No	Mann-W (NDs)
Nitrate (mg/L)	2008–2009	1.335	No	No	No	No	0.01	No	Welch`s
pH (none)	**2008–2009**	**2.991**	**Yes**	**Yes**	**Yes**	**Yes**	**0.02**	**Yes**	**Mann-W (normality)**
Sulfate (mg/L)	2008–2023	Background update not evaluated (too few 2024 data points < UPL).							
TDS (mg/L)	2008–2023	Background update not evaluated (too few 2024 data points < UPL).							

Notes:

Significant differences are bolded. Significant differences for dissolved manganese were due to a slight increase in reporting limit starting Fourth Quarter 2022.

For well/parameter cases that used 2008–2009 background data, comparisons were between 2008–2009 and 2010–2024 data.

For well/parameter cases that used 2008–2023 (or 2020–2023) data, comparisons were between 2008–2023 (or 2020–2023) and 2024 data.

Table 6. Summary of Sen's Slope/Mann-Kendall Trend Tests for MW-2S and MW-3S

Constituent Name	Background Data Set for 2024 Monitoring	Slope	Calculated Statistic	Critical Value	Trend?	N	% Non-detects	Normality	Transformation	Alpha	Method
MW-2S											
Ammonia (NH3)	2008–2009	0	-0.1341	-2.33	No	59	93.22	n/a	n/a	0.02	NP
Chloride (mg/L)	2008–2023	0.03687	2.278	2.33	No	62	43.55	n/a	n/a	0.02	NP
Iron, Dissolved (mg/L)	2008–2023	0.000414	1.778	2.33	No	55	70.91	n/a	n/a	0.02	NP
Iron, Total (mg/L)	2020–2023	-0.01264	-94	-68	Yes	19	78.95	n/a	n/a	0.02	NP
Manganese, Dissolved (mg/L)	2008–2023	0	1.076	2.33	No	60	90	n/a	n/a	0.02	NP
Manganese, Total (mg/L)	2020–2023	0	11	63	No	18	88.89	n/a	n/a	0.02	NP
Nitrate (mg/L)	2008–2023	-0.02622	-2.476	-2.33	Yes	61	29.51	n/a	n/a	0.02	NP
pH	2008–2009	*Not tested (Welch's/Mann-Whitney test significant).*									
Sulfate (mg/L)	**2008–2023**	**0.1394**	**2.359**	**2.33**	**Yes**	**62**	**16.13**	**n/a**	**n/a**	**0.02**	**NP**
TDS (mg/L)	2008–2023	0.2526	0.3924	2.33	No	61	0	n/a	n/a	0.02	NP
MW-3S											
Ammonia (NH3)	2008–2009	0	0.2716	2.33	No	62	95.16	n/a	n/a	0.02	NP
Chloride (mg/L)	2008–2023	*Background update not evaluated (too few 2024 data points < UPL).*									
Iron, Dissolved (mg/L)	2008–2023	0	-1.258	-2.33	No	58	55.17	n/a	n/a	0.02	NP
Iron, Total (mg/L)	2020–2023	-0.01007	-33	-58	No	17	64.71	n/a	n/a	0.02	NP
Manganese, Dissolved (mg/L)	2008–2023	0	-0.2534	-2.33	No	62	79.03	n/a	n/a	0.02	NP
Manganese, Total (mg/L)	2020–2023	0	3	58	No	17	88.24	n/a	n/a	0.02	NP
Nitrate (mg/L)	**2008–2009**	**0.2773**	**5.22**	**2.33**	**Yes**	**63**	**1.587**	**n/a**	**n/a**	**0.02**	**NP**
pH	2008–2009	*Not tested (Welch's/Mann-Whitney test significant).*									
Sulfate (mg/L)	2008–2023	*Background update not evaluated (too few 2024 data points < UPL).*									
TDS (mg/L)	2008–2023	*Background update not evaluated (too few 2024 data points < UPL).*									

Notes:

Significant increasing trends are bolded.

Dissolved manganese was tested for trends because the Welch's/Mann-Whitney tests were significant only due to a slight increase in reporting limit starting Fourth Quarter 2022.

Table 7. Calculated UPLs for 1-of-2 2025 Groundwater Monitoring

Constituent Name	Background Data Set	Upper Limit	Lower Limit	Observation	Background N	Background Mean	Standard Deviation	% Non-detects	Non-detect Adjustment	Transformation	Alpha	Method
MW-2S												
Ammonia (NH3)	2008–2024	0.14	n/a	1 future	59	n/a	n/a	93.22	n/a	n/a	0.000549	NP Intra (NDs) 1 of 2
Chloride (mg/L)	2008–2024	18	n/a	1 future	62	n/a	n/a	43.55	n/a	n/a	0.0005	NP Intra (normality) 1 of 2
Iron, Dissolved (mg/L)	2008–2024	0.281	n/a	1 future	55	n/a	n/a	70.91	n/a	n/a	0.000639	NP Intra (NDs) 1 of 2
Iron, Total (mg/L)	2020–2024	0.118	n/a	1 future	19	n/a	n/a	78.95	n/a	n/a	0.004738	NP Intra (NDs) 1 of 2
Manganese, Dissolved (mg/L)	2008–2024	0.1	n/a	1 future	60	n/a	n/a	90	n/a	n/a	0.000527	NP Intra (NDs) 1 of 2
Manganese, Total (mg/L)	2020–2024	0.01	n/a	1 future	18	n/a	n/a	88.89	n/a	n/a	0.005258	NP Intra (NDs) 1 of 2
Nitrate (mg/L)	2008–2024	2.092	n/a	1 future	61	0.5786	0.4343	29.51	Aitchison`s	sqrt(x)	0.000878	Param Intra 1 of 2
pH (none)	2008–2009	7.86	6.211	1 future	7	7.036	0.2418	0	None	No	0.000439	Param Intra 1 of 2
Sulfate (mg/L)	2008–2023	10.86	n/a	1 future	58	4.5	3.175	17.24	Aitchison`s	No	0.000878	Param Intra 1 of 2
TDS (mg/L)	2008–2024	178	n/a	1 future	61	129.1	24.46	0	None	No	0.000878	Param Intra 1 of 2
MW-3S												
Ammonia (NH3)	2008–2024	0.14	n/a	1 future	62	n/a	n/a	95.16	n/a	n/a	0.0005	NP Intra (NDs) 1 of 2
Chloride (mg/L)	2008–2023	47.39	n/a	1 future	61	21.8	12.81	6.557	None	No	0.000878	Param Intra 1 of 2
Iron, Dissolved (mg/L)	2008–2024	0.37	n/a	1 future	58	n/a	n/a	55.17	n/a	n/a	0.000572	NP Intra (NDs) 1 of 2
Iron, Total (mg/L)	2020–2024	0.25	n/a	1 future	17	n/a	n/a	64.71	n/a	n/a	0.005778	NP Intra (NDs) 1 of 2
Manganese, Dissolved (mg/L)	2008–2024	0.03	n/a	1 future	62	n/a	n/a	79.03	n/a	n/a	0.0005	NP Intra (NDs) 1 of 2
Manganese, Total (mg/L)	2020–2024	0.01	n/a	1 future	17	n/a	n/a	88.24	n/a	n/a	0.005778	NP Intra (NDs) 1 of 2
Nitrate (mg/L)	2008–2009	9.837	n/a	1 future	8	1.765	0.448	0	None	sqrt(x)	0.000878	Param Intra 1 of 2
pH (none)	2008–2009	7.765	6.261	1 future	7	7.013	0.2205	0	None	No	0.000439	Param Intra 1 of 2
Sulfate (mg/L)	2008–2023	46.12	n/a	1 future	61	22.68	11.73	3.279	None	No	0.000878	Param Intra 1 of 2
TDS (mg/L)	2008–2023	293.6	n/a	1 future	62	13.18	1.982	0	None	sqrt(x)	0.000878	Param Intra 1 of 2
MW-4S												
Ammonia (NH3)	2022–2024	0.085	n/a	1 future	9	n/a	n/a	77.78	n/a	n/a	0.01707	NP Intra (NDs) 1 of 2
Chloride (mg/L)	2022–2024	61.57	n/a	1 future	10	45.49	5.867	0	None	No	0.000878	Param Intra 1 of 2
Iron, Dissolved (mg/L)	2022–2024	0.056	n/a	1 future	10	n/a	n/a	100	n/a	n/a	0.01407	NP Intra (NDs) 1 of 2
Iron, Total (mg/L)	2022–2024	0.055	n/a	1 future	10	n/a	n/a	90	n/a	n/a	0.01407	NP Intra (NDs) 1 of 2
Manganese, Dissolved (mg/L)	2022–2024	0.011	n/a	1 future	10	n/a	n/a	100	n/a	n/a	0.01407	NP Intra (NDs) 1 of 2
Manganese, Total (mg/L)	2022–2024	0.01	n/a	1 future	10	n/a	n/a	100	n/a	n/a	0.01407	NP Intra (NDs) 1 of 2
Nitrate (mg/L)	2022–2024	73.89	n/a	1 future	10	35.86	13.88	0	None	No	0.000878	Param Intra 1 of 2
pH (none)	2022–2024	7.352	6.811	1 future	7	7.081	0.07925	0	None	No	0.000439	Param Intra 1 of 2
Sulfate (mg/L)	2022–2024	168.4	n/a	1 future	10	80.8	31.99	0	None	No	0.000878	Param Intra 1 of 2
TDS (mg/L)	2022–2024	811.3	n/a	1 future	10	553	94.29	0	None	No	0.000878	Param Intra 1 of 2

Table 8. Calculated Control Charts for 1-of-2 2025 Groundwater Monitoring

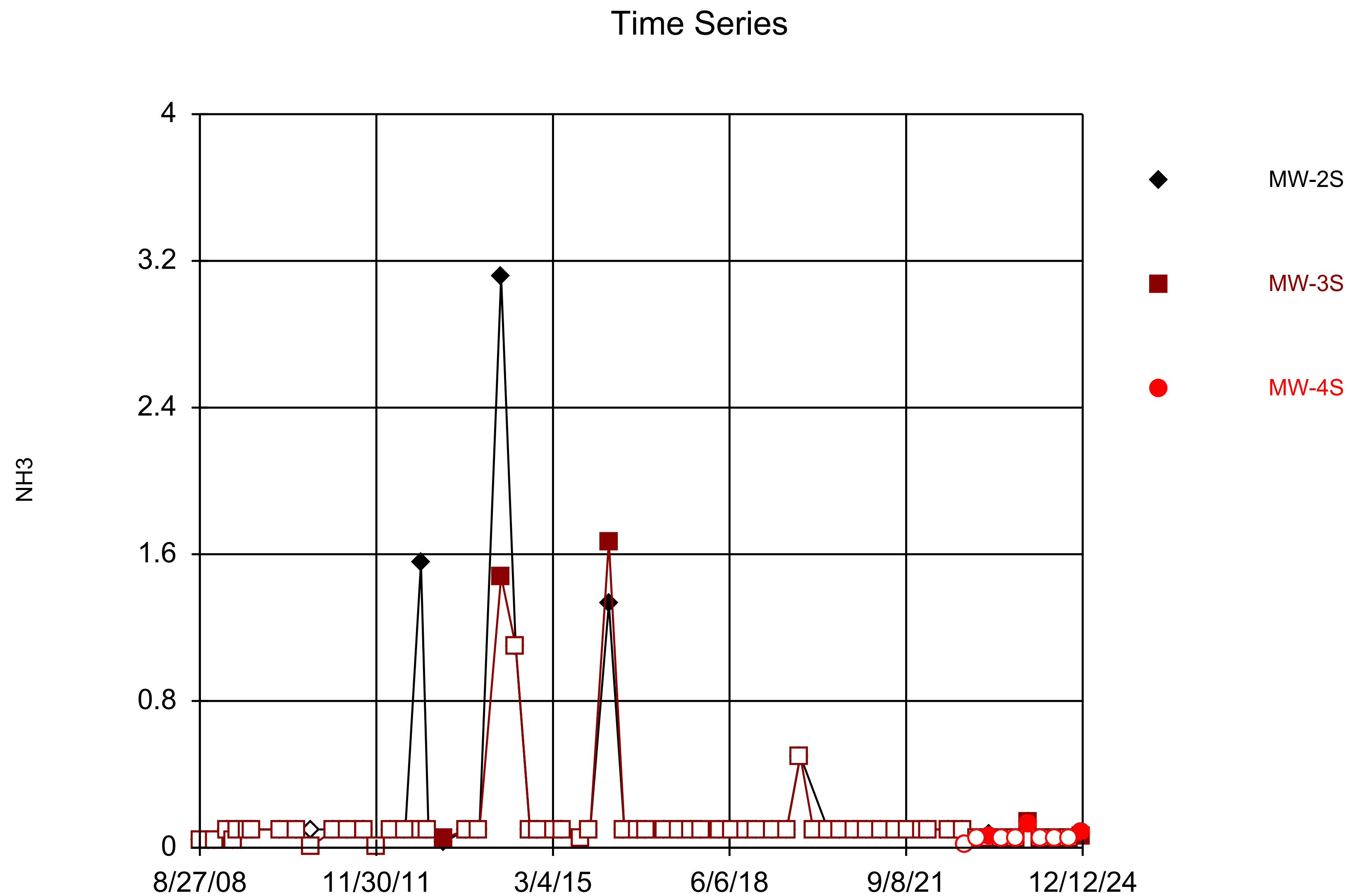
Constituent Name	Background Data Set	h	SCL	Background N	Background Mean	Standard Deviation	% Non-detects	Adjustment for NDs	Deseasonalized	Transformation	Method
MW-2S											
Ammonia (NH3)	2008–2024	PL = 0.14	n/a	59	n/a	n/a	93.22	None	No	No	NP Intra PL (NDs)
Chloride (mg/L)	2008–2024	PL = 18	n/a	62	n/a	n/a	43.55	None	No	No	NP Intra PL (normality)
Iron, Dissolved (mg/L)	2008–2024	PL = 0.281	n/a	55	n/a	n/a	70.91	None	No	No	NP Intra PL (NDs)
Iron, Total (mg/L)	2020–2024	PL = 0.118	n/a	19	n/a	n/a	78.95	None	No	No	NP Intra PL (NDs)
Manganese, Dissolved (mg/L)	2008–2024	PL = 0.1	n/a	60	n/a	n/a	90	None	No	No	NP Intra PL (NDs)
Manganese, Total (mg/L)	2020–2024	PL = 0.01	n/a	18	n/a	n/a	88.89	None	No	No	NP Intra PL (NDs)
Nitrate (mg/L)	2008–2024	PL = 2.04	n/a	61	n/a	n/a	29.51	None	No	No	NP Intra PL (normality)
pH (none)	2008–2009	8.245 & 5.827	8.245 & 5.827	7	7.036	0.2418	0	None	No	No	Param Intra
Sulfate (mg/L)	2008–2023	19.01	19.01	58	4.912	2.819	17.24	None	No	No	Param Intra
TDS (mg/L)	2008–2024	PL = 182	n/a	61	n/a	n/a	0	None	No	No	NP Intra PL (normality)
MW-3S											
Ammonia (NH3)	2008–2024	PL = 0.14	n/a	62	n/a	n/a	95.16	None	No	No	NP Intra PL (NDs)
Chloride (mg/L)	2008–2023	85.84	85.84	61	21.8	12.81	6.557	None	No	No	Param Intra
Iron, Dissolved (mg/L)	2008–2024	PL = 0.37	n/a	58	n/a	n/a	55.17	None	No	No	NP Intra PL (NDs)
Iron, Total (mg/L)	2020–2024	PL = 0.25	n/a	17	n/a	n/a	64.71	None	No	No	NP Intra PL (NDs)
Manganese, Dissolved (mg/L)	2008–2024	PL = 0.03	n/a	62	n/a	n/a	79.03	None	No	No	NP Intra PL (NDs)
Manganese, Total (mg/L)	2020–2024	PL = 0.01	n/a	17	n/a	n/a	88.24	None	No	No	NP Intra PL (NDs)
Nitrate (mg/L)	2008–2009	18.23	18.23	8	1.453	0.2359	0	None	No	x^(1/3)	Param Intra
pH (none)	2008–2009	PL = 7.2 & 6.54	n/a	7	n/a	n/a	0	None	No	No	NP Intra PL (normality)
Sulfate (mg/L)	2008–2023	81.34	81.34	61	22.68	11.73	3.279	None	No	No	Param Intra
TDS (mg/L)	2008–2023	533.1	533.1	62	13.18	1.982	0	None	No	sqrt(x)	Param Intra
MW-4S											
Ammonia (NH3)	2022–2024	PL = 0.085	n/a	9	n/a	n/a	77.78	None	No	No	NP Intra PL (NDs)
Chloride (mg/L)	2022–2024	74.83	74.83	10	45.49	5.867	0	None	No	No	Param Intra
Iron, Dissolved (mg/L)	2022–2024	PL = 0.056	n/a	10	n/a	n/a	100	None	No	No	NP Intra PL (NDs)
Iron, Total (mg/L)	2022–2024	PL = 0.055	n/a	10	n/a	n/a	90	None	No	No	NP Intra PL (NDs)
Manganese, Dissolved (mg/L)	2022–2024	PL = 0.011	n/a	10	n/a	n/a	100	None	No	No	NP Intra PL (NDs)
Manganese, Total (mg/L)	2022–2024	PL = 0.01	n/a	10	n/a	n/a	100	None	No	No	NP Intra PL (NDs)
Nitrate (mg/L)	2022–2024	105.3	105.3	10	35.86	13.88	0	None	No	No	Param Intra
pH (none)	2022–2024	7.478 & 6.685	7.478 & 6.685	7	7.081	0.07925	0	None	No	No	Param Intra
Sulfate (mg/L)	2022–2024	240.7	240.7	10	80.8	31.99	0	None	No	No	Param Intra
TDS (mg/L)	2022–2024	1024	1024	10	553	94.29	0	None	No	No	Param Intra

Note: PL = prediction limit (two values indicate upper and lower limits)

Attachment A

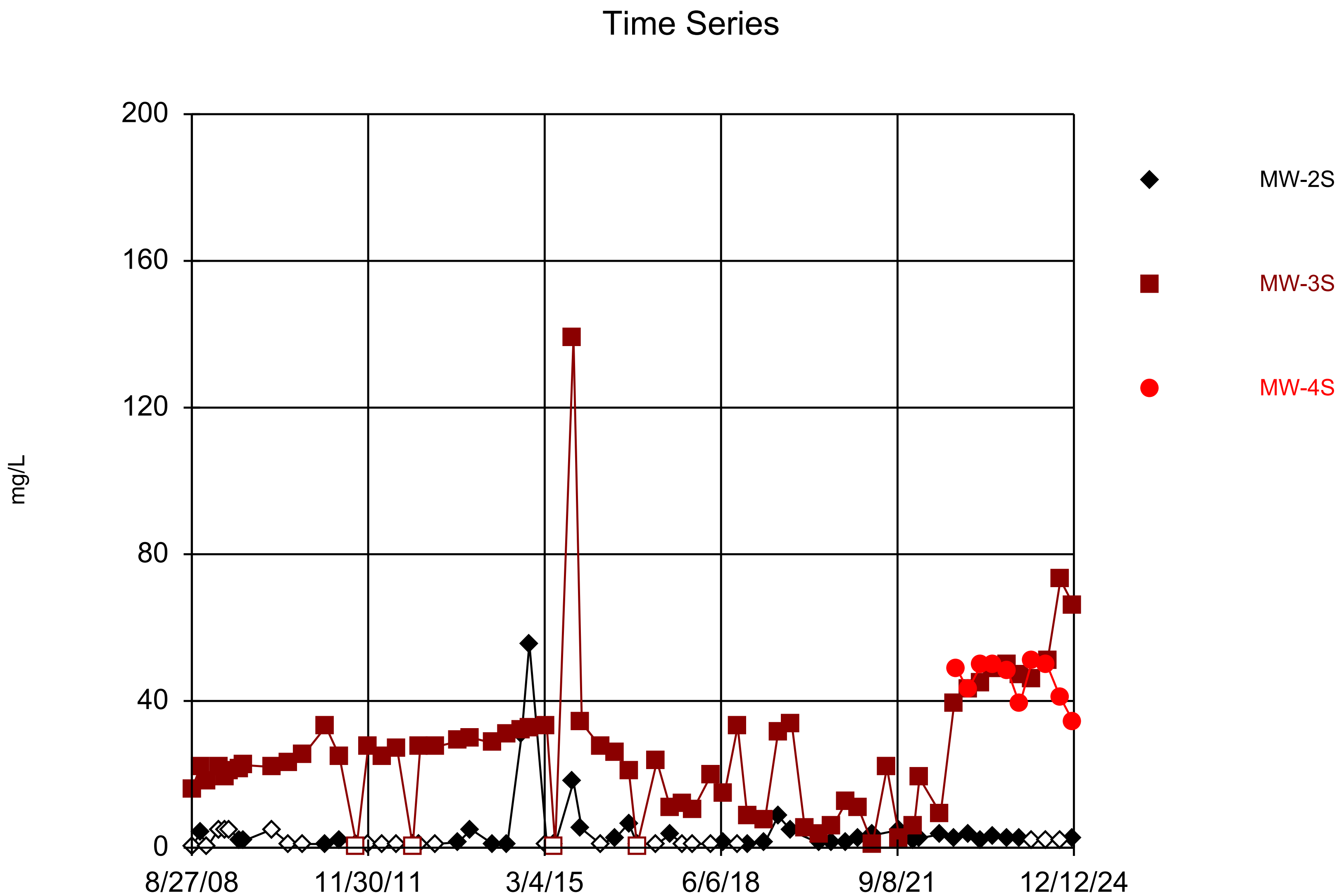
Time-series Plots

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.



Constituent: Ammonia   Analysis Run 2/11/2025 12:29 PM   View: MW-4S Initial Background Evaluation
Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

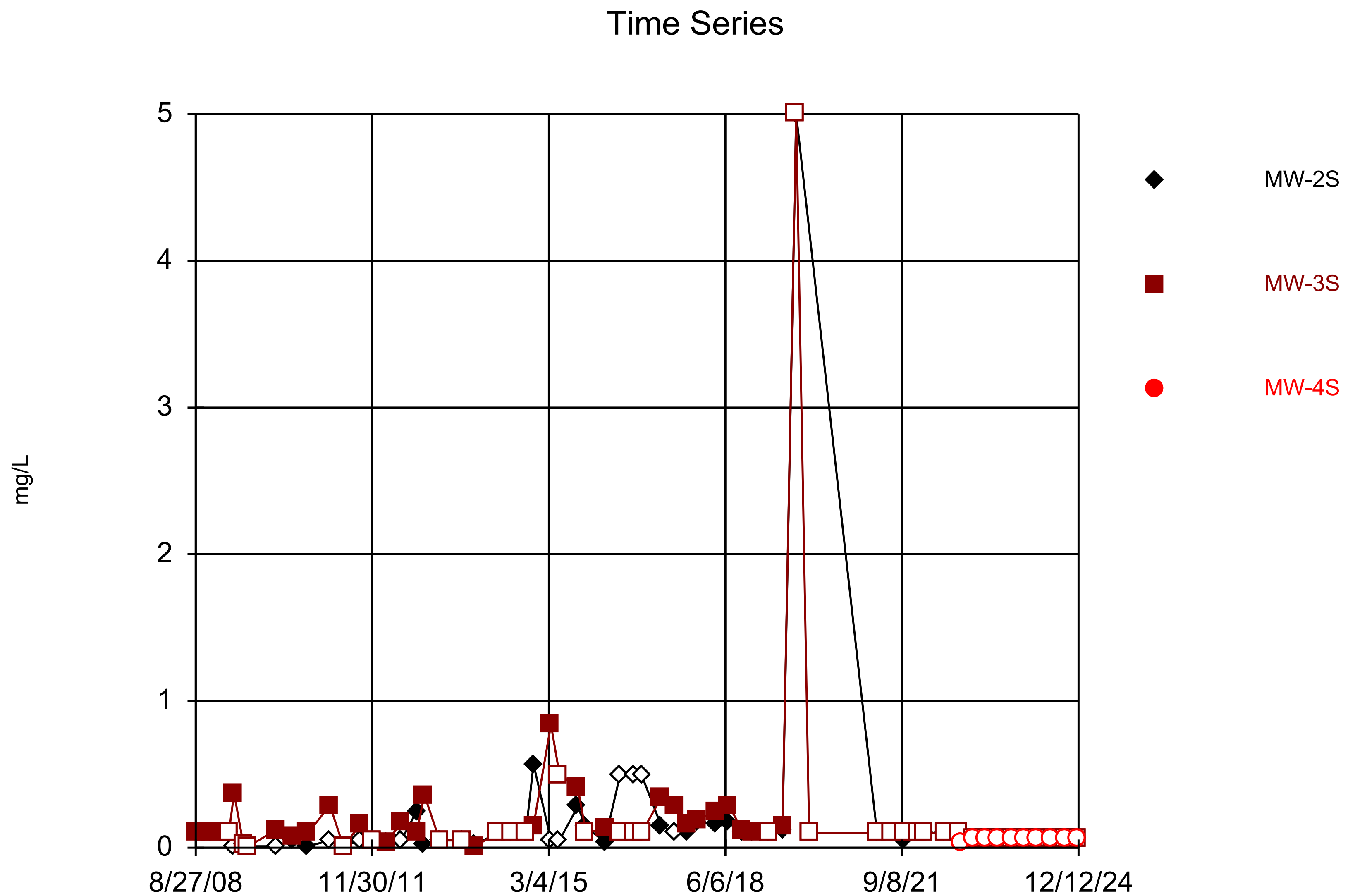
Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.



Constituent: Chloride   Analysis Run 2/11/2025 12:29 PM   View: MW-4S Initial Background Evaluation

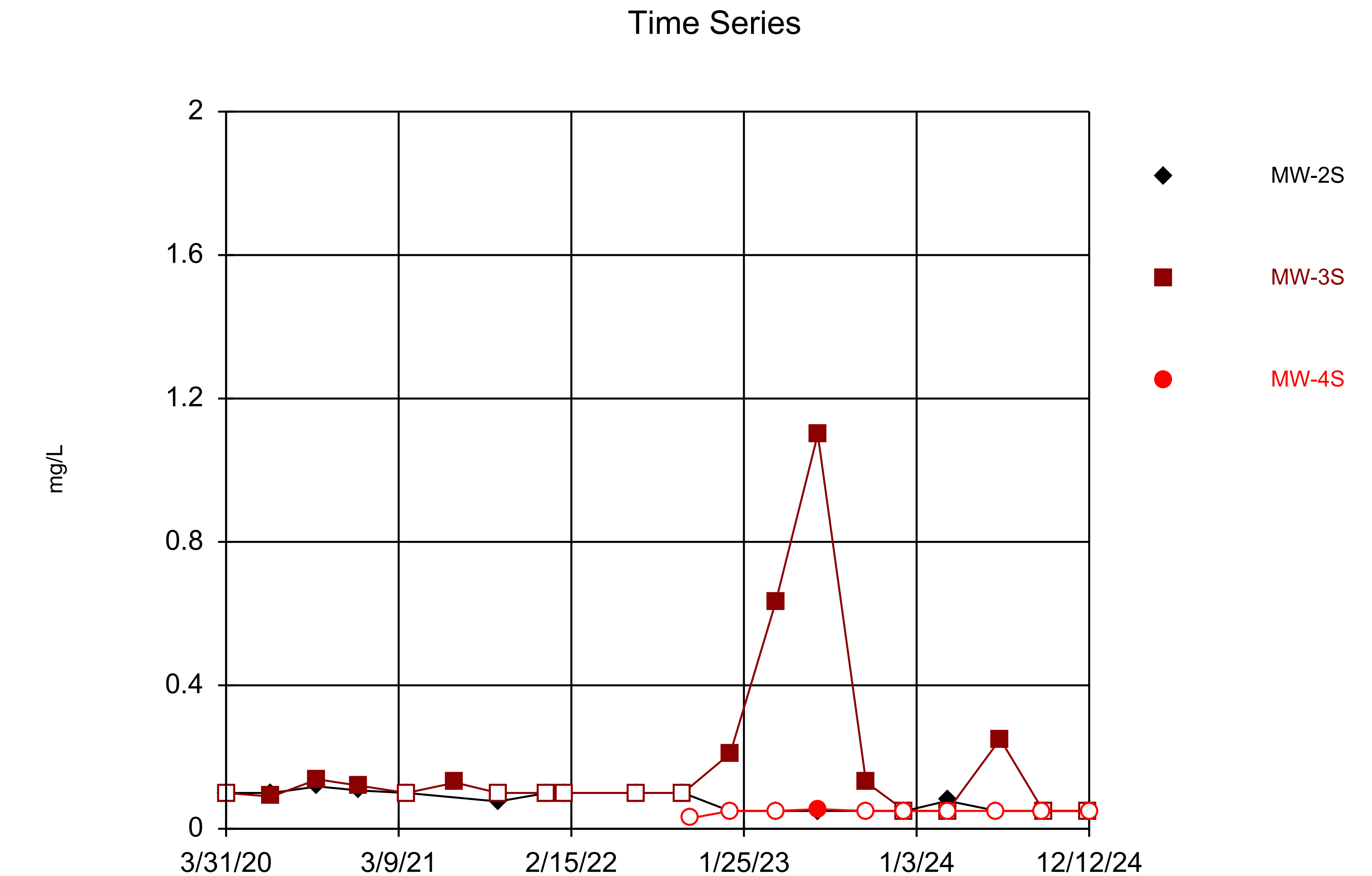
Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.



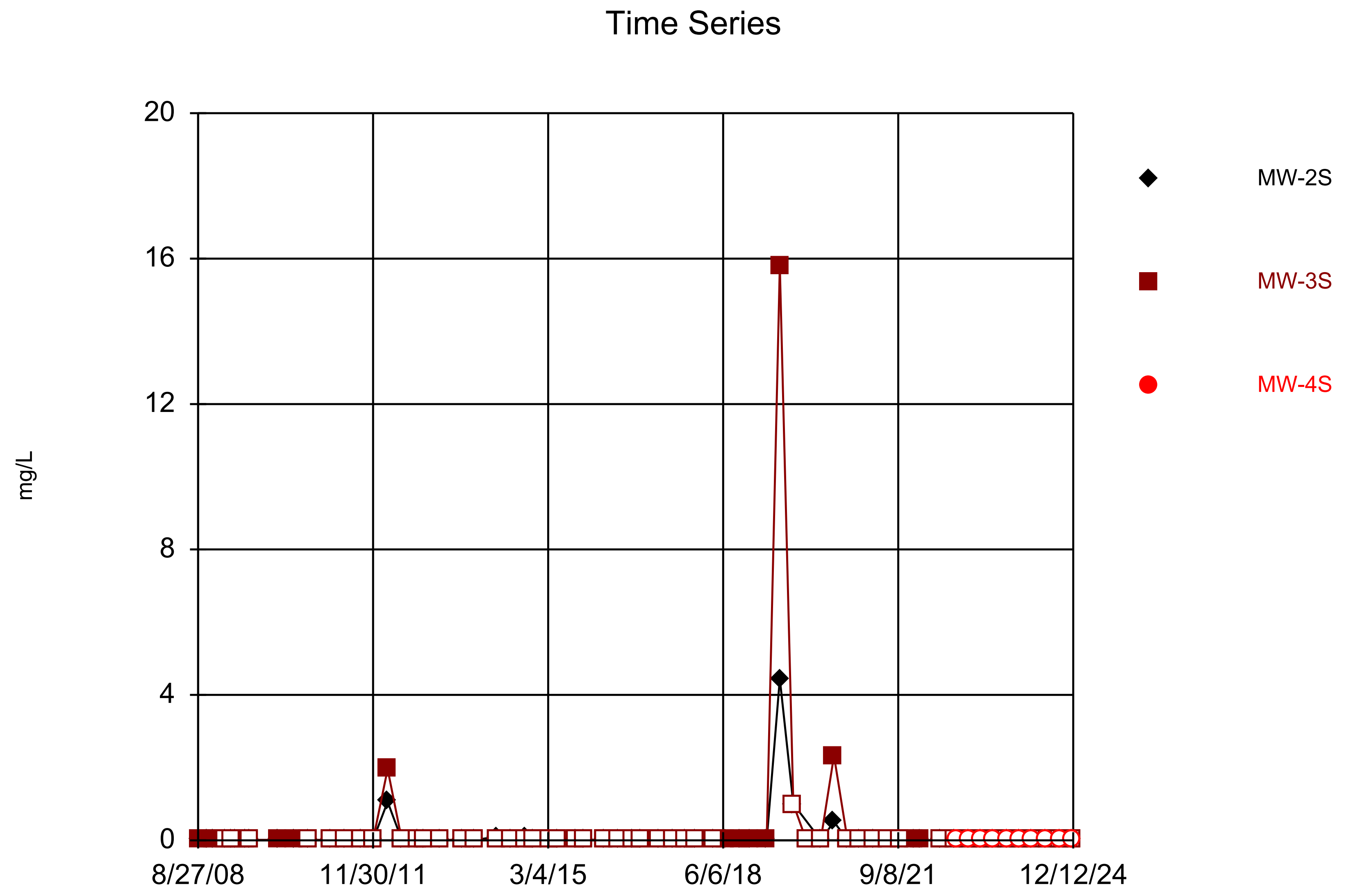
Constituent: Iron, Dissolved Analysis Run 2/11/2025 12:29 PM View: MW-4S Initial Background Evaluatio
Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.



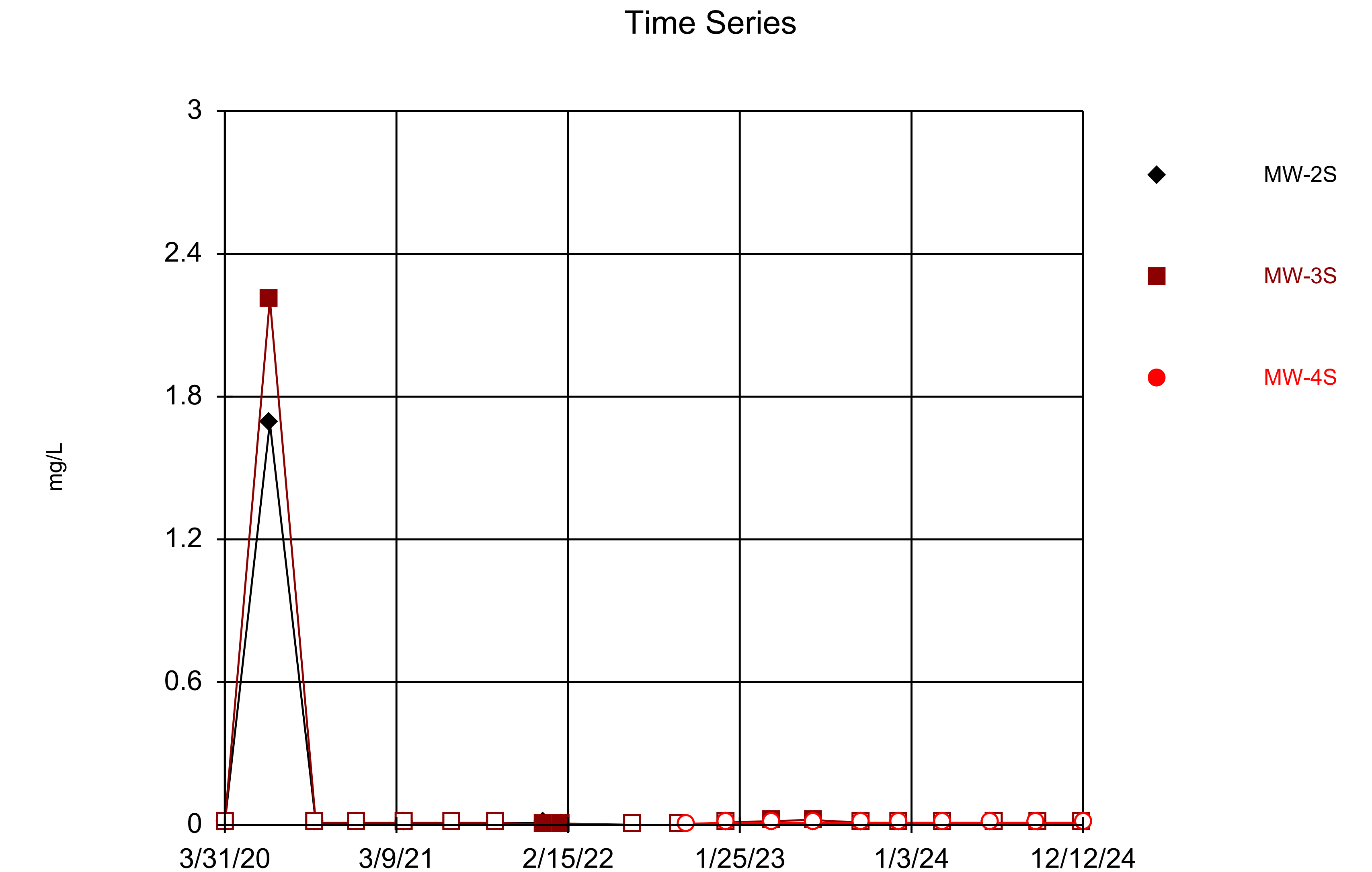
Constituent: Iron, Total Analysis Run 2/11/2025 12:29 PM View: MW-4S Initial Background Evaluation
Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.



Constituent: Manganese, Dissolved   Analysis Run 2/11/2025 12:29 PM   View: MW-4S Initial Background E
Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

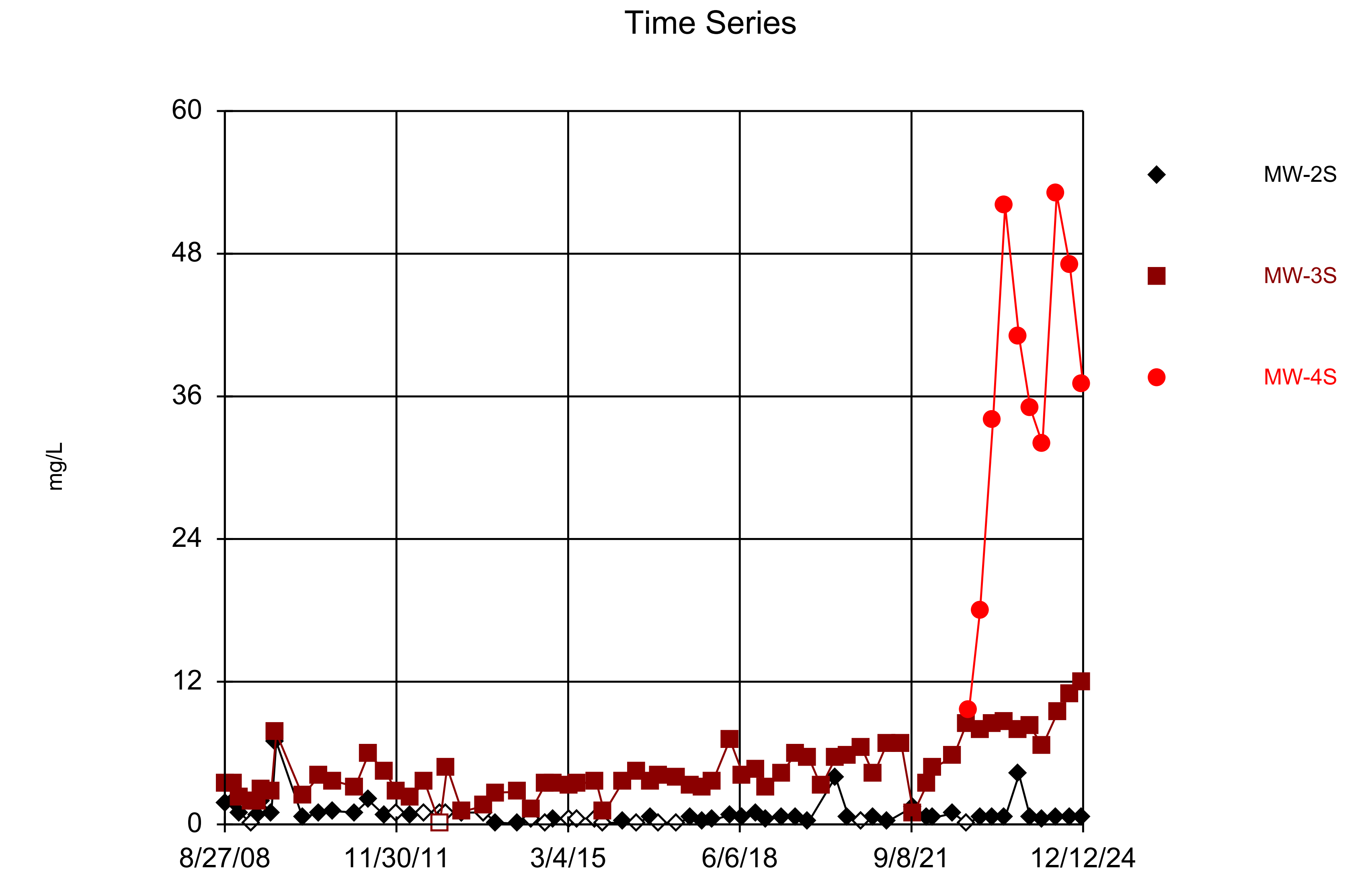
Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.



Constituent: Manganese, Total   Analysis Run 2/11/2025 12:29 PM   View: MW-4S Initial Background Evalua

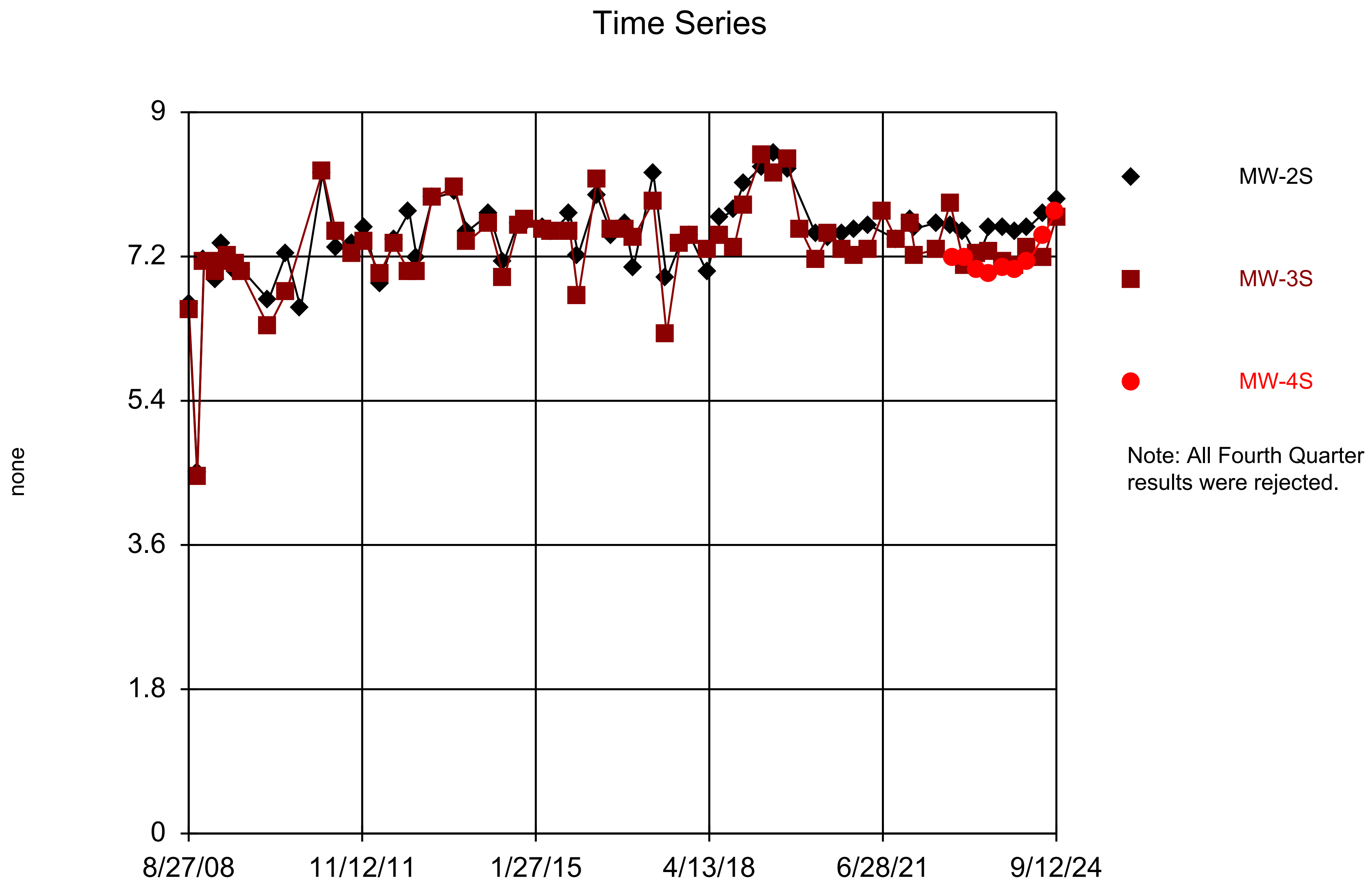
Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.



Constituent: Nitrate   Analysis Run 2/11/2025 12:29 PM   View: MW-4S Initial Background Evaluation
Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

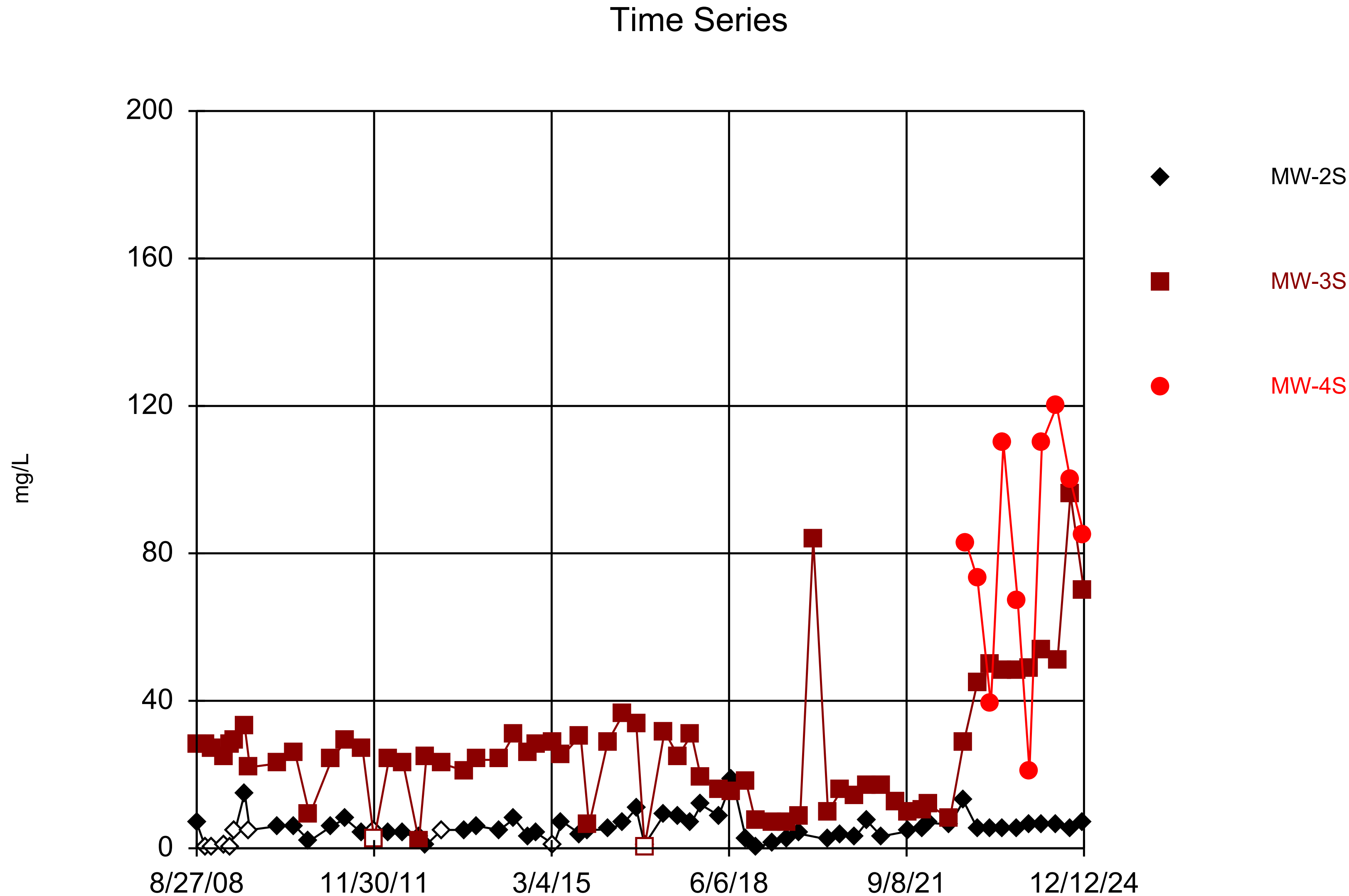
Sanitas™ v.10.0.24 Software licensed to Parametrix. UG



Constituent: pH Analysis Run 2/11/2025 12:29 PM View: MW-4S Initial Background Evaluation

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

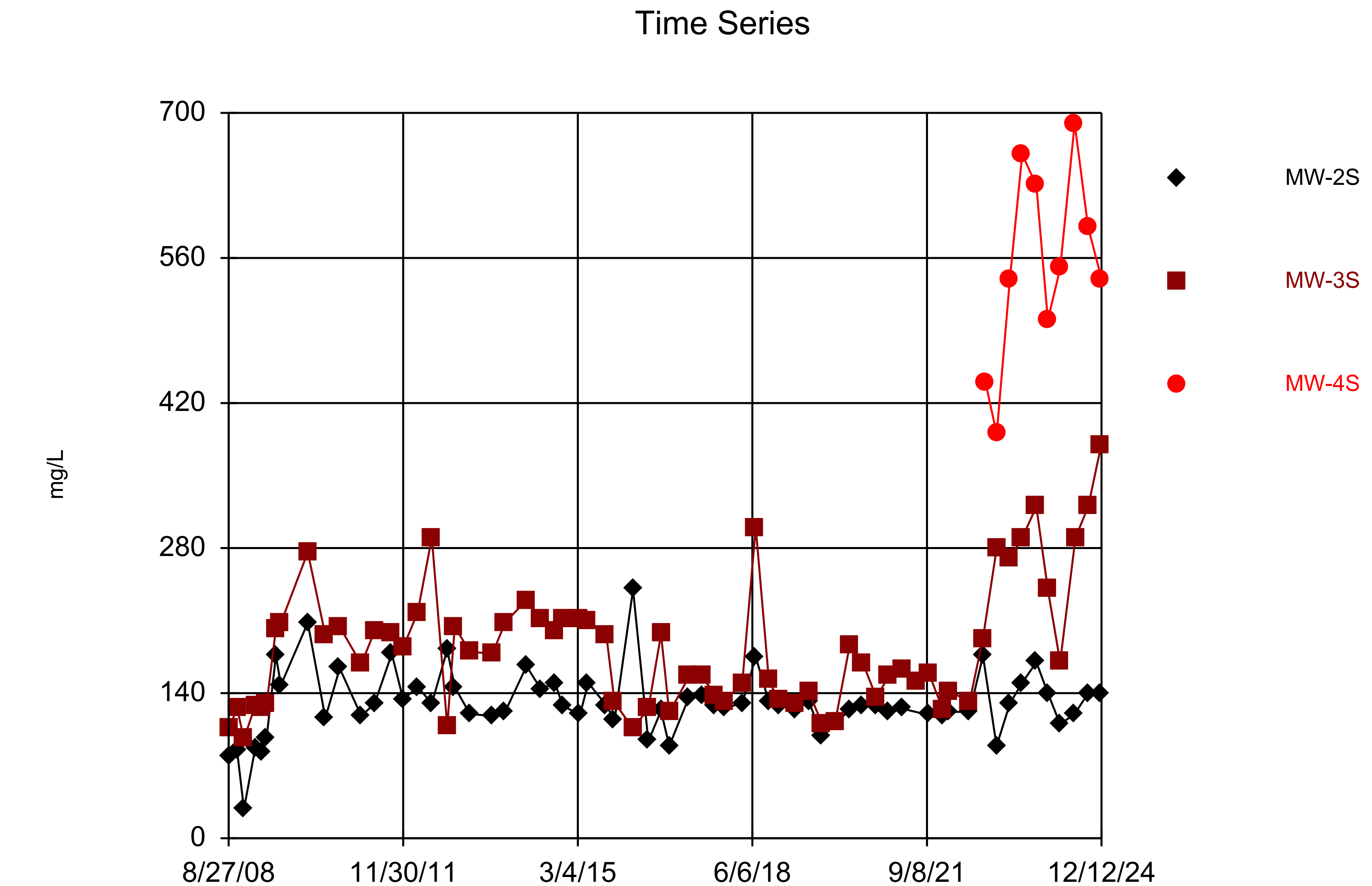
Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.



Constituent: Sulfate Analysis Run 2/11/2025 12:29 PM View: MW-4S Initial Background Evaluation

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG

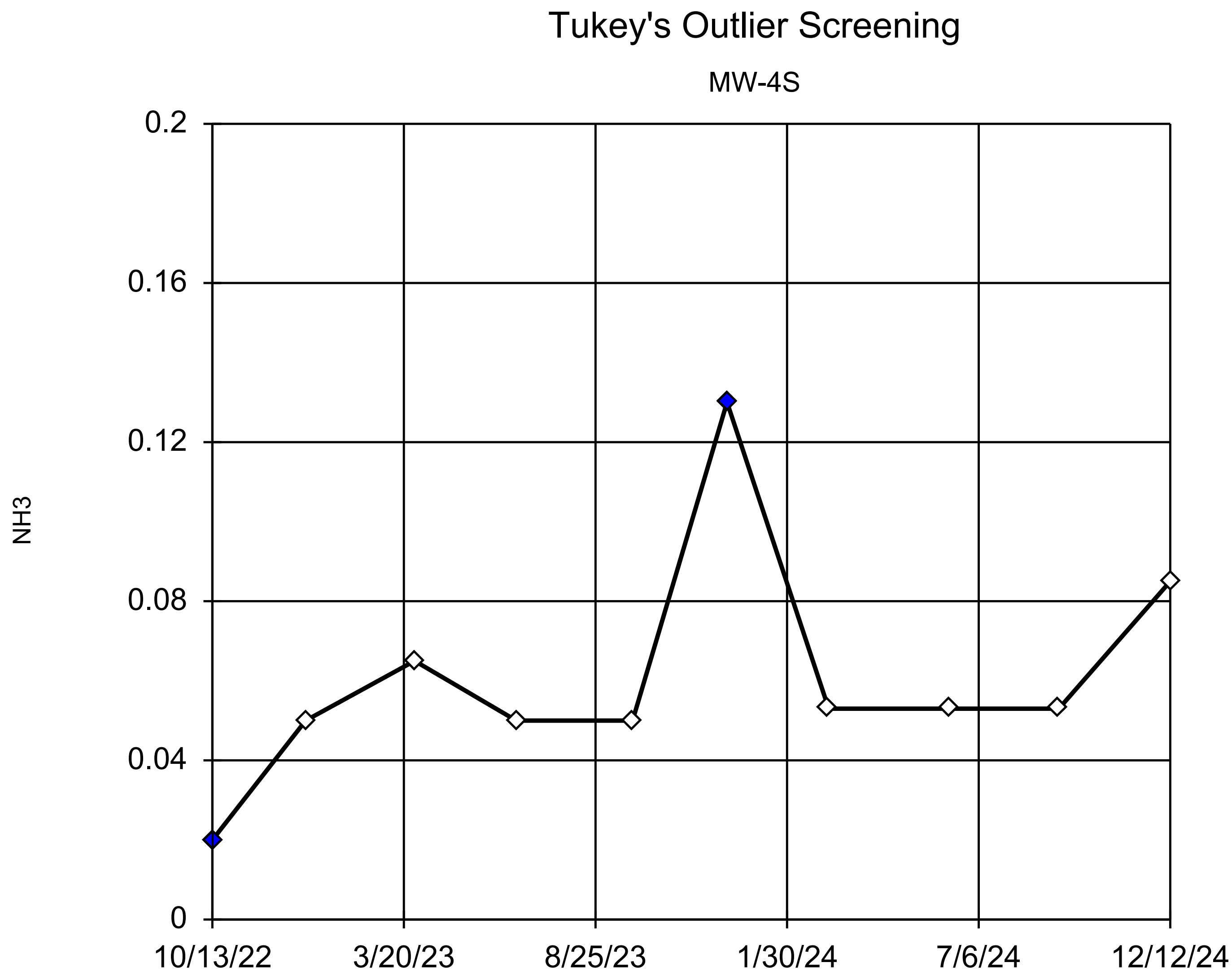


Constituent: TDS Analysis Run 2/11/2025 12:29 PM View: MW-4S Initial Background Evaluation

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Attachment B

Outlier Test Results
for MW-4S



n = 10

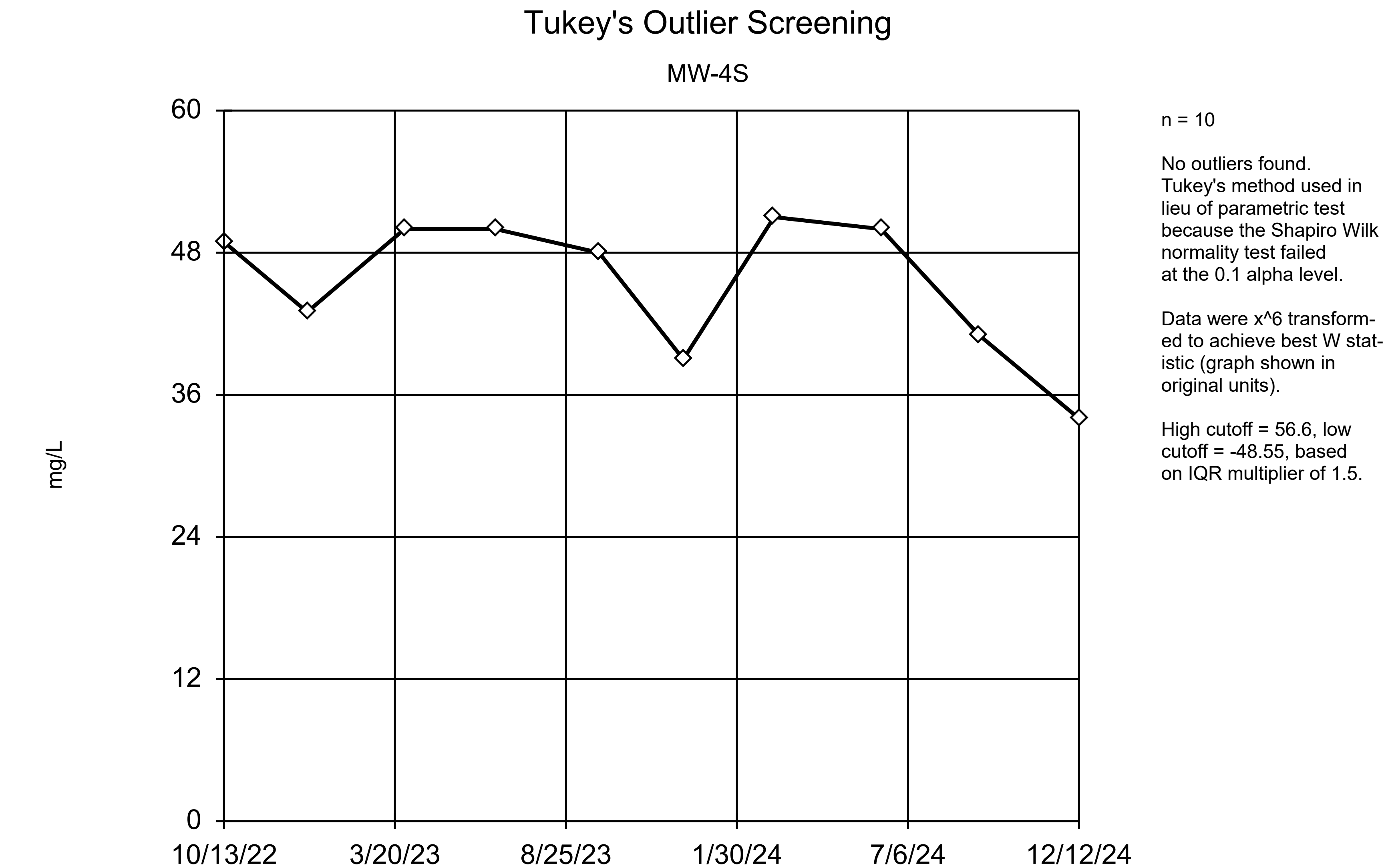
Outliers are drawn as solid.
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.

Data were cube root transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.1247, low cutoff = 0.02431, based on IQR multiplier of 1.5.

Constituent: Ammonia   Analysis Run 2/11/2025 12:36 PM   View: MW-4S Initial Background Evaluation

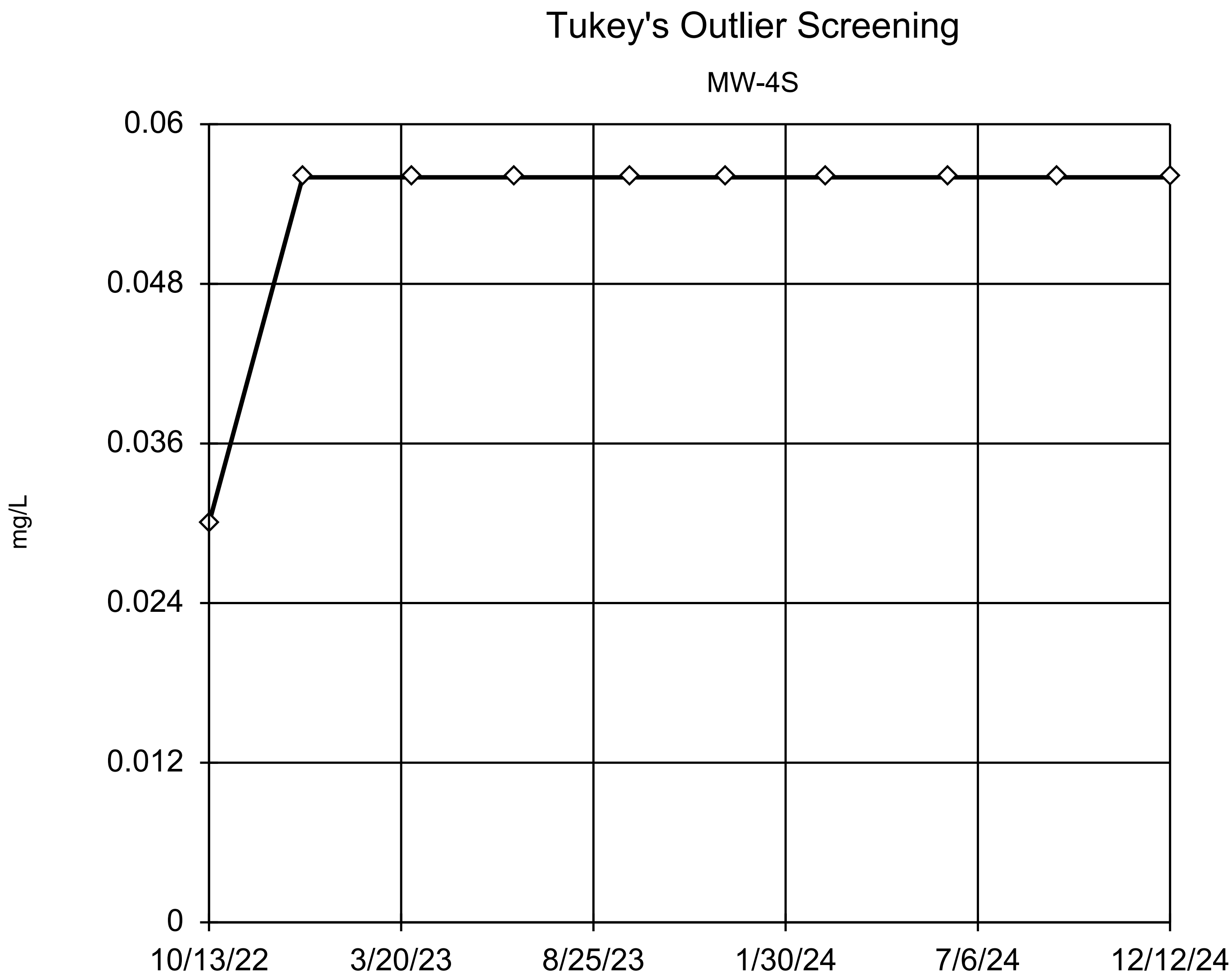
Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats



Constituent: Chloride   Analysis Run 2/11/2025 12:36 PM   View: MW-4S Initial Background Evaluation

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG



n = 10

No outliers found.
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.

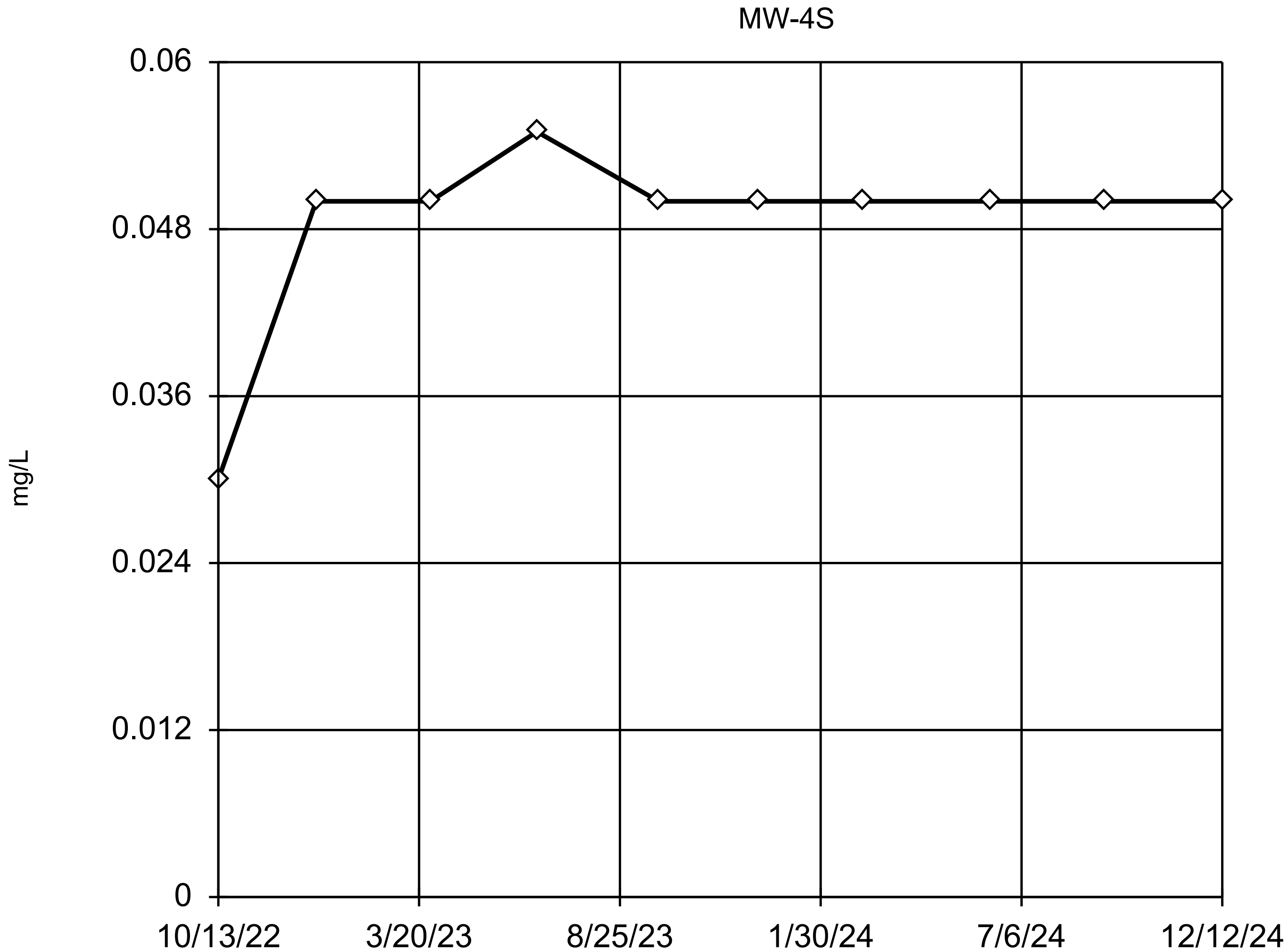
Data were cube transformed to achieve best W statistic (graph shown in original units).

The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Iron, Dissolved   Analysis Run 2/11/2025 12:36 PM   View: MW-4S Initial Background Evaluatio

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Tukey's Outlier Screening



n = 10

No outliers found.
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.

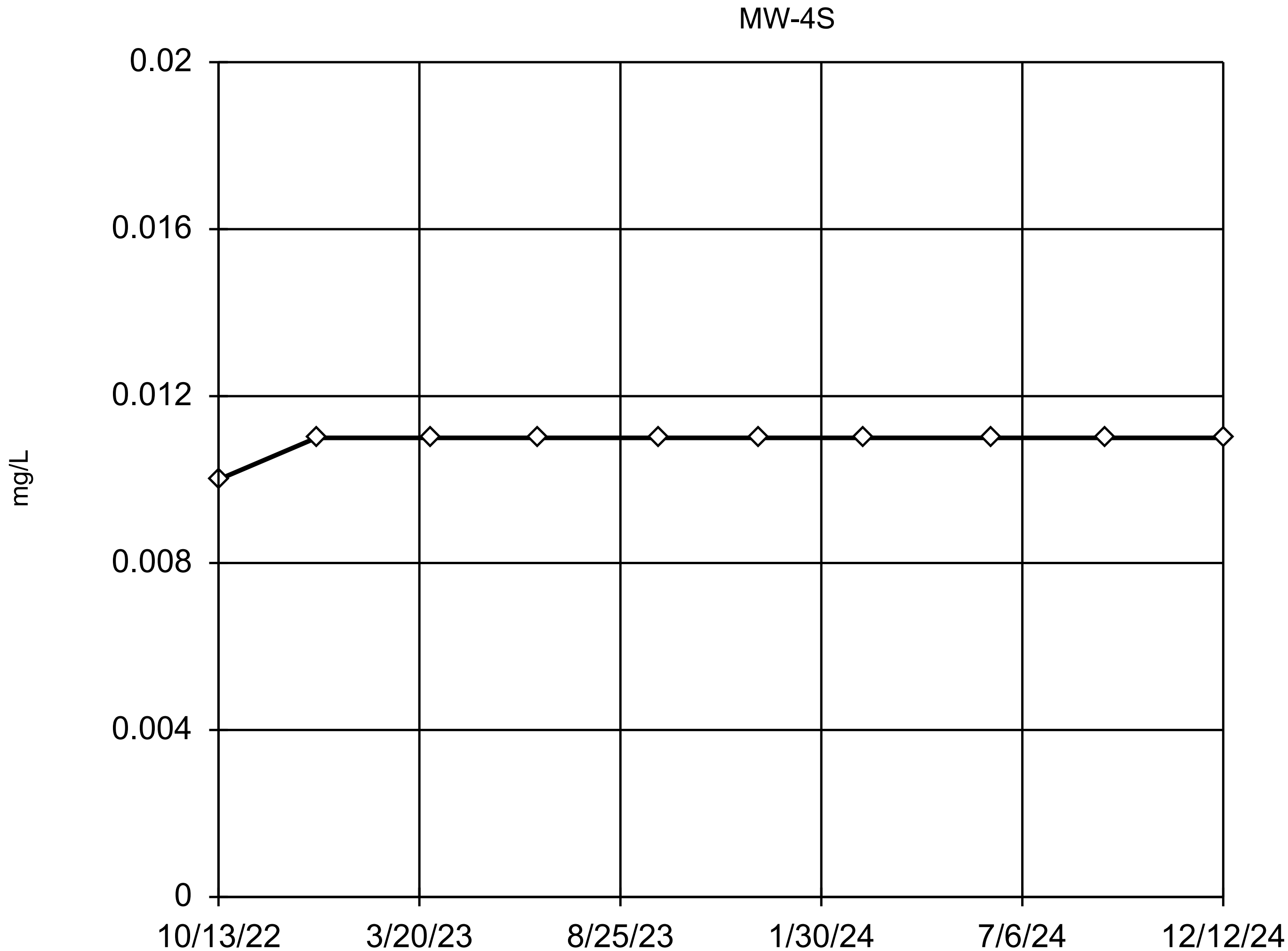
Data were x^6 transformed to achieve best W statistic (graph shown in original units).

The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Iron, Total Analysis Run 2/11/2025 12:36 PM View: MW-4S Initial Background Evaluation

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Tukey's Outlier Screening



n = 10

No outliers found.
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.

Data were square root transformed to achieve best W statistic (graph shown in original units).

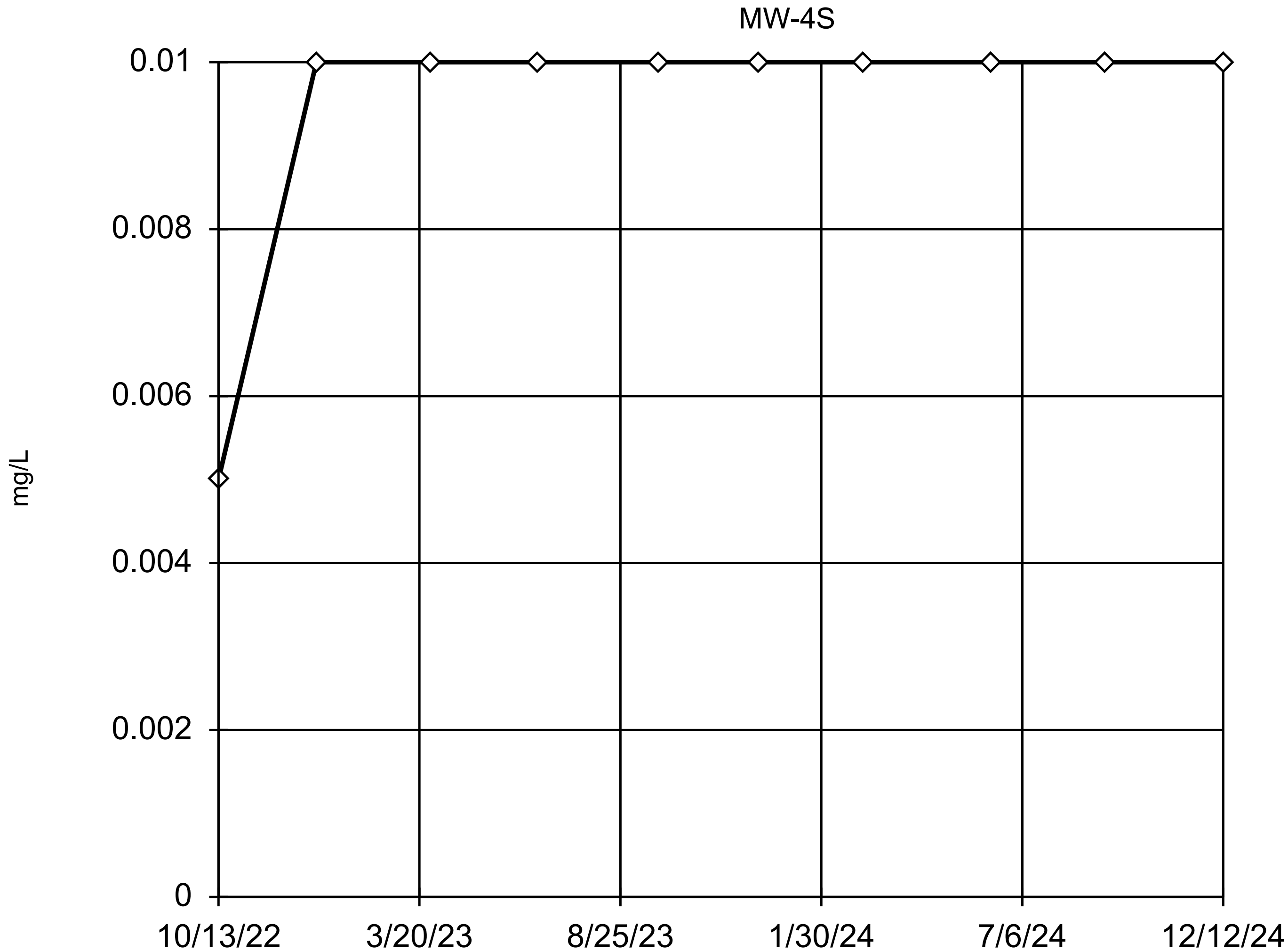
The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Manganese, Dissolved   Analysis Run 2/11/2025 12:36 PM   View: MW-4S Initial Background E

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG

Tukey's Outlier Screening



n = 10

No outliers found.
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.

Ladder of Powers transformations did not improve normality; analysis run on raw data.

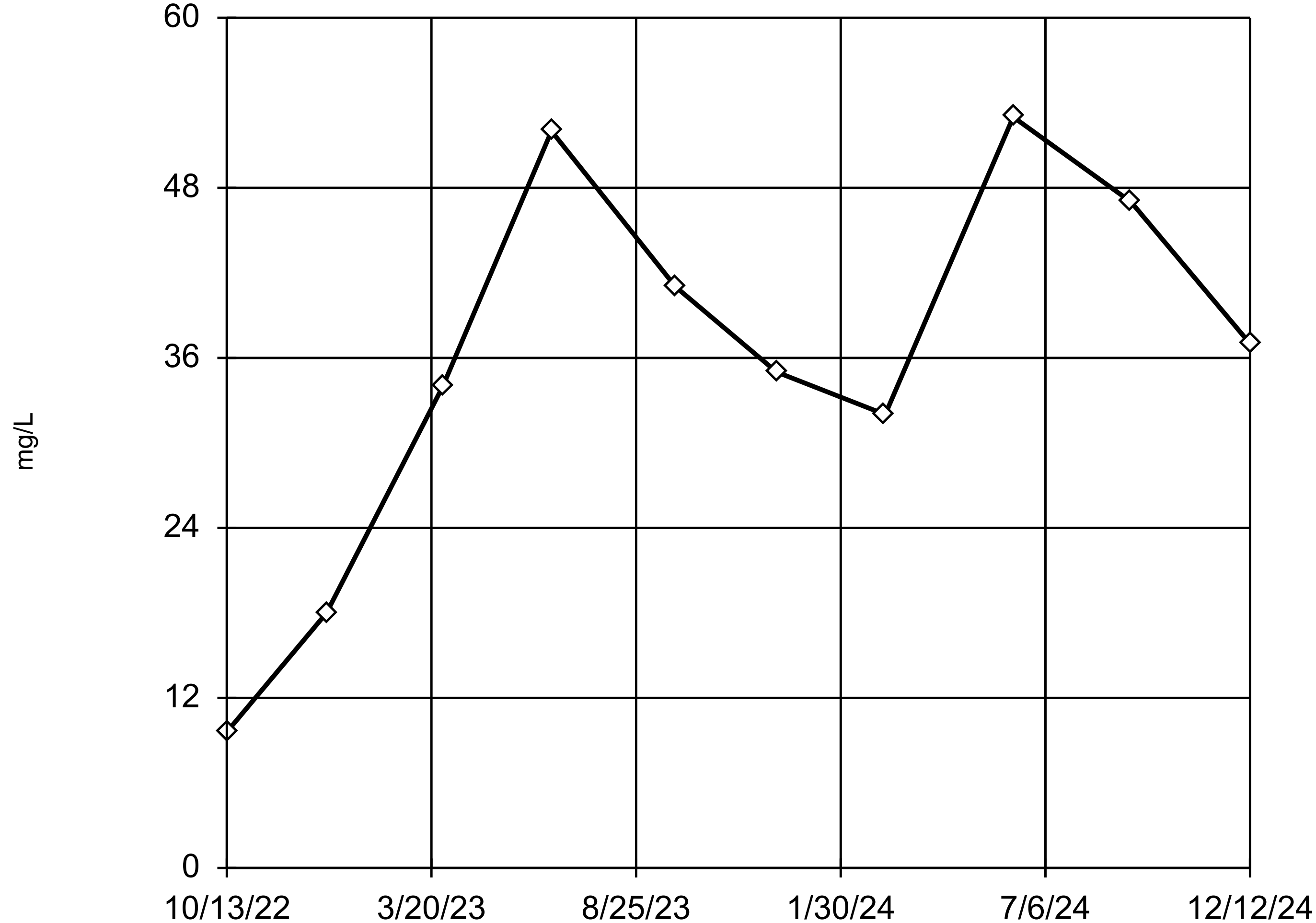
The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Manganese, Total   Analysis Run 2/11/2025 12:36 PM   View: MW-4S Initial Background Evalua

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Dixon's Outlier Test

MW-4S



n = 10

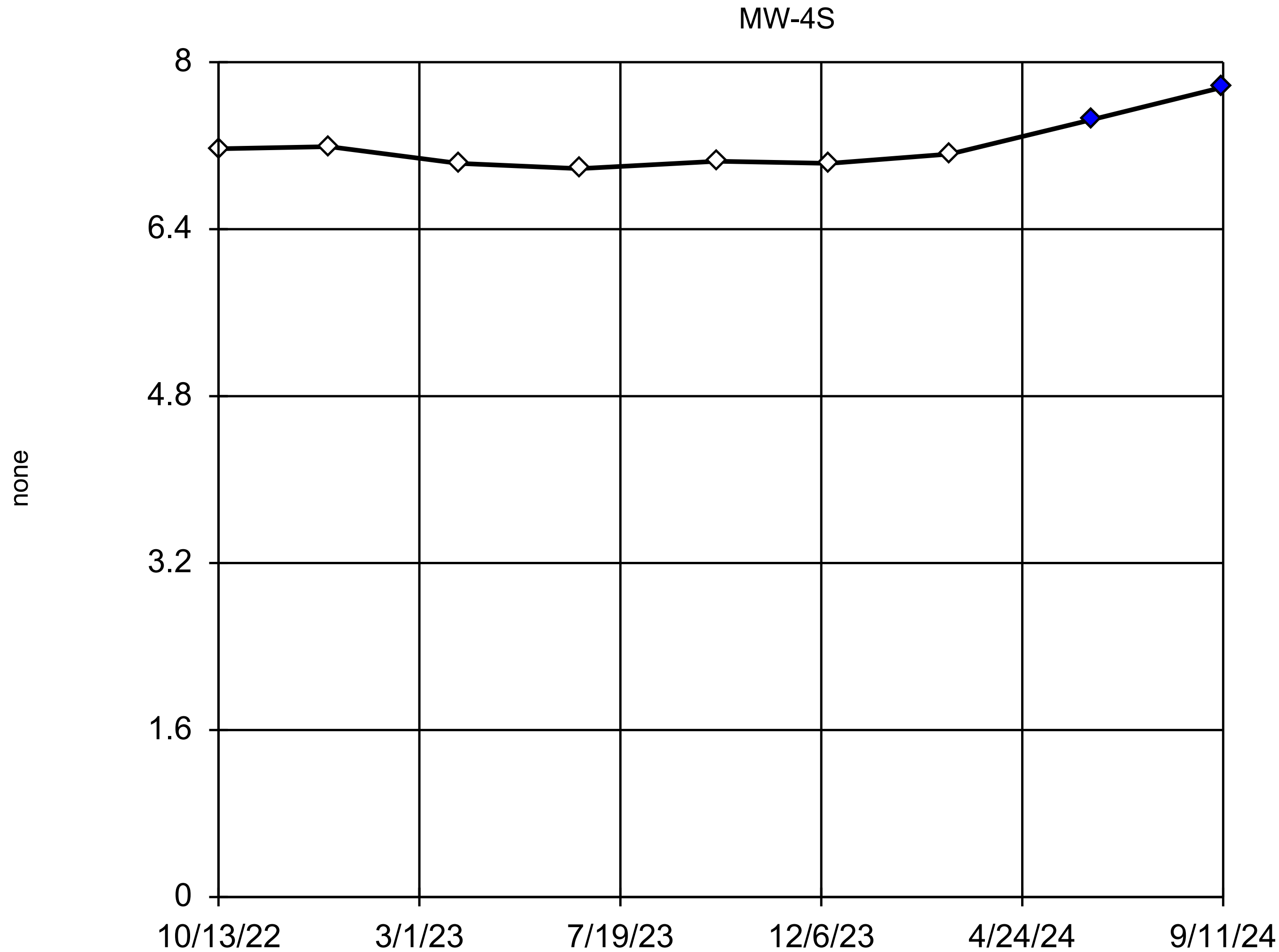
No statistical outliers.
Testing for 2 low outliers.
Mean = 35.86.
Std. Dev. = 13.88.
18: c = 0.4118
tabl = 0.477.
Alpha = 0.05.
9.6: c = 0.1981
tabl = 0.477.
Alpha = 0.05.

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.9447
Critical = 0.859
The distribution was found to be normally distributed.

Constituent: Nitrate   Analysis Run 2/11/2025 12:36 PM   View: MW-4S Initial Background Evaluation

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Dixon's Outlier Test



n = 9

Statistical outliers are drawn as solid.
Testing for 2 high outliers.
Mean = 7.198.
Std. Dev. = 0.253.
7.45 (P): c = 0.619
tabl = 0.512.
Alpha = 0.05.

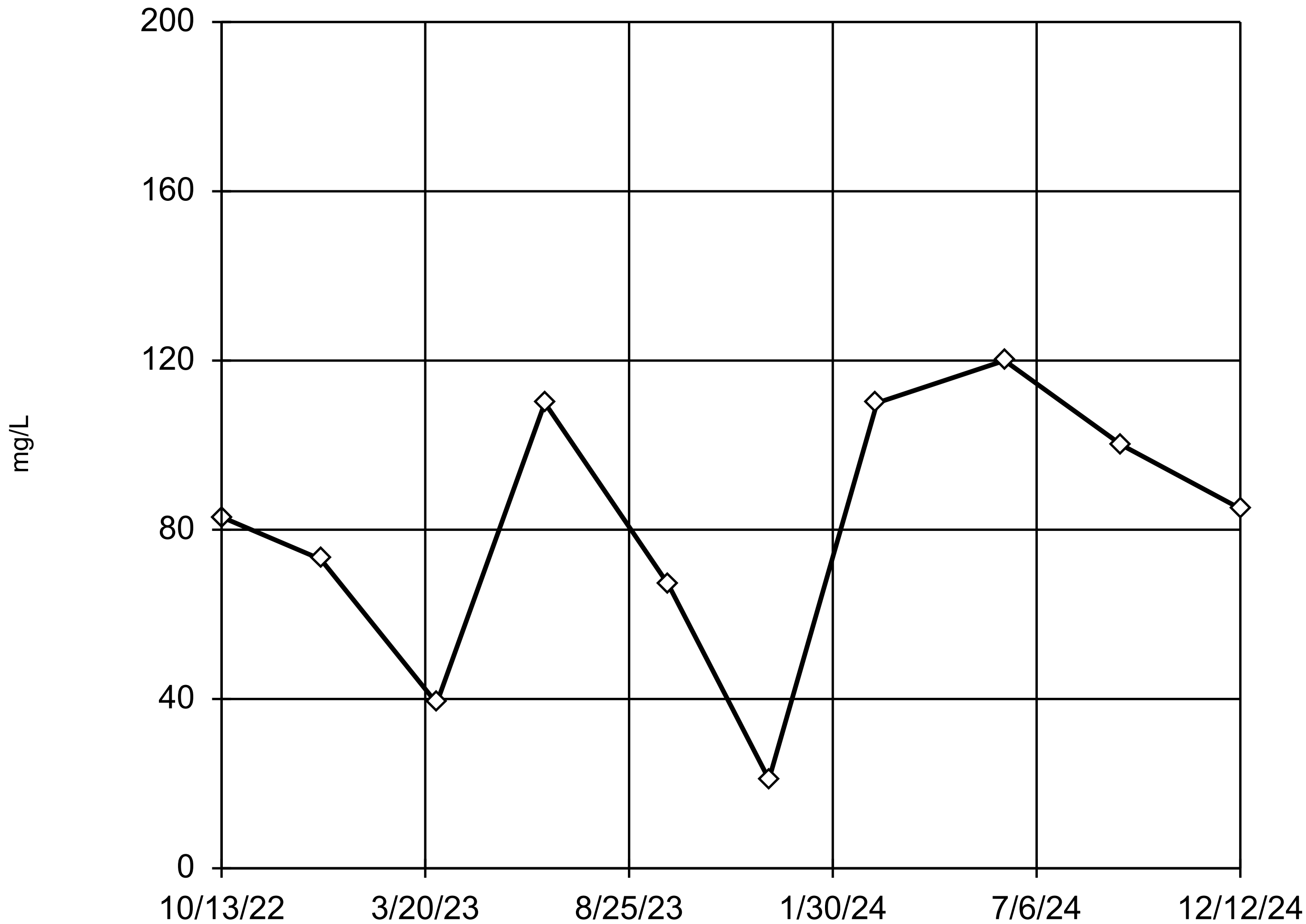
Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.9174
Critical = 0.838
The distribution, after removal of suspect values, was found to be normally distributed.

Constituent: pH Analysis Run 2/11/2025 12:36 PM View: MW-4S Initial Background Evaluation

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Dixon's Outlier Test

MW-4S



n = 10

No statistical outliers.
Testing for 2 low outliers.
Mean = 80.8.
Std. Dev. = 31.99.
39: c = 0.3944
tabl = 0.477.
Alpha = 0.05.
21: c = 0.2022
tabl = 0.477.
Alpha = 0.05.

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.9513
Critical = 0.859
The distribution was found to be normally distributed.

Constituent: Sulfate Analysis Run 2/11/2025 12:36 PM View: MW-4S Initial Background Evaluation

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

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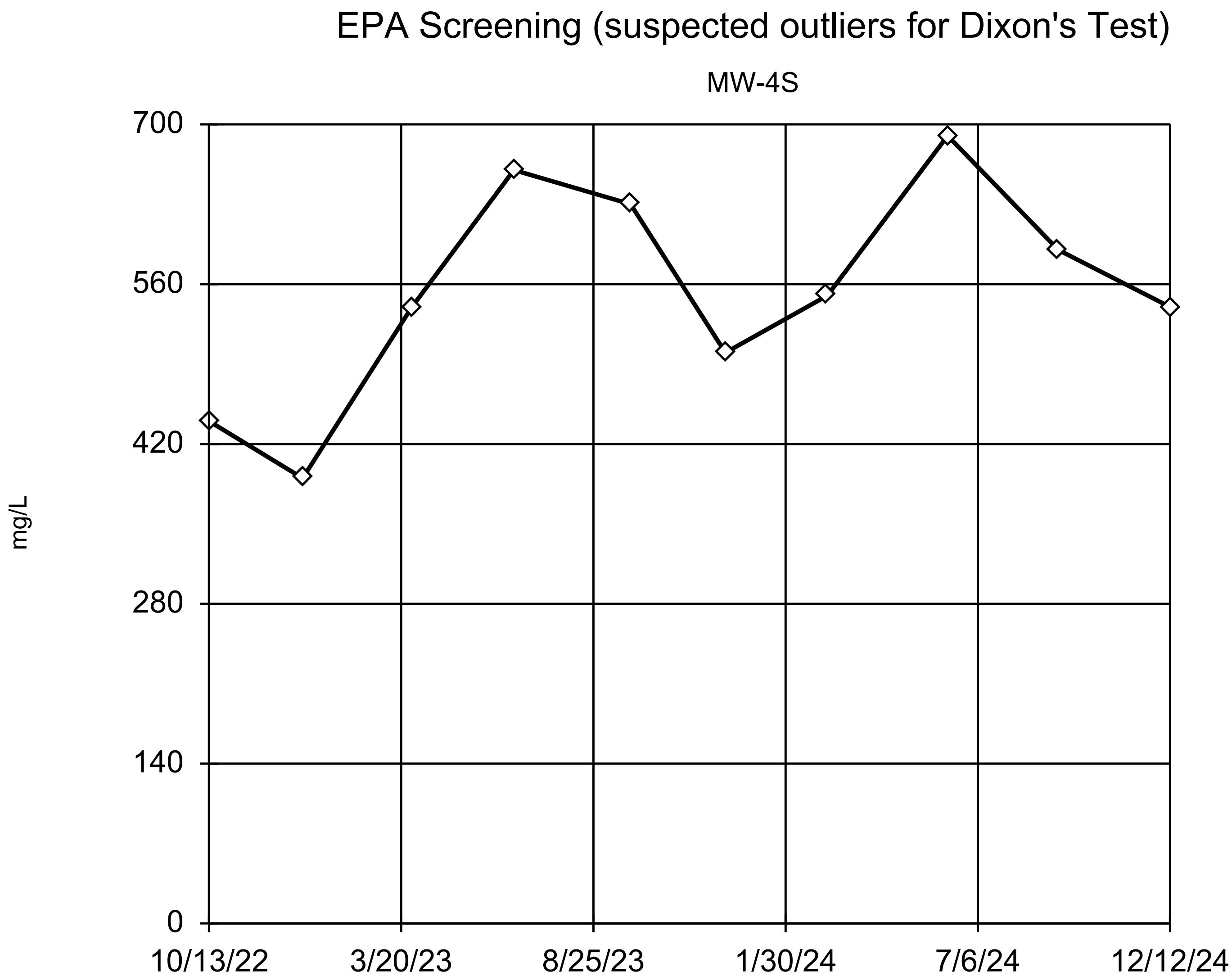


n = 10

Dixon's will not be run.
No suspect values identified or unable to establish suspect values.
Mean 553, std. dev. 94.29, critical Tn 2.176

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.9724
Critical = 0.869
The distribution was found to be normally distributed.

Constituent: TDS   Analysis Run 2/11/2025 12:36 PM   View: MW-4S Initial Background Evaluation

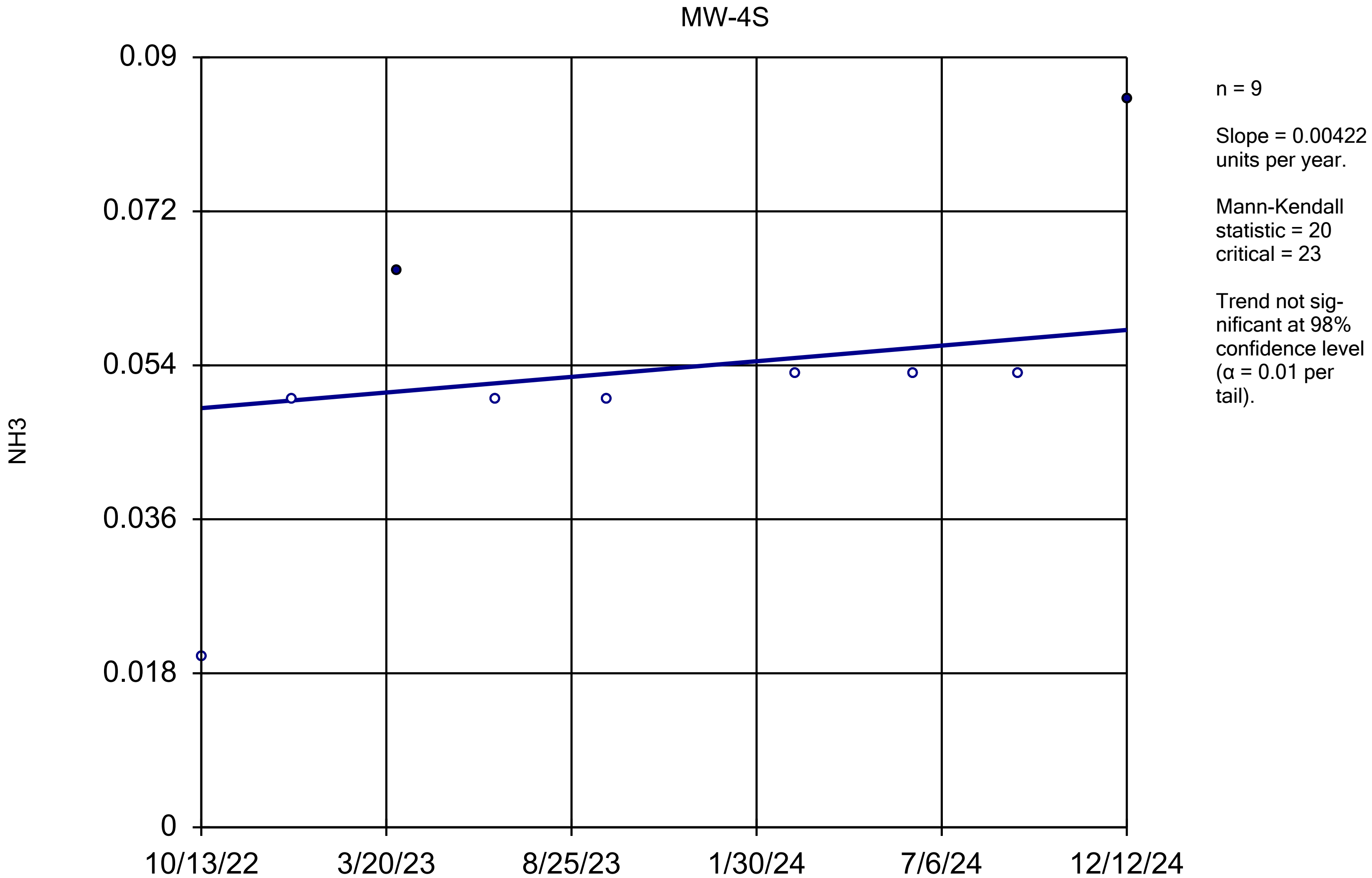
Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Attachment C

Sen's Slope/Mann-Kendall Trend Tests for MW-4S

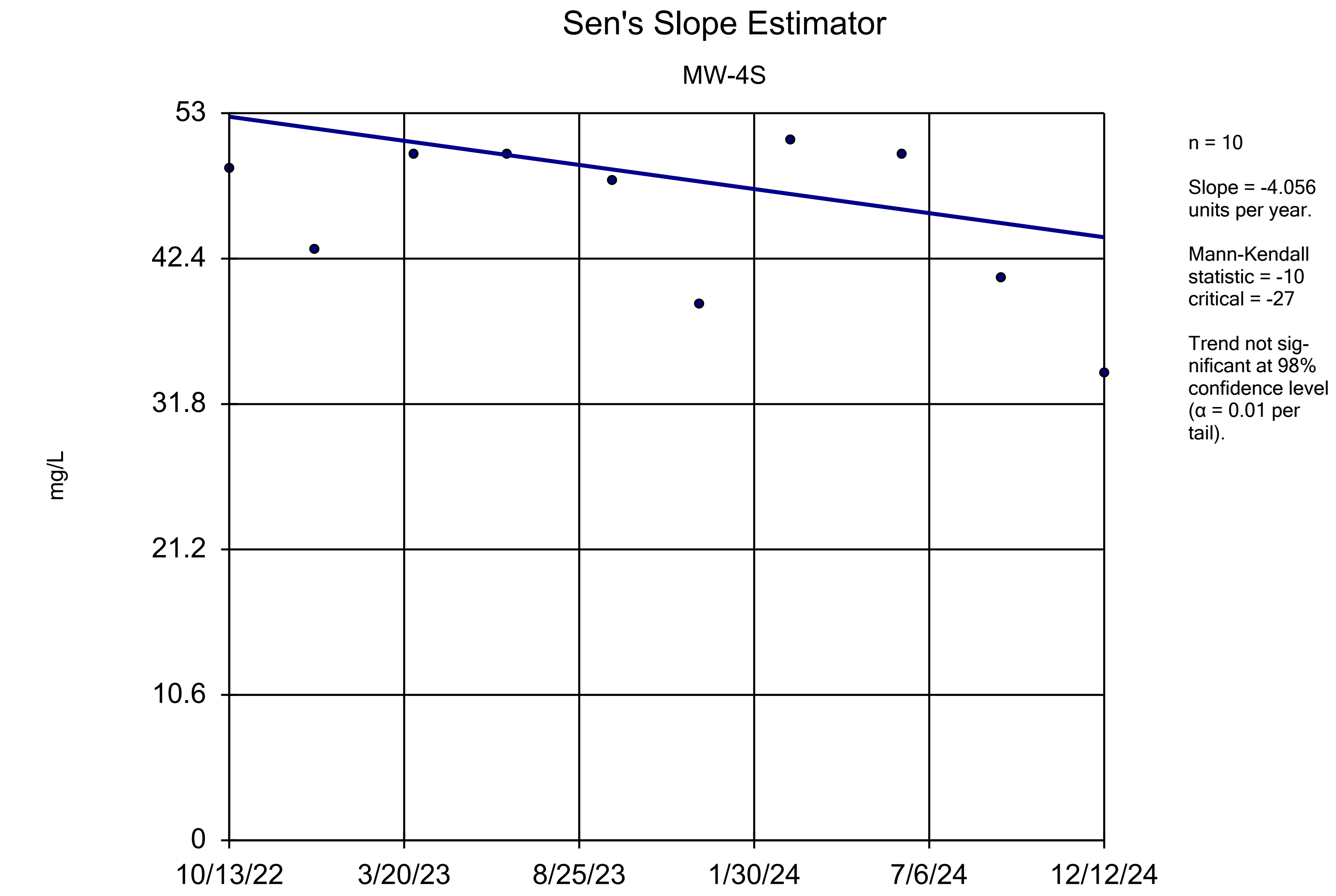
Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator



Constituent: Ammonia Analysis Run 2/11/2025 1:31 PM View: MW-4S Initial Background Evaluation
Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

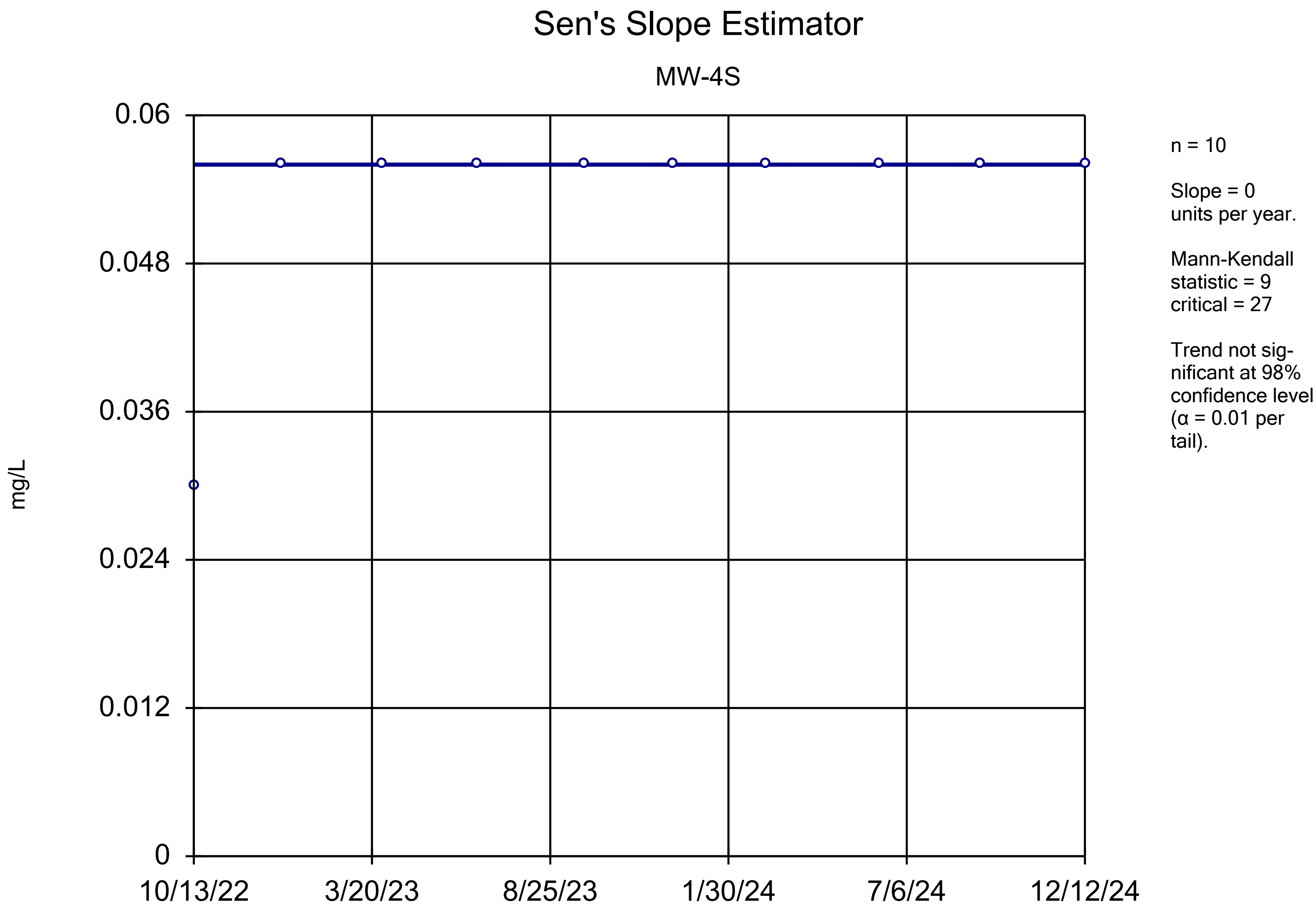
Sanitas™ v.10.0.24 Software licensed to Parametrix. UG



Constituent: Chloride   Analysis Run 2/11/2025 1:31 PM   View: MW-4S Initial Background Evaluation

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

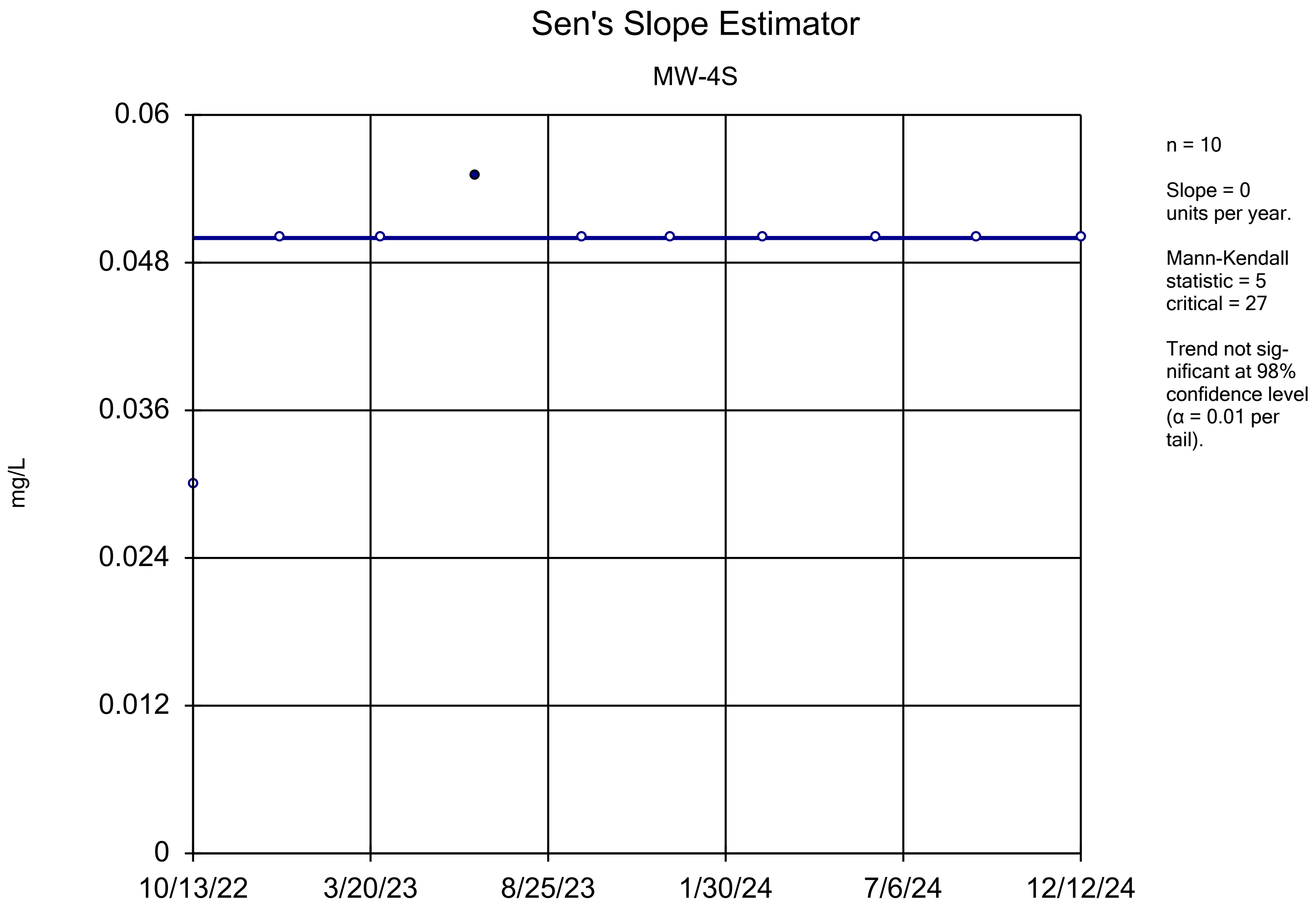
Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.



Constituent: Iron, Dissolved   Analysis Run 2/11/2025 1:31 PM   View: MW-4S Initial Background Evaluation

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

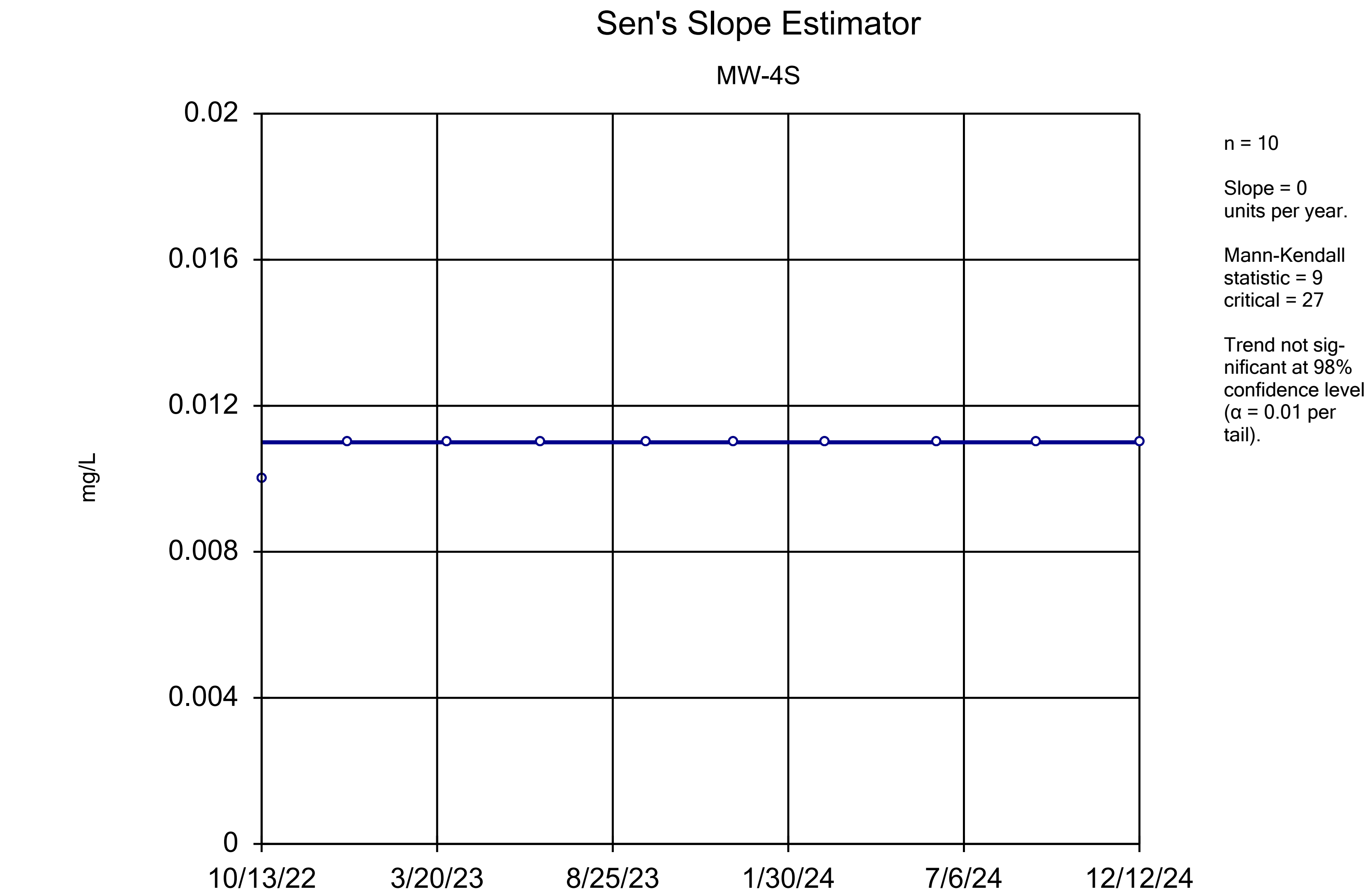
Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.



Constituent: Iron, Total   Analysis Run 2/11/2025 1:31 PM   View: MW-4S Initial Background Evaluation

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

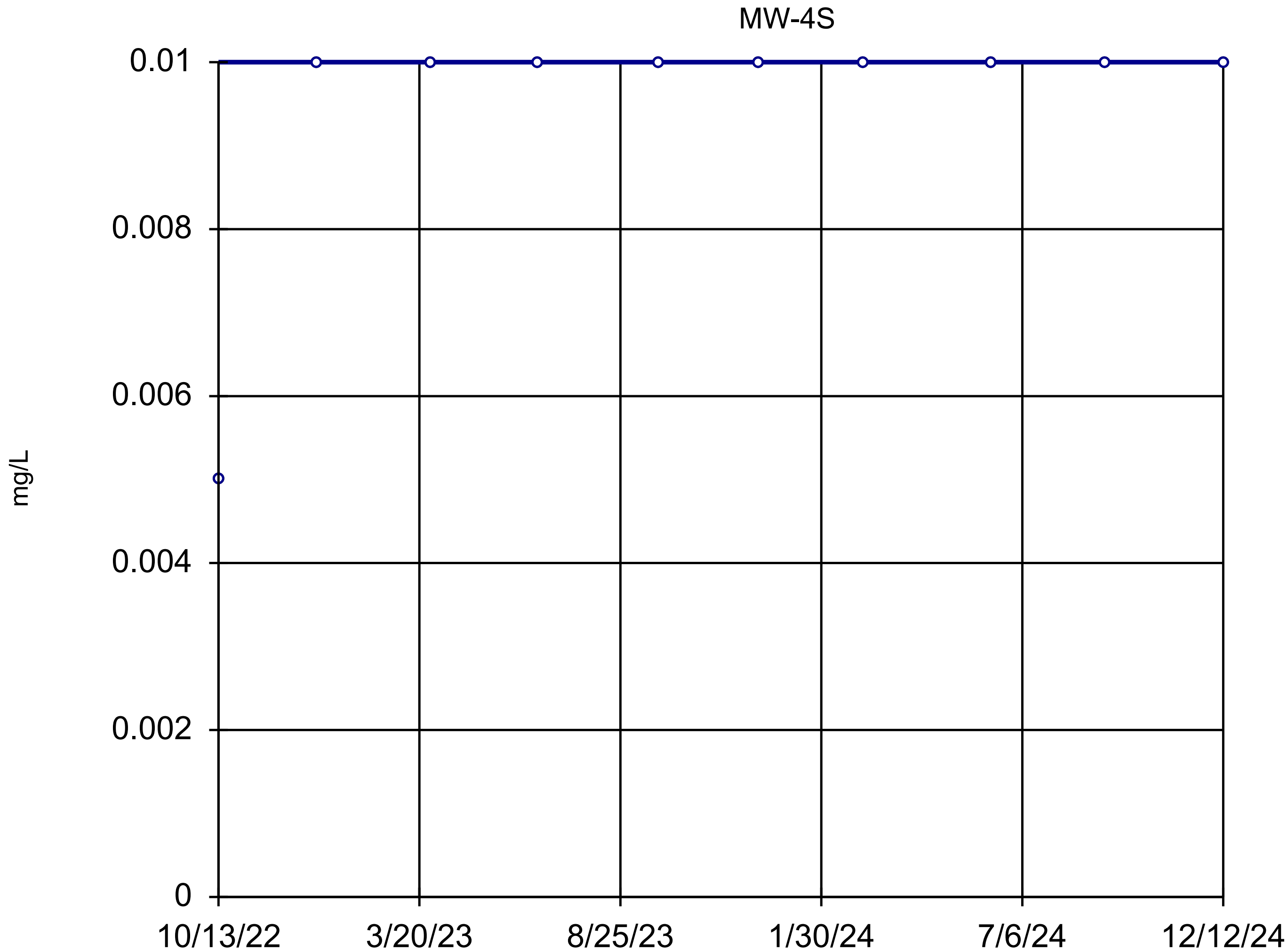


Constituent: Manganese, Dissolved   Analysis Run 2/11/2025 1:31 PM   View: MW-4S Initial Background Ev

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator



n = 10

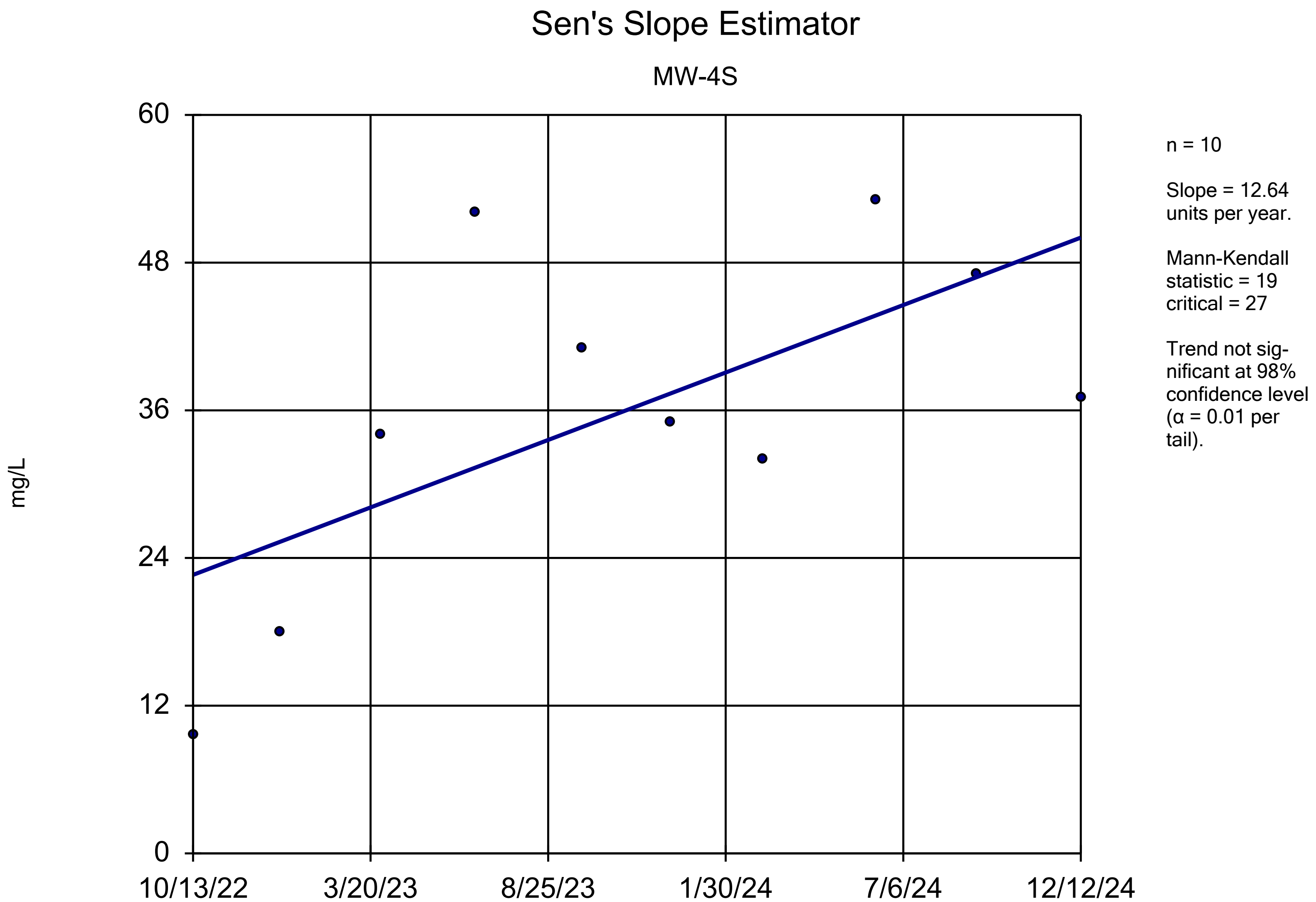
Slope = 0
units per year.

Mann-Kendall
statistic = 9
critical = 27

Trend not sig-
nificant at 98%
confidence level
(α = 0.01 per
tail).

Constituent: Manganese, Total   Analysis Run 2/11/2025 1:31 PM   View: MW-4S Initial Background Evaluati

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

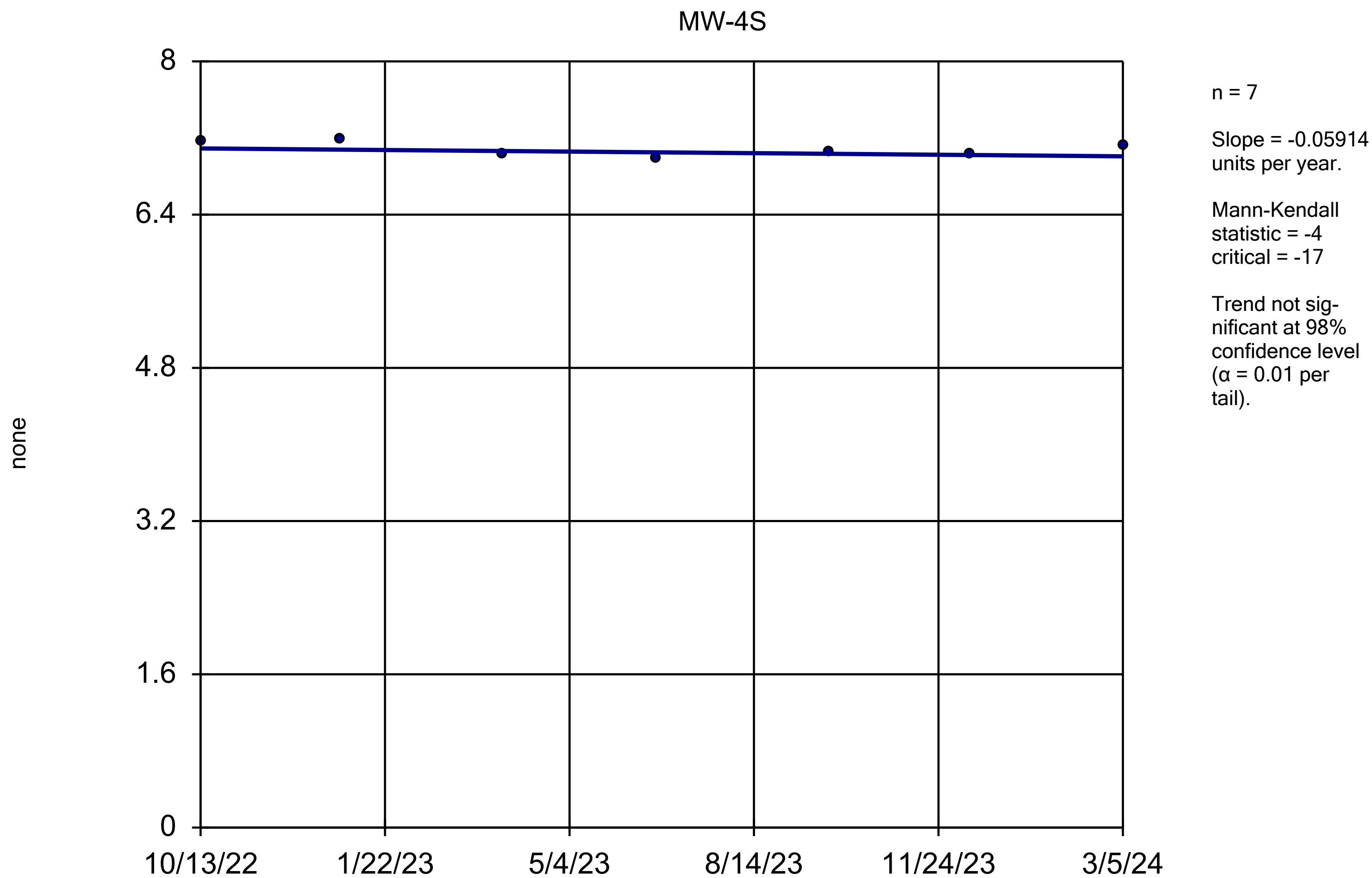


Constituent: Nitrate Analysis Run 2/11/2025 1:31 PM View: MW-4S Initial Background Evaluation

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG

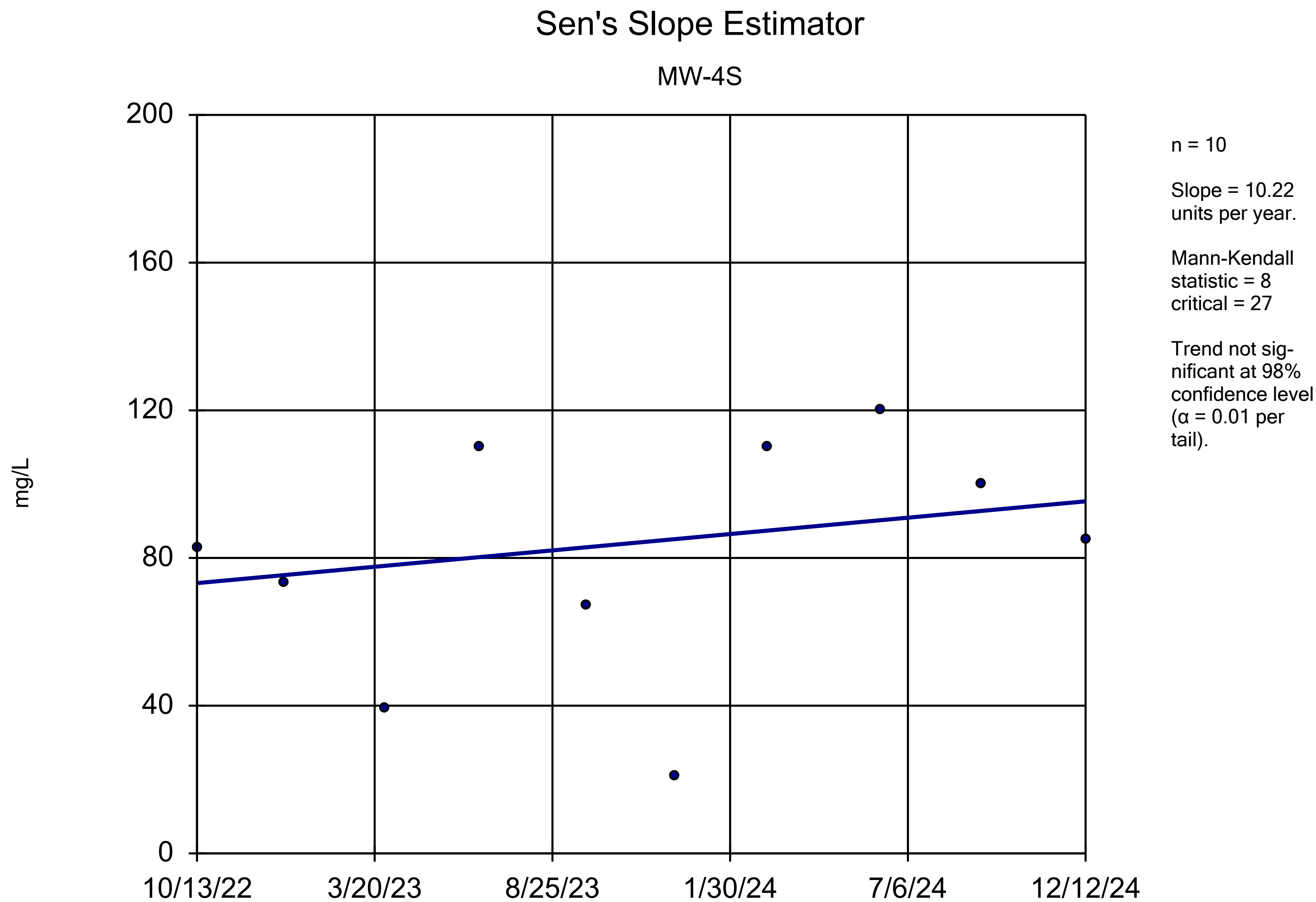
Sen's Slope Estimator



Constituent: pH Analysis Run 2/11/2025 1:31 PM View: MW-4S Initial Background Evaluation

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

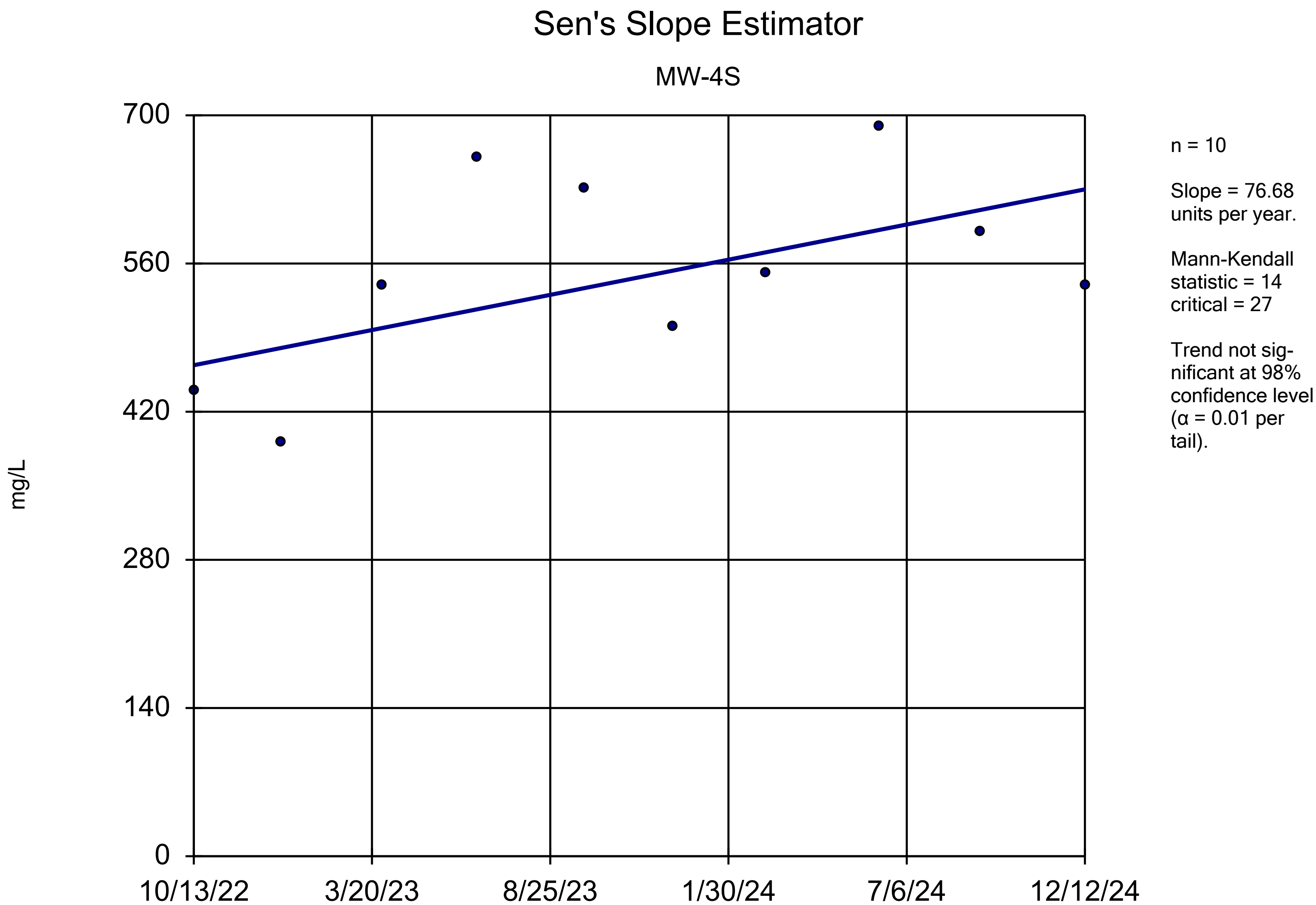
Sanitas™ v.10.0.24 Software licensed to Parametrix. UG



Constituent: Sulfate   Analysis Run 2/11/2025 1:31 PM   View: MW-4S Initial Background Evaluation

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG



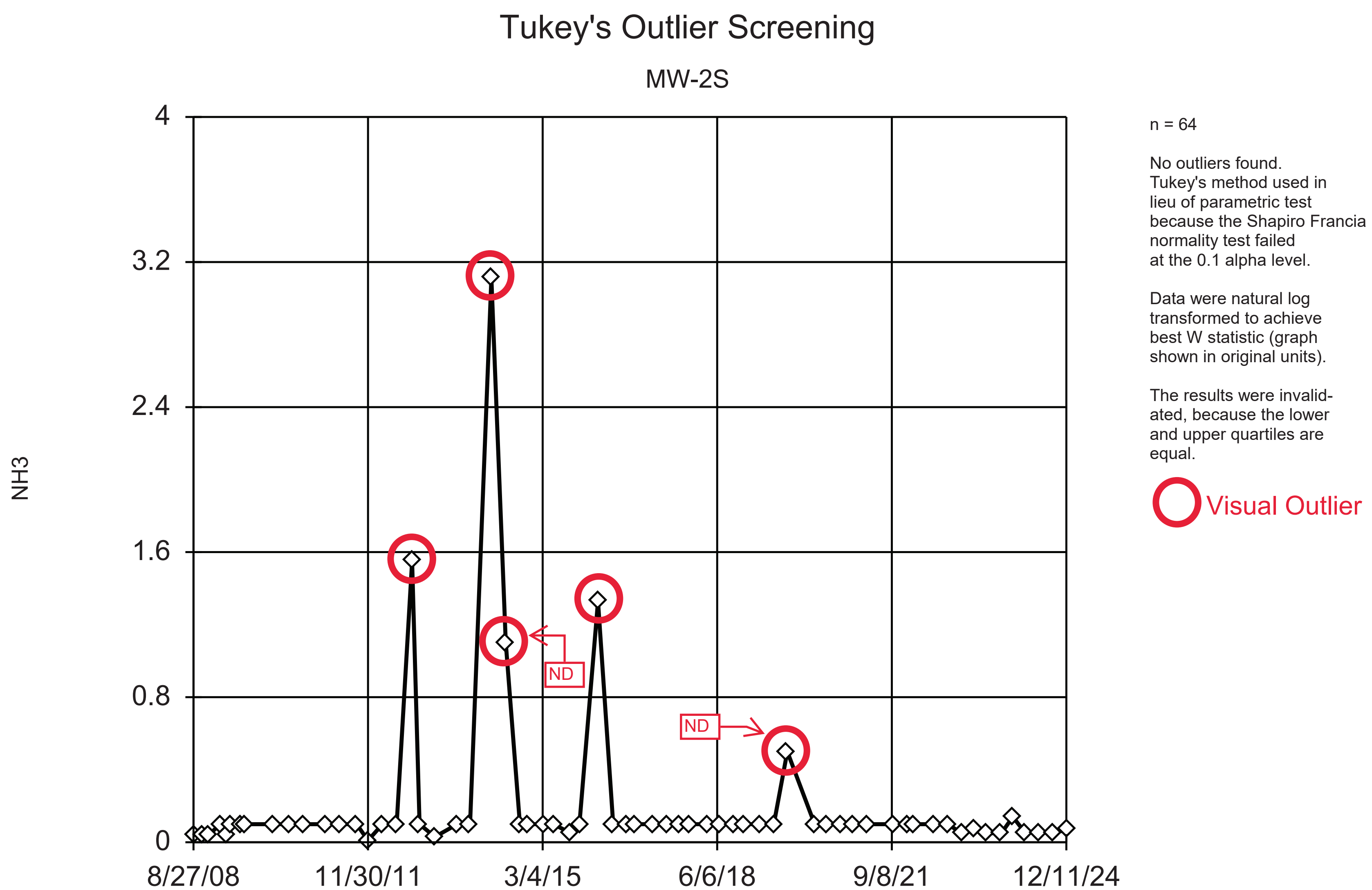
Constituent: TDS Analysis Run 2/11/2025 1:31 PM View: MW-4S Initial Background Evaluation

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Attachment D

Outlier Test Results for MW-2S and MW-3S

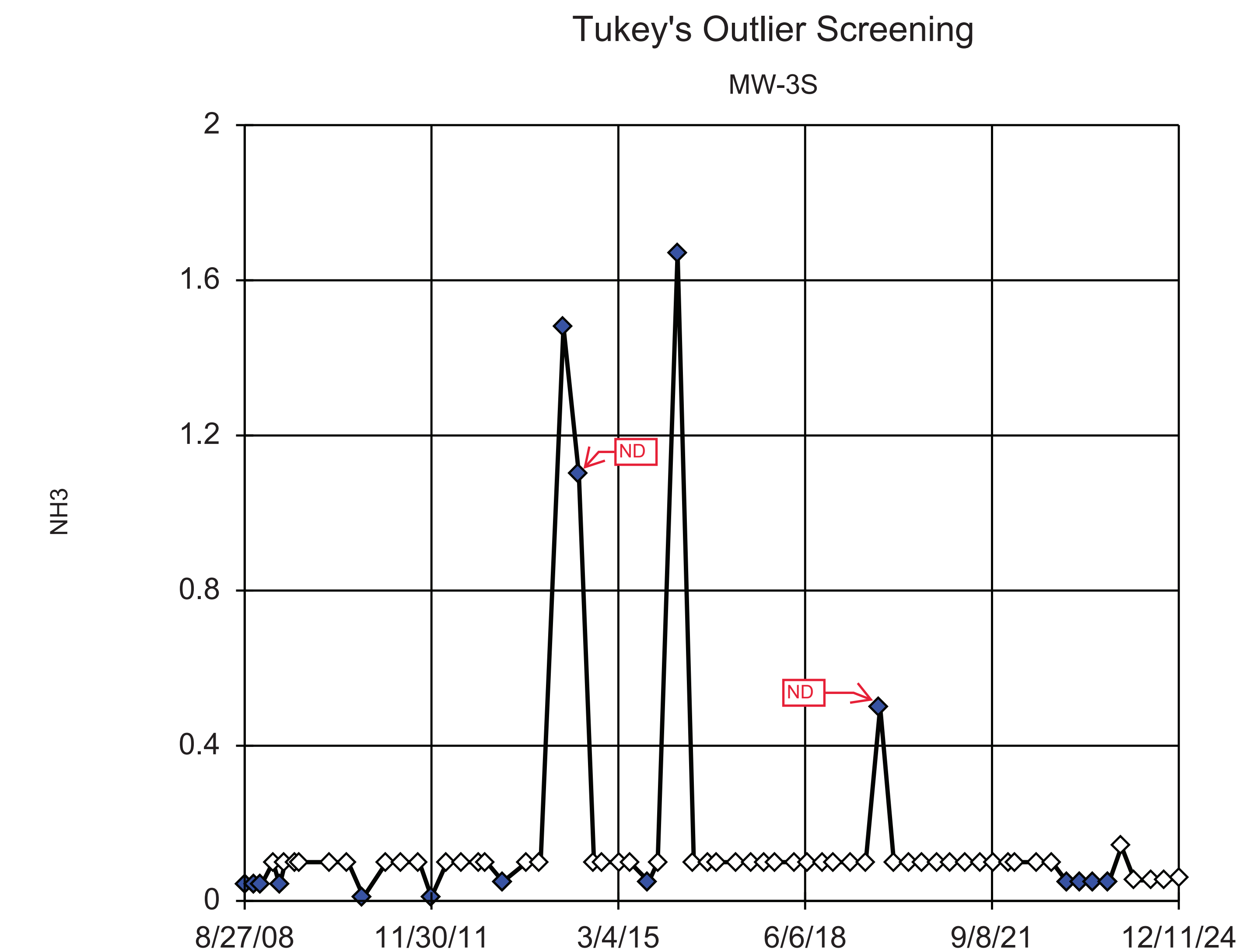
Sanitas™ v.10.0.24 Software licensed to Parametrix. UG



Constituent: Ammonia   Analysis Run 2/18/2025 10:05 AM   View: 2008-2009 background re-eval for 2024 d

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG



n = 66

Outliers are drawn as solid.
Tukey's method used in lieu of parametric test because the Shapiro Francia normality test failed at the 0.1 alpha level.

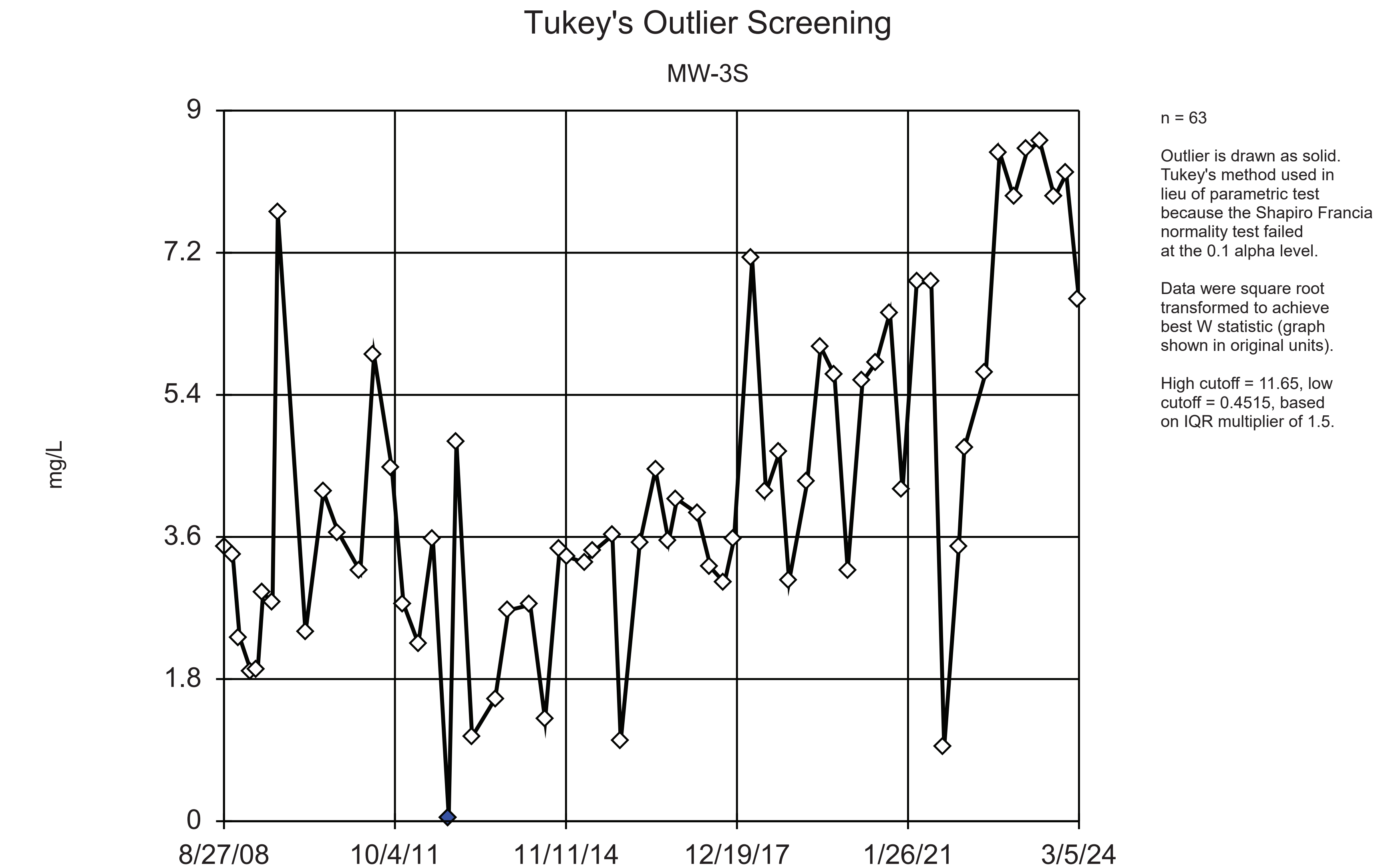
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.1485, low cutoff = 0.05171, based on IQR multiplier of 1.5.

Constituent: Ammonia   Analysis Run 2/18/2025 10:05 AM   View: 2008-2009 background re-eval for 2024 d

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

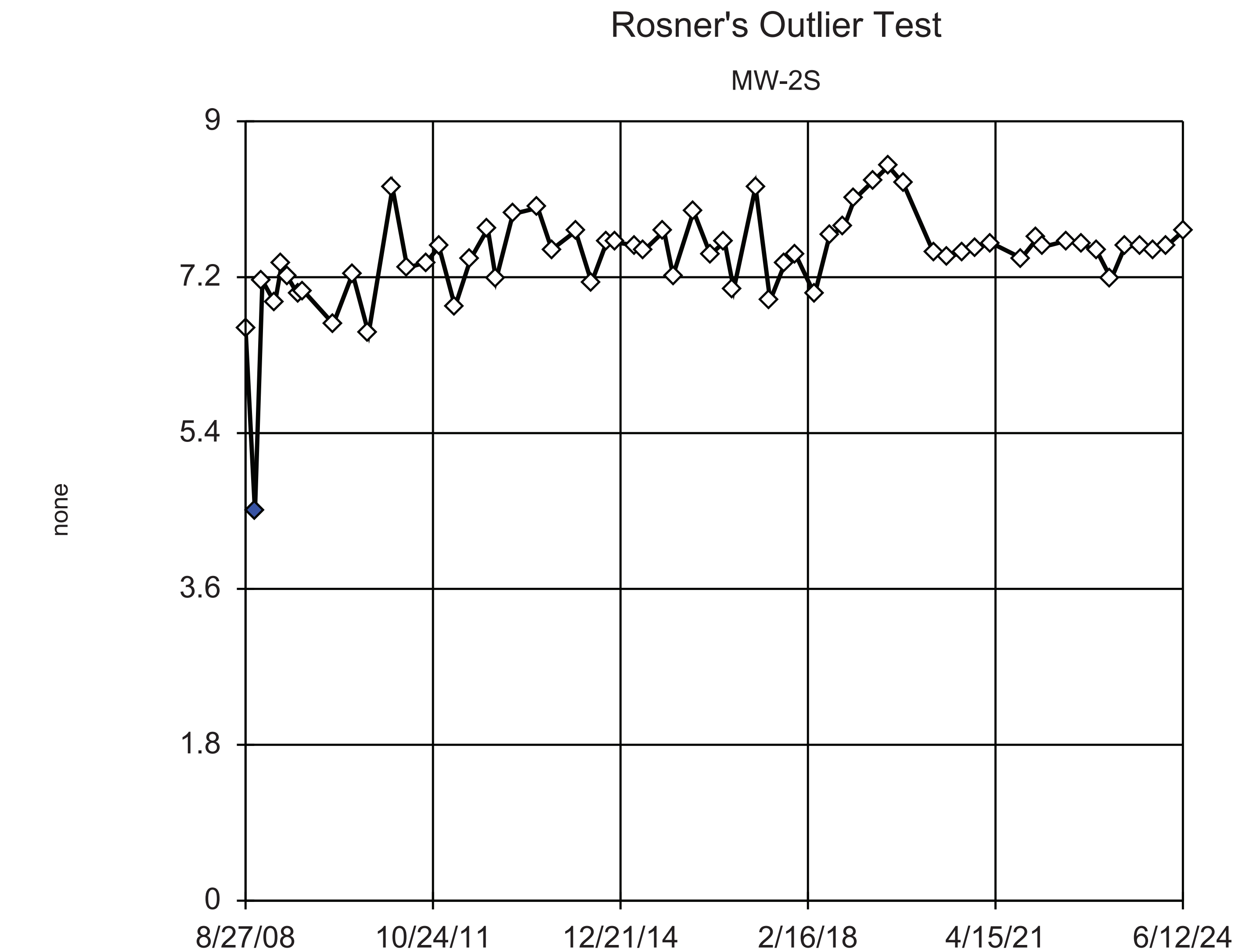
Sanitas™ v.10.0.24 Software licensed to Parametrix. UG



Constituent: Nitrate   Analysis Run 2/18/2025 10:05 AM   View: 2008-2009 background re-eval for 2024 data

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG



n = 62

Statistical outlier is drawn as solid.
1 value manually flagged as an outlier.

k = 1
r = 5.306
Tabulated value = 3.176
Alpha = 0.01

Normality test used:
Shapiro Francia@alpha = 0.1
Calculated = 0.9716
Critical = 0.967
The distribution, after removal of suspect value, was found to be normally distributed.

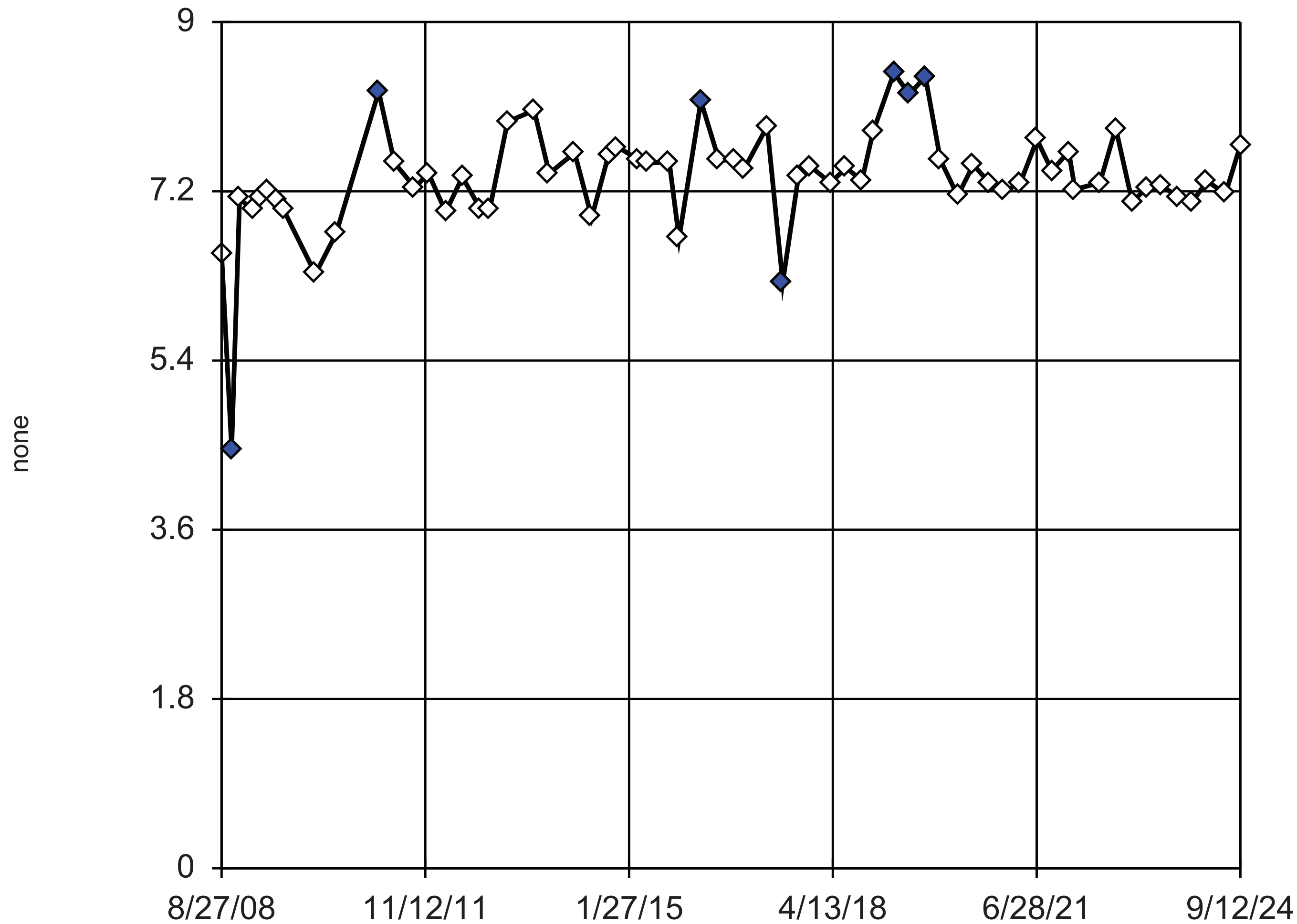
Constituent: pH   Analysis Run 2/18/2025 10:05 AM   View: 2008-2009 background re-eval for 2024 data

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG

Tukey's Outlier Screening

MW-3S



n = 64

Outliers are drawn as solid.
Tukey's method used in lieu of parametric test because the Shapiro Francia normality test failed at the 0.1 alpha level.

Data were x^4 transformed to achieve best W statistic (graph shown in original units).

High cutoff = 8.098, low cutoff = 6.267, based on IQR multiplier of 1.5.

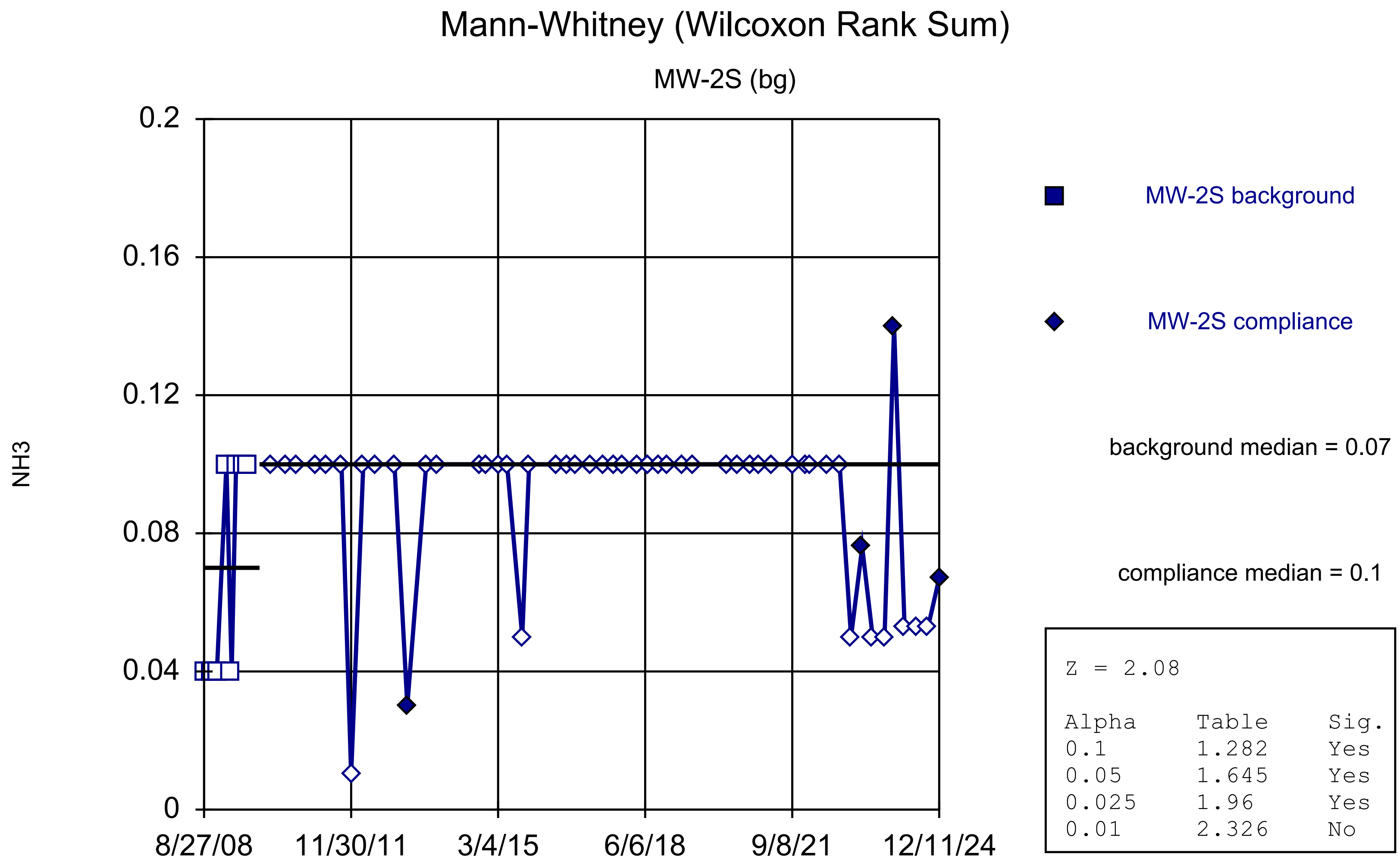
Constituent: pH   Analysis Run 2/18/2025 10:05 AM   View: 2008-2009 background re-eval for 2024 data

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Attachment E

Welch's/Mann-Whitney Test Results for MW-2S and MW-3S

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.



Z = 2.08

Alpha	Table	Sig.
0.1	1.282	Yes
0.05	1.645	Yes
0.025	1.96	Yes
0.01	2.326	No

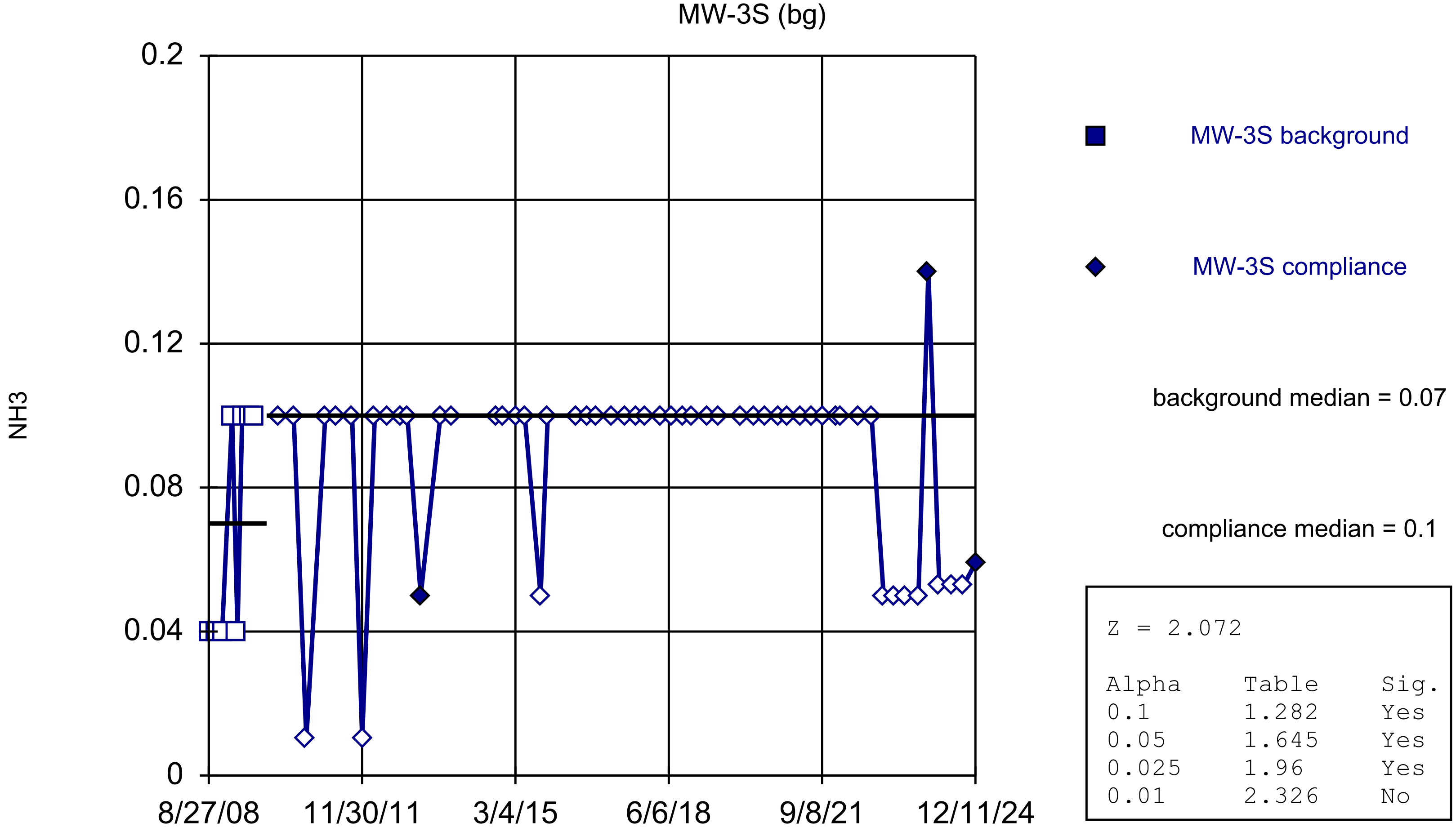
Mann-Whitney (Wilcoxon Rank Sum) used in lieu of Welch's t-test because censored data exceeded 75%.

Constituent: Ammonia Analysis Run 2/18/2025 12:55 PM View: 2008-2009 background re-eval for 2024 d

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

Mann-Whitney (Wilcoxon Rank Sum)



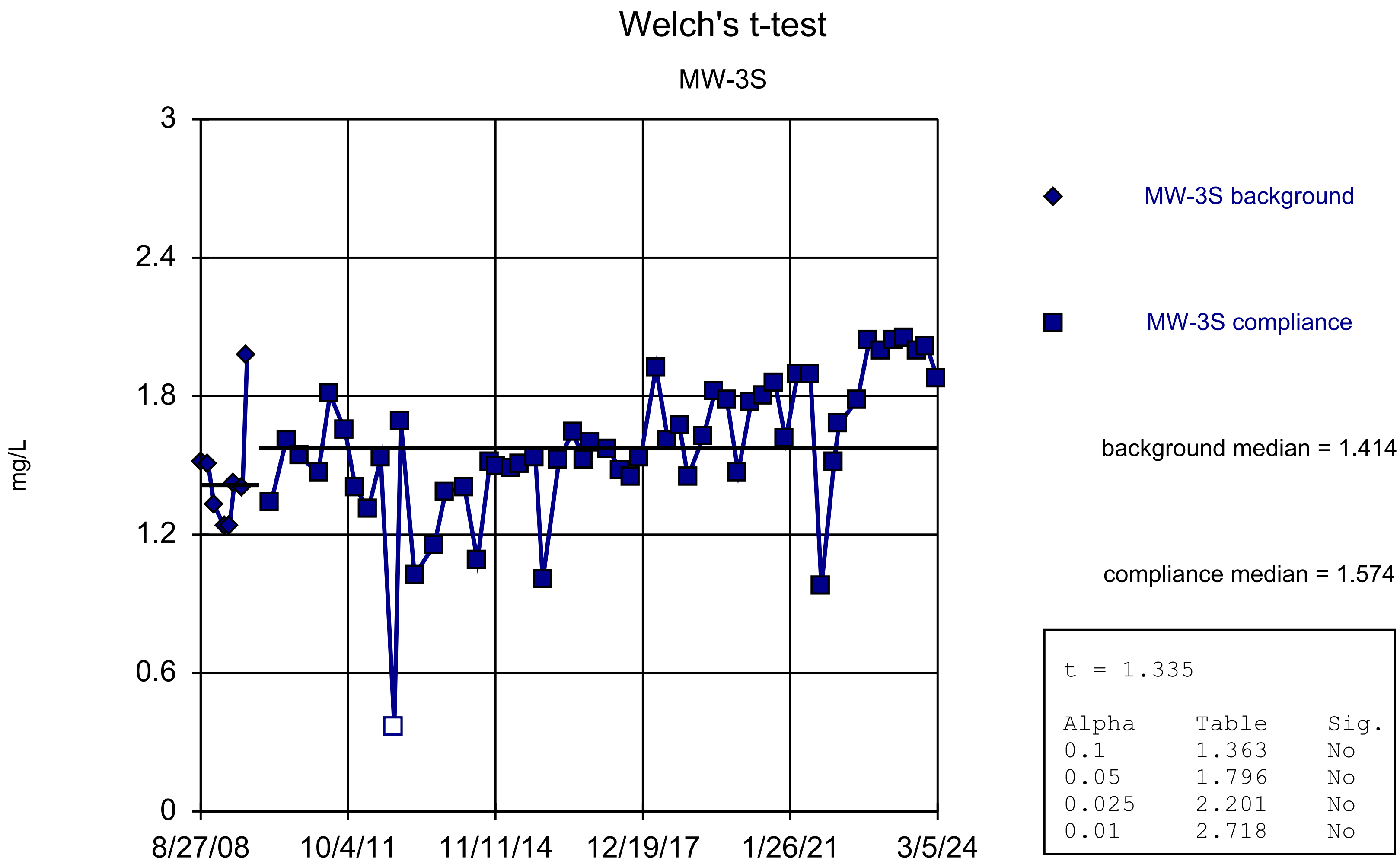
Z = 2.072		
Alpha	Table	Sig.
0.1	1.282	Yes
0.05	1.645	Yes
0.025	1.96	Yes
0.01	2.326	No

Mann-Whitney (Wilcoxon Rank Sum) used in lieu of Welch's t-test because censored data exceeded 75%.

Constituent: Ammonia   Analysis Run 2/18/2025 12:55 PM   View: 2008-2009 background re-eval for 2024 d

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

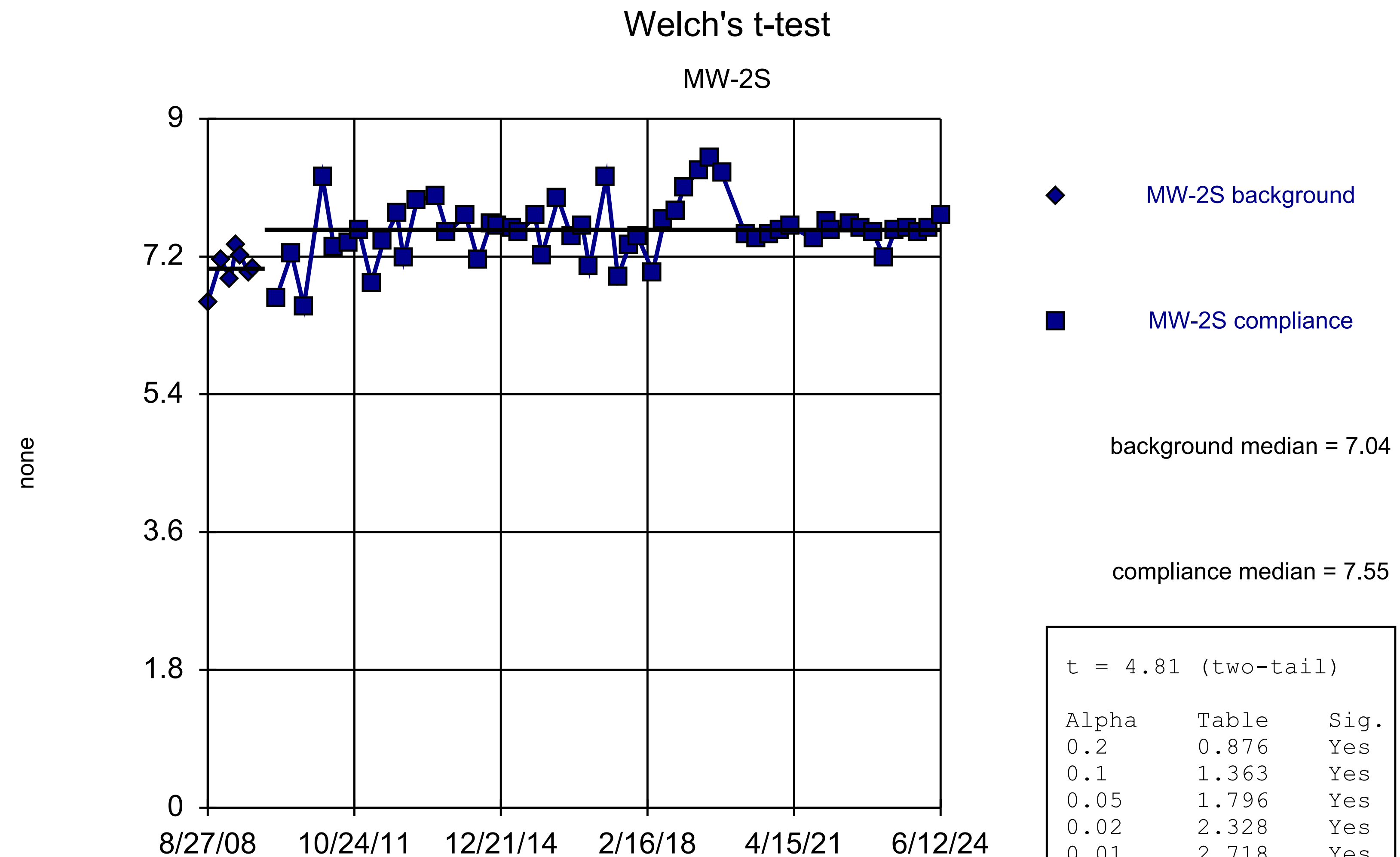


t = 1.335		
Alpha	Table	Sig.
0.1	1.363	No
0.05	1.796	No
0.025	2.201	No
0.01	2.718	No

Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8192 after cube root transformation, critical = 0.818.

Constituent: Nitrate   Analysis Run 2/18/2025 12:55 PM   View: 2008-2009 background re-eval for 2024 data

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats



t = 4.81 (two-tail)

Alpha	Table	Sig.
0.2	0.876	Yes
0.1	1.363	Yes
0.05	1.796	Yes
0.02	2.328	Yes
0.01	2.718	Yes

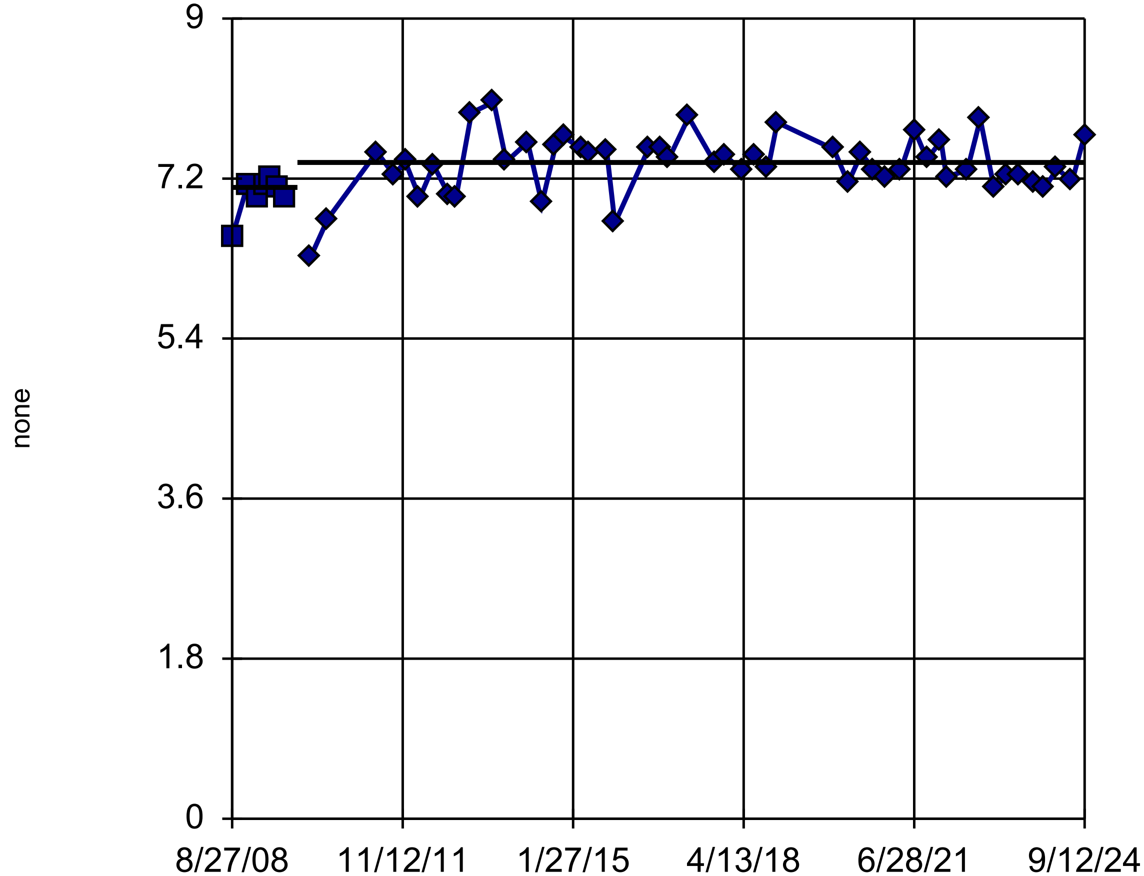
Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9617, critical = 0.803.

Constituent: pH   Analysis Run 2/18/2025 12:55 PM   View: 2008-2009 background re-eval for 2024 data

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Mann-Whitney (Wilcoxon Rank Sum)

MW-3S (bg)



background median = 7.1

compliance median = 7.38

Z = 2.991 (two-tail)

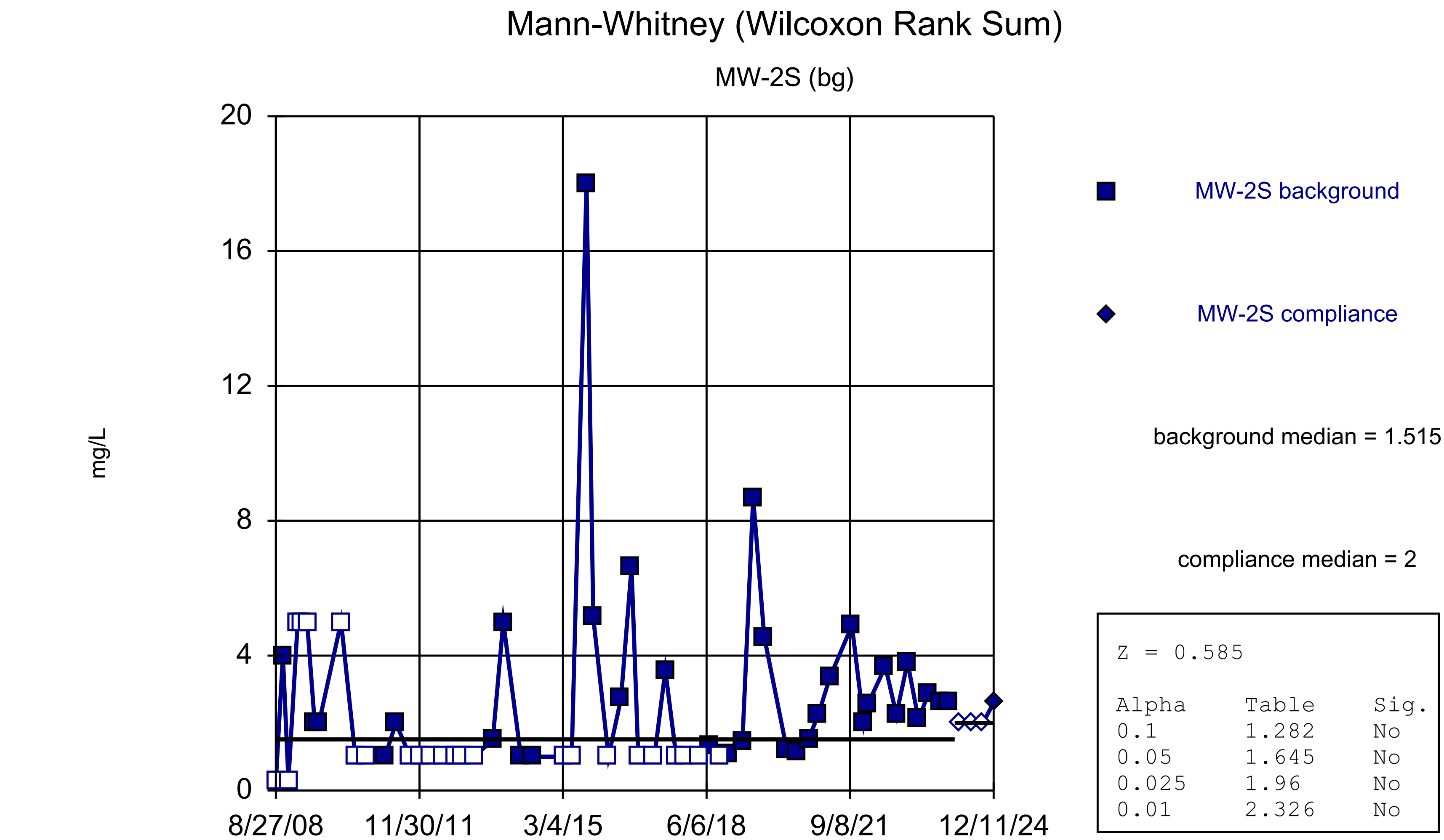
Alpha	Table	Sig.
0.2	1.282	Yes
0.1	1.645	Yes
0.05	1.96	Yes
0.02	2.326	Yes
0.01	2.576	Yes

Mann-Whitney (Wilcoxon Rank Sum) used in lieu of Welch's t-test because the Shapiro Wilk normality test showed the data to be non-normal at the 0.05 alpha level.

Constituent: pH Analysis Run 2/18/2025 12:55 PM View: 2008-2009 background re-eval for 2024 data

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.



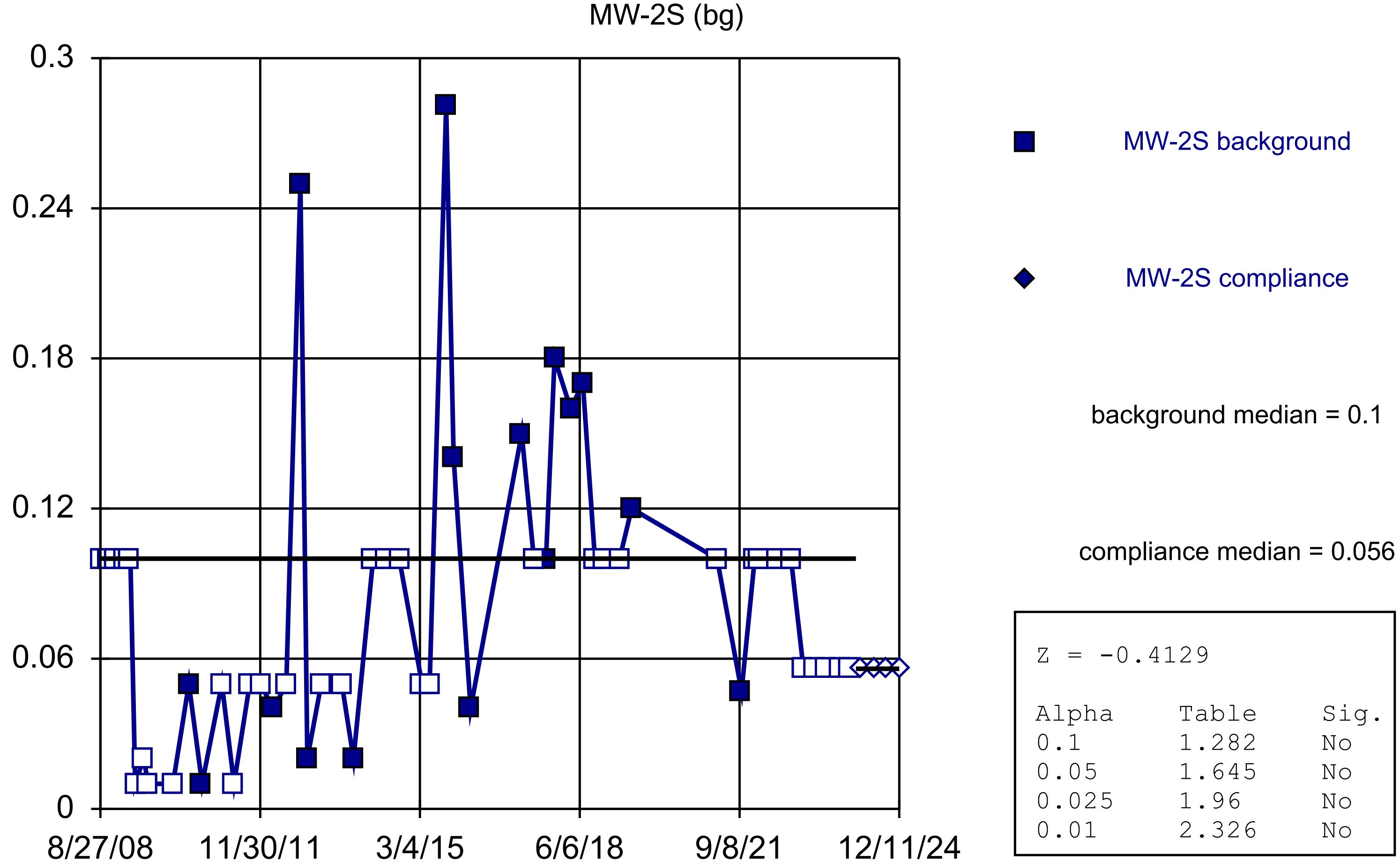
Mann-Whitney (Wilcoxon Rank Sum) used in lieu of Welch's t-test because the Shapiro Francia normality test showed the data to be non-normal at the 0.05 alpha level.

Constituent: Chloride Analysis Run 2/18/2025 10:44 AM View: 2008-2023 background re-eval for 2024 dat

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

Mann-Whitney (Wilcoxon Rank Sum)




```
Z = -0.4129

Alpha     Table     Sig.
0.1       1.282     No
0.05      1.645     No
0.025     1.96      No
0.01      2.326     No
```

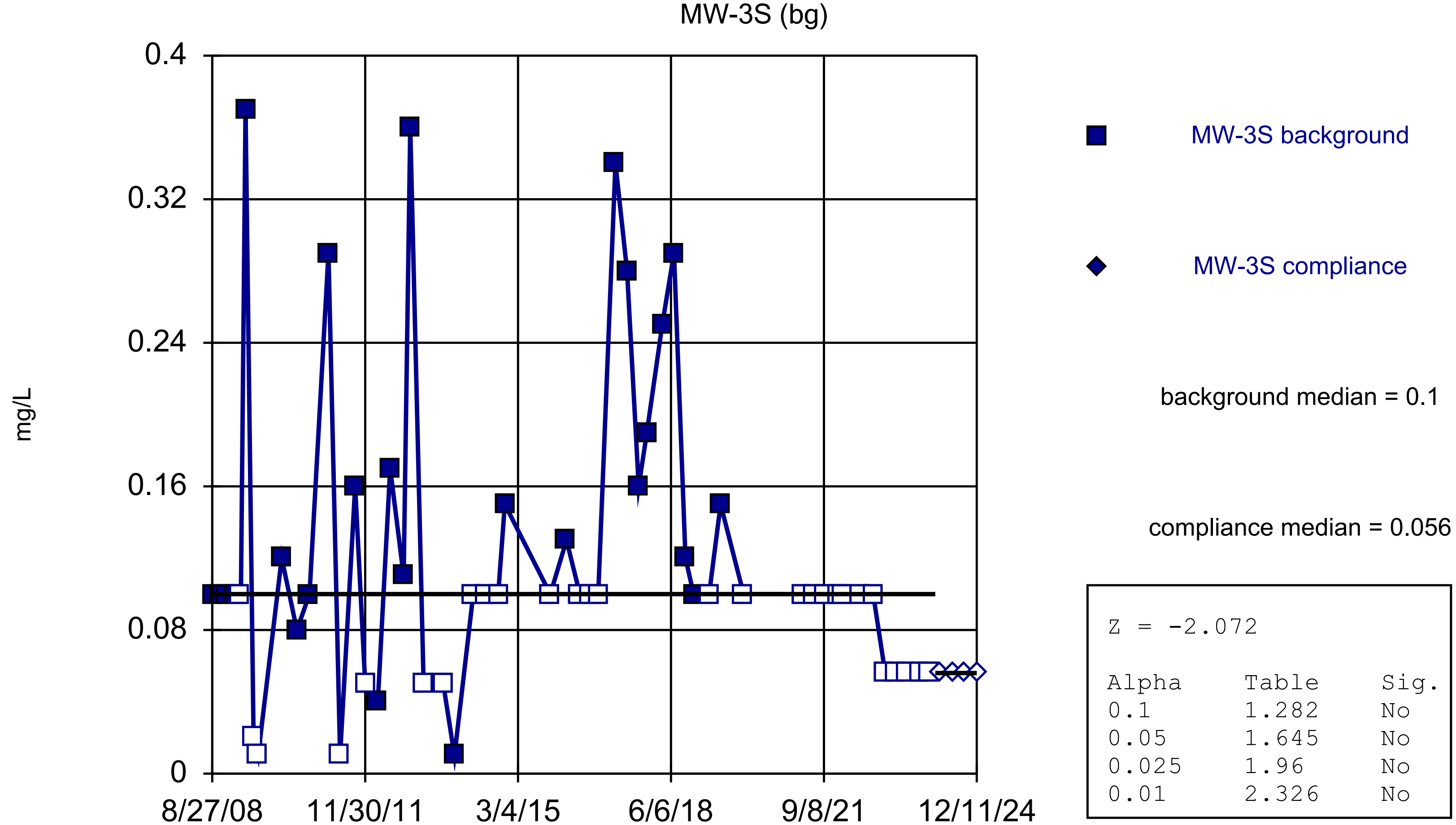
Mann-Whitney (Wilcoxon Rank Sum) used in lieu of Welch's t-test because the Shapiro Francia normality test showed the data to be non-normal at the 0.05 alpha level.

Constituent: Iron, Dissolved   Analysis Run 2/18/2025 10:44 AM   View: 2008-2023 background re-eval for 2

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

Mann-Whitney (Wilcoxon Rank Sum)



Z = -2.072

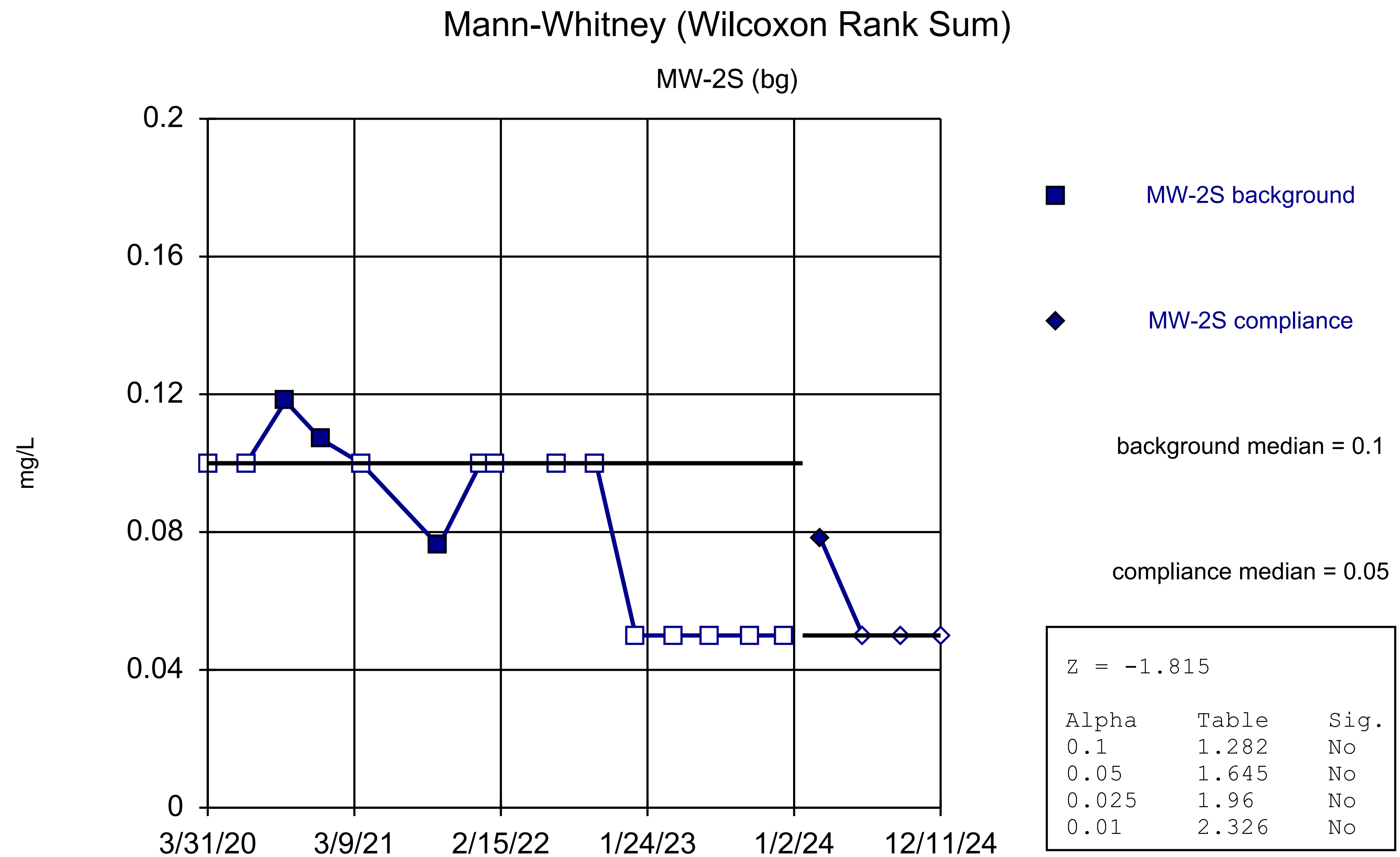
Alpha	Table	Sig.
0.1	1.282	No
0.05	1.645	No
0.025	1.96	No
0.01	2.326	No

Mann-Whitney (Wilcoxon Rank Sum) used in lieu of Welch's t-test because the Shapiro Francia normality test showed the data to be non-normal at the 0.05 alpha level.

Constituent: Iron, Dissolved Analysis Run 2/18/2025 10:44 AM View: 2008-2023 background re-eval for 2

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.



Z = -1.815

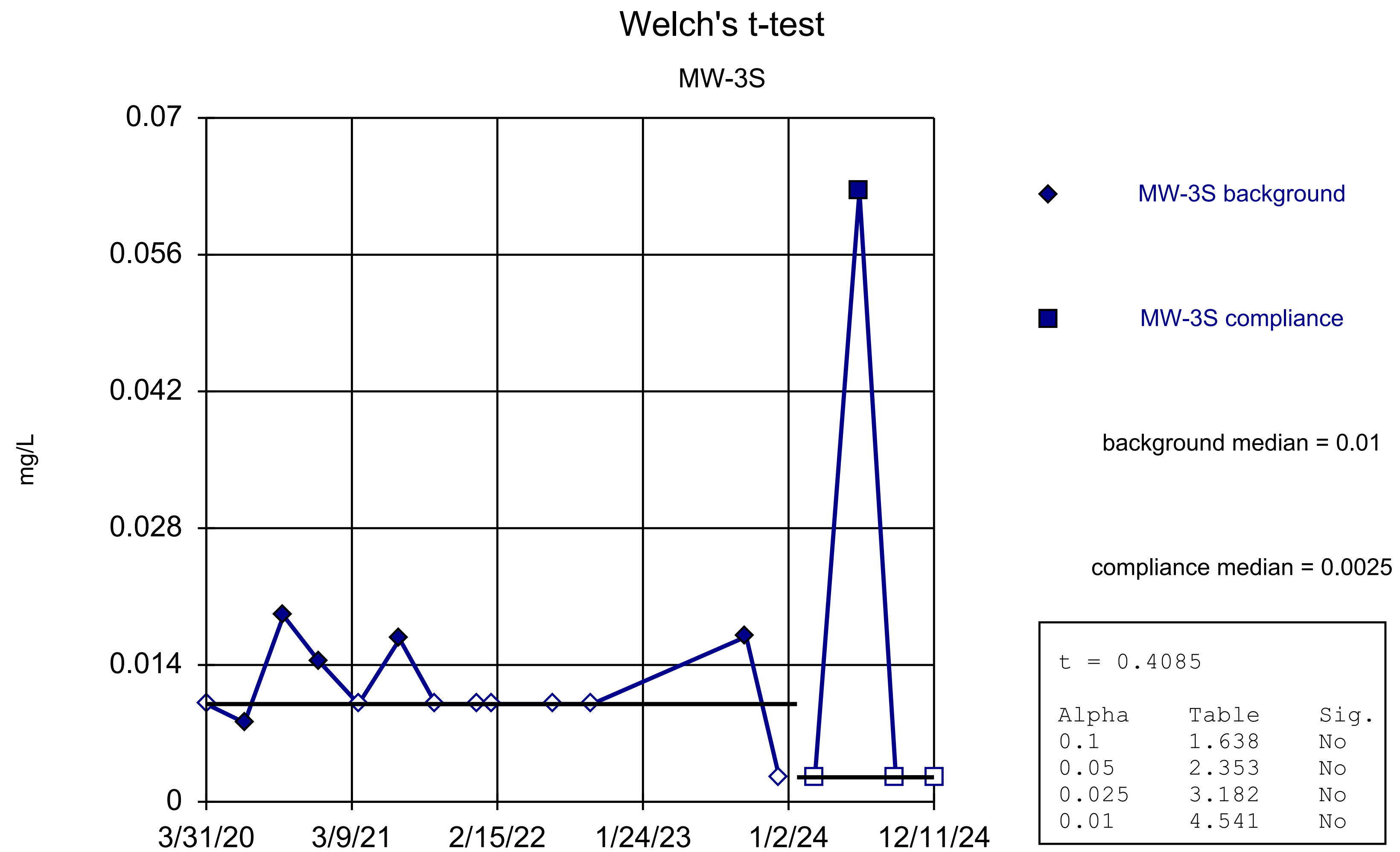
Alpha	Table	Sig.
0.1	1.282	No
0.05	1.645	No
0.025	1.96	No
0.01	2.326	No

Mann-Whitney (Wilcoxon Rank Sum) used in lieu of Welch's t-test because censored data exceeded 75%.

Constituent: Iron, Total   Analysis Run 2/18/2025 10:44 AM   View: 2008-2023 background re-eval for 2024 d

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

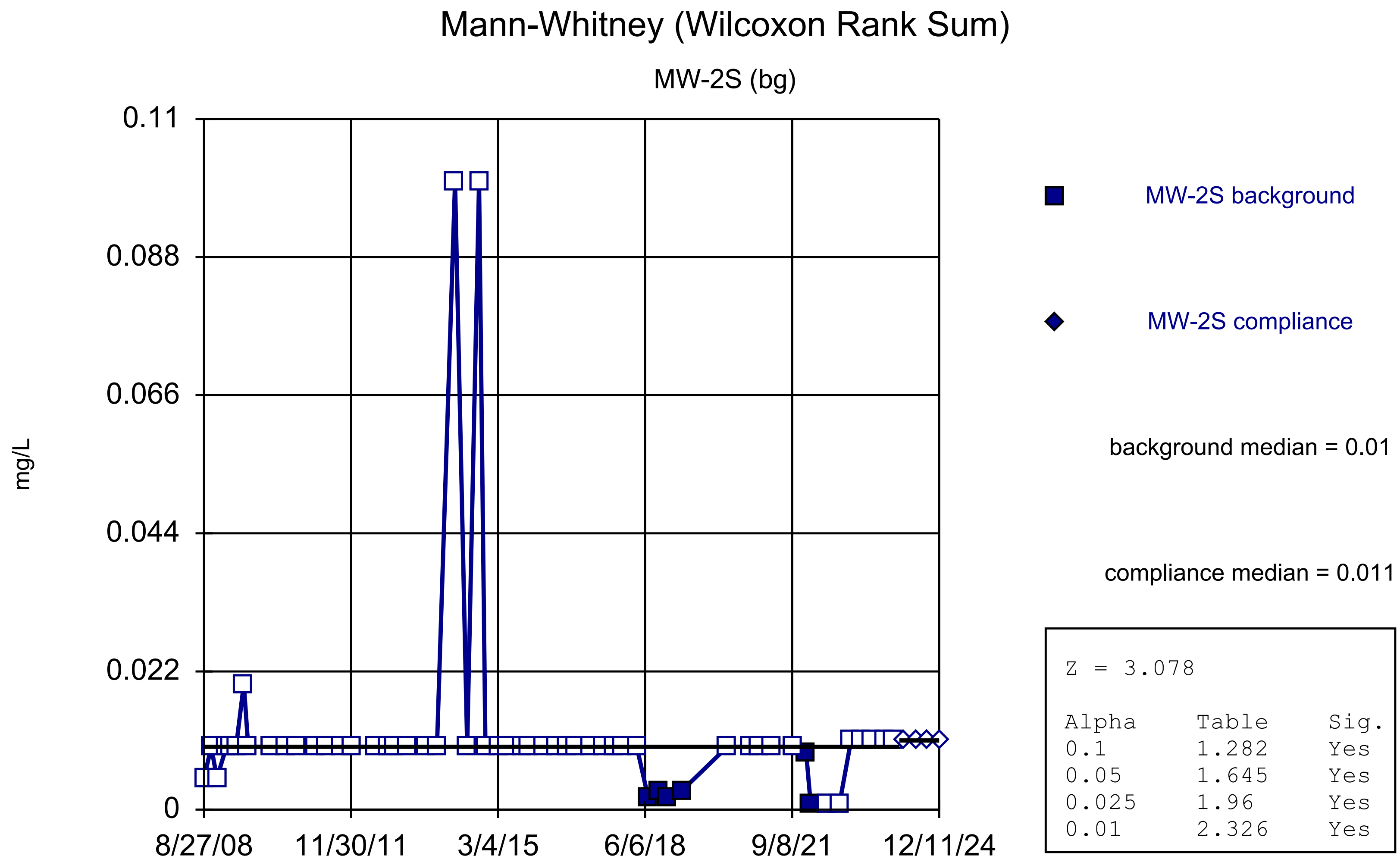


t = 0.4085		
Alpha	Table	Sig.
0.1	1.638	No
0.05	2.353	No
0.025	3.182	No
0.01	4.541	No

Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8739 after square transformation, critical = 0.866.

Constituent: Iron, Total Analysis Run 2/18/2025 10:44 AM View: 2008-2023 background re-eval for 2024 d
Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.



Z = 3.078

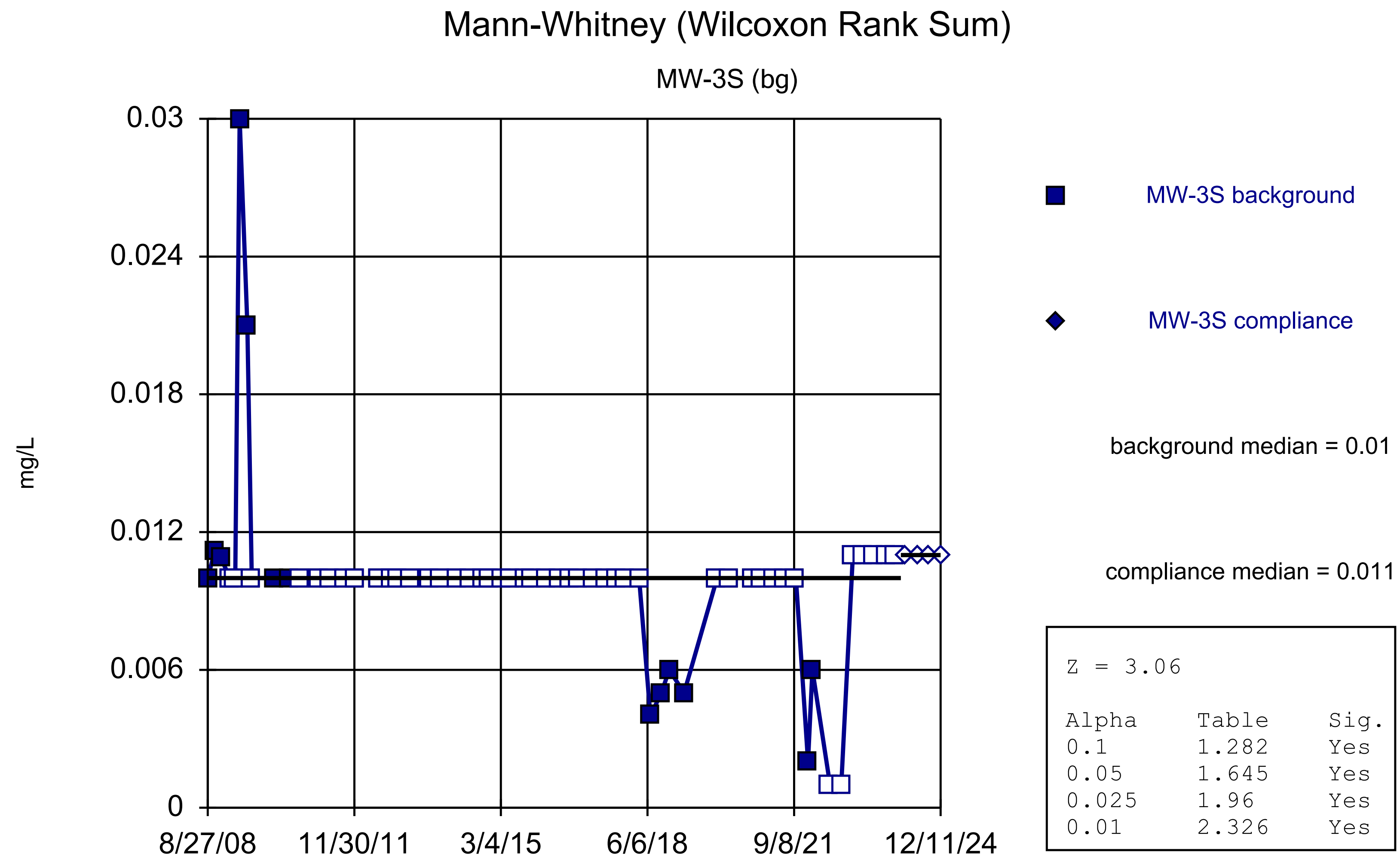
Alpha	Table	Sig.
0.1	1.282	Yes
0.05	1.645	Yes
0.025	1.96	Yes
0.01	2.326	Yes

Mann-Whitney (Wilcoxon Rank Sum) used in lieu of Welch's t-test because censored data exceeded 75%.

Constituent: Manganese, Dissolved   Analysis Run 2/18/2025 10:44 AM   View: 2008-2023 background re-ev

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.



Alpha	Table	Sig.
0.1	1.282	Yes
0.05	1.645	Yes
0.025	1.96	Yes
0.01	2.326	Yes

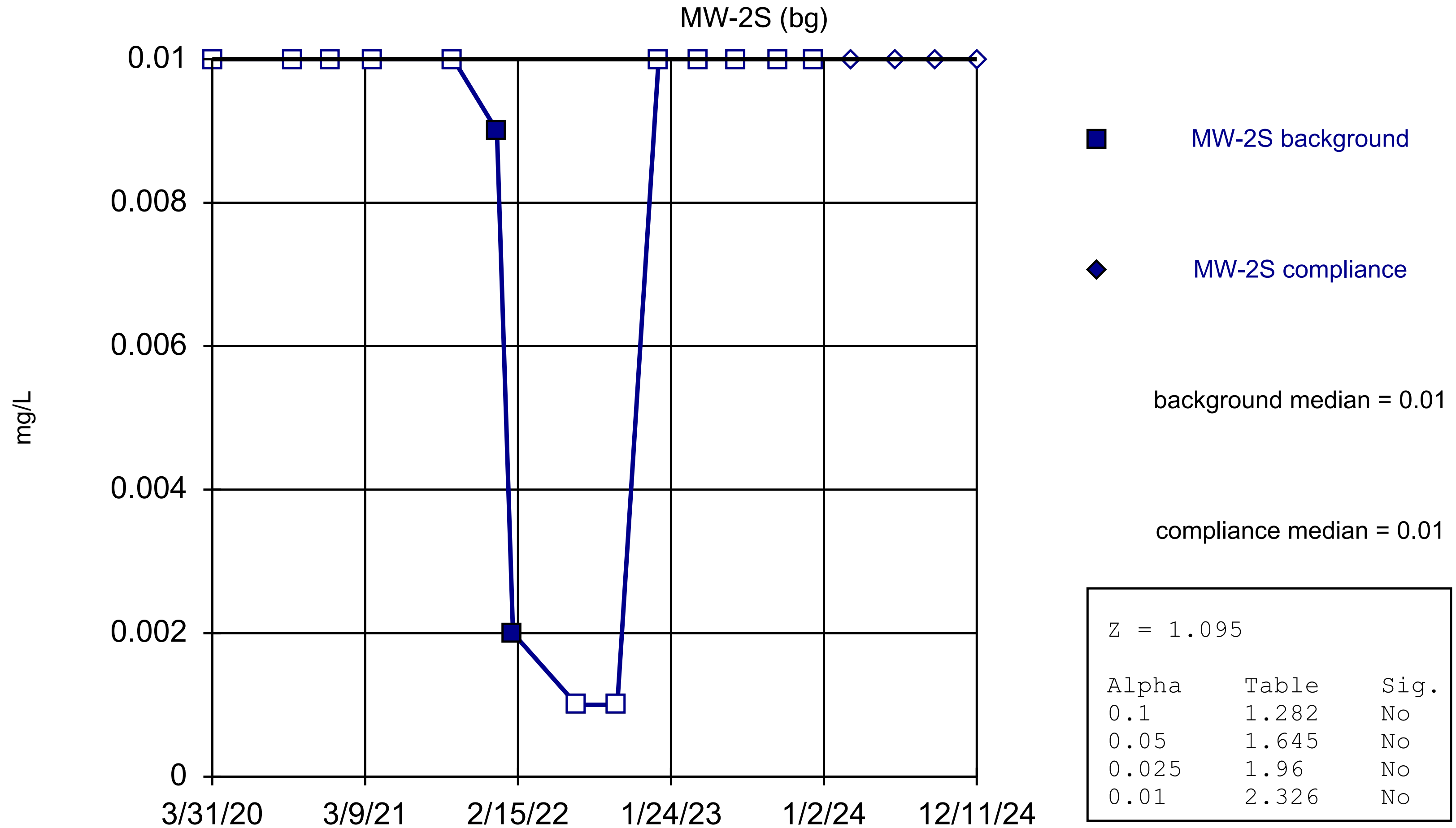
Mann-Whitney (Wilcoxon Rank Sum) used in lieu of Welch's t-test because censored data exceeded 75%.

Constituent: Manganese, Dissolved   Analysis Run 2/18/2025 10:44 AM   View: 2008-2023 background re-ev

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

Mann-Whitney (Wilcoxon Rank Sum)



Z = 1.095

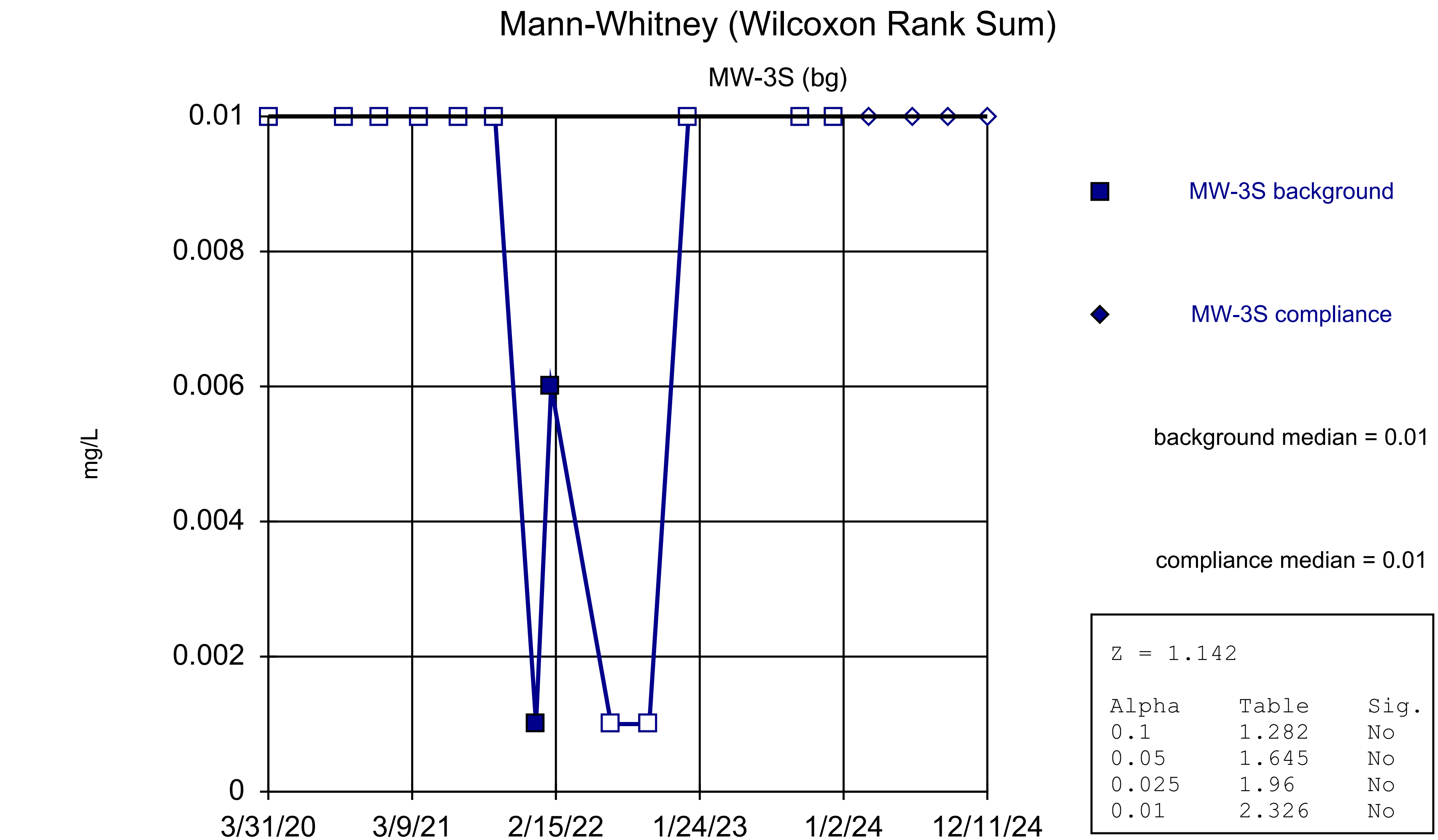
Alpha	Table	Sig.
0.1	1.282	No
0.05	1.645	No
0.025	1.96	No
0.01	2.326	No

Mann-Whitney (Wilcoxon Rank Sum) used in lieu of Welch's t-test because censored data exceeded 75%.

Constituent: Manganese, Total Analysis Run 2/18/2025 10:44 AM View: 2008-2023 background re-eval fo

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.



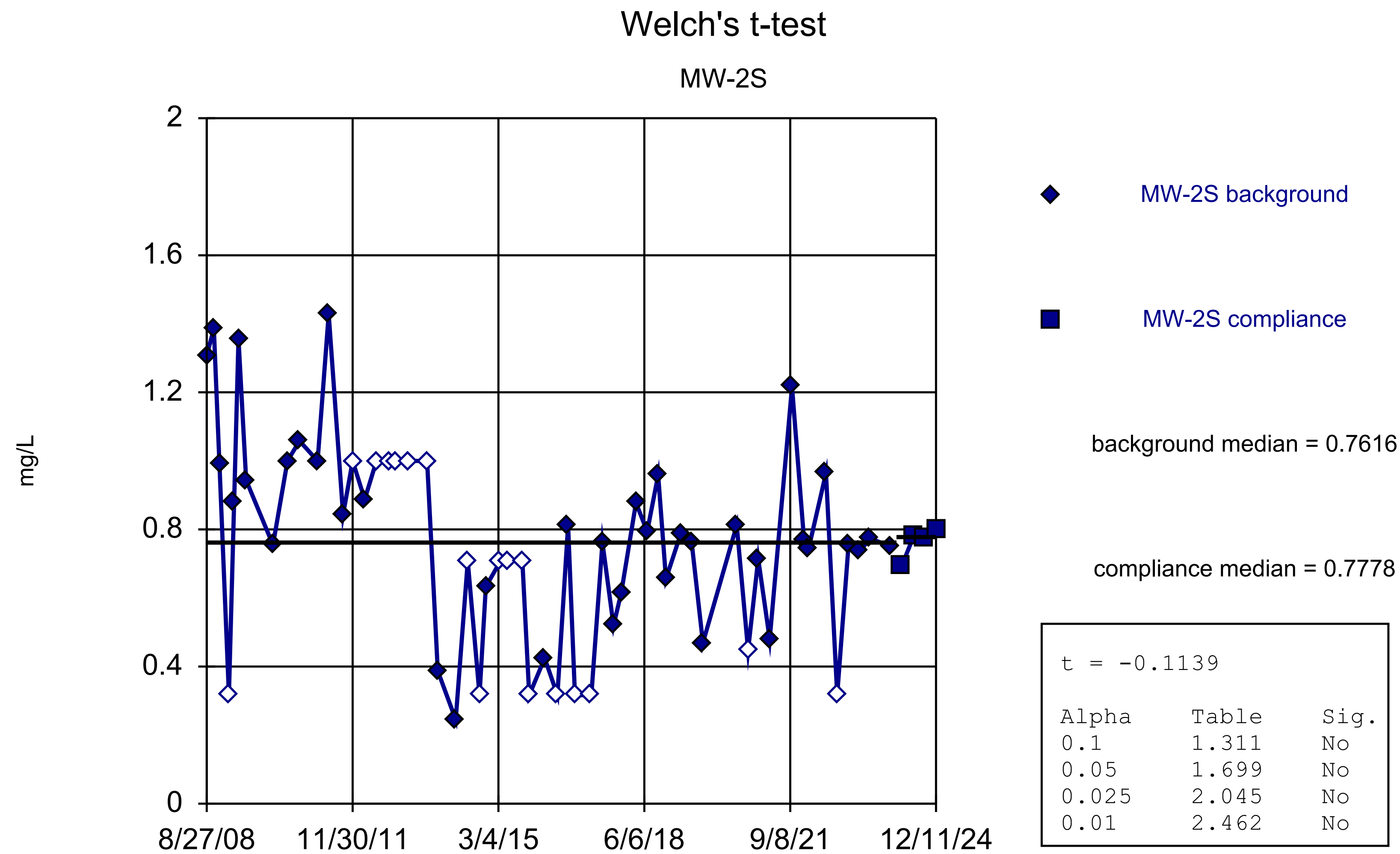
Z = 1.142

Alpha	Table	Sig.
0.1	1.282	No
0.05	1.645	No
0.025	1.96	No
0.01	2.326	No

Mann-Whitney (Wilcoxon Rank Sum) used in lieu of Welch's t-test because censored data exceeded 75%.

Constituent: Manganese, Total Analysis Run 2/18/2025 10:44 AM View: 2008-2023 background re-eval fo
Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

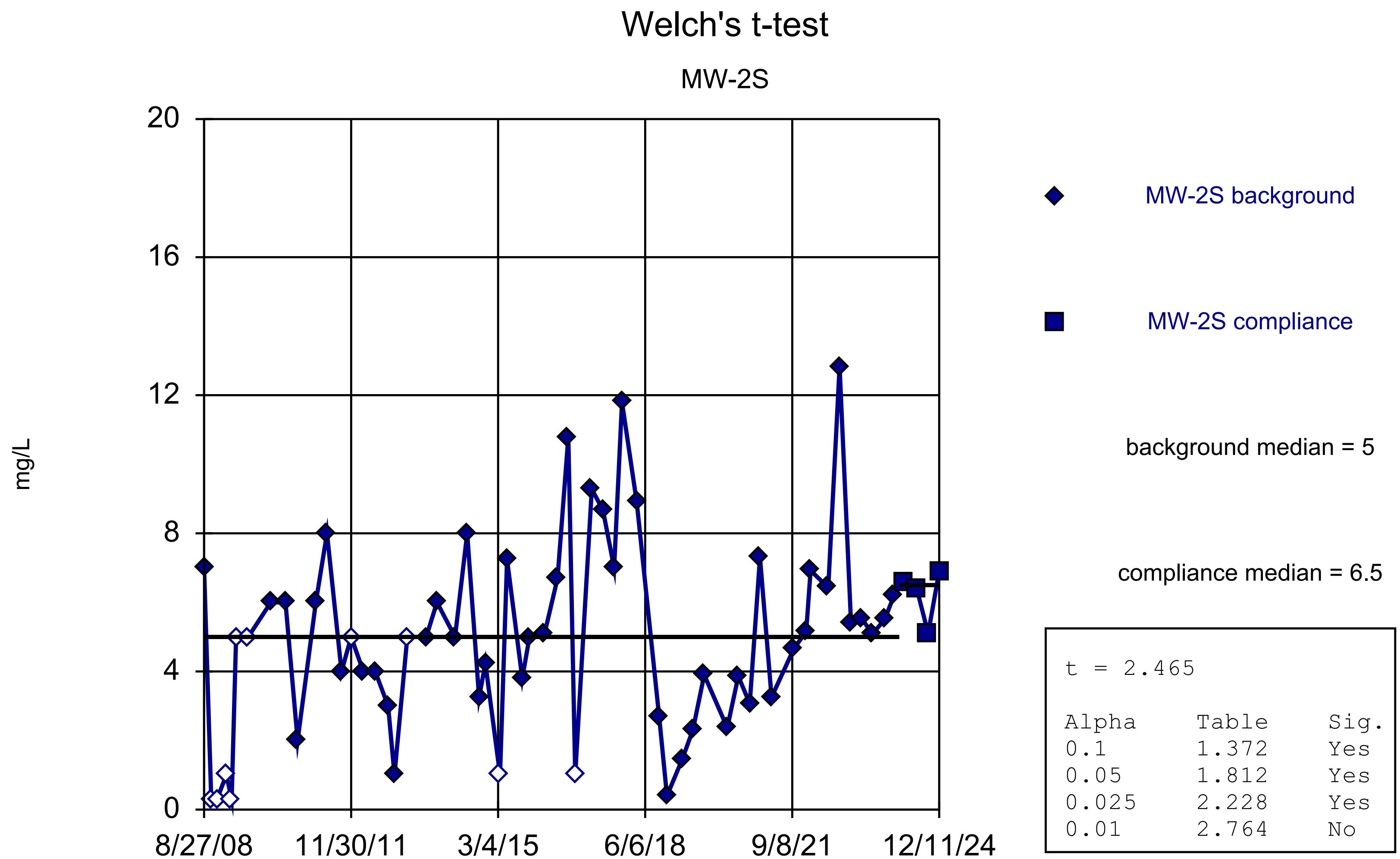


t = -0.1139		
Alpha	Table	Sig.
0.1	1.311	No
0.05	1.699	No
0.025	2.045	No
0.01	2.462	No

Normality test: Shapiro Francia @alpha = 0.05, calculated = 0.9617 after square root transformation, critical = 0.961.

Constituent: Nitrate Analysis Run 2/18/2025 10:44 AM View: 2008-2023 background re-eval for 2024 data
Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.



t = 2.465

Alpha	Table	Sig.
0.1	1.372	Yes
0.05	1.812	Yes
0.025	2.228	Yes
0.01	2.764	No

Normality test: Shapiro Francia @alpha = 0.05, calculated = 0.9674, critical = 0.961.

Constituent: Sulfate   Analysis Run 2/18/2025 10:44 AM   View: 2008-2023 background re-eval for 2024 data

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

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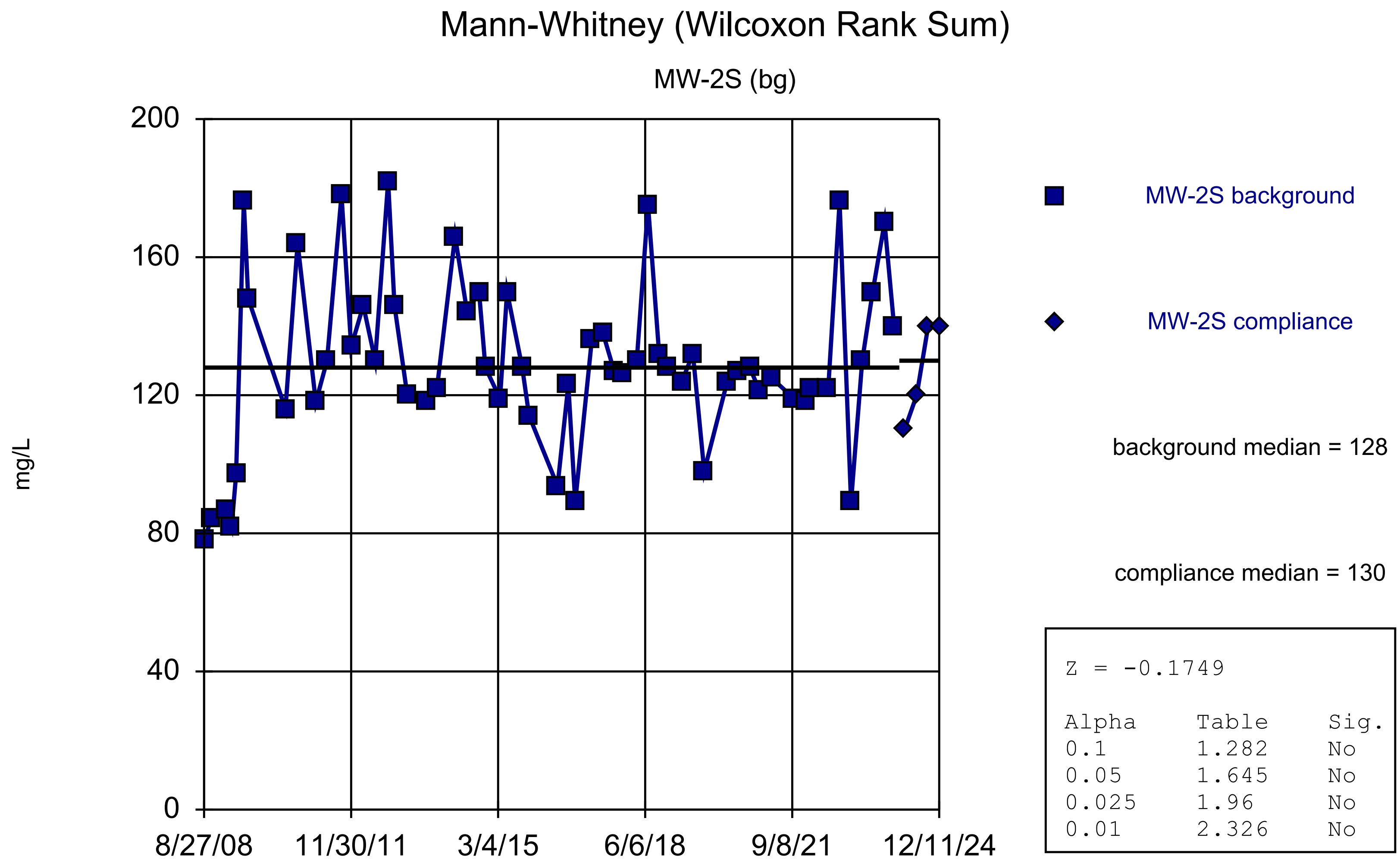


Alpha	Table	Sig.
0.1	1.282	No
0.05	1.645	No
0.025	1.96	No
0.01	2.326	No

Z = -0.1749

Mann-Whitney (Wilcoxon Rank Sum) used in lieu of Welch's t-test because the Shapiro Francia normality test showed the data to be non-normal at the 0.05 alpha level.

Constituent: TDS   Analysis Run 2/18/2025 10:45 AM   View: 2008-2023 background re-eval for 2024 data

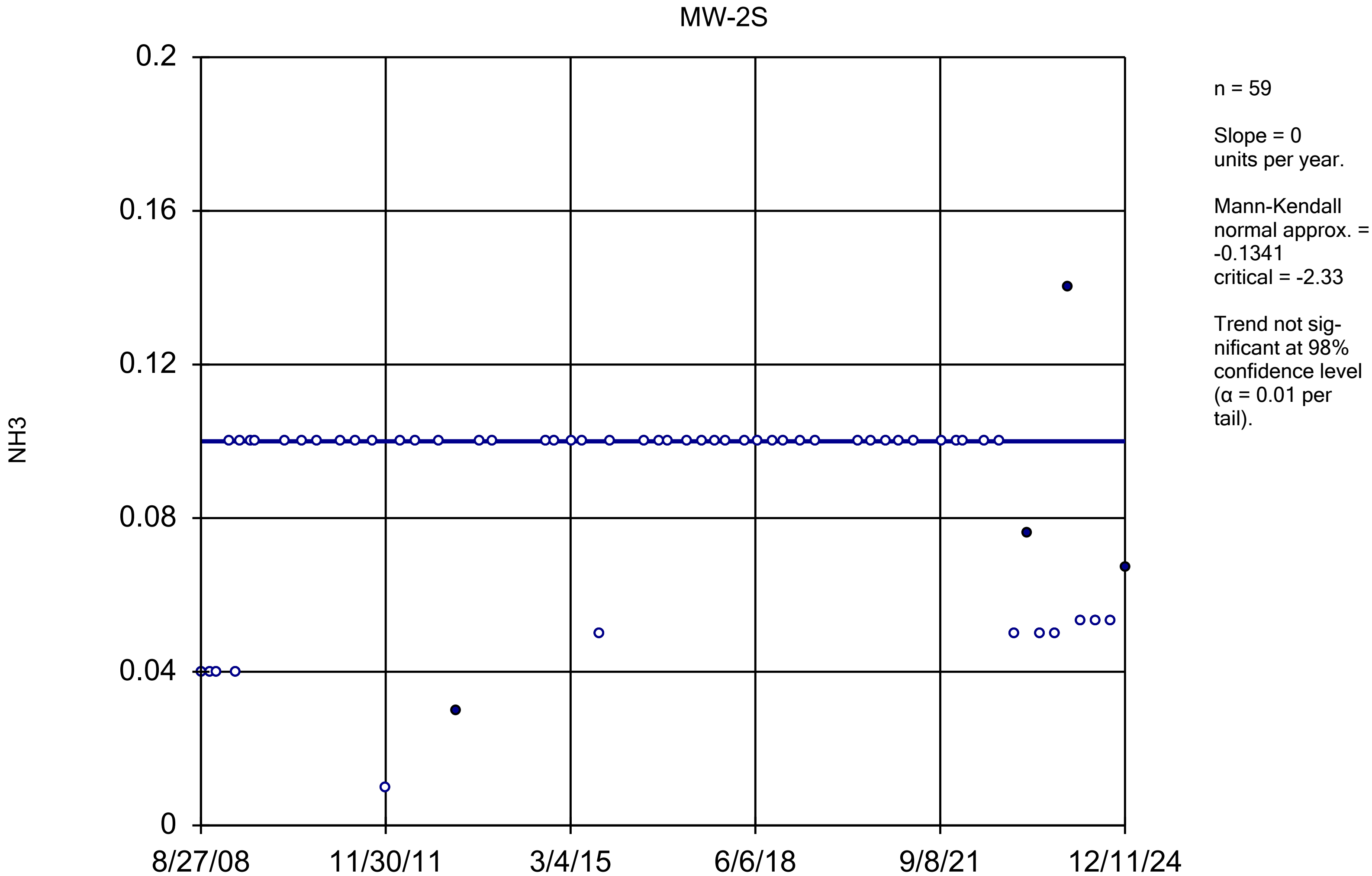
Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Attachment F

Sen's Slope/Mann-Kendall Trend Tests for MW-2S and MW-3S

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

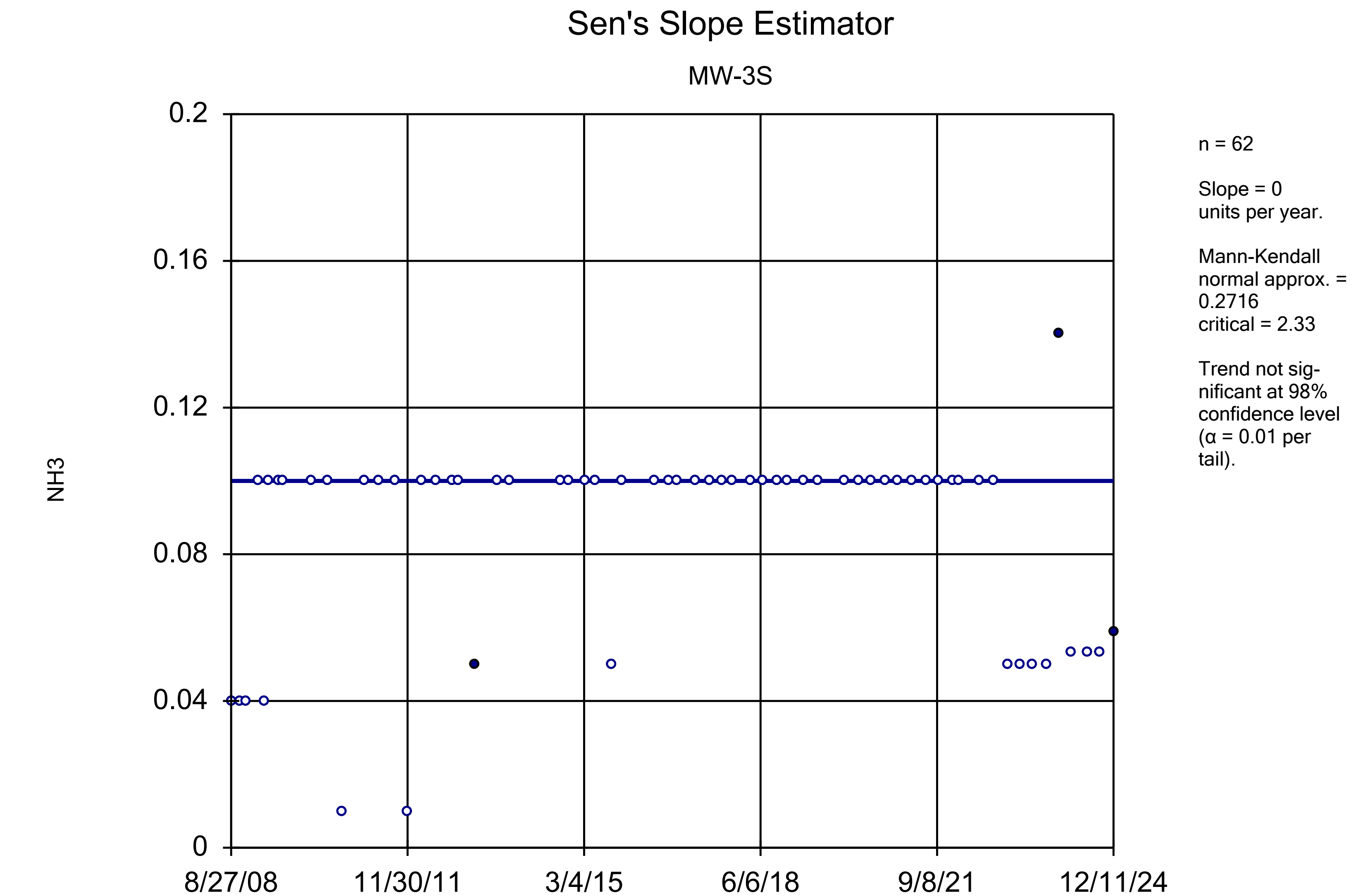
Sen's Slope Estimator



Constituent: Ammonia Analysis Run 2/18/2025 1:06 PM View: 2008-2009 background re-eval for 2024 dat

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

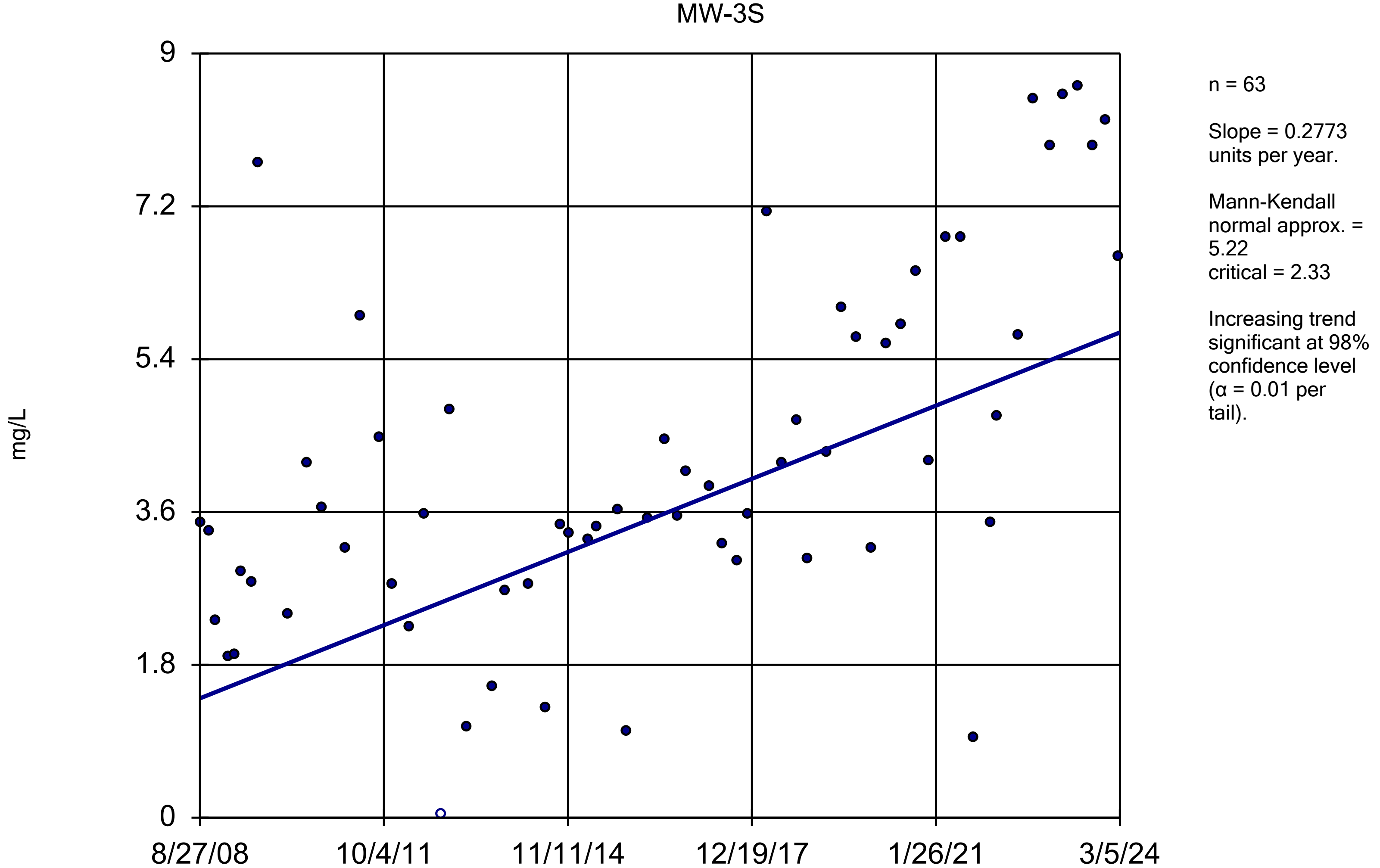


Constituent: Ammonia Analysis Run 2/18/2025 1:06 PM View: 2008-2009 background re-eval for 2024 dat

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

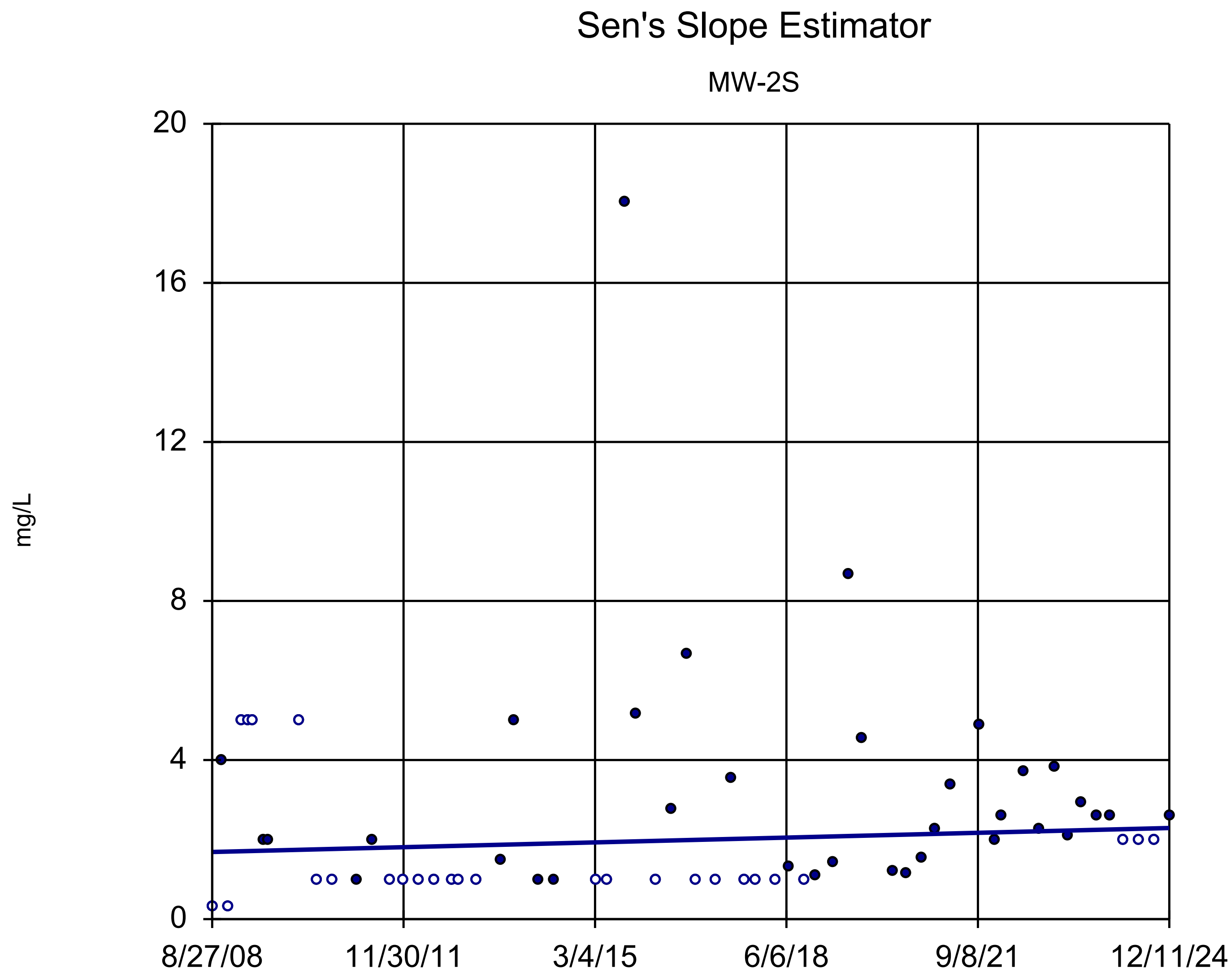
Sen's Slope Estimator



Constituent: Nitrate Analysis Run 2/18/2025 1:06 PM View: 2008-2009 background re-eval for 2024 data

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.



n = 62

Slope = 0.03687
units per year.

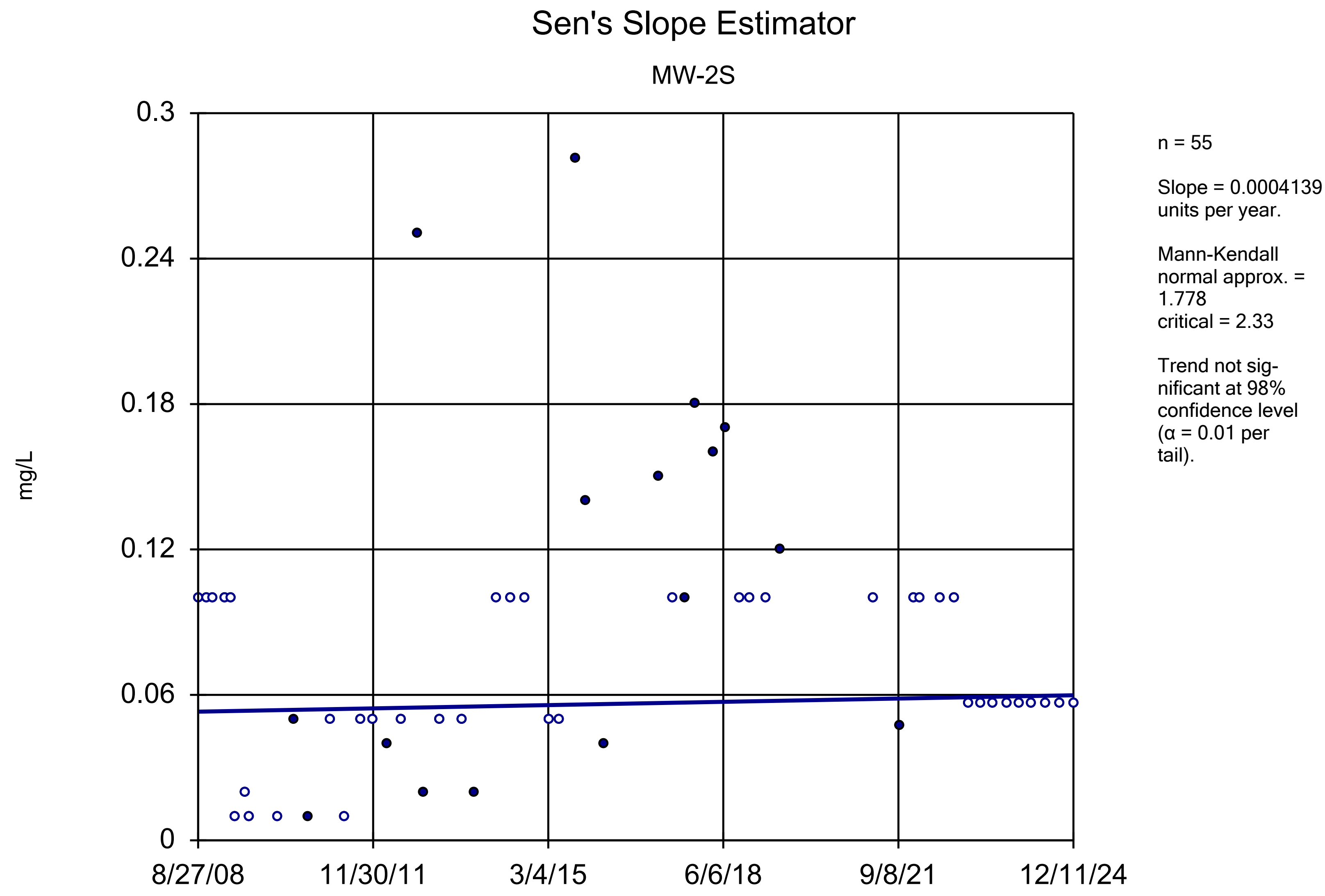
Mann-Kendall
normal approx. =
2.278
critical = 2.33

Trend not sig-
nificant at 98%
confidence level
(α = 0.01 per
tail).

Constituent: Chloride   Analysis Run 2/18/2025 10:56 AM   View: 2008-2023 background re-eval for 2024 dat

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

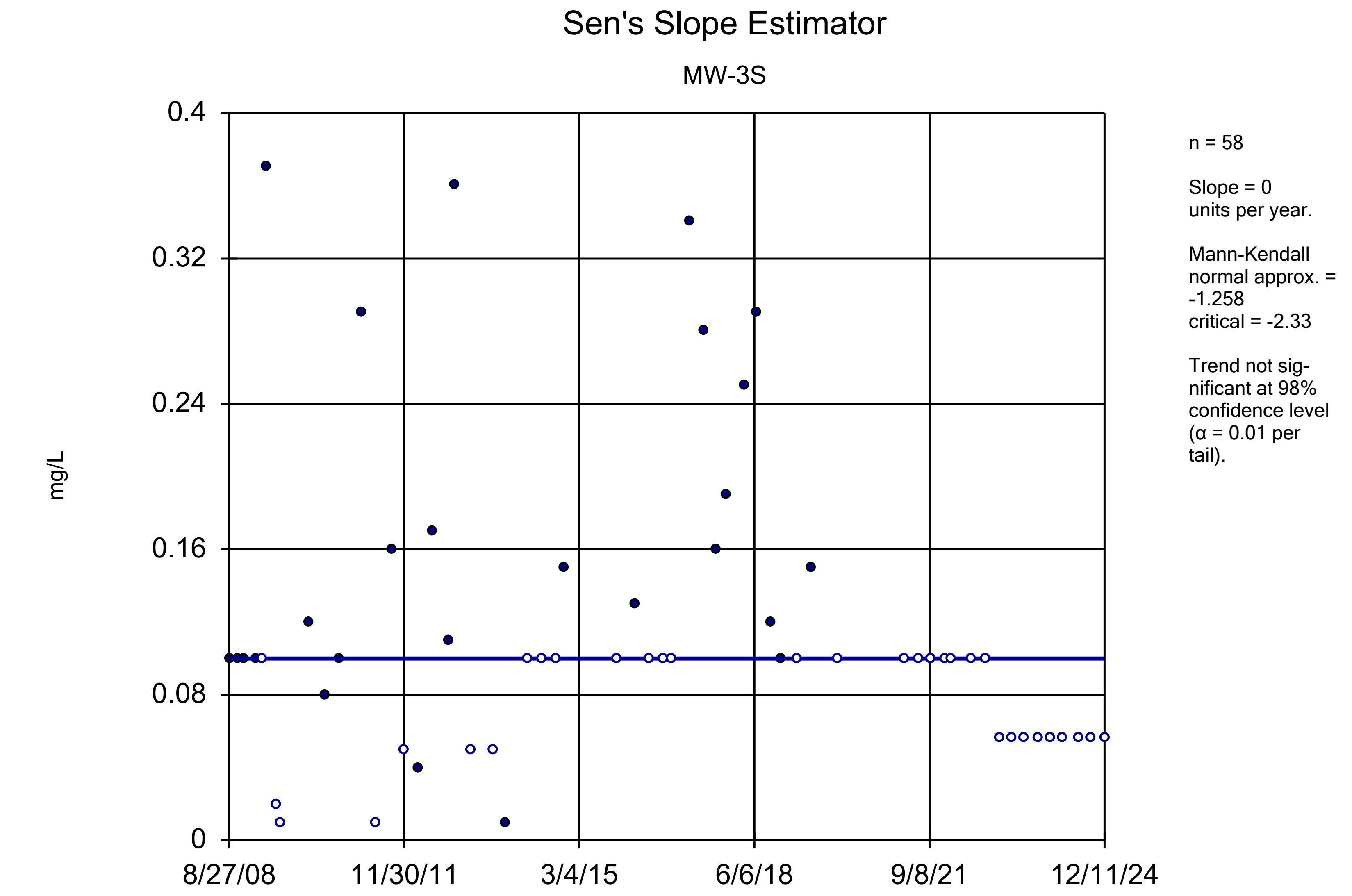
Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.



Constituent: Iron, Dissolved   Analysis Run 2/18/2025 10:56 AM   View: 2008-2023 background re-eval for 2

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

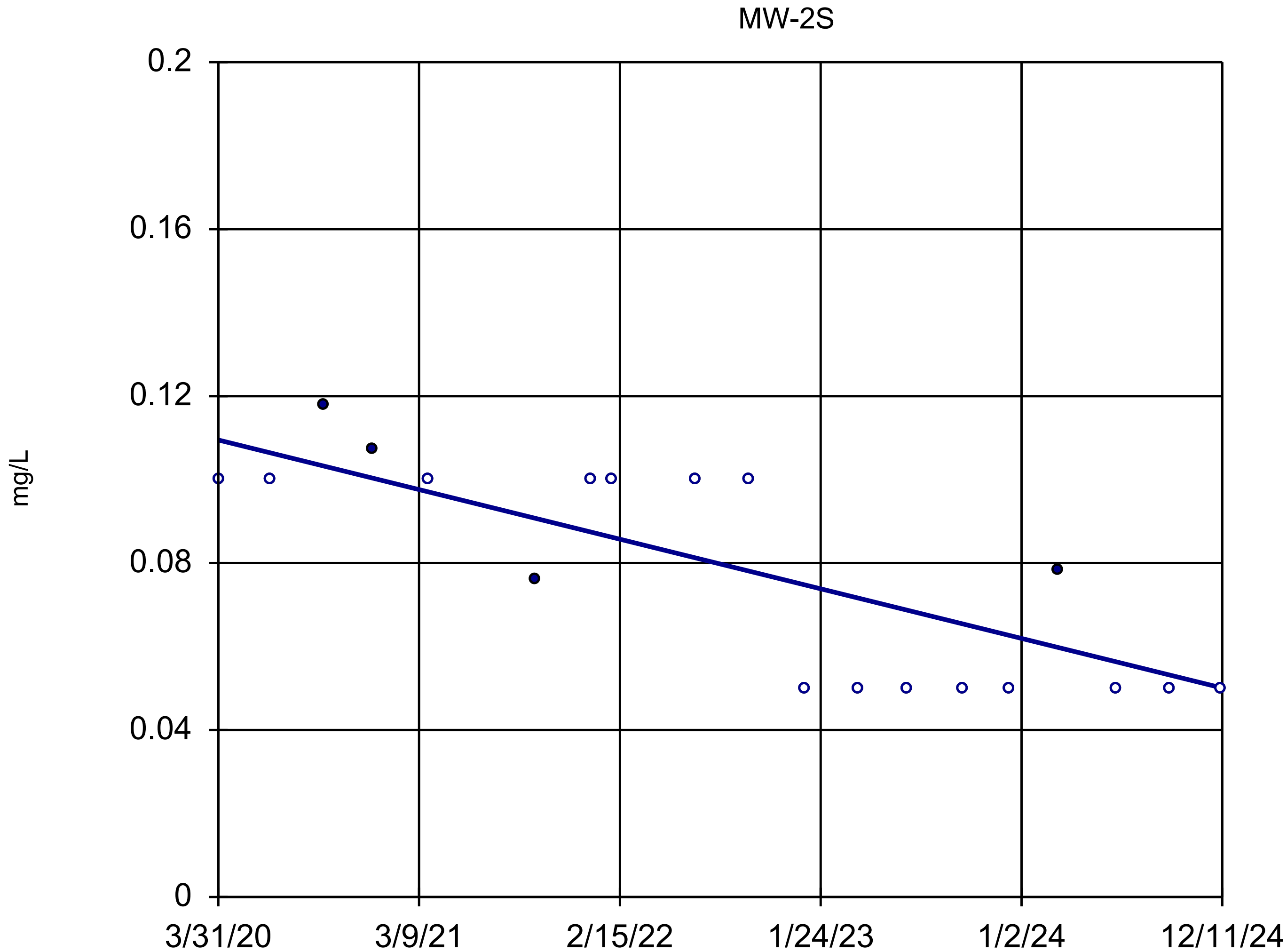


Constituent: Iron, Dissolved   Analysis Run 2/18/2025 10:56 AM   View: 2008-2023 background re-eval for 2

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator



n = 19

Slope = -0.01264
units per year.

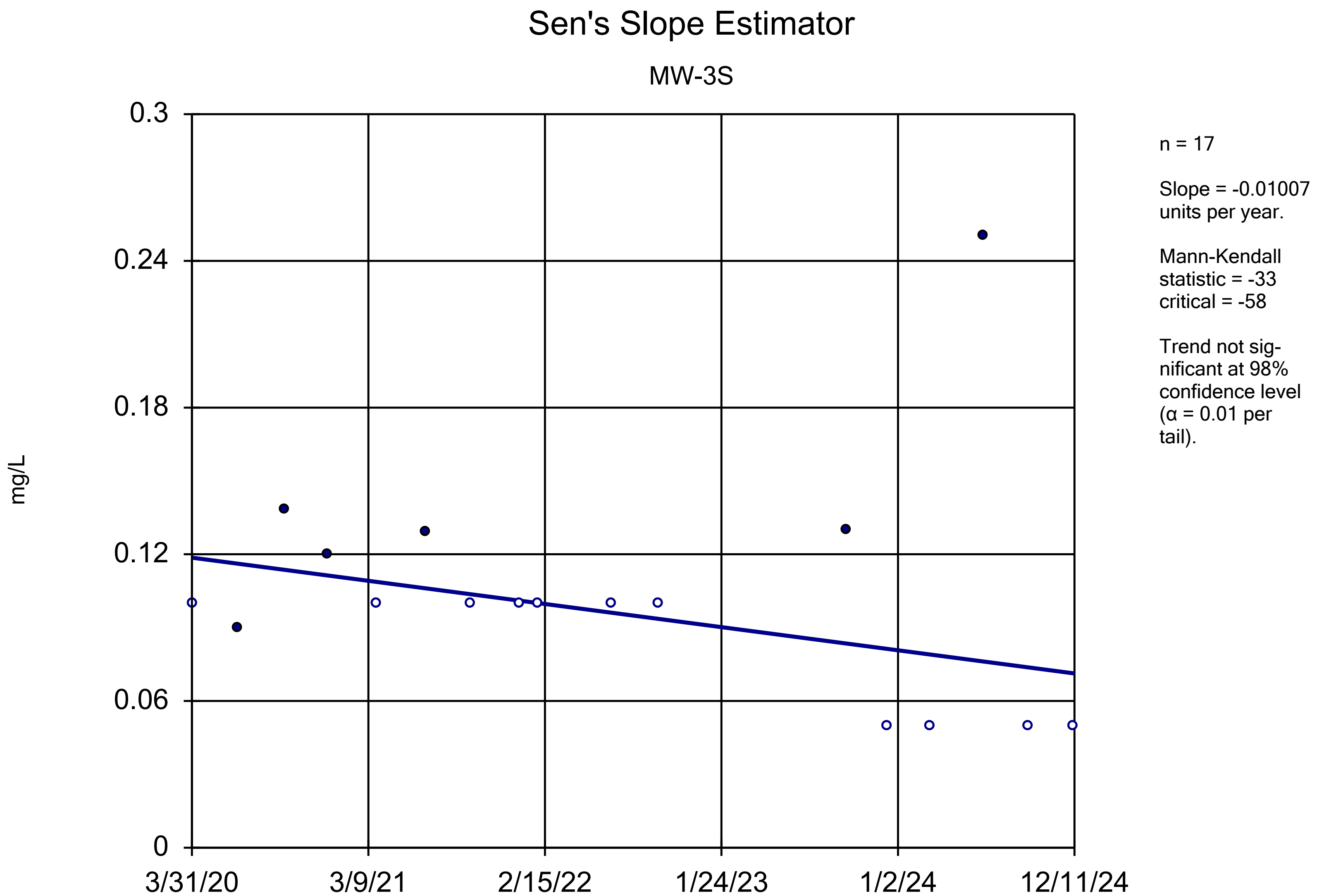
Mann-Kendall
statistic = -94
critical = -68

Decreasing trend
significant at 98%
confidence level
(α = 0.01 per
tail).

Constituent: Iron, Total   Analysis Run 2/18/2025 10:56 AM   View: 2008-2023 background re-eval for 2024 d

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

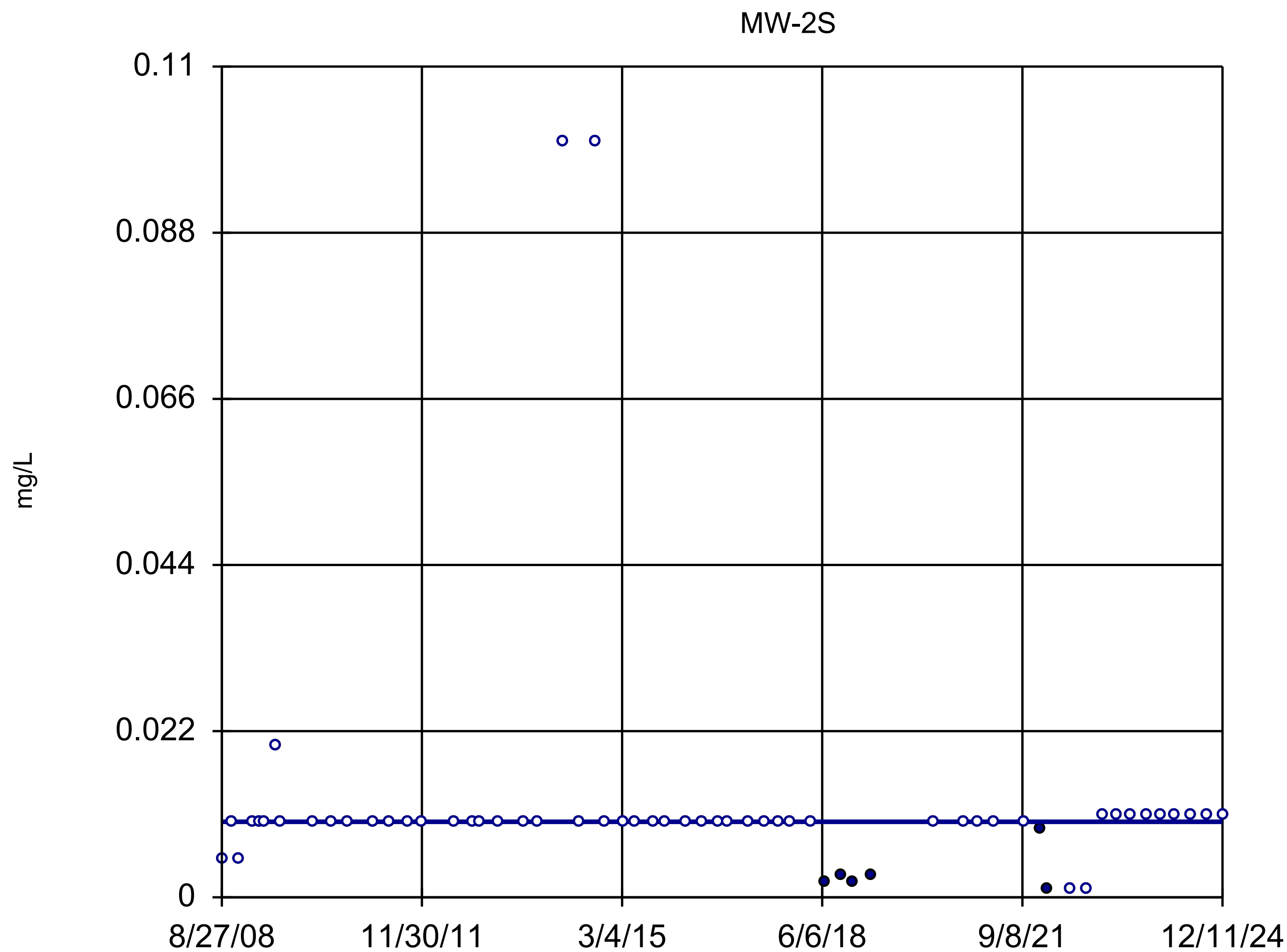


Constituent: Iron, Total   Analysis Run 2/18/2025 10:56 AM   View: 2008-2023 background re-eval for 2024 d

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator



n = 60

Slope = 0
units per year.

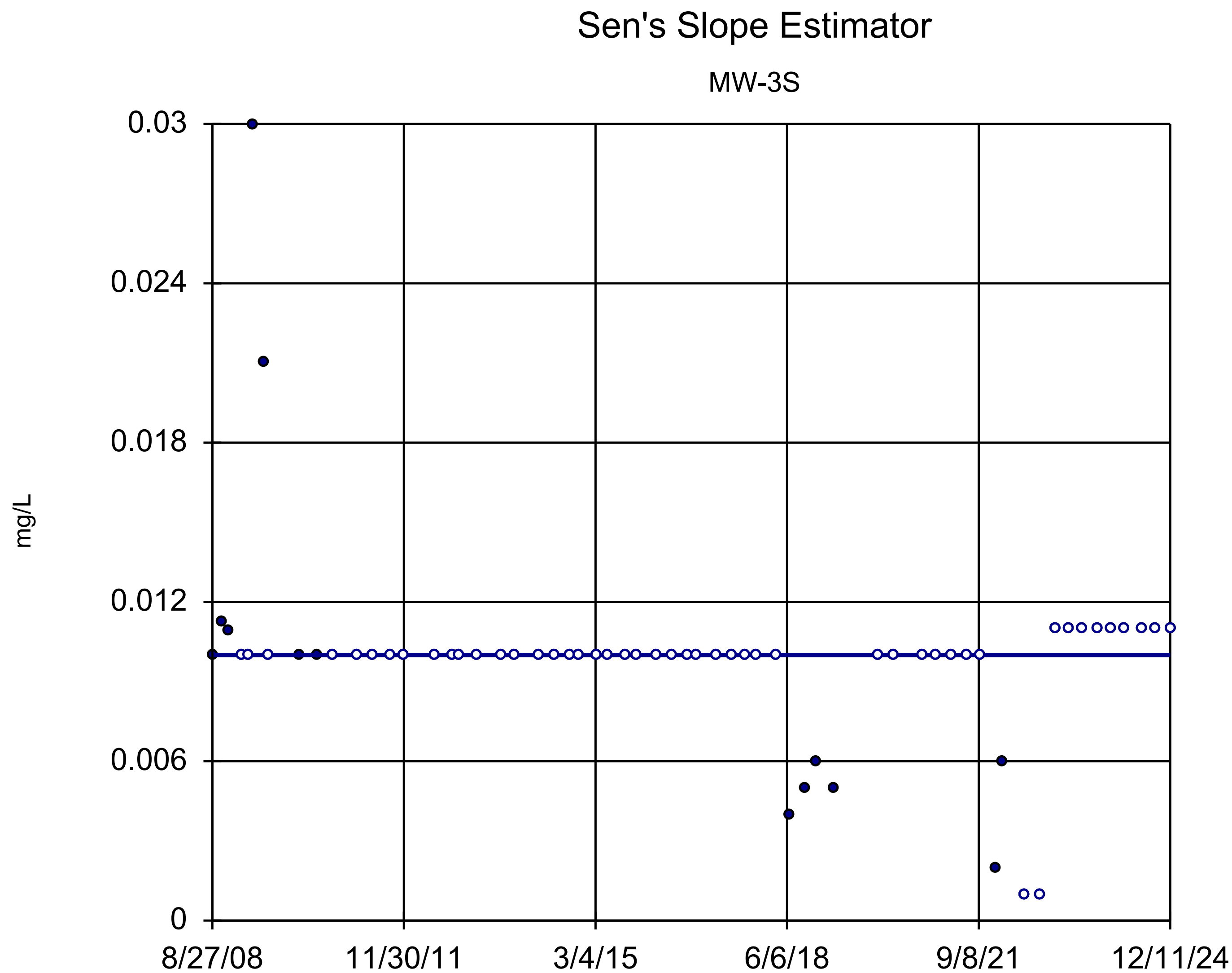
Mann-Kendall
normal approx. =
1.076
critical = 2.33

Trend not sig-
nificant at 98%
confidence level
(α = 0.01 per
tail).

Constituent: Manganese, Dissolved   Analysis Run 2/18/2025 10:56 AM   View: 2008-2023 background re-ev

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.



n = 62

Slope = 0
units per year.

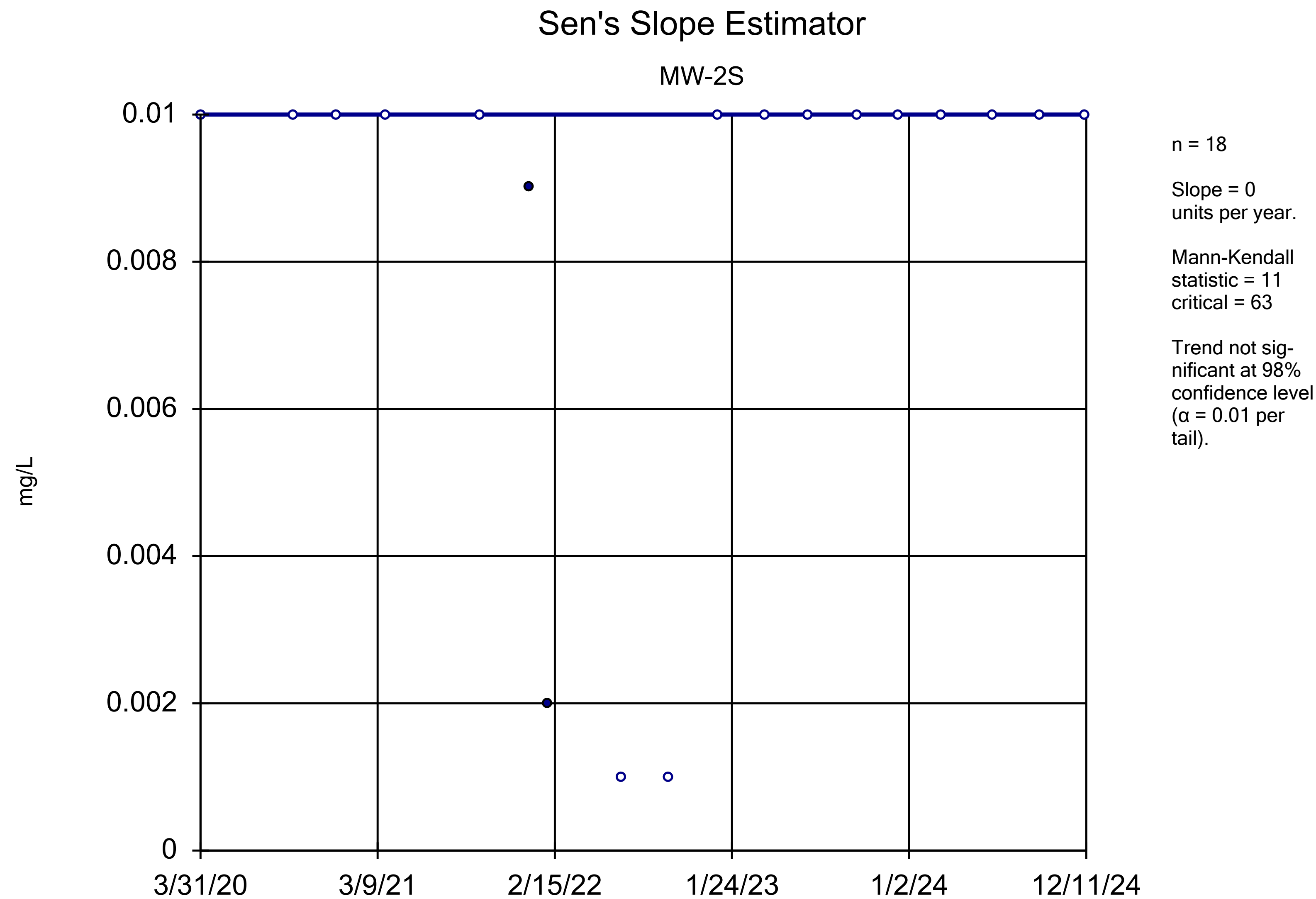
Mann-Kendall
normal approx. =
-0.2534
critical = -2.33

Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Manganese, Dissolved   Analysis Run 2/18/2025 10:56 AM   View: 2008-2023 background re-ev

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

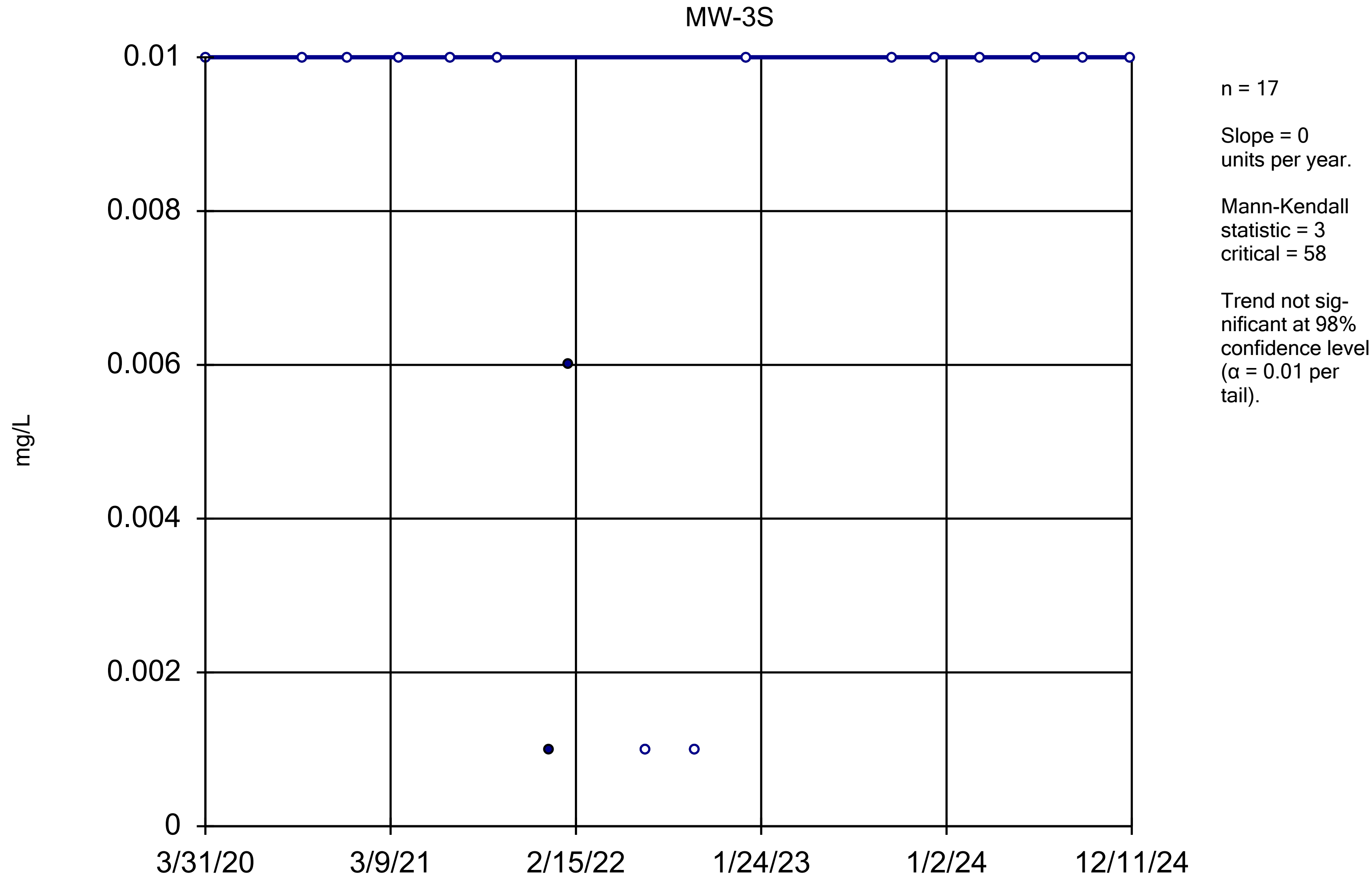


Constituent: Manganese, Total Analysis Run 2/18/2025 10:56 AM View: 2008-2023 background re-eval fo

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

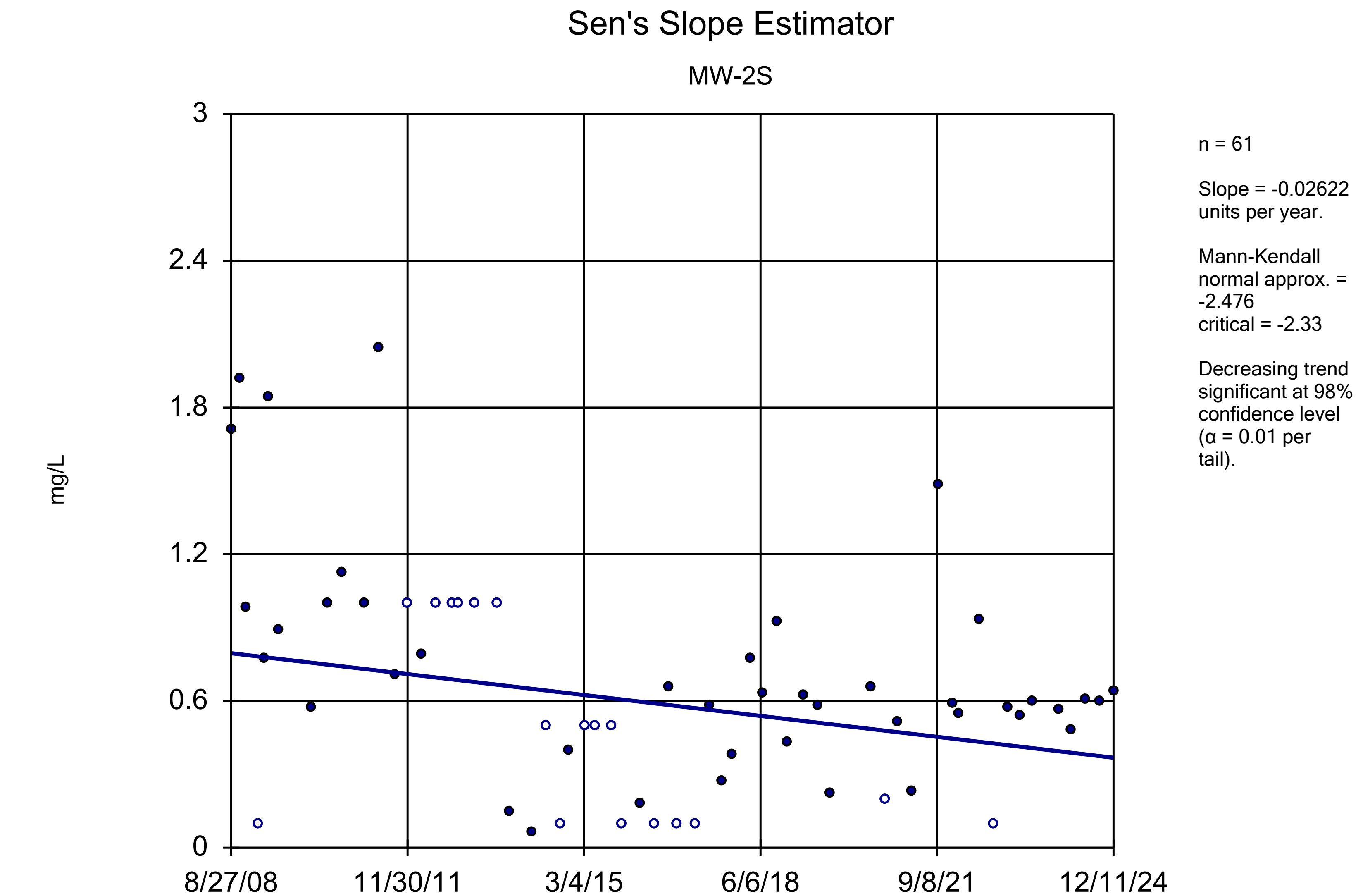
Sen's Slope Estimator



Constituent: Manganese, Total Analysis Run 2/18/2025 10:56 AM View: 2008-2023 background re-eval fo

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

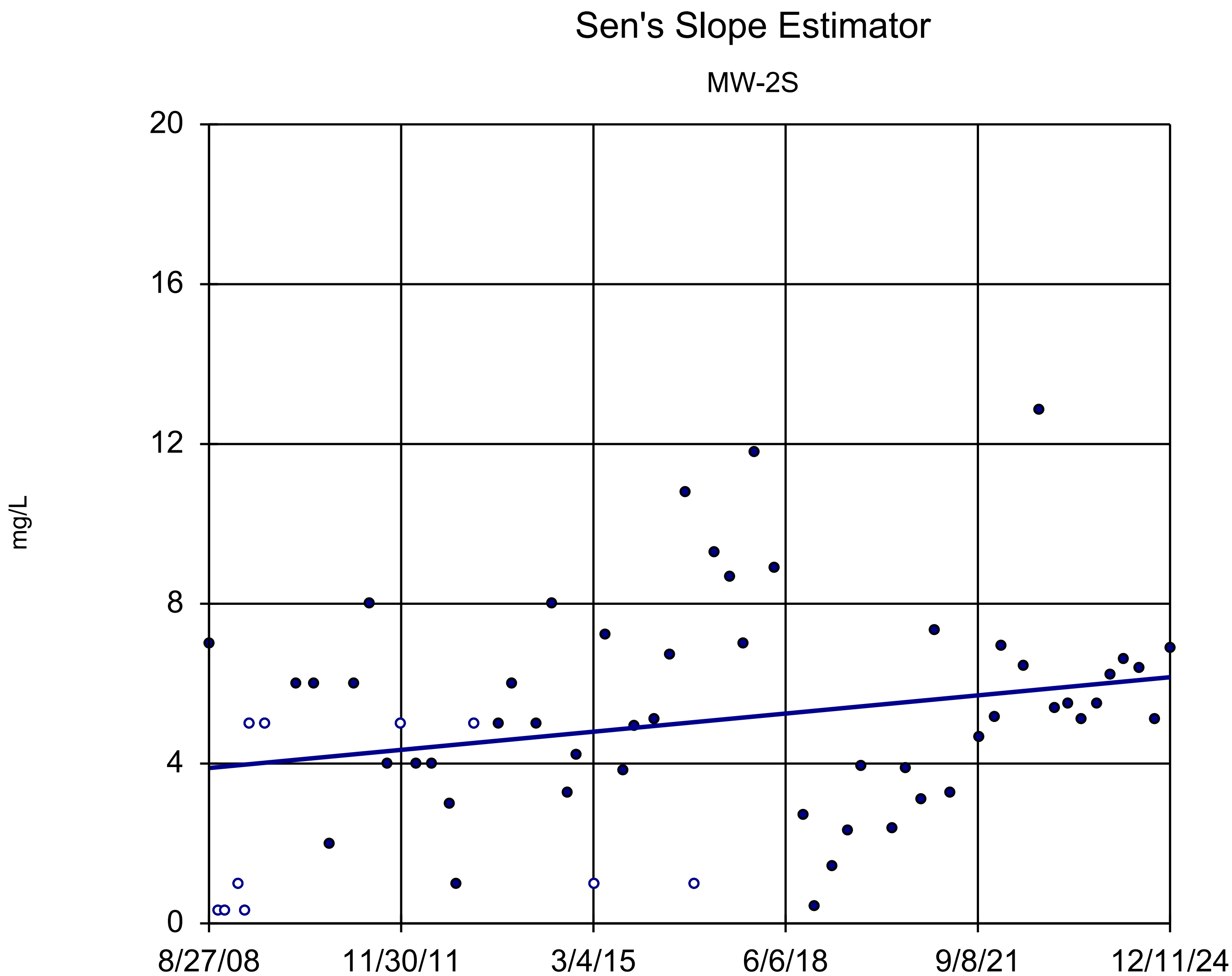
Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.



Constituent: Nitrate Analysis Run 2/18/2025 10:57 AM View: 2008-2023 background re-eval for 2024 data

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.



n = 62

Slope = 0.1394
units per year.

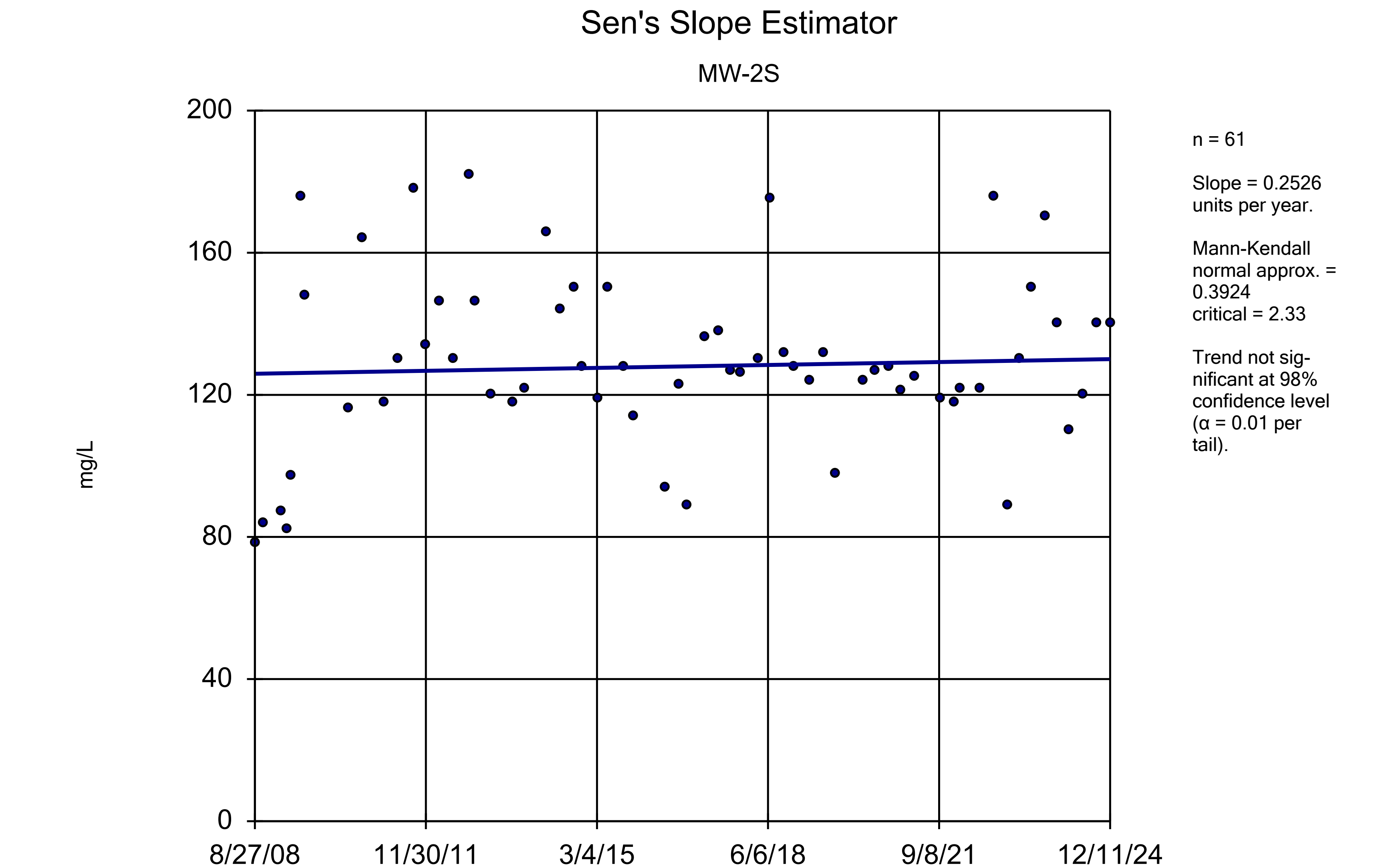
Mann-Kendall
normal approx. =
2.359
critical = 2.33

Increasing trend
significant at 98%
confidence level
(α = 0.01 per
tail).

Constituent: Sulfate Analysis Run 2/18/2025 10:57 AM View: 2008-2023 background re-eval for 2024 data

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG



Constituent: TDS Analysis Run 2/18/2025 10:57 AM View: 2008-2023 background re-eval for 2024 data

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Attachment G

UPLs for 2025

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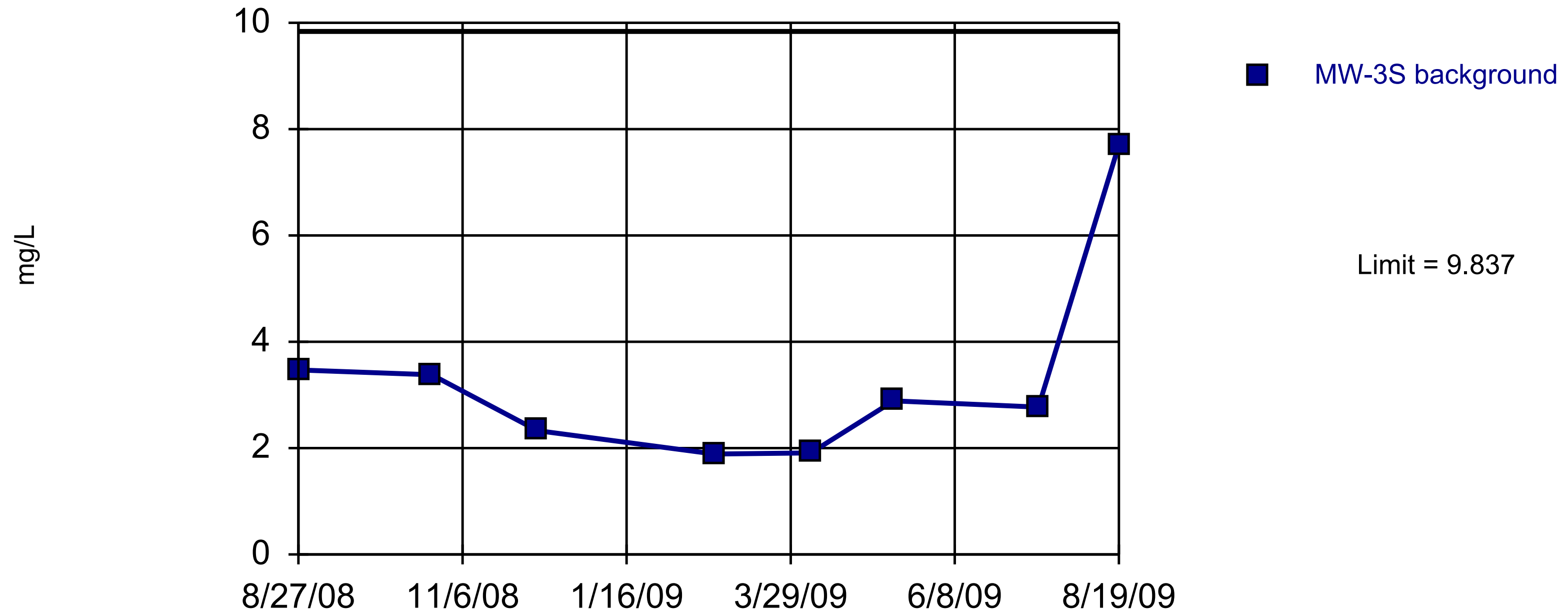
Prediction Limit

Intrawell Parametric, MW-3S



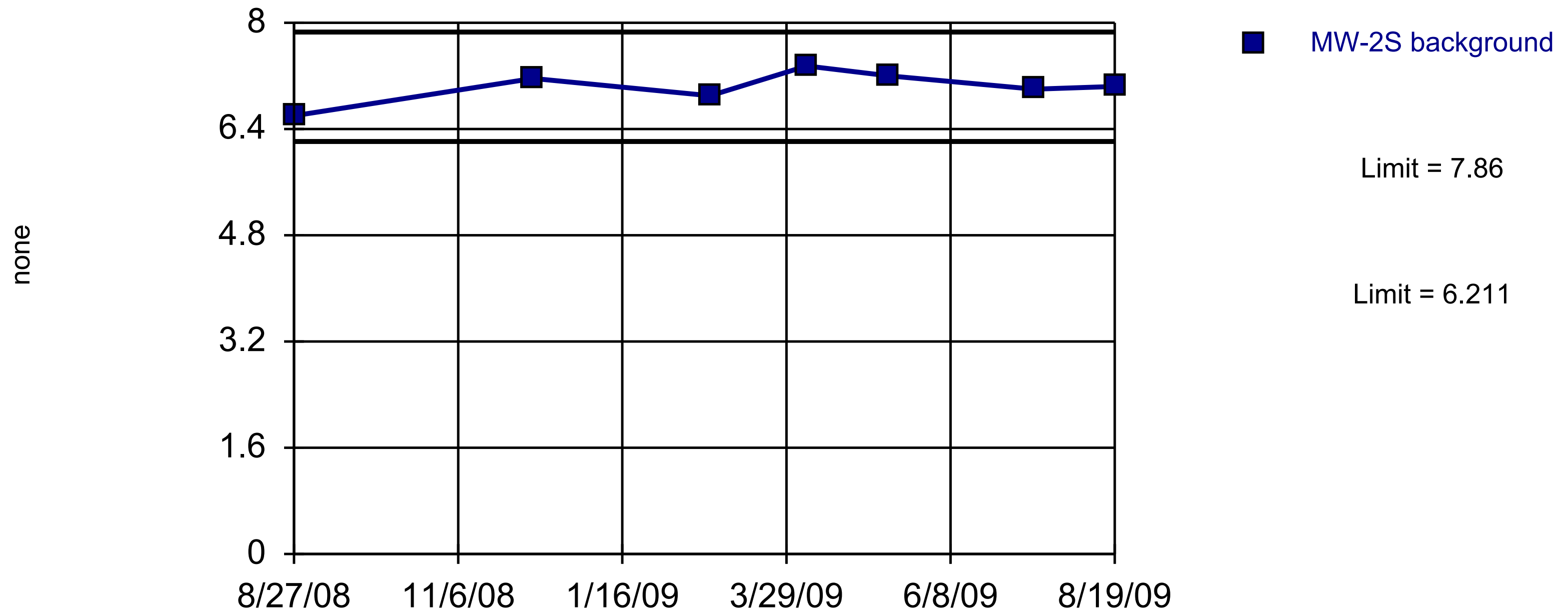
Background Data Summary (based on square root transformation): Mean=1.765, Std. Dev.=0.448, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7934, critical = 0.749. Kappa = 3.06 (c=10, w=3, 1 of 2, event alpha = 0.026). Report alpha = 0.0008776. Assumes 1 future value.

Constituent: Nitrate Analysis Run 2/18/2025 1:16 PM View: 2008-2009 background re-eval for 2024 data

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Prediction Limit

Intrawell Parametric, MW-2S



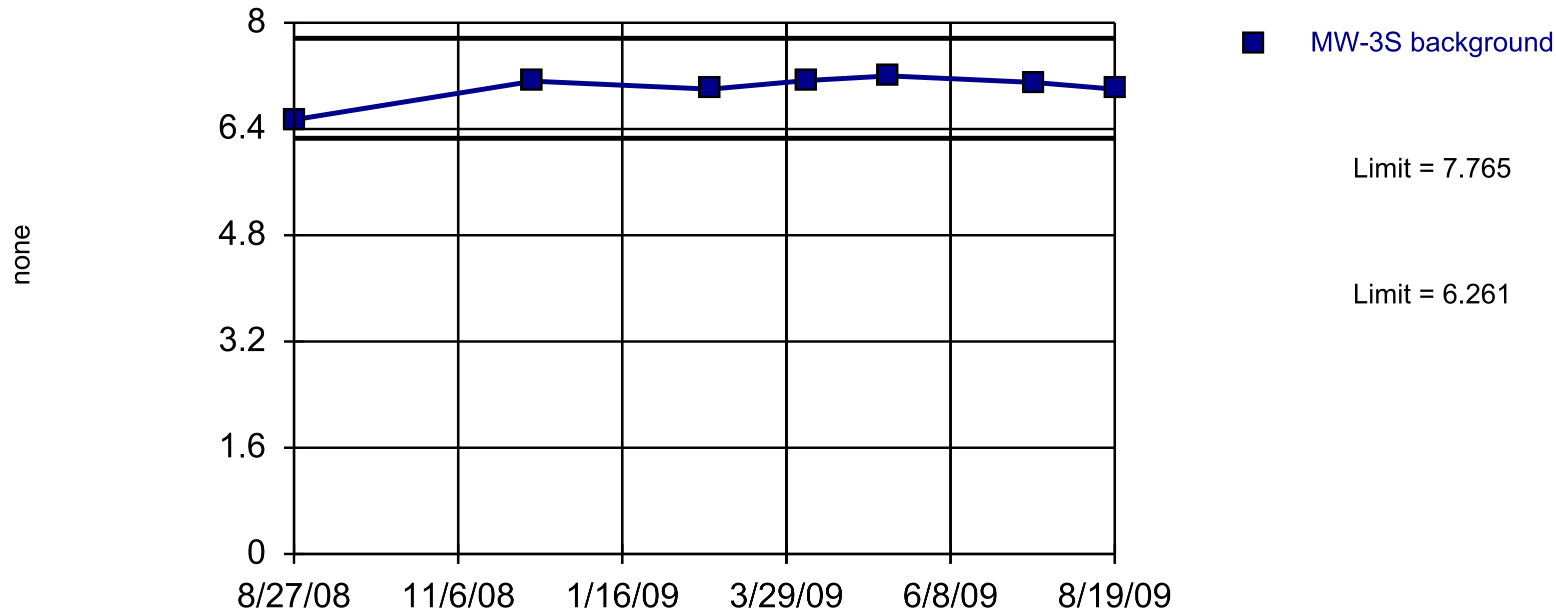
Background Data Summary: Mean=7.036, Std. Dev.=0.2418, n=7. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9617, critical = 0.73. Kappa = 3.41 (c=10, w=3, 1 of 2, event alpha = 0.026). Report alpha = 0.0008776. Assumes 1 future value.

Constituent: pH Analysis Run 2/18/2025 1:16 PM View: 2008-2009 background re-eval for 2024 data

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Prediction Limit

Intrawell Parametric, MW-3S



Background Data Summary: Mean=7.013, Std. Dev.=0.2205, n=7. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7494, critical = 0.73. Kappa = 3.41 (c=10, w=3, 1 of 2, event alpha = 0.026). Report alpha = 0.0008776. Assumes 1 future value.

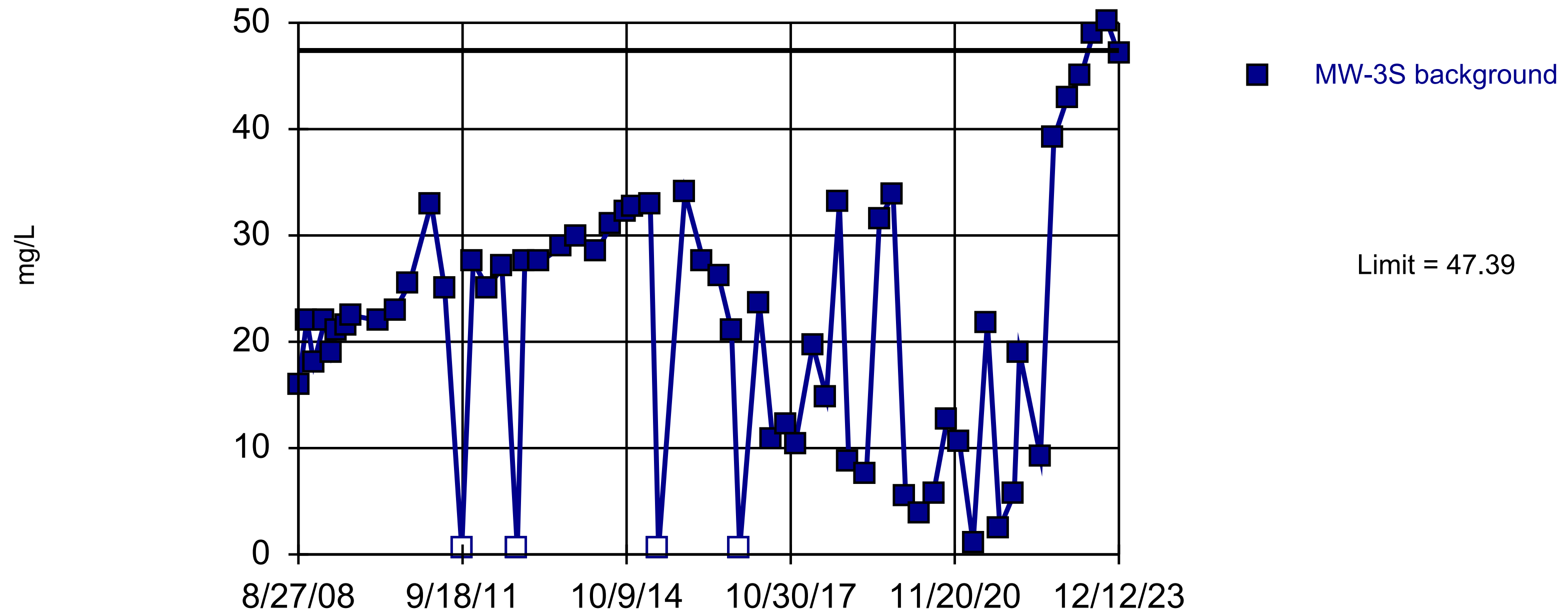
Constituent: pH Analysis Run 2/18/2025 1:16 PM View: 2008-2009 background re-eval for 2024 data

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

Prediction Limit

Intrawell Parametric, MW-3S



Background Data Summary: Mean=21.8, Std. Dev.=12.81, n=61, 6.557% NDs. Seasonality was not detected with 95% confidence. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.977, critical = 0.946. Kappa = 1.998 (c=10, w=3, 1 of 2, event alpha = 0.026). Report alpha = 0.0008776. Assumes 1 future value.

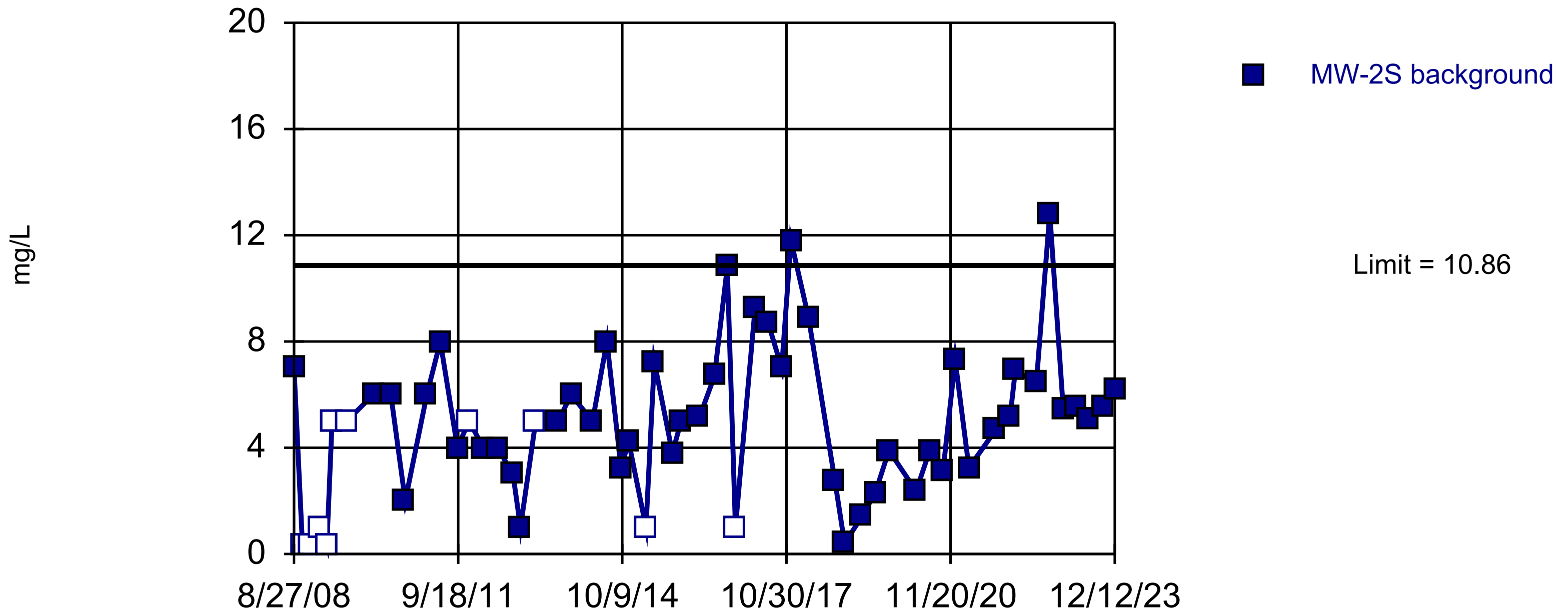
Constituent: Chloride Analysis Run 2/20/2025 7:57 AM View: 2008-2023 background for 2025 UPLs, Cont

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

Prediction Limit

Intrawell Parametric, MW-2S



Background Data Summary (after Aitchison`s Adjustment): Mean=4.5, Std. Dev.=3.175, n=58, 17.24% NDs. Seasonality was not detected with 95% confidence. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9674, critical = 0.944. Kappa = 2.004 (c=10, w=3, 1 of 2, event alpha = 0.026). Report alpha = 0.0008776. Assumes 1 future value.

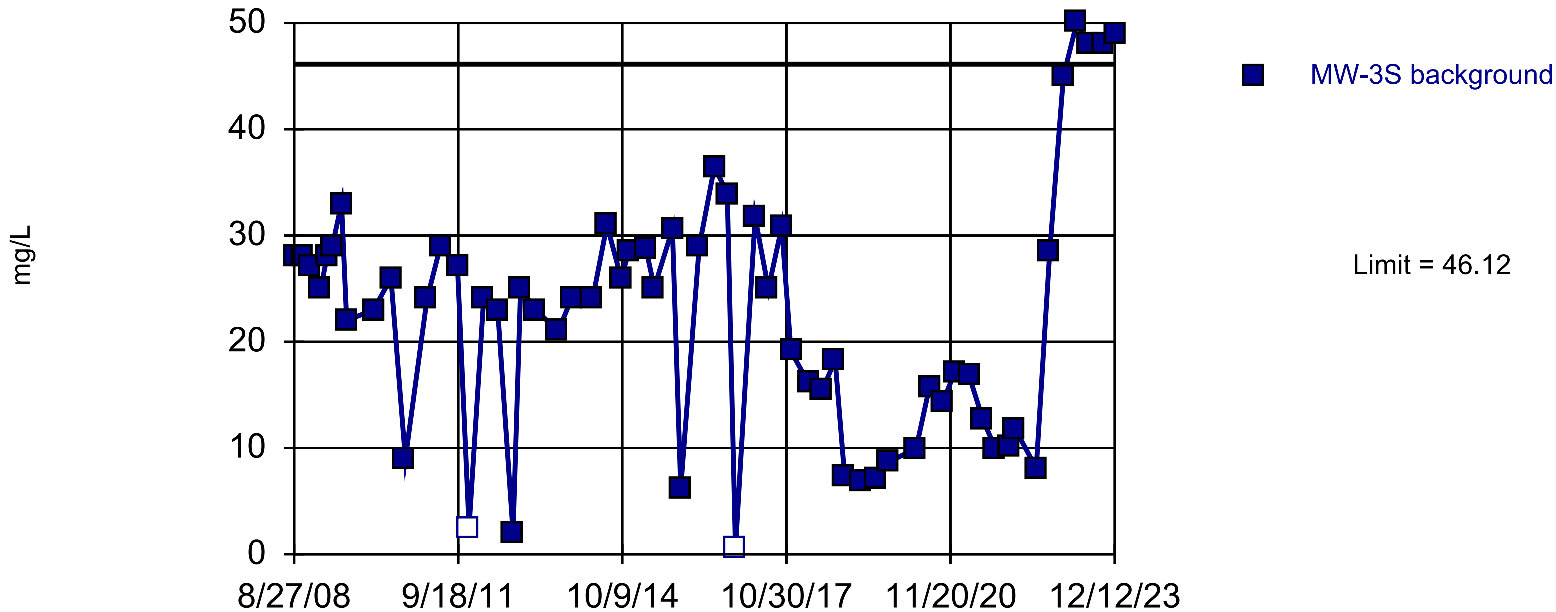
Constituent: Sulfate Analysis Run 2/20/2025 7:57 AM View: 2008-2023 background for 2025 UPLs, Contr

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

Prediction Limit

Intrawell Parametric, MW-3S

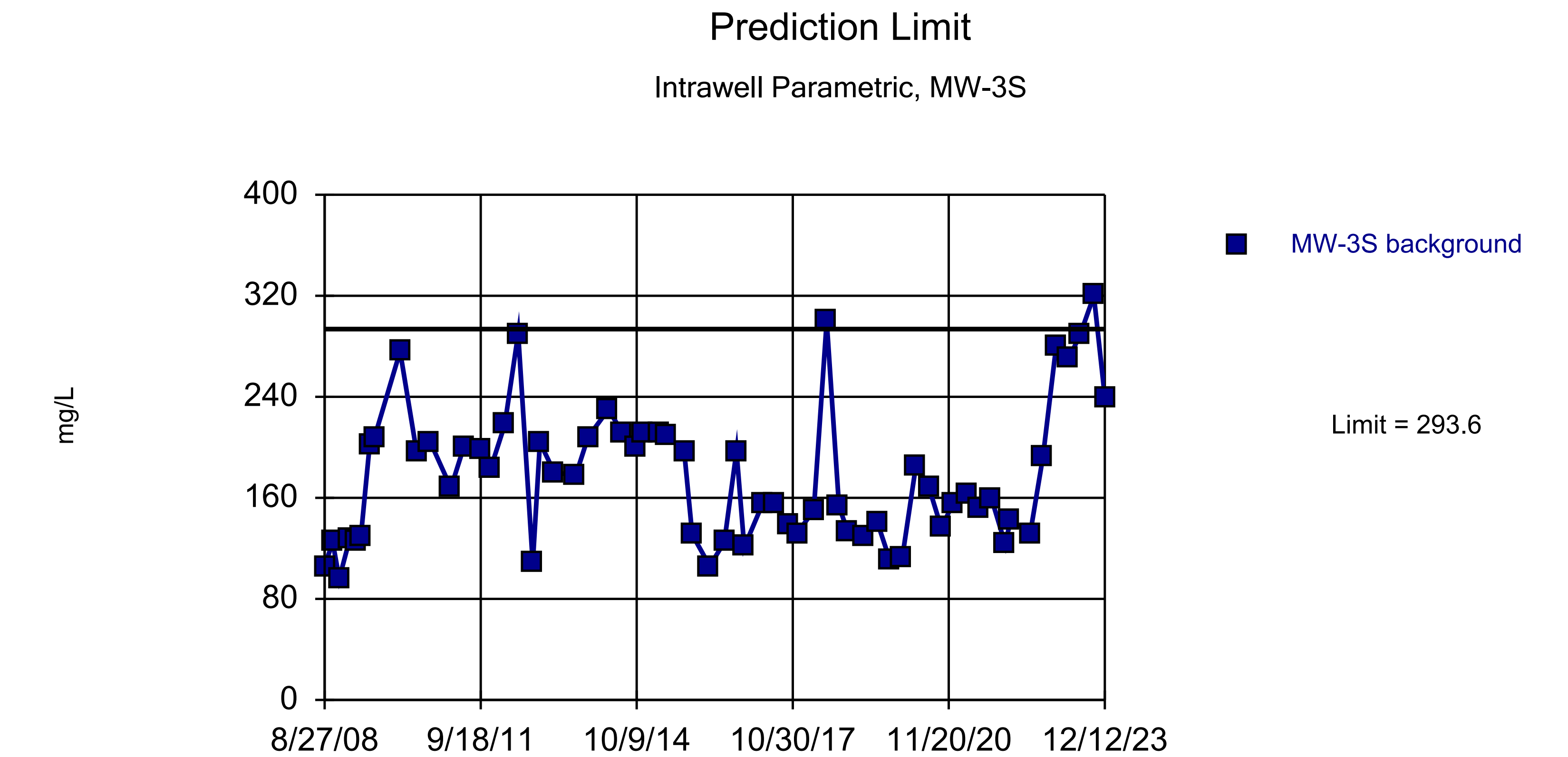


Background Data Summary: Mean=22.68, Std. Dev.=11.73, n=61, 3.279% NDs. Seasonality was not detected with 95% confidence. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9621, critical = 0.946. Kappa = 1.998 (c=10, w=3, 1 of 2, event alpha = 0.026). Report alpha = 0.0008776. Assumes 1 future value.

Constituent: Sulfate Analysis Run 2/20/2025 7:57 AM View: 2008-2023 background for 2025 UPLs, Contr

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG



Background Data Summary (based on square root transformation): Mean=13.18, Std. Dev.=1.982, n=62. Seasonality was not detected with 95% confidence. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9641, critical = 0.947. Kappa = 1.996 (c=10, w=3, 1 of 2, event alpha = 0.026). Report alpha = 0.0008776. Assumes 1 future value.

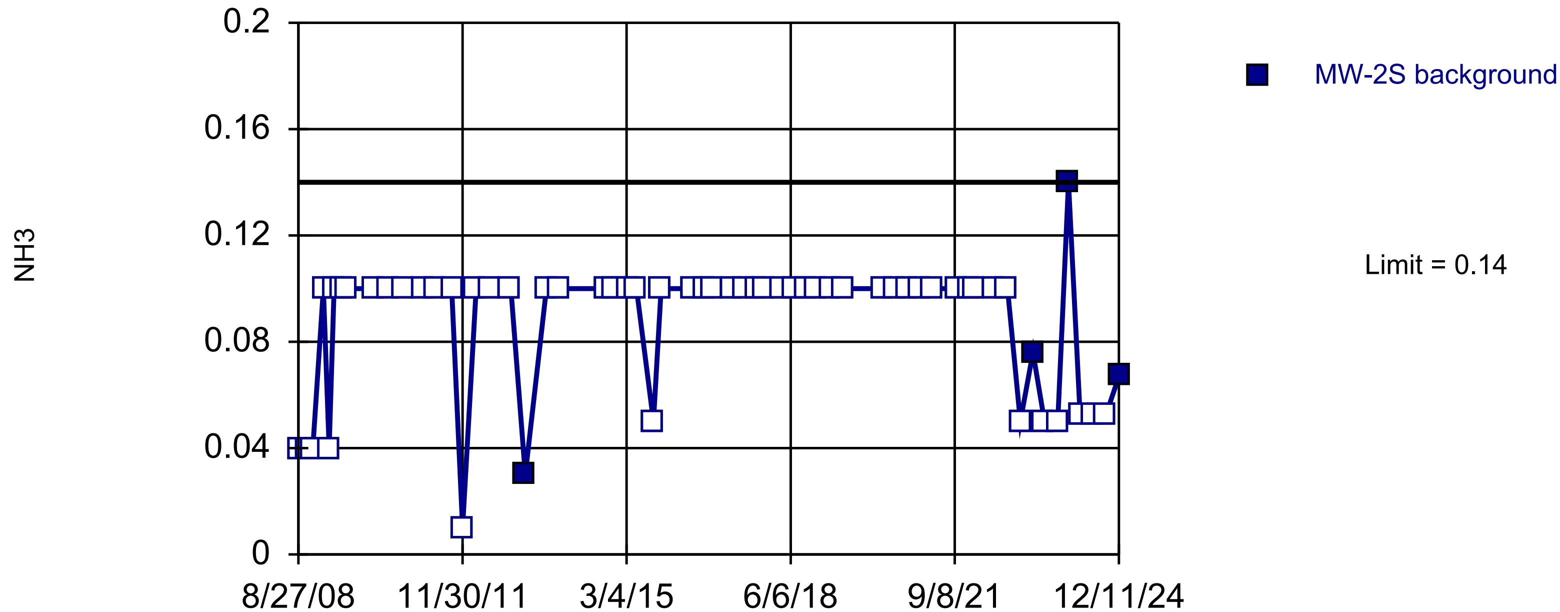
Constituent: TDS Analysis Run 2/20/2025 7:57 AM View: 2008-2023 background for 2025 UPLs, Control

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

Prediction Limit

Intrawell Non-parametric, MW-2S



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 59 background values. 93.22% NDs. Well-constituent pair annual alpha = 0.002195. Individual comparison alpha = 0.0005493 (1 of 2). Assumes 1 future value. Seasonality was not detected with 95% confidence.

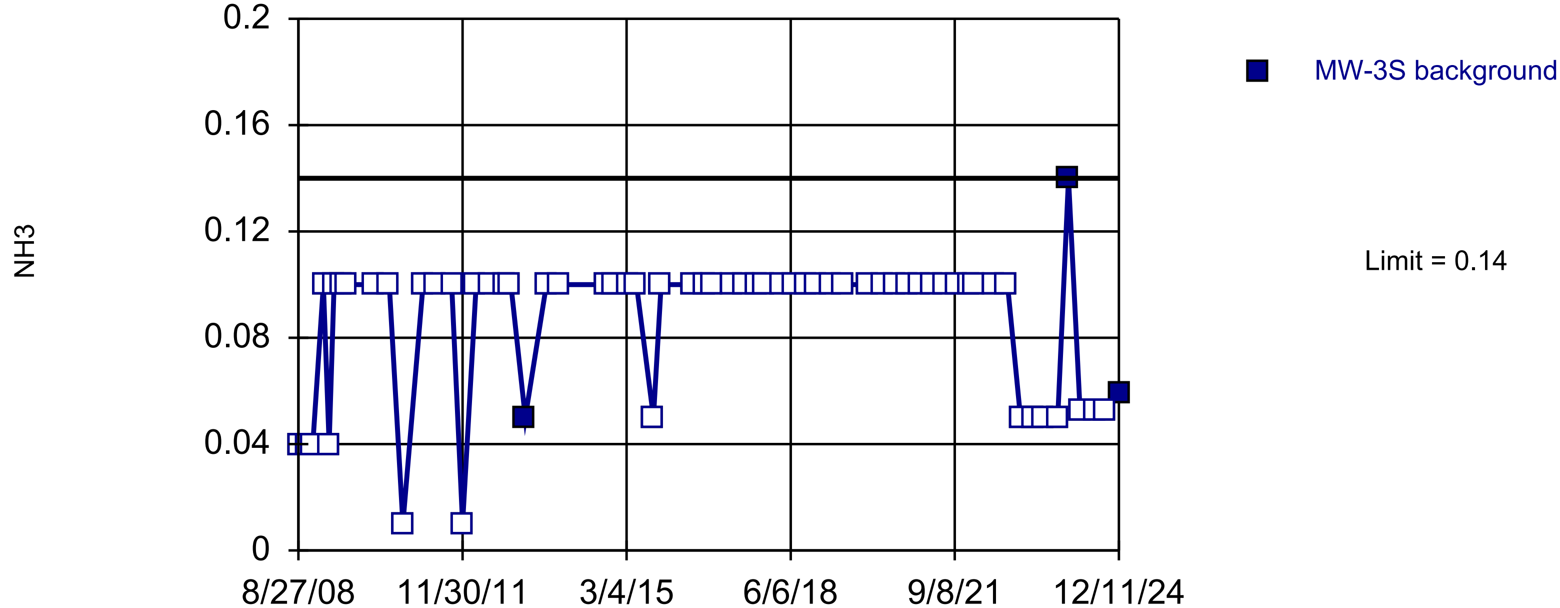
Constituent: Ammonia   Analysis Run 2/18/2025 1:30 PM   View: 2008-2024 background for 2025 UPLs, Con

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

Prediction Limit

Intrawell Non-parametric, MW-3S



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 62 background values. 95.16% NDs. Well-constituent pair annual alpha = 0.001997. Individual comparison alpha = 0.0004996 (1 of 2). Assumes 1 future value. Seasonality was not detected with 95% confidence.

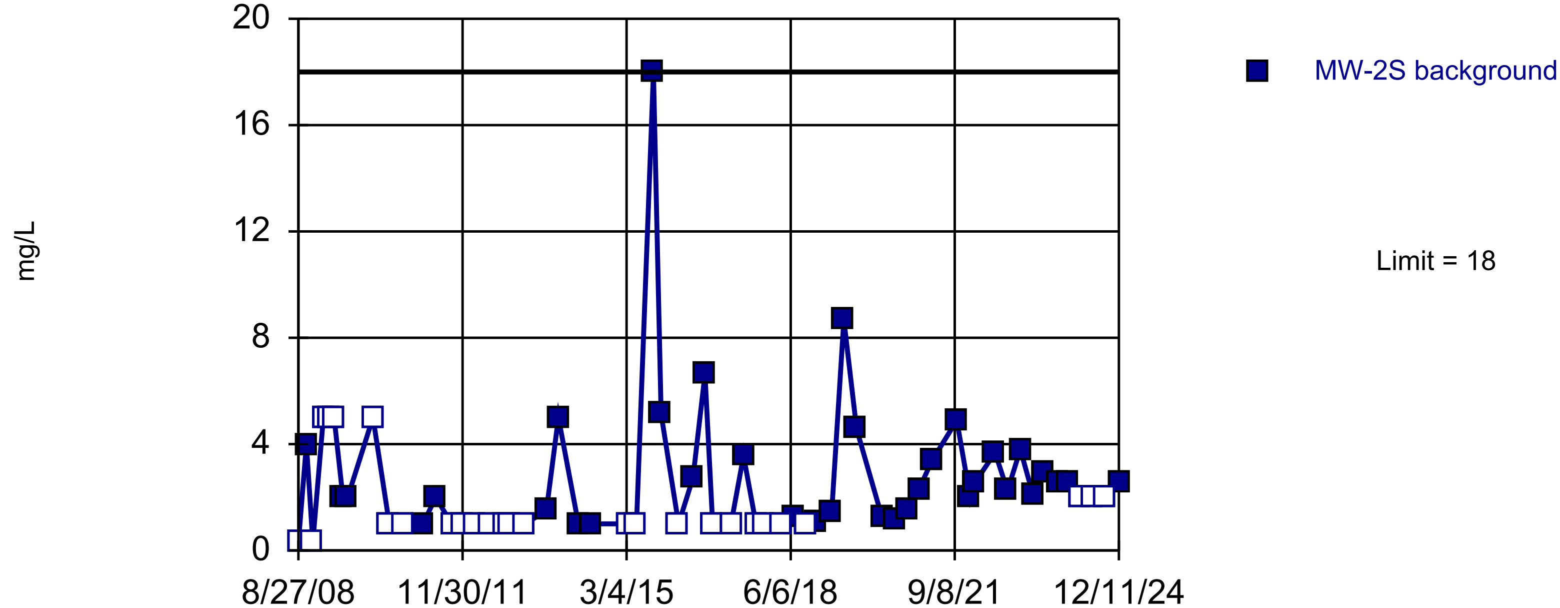
Constituent: Ammonia   Analysis Run 2/18/2025 1:30 PM   View: 2008-2024 background for 2025 UPLs, Con

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

Prediction Limit

Intrawell Non-parametric, MW-2S



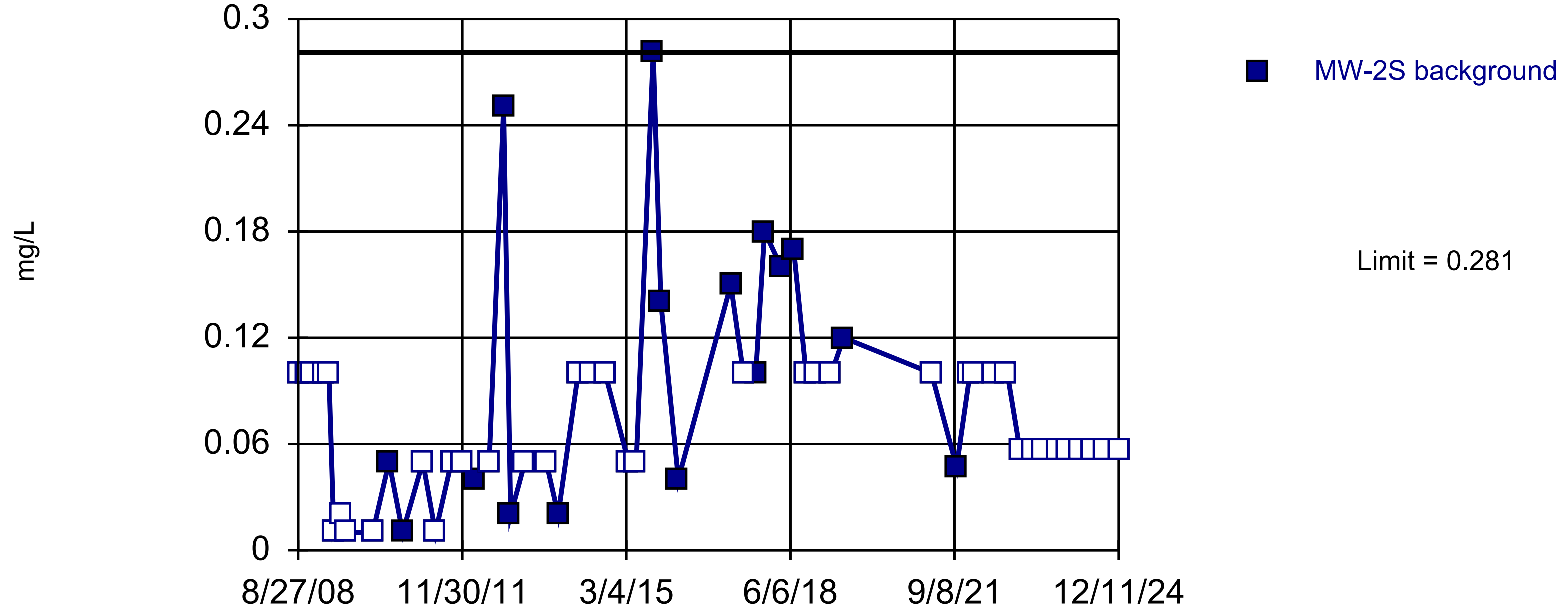
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 62 background values. 43.55% NDs. Well-constituent pair annual alpha = 0.001997. Individual comparison alpha = 0.0004996 (1 of 2). Assumes 1 future value. Seasonality was not detected with 95% confidence.

Constituent: Chloride Analysis Run 2/18/2025 1:30 PM View: 2008-2024 background for 2025 UPLs, Cont
Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

Prediction Limit

Intrawell Non-parametric, MW-2S



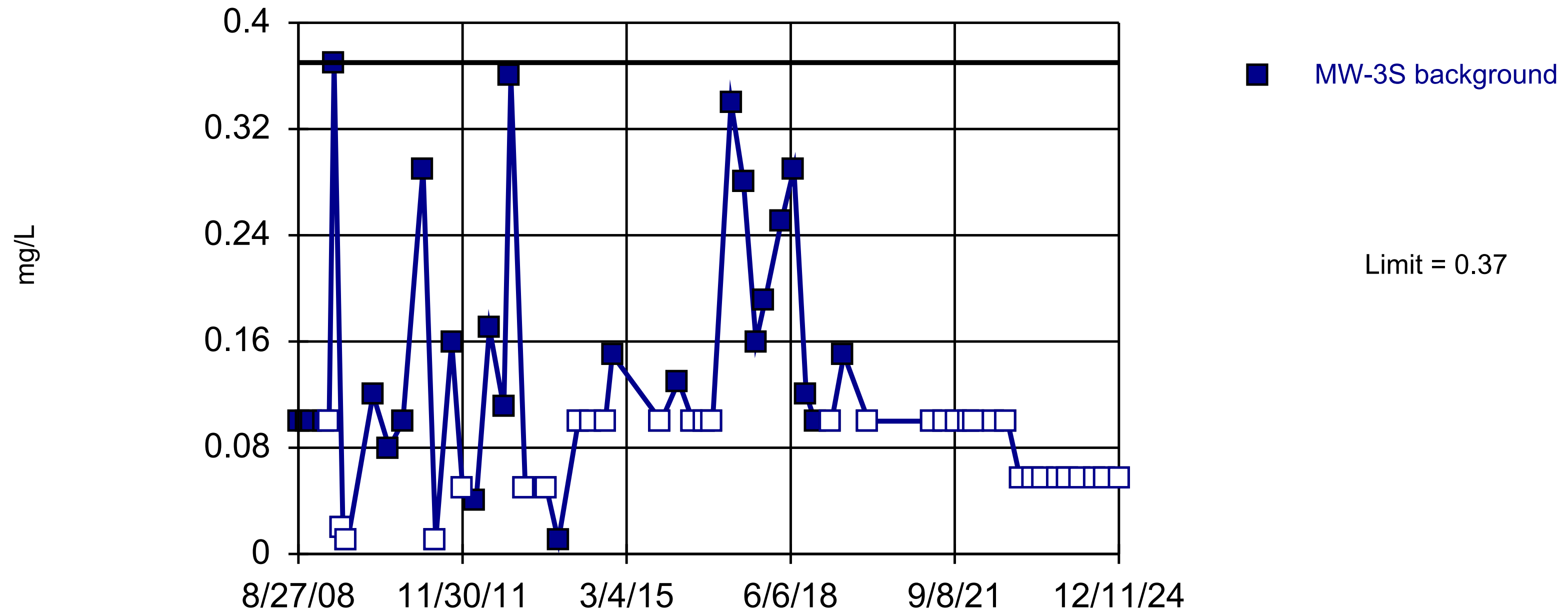
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 55 background values. 70.91% NDs. Well-constituent pair annual alpha = 0.002552. Individual comparison alpha = 0.0006386 (1 of 2). Assumes 1 future value. Seasonality was not detected with 95% confidence.

Constituent: Iron, Dissolved   Analysis Run 2/18/2025 1:30 PM   View: 2008-2024 background for 2025 UPLs
Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

Prediction Limit

Intrawell Non-parametric, MW-3S



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 58 background values. 55.17% NDs. Well-constituent pair annual alpha = 0.002284. Individual comparison alpha = 0.0005716 (1 of 2). Assumes 1 future value. Seasonality was not detected with 95% confidence.

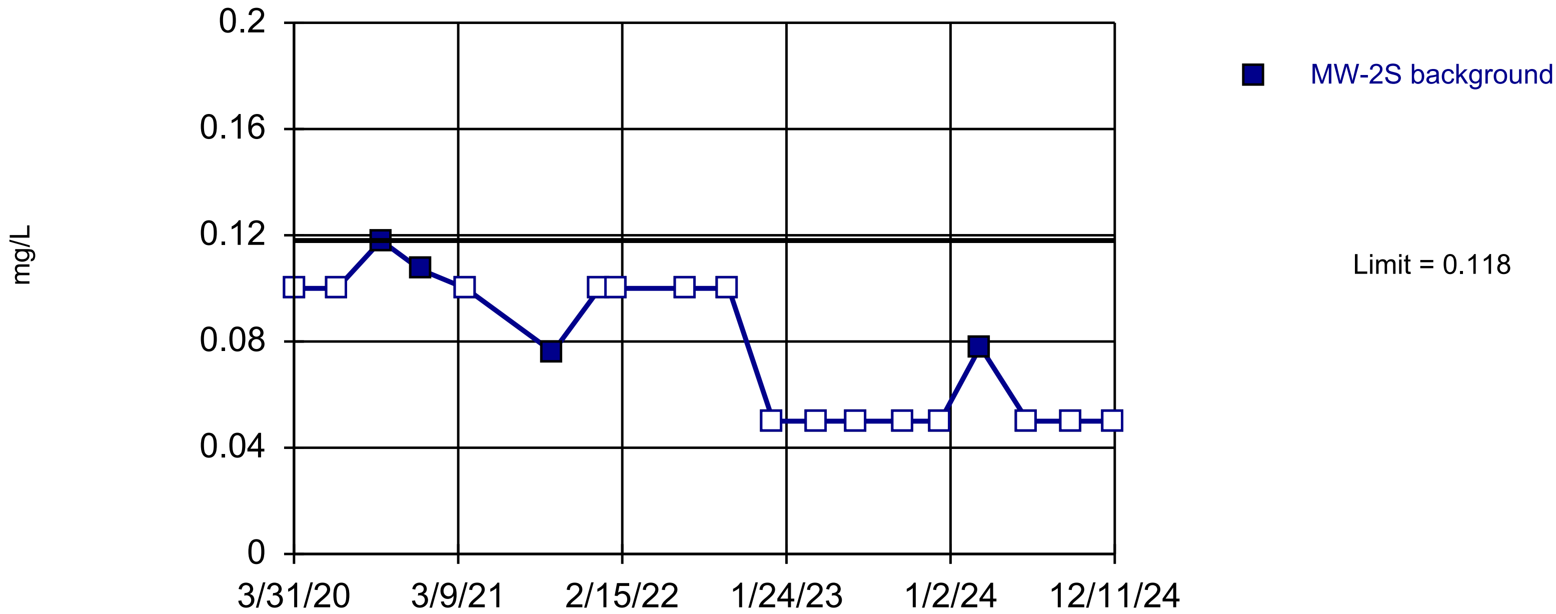
Constituent: Iron, Dissolved   Analysis Run 2/18/2025 1:30 PM   View: 2008-2024 background for 2025 UPLs

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

Prediction Limit

Intrawell Non-parametric, MW-2S



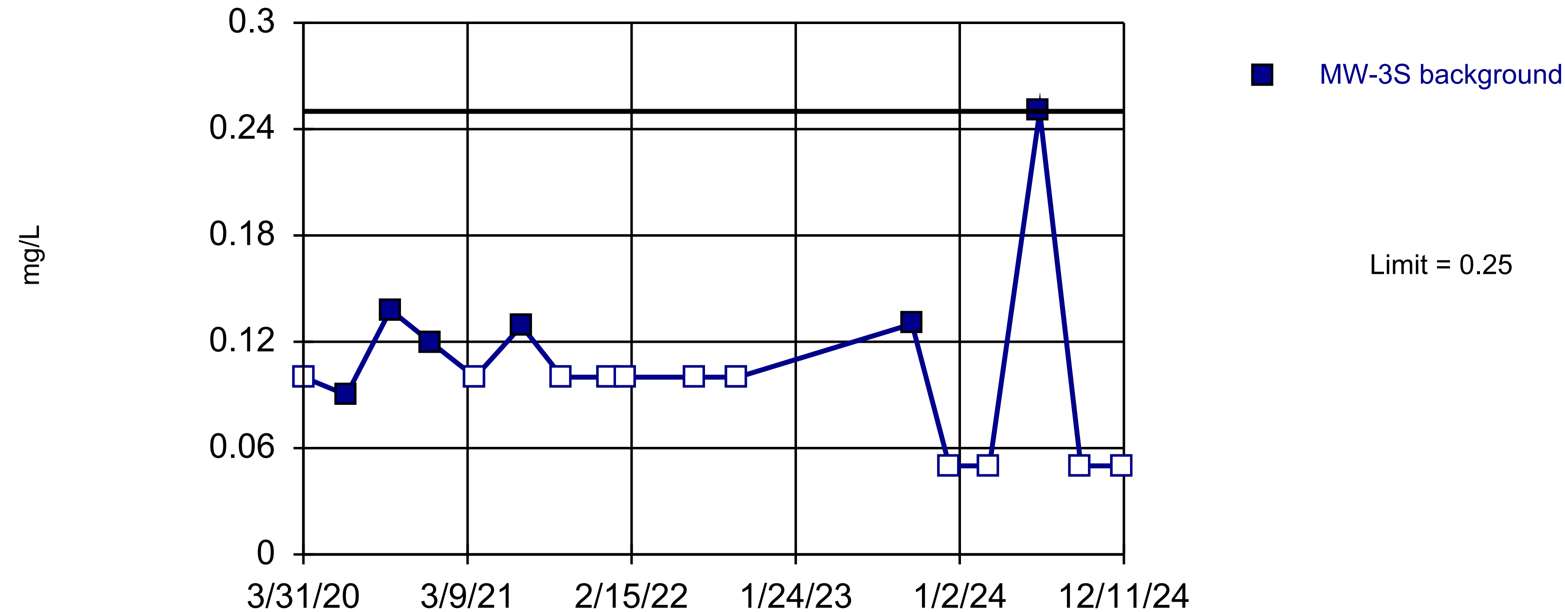
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 19 background values. 78.95% NDs. Well-constituent pair annual alpha = 0.01882. Individual comparison alpha = 0.004738 (1 of 2). Assumes 1 future value. Seasonality was not detected with 95% confidence.

Constituent: Iron, Total Analysis Run 2/18/2025 1:30 PM View: 2008-2024 background for 2025 UPLs, Co
Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

Prediction Limit

Intrawell Non-parametric, MW-3S



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 17 background values. 64.71% NDs. Well-constituent pair annual alpha = 0.02291. Individual comparison alpha = 0.005778 (1 of 2). Assumes 1 future value. Seasonality was not detected with 95% confidence.

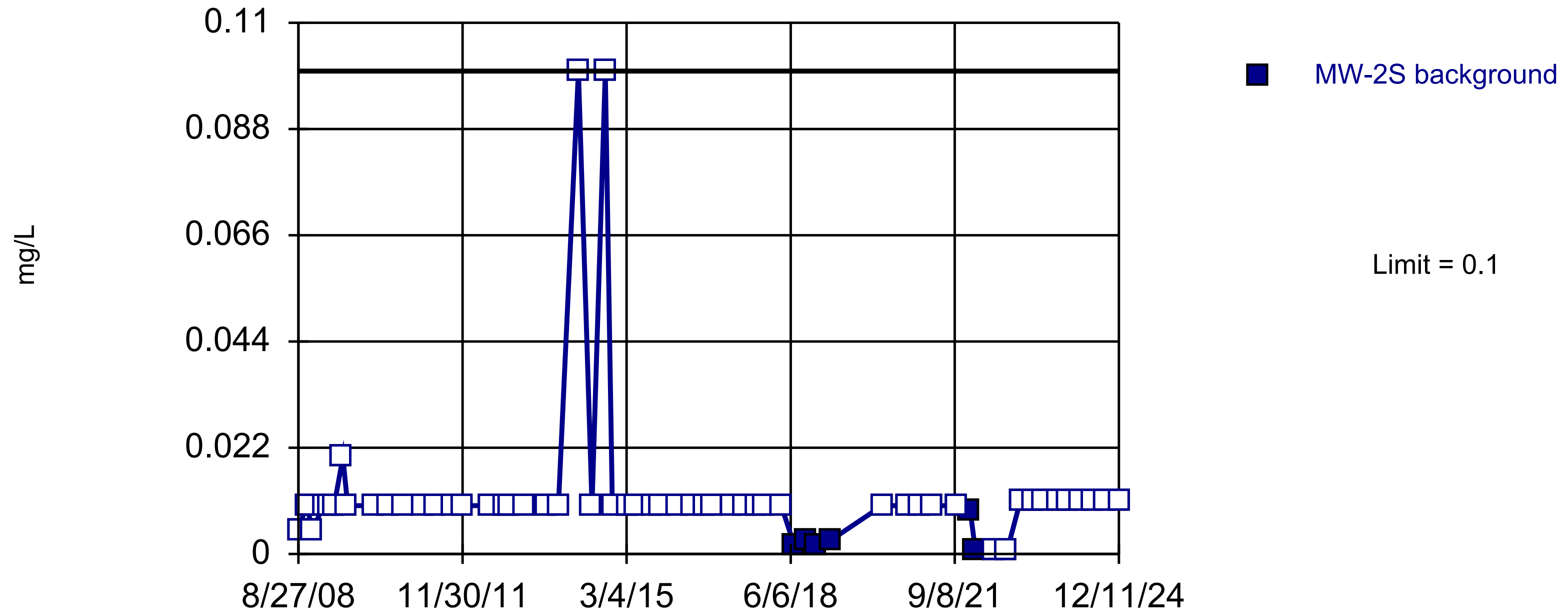
Constituent: Iron, Total Analysis Run 2/18/2025 1:30 PM View: 2008-2024 background for 2025 UPLs, Co

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

Prediction Limit

Intrawell Non-parametric, MW-2S



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 60 background values. 90% NDs. Well-constituent pair annual alpha = 0.002106. Individual comparison alpha = 0.0005269 (1 of 2). Assumes 1 future value. Seasonality was not detected with 95% confidence.

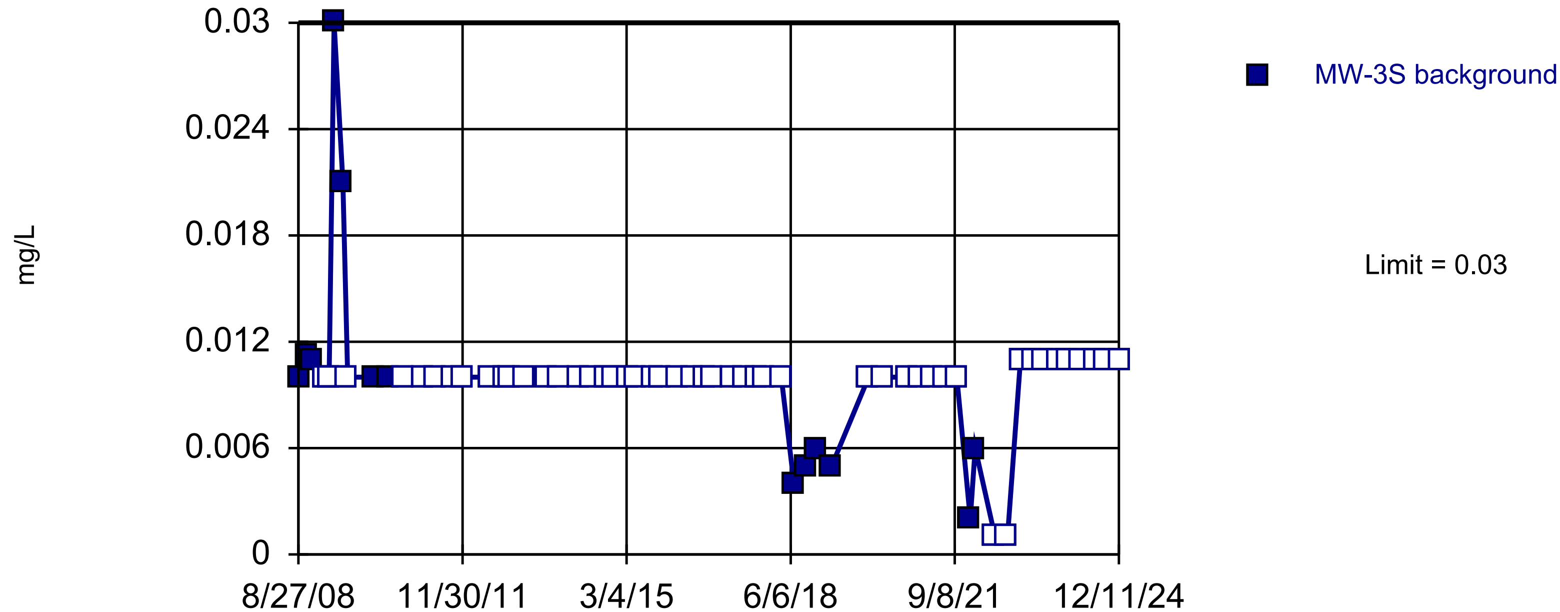
Constituent: Manganese, Dissolved   Analysis Run 2/18/2025 1:30 PM   View: 2008-2024 background for 20

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

Prediction Limit

Intrawell Non-parametric, MW-3S



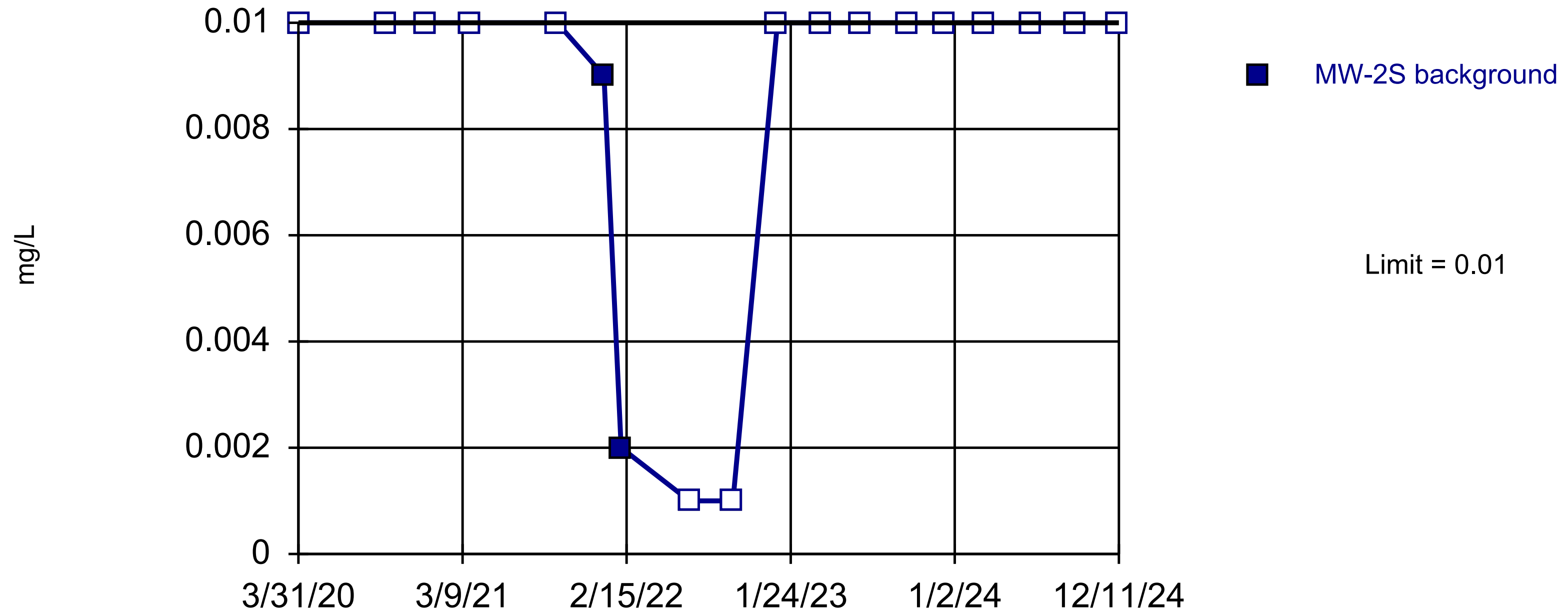
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 62 background values. 79.03% NDs. Well-constituent pair annual alpha = 0.001997. Individual comparison alpha = 0.0004996 (1 of 2). Assumes 1 future value. Seasonality was not detected with 95% confidence.

Constituent: Manganese, Dissolved Analysis Run 2/18/2025 1:30 PM View: 2008-2024 background for 20
Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

Prediction Limit

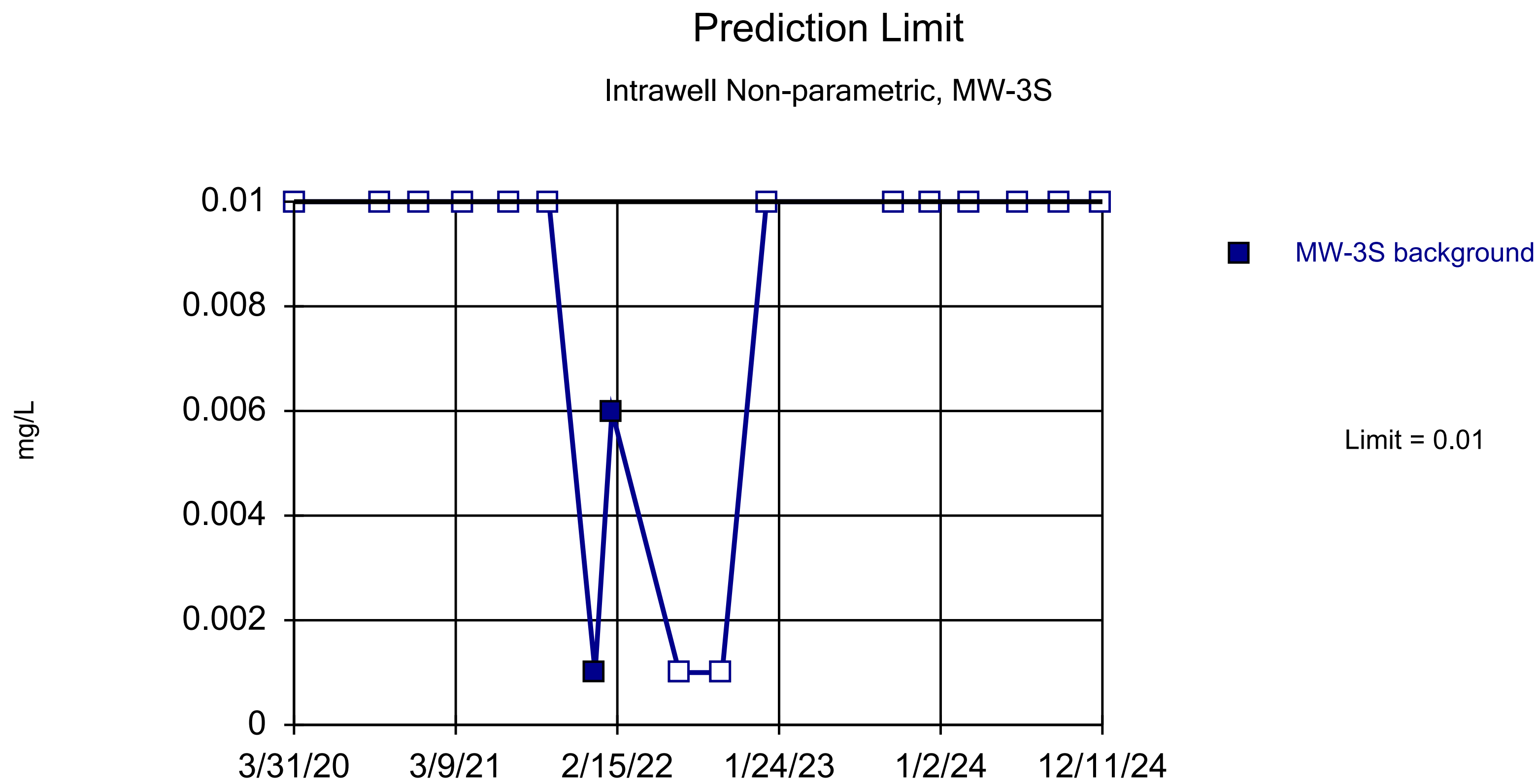
Intrawell Non-parametric, MW-2S



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 18 background values. 88.89% NDs. Well-constituent pair annual alpha = 0.02087. Individual comparison alpha = 0.005258 (1 of 2). Assumes 1 future value. Seasonality was not detected with 95% confidence.

Constituent: Manganese, Total Analysis Run 2/18/2025 1:30 PM View: 2008-2024 background for 2025 U
Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

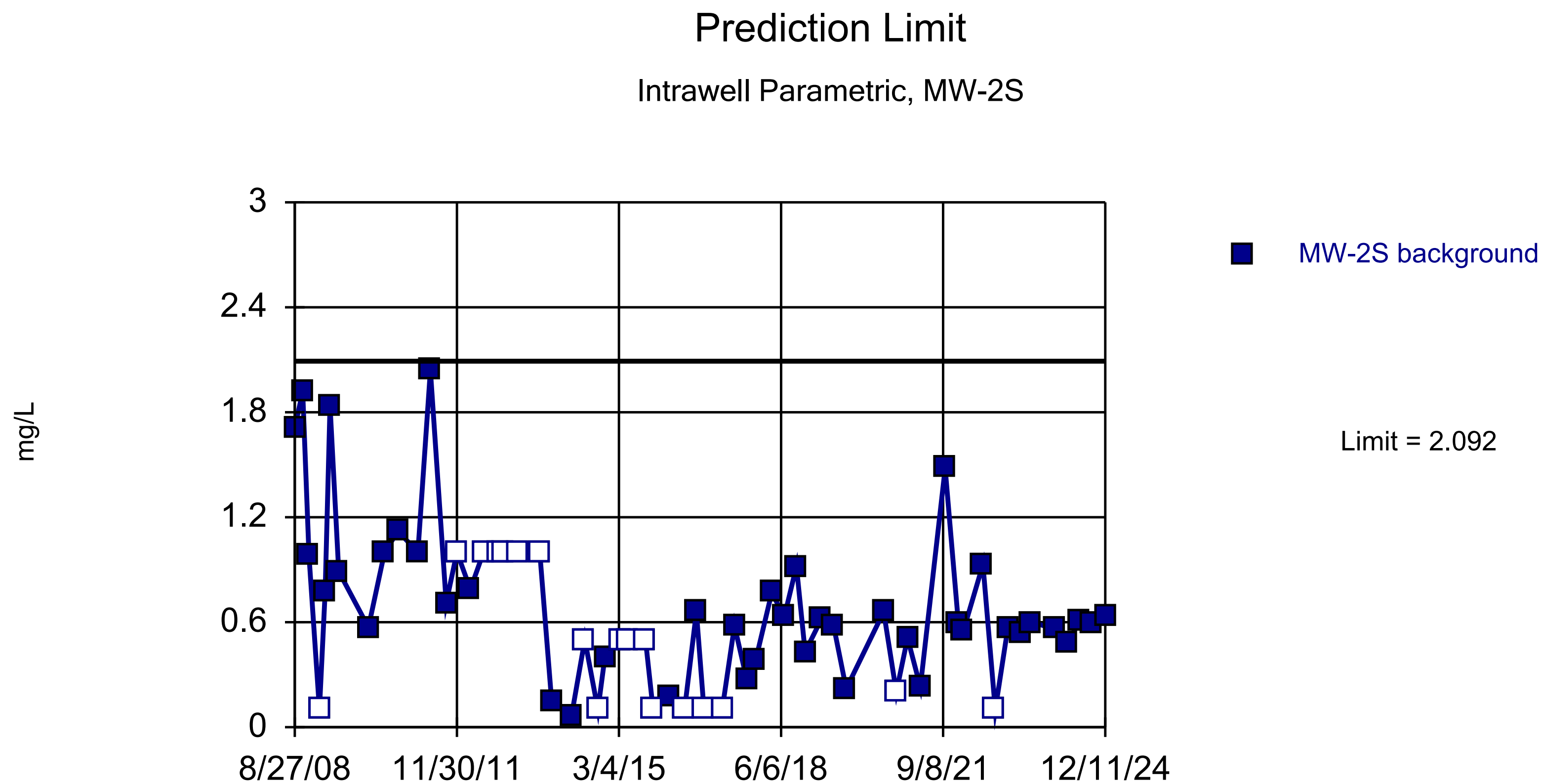


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 17 background values. 88.24% NDs. Well-constituent pair annual alpha = 0.02291. Individual comparison alpha = 0.005778 (1 of 2). Assumes 1 future value. Seasonality was not detected with 95% confidence.

Constituent: Manganese, Total Analysis Run 2/18/2025 1:30 PM View: 2008-2024 background for 2025 U

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.



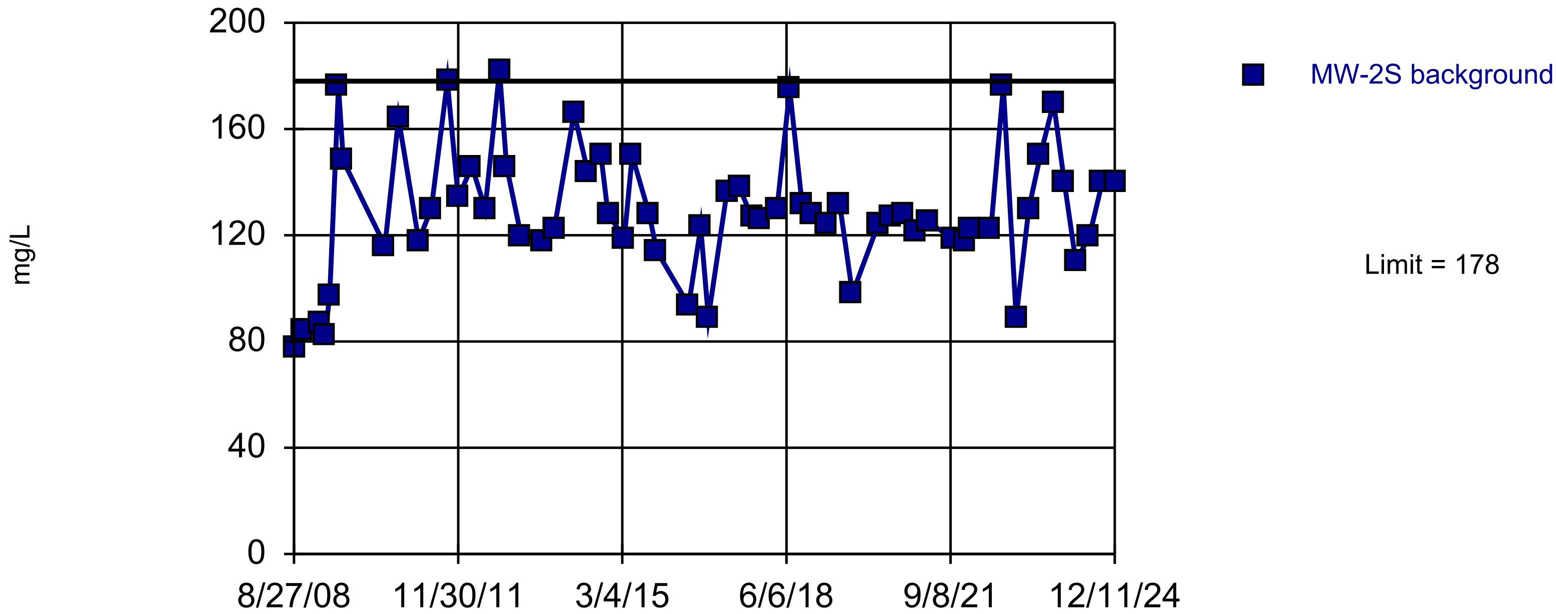
Background Data Summary (based on square root transformation) (after Aitchison`s Adjustment): Mean=0.5786, Std. Dev.=0.4343, n=61, 29.51% NDs. Seasonality was not detected with 95% confidence. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9584, critical = 0.946. Kappa = 1.998 (c=10, w=3, 1 of 2, event alpha = 0.026). Report alpha = 0.0008776. Assumes 1 future value.

Constituent: Nitrate Analysis Run 2/18/2025 1:30 PM View: 2008-2024 background for 2025 UPLs, Contro
Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG

Prediction Limit

Intrawell Parametric, MW-2S

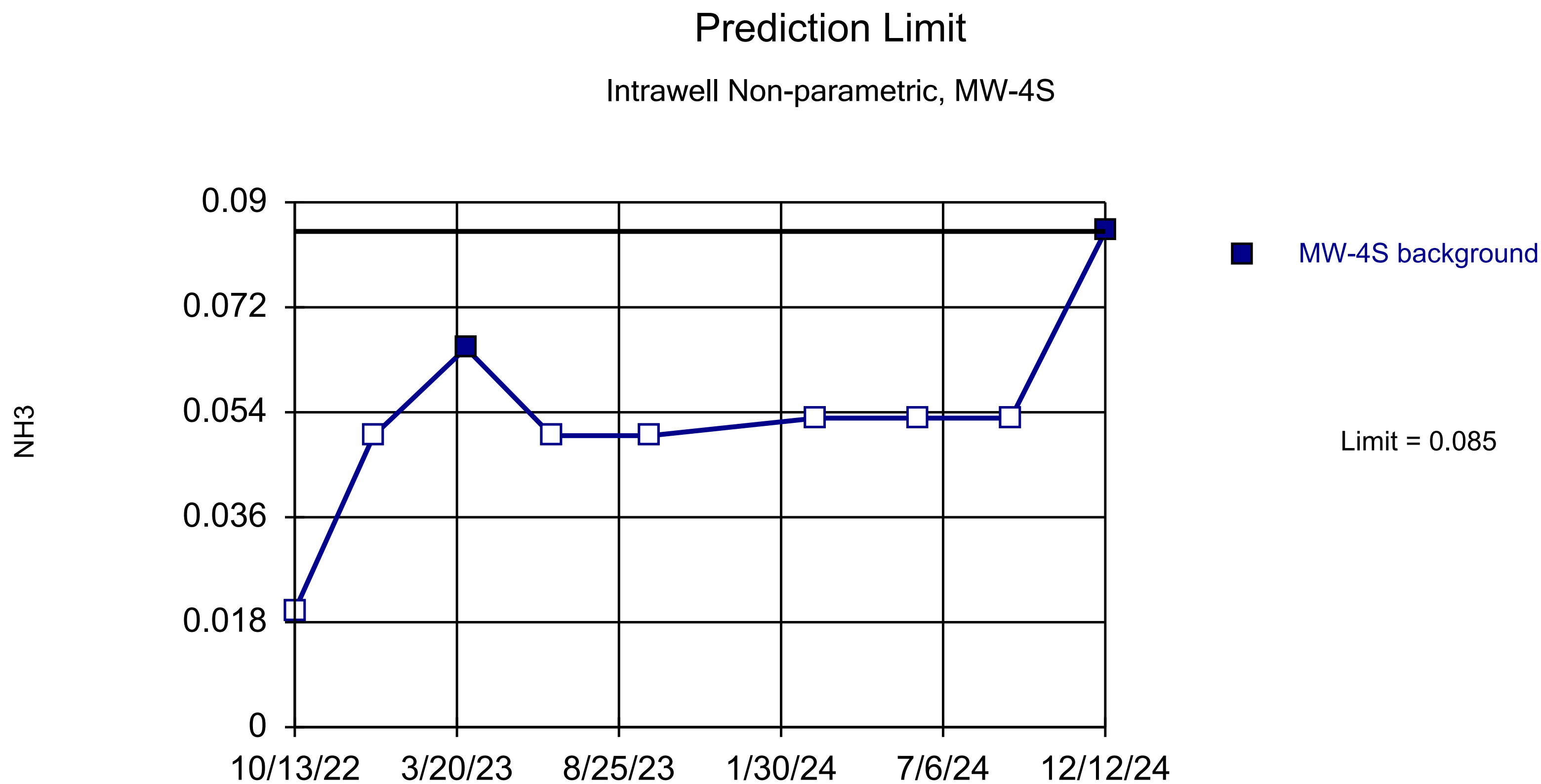


Background Data Summary: Mean=129.1, Std. Dev.=24.46, n=61. Seasonality was not detected with 95% confidence. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9596, critical = 0.946. Kappa = 1.998 (c=10, w=3, 1 of 2, event alpha = 0.026). Report alpha = 0.0008776. Assumes 1 future value.

Constituent: TDS Analysis Run 2/18/2025 1:30 PM View: 2008-2024 background for 2025 UPLs, Control

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

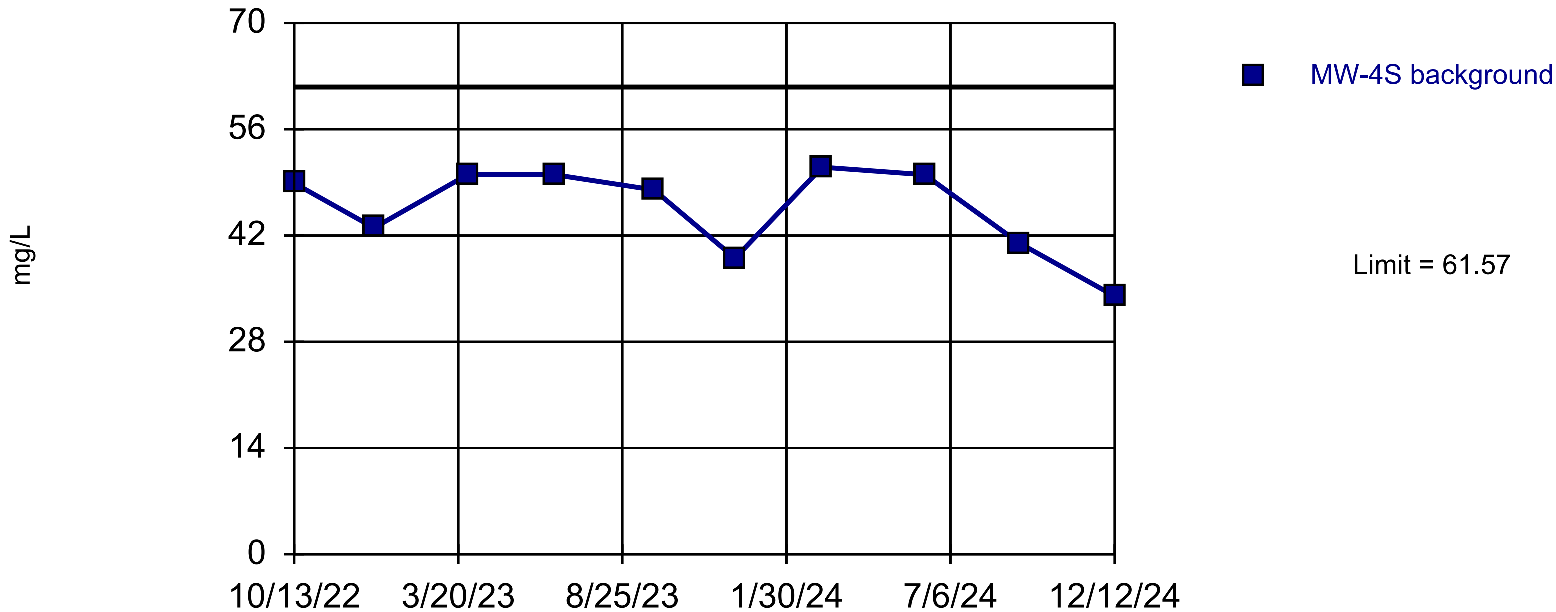


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 9 background values. 77.78% NDs. Well-constituent pair annual alpha = 0.06656. Individual comparison alpha = 0.01707 (1 of 2). Assumes 1 future value. Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Ammonia Analysis Run 2/11/2025 2:16 PM View: MW-4S Initial Background Evaluation
Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Prediction Limit

Intrawell Parametric, MW-4S



Background Data Summary: Mean=45.49, Std. Dev.=5.867, n=10. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8467, critical = 0.781. Kappa = 2.74 (c=10, w=3, 1 of 2, event alpha = 0.026). Report alpha = 0.0008776. Assumes 1 future value.

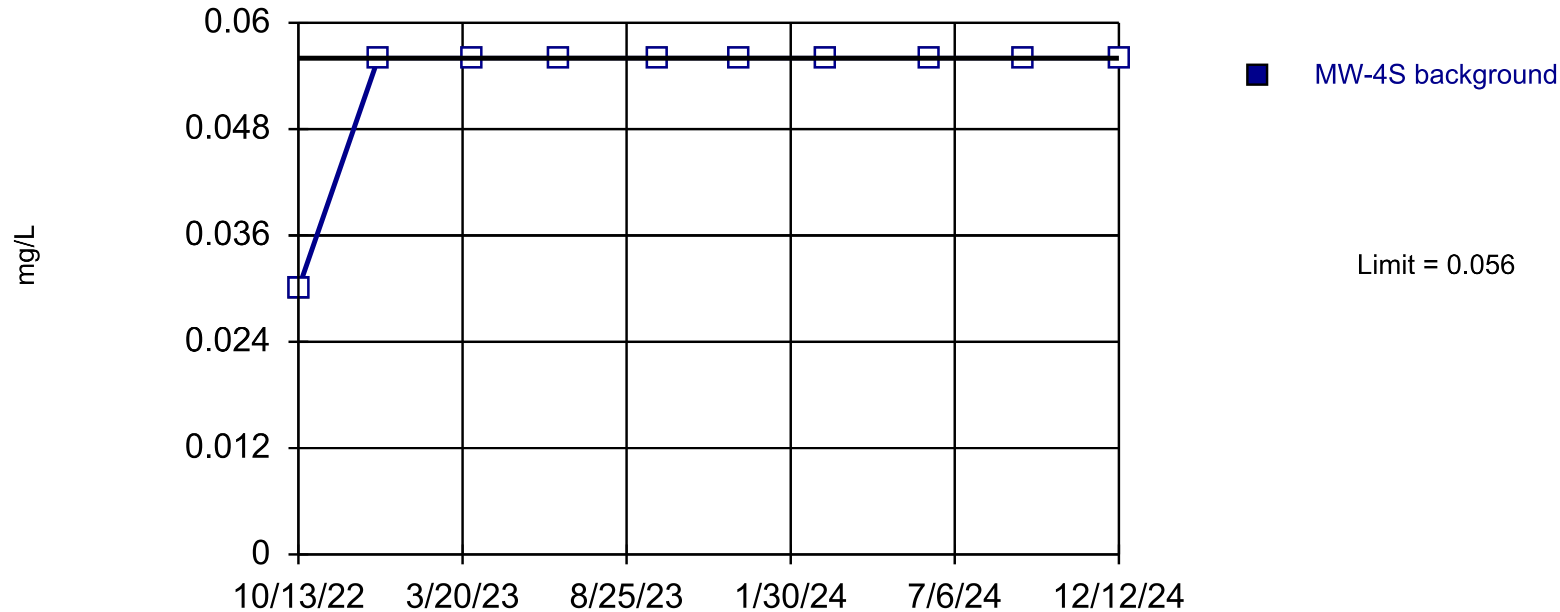
Constituent: Chloride Analysis Run 2/11/2025 2:16 PM View: MW-4S Initial Background Evaluation

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

Prediction Limit

Intrawell Non-parametric, MW-4S



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 10) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.05509. Individual comparison alpha = 0.01407 (1 of 2). Assumes 1 future value. Insufficient data to test for seasonality: data were not deseasonalized.

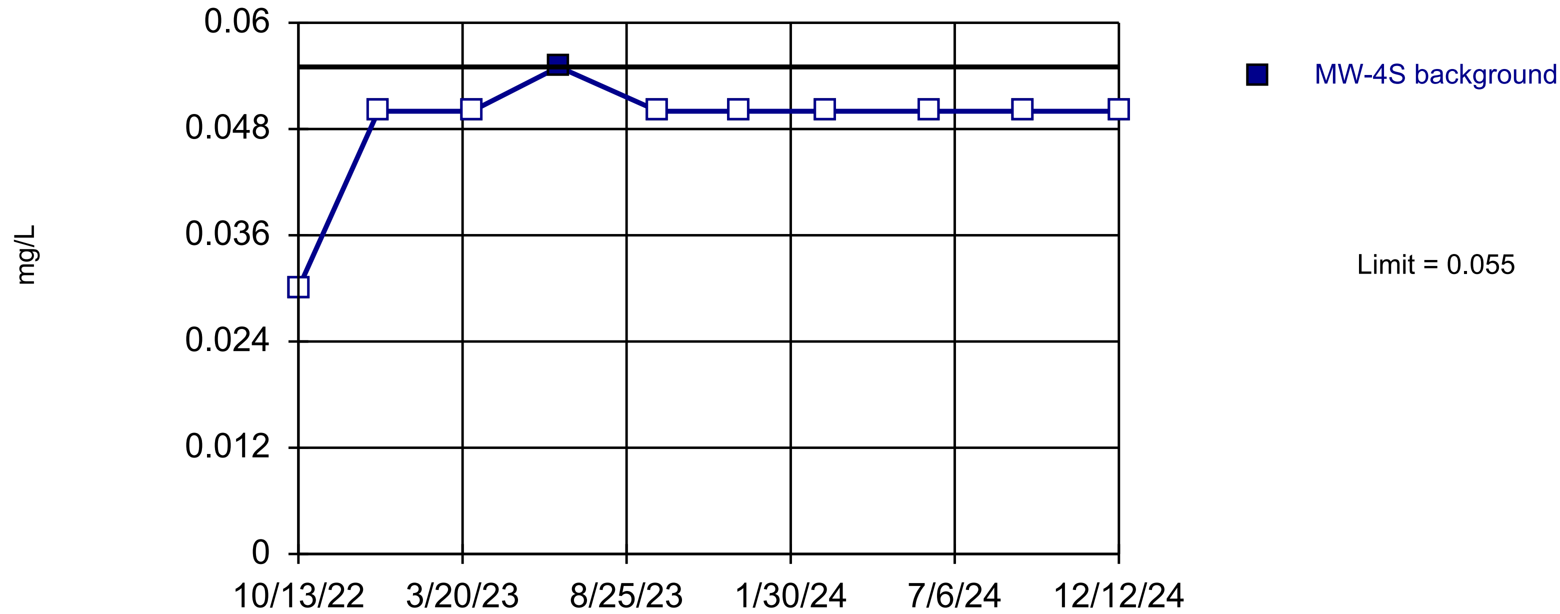
Constituent: Iron, Dissolved   Analysis Run 2/11/2025 2:16 PM   View: MW-4S Initial Background Evaluation

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

Prediction Limit

Intrawell Non-parametric, MW-4S



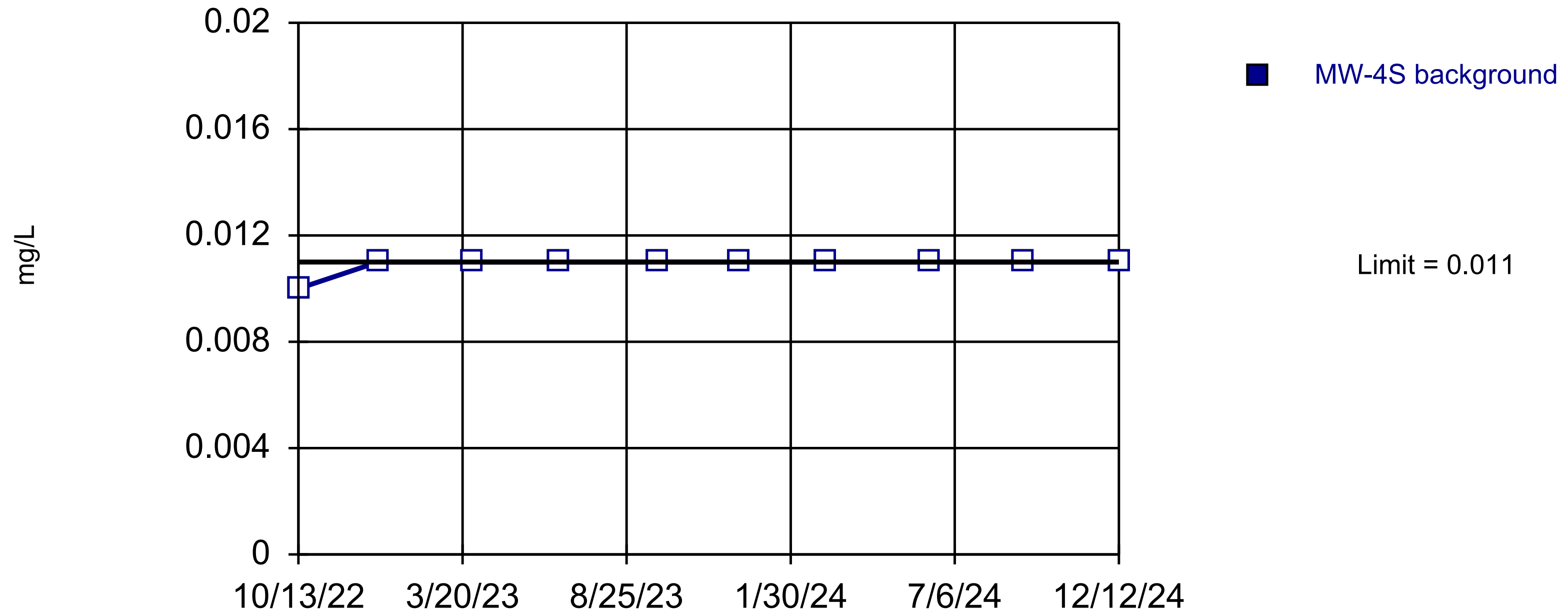
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 10 background values. 90% NDs. Well-constituent pair annual alpha = 0.05509. Individual comparison alpha = 0.01407 (1 of 2). Assumes 1 future value. Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Iron, Total Analysis Run 2/11/2025 2:16 PM View: MW-4S Initial Background Evaluation
Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

Prediction Limit

Intrawell Non-parametric, MW-4S



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 10) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.05509. Individual comparison alpha = 0.01407 (1 of 2). Assumes 1 future value. Insufficient data to test for seasonality: data were not deseasonalized.

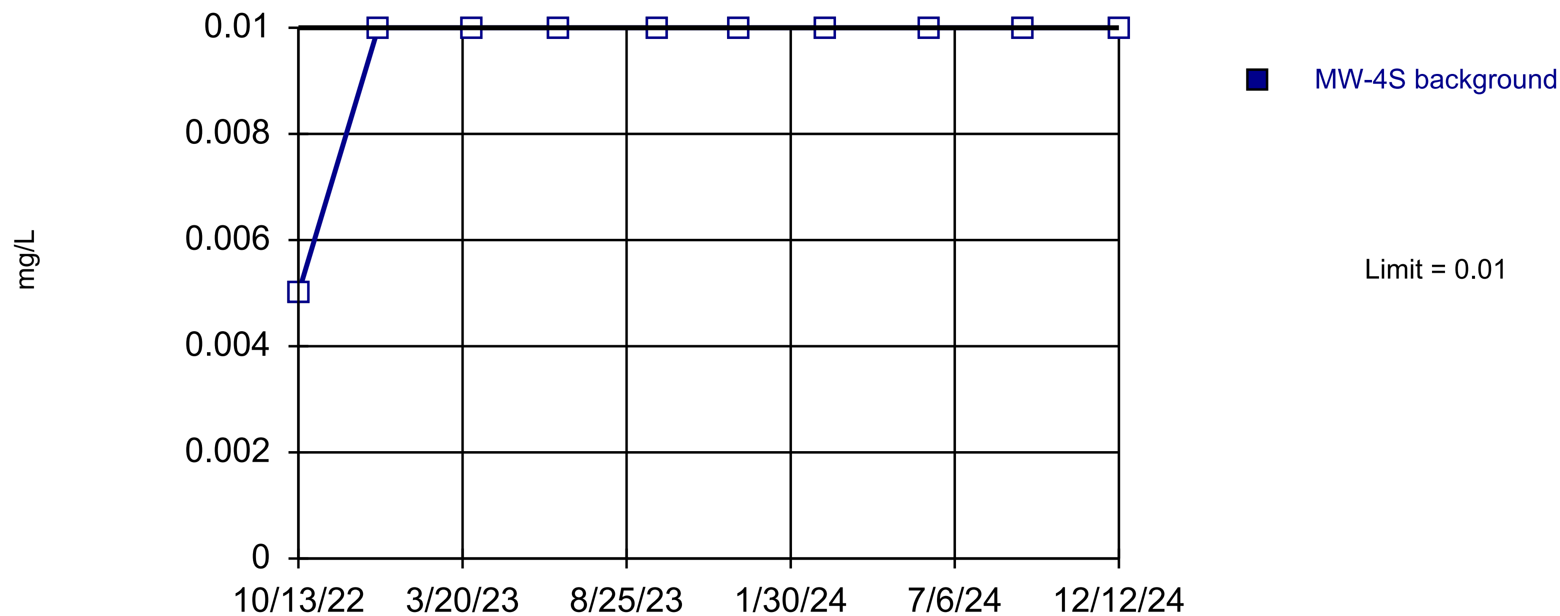
Constituent: Manganese, Dissolved   Analysis Run 2/11/2025 2:16 PM   View: MW-4S Initial Background Ev

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG
Hollow symbols indicate censored values.

Prediction Limit

Intrawell Non-parametric, MW-4S



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 10) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.05509. Individual comparison alpha = 0.01407 (1 of 2). Assumes 1 future value. Insufficient data to test for seasonality: data were not deseasonalized.

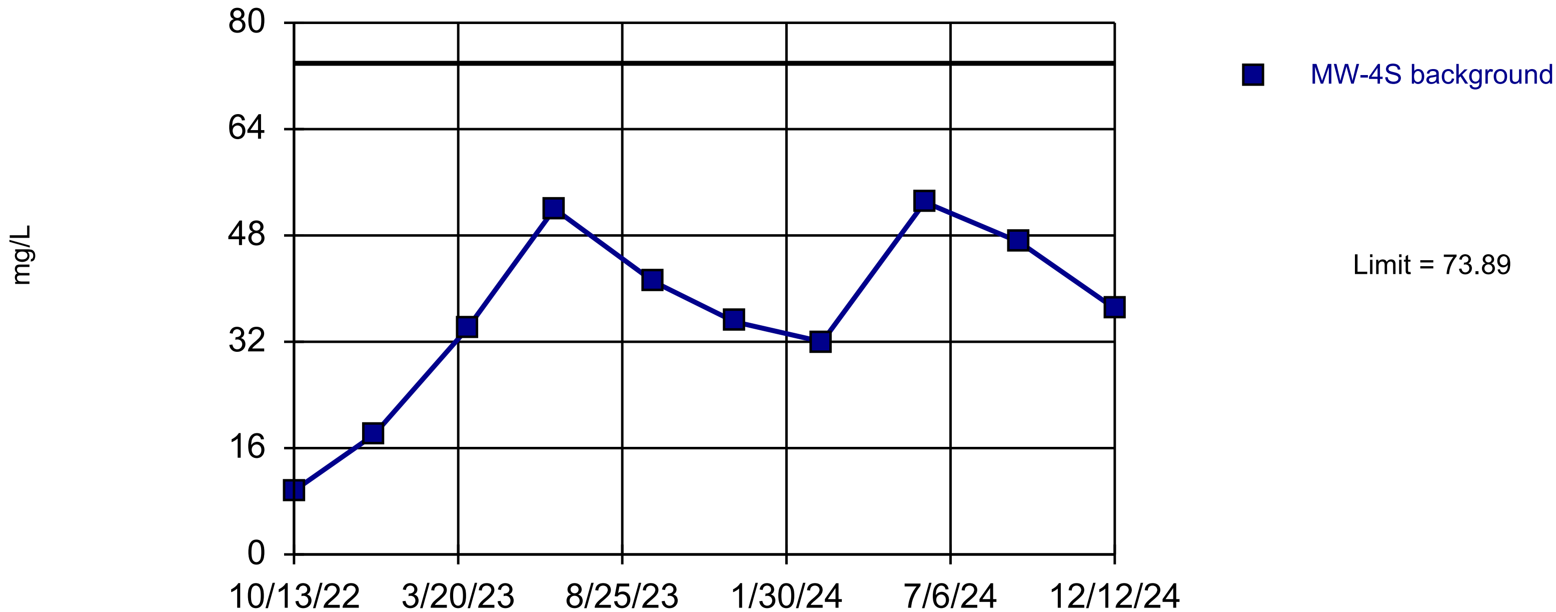
Constituent: Manganese, Total   Analysis Run 2/11/2025 2:16 PM   View: MW-4S Initial Background Evaluati

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats

Sanitas™ v.10.0.24 Software licensed to Parametrix. UG

Prediction Limit

Intrawell Parametric, MW-4S



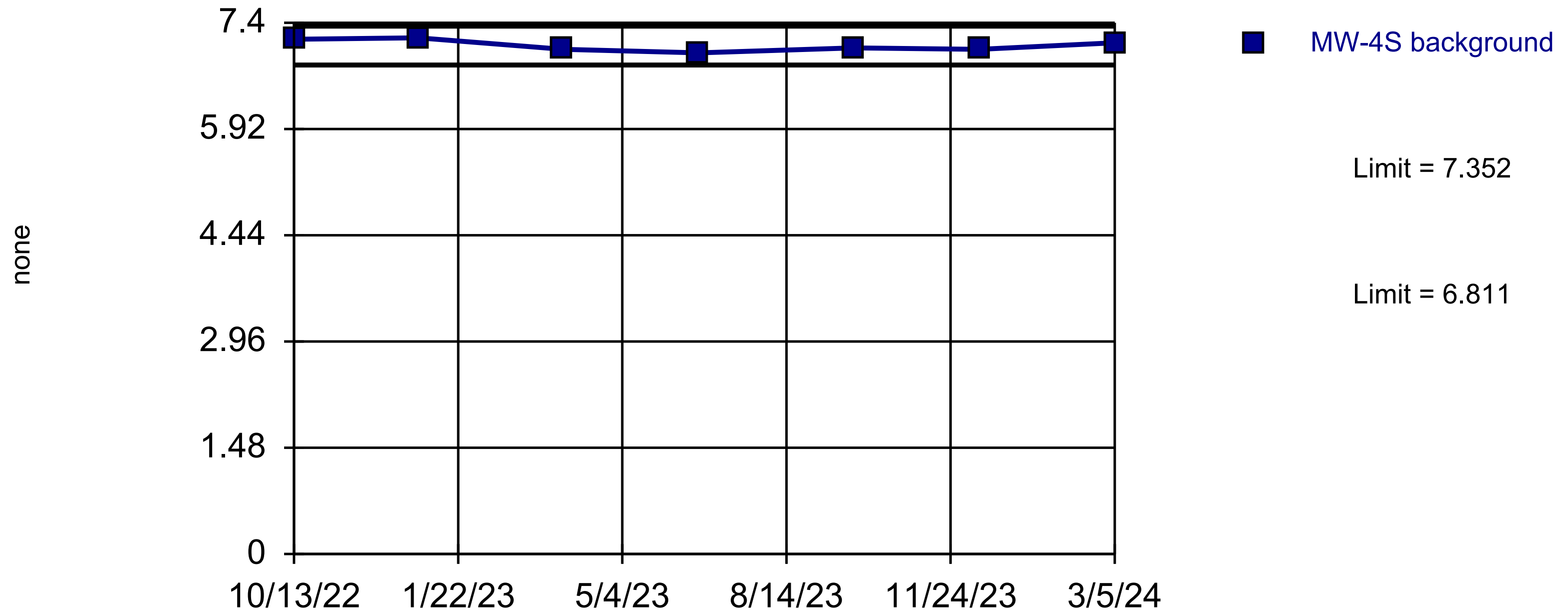
Background Data Summary: Mean=35.86, Std. Dev.=13.88, n=10. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9342, critical = 0.781. Kappa = 2.74 (c=10, w=3, 1 of 2, event alpha = 0.026). Report alpha = 0.0008776. Assumes 1 future value.

Constituent: Nitrate Analysis Run 2/11/2025 2:16 PM View: MW-4S Initial Background Evaluation

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Prediction Limit

Intrawell Parametric, MW-4S



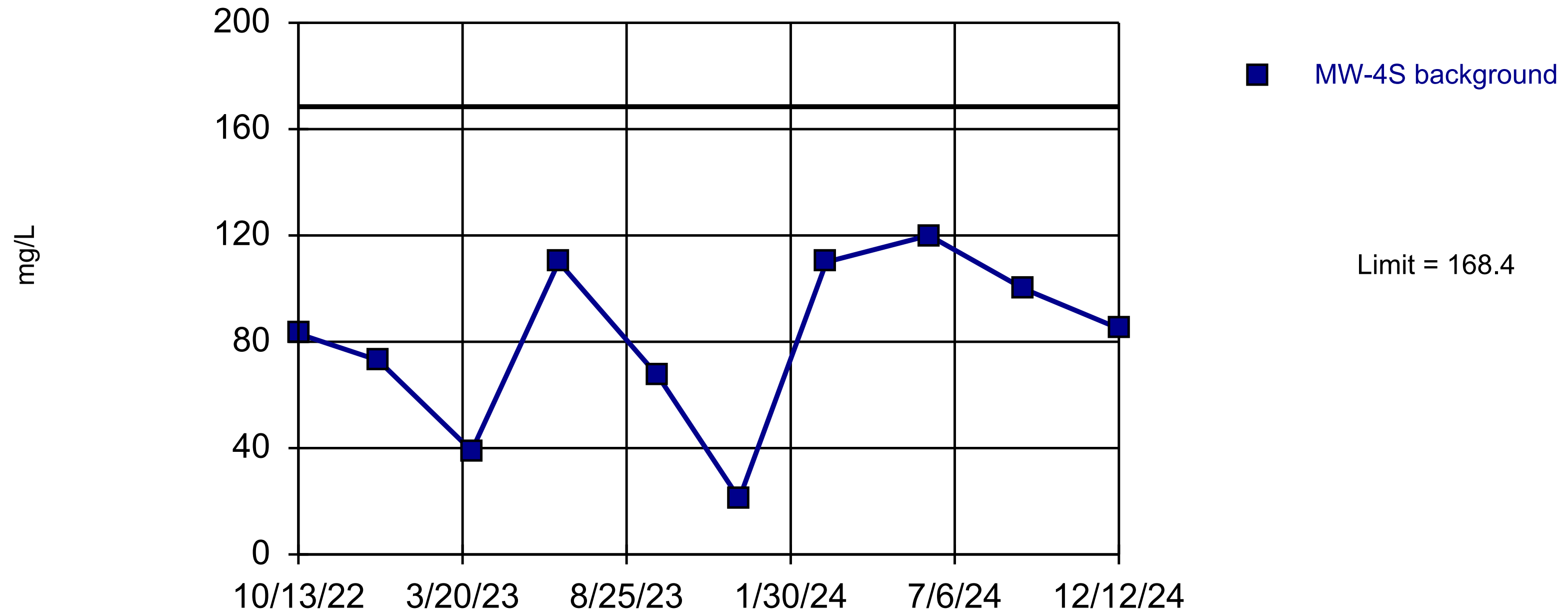
Background Data Summary: Mean=7.081, Std. Dev.=0.07925, n=7. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9174, critical = 0.73. Kappa = 3.41 (c=10, w=3, 1 of 2, event alpha = 0.026). Report alpha = 0.0008776. Assumes 1 future value.

Constituent: pH Analysis Run 2/11/2025 2:16 PM View: MW-4S Initial Background Evaluation

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Prediction Limit

Intrawell Parametric, MW-4S



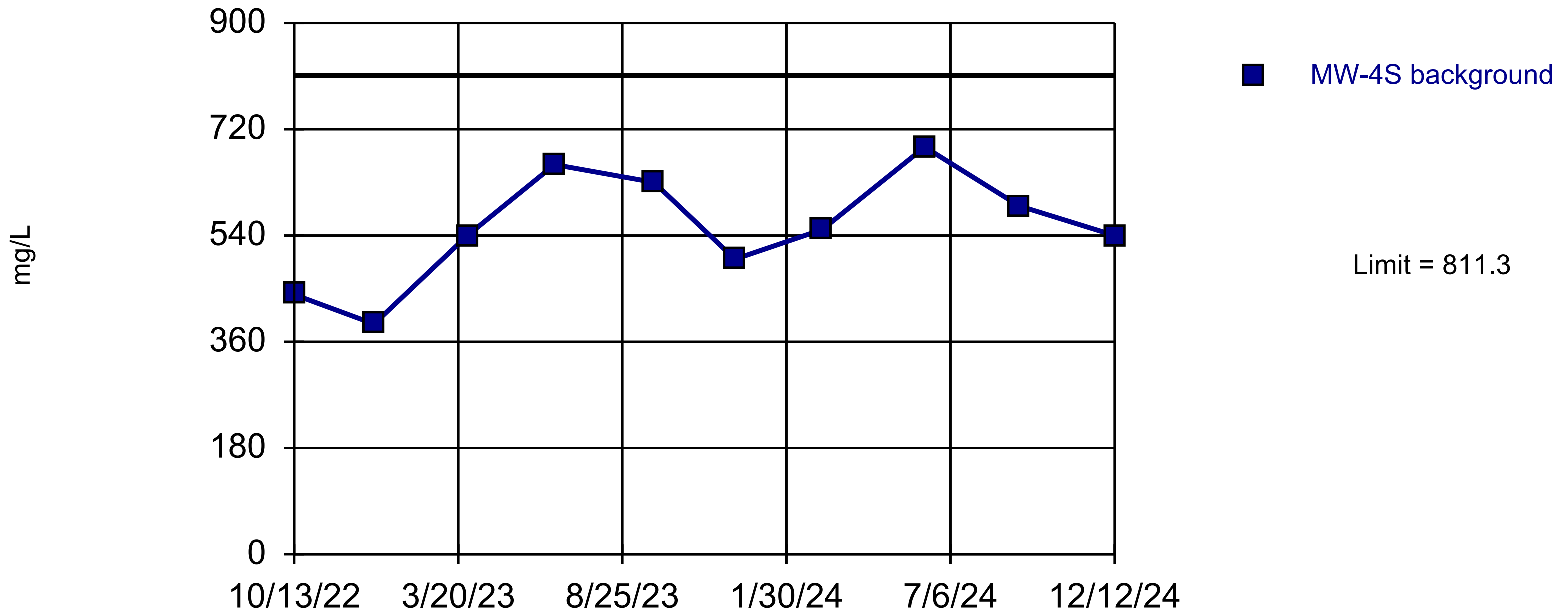
Background Data Summary: Mean=80.8, Std. Dev.=31.99, n=10. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9348, critical = 0.781. Kappa = 2.74 (c=10, w=3, 1 of 2, event alpha = 0.026). Report alpha = 0.0008776. Assumes 1 future value.

Constituent: Sulfate Analysis Run 2/11/2025 2:16 PM View: MW-4S Initial Background Evaluation

Yakima Limited Purpose Landfill Client: DTG Data: DTG Yakima LPL Stats

Prediction Limit

Intrawell Parametric, MW-4S



Background Data Summary: Mean=553, Std. Dev.=94.29, n=10. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9724, critical = 0.781. Kappa = 2.74 (c=10, w=3, 1 of 2, event alpha = 0.026). Report alpha = 0.0008776. Assumes 1 future value.

Constituent: TDS   Analysis Run 2/11/2025 2:16 PM   View: MW-4S Initial Background Evaluation

Yakima Limited Purpose Landfill   Client: DTG   Data: DTG Yakima LPL Stats