Alliant Energy
4902 North Biltmore Lane
P.O. Box 77007
Madison, WI 53707-1007

1-800-ALLIANT (800-255-4268)
alliantenergy.com

November 30, 2023

Mr. Brian Rath
Land Quality Bureau
Iowa Department of Natural Resources
502 East 9th Street
Des Moines, IA 50319-0034

Subject: 2023 Annual Water Quality Report
Interstate Power and Light Company – Big Bend Closed Landfill
Permit #57-SDP-10-90C

Dear Mr. Rath:

On behalf of Interstate Power and Light Company (IPL), Alliant Energy is providing the enclosed 2023 Annual Water Quality Report for the closed Big Bend landfill, as required by Permit #57-SDP-10-90C and associated amendments.

Please call me at (515) 558-9704 or email me at jennycoughlin@alliantenergy.com with any questions regarding the enclosed report.

Sincerely,

Jenny Coughlin
Sr. Environmental Specialist
Alliant Energy Corporate Services, Inc.

Enclosures

Cc: IDNR Field Office #1
Meghan Blodgett, Tom Karwoski – SCS Engineers

2023 Annual Water Quality Report

Interstate Power and Light Company
Big Bend Closed CCR Landfill
Permit #57-SDP-10-90C

Interstate Power and Light, an Alliant Energy Company
200 First Street SE
Cedar Rapids, Iowa 52401

SCS ENGINEERS

25223063.00 | November 30, 2023

2830 Dairy Drive
Madison, WI 53718
608-224-2830

CERTIFICATION

I, Thomas J. Karwoski, hereby certify that this report was prepared by me, or under my direct supervision, and that I am a qualified ground water scientist as defined in Iowa Administrative Code (IAC) SS 113.10(1)d.

Thomas J. Karwoski

Signature

November 30, 2023

Date

Pages or Sheets Covered by this Certification:

2023 Annual Water Quality Report – November 2023, Interstate Power and Light Company, Big Bend Closed CCR Landfill

[This page left blank intentionally.]

EXECUTIVE SUMMARY

Period of Report Coverage

The period of coverage for this report is from November 2022 through October 2023 and includes the April 2023 water level measurement event and the September 2023 groundwater sampling event conducted at the Big Bend Closed Landfill (Site), a coal combustion residual (CCR) landfill located near Cedar Rapids, Iowa (**Figure 1**).

Report Priority

One new Groundwater Protection Standard (GWPS) exceedance was identified during the 2023 monitoring event.

- Lithium at MW-6

GWPS exceedances detected in September 2023, which also occurred during previous events, were:

- Cobalt at MW-2
- Manganese at MW-2

Cobalt concentrations in MW-24R have historically been above the Statewide Standard for a protected groundwater source (SWS) since 2019. During the September 2023 sampling event, MW-24R was unable to be sampled due to an obstruction slightly below the water table.

Cobalt, lithium, and manganese do not have established U.S. Environmental Protection Agency (U.S. EPA) Maximum Contaminant Levels (MCLs); therefore, the GWPS values were set based on the Iowa Department of Natural Resources (IDNR) SWS values.

The September 2023 sampling event was the first time samples were tested for lithium at the Site, so the GWPS exceedance for lithium at MW-6 has not been confirmed and cannot be compared to historical data.

Most exceedances of the background upper prediction limits (UPLs) were consistent with results from previous events. There were no new UPL exceedances in September 2023 for the parameters that had been sampled in previous events.

Zinc concentrations in September 2022 were unusually high, and this was attributed to a laboratory reporting error, such as a dilution error, in the 2022 Annual Water Quality Report (AWQR). Zinc results in 2023 were consistent with results from sampling events prior to 2022, supporting the attribution of elevated results in 2022 to a laboratory reporting error rather than to an actual change in groundwater quality at the Site.

Calcium, lithium, molybdenum, and fluoride were included in the sampling program for the first time in 2023. As noted above, lithium was detected at a concentration above the GWPS in one well. There is no GWPS for calcium, molybdenum was not detected at a concentration over the GWPS in any monitoring well, and fluoride was not detected in any of the monitoring wells.

SCS Engineers (SCS) recommends that the current monitoring program be continued during 2024 with the inclusion of calcium, lithium, molybdenum, total dissolved solids (TDS), total suspended solids (TSS), field dissolved oxygen (DO), and field redox potential. SCS also recommends additional evaluation of increasing cobalt concentrations at MW-24R following maintenance on the well to either clear the obstruction, if possible, or replace the well. Recommendations specific to the ongoing evaluation of monitored natural attenuation (MNA) are provided in **Section 8.7** of this report.

Groundwater samples collected in 2023 were unfiltered, in accordance with the variance to 567-103.1(2)f granted in the December 23, 2016 Permit Amendment #8. The 2023 sampling event was the eighth round of unfiltered samples collected at the Site, and 2023 was the fifth reporting period during which the new statistical approach was applied at the Site.

No additional requests or amendments to the permit are needed at this time.

Site Status and Applicable Rules

The following summarizes the Site status and applicable rules associated with groundwater sampling at the Big Bend CCR Landfill:

- **Landfill Status:** Closed
- **Types of Wastes Accepted:** CCR
- **Applicable IAC Rules:** 567-103 current version, certain provisions of 567-115.26(6), 567-115.21 (referenced for monitoring well maintenance and evaluation requirements, in place of the rescinded 567-110.9)

Table of Contents

Section	Page
Certification	**i**
Executive Summary	**iii**
Table of Contents	**v**
Acronyms/Abbreviations	**vii**
1.0 Site Background	**1**
1.1 Site History	1
1.2 Site Hydrogeology	1
1.2.1 Geology	1
1.2.2 Hydrogeology/Groundwater Flow Conditions	1
2.0 Sampling Status Summary	**1**
3.0 Monitoring Well Maintenance and Performance Summary	**2**
3.1 Dedicated Pump Installations	3
3.2 Well Maintenance Recommendations	3
4.0 2023 Quality Assurance/Quality Control Summary	**4**
4.1 Sample Collection and Handling	4
4.2 Analytical Sensitivity and Blanks	4
4.3 Accuracy	4
4.4 Data Quality Summary	5
5.0 Comparison to Standards	**5**
5.1 Statistical Analysis	5
5.2 2023 Results	6
5.3 Standards History	6
6.0 Summary of Findings for Groundwater	**6**
6.1 Comparison to Standards	6
6.2 Trend Analysis	7
6.3 Total Suspended Solids Evaluation	7
7.0 Leachate Monitoring System	**7**
8.0 Monitored Natural Attenuation Assessment	**8**
8.1 Results Review and Identification of Contaminants of Concern	8
8.2 Potential Receptors	9
8.3 Isoconcentration Maps	9
8.4 Trend Analysis	10
8.5 Additional MNA Monitoring Parameters	10
8.6 Potential MNA Mechanisms	10
8.7 MNA Proposed Actions	11
9.0 Recommendations	**11**
10.0 References	**11**

Tables

Table 1.	Monitoring Program Summary
Table 2.	Monitoring Program Implementation Schedule
Table 3.	Monitoring Well Maintenance and Performance Reevaluation Schedule
Table 4A.	Monitoring Well Maintenance and Performance Summary
Table 4B.	Vertical Gradients
Table 5.	Background and GWPS Summary
Table 6A.	Summary of Well/Detected Constituent Pairs with No Immediately Preceding SSIs
Table 6B.	Summary of Supply Well Monitoring/Detected Constituent Pairs
Table 7.	Summary of Ongoing and Newly Identified SSIs
Table 8.	Historic UPL and Action Level Exceedances
Table 9.	Historic Prediction Limits and Groundwater Protection Standards
Table 10.	Groundwater Quality Assessment Plan Trend Analysis
Table 11.	Summary of Leachate Well/Detected Constituent Pairs
Table 12.	Leachate Management Summary
Table 13.	Additional Parameters for MNA Analysis

Figures

Figure 1.	Site Location Map
Figure 2.	Monitoring Well Location and Private Well Locations
Figure 3.	Water Table Surface – April 2023
Figure 4.	Water Table Surface – September 2023
Figure 5.	Potentiometric Surface Map – April 2023
Figure 6.	Potentiometric Surface Map – September 2023
Figure 7.	September 2023 Boron Concentrations – Shallow Hydrogeologic Unit
Figure 8.	September 2023 Boron Concentrations – Deep Hydrogeologic Unit
Figure 9.	September 2023 Manganese Concentrations – Shallow Hydrogeologic Unit
Figure 10.	September 2023 Manganese Concentrations – Deep Hydrogeologic Unit
Figure 11.	September 2023 Cobalt Concentrations – Shallow Hydrogeologic Unit
Figure 12.	September 2023 Cobalt Concentrations – Deep Hydrogeologic Unit

Appendices

Appendix A	Annual Inspection
Appendix B	Groundwater Sampling Field Sheets
Appendix C	Laboratory Analytical Reports
Appendix D	Summary of Groundwater Chemistry – Pre-2019
Appendix E	Statistical Evaluation of Groundwater Monitoring Results
Appendix F	Trend Analysis
Appendix G	Standards History Graphs

I:\25223063.00\Deliverables\2023 AWQR\231130_2023 BBL AWQR.docx

ACRONYMS/ABBREVIATIONS

AWQR = Annual Water Quality Report
CCR = Coal Combustion Residual
COC = Chain of Custody
DO = Dissolved Oxygen
GWPS = Groundwater Protection Standard
IDNR = Iowa Department of Natural Resources
LCS = Laboratory Control Sample
MS = Matrix Spike
MSD = Matrix Spike Duplicate
MCL = EPA Maximum Contaminant Level
MNA = Monitored Natural Attenuation
ORP = Oxidation Reduction Potential
QA/QC = Quality Assurance/Quality Control
RCRA = Resource Conservation and Recovery Act
SMCLs = Secondary Maximum Contaminant Levels
SWS = IDNR Statewide Standard for a protected groundwater source
SSI = Statistically Significant Increase above background
TDS = Total Dissolved Solids
TSS = Total Suspended Solids
μg/L = micrograms per liter
UPL = Upper Prediction Limit
U.S. EPA = U.S. Environmental Protection Agency

[This page left blank intentionally.]

1.0 SITE BACKGROUND

1.1 SITE HISTORY

The Big Bend Landfill is a closed coal combustion residual (CCR) landfill located near Cedar Rapids, Iowa (**Figure 1**). The Big Bend Landfill was a sand pit prior to its use as a CCR disposal site. The landfill was closed in 1992, and it no longer receives waste. A site plan is shown on **Figure 2**. The Facility Inspection Report for September 2023 is included in **Appendix A**. No erosion features or significant condition issues were noted at the Site in 2023.

1.2 SITE HYDROGEOLOGY

1.2.1 Geology

The unconsolidated geology at the Site generally consists of aeolian sand deposits overlying glacial till. The till includes unsorted sediments ranging in size from clay to boulders. The unconsolidated sediments overlie fine-grained limestone and dolomite bedrock of the Middle Devonian Otis and Bertram formations. These bedrock formations are generally considered to be aquicludes. The bedrock surface at the Site generally dips to the east.

A more detailed description of the regional and local geology is provided in the Hydrogeological Investigation Report prepared by James M. Montgomery in October 1992 (Montgomery, 1992).

1.2.2 Hydrogeology/Groundwater Flow Conditions

Groundwater and leachate levels were measured during April and September 2023. The groundwater levels during the September event were measured prior to purging the wells for sampling. The groundwater and surface water elevation data are presented in **Table 4A**. Vertical gradients measured at monitoring well nests are summarized in **Table 4B**. The 2023 water level data were used to create water table and potentiometric surface maps (**Figure 3** through **Figure 6**).

Flow directions were consistent with historical data. Shallow groundwater flow is generally to the northwest across the Site. Flow within the deep monitoring unit was generally to the northwest during the April 2023 and September 2023 monitoring events.

Vertical gradients at the Site were variable, with upward gradients at MW-5/MW-6, MW-8R/MW-7, and MW-15AR/MW-10 in April 2023 and downward gradients at the remaining six well nests. In September 2023, vertical gradients were downward except for upward gradients at MW-5/MW-6 and MW-15AR/MW-10. The gradients were consistent with historical conditions.

2.0 SAMPLING STATUS SUMMARY

The Iowa Department of Natural Resources (IDNR) has requested that sampling data be summarized in a series of tables to consistently convey information related to groundwater monitoring at CCR landfills throughout Iowa. These tables are discussed within the text in appropriate sections as noted and included in the Tables section at the end of the text. **Table 1** provides an overview of the sampling status for the Site, including the monitoring points in the program, current monitoring program, comparative statistics findings, and the number of samples collected. **Figure 2** summarizes the monitoring network for Big Bend.

As noted in Table 2, monitoring wells MW-15AR and MW-24R, and leachate well LW-3, were not sampled in September 2023. Sufficient volume was not present in MW-15AR or LW-3 for sample collection. MW-24R was obstructed, and the pump could not be lowered into the well. The issues encountered at MW-24R and the planned response are discussed in Section 3.2.

Field sheets from the April 2023 water level measurement event and the September 2023 sampling event are included in Appendix B. Sampling completed in 2018 through 2023 and anticipated sampling for 2024 are summarized in Table 2. The laboratory analytical report for the September 2023 sampling event is included in Appendix C. Groundwater chemistry summary tables for historic data collected before 2019 are included in Appendix D. Groundwater chemistry tables for all data collected since the transition to unfiltered sampling in 2016 are included in the statistical analysis in Appendix E.

As requested by IDNR, calcium, fluoride, lithium, molybdenum, total dissolved solids (TDS), and total suspended solids (TSS) were added to the sampling parameter list for all monitoring wells and leachate sampling points and reported in the Annual Water Quality Report (AWQR). Because of the low number of samples for the parameters listed above, upper prediction limits (UPLs) cannot be calculated at this time. UPL calculations for these parameters will be included in the report when a minimum of four samples have been collected at background wells. Additionally, field parameters DO and oxidation-reduction potential (ORP) are included in the tables of this AWQR for the first time for evaluation of the potential influences on groundwater chemistry due to reducing groundwater conditions. Dissolved oxygen (DO) and ORP are required parameters for stability during low-flow sampling and have been included in previous AWQR's on field sheets.

3.0 MONITORING WELL MAINTENANCE AND PERFORMANCE SUMMARY

IAC 567-115.21 was referenced for monitoring well maintenance and evaluation, in place of the rescinded 567-110.9. Each requirement is listed below in italics, followed by text describing how the requirement was addressed.

a. *A biennial examination of high and low water levels accompanied by a discussion of the acceptability of well location (vertically and horizontally) and exposure of the screened interval to the atmosphere.*

   Water levels are measured twice annually, in April and September. The screens at shallow monitoring wells MW-2 and MW-14 were submerged during both events in 2023. All other shallow well screens were not submerged during one or both monitoring events in 2023. Monitoring well MW-15AR could not be sampled in September 2023 because insufficient water was present in the well. Groundwater conditions at the site in 2023 were consistent with historical conditions, and the horizontal and vertical well locations remain acceptable.

b. *A biennial evaluation of water level conditions in the monitoring wells to ensure that the effects of waste disposal or well operation have not resulted in changes in the hydrologic setting and resultant flow paths.*

   As described in Section 1.2.2, comparison of the 2023 groundwater contour map and calculated vertical gradients to previous data indicates that the April and September 2023 groundwater flow conditions are consistent with historical conditions.

c. *Annual measurement of well depths to ensure that wells are physically intact and not filling with sediment.*

   Measured well depths are summarized in Table 4A. Measured total depths of several monitoring wells were 1 or more feet different from as-built total depths when measured in April 2023; however, the most recent total depth was not more than 1 foot shallower than the reference total depth for any well. It does not appear that siltation is affecting the ability of the monitoring wells to produce representative groundwater samples and groundwater elevation data.

   It appears that measurement imprecision is likely the cause of the greater difference during one event in 2023. Total depths are measured with a flexible water level tape and it can be difficult to obtain accurate total depth readings, particularly in deeper wells. The difference between the measured total depth and measurement in April 2023 at MW-7 was nearly 10 feet. This is likely attributable to an error in the field notes, as the recorded depth in September 2023 was only 0.2 feet different than the baseline measurement.

d. *Every five years conduct in-situ permeability tests on monitoring wells to compare test data with those collected originally to determine if well deterioration is occurring.*

   A variance to IAC 567-110.9(2)(d) for in-situ permeability tests every 5 years was granted by the IDNR in a letter dated May 4, 1999. Although IAC 567-110 has been rescinded since the variance was granted, the same permeability test requirements are now in IAC 567-115.21(2), and our understanding is that the conditions of the variance still apply. The conditions of the variance state that, if a well cannot be sampled or purged because of plugging, the well will be replaced within 6 months of reporting this condition to the IDNR in the annual report. The monitoring wells at this Site are performing adequately as noted above.

Table 3 provides the years in which each requirement was last met and for which it is next scheduled.

3.1 DEDICATED PUMP INSTALLATIONS

Dedicated bladder pumps were installed at monitoring wells MW-2, MW-14, and MW-23R in 2023, to reduce turbidity in samples and assess whether lower-turbidity samples may affect detected metals concentrations. An attempt was made to install a dedicated pump in MW-24R, as discussed below.

3.2 WELL MAINTENANCE RECOMMENDATIONS

During the September 2023 monitoring event, an obstruction was noted in MW-24R that prohibited sample collection. The obstruction was noted slightly below the water table at approximately 100 feet below the top of the well casing. Sample collection was attempted with a dedicated pump that had been installed in August 2023 and with a narrow bailer. SCS field staff were able to measure a total depth in the well, but neither a pump nor a bailer could not fit past the obstruction. A down-casing camera will be used to inspect the blockage, and a summary of the findings and recommendations of next steps, including abandonment and replacement of the well, if necessary, will be submitted to IDNR.

SCS was unable to sample MW-15AR during the September 2023 sampling event because insufficient water was present in the well.

Beyond the repair/replacement of MW-24R, no other well maintenance activities are recommended based on observations during the 2023 monitoring events.

4.0 2023 QUALITY ASSURANCE/QUALITY CONTROL SUMMARY

Data validation quality assurance/quality control (QA/QC) procedures are performed on analytical results for laboratory quality control samples, and a quality assurance assessment of the data is conducted as the data are generated. The QA/QC review procedure provides documentation of the accuracy and precision of the analytical data and confirms that the analyses are sufficiently sensitive to detect constituents at levels below regulatory standards, where such standards exist. QA/QC data validation includes review of sample handling, analytical sensitivity, blanks, accuracy, and precision. The QA/QC and data validation procedures and findings are discussed in more detail below.

4.1 SAMPLE COLLECTION AND HANDLING

Groundwater samples are collected using dedicated tubing and either a non-dedicated, low-flow bladder pump or a dedicated low-flow bladder pump. Dedicated pumps were used to sample MW-2, MW-14, and MW-23R in 2023. For wells sampled with non-dedicated pumps, a new bladder is used for each well, and all non-dedicated equipment is decontaminated between wells. Samples are not field filtered. All samples are placed on ice after collection and are transported to the laboratory in sealed coolers under Chain of Custody (COC).

Sample receipt forms were reviewed and checked to verify that samples were received in good condition and within the acceptable temperature range. COC records for each sampling event were reviewed and confirmed that information was complete.

For the September 2023 sampling events, no issues with the sample collection and handling procedures were identified.

4.2 ANALYTICAL SENSITIVITY AND BLANKS

Laboratory QA/QC procedures and post-analysis data validation assist in producing data of acceptable quality and reliability. Eurofins – Cedar Falls is a certified laboratory in Iowa and performed QA/QC procedures, including analyzing laboratory method blanks in association with samples collected for the project to check for contributions to the analytical results possibly attributable to laboratory-based contamination. A field blank was submitted with the groundwater samples to assess whether cross-contamination occurred during sample handling and transport.

The September 2023 field blank had low-level detections of boron, calcium, and molybdenum at or above their respective reporting limits. The field blank was analyzed immediately after the sample from LW-1, and it appears the field blank detections represent carryover from the leachate sample rather than actual concentrations in the blank. The laboratory report included in Appendix C includes a narrative explanation of the potential carryover.

4.3 ACCURACY

Laboratory analytical accuracy can be assessed by evaluating the constituent recoveries from the following laboratory QA/QC samples: laboratory control sample (LCS), and matrix spike/matrix spike duplicate (MS/MSD). LCS samples assess the accuracy of analytical procedures by checking the ability to recover constituents added to clean aqueous matrices. MS/MSD samples assess the accuracy of analytical procedures by checking the ability to recover constituents added to submitted samples.

LCS and MS/MSD results reported in the September 2023 analytical laboratory report were within applicable control limits.

4.4 DATA QUALITY SUMMARY

Based on the above QA/QC procedures and the field sampling standard operating procedures, the samples collected during this reporting period are considered to be representative of site conditions at the locations and times they were obtained. Based on the QA/QC review, no samples were rejected as unusable due to QC failures.

5.0 COMPARISON TO STANDARDS

5.1 STATISTICAL ANALYSIS

Statistical analysis is completed for the Site on an annual basis. The 2023 Annual Statistical Summary Report is included in Appendix E, including a summary table of data used for the statistical analysis for each parameter. Table 5 provides the background and groundwater Protection Standards (GWPS) summary for the Site.

Groundwater samples collected in 2023 were unfiltered, in accordance with the variance to 567-103.1(2)f granted in the December 23, 2016 Permit Amendment #8. Unfiltered samples have been collected at the Site since 2016, and the statistical approach described below has been used since the 2019 reporting period.

The selected statistical analysis method uses a prediction interval approach, as recommended for detection monitoring in the March 2009 U.S. Environmental Protection Agency (U.S. EPA) Unified Guidance for Statistical Analysis of Groundwater Monitoring Data at Resource Conservation and Recovery Act (RCRA) Facilities (Unified Guidance).

Interwell testing was selected for the prediction interval evaluation. Monitoring results from the downgradient wells were compared to the UPLs to evaluate whether a statistically significant increase (SSI) over background has occurred. UPLs were calculated separately for the shallow and deep hydrogeologic units. Consistent with previous sampling events, monitoring well MW-21 was used as the background well for the shallow hydrogeologic unit, and MW-12 was used as the background well for the deep hydrogeologic unit.

Monitoring results from the downgradient wells were compared to the UPLs to evaluate whether an SSI over background has occurred. UPL calculations were completed in 2023 using the eight rounds of unfiltered sample results for metals and a longer data record for anions that are not typically affected by filtration (e.g., chloride, sulfate).

Detection of an SSI at a compliance well indicates that the groundwater quality is different than the background groundwater quality but does not necessarily indicate an impact to public health or the environment.

To evaluate potential health impacts, the monitoring results were compared to health-based GWPS values. The GWPS values were set at the drinking water maximum contaminant level (MCL), if one exists; otherwise, the Iowa statewide standard (SWS) for protected groundwater was used. If the UPL established based on background monitoring was higher than the MCL or SWS, then the GWPS was set at the UPL. Secondary Maximum Contaminant Levels (SMCLs) were not used to establish GWPS values because SMCLs are not health-based standards, but they are shown in Table 5 for comparison with the UPL and GWPS values.

5.2 2023 RESULTS

Tables 6A and 6B are summaries of monitoring points/detected constituents from the 2023 sampling event that did not exceed a UPL. Table 7 provides a summary of ongoing and newly identified SSIs and compares these concentrations to the GWPS values.

Table 8 provides a visualization of historic SSIs and regulatory standard exceedances since 2016, the first year during which unfiltered samples were collected at the Site. Table 8 does not identify UPL exceedances prior to 2019, as this was the first year UPLs were calculated.

Trend analysis was performed in 2023 for select parameters, and the results are discussed below in Section 8.4.

5.3 STANDARDS HISTORY

The standards for 2019 through 2023 are summarized in Table 9. Graphs of standards history are included in Appendix F.

6.0 SUMMARY OF FINDINGS FOR GROUNDWATER

6.1 COMPARISON TO STANDARDS

One new GWPS exceedance was identified during the 2023 monitoring event.

- Lithium at MW-6

GWPS exceedances detected in September 2023, which also occurred during previous events, were:

- Cobalt at MW-2
- Manganese at MW-2

Cobalt concentrations in MW-24R have historically been well above the SWS since 2019. During the September 2023 sampling event, MW-24R was unable to be sampled due to an obstruction slightly below the water table.

Cobalt, lithium, and manganese do not have established U.S. EPA MCLs; therefore, the GWPS values were set based on the IDNR Statewide Standard for protected groundwater source (SWS) values.

Cobalt concentrations in samples from MW-2 exceeded the SWS in 2016 through 2018, dipped below the SWS in 2019, and exceeded the SWS again in 2020 through 2023. Manganese concentrations in samples from MW-2 have exceeded the SWS during all sampling events since 2016.

The September 2023 sampling event was the first time samples were tested for lithium at the Site, so the GWPS exceedance for lithium at MW-6 has not been confirmed and cannot be compared to historical data.

Most exceedances of the background UPLs were consistent with results from previous events. There were no new UPL exceedances in September 2023 for the parameters that had been sampled in previous events.

Zinc concentrations in September 2022 were unusually high, and this was attributed to a laboratory reporting error, such as a dilution error, in the 2022 AWQR. Zinc results in 2023 were consistent with results from sampling events prior to 2022, supporting the attribution of elevated results in 2022 to a laboratory reporting error rather than to an actual change in groundwater quality at the Site.

Calcium, lithium, molybdenum, and fluoride were included in the sampling program for the first time in 2023. As noted above, lithium was detected at a concentration above the GWPS in one well. There is no GWPS for calcium, molybdenum was not detected at a concentration over the GWPS in any monitoring well, and fluoride was not detected in any of the monitoring wells.

6.2 TREND ANALYSIS

Trend analyses are included in **Appendix G** and are summarized in **Table 10**. The trend analysis indicates the following significant trends for well/constituent pairs with SSIs in one or more of the last three years. Trend tests were not performed for fluoride, lithium, or molybdenum because not enough data are available, and trend tests were not performed for zinc because the 2022 results are attributable to a laboratory reporting error.

- Increasing trend
  - Cobalt at MW-24R

- Decreasing trend
  - Arsenic at MW-10 and MW-24R
  - Boron at MW-11 and MW-14
  - Lead at MW-10
  - Selenium at MW-14 and MW-23R

6.3 TOTAL SUSPENDED SOLIDS EVALUATION

TSS was added to the parameter list in 2023. Elevated TSS (over 5 mg/L) was detected in 2023 at several wells, including MW-2 which now has a dedicated low-flow pump. MW-2 had the highest TSS result and also the highest concentrations of arsenic, cobalt, and manganese in September 2023, but at other wells TSS does not appear to be correlated with metals concentrations. The high TSS result at MW-2 appears to indicate that installation of dedicated pumps has had a limited effect on TSS to date.

Field-filtered samples from MW-2 were analyzed for parameters exceeding GWPSs, and dissolved concentrations were similar to total concentrations. Dissolved results are included in the laboratory report in **Appendix C**. These results indicate that suspended solids are not the cause of the GWPS exceedances.

7.0 LEACHATE MONITORING SYSTEM

Leachate levels were measured at LW-01, LW-02, and LW-03 during April and September 2023. A sample was collected from LW-01 in September 2023, and results are summarized in **Table 11**. Of the new parameters added in 2023, only fluoride was not detected in LW-01.

An attempt was made to sample LW-03 in September 2023; however, sufficient volume was not present in the well. Leachate depths and elevations measured during 2023 are summarized in Table 12.

8.0 MONITORED NATURAL ATTENUATION ASSESSMENT

A Monitored Natural Attenuation (MNA) Assessment Workplan was submitted to the IDNR on April 26, 2016. The purpose of the MNA assessment is to:

- Evaluate whether the groundwater contaminant plume(s) in the vicinity of the landfill are increasing, decreasing, or stable.

- Investigate the potential mechanism(s) and rate of contaminant attenuation.

- Develop a revised groundwater quality assessment plan outlining the methods for future measurement and/or evaluation of groundwater quality improvements.

This update on the status of the MNA evaluation includes the following elements:

- Results Review and Identification of Contaminants of Concern
- Potential Receptors
- Trend Analysis Discussion
- Additional MNA Monitoring Parameters
- Potential MNA Mechanisms
- MNA Proposed Actions

8.1 RESULTS REVIEW AND IDENTIFICATION OF CONTAMINANTS OF CONCERN

As described above, the groundwater monitoring results were compared to background UPLs and to GWPSs. Results for several parameters were higher in the downgradient wells than in upgradient wells; however, only the following results identified in Section 6.1 exceeded a health-based GWPS (Iowa SWS) in 2023.

Parameters that have health-based standards and were detected at a concentration significantly above the background level (UPL) in at least one 2023 sample include:

- Arsenic
- Boron
- Cobalt
- Manganese
- Selenium

Results for these parameters in 2023, as well as parameters with health-based standards that previously exceeded the UPL, are summarized below relative to health-based GWPSs:

- Arsenic concentrations were below the MCL in all 2023 groundwater samples.

- Barium concentrations were below the MCL in all 2023 groundwater samples.

- Boron concentrations were below the Iowa SWS in all 2023 groundwater samples.

- Cobalt concentrations were below the SWS in all 2023 groundwater samples with the exception of the unfiltered and filtered samples from MW-2.

- Copper concentrations were below the SWS in all 2023 groundwater samples.

- Lead concentrations were below the SWS in all 2023 groundwater samples.

- Lithium concentrations were below the SWS in all 2023 groundwater samples with the exception of the unfiltered and filtered samples from MW-6.

- Manganese concentrations were below the SWS in all 2023 samples, with the exception of the unfiltered and filtered sample from MW-2.

- Selenium concentrations were below the MCL in all 2023 groundwater samples.

- Zinc concentrations were below the SWS in all 2023 groundwater samples.

Because these parameters were detected at concentrations significantly above background and have groundwater standards established for protection of health, they are the preliminary contaminants of concern for the MNA evaluation.

8.2 POTENTIAL RECEPTORS

As shown on **Figure 2**, three private water supply wells are located to the north and northwest of the Site, between the landfill and the Cedar River. Based on observed groundwater flow direction at the landfill, PW-2314 is sidegradient of the landfill. PW-4401 is downgradient but is located approximately 0.2 miles away. PW-2606R is approximately 100 feet from the landfill limits and is near the SWS exceedance area for manganese shown on **Figure 8**; however, this well was sampled in September 2023 and no MCL, SMCL, or SWS exceedances were detected. Results are included in **Table 6B**. This well is 315 feet deep and is cased and grouted to 240 feet below ground surface.

8.3 ISOCONCENTRATION MAPS

Site maps showing boron, manganese, and cobalt concentrations at the Site in September 2023 are presented on **Figures 7** through **12.** Concentration maps for boron are included here because it is a common CCR indicator parameter. Concentration maps for manganese are included because manganese has been detected at a concentration above the GWPS and is also an indicator of reducing conditions in the groundwater. Concentration maps for cobalt are included because it has been detected at a concentration above the GWPS.

Boron concentrations in the shallow and deep hydrogeologic units in September 2023 are shown on **Figures 7** and **8**, respectively. The area of boron impacts extends off the landfill property to the northwest.

Total manganese concentrations in the shallow and deep hydrogeologic units in September 2023 are shown on **Figures 9** and **10**, respectively. An isoconcenetration contour at 300 micrograms per liter (µg/L) (the GWPS for manganese) is shown on **Figure 9**. No GWPS exceedances for manganese were detected in the deep hydrogeologic unit. Total and dissolved manganese exceeded the SWS at shallow monitoring well MW-2 in September 2023. MW-2 is located near the northeastern corner of the Site. In the deep hydrogeologic unit, the highest manganese concentration was detected in upgradient well MW-12 and none of the manganese concentrations exceeded the SWS.

Total cobalt concentrations in the shallow and deep hydrogeologic units in September 2023 are shown on **Figures 11** and **12**. An isoconcenetration contour at 2.1 µg/L (the GWPS for cobalt) is shown on **Figure 11**. No GWPS exceedances for cobalt were detected in the deep hydrogeologic unit. Cobalt concentrations exceeded the SWS only at shallow monitoring well MW-2 in September 2023. The dissolved cobalt concentration at MW-2 was equal to the SWS (2.1 µg/L). Cobalt concentrations at MW-24R have exceeded the SWS in recent years, but this well could not be sampled in 2023 as discussed above.

8.4 TREND ANALYSIS

Trend analysis is a key component of MNA evaluation. Trend analyses performed in 2023 are summarized above in **Section 6.2**, and in **Table 10** and **Appendix F**.

At MW-24R, a significant increasing trend was identified for cobalt. Further analysis of trends at MW-24R are planned once more samples are obtained after repairing or replacing the well, as noted in **Section 3.1**.

8.5 ADDITIONAL MNA MONITORING PARAMETERS

The collection of additional field parameters (DO and ORP) and alkalinity to support the assessment of MNA began in September 2016 and was repeated during subsequent sampling events. The results for these parameters and other field parameters for 2023 are summarized in **Table 13.** Time series plots for these parameters are included with the statistical analysis in **Appendix E.**

The results for DO and ORP have indicated that reducing conditions are present to varying degrees in groundwater upgradient and downgradient from the disposal site. This is consistent with the variability in dissolved iron and manganese that has historically been observed in groundwater samples collected at the Site. In general, September 2023 results indicated oxidizing conditions in the shallow hydrogeologic unit and less oxidizing or slightly reducing conditions in the deep hydrogeologic unit.

Alkalinity was also monitored as a general water quality indicator for the MNA assessment. Alkalinity results were fairly consistent across the Site, with lower alkalinity results generally correlating with lower pH values.

8.6 POTENTIAL MNA MECHANISMS

The primary processes through which inorganic contaminant concentrations are naturally attenuated include mechanical dispersion and chemical adsorption processes. Chemical adsorption processes, in which dissolved contaminants are transferred to the solid phase aquifer materials, can be further broken down into precipitation, co-precipitation, and adsorption processes. These processes can be chemical processes, which are often controlled by changes in redox or pH conditions in the aquifer, or in some cases can be biologically controlled. For example, selenium has been shown to be more strongly attenuated in strongly reducing environments than in mildly reducing conditions (U.S. EPA, 2007).

Source control measures have already been implemented at Big Bend through closure and capping of the disposal site. These actions have likely reduced infiltration through the CCR and reduced the mass flow of CCR constituents into groundwater.

8.7 MNA PROPOSED ACTIONS

SCS recommends the following actions prior to submittal of the 2024 AWQR:

- Continue collection of alkalinity, field dissolved oxygen, and field ORP in 2024.
- Cease collecting filtered groundwater samples. Filtered samples have been collected on a voluntary basis at select monitoring wells for comparison with unfiltered results. These comparisons, and the TSS evaluation discussed above in Section 6.3, indicate that suspended solids are not the cause of higher concentrations.
- Complete updated trend analysis for wells/constituents with GWPS exceedances to evaluate the stability of the plume.

9.0 RECOMMENDATIONS

SCS recommends that the current monitoring program be continued during 2024, with the inclusion of calcium, lithium, molybdenum, TDS, TSS, field DO, and field redox potential. Fluoride was only detected at one well at a concentration below the method detection limit, so annual testing for fluoride is not recommended. Based on communication with IDNR in 2023, fluoride should be included in the sampling program in 5 years and reevaluated.

The additional MNA actions proposed in Section 8.7, and additional evaluation of increasing cobalt concentrations at MW-24R following repair or replacement of the well, are also recommended. The planned monitoring schedule for 2024 is summarized in Table 2.

10.0 REFERENCES

Montgomery, James M., 1992, Hydrogeologic Investigation Report for the Big Bend Ash Landfill, Iowa Electric Light and Power Company, October 1992.

SCS Engineers, 2018, 2018 Annual Water Quality Report, Interstate Power and Light Company – Big Bend Closed Landfill, November 28, 2018.

U.S. EPA, 2007, Monitored Natural Attenuation of Inorganic Contaminants in Ground Water, Volume 2, Assessment for Non-Radionuclides Including Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Nitrate, Perchlorate, and Selenium, EPA/600/R-07/140, October 2007.

[This page left blank intentionally.]

Tables

1	Monitoring Program Summary
2	Monitoring Program Implementation Schedule
3	Monitoring Well Maintenance and Performance Reevaluation Schedule
4A	Monitoring Well Maintenance and Performance Summary
4B	Vertical Gradients
5	Background and GWPS Summary
6A	Summary of Well/Detected Constituent Pairs with No Immediately Preceding SSIs
6B	Summary of Supply Well Monitoring/Detected Constituent Pairs
7	Summary of Ongoing and Newly Identified SSIs
8	Historic UPL and Action Level Exceedances
9	Historic Prediction Limits and Groundwater Protection Standards
10	Groundwater Quality Assessment Plan Trend Analysis
11	Summary of Leachate Well/Detected Constituent Pairs
12	Leachate Management Summary
13	Additional Parameters for MNA Analysis

Table 1
Monitoring Program Summary
2023 Annual Water Quality Report
Big Bend Landfill
Permit No. 57-SDP-10-90C

Monitoring Point	Formation	Current Monitoring Program	Change for Next Sampling Event	UPL Exceedances	Total # of Samples in each monitoring program since January 1, 2018
					Routine
Sampled Monitoring Wells					
MW-2	Shallow	Routine	NC	Arsenic, boron, cobalt, iron, manganese	6
MW-5	Intermediate	Routine	NC	Boron, selenium, sulfate	6
MW-6	Deep	Routine	NC	Chloride, boron, iron	6
MW-7	Deep	Routine	NC	Chloride, boron	6
MW-10	Deep	Routine	NC	Chloride, sulfate, boron	6
MW-11	Deep	Routine	NC	Chloride, boron	6
MW-12	Deep	Routine	NC	None	6
MW-14	Shallow	Routine (Voluntary*)	NC	Boron, selenium	6
MW-15AR	Shallow	Routine	NC	N/A****	4
MW-16	Deep	Routine	NC	Chloride, boron	6
MW-20	Shallow	Routine	NC	Boron, selenium	6
MW-21	Shallow	Routine	NC	Chloride	6
MW-23R	Shallow	Routine	NC	Boron	8**
MW-24R	Deep	Routine	NC	N/A***	7**
MW-25R	Shallow	Routine	NC	Boron	6
Water Level Only Monitoring Wells					
MW-8R	Shallow	Routine	NC	N/A	Water levels only
MW-13	Intermediate	Routine	NC	N/A	Water levels only
MW-17R	Shallow	Routine	NC	N/A	Water levels only
MW-18	Shallow	Routine	NC	N/A	Water levels only
Leachate Monitoring Points					
LW-1	N/A	Routine (Voluntary^)	NC	N/A	5
LW-2	N/A	Routine	NC	N/A	Leachate level only
LW-3	N/A	Routine (Voluntary^)	NC	N/A	1 (typically dry or too little volume for sample)

*: Per the IDNR letter dated October 17, 2012, only groundwater elevation and well depth are required at MW-14. This well was sampled during the 2015 through 2022 September monitoring events on a voluntary basis due to historical elevated constituents in this well.
**: MW-23R and MW-24R replaced MW-23 and MW-24 prior to the April 2018 monitoring event. MW-23R and MW-24R were each sampled twice in 2018 and 2019.
***: MW-24R was not able to be sampled in 2023 due to an obstruction in the well.
****: MW-15AR could not be sampled in 2023 due to insufficient water in the well.
^: Samples are collected at LW-1 and LW-3 on a voluntary basis if these points are not dry during the September sampling event.

UPL = Upper prediction limit for background, based on interwell comparison to MW-21 for shallow unit and MW-12 for deep unit.
NC = No change
NM = Sample not collected
N/A = Not Applicable

Created by: NDK, 10/7/2021
Updated By: RM, 10/26/2023
Checked by: LH, 11/01/2023

Table 2
Monitoring Program Implementation Schedule
2023 Annual Water Quality Report
Big Bend Landfill
Permit No. 57-SDP-10-90C

Monitoring Point	Recent Sampling Dates and Constituents												Upcoming Sampling Dates and Constituents	
	4/25/2018	**9/17-19/2018**	**4/23/2019**	**9/23-24/2019**	**4/21/2020**	**9/21-24/2020**	**4/28/2021**	**9/8-10/2021**	**4/29/2022**	**9/6-9/2022**	**4/18/2023**	**9/11-14/2023**	**April 2024**	**September 2024**
Sampled Monitoring Wells														
MW-2 MW-5 MW-6 MW-7 MW-10 MW-11 MW-12 MW-14 MW-15AR MW-16 MW-20 MW-21 MW-25R	Groundwater Elevation	List A	Groundwater Elevation	List A	Groundwater Elevation	List A	Groundwater Elevation	List A	Groundwater Elevation	List A	Groundwater Elevation	List A	Groundwater Elevation	List A
MW-24R MW-23R	List A	List A	List A	List A	Groundwater Elevation	List A	Groundwater Elevation	List A	Groundwater Elevation	List A	Groundwater Elevation	List A	Groundwater Elevation	List A
Water Level Only Monitoring Wells														
MW-8R MW-13 MW-17R MW-18	Groundwater Elevation	Groundwater Elevation	Groundwater Elevation	Groundwater Elevation	Groundwater Elevation	Groundwater Elevation	Groundwater Elevation	Groundwater Elevation	Groundwater Elevation	Groundwater Elevation	Groundwater Elevation	Groundwater Elevation	Groundwater Elevation	Groundwater Elevation
Leachate Monitoring Points														
LW-1	Leachate Elevation	List B	Leachate Elevation	List B	Leachate Elevation	List B	Leachate Elevation	DRY	Leachate Elevation	List B	Leachate Elevation	List B	Leachate Elevation	List B
LW-2	Leachate Elevation	Leachate Elevation	Leachate Elevation	Leachate Elevation	Leachate Elevation	Leachate Elevation	Leachate Elevation	Leachate Elevation	Leachate Elevation	Leachate Elevation	Leachate Elevation	Leachate Elevation	Leachate Elevation	Leachate Elevation
LW-3^	Leachate Elevation	DRY	Leachate Elevation	DRY	Leachate Elevation	List B	Leachate Elevation	DRY	Leachate Elevation	DRY	Leachate Elevation	DRY	Leachate Elevation	List B

Notes:
^: Insufficient water was present for sample collection at LW-3 in September 2022 and September 2023.
List A: arsenic, barium, beryllium, boron, cobalt, copper, iron, lead, magnesium, manganese, selenium, zinc, chloride, sulfate, filed pH, field specific conductance, field temperature, groundwater elevation.
List B: arsenic, boron, selenium, sulfate, field pH, field specific conductance, field temperature, leachate elevation, and well depth.

Updated By: RM Date: 10/26/2023
Checked by: LH Date: 10/31/2023

Table 3
Monitoring Well Maintenance and Performance Reevaluation Schedule
2023 Annual Water Quality Report
Big Bend Landfill
Permit No. 57-SDP-10-90C

Compliance with:	Monitoring Calendar Years					
	2019	2020	2021	2022	2023	2024
567 IAC 115.21(2)a. high and low water levels (biennial)	Completed		Completed		Completed	
567 IAC 115.21(2)b. changes in the hydrologic setting and flow paths (biennial)	Completed		Completed		Completed	
567 IAC 115.21(2)c. well depths (annual)*	Completed	Completed	Completed	Completed	Completed	Scheduled
567 IAC 115.21(2)d. in-situ permeability tests (every 5 years)**	Not Applicable - Variance granted by IDNR (see comment below)					

Comments:
*: To avoid the potential for cross-contamination and increased sample turbidity associated with removing and re-installing dedicated pumps, well depths are not measured annually at wells with dedicated pumps.
**: A variance to IAC 567-110.9(2)(d) for in situ permeability tests every 5 years was granted by IDNR in a letter dated May 4, 1999. Although IAC 567-110 has been rescinded since the variance was granted, the same permeability test requirements are now in IAC 567-115.21(2), and our understanding is that the conditions of the variance still apply.

Updated By: RM, 10/26/2023
Checked by: LH, 10/31/2023

Table 4A
Monitoring Well Maintenance and Performance Summary
2023 Annual Water Quality Report
Big Bend Landfill
Permit No. 57-SDP-10-90C

	Well	Top of Casing	Top of Screen	Total Depth		Date of Measurements 4/18/2023	Date of Measurements 9/11-14/2023	Maximum Depth Discrepancy (ft)
Shallow Hydrogeologic Unit Wells	MW-2	805.77	726.14	89.63	Groundwater Level (ft)	74.59	74.72	-0.98
					Groundwater Elevation (Ft MSL)	731.18	731.05	
					Measured Well Depth (ft)	90.61	--	
					Submerged screen	Y	Y	
	MW-8R	786.69	726.22	75.47	Groundwater Level (ft)	73.71	74.78	-1.48
					Groundwater Elevation (Ft MSL)	712.98	711.91	
					Measured Well Depth (ft)	76.95	75.60	
					Submerged screen	N	N	
	MW-14	782.79	755.22	37.57	Groundwater Level (ft)	21.79	23.46	-0.44
					Groundwater Elevation (Ft MSL)	761.00	759.33	
					Measured Well Depth (ft)	38.01	--	
					Submerged screen	Y	Y	
	MW-15AR	800.13	725.64	89.49	Groundwater Level (ft)	84.20	86.35	-1.46
					Groundwater Elevation (Ft MSL)	715.93	713.78	
					Measured Well Depth (ft)	90.95	90.60	
					Submerged screen	N	N	
	MW-17R	790.27	723.12	82.15	Groundwater Level (ft)	81.75	81.72	-1.78
					Groundwater Elevation (Ft MSL)	708.52	708.55	
					Measured Well Depth (ft)	83.93	83.30	
					Submerged screen	N	N	
	MW-18	781.74	751.29	40.45	Groundwater Level (ft)	38.20	38.08	-0.37
					Groundwater Elevation (Ft MSL)	743.54	743.66	
					Measured Well Depth (ft)	40.82	40.30	
					Submerged screen	N	N	
	MW-20	786.66	764.11	37.55	Groundwater Level (ft)	27.63	29.05	-0.77
					Groundwater Elevation (Ft MSL)	759.03	757.61	
					Measured Well Depth (ft)	38.32	37.73	
					Submerged screen	N	N	
	MW-21	779.80	766.35	28.45	Groundwater Level (ft)	14.44	16.43	1.05
					Groundwater Elevation (Ft MSL)	765.36	763.37	
					Measured Well Depth (ft)	27.40	27.90	
					Submerged screen	N	N	

Table 4A
Monitoring Well Maintenance and Performance Summary
2023 Annual Water Quality Report
Big Bend Landfill
Permit No. 57-SDP-10-90C

	Well	Top of Casing	Top of Screen	Total Depth		Date of Measurements		Maximum Depth
						4/18/2023	9/11-14/2023	Discrepancy (ft)
Shallow Hydrogeologic Unit Wells	MW-23R	799.54	709.34	105.20	Groundwater Level (ft)	94.12	98.41	-1.47
					Groundwater Elevation (Ft MSL)	705.42	701.13	
					Measured Well Depth (ft)	106.67	--	
					Submerged screen	N	N	
	MW-25R	794.07	755.66	53.41	Groundwater Level (ft)	41.50	42.30	3.37
					Groundwater Elevation (Ft MSL)	752.57	751.77	
					Measured Well Depth (ft)	50.04	53.70	
					Submerged screen	N	N	
Intermediate and Deep Hydrogeologic Unit Wells	MW-5	782.99	721.64	71.35	Groundwater Level (ft)	61.51	62.63	-1.53
					Groundwater Elevation (Ft MSL)	721.48	720.36	
					Measured Well Depth (ft)	72.88	71.60	
					Submerged screen	N	N	
	MW-6	781.62	692.19	94.43	Groundwater Level (ft)	59.43	60.53	-1.67
					Groundwater Elevation (Ft MSL)	722.19	721.09	
					Measured Well Depth (ft)	96.10	94.50	
					Submerged screen	Y	Y	
	MW-7	786.65	693.4	98.25	Groundwater Level (ft)	73.40	77.99	9.77
					Groundwater Elevation (Ft MSL)	713.25	708.66	
					Measured Well Depth (ft)	88.48	98.45	
					Submerged screen	Y	Y	
	MW-10	800.15	697.94	107.21	Groundwater Level (ft)	84.20	86.33	-1.24
					Groundwater Elevation (Ft MSL)	715.95	713.82	
					Measured Well Depth (ft)	108.45	107.20	
					Submerged screen	Y	Y	
	MW-11	806.16	680.75	130.41	Groundwater Level (ft)	83.00	84.02	-2.32
					Groundwater Elevation (Ft MSL)	723.16	722.14	
					Measured Well Depth (ft)	132.73	131.00	
					Submerged screen	Y	Y	
	MW-12	782.17	675.65	111.52	Groundwater Level (ft)	59.03	60.27	-1.58
					Groundwater Elevation (Ft MSL)	723.14	721.90	
					Measured Well Depth (ft)	113.10	112.90	
					Submerged screen	Y	Y	

Table 4A

Monitoring Well Maintenance and Performance Summary
2023 Annual Water Quality Report

Big Bend Landfill

Permit No. 57-SDP-10-90C

	Well	Top of Casing	Top of Screen	Total Depth		Date of Measurements		Maximum Depth Discrepancy (ft)
						4/18/2023	9/11-14/2023	
Intermediate and Deep Hydrogeologic Unit Wells	MW-13	782.43	719.75	72.68	Groundwater Level (ft)	21.84	23.79	-0.87
					Groundwater Elevation (Ft MSL)	760.59	758.64	
					Measured Well Depth (ft)	73.55	72.50	
					Submerged screen	Y	Y	
	MW-16	790.31	677.65	117.66	Groundwater Level (ft)	85.02	90.06	-2.01
					Groundwater Elevation (Ft MSL)	705.29	700.25	
					Measured Well Depth (ft)	119.67	116.90	
					Submerged screen	Y	Y	
	MW-24R	799.83	679.63	125.20	Groundwater Level (ft)	94.70	99.33	-2.70
					Groundwater Elevation (Ft MSL)	705.13	700.50	
					Measured Well Depth (ft)	127.90	126.65	
					Submerged screen	Y	Y	
Leachate Wells	LW-01	790.74	754.38	41.36	Groundwater Level (ft)	39.69	39.36	-0.44
					Leachate Elevation (Ft MSL)	751.05	751.38	
					Measured Well Depth (ft)	41.80	41.00	
					Submerged screen	N	N	
	LW-02	798.55	783.73	19.82	Groundwater Level (ft)	19.65	DRY	0.02
					Leachate Elevation (Ft MSL)	778.90	--	
					Measured Well Depth (ft)	19.80	--	
					Submerged screen	N	N	
	LW-03	798.16	764.86	38.30	Groundwater Level (ft)	37.70	37.50	-0.79
					Leachate Elevation (Ft MSL)	760.46	760.66	
					Measured Well Depth (ft)	39.09	38.23	
					Submerged screen	N	N	

Notes:

(1) Total depths were not measured at MW-2, MW-14, or MW-23R in September 2023 because dedicated pumps were installed in these wells in August 2023.
NM = not measured

Updated:	RM	Date:	10/24/2023
Checked:	LH	Date:	10/31/2023

Table 4B

Vertical Gradients
2023 Annual Water Quality Report
Big Bend Landfill
Permit No. 57-SDP-10-90C

Well Pair		Vertical Hydraulic Gradient (feet/foot)(1)	
Shallower Well	**Deeper Well**	**April 2023**	**September 2023**
MW-2	MW-11	-0.177	-0.196
MW-5	MW-6	0.026	0.028
MW-8R	MW-7	0.013	-0.157
MW-15AR	MW-10	0.001	0.002
MW-14	MW-12	-0.473	-0.473
MW-14	MW-13	-0.010	-0.017
MW-13	MW-12	-0.958	-0.940
MW-17R	MW-16	-0.097	-0.250
MW-23R	MW-24R	-0.013	-0.031

Notes:
(1) A negative value indicates a downward gradient; a positive value indicates an upward gradient.

Updated: RM 10/23/2023
Checked: LH 10/31/2023

Table 5
Background and GWPS Summary
2023 Annual Water Quality Report
Big Bend Landfill
Permit No. 57-SDP-10-90C

Interwell Background								
Constituent	**Units**	**Samples****	**Detections****	**UPL**	**Statistical Test**	**GWPS**	**Source**	**Other Standards**
Shallow Hydrogeologic Unit - MW-21								
Alkalinity*	mg/L	8	8	N/A	N/A	none	--	--
Arsenic	µg/L	8	4	1.20	PL(NP)	10	MCL	--
Barium	µg/L	8	8	277	PL(P)	2000	MCL	--
Beryllium	µg/L	8	1	0.330	PL(NP)	4	MCL	--
Boron	µg/L	8	8	202	PL(P)	6,000	SWS	--
Calcium^	mg/L	1	1	N/A	N/A	none	--	--
Chloride	mg/L	11	11	123	PL(P)	none	--	SMCL - 250
Cobalt	µg/L	8	4	0.750	PL(NP)	2.1	SWS	--
Copper	µg/L	8	3	2.80	PL(NP)	1,300	SWS	SMCL - 1,000
Fluoride^	mg/L	1	0	N/A	N/A	4.00	MCL	SMCL 2
Field Dissolved Oxygen*	mg/L	8	8	N/A	N/A	none	--	--
Field ORP*	mV	8	8	N/A	N/A	none	--	--
Field pH	SU	8	8	N/A	N/A	none	--	SMCL <6.5 or >8.5
Field Specific Conductance	µmhos/cm	8	8	N/A	N/A	none	--	--
Field Temperature	deg C	8	8	N/A	N/A	none	--	--
Iron	µg/L	8	6	7,470	PL(P)	none	--	SMCL - 300
Lead	µg/L	8	5	5.6	PL(P)	15	SWS	--
Lithium^	µg/L	1	1	N/A	N/A	14	SWS	--
Magnesium	µg/L	8	8	53,000	PL(P)	none	--	--
Manganese	µg/L	8	7	661	PL(P)	300	SWS	SMCL - 50
Molybdenum^	µg/L	1	0	N/A	N/A	40	SWS	--
Selenium	µg/L	8	7	2.76	PL(P)	50	MCL	--
Sulfate	mg/L	24	24	62.3	PL(P)	none	--	SMCL - 250
Total Dissolved Solids^	mg/L	1	1	N/A	N/A	none	--	SMCL - 500
Total Suspended Solids^	mg/L	1	1	N/A	N/A	none	--	--
Zinc	µg/L	8	4	14.2	PL(NP)	2,000	SWS	SMCL - 5,000

Table 5
Background and GWPS Summary
2023 Annual Water Quality Report
Big Bend Landfill
Permit No. 57-SDP-10-90C

Interwell Background								
Constituent	**Units**	**Samples****	**Detections****	**UPL**	**Statistical Test**	**GWPS**	**Source**	**Other Standards**
Deep Hydrogeologic Unit - MW-12								
Alkalinity*	mg/L	8	8	N/A	N/A	none	--	--
Arsenic	µg/L	8	8	1.71	PL(P)	10	MCL	--
Barium	µg/L	8	8	223	PL(P)	2000	MCL	--
Beryllium	µg/L	8	0	DQ	DQ	4	MCL	--
Boron	µg/L	8	2	110	PL(NP)	6,000	SWS	--
Calcium^	mg/L	1	1	N/A	N/A	none	--	--
Chloride	mg/L	11	11	3.89	PL(P)	none	--	SMCL - 250
Cobalt	µg/L	8	8	0.657	PL(P)	2.1	SWS	--
Copper	µg/L	8	2	2.00	PL(NP)	1,300	SWS	SMCL - 1,000
Fluoride^	mg/L	1	0	N/A	N/A	4.00	MCL	SMCL 2
Field Dissolved Oxygen*	mg/L	8	8	N/A	N/A	none	--	--
Field ORP*	mV	8	8	N/A	N/A	none	--	--
Field pH	SU	8	8	N/A	N/A	none	--	SMCL <6.5 or >8.5
Field Specific Conductance	µmhos/cm	8	8	N/A	N/A	none	--	--
Field Temperature	deg C	8	8	N/A	N/A	none	--	--
Iron	µg/L	8	8	2,040	PL(P)	none	--	SMCL - 300
Lead	µg/L	8	2	0.270	PL(NP)	15	SWS	--
Lithium^	µg/L	1	1	N/A	N/A	14	SWS	--
Magnesium	µg/L	8	8	47,000	PL(P)	none	--	--
Manganese	µg/L	8	8	303	PL(P)	303	Background	SWS 300, SMCL - 50
Molybdenum^	µg/L	1	1	N/A	N/A	40	SWS	--
Selenium	µg/L	8	0	DQ	DQ	50	MCL	--
Sulfate	mg/L	15	15	123	PL(NP)	none	--	SMCL - 250
Total Dissolved Solids^	mg/L	1	1	N/A	N/A	none	--	SMCL 500
Total Suspended Solids^	mg/L	1	1	N/A	N/A	none	--	--
Zinc	µg/L	8	3	43.0	PL(NP)	2,000	SWS	SMCL - 5,000

PL(NP) - Prediction Limit (Non-Parametric)
PL(P) - Prediction Limit (Parametric)
SMCL - Secondary Maximum Contaminant Level
DQ = Double Quantification
mg/L - miligrams per liter
SWS - Iowa Statewide Standard for a Protected Groundwater Source (Health-Based)
MCL - Maximum Contaminant Level
µg/L - micrograms per liter
UPL = Upper prediction limit for background, based on interwell comparison to MW-21 for shallow unit and MW-12 for deep unit

*: Field DO and ORP, and laboratory analysis of alkalinity are included as part of the Monitored Natural Attenuation evaluation. Field parameters and alkalinity are not included in statistical analysis.

**: For all parameters except chloride and sulfate, these columns reflect the number of samples since 2016, when unfiltered sample collection for metals analysis began. Additional historical data are included for chloride and sulfate, which were reported as totals prior to 2016.

^: Parameters calcium, fluoride, lithium, molybdenum, total dissolved solids, and total suspended solids were added to the sampling program in 2023. Prediction limits will be calculated for these parameters when the minimum of 4 samples have been collected.

Updated by:	RM	Date:	10/23/2023
Checked by:	LH	Date:	10/31/2023

Table 6A
Summary of Well/Detected Constituent Pairs With No Immediately Preceding SSIs
2023 Annual Water Quality Report
Big Bend Landfill
Permit No. 57-SDP-10-90C

	Well	Constituent	Units	Most Recent Result	UPL
Shallow Hydrogeologic Unit Wells	MW-2	Alkalinity*	mg/L	310	N/A
		Barium	µg/L	82	277
		Calcium^	mg/L	110	N/A
		Chloride	mg/L	5.6	123
		Field Dissolved Oxygen*	mg/L	0.21	N/A
		Field ORP*	mV	-17.9	N/A
		Field pH	SU	6.37	N/A
		Field Specific Conductance	µmhos/cm	792	N/A
		Field Temperature	deg C	13.7	N/A
		Lead	µg/L	0.36 J	5.6
		Lithium^	µg/L	11	N/A
		Magnesium	µg/L	24000	53000
		Sulfate	mg/L	61	62.3
		Total Dissolved Solids^	mg/L	440	N/A
		Total Suspended Solids^	mg/L	30	N/A
		Zinc	µg/L	6.6 J	14.2
	MW-5	Alkalinity*	mg/L	400	N/A
		Barium	µg/L	130	277
		Calcium^	mg/L	140	N/A
		Chloride	mg/L	9.9	123
		Field Dissolved Oxygen*	mg/L	6.24	N/A
		Field ORP*	mV	104.5	N/A
		Field pH	SU	6.86	N/A
		Field Specific Conductance	µmhos/cm	989	N/A
		Field Temperature	deg C	12.8	N/A
		Iron	µg/L	140	7470
		Lead	µg/L	0.38 J	5.6
		Lithium^	µg/L	13	N/A
		Magnesium	µg/L	38000	53000
		Manganese	µg/L	29	661
		Total Dissolved Solids^	mg/L	430	N/A
		Total Suspended Solids^	mg/L	13	N/A

Table 6A
Summary of Well/Detected Constituent Pairs With No Immediately Preceding SSIs
2023 Annual Water Quality Report
Big Bend Landfill
Permit No. 57-SDP-10-90C

	Well	Constituent	Units	Most Recent Result	UPL
Shallow Hydrogeologic Unit Wells (continued)	MW-14	Alkalinity*	mg/L	150	N/A
		Arsenic	µg/L	0.79 J	1.2
		Barium	µg/L	52	277
		Calcium^	mg/L	49	N/A
		Chloride	mg/L	8.3	123
		Cobalt	µg/L	0.20 J	0.75
		Field Dissolved Oxygen*	mg/L	0.91	N/A
		Field ORP*	mV	-13.3	N/A
		Field pH	SU	5.90	N/A
		Field Specific Conductance	µmhos/cm	429.5	N/A
		Field Temperature	deg C	11.3	N/A
		Iron	µg/L	54 J	7470
		Lithium^	µg/L	6.7 J	N/A
		Magnesium	µg/L	16000	53000
		Manganese	µg/L	72	661
		Sulfate	mg/L	38	62.3
		Total Dissolved Solids^	mg/L	250	N/A
		Total Suspended Solids^	mg/L	1.9	N/A
	MW-20	Alkalinity*	mg/L	220	N/A
		Arsenic	µg/L	0.92 J	1.2
		Barium	µg/L	82	277
		Calcium^	mg/L	74	N/A
		Chloride	mg/L	12	123
		Field Dissolved Oxygen*	mg/L	2.39	N/A
		Field ORP*	mV	118.9	N/A
		Field pH	SU	6.14	N/A
		Field Specific Conductance	µmhos/cm	611	N/A
		Field Temperature	deg C	15.0	N/A
		Iron	µg/L	60 J	7470
		Lithium^	µg/L	4.6 J	N/A
		Magnesium	µg/L	21,000	53000
		Sulfate	mg/L	48	62.3
		Total Dissolved Solids^	mg/L	300	N/A
		Total Suspended Solids^	mg/L	2.0	N/A

Table 6A
Summary of Well/Detected Constituent Pairs With No Immediately Preceding SSIs
2023 Annual Water Quality Report
Big Bend Landfill
Permit No. 57-SDP-10-90C

	Well	Constituent	Units	Most Recent Result	UPL
Shallow Hydrogeologic Unit Wells (continued)	MW-21**	Alkalinity*	mg/L	280.0	N/A
		Arsenic	µg/L	0.90 J	1.2
		Barium	µg/L	190	277
		Boron	µg/L	94 J	202
		Calcium^	mg/L	140	N/A
		Field Dissolved Oxygen*	mg/L	6.00	N/A
		Field ORP*	mV	106.2	N/A
		Field pH	SU	6.73	N/A
		Field Specific Conductance	µmhos/cm	1149	N/A
		Field Temperature	deg C	13.3	N/A
		Iron	µg/L	100	7470
		Lead	µg/L	0.37 J	5.6
		Lithium^	µg/L	7.3 J	N/A
		Magnesium	µg/L	41000	53000
		Manganese	µg/L	13	661
		Sulfate	mg/L	55.0	62.3
		Total Dissolved Solids^	mg/L	630	N/A
		Total Suspended Solids^	mg/L	13	N/A
	MW-23R	Alkalinity*	mg/L	330	N/A
		Barium	µg/L	120	277
		Calcium^	mg/L	110	N/A
		Chloride	mg/L	12	123
		Field Dissolved Oxygen*	mg/L	6.26	N/A
		Field ORP*	mV	111.1	N/A
		Field pH	SU	6.91	N/A
		Field Specific Conductance	µmhos/cm	819	N/A
		Field Temperature	deg C	13.3	N/A
		Lithium^	µg/L	11	N/A
		Magnesium	µg/L	31000	53000
		Selenium	µg/L	2.5 J	2.76
		Sulfate	mg/L	52	62.3
		Total Dissolved Solids^	mg/L	490	N/A
		Total Suspended Solids^	mg/L	1.6 J	N/A

Table 6A
Summary of Well/Detected Constituent Pairs With No Immediately Preceding SSIs
2023 Annual Water Quality Report
Big Bend Landfill
Permit No. 57-SDP-10-90C

	Well	Constituent	Units	Most Recent Result	UPL
Shallow Hydrogeologic Unit Wells (continued)	MW-25R	Alkalinity*	mg/L	390	N/A
		Barium	µg/L	160	277
		Calcium^	mg/L	120	N/A
		Chloride	mg/L	25	123
		Field Dissolved Oxygen*	mg/L	6.51	N/A
		Field ORP*	mV	110.2	N/A
		Field pH	SU	6.75	N/A
		Field Specific Conductance	µmhos/cm	950	N/A
		Field Temperature	deg C	14.2	N/A
		Lithium^	µg/L	14.0	N/A
		Magnesium	µg/L	40000	53000
		Selenium	µg/L	2.6 J	2.76
		Sulfate	mg/L	53.0	62.3
		Total Dissolved Solids^	mg/L	270.0	N/A
		Total Suspended Solids^	mg/L	3.9	N/A
Deep Hydrogeologic Unit Wells	MW-6	Alkalinity*	mg/L	370	N/A
		Arsenic	µg/L	0.79 J	1.71
		Barium	µg/L	120.00	223
		Calcium^	mg/L	130.00	N/A
		Cobalt	µg/L	0.34 J	0.657
		Field Dissolved Oxygen*	mg/L	0.41	N/A
		Field ORP*	mV	12.7	N/A
		Field pH	SU	6.81	N/A
		Field Specific Conductance	µmhos/cm	992	N/A
		Field Temperature	deg C	16.1	N/A
		Lead	µg/L	0.37 J	0.27
		Lithium^	µg/L	17	N/A
		Magnesium	µg/L	37,000	47000
		Manganese	µg/L	230	303
		Molybdenum^	µg/L	1.9 J	N/A
		Selenium	µg/L	2.1 J	DQ
		Sulfate	mg/L	110.00	123
		Total Dissolved Solids^	mg/L	420	N/A
		Total Suspended Solids^	mg/L	10.0	N/A
		Zinc	µg/L	9.9 J	43

Table 6A
Summary of Well/Detected Constituent Pairs With No Immediately Preceding SSIs
2023 Annual Water Quality Report
Big Bend Landfill
Permit No. 57-SDP-10-90C

	Well	Constituent	Units	Most Recent Result	UPL
Deep Hydrogeologic Unit Wells (continued)	MW-7	Alkalinity*	mg/L	340	N/A
		Arsenic	µg/L	0.55 J	1.71
		Barium	µg/L	120.0	223
		Calcium^	mg/L	96	N/A
		Field Dissolved Oxygen*	mg/L	1.71	N/A
		Field ORP*	mV	85.9	N/A
		Field pH	SU	6.93	N/A
		Field Specific Conductance	µmhos/cm	749	N/A
		Field Temperature	deg C	12.3	N/A
		Lithium^	µg/L	8.9 J	N/A
		Magnesium	µg/L	32000	47000
		Selenium	µg/L	2.3 J	DQ
		Sulfate	mg/L	23	123
		Total Dissolved Solids^	mg/L	400	N/A
		Total Suspended Solids^	mg/L	2.9	N/A
		Zinc	µg/L	9.3 J	43
	MW-10	Alkalinity*	mg/L	360	N/A
		Arsenic	µg/L	1.4 J	1.71
		Barium	µg/L	100	223
		Calcium^	mg/L	130	N/A
		Field Dissolved Oxygen*	mg/L	2.85	N/A
		Field ORP*	mV	-3.3	N/A
		Field pH	SU	6.88	N/A
		Field Specific Conductance	µmhos/cm	974	N/A
		Field Temperature	deg C	13.1	N/A
		Iron	µg/L	510	2040
		Lead	µg/L	0.37 J	0.27
		Lithium^	µg/L	12	N/A
		Magnesium	µg/L	39000	47000
		Manganese	µg/L	56	303
		Molybdenum^	µg/L	2.2	N/A
		Total Dissolved Solids^	mg/L	460	N/A
		Total Suspended Solids^	mg/L	8.1	N/A
		Zinc	µg/L	8.1 J	43

Table 6A
Summary of Well/Detected Constituent Pairs With No Immediately Preceding SSIs
2023 Annual Water Quality Report
Big Bend Landfill
Permit No. 57-SDP-10-90C

	Well	Constituent	Units	Most Recent Result	UPL
Deep Hydrogeologic Unit Wells (continued)	MW-11	Alkalinity*	mg/L	330	N/A
		Arsenic	µg/L	1.0 J	1.71
		Barium	µg/L	90	223
		Calcium^	mg/L	120	N/A
		Cobalt	µg/L	0.40 J	0.657
		Field Dissolved Oxygen*	mg/L	1.67	N/A
		Field ORP*	mV	91.7	N/A
		Field pH	SU	6.73	N/A
		Field Specific Conductance	µmhos/cm	868	N/A
		Field Temperature	deg C	19.5	N/A
		Lithium^	µg/L	13	N/A
		Magnesium	µg/L	36,000	47000
		Manganese	µg/L	19	303
		Molybdenum^	µg/L	13	N/A
		Sulfate	mg/L	84	123
		Total Dissolved Solids^	mg/L	470	N/A
		Total Suspended Solids^	mg/L	1.4 J	N/A
	MW-12**	Alkalinity*	mg/L	390	N/A
		Arsenic	µg/L	1.2 J	1.71
		Barium	µg/L	170	223
		Calcium^	mg/L	110	N/A
		Chloride	mg/L	3.1 J	3.89
		Cobalt	µg/L	0.35 J	0.657
		Field Dissolved Oxygen*	mg/L	0.59	N/A
		Field ORP*	mV	-219.1	N/A
		Field pH	SU	6.88	N/A
		Field Specific Conductance	µmhos/cm	839	N/A
		Field Temperature	deg C	14.6	N/A
		Iron	µg/L	1700	2040
		Lithium^	µg/L	13	N/A
		Magnesium	µg/L	39000	47000
		Manganese	µg/L	250	303
		Molybdenum^	µg/L	1.8 J	N/A
		Sulfate	mg/L	47	123
		Total Dissolved Solids^	mg/L	420	N/A
		Total Suspended Solids^	mg/L	8.1	N/A

Table 6A
Summary of Well/Detected Constituent Pairs With No Immediately Preceding SSIs
2023 Annual Water Quality Report
Big Bend Landfill
Permit No. 57-SDP-10-90C

	Well	Constituent	Units	Most Recent Result	UPL
Deep Hydrogeologic Unit Wells (continued)	MW-16	Alkalinity*	mg/L	330.0	N/A
		Arsenic	µg/L	0.55 J	1.71
		Barium	µg/L	110	223
		Calcium^	mg/L	93	N/A
		Cobalt	µg/L	0.29 J	0.657
		Field Dissolved Oxygen*	mg/L	0.70	N/A
		Field ORP*	mV	-191.5	N/A
		Field pH	SU	7.06	N/A
		Field Specific Conductance	µmhos/cm	744	N/A
		Field Temperature	deg C	15.4	N/A
		Iron	µg/L	190	2040
		Lithium^	µg/L	10	N/A
		Magnesium	µg/L	31000	47000
		Manganese	µg/L	45	303
		Sulfate	mg/L	41	123
		Total Dissolved Solids^	mg/L	370	N/A
		Total Suspended Solids^	mg/L	6.8	N/A

Comments:
1. This table includes results for wells/constituents that were below UPLs in 2023.
2. Results below the limit of quantitation (J flags) are estimated values and are not compared to the UPL or GWPS. They are included in this table regardless of whether the estimated value is higher or lower than the UPL.

*: Field DO and ORP, and laboratory analysis of alkalinity are included as part of the Monitored Natural Attenuation evaluation and do not have calcualted UPLs. Field parameters and alkalinity are not included in statistical analysis.
**: MW-12 and MW-21 are the background wells, so UPLs do not apply.
^: Calcium, fluoride, lithium, molybenum, TDS, and TSS were added in 2023, so UPLs have not been calculated.

µg/L - micrograms per liter
mg/L - miligrams per liter

Updated by: RM Date: 10/24/2023
Checked by: LH Date: 10/31/2023

Table 6B
Summary of Supply Well Monitoring/Detected Constituent Pairs
2023 Annual Water Quality Report
Big Bend Landfill
Permit No. 57-SDP-10-90C

Supply Well Monitoring	Constituent	Units	Most Recent Result	MCL / SMCL
PW-2606R (2602 Big Bend Road)	Alkalinity	mg/L	330	--
	Arsenic	µg/L	<0.53	10 - MCL
	Barium	µg/L	86	2000 - MCL
	Beryllium	µg/L	<0.33	4 - MCL
	Boron	µg/L	780	--
	Calcium	mg/L	100	--
	Chloride	mg/L	11	250 - SMCL
	Cobalt	µg/L	<0.17	--
	Copper	µg/L	2.2 J	1000 - SMCL
	Fluoride	mg/L	<0.38	4 - MCL
	Field Dissolved Oxygen	mg/L	6.46	--
	Field ORP	mV	203.6	--
	Field pH	SU	6.96	SMCL <6.5 or >8.5
	Field Specific Conductance	µmhos/cm	881	--
	Field Temperature	deg C	15.8	--
	Iron	µg/L	<36	--
	Lead	µg/L	0.27 J	15 - Action Level
	Lithium	µg/L	12	--
	Magnesium	µg/L	37,000	--
	Manganese	µg/L	6.4 J	50 - SMCL
	Molybdenum	µg/L	<0.91	--
	Selenium	µg/L	6.1	50 - MCL
	Sulfate	mg/L	75	250 - SMCL
	Total Dissolved Solids	mg/L	450	500 - SMCL
	Total Suspended Solids	mg/L	<1.7	--
	Zinc	µg/L	24	5000 - SMCL

µg/L - micrograms per liter
mg/L - milligrams per liter

Updated by:	RM	Date:	10/23/2023
Checked by:	LH	Date:	10/31/2023

Table 7
Summary of Ongoing and Newly Identified SSIs
2023 Annual Water Quality Report
Big Bend Landfill
Permit No. 57-SDP-10-90C

	Well	Constituent	Units	Most Recent Result	UPL	GWPS
Shallow Hydrogeologic Unit	MW-2	Arsenic	µg/L	2.3	1.2	10
		Boron	µg/L	1100	202	6,000
		Cobalt	µg/L	2.3	0.75	2.1
		Iron	µg/L	12000	7470	none
		Manganese	µg/L	1400	661	300
	MW-5	Boron	µg/L	880	202	6,000
		Selenium	µg/L	5.9	2.76	50
		Sulfate	mg/L	97	62.3	none
	MW-14	Boron	µg/L	1700	202	6,000
		Selenium	µg/L	11	2.76	50
	MW-15AR*	Boron	µg/L	3,300*	202	6,000
		Selenium	µg/L	19*	2.76	50
		Sulfate	mg/L	270*	62.3	none
	MW-20	Boron	µg/L	1800	202	6,000
		Selenium	µg/L	21	2.76	50
	MW-23R	Boron	µg/L	400	202	6,000
	MW-25R	Boron	µg/L	310	202	6,000
Deep Hydrogeologic Unit	MW-6	Boron	µg/L	940	110	6,000
		Chloride	mg/L	11	3.89	none
		Iron	µg/L	2100	2040	none
		Lithium	µg/L	19	NA	14
	MW-7	Boron	µg/L	210	110	6,000
		Chloride	mg/L	6.8	3.89	none
	MW-10	Boron	µg/L	1400	110	6,000
		Chloride	mg/L	11	3.89	none
		Sulfate	mg/L	130	123	none
	MW-11	Boron	µg/l	420	110	6,000
		Chloride	mg/L	19	3.89	none
	MW-16	Boron	µg/l	520	110	6,000
		Chloride	mg/L	8.8	3.89	none
	MW-24R*	Arsenic	µg/L	2.6*	1.71	10
		Cobalt	µg/L	91*	0.657	2.1
		Zinc	mg/L	71*	43	2,000

Notes:

* MW-15AR and MW-24R were unable to be sampled during the 2023 monitoring event. Most recent results for these wells are from September 2022.

µg/L - micrograms per liter
mg/L - milligrams per liter

UPL - Upper Prediction Limit
GWPS - Groundwater Protection Standard

Updated by: RM Date: 10/26/2023
Checked by: LH Date: 11/1/2023

Table 8
Historic UPL & Action Level Exceedances
2023 Annual Water Quality Report
Big Bend Landfill
Permit No. 57-SDP-10-90C

Key: gray =UPL exceedance; black =action level (GWPS) exceedance

Well	Constituent	2016	2017	2018	2019	2020	2021	2022	2023
MW-2	Arsenic								
	Barium								
	Boron								
	Cobalt								
	Copper								
	Iron								
	Manganese								
	Sulfate								
	Zinc								
MW-5	Boron								
	Magnesium								
	Selenium								
	Sulfate								
	Zinc								
MW-6	Chloride								
	Sulfate								
	Arsenic								
	Boron								
	Iron								
	Lithium								
	Manganese								
	Selenium								
MW-7	Chloride								
	Boron								
	Lead								
	Zinc								
MW-10	Chloride								
	Sulfate								
	Arsenic								
	Boron								
	Lead								
	Selenium								
	Zinc								
MW-11	Chloride								
	Arsenic								
	Boron								
	Cobalt								
	Zinc								
MW-14	Boron								
	Copper								
	Cobalt								
	Manganese								
	Selenium								
	Zinc								

Table 8
Historic UPL & Action Level Exceedances
2023 Annual Water Quality Report
Big Bend Landfill
Permit No. 57-SDP-10-90C

Key: gray =UPL exceedance; black =action level (GWPS) exceedance

Well	Constituent	2016	2017	2018	2019	2020	2021	2022	2023
MW-15AR	Sulfate						(3)		(3)
	Boron								
	Magnesium								
	Selenium								
MW-16	Chloride								
	Boron								
	Zinc								
MW-20	Sulfate								
	Boron								
	Selenium								
	Zinc								
MW-23/ MW-23R[2]	Sulfate								
	Boron								
	Cobalt								
	Copper								
	Lead								
	Magnesium								
	Manganese								
	Selenium								
MW-24/ MW-24R[2]	Arsenic								(4)
	Cobalt								
	Manganese								
	Zinc								
MW-25R	Sulfate								
	Boron								
	Zinc								

UPL - Upper Prediction Limit   GWPS - Groundwater Protection Standard

Comments:
1. UPLs were calculated annually beginning in 2019 when at least four sampling events with unfiltered (total) data. UPLs are only applied to 2019 and later results in this table.

2. MW-23R and MW-24R replaced MW-23 and MW-24 between the September 2017 and April 2018 monitoring events.

3. A sample could not be collected from MW-15AR during the September 2021 and September 2023 events.
4. A sample could not be collected from MW-24R during the September 2023 event.

Updated by: RM, 10/26/2023
Checked by: LH, 11/01/2023

Table 9
Historic Prediction Limits and Groundwater Protection Standards
2022 Annual Water Quality Report
Big Bend Landfill
Permit No. 03-SDP-05-01P

			UPL					GWPS				
	Constituent	**Units**	**2019**	**2020**	**2021**	**2022**	**2023**	**2019**	**2020**	**2021**	**2022**	**2023**
Shallow Hydrogeologic Unit	Arsenic	µg/L	2.48	2.01	1.2	1.2	1.2	10	10	10	10	10
	Barium	µg/L	289	274	289.5	294	277	2,000	2,000	2,000	2,000	2,000
	Beryllium	µg/L	0.27	0.27	0.27	0.27	0.33	4	4	4	4	4
	Boron	µg/L	322	262	236.9	222.5	202	6,000	6,000	6,000	6,000	6,000
	Chloride	mg/L	98	45.9	412.3	123	123	none	none	none	none	none
	Cobalt	µg/L	1.81	1.6	1.285	0.75	0.75	2.1	2.1	2.1	2.1	2.1
	Copper	µg/L	5.07	4.46	2.8	2.8	2.8	1,300	1,300	1,300	1,300	1,300
	Iron	µg/L	3,630	2,820	2,153	16,900	7,470	none	none	none	none	none
	Lead	µg/L	5.15	3.82	3.009	9.34	5.6	15	15	15	15	15
	Magnesium	µg/L	43,100	44,100	46,216	50,800	53,000	none	none	none	none	none
	Manganese	µg/L	198	155	129.1	114	661	300	300	300	300	300
	Selenium	µg/L	4.67	3.81	3.154	2.88	2.76	50	50	50	50	50
	Sulfate	mg/L	62.7	62.8	62.64	62.3	62.3	none	none	none	none	none
	Zinc	µg/L	33.7	26.7	14.2	14.2	14.2	2,000	2,000	2,000	2,000	2,000
Deep Hydrogeologic Unit	Arsenic	µg/L	2.32	1.96	1.687	1.81	1.71	10	10	10	10	10
	Barium	µg/L	224	217	217.9	218	223	2,000	2,000	2,000	2,000	2,000
	Beryllium	µg/L	DQ	DQ	0.33	DQ	DQ	4	4	4	4	4
	Boron	µg/L	83.4	110	110	110	110	6,000	6,000	6,000	6,000	6,000
	Chloride	mg/L	5.6	5.6	3.95	3.92	3.89	none	none	none	none	none
	Cobalt	µg/L	0.915	0.80	0.7067	0.668	0.657	2.1	2.1	2.1	2.1	2.1
	Copper	µg/L	2.00	2.00	2.00	2	2	1,300	1,300	1,300	1,300	1,300
	Iron	µg/L	2,060	2,120	1987	2,100	2,040	none	none	none	none	none
	Lead	µg/L	0.27	0.27	0.27	0.27	0.27	15	15	15	15	15
	Magnesium	µg/L	57,300	53,400	49,488	48,100	47,000	none	none	none	none	none
	Manganese	µg/L	333	322	309.1	304	303	333	322	322	303	303
	Selenium	µg/L	DQ	DQ	DQ	DQ	DQ	50	50	50	50	50
	Sulfate	mg/L	123	123	123	123	123	none	none	none	none	none
	Zinc	µg/L	10.0	10.00	10	43.0	43	2,000	2,000	2,000	2,000	2,000

UPL - Upper Prediction Limit GWPS - Groundwater Protection Limit µg/L - micrograms per liter mg/L - milligrams per liter

Updated by: RM, 10/26/2023 Checked by: LH, 11/01/2023

Table 10
Groundwater Quality Assessment Plan Trend Analysis
2023 Annual Water Quality Report
Big Bend Landfill
Permit No. 57-SDP-10-90C

Well	SSI in 2021 through 2023	Trend
MW-2	Arsenic	no significant trend
	Barium	no significant trend
	Boron	no significant trend
	Cobalt	no significant trend
	Copper	no significant trend
	Manganese	no significant trend
MW-5	Boron	no significant trend
	Manganese	no significant trend
	Selenium	no significant trend
MW-6	Boron	no significant trend
	Selenium	no significant trend
MW-7	Boron	no significant trend
	Zinc	no significant trend
MW-10	Arsenic	decreasing
	Boron	no significant trend
	Lead	decreasing
	Selenium	no significant trend
	Zinc	no significant trend
MW-11	Arsenic	no significant trend
	Boron	decreasing
	Cobalt	no significant trend
	Zinc	no significant trend
MW-14	Boron	decreasing
	Cobalt	no significant trend
	Manganese	no significant trend
	Selenium	decreasing
MW-15AR	Boron	no significant trend
	Selenium	no significant trend
MW-16	Boron	no significant trend
	Zinc	no significant trend
MW-20	Boron	no significant trend
	Selenium	no significant trend
MW-23/23R	Boron	no significant trend
	Selenium	decreasing trend
MW24/24R*	Arsenic	decreasing trend
	Cobalt	increasing trend
	Zinc	no significant trend
MW-25R	Boron	no significant trend
	Zinc	no significant trend

Notes:
^ - Trend analysis was performed for parameters that have exceeded a UPL since 2016 and have an established GWPS.

(1) MW-15AR and MW-24R were unable to be sampled during the September 2023 event.

Updated by: RM, 10/27/2023
Checked by: LH, 11/01/2023

Table 11
Summary of Leachate Well/Detected Constituent Pairs
2023 Annual Water Quality Report
Big Bend Landfill
Permit No. 57-SDP-10-90C

Monitoring Point	Constituent	Units	Most Recent Result
LW-1	Arsenic	µg/l	4.9
	Boron	µg/l	25,000
	Calcium	mg/L	230
	Field Dissolved Oxygen	mg/L	7.48
	Field pH	SU	7.73
	Field Specific Conductivity	umhos/cm	1,431
	Field Temperature	deg C	20.1
	Field Oxidation Reduction Potential	mV	64.6
	Lithium	µg/l	33
	Molybdenum	µg/l	480
	Sulfate	mg/L	730
	Total Dissolved Solids	mg/L	1,000
	Total Suspended Solids	mg/l	3200
LW-2	Not sampled in 2023, well was dry		
LW-3	Insufficient amount of water for sample in 2023		

µg/L - micrograms per liter
µmhos/cm - micromhos per centimeter

mg/L - milligrams per liter
mV - millivolts

Updated by: RM Date: 10/16/2023
Checked by: LH Date: 11/01/2023

Table 12
Leachate Management Summary
2023 Annual Water Quality Report
Big Bend Landfill
Permit No. 57-SDP-10-90C

Month	Measured Leachate Depth (ft)			Leachate Elevation (ft amsl)		
	LW-1	LW-2	LW-3	LW-1	LW-2	LW-3
April 2023	1.67	0.17	0.60	751.05	778.90	760.46
September 2023	2.00	DRY	0.80	751.38	DRY	760.66

Updated by: RM, 10/26/2023
Checked by: LH, 11/01/2023

Table 13
Additional Parameters for MNA Analysis
2023 Annual Water Quality Report
Big Bend Landfill
Permit No. 57-SDP-10-90C

Well	Alkalinity (mg/L)	Field Dissolved Oxygen (mg/L)	Field Oxidation-Reduction Potential (mV)	Field Specific Conductance (µmhos/cm)	Field Temperature (deg C)
Shallow Hydrogeologic Unit					
MW-2	310	0.21	-17.9	792	13.7
MW-5	400	6.24	104.5	989	12.8
MW-14	150	0.91	-13.3	429.5	11.3
MW-15AR	Unable to sample in 2023				
MW-20	220	2.39	118.9	611	15.0
MW-21	280	6.00	106.2	1,149	13.3
MW-23R	330	6.26	111.1	819	13.3
MW-25R	390	6.51	110.2	950	14.2
Deep Hydrogeologic Unit					
MW-6	370	0.41	12.7	992	16.1
MW-7	340	1.71	85.9	749	12.3
MW-10	360	2.85	-3.3	974	13.1
MW-11	330	1.67	91.7	868	19.5
MW-12	390	0.59	-219.1	839	14.6
MW-16	330	0.70	-191.5	744	15.4
MW-24R	Unable to sample in 2023				

Notes:
(1) Samples collected September 2023.

µg/L - micrograms per liter mV - millivolts
mg/L - milligrams per liter µmhos/cm - micromhos per centimeter

Updated by: RM, 10/26/2023
Checked by: LH, 11/01/2023

Figures

1 Site Location Map
2 Monitoring Well Location and Private Well Locations
3 Water Table Surface – April 2023
4 Water Table Surface – September 2023
5 Potentiometric Surface Map – April 2023
6 Potentiometric Surface Map – September 2023
7 September 2023 Boron Concentrations – Shallow Hydrogeologic Unit
8 September 2023 Boron Concentrations – Deep Hydrogeologic Unit
9 September 2023 Manganese Concentrations – Shallow Hydrogeologic Unit
10 September 2023 Manganese Concentrations – Deep Hydrogeologic Unit
11 September 2023 Cobalt Concentrations – Shallow Hydrogeologic Unit
12 September 2023 Cobalt Concentrations – Deep Hydrogeologic Unit

N

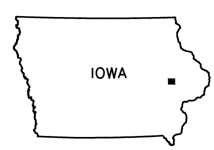
BERTRAM QUADRANGLE

IOWA–LINN CO.

7.5 MINUTE SERIES (TOPOGRAPHIC)

2015

SCALE: 1" = 2,000'



CLIENT	ALLIANT ENERGY	SITE	INTERSTATE POWER AND LIGHT BIG BEND LANDFILL CEDAR RAPIDS, IOWA	SITE LOCATION MAP

PROJECT NO.	25216063.00	DRAWN BY:	AHB	ENGINEER	SCS ENGINEERS 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830	FIGURE
DRAWN:	10/26/16	CHECKED BY:	MDB			1
REVISED:	10/26/16	APPROVED BY:	KK 09/29/17			

I:\25216063.00\Drawings\Site Loc.dwg, 9/29/2017 11:56:20 AM

LEGEND

— — — —	APPROXIMATE LIMITS OF ASH DISPOSAL
MW-5	MONITORING WELL
MW-10	DEEP MONITORING WELL
LW-2	LEACHATE HEAD WELL
PW-2314	PRIVATE WELL
MW-25	ABANDONED MONITORING WELL
MW-15A	ABANDONED DEEP MONITORING WELL
AWS	ABANDONED PRIVATE WELL
— - - —	APPROXIMATE PROPERTY LINE

NOTES:

1. MONITORING WELL LOCATIONS ARE APPROXIMATE.
2. AERIAL IMAGE IMPORTED FROM ARCMAP'S BING MAPS BASEMAP.
3. APPROXIMATE NORTH, EAST, AND SOUTH PROPERTY LINES FROM FIGURES IN OCTOBER 1992 HYDROGEOLOGICAL INVESTIGATION REPORT. WESTERN PROPERTY LINE WAS NOT SHOWN ON THESE FIGURES. APPROXIMATE WESTERN PROPERTY LINE FROM HTTPS://GIS.LINNCOUNTYIOWA.GOV/APPS/REAL-ESTATE/LAND-RECORDS/, ACCESSED ON 11/29/2023.

300 0 300

SCALE: 1" = 300'

N

PROJECT NO.	25216063.00	DRAWN BY:	KG
DRAWN:	10/28/16	CHECKED BY:	MB
REVISED:	11/29/2023	APPROVED BY:	MDB 11/29/2023

ENGINEER: SCS ENGINEERS, 2830 DAIRY DRIVE MADISON, WI 53718-6751, PHONE: (608) 224-2830

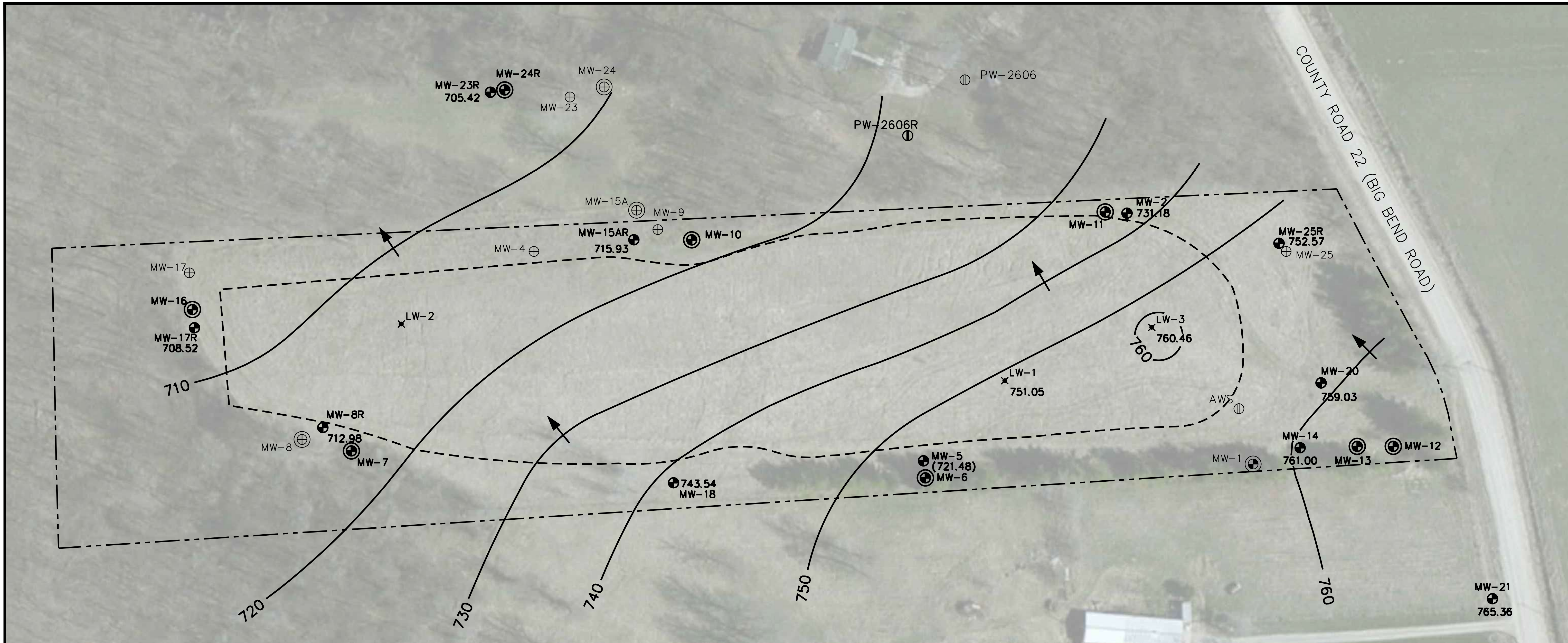
CLIENT: ALLIANT ENERGY. INTERSTATE POWER AND LIGHT

SITE: BIG BEND LANDFILL, CEDAR RAPIDS, IOWA

MONITORING WELL AND PRIVATE WELL LOCATIONS

FIGURE 2

I:\25216063.00\Drawings\Monitoring Wells_zoomed.dwg, 11/29/2023 12:37:34 PM



LEGEND

- - - - - -	APPROXIMATE LIMITS OF ASH DISPOSAL
MW-5	MONITORING WELL
MW-10	DEEP MONITORING WELL
LW-2	LEACHATE HEAD WELL
PW-2314	PRIVATE WELL
MW-25	ABANDONED MONITORING WELL
MW-15A	ABANDONED DEEP MONITORING WELL
AWS	ABANDONED PRIVATE WELL
731.18	WATER TABLE ELEVATION
(760.59)	WATER LEVEL ELEVATION (NOT USED IN CONTOURING
———	WATER TABLE CONTOUR
→	APPROXIMATE GROUNDWATER FLOW DIRECTION
— - - —	APPROXIMATE PROPERTY LINE

NOTES:

1. MONITORING WELL LOCATIONS ARE APPROXIMATE.
2. WATER LEVELS WERE MEASURED ON APRIL 18, 2023.
3. AERIAL IMAGE IMPORTED FROM ARCMAP'S BING MAPS BASEMAP.
4. LEACHATE WELL LW-2 HAD LESS THAN 0.5 FEET OF WATER. THIS WATER IS LIKELY TRAPPED IN THE CAP AT THE BOTTOM OF THE WELL, AND THE WELL IS ESSENTIALLY DRY.
5. WELL MW-5 IS NOT USED IN THE INTERPRETATION OF THE WATER TABLE SURFACE DUE TO THE HYDRAULIC CONDITIONS AT THIS WELL.
6. APPROXIMATE NORTH, EAST, AND SOUTH PROPERTY LINES FROM FIGURES IN OCTOBER 1992 HYDROGEOLOGICAL INVESTIGATION REPORT. WESTERN PROPERTY LINE WAS NOT SHOWN ON THESE FIGURES. APPROXIMATE WESTERN PROPERTY LINE FROM HTTPS://GIS.LINNCOUNTYIOWA.GOV/APPS/REAL-ESTATE/LAND-RECORDS/, ACCESSED ON 11/29/2023.

N

100 0 100

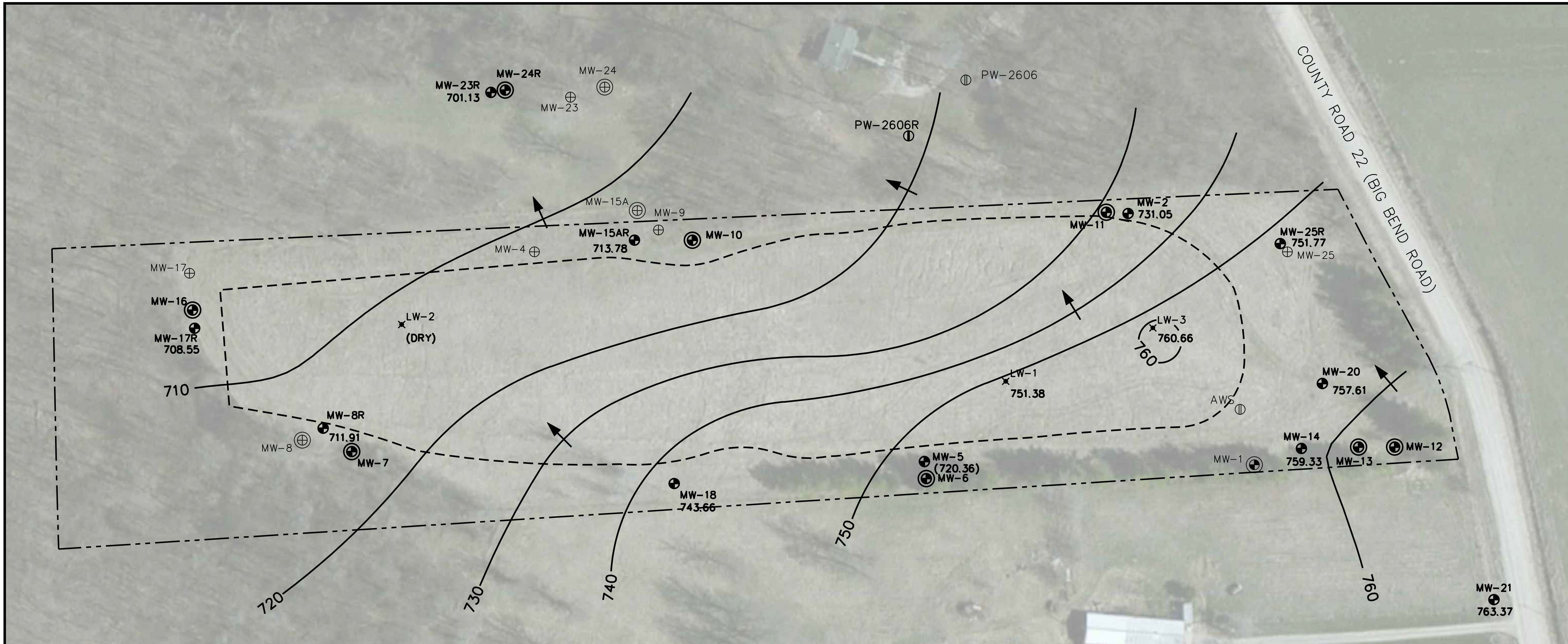
SCALE: 1" = 100'

PROJECT NO. 25223063.00	DRAWN BY: KP	ENGINEER	SCS ENGINEERS 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830	CLIENT	ALLIANT ENERGY. INTERSTATE POWER AND LIGHT	SITE	BIG BEND LANDFILL CEDAR RAPIDS, IOWA
DRAWN: 10/30/2023	CHECKED BY: MDB						
REVISED: 11/29/2023	APPROVED BY: MDB 11/29/2023						

WATER TABLE SURFACE
APRIL 2023

FIGURE 3

I:\25223063.00\Drawings\WTBL 2023.dwg, 11/29/2023 12:32:02 PM



LEGEND

- - - - - -	APPROXIMATE LIMITS OF ASH DISPOSAL
MW-5	MONITORING WELL
MW-10	DEEP MONITORING WELL
LW-2	LEACHATE HEAD WELL
PW-2314	PRIVATE WELL
MW-25	ABANDONED MONITORING WELL
MW-15A	ABANDONED DEEP MONITORING WELL
AWS	ABANDONED PRIVATE WELL
731.05	WATER TABLE ELEVATION
(751.38)	WATER LEVEL ELEVATION (NOT USED IN CONTOURING
———	WATER TABLE CONTOUR
→	APPROXIMATE GROUNDWATER FLOW DIRECTION
— - - —	APPROXIMATE PROPERTY LINE

NOTES:

1. MONITORING WELL LOCATIONS ARE APPROXIMATE.
2. WATER LEVELS WERE MEASURED SEPTEMBER 11-14, 2023.
3. AERIAL IMAGE IMPORTED FROM ARCMAP'S BING MAPS BASEMAP.
4. WELL MW-5 IS NOT USED IN THE INTERPRETATION OF THE WATER TABLE SURFACE DUE TO THE HYDRAULIC CONDITIONS AT THIS WELL.
5. APPROXIMATE NORTH, EAST, AND SOUTH PROPERTY LINES FROM FIGURES IN OCTOBER 1992 HYDROGEOLOGICAL INVESTIGATION REPORT. WESTERN PROPERTY LINE WAS NOT SHOWN ON THESE FIGURES. APPROXIMATE WESTERN PROPERTY LINE FROM HTTPS: //GIS.LINNCOUNTYIOWA.GOV/APPS/REAL-ESTATE/LAND-RECORDS/, ACCESSED ON 11/29/2023.

N

100 0 100

SCALE: 1" = 100'

PROJECT NO.	25223063.00	DRAWN BY:	KP
DRAWN:	10/30/2023	CHECKED BY:	MDB
REVISED:	11/29/2023	APPROVED BY:	MDB 11/29/2023

ENGINEER
SCS ENGINEERS
2830 DAIRY DRIVE MADISON, WI 53718-6751
PHONE: (608) 224-2830

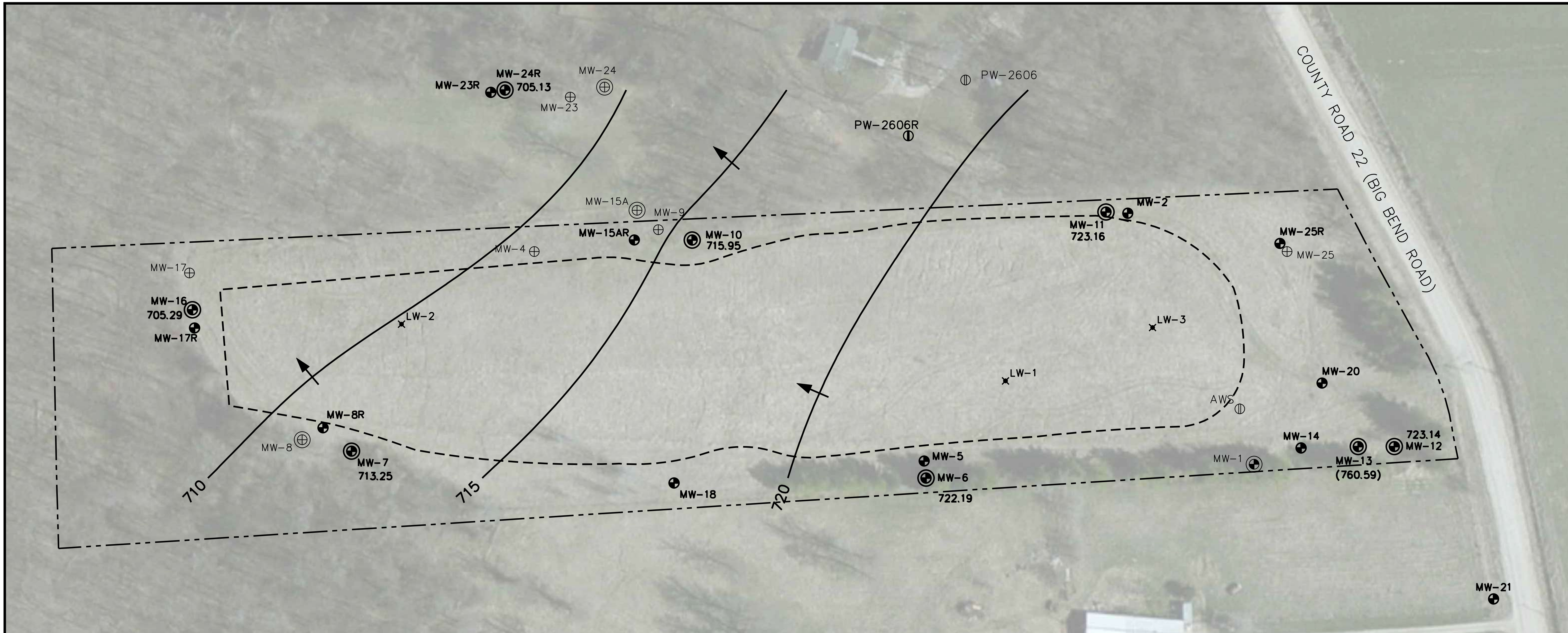
CLIENT
ALLIANT ENERGY.
INTERSTATE POWER AND LIGHT

SITE
BIG BEND LANDFILL
CEDAR RAPIDS, IOWA

WATER TABLE SURFACE
SEPTEMBER 2023

FIGURE
4

I:\25223063.00\Drawings\WTBL 2023.dwg, 11/29/2023 12:33:09 PM



LEGEND

- - - - -	APPROXIMATE LIMITS OF ASH DISPOSAL
MW-5	MONITORING WELL
MW-10	DEEP MONITORING WELL
LW-2	LEACHATE HEAD WELL
PW-2314	PRIVATE WELL
MW-25	ABANDONED MONITORING WELL
MW-15A	ABANDONED DEEP MONITORING WELL
AWS	ABANDONED PRIVATE WELL
723.14	PIEZOMETRIC SURFACE ELEVATION
———	PIEZOMETRIC SURFACE CONTOUR
→	APPROXIMATE GROUNDWATER FLOW DIRECTION
— - - —	APPROXIMATE PROPERTY LINE

NOTES:

1. MONITORING WELL LOCATIONS ARE APPROXIMATE.
2. WATER LEVELS WERE MEASURED ON APRIL 18, 2023.
3. AERIAL IMAGE IMPORTED FROM ARCMAP'S BING MAPS.
4. WELL MW-13 IS NOT USED IN THE INTERPRETATION OF THE POTENTIOMETRIC SURFACE DUE TO THE HYDRAULIC CONDITIONS AT THIS WELL.
5. APPROXIMATE NORTH, EAST, AND SOUTH PROPERTY LINES FROM FIGURES IN OCTOBER 1992 HYDROGEOLOGICAL INVESTIGATION REPORT. WESTERN PROPERTY LINE WAS NOT SHOWN ON THESE FIGURES. APPROXIMATE WESTERN PROPERTY LINE FROM HTTPS://GIS.LINNCOUNTYIOWA.GOV/APPS/REAL-ESTATE/LAND-RECORDS/, ACCESSED ON 11/29/2023.

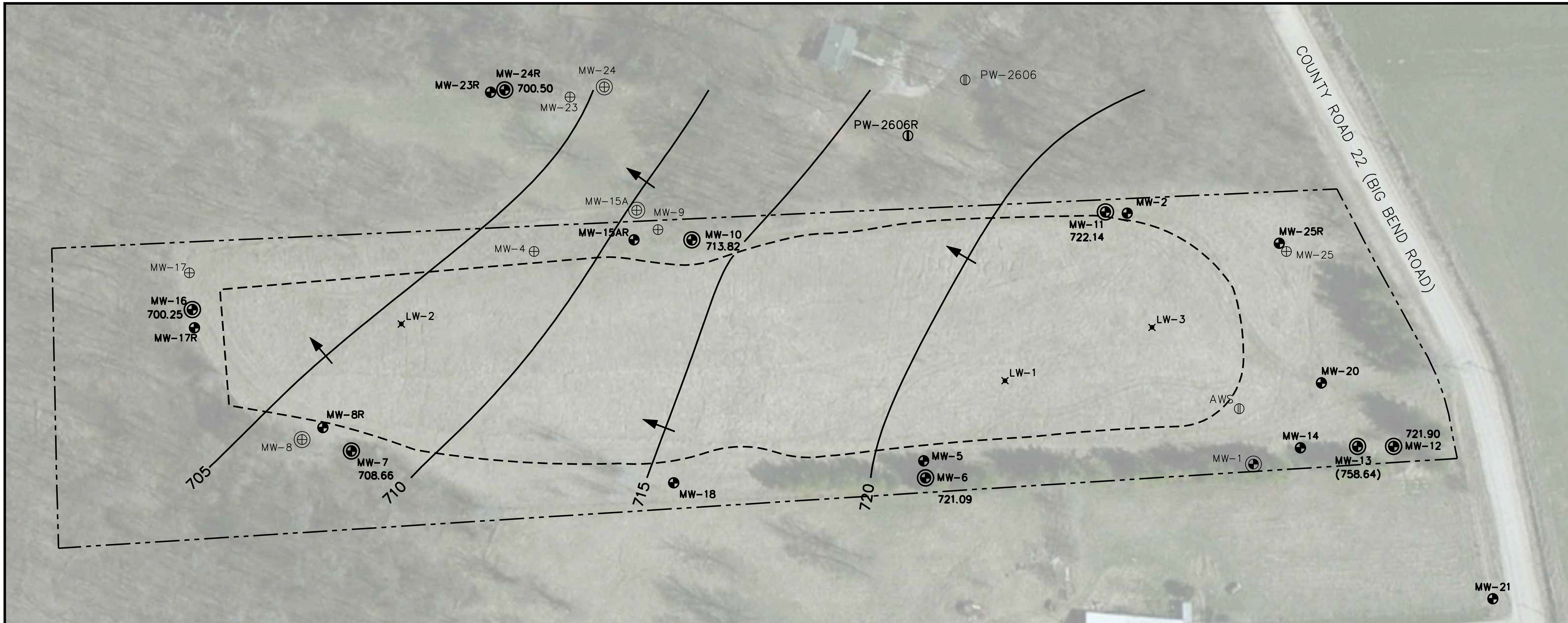
N

100 0 100

SCALE: 1" = 100'

PROJECT NO. 25223063.00	DRAWN BY: KP	ENGINEER: SCS ENGINEERS 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830	CLIENT: ALLIANT ENERGY INTERSTATE POWER AND LIGHT	SITE: BIG BEND LANDFILL CEDAR RAPIDS, IOWA	POTENTIOMETRIC SURFACE MAP APRIL 2023
DRAWN: 10/30/2023	CHECKED BY: MDB				FIGURE
REVISED: 11/29/2023	APPROVED B'MDB 11/29/2023				5

I:\25223063.00\Drawings\WTBL 2023.dwg, 11/29/2023 12:32:41 PM



LEGEND

- - - - - APPROXIMATE LIMITS OF ASH DISPOSAL

MW-5 MONITORING WELL

MW-10 DEEP MONITORING WELL

LW-2 LEACHATE HEAD WELL

PW-2314 PRIVATE WELL

MW-25 ABANDONED MONITORING WELL

MW-15A ABANDONED DEEP MONITORING WELL

AWS ABANDONED PRIVATE WELL

724.49 PIEZOMETRIC SURFACE ELEVATION

PIEZOMETRIC SURFACE CONTOUR

APPROXIMATE GROUNDWATER FLOW DIRECTION

APPROXIMATE PROPERTY LINE

NOTES:

1. MONITORING WELL LOCATIONS ARE APPROXIMATE.
2. WATER LEVELS WERE MEASURED SEPTEMBER 11–14, 2023.
3. AERIAL IMAGE IMPORTED FROM ARCMAP'S BING MAPS.
4. WELL MW-13 IS NOT USED IN THE INTERPRETATION OF THE POTENTIOMETRIC SURFACE DUE TO THE HYDRAULIC CONDITIONS AT THIS WELL.
5. APPROXIMATE NORTH, EAST, AND SOUTH PROPERTY LINES FROM FIGURES IN OCTOBER 1992 HYDROGEOLOGICAL INVESTIGATION REPORT. WESTERN PROPERTY LINE WAS NOT SHOWN ON THESE FIGURES. APPROXIMATE WESTERN PROPERTY LINE FROM HTTPS://GIS.LINNCOUNTYIOWA.GOV/APPS/REAL-ESTATE/LAND-RECORDS/, ACCESSED ON 11/29/2023.

N

100 0 100

SCALE: 1" = 100'

PROJECT NO.	25223063.00	DRAWN BY:	KP
DRAWN:	10/30/2023	CHECKED BY:	MDB
REVISED:	11/29/2023	APPROVED B'MDB 11/29/2023	

ENGINEER: SCS ENGINEERS, 2830 DAIRY DRIVE MADISON, WI 53718-6751, PHONE: (608) 224-2830

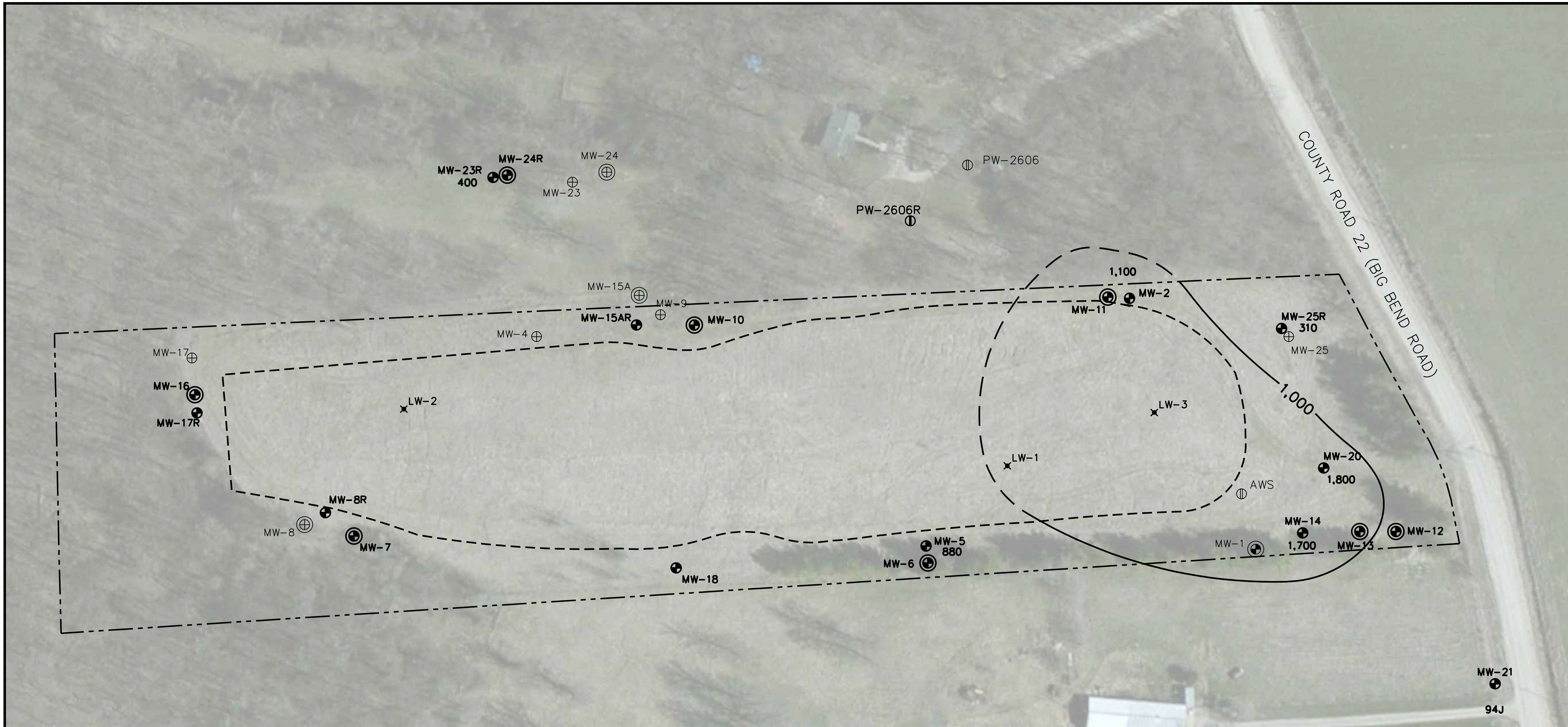
CLIENT: ALLIANT ENERGY. INTERSTATE POWER AND LIGHT

SITE: BIG BEND LANDFILL, CEDAR RAPIDS, IOWA

POTENTIOMETRIC SURFACE MAP
SEPTEMBER 2023

FIGURE 6

I:\25223063.00\Drawings\WTBL 2023.dwg, 11/29/2023 12:33:39 PM



LEGEND

— — — —	APPROXIMATE LIMITS OF ASH DISPOSAL
MW-5	MONITORING WELL
MW-10	DEEP MONITORING WELL
LW-2	LEACHATE HEAD WELL
PW-2314	PRIVATE WELL
MW-25	ABANDONED MONITORING WELL
MW-15A	ABANDONED DEEP MONITORING WELL
AWS	ABANDONED PRIVATE WELL
1,100	TOTAL BORON CONCENTRATION (ug/L) DETECTED IN SEPTEMBER 2023 (J = CONCENTRATION IS ESTIMATED)
———	BORON ISOCONCENTRATION CONTOUR (1,000 ug/L CONTOUR SHOWN) DASHED WHERE INFERRED
— · — · —	APPROXIMATE PROPERTY LINE

NOTES:

1. MONITORING WELL LOCATIONS ARE APPROXIMATE.
2. AERIAL IMAGE IMPORTED FROM ARCMAP'S BING MAPS
3. MW-15AR COULD NOT BE SAMPLED IN SEPTEMBER 2023. THE CONTOUR AROUND MW-15AR IS INFERRED BASED ON THE RESULT FROM SEPTEMBER 2020.
4. APPROXIMATE NORTH, EAST, AND SOUTH PROPERTY LINES FROM FIGURES IN OCTOBER 1992 HYDROGEOLOGICAL INVESTIGATION REPORT. WESTERN PROPERTY LINE WAS NOT SHOWN ON THESE FIGURES. APPROXIMATE WESTERN PROPERTY LINE FROM HTTPS://GIS.LINNCOUNTYIOWA.GOV/APPS/REAL-ESTATE/LAND-RECORDS/, ACCESSED ON 11/29/2023.

N

100 0 100

SCALE: 1" = 100'

PROJECT NO.	25223063.00	DRAWN BY:	KP
DRAWN:	10/30/2023	CHECKED BY:	MDB
REVISED:	11/29/2023	APPROVED BY:	MDB 11/29/2023

ENGINEER: SCS ENGINEERS
2830 DAIRY DRIVE MADISON, WI 53718-6751
PHONE: (608) 224-2830

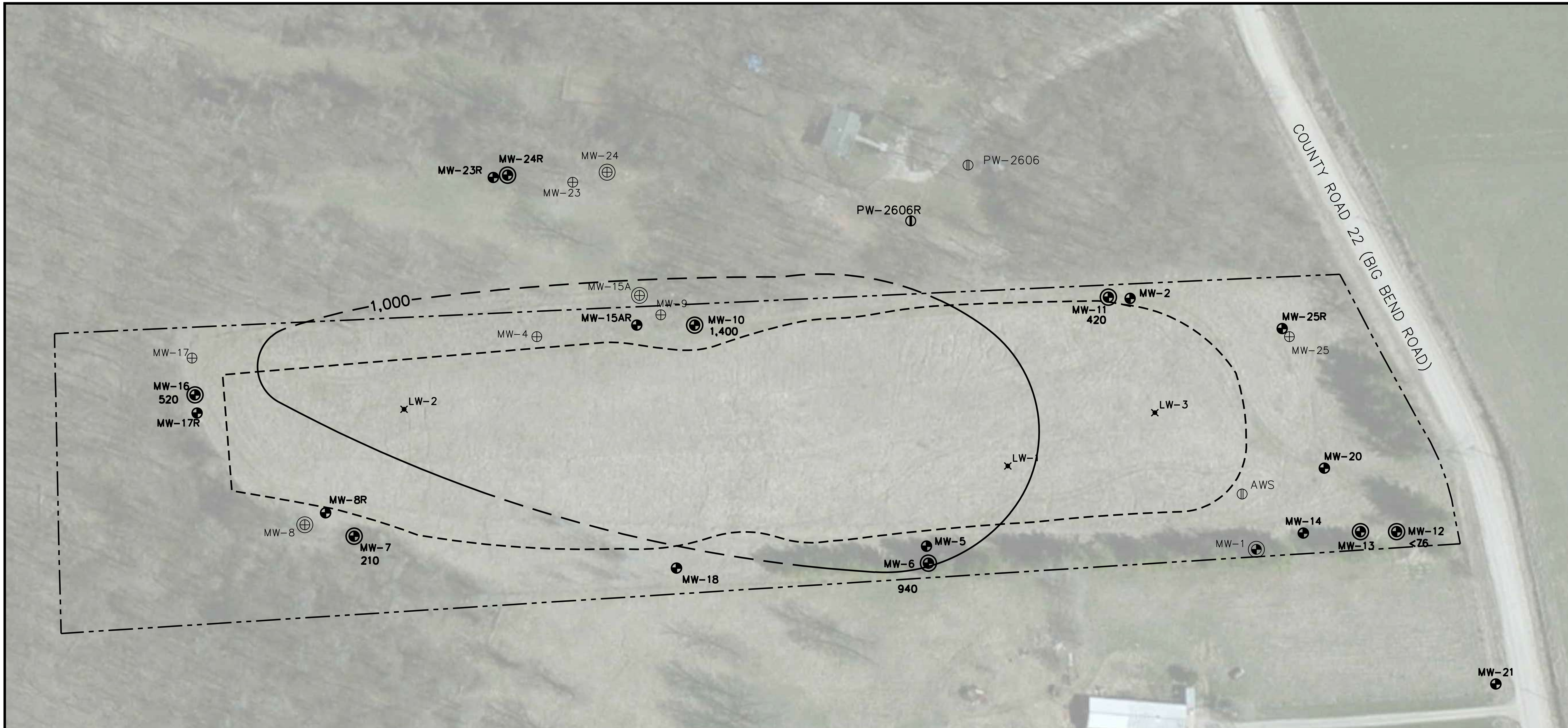
CLIENT: ALLIANT ENERGY. INTERSTATE POWER AND LIGHT

SITE: BIG BEND LANDFILL
CEDAR RAPIDS, IOWA

SEPTEMBER 11-14, 2023
BORON CONCENTRATIONS -
SHALLOW HYDROGEOLOGIC UNIT

FIGURE 7

I:\25223063.00\Drawings\Iso Sept 2023.dwg, 11/29/2023 12:23:23 PM



LEGEND

	APPROXIMATE LIMITS OF ASH DISPOSAL
MW-5	MONITORING WELL
MW-10	DEEP MONITORING WELL
LW-2	LEACHATE HEAD WELL
PW-2314	PRIVATE WELL
MW-25	ABANDONED MONITORING WELL
MW-15A	ABANDONED DEEP MONITORING WELL
AWS	ABANDONED PRIVATE WELL
1,300	TOTAL BORON CONCENTRATION (ug/L) DETECTED IN SEPTEMBER 2023
	BORON ISOCONCENTRATION CONTOUR (1,000 ug/L CONTOUR SHOWN) DASHED WHERE INFERRED
	APPROXIMATE PROPERTY LINE

NOTES:

1. MONITORING WELL LOCATIONS ARE APPROXIMATE.
2. AERIAL IMAGE IMPORTED FROM ARCMAP'S BING MAPS.
3. APPROXIMATE NORTH, EAST, AND SOUTH PROPERTY LINES FROM FIGURES IN OCTOBER 1992 HYDROGEOLOGICAL INVESTIGATION REPORT. WESTERN PROPERTY LINE WAS NOT SHOWN ON THESE FIGURES. APPROXIMATE WESTERN PROPERTY LINE FROM HTTPS://GIS.LINNCOUNTYIOWA.GOV/APPS/REAL-ESTATE/LAND-RECORDS/, ACCESSED ON 11/29/2023.

N

100 0 100

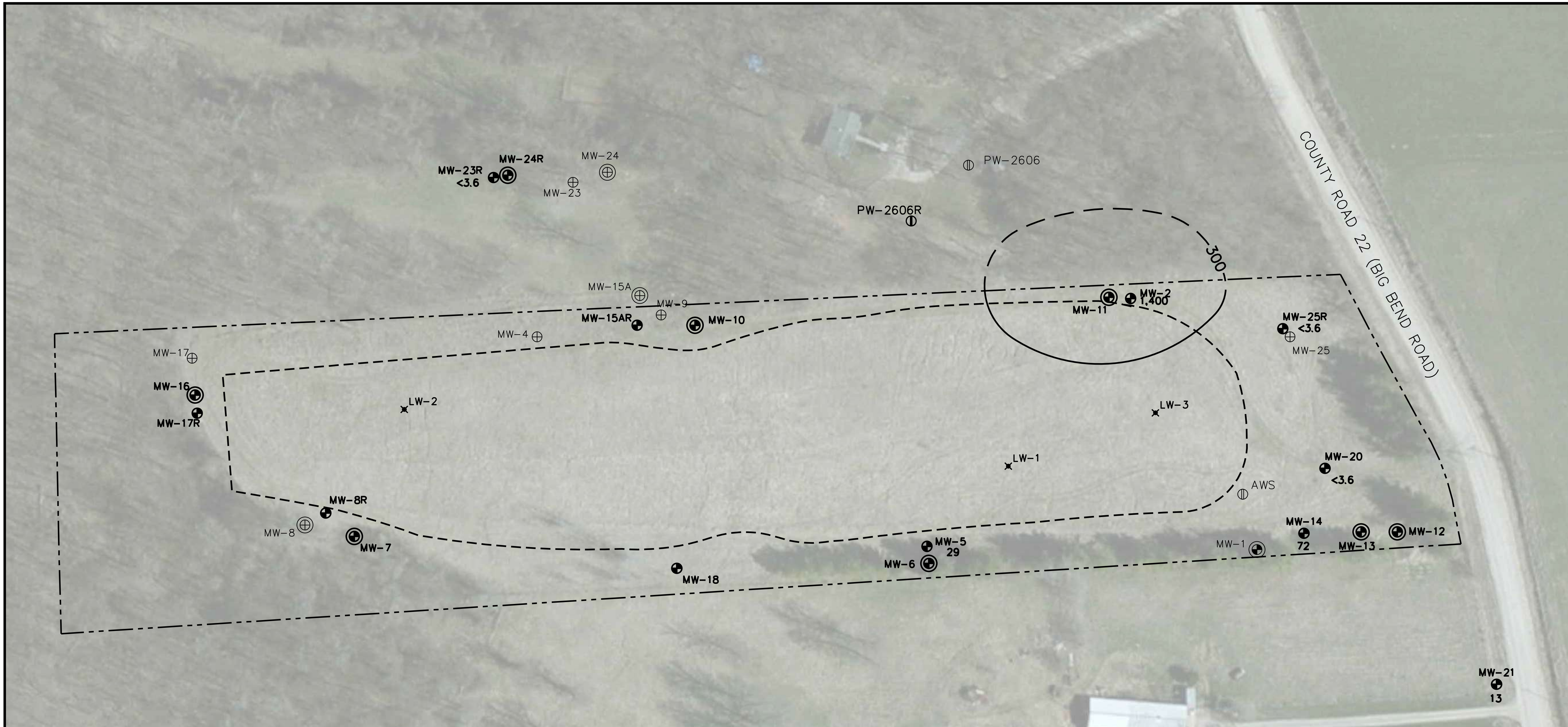
SCALE: 1" = 100'

PROJECT NO.	25223063.00	DRAWN BY:	KP	ENGINEER: SCS ENGINEERS, 2830 DAIRY DRIVE MADISON, WI 53718-6751, PHONE: (608) 224-2830
DRAWN:	10/30/2023	CHECKED BY:	MDB	CLIENT: ALLIANT ENERGY, INTERSTATE POWER AND LIGHT
REVISED:	11/29/2023	APPROVED BY:	MDB 11/29/2023	SITE: BIG BEND LANDFILL, CEDAR RAPIDS, IOWA

SEPTEMBER 11-14, 2023
BORON CONCENTRATIONS -
DEEP HYDROGEOLOGIC UNIT

FIGURE
8

I:\25223063.00\Drawings\Iso Sept 2023.dwg, 11/29/2023 12:23:45 PM



LEGEND

— — — — —	APPROXIMATE LIMITS OF ASH DISPOSAL
MW-5	MONITORING WELL
MW-10	DEEP MONITORING WELL
LW-2	LEACHATE HEAD WELL
PW-2314	PRIVATE WELL
MW-25	ABANDONED MONITORING WELL
MW-15A	ABANDONED DEEP MONITORING WELL
AWS	ABANDONED PRIVATE WELL
1,400	TOTAL MANGANESE CONCENTRATION (ug/L) DETECTED IN SEPTEMBER 2023
———	MANGANESE ISOCONCENTRATION CONTOUR (300 ug/L CONTOUR SHOWN) DASHED WHERE INFERRED
— - - —	APPROXIMATE PROPERTY LINE

NOTES:

1. MONITORING WELL LOCATIONS ARE APPROXIMATE.
2. AERIAL IMAGE IMPORTED FROM ARCMAP'S BING MAPS.
3. MW-15AR COULD NOT BE SAMPLED IN SEPTEMBER 2023. MANGANESE WAS NOT DETECTED AT MW-15AR DURING THE PREVIOUS SAMPLING EVENT IN SEPTEMBER 2020.
4. APPROXIMATE NORTH, EAST, AND SOUTH PROPERTY LINES FROM FIGURES IN OCTOBER 1992 HYDROGEOLOGICAL INVESTIGATION REPORT. WESTERN PROPERTY LINE WAS NOT SHOWN ON THESE FIGURES. APPROXIMATE WESTERN PROPERTY LINE FROM HTTPS://GIS.LINNCOUNTYIOWA.GOV/APPS/REAL-ESTATE/LAND-RECORDS/, ACCESSED ON 11/29/2023.

N

100 0 100

SCALE: 1" = 100'

PROJECT NO.	25223063.00	DRAWN BY:	KP
DRAWN:	10/30/2023	CHECKED BY:	MDB
REVISED:	11/29/2023	APPROVED BY:	MDB 11/29/2023

ENGINEER: SCS ENGINEERS, 2830 DAIRY DRIVE MADISON, WI 53718-6751, PHONE: (608) 224-2830

CLIENT: ALLIANT ENERGY, INTERSTATE POWER AND LIGHT

SITE: BIG BEND LANDFILL, CEDAR RAPIDS, IOWA

SEPTEMBER 11-14, 2023
MANGANESE CONCENTRATIONS – SHALLOW HYDROGEOLOGIC UNIT

FIGURE 9

I:\25223063.00\Drawings\Iso Sept 2023.dwg, 11/29/2023 12:24:40 PM

LEGEND

— — — —	APPROXIMATE LIMITS OF ASH DISPOSAL
MW-5	MONITORING WELL
MW-10	DEEP MONITORING WELL
LW-2	LEACHATE HEAD WELL
PW-2314	PRIVATE WELL
MW-25	ABANDONED MONITORING WELL
MW-15A	ABANDONED DEEP MONITORING WELL
AWS	ABANDONED PRIVATE WELL
230	TOTAL MANGANESE CONCENTRATION (ug/L) DETECTED IN SEPTEMBER 2023
— · — · —	APPROXIMATE PROPERTY LINE

NOTES:

1. MONITORING WELL LOCATIONS ARE APPROXIMATE.
2. AERIAL IMAGE IMPORTED FROM ARCMAP'S BING MAPS.
3. NO MANGANESE GWPS EXCEEDANCES WERE DETECTED IN THE DEEP UNIT IN SEPTEMBER 2023.
4. APPROXIMATE NORTH, EAST, AND SOUTH PROPERTY LINES FROM FIGURES IN OCTOBER 1992 HYDROGEOLOGICAL INVESTIGATION REPORT. WESTERN PROPERTY LINE WAS NOT SHOWN ON THESE FIGURES. APPROXIMATE WESTERN PROPERTY LINE FROM HTTPS: //GIS.LINNCOUNTYIOWA.GOV/APPS/REAL-ESTATE/LAND-RECORDS/, ACCESSED ON 11/29/2023.

N

100 0 100

SCALE: 1" = 100'

PROJECT NO.	25223063.00	DRAWN BY:	KP
DRAWN:	10/30/2023	CHECKED BY:	MDB
REVISED:	11/29/2023	APPROVED BY:	MDB 11/29/2023

ENGINEER: SCS ENGINEERS, 2830 DAIRY DRIVE MADISON, WI 53718-6751, PHONE: (608) 224-2830

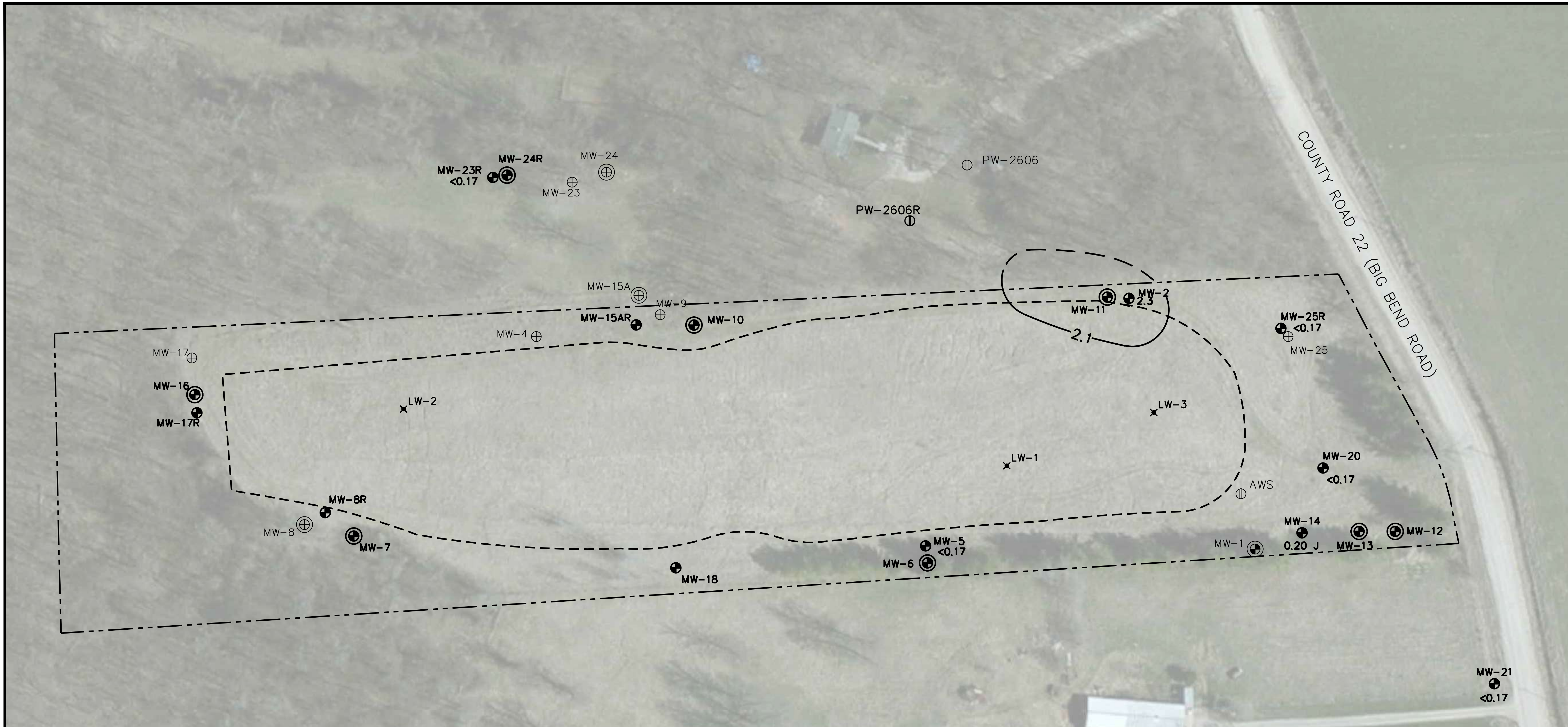
CLIENT: ALLIANT ENERGY, INTERSTATE POWER AND LIGHT

SITE: BIG BEND LANDFILL, CEDAR RAPIDS, IOWA

SEPTEMBER 11-14, 2023
MANGANESE CONCENTRATIONS - DEEP HYDROGEOLOGIC UNIT

FIGURE 10

I:\25223063.00\Drawings\Iso Sept 2023.dwg, 11/29/2023 12:24:58 PM



LEGEND

- - - - - -	APPROXIMATE LIMITS OF ASH DISPOSAL
MW-5	MONITORING WELL
MW-10	DEEP MONITORING WELL
LW-2	LEACHATE HEAD WELL
PW-2314	PRIVATE WELL
MW-25	ABANDONED MONITORING WELL
MW-15A	ABANDONED DEEP MONITORING WELL
AWS	ABANDONED PRIVATE WELL
2.3	TOTAL COBALT CONCENTRATION (ug/L) DETECTED IN SEPTEMBER 2023 (J = CONCENTRATION IS ESTIMATED)
———	COBALT ISOCONCENTRATION CONTOUR (2.1 ug/L CONTOUR SHOWN) DASHED WHERE INFERRED
— - - —	APPROXIMATE PROPERTY LINE

NOTES:

1. MONITORING WELL LOCATIONS ARE APPROXIMATE.
2. MW-15AR COULD NOT BE SAMPLED IN SEPTEMBER 2023. COBALT WAS NOT DETECTED AT MW-15AR DURING THE PREVIOUS SAMPLING EVENT IN SEPTEMBER 2020.
3. APPROXIMATE NORTH, EAST, AND SOUTH PROPERTY LINES FROM FIGURES IN OCTOBER 1992 HYDROGEOLOGICAL INVESTIGATION REPORT. WESTERN PROPERTY LINE WAS NOT SHOWN ON THESE FIGURES. APPROXIMATE WESTERN PROPERTY LINE FROM HTTPS://GIS.LINNCOUNTYIOWA.GOV/APPS/REAL-ESTATE/LAND-RECORDS/, ACCESSED ON 11/29/2023.

N

100 0 100

SCALE: 1" = 100'

PROJECT NO.	25223063.00	DRAWN BY:	KP
DRAWN:	10/30/2023	CHECKED BY:	MDB
REVISED:	11/29/2023	APPROVED BY:	MDB 11/29/2023

ENGINEER: SCS ENGINEERS
2830 DAIRY DRIVE MADISON, WI 53718-6751
PHONE: (608) 224-2830

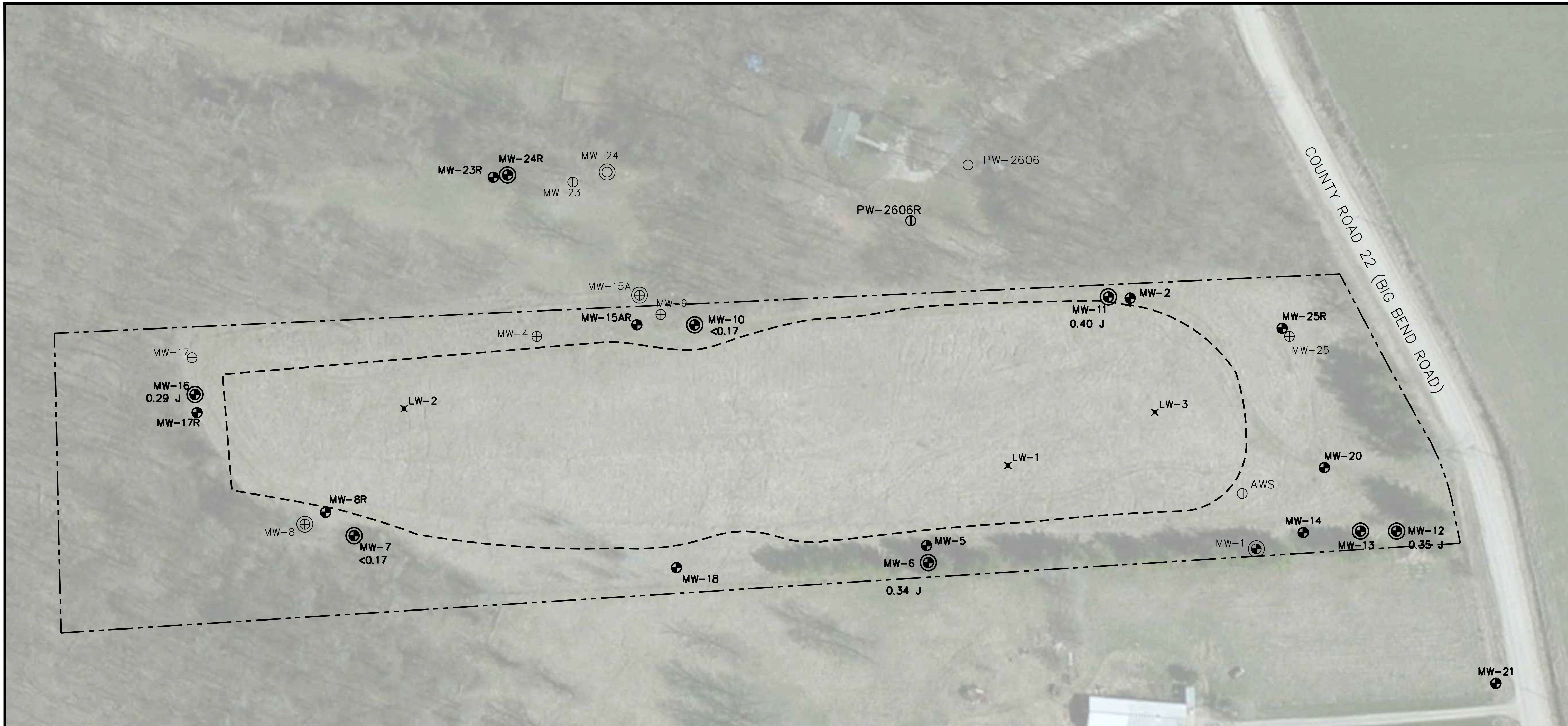
CLIENT: ALLIANT ENERGY. INTERSTATE POWER AND LIGHT

SITE: BIG BEND LANDFILL
CEDAR RAPIDS, IOWA

SEPTEMBER 11-14, 2023
COBALT CONCENTRATIONS -
SHALLOW HYDROGEOLOGIC UNIT

FIGURE 11

I:\25223063.00\Drawings\Iso Sept 2023.dwg, 11/29/2023 12:29:22 PM



LEGEND

— — — —	APPROXIMATE LIMITS OF ASH DISPOSAL
MW-5	MONITORING WELL
MW-10	DEEP MONITORING WELL
LW-2	LEACHATE HEAD WELL
PW-2314	PRIVATE WELL
MW-25	ABANDONED MONITORING WELL
MW-15A	ABANDONED DEEP MONITORING WELL
AWS	ABANDONED PRIVATE WELL
0.34	TOTAL COBALT CONCENTRATION (ug/L) DETECTED IN SEPTEMBER 2023 (J = CONCENTRATION IS ESTIMATED)
— - —	APPROXIMATE PROPERTY LINE

NOTES:

1. MONITORING WELL LOCATIONS ARE APPROXIMATE.
2. AERIAL IMAGE IMPORTED FROM ARCMAP'S BING MAPS.
3. NO COBALT GWPS EXCEEDANCES WERE DETECTED IN THE DEEP UNIT IN SEPTEMBER 2023. COBALT CONCENTRATIONS AT MW-24R EXCEEDED THE GWPS IN 2019-2022, BUT THIS WELL COULD NOT BE SAMPLED IN 2023.
4. APPROXIMATE NORTH, EAST, AND SOUTH PROPERTY LINES FROM FIGURES IN OCTOBER 1992 HYDROGEOLOGICAL INVESTIGATION REPORT. WESTERN PROPERTY LINE WAS NOT SHOWN ON THESE FIGURES. APPROXIMATE WESTERN PROPERTY LINE FROM HTTPS://GIS.LINNCOUNTYIOWA.GOV/APPS/REAL-ESTATE/LAND-RECORDS/, ACCESSED ON 11/29/2023.

N

100 0 100

SCALE: 1" = 100'

PROJECT NO. 25223063.00	DRAWN BY: KP	ENGINEER	SCS ENGINEERS 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830	CLIENT	ALLIANT ENERGY. INTERSTATE POWER AND LIGHT	SITE	BIG BEND LANDFILL CEDAR RAPIDS, IOWA	SEPTEMBER 11-14, 2023 COBALT CONCENTRATIONS - DEEP HYDROGEOLOGIC UNIT
DRAWN: 10/30/2023	CHECKED BY: MDB							FIGURE
REVISED: 11/29/2023	APPROVED BY: MDB 11/29/2023							12

I:\25223063.00\Drawings\Iso Sept 2023.dwg, 11/29/2023 12:25:30 PM

Appendix A

Annual Inspection

SEMIANNUAL ANNUAL FACILITY INSPECTION REPORT 2023
INTERSTATE POWER AND LIGHT COMPANY
BIG BEND CLOSED LANDFILL
PERMIT NO. 57-SDP-10-90C

The semiannual inspections of the Interstate Power and Light Company (IPL) Big Bend Closed Landfill were conducted on April 18 and September 13, 2023. As required in the general provisions of the permit (Sanitary Disposal Permit No. 57-SDP-10-90C), inspections must be performed by, or under the direct supervision of, an Iowa registered engineer, and a brief report must be submitted to the Iowa Department of Natural Resources (IDNR).

SITE CONDITIONS

The Big Bend Landfill was a sand pit prior to its use as a disposal site for coal combustion residuals. The landfill was closed in 1992, and it no longer receives waste. Site Inspection Reports forms for 2023 are included in Attachment A.

SITE INSPECTION

Staff from SCS Engineers (SCS) conducted the site inspections under the supervision of Licensed Professional Engineer Eric Nelson, PE, of SCS. This inspection report discusses the items observed during the inspections.

Access Road and Perimeter Fencing

The access road at the entrance of the property and perimeter fencing were inspected. The access road and perimeter fencing were observed to be in good condition. There were no ruts in the access road, and the fence was not damaged.

Erosion Control

The property was well vegetated during the 2023 site inspections.

Groundwater Wells

Groundwater wells were observed to be in good condition during the 2023 sampling events, with the exception that MW-24R could not be sampled in September 2023 due to an apparent obstruction just below the water level.

IDNR Inspections

The most recent IDNR inspection of the facility was performed on April 7, 1998. In addition, IDNR visited the site in October 1998.

I:\25222063.00\Deliverables\2022 AWQR\Appendix_A Inspection\Big Bend Site Inspection Report 2022.docx

Attachment A

Site Inspection Report Forms

SCS ENGINEERS

SITE INSPECTION REPORT

Project: IPL – Big Bend Closed Landfill
Project #: 25219063.00
Site: Big Bend Closed Ash Landfill
Permit number: 57-SDP-10-90C
Date: 4/18/23
Prepared by:
Weather: Sunny 54°F
On site/Off site: 7:30 a.m. 4:30 p.m.
Personnel: TS
Equipment: water tape

Landfill Cover and Erosion Control (Provide description of cover condition, whether grass appears mowed, and any erosional features or other observed issues)
Photos Taken ☒ (check)

Notes: Good condition

Primary Access Roads and Perimeter Fencing (Provide description of current road and perimeter fencing condition and if improvements are necessary) Photos Taken ☒ (check)
Draw/Note location of necessary improvements on the attached figure.

Notes: Good condition

Leachate System Performance (Provide description of leachate head wells in need of improvements if necessary)
Photos Taken ☒ (check)

Notes: Good condition

Groundwater (Provide description of current groundwater wells in need of improvements if necessary)
Photos Taken ☒ (check)

Notes: ~~[illegible]~~ Good Condition

SITE INSPECTION REPORT

Miscellaneous Notes: none
Communications with Onsite Personnel: Text to Jenny Coughlin Call to Justin Duckett (adjacent property owner)

Signature: ______________________

C:\Users\3510med\Desktop\Site Inspection Form.doc

SCS ENGINEERS

SITE INSPECTION REPORT

Project:	IPL – Big Bend Closed Landfill	**Project #:**	25219063.00
Site:	Big Bend Closed Ash Landfill	**Permit number:**	57-SDP-10-90C
Date:	7/13/23	**Prepared by:**	Tyler Stirling
Weather:	Sunny ~70°	**On site/Off site:**	7:30 a.m. 5:00 p.m.
Personnel:	Tyler Stirling		
Equipment:			

Landfill Cover and Erosion Control (Provide description of cover condition, whether grass appears mowed, and any erosional features or other observed issues)
Photos Taken ☑ (check)

Notes: Good condition

Primary Access Roads and Perimeter Fencing (Provide description of current road and perimeter fencing condition and if improvements are necessary) Photos Taken ☑ (check)
Draw/Note location of necessary improvements on the attached figure.

Notes: Good condition

Leachate System Performance (Provide description of leachate head wells in need of improvements if necessary)
Photos Taken ☐ (check)

Notes: Leachate well heads in good condition

Groundwater (Provide description of current groundwater wells in need of improvements if necessary)
Photos Taken ☐ (check)

Notes: MW-25R needs longer tubing to sample well.
↳ Water was at ~86' and tubing only reached ~85'

This comment is actually in reference to MW-15AR. After review, the tubing length at this well seems appropriate for typical groundwater conditions. The water level was unusually low in September 2023. Installing longer tubing would put the pump intake too close to the well bottom. MW-24R could not be sampled due to an apparent obstruction just below the water level. - MB

SITE INSPECTION REPORT

Miscellaneous Notes: None
Communications with Onsite Personnel: None

Signature: Tyler S

C:\Users\3510med\Desktop\Site Inspection Form.doc

Appendix B

Groundwater Sampling Field Sheets

Big Bend Closed Landfill / SCS Engineers Project #25223063.00
April 2023

Well	Depth to Water (ft)	Groundwater Elevation (ft amsl)	Total Depth (ft)	Date of Measurement
MW-2	74.59	731.18	90.61	4/18/2023
MW-3	61.51	721.48	72.88	4/18/2023
MW-6	59.43	722.19	96.10	4/18/2023
MW-7	73.40	713.25	88.48	4/18/2023
MW-8R	73.71	712.98	76.95	4/18/2023
MW-10	84.20	715.95	108.45	4/18/2023
MW-11	83.00	723.16	132.73	4/18/2023
MW-12	59.03	723.14	113.10	4/18/2023
MW-13	21.84	760.59	73.55	4/18/2023
MW-14	21.79	761.00	38.01	4/18/2023
MW-15AR	84.20	715.93	90.95	4/18/2023
MW-16	85.02	705.29	119.67	4/18/2023
MW-17R	81.75	708.52	83.93	4/18/2023
MW-18	38.20	743.54	40.82	4/18/2023
MW-20	27.63	759.03	38.32	4/18/2023
MW-21	14.44	765.36	27.40	4/18/2023
MW-23R	94.12	705.42	106.67	4/18/2023
MW-24R	94.70	705.13	127.90	4/18/2023
MW-25R	41.50	752.57	50.04	4/18/2023
LW-01	39.69	751.05	41.80	4/18/2023
LW-02	19.65	778.90	19.80	4/18/2023
LW-03	37.70	760.46	39.09	4/18/2023

Abbreviations:
ft amsl = feet above mean sea level
-- = Not Measured

Groundwater Sampling Field Sheet

Disposal Site Name: IPL - Big Bend Landfill   Permit No.: 57-SDP-10-90C

Well/Piezometer: 2606 Big Bend Rd. Supply Well   Weather: 59°F, Wind Direction: SW, Sunny, No precipitation

Date: 9/12/2023   Sampler Name: Tyler Stirling

Monitoring Well Details

Construction Data

Borehole Diameter (in): NA   Depth to Tope of Screen (ft): NA

Casing Diameter (in): NA   Casing Material: PVC

Top of Casing Elevation (ft. MSL): NA   Ground Surface Elevation (ft. MSL):

Field Observations

Locked: ☒ Yes ☐ No

	Before Purging	After Purging	Before Sampling
Depth to Water Level (ft.):	NA	NA	NA
Water Elevation (ft. MSL):	NA	NA	NA

Screen Submerged? (Depth to Water Level < Depth to Top of Screen) ☐ Yes ☐ No

	Start	End
Purge Date/Time	9/12, 7:45	9/12, 8:00

Well Conditions Commentary: --

Sampling Equipment (check one)

☐ Pump ☐ Interval Sampler

☐ Bailer ☒ Other (specify): Yard Hydrant

Equipment Name & Description:

Pump Types (check one)

☐ Submersible ☐ Peristaltic ☐ Bladder ☐ Inertial Lift Pump ☐ Other (specify):

Method (check one)

☐ Low Flow ☐ No Purge ☒ Purge

Options (check one)

☒ Dedicated ☐ Disposable ☐ Portable

Decontamination Method: N/A. Permanent Yard Hydrant

Field Analysis

							Final Reading
Date/Time							9/12, 8:00
Depth to Water (ft)							N/A
Volume Purged ( )							--
Temp (°C)							15.8
Sp. Cond (umhos/cm)							881
pH							6.96
DO (mg/l)							6.46
ORP (mV)							203.6
Turbidity (NTU)							1.50

Equipment Depth: --   Flow Rate: --   Volume Removed: --   Volume Sampled: 1 L

Odor? ☐ Yes ☒ No   Color? ☐ Yes ☒ No

Comments: Purged for ~15 min before sampling. Water collected from steel yard hydrant in front yard.

Groundwater Sampling Field Sheet

Disposal Site Name: IPL - Big Bend Landfill Permit No.: 57-SDP-10-90C

Well/Piezometer: LW-01 Weather:

Date: 9/13/2023 Sampler Name: Tyler Stirling

Monitoring Well Details

Construction Data

Borehole Diameter (in): Depth to Tope of Screen (ft):

Casing Diameter (in): 2.01 Casing Material: PVC

Top of Casing Elevation (ft. MSL): 790.74 Ground Surface Elevation (ft. MSL):

Field Observations

Locked: ☒ Yes ☐ No

	Before Purging	After Purging	Before Sampling
Depth to Water Level (ft.):	39.36	--	39.36
Water Elevation (ft. MSL):	751.38	--	751.38

Screen Submerged? (Depth to Water Level < Depth to Top of Screen) ☐ Yes ☐ No

	Start	End
Purge Date/Time	9/13	9/13, 16:00

Well Conditions Commentary: --

Sampling Equipment (check one)

☐ Pump ☐ Interval Sampler

☒ Bailer ☐ Other (specify):

Equipment Name & Description: PVC bailer

Pump Types (check one)

☐ Submersible ☐ Peristaltic ☐ Bladder ☐ Inertial Lift Pump ☐ Other (specify):

Method (check one)

☐ Low Flow ☒ No Purge ☐ Purge

Options (check one)

☒ Dedicated ☐ Disposable ☐ Portable

Decontamination Method: N/A. Dedicated bailer.

Field Analysis

							Final Reading
Date/Time							9/13, 16:00
Depth to Water (ft)							39.36
Volume Purged ( )							--
Temp (°C)							20.1
Sp. Cond (umhos/cm)							1431
pH							7.73
DO (mg/l)							7.48
ORP (mV)							64.6
Turbidity (NTU)							105.6

Equipment Depth: -- Flow Rate: -- Volume Removed: 1 L Volume Sampled: 1 L

Odor? ☐ Yes ☒ No Color? ☐ Yes ☒ No

Comments: --

Groundwater Sampling Field Sheet

Disposal Site Name: IPL - Big Bend Landfill Permit No.: 57-SDP-10-90C

Well/Piezometer: LW-02 Weather:

Date: 9/13/2023 Sampler Name: Tyler Stirling

Monitoring Well Details

Construction Data

Borehole Diameter (in): Depth to Tope of Screen (ft):

Casing Diameter (in): 2.01 Casing Material: PVC

Top of Casing Elevation (ft. MSL): 798.55 Ground Surface Elevation (ft. MSL):

Field Observations

Locked: ☒ Yes ☐ No

	Before Purging	After Purging	Before Sampling
Depth to Water Level (ft.):	Dry	NA	NA
Water Elevation (ft. MSL):	--	--	--

Screen Submerged? (Depth to Water Level < Depth to Top of Screen) ☐ Yes ☐ No

	Start	End
Purge Date/Time		

Well Conditions Commentary: --

Sampling Equipment (check one)

☐ Pump ☐ Interval Sampler

☒ Bailer ☐ Other (specify):

Equipment Name & Description: PVC bailer

Pump Types (check one)

☐ Submersible ☐ Peristaltic ☐ Bladder ☐ Inertial Lift Pump ☐ Other (specify):

Method (check one)

☐ Low Flow ☒ No Purge ☐ Purge

Options (check one)

☒ Dedicated ☐ Disposable ☐ Portable

Decontamination Method: N/A. Dedicated bailer.

Field Analysis

							Final Reading
Date/Time							
Depth to Water (ft)							
Volume Purged ( )							
Temp (°C)							
Sp. Cond (umhos/cm)							
pH							
DO (mg/l)							
ORP (mV)							
Turbidity (NTU)							

Equipment Depth: Flow Rate: Volume Removed: Volume Sampled: --

Odor? ☐ Yes ☒ No Color? ☐ Yes ☒ No

Comments:

Groundwater Sampling Field Sheet

Disposal Site Name: IPL - Big Bend Landfill Permit No.: 57-SDP-10-90C

Well/Piezometer: LW-03 Weather:

Date: 9/14/2023 Sampler Name: Tyler Stirling

Monitoring Well Details

Construction Data

Borehole Diameter (in): Depth to Tope of Screen (ft):

Casing Diameter (in): 2.01 Casing Material: PVC

Top of Casing Elevation (ft. MSL): 798.16 Ground Surface Elevation (ft. MSL):

Field Observations

Locked: ☒ Yes ☐ No

	Before Purging	After Purging	Before Sampling
Depth to Water Level (ft.):	37.50	--	37.50
Water Elevation (ft. MSL):	760.66	--	760.66

Screen Submerged? (Depth to Water Level < Depth to Top of Screen) ☐ Yes ■ No

	Start	End
Purge Date/Time	9/14/23 11:00	9/14/23 11:00

Well Conditions Commentary: --

Sampling Equipment (check one)

☐ Pump ☐ Interval Sampler

☒ Bailer ☐ Other (specify):

Equipment Name & Description: PVC bailer

Pump Types (check one)

☐ Submersible ☐ Peristaltic ☒ Bladder ☐ Inertial Lift Pump ☐ Other (specify):

Method (check one)

☐ Low Flow ☒ No Purge ☐ Purge

Options (check one)

☒ Dedicated ☐ Disposable ☐ Portable

Decontamination Method: N/A. Dedicated bailer.

Field Analysis

							Final Reading
Date/Time							--
Depth to Water (ft)							--
Volume Purged ( )							--
Temp (°C)							--
Sp. Cond (umhos/cm)							--
pH							--
DO (mg/l)							--
ORP (mV)							--
Turbidity (NTU)							--

Equipment Depth: Flow Rate: Volume Removed: 125mL Volume Sampled: 125mL

Odor? ☒ Yes ☐ No Color? ☒ Yes ☐ No

Comments: Sampled at 11:00 on 9/14/2023. Only able to fill half of the 250 mL metals bottle before well went dry.

Groundwater Sampling Field Sheet

Disposal Site Name: IPL - Big Bend Landfill — Permit No.: 57-SDP-10-90C

Well/Piezometer: MW-2 — Weather: 70°, Wind Direction: SW, Cloudy, light precip

Date: 9/12/2023 — Sampler Name: Tyler Stirling

Monitoring Well Details

Construction Data

Borehole Diameter (in): ______ — Depth to Tope of Screen (ft): 79.63

Casing Diameter (in): 2.01 — Casing Material: PVC

Top of Casing Elevation (ft. MSL): 805.77 — Ground Surface Elevation (ft. MSL): ______

Field Observations

Locked: ☒ Yes ☐ No

	Before Purging	After Purging	Before Sampling
Depth to Water Level (ft.):	74.72	75.39	75.39
Water Elevation (ft. MSL):	731.05	730.38	730.38

Screen Submerged? (Depth to Water Level < Depth to Top of Screen) ■ Yes ☐ No

	Start	End
Purge Date/Time	9/12, 13:45	9/12, 15:15

Well Conditions Commentary: --

Sampling Equipment (check one)

☒ Pump ☐ Interval Sampler

☐ Bailer ☐ Other (specify):

Equipment Name & Description: Well Wizard

Pump Types (check one)

☐ Submersible ☐ Peristaltic ☒ Bladder ☐ Inertial Lift Pump ☐ Other (specify):

Method (check one)

☒ Low Flow ☐ No Purge ☐ Purge

Options (check one)

☒ Dedicated ☐ Disposable ☐ Portable

Decontamination Method: N/A. Dedicated pump.

Field Analysis

							Final Reading
Date/Time	9/12, 14:10	9/12, 14:15	9/12, 14:20	9/12, 14:25	9/12, 14:30	9/12, 14:35	9/12, 14:40
Depth to Water (ft)	75.39	75.39	75.39	75.39	75.39	75.39	75.39
Volume Purged (L)	6.0	6.5	7.0	7.5	8.0	8.5	9
Temp (°C)	14.1	13.9	14.0	13.9	13.9	13.8	13.7
Sp. Cond (umhos/cm)	784	790	792	793	792	792	792
pH	6.40	6.37	6.37	6.37	6.37	6.37	6.37
DO (mg/l)	0.48	0.35	0.31	0.27	0.33	0.24	0.21
ORP (mV)	67.5	31.5	12.9	-1.0	-9.4	-13.2	-17.9
Turbidity (NTU)	11.29	15.86	14.43	13.47	12.25	11.84	11.14

Equipment Depth: ______ Flow Rate: 100mL/min Volume Removed: 10 L Volume Sampled: 1L

Odor? ☐ Yes ☒ No Color? ☐ Yes ☒ No

Comments:

Groundwater Sampling Field Sheet

Disposal Site Name: IPL - Big Bend Landfill Permit No.: 57-SDP-10-90C

Well/Piezometer: MW-5 Weather: 66°, Wind Direction: NA, Sunny, No precip

Date: 9/13/2023 Sampler Name: Tyler Stirling

Monitoring Well Details

Construction Data

Borehole Diameter (in): Depth to Tope of Screen (ft): 61.35

Casing Diameter (in): 2.01 Casing Material: PVC

Top of Casing Elevation (ft. MSL): 782.99 Ground Surface Elevation (ft. MSL):

Field Observations

Locked: ☒ Yes ☐ No

	Before Purging	After Purging	Before Sampling
Depth to Water Level (ft.):	62.63	62.63	62.63
Water Elevation (ft. MSL):	720.36	720.36	720.36

Screen Submerged? (Depth to Water Level < Depth to Top of Screen) ☐ Yes ■ No

	Start	End
Purge Date/Time	9/13, 14:00	9/13, 15:30

Well Conditions Commentary: --

Sampling Equipment (check one)

☒ Pump ☐ Interval Sampler

☐ Bailer ☐ Other (specify):

Equipment Name & Description: Well Wizard

Pump Types (check one)

☐ Submersible ☐ Peristaltic ☒ Bladder ☐ Inertial Lift Pump ☐ Other (specify):

Method (check one)

☒ Low Flow ☐ No Purge ☐ Purge

Options (check one)

☒ Dedicated ☐ Disposable ☐ Portable

Decontamination Method: N/A. Dedicated pump.

Field Analysis

							Final Reading
Date/Time	9/13, 14:35	9/13, 14:40	9/13, 14:45	9/13, 14:50	9/13, 14:55	9/13, 15:00	9/13, 15:05
Depth to Water (ft)	62.63	62.63	62.63	62.63	62.63	62.63	62.63
Volume Purged (L)	6.0	6.5	7.0	7.5	8.0	8.5	9.0
Temp (°C)	13.0	13.0	13.0	12.9	12.9	12.8	12.8
Sp. Cond (umhos/cm)	992	990	988	989	989	989	989
pH	6.85	6.85	6.85	6.85	6.86	6.86	6.86
DO (mg/l)	6.27	6.16	6.23	6.23	6.31	6.23	6.24
ORP (mV)	101.9	102.4	103.0	103.9	104.7	104.6	104.5
Turbidity (NTU)	36.06	26.51	23.67	18.46	15.47	15.15	14.42

Equipment Depth: Flow Rate: 100mL/min Volume Removed: 10 L Volume Sampled: 1L

Odor? ☐ Yes ☒ No Color? ☐ Yes ☒ No

Comments:

Groundwater Sampling Field Sheet

Disposal Site Name: IPL - Big Bend Landfill   Permit No.: 57-SDP-10-90C

Well/Piezometer: MW-6   Weather: 66°, Wind Direction: NA, Sunny, No precip

Date: 9/13/2023   Sampler Name: Tyler Stirling

Monitoring Well Details

Construction Data

Borehole Diameter (in): ____   Depth to Tope of Screen (ft): 89.43

Casing Diameter (in): 2.01   Casing Material: PVC

Top of Casing Elevation (ft. MSL): 781.62   Ground Surface Elevation (ft. MSL): ____

Field Observations

Locked: ☒ Yes ☐ No

	Before Purging	After Purging	Before Sampling
Depth to Water Level (ft.):	60.53	60.53	60.53
Water Elevation (ft. MSL):	721.09	721.09	721.09

Screen Submerged? (Depth to Water Level < Depth to Top of Screen) ■ Yes ☐ No

	Start	End
Purge Date/Time	9/13, 14:10	9/13, 16:20

Well Conditions Commentary: --

Sampling Equipment (check one)

☒ Pump ☐ Interval Sampler

☐ Bailer ☐ Other (specify): ____

Equipment Name & Description: Well Wizard

Pump Types (check one)

☐ Submersible ☐ Peristaltic ☒ Bladder ☐ Inertial Lift Pump ☐ Other (specify): ____

Method (check one)

☒ Low Flow ☐ No Purge ☐ Purge

Options (check one)

☒ Dedicated ☐ Disposable ☐ Portable

Decontamination Method: N/A. Dedicated pump.

Field Analysis

							Final Reading
Date/Time	9/13, 14:42	9/13, 14:47	9/13, 14:52	9/13, 14:57	9/13, 15:02	9/13, 15:07	9/13, 15:12
Depth to Water (ft)	60.53	60.53	60.53	60.53	60.53	60.53	60.53
Volume Purged (L)	10	10.5	11	11.5	12	12.5	13
Temp (°C)	15.35	15.6	16.0	16.1	16.1	16.1	16.1
Sp. Cond (umhos/cm)	995	993	987	987	989	991	992
pH	6.84	6.82	6.81	6.81	6.81	6.81	6.81
DO (mg/l)	0.43	0.41	0.40	0.41	0.41	0.39	0.41
ORP (mV)	70.2	43.1	22.2	10.8	7.0	10.4	12.7
Turbidity (NTU)	13.35	13.69	9.94	7.21	8.90	9.34	8.87

Equipment Depth: ____ Flow Rate: 100mL/min Volume Removed: 14 L Volume Sampled: 1L

Odor? ☐ Yes ☒ No   Color? ☐ Yes ☒ No

Comments: ____

Groundwater Sampling Field Sheet

Disposal Site Name: IPL - Big Bend Landfill   Permit No.: 57-SDP-10-90C

Well/Piezometer: MW-7   Weather: 57°, Wind Direction: NA, Cloudy, No precip

Date: 9/13/2023   Sampler Name: Tyler Stirling

Monitoring Well Details

Construction Data

Borehole Diameter (in): ____   Depth to Tope of Screen (ft): 93.25

Casing Diameter (in): 2.01   Casing Material: PVC

Top of Casing Elevation (ft. MSL): 786.65   Ground Surface Elevation (ft. MSL): ____

Field Observations

Locked: ☒ Yes ☐ No

	Before Purging	After Purging	Before Sampling
Depth to Water Level (ft.):	77.99	77.99	78.60
Water Elevation (ft. MSL):	721.09	720.48	720.48

Screen Submerged? (Depth to Water Level < Depth to Top of Screen) ■ Yes ☐ No

	Start	End
Purge Date/Time	9/13, 8:30	9/13, 9:40

Well Conditions Commentary: --

Sampling Equipment (check one)

☒ Pump ☐ Interval Sampler

☐ Bailer ☐ Other (specify): ____

Equipment Name & Description: Well Wizard

Pump Types (check one)

☐ Submersible ☐ Peristaltic ☒ Bladder ☐ Inertial Lift Pump ☐ Other (specify): ____

Method (check one)

☒ Low Flow ☐ No Purge ☐ Purge

Options (check one)

☒ Dedicated ☐ Disposable ☐ Portable

Decontamination Method: N/A. Dedicated pump.

Field Analysis

							Final Reading
Date/Time	9/13, 8:45	9/13, 8:50	9/13, 8:55	9/13, 9:00	9/13, 9:05	9/13, 9:10	9/13, 9:15
Depth to Water (ft)	78.30	78.60	78.60	78.60	78.60	78.60	78.60
Volume Purged (L)	4.5	5	5.5	6	6.5	6.5	7
Temp (°C)	12.8	12.4	12.0	12.0	12.2	12.2	12.3
Sp. Cond (umhos/cm)	731	745	744	746	747	748	749
pH	6.94	6.90	6.92	6.92	6.93	6.93	6.93
DO (mg/l)	4.81	2.12	1.41	1.45	1.60	1.69	1.71
ORP (mV)	113.5	103.9	92.5	87.0	85.4	85.9	85.9
Turbidity (NTU)	11.31	9.27	4.46	4.27	4.84	3.64	3.34

Equipment Depth: ____ Flow Rate: 100mL/min Volume Removed: 8 L Volume Sampled: 1L

Odor? ☐ Yes ☒ No   Color? ☐ Yes ☒ No

Comments: ____

Groundwater Sampling Field Sheet

Disposal Site Name: IPL - Big Bend Landfill　Permit No.: 57-SDP-10-90C

Well/Piezometer: MW-8R　Weather:

Date: 9/11/2023　Sampler Name: Tyler Stirling

Monitoring Well Details

Construction Data

Borehole Diameter (in):　Depth to Tope of Screen (ft): 60.47

Casing Diameter (in): 2.01　Casing Material: PVC

Top of Casing Elevation (ft. MSL): 786.69　Ground Surface Elevation (ft. MSL):

Field Observations

Locked: ☒ Yes ☐ No

	Before Purging	After Purging	Before Sampling
Depth to Water Level (ft.):	74.78	--	--
Water Elevation (ft. MSL):	711.91	--	--

Screen Submerged? (Depth to Water Level < Depth to Top of Screen) ☐ Yes ■ No

	Start	End
Purge Date/Time		

Well Conditions Commentary: --

Sampling Equipment (check one)

☐ Pump ☐ Interval Sampler

☐ Bailer ☐ Other (specify):

Equipment Name & Description:

Pump Types (check one)

☐ Submersible ☐ Peristaltic ☐ Bladder ☐ Inertial Lift Pump ☐ Other (specify):

Method (check one)

☐ Low Flow ☒ No Purge ☐ Purge

Options (check one)

☐ Dedicated ☐ Disposable ☐ Portable

Decontamination Method: N/A

Field Analysis

							Final Reading
Date/Time							
Depth to Water (ft)							
Volume Purged ( )							
Temp (°C)							
Sp. Cond (umhos/cm)							
pH							
DO (mg/l)							
ORP (mV)							
Turbidity (NTU)							

Equipment Depth:　Flow Rate:　Volume Removed:　Volume Sampled:

Odor? ☐ Yes ☒ No　Color? ☐ Yes ☒ No

Comments: Water level point only.

Groundwater Sampling Field Sheet

Disposal Site Name: IPL - Big Bend Landfill Permit No.: 57-SDP-10-90C

Well/Piezometer: MW-10 Weather: 64°, Wind Direction: NA Sunny, No precip

Date: 9/13/2023 Sampler Name: Tyler Stirling

Monitoring Well Details

Construction Data

Borehole Diameter (in): ______ Depth to Tope of Screen (ft): 102.21

Casing Diameter (in): 2.01 Casing Material: PVC

Top of Casing Elevation (ft. MSL): 800.15 Ground Surface Elevation (ft. MSL): ______

Field Observations

Locked: ☒ Yes ☐ No

	Before Purging	After Purging	Before Sampling
Depth to Water Level (ft.):	86.33	86.33	86.33
Water Elevation (ft. MSL):	713.82	713.82	713.82

Screen Submerged? (Depth to Water Level < Depth to Top of Screen) ■ Yes ☐ No

	Start	End
Purge Date/Time	9/13, 12:00	9/13, 13:30

Well Conditions Commentary: --

Sampling Equipment (check one)

☒ Pump ☐ Interval Sampler

☐ Bailer ☐ Other (specify): ______

Equipment Name & Description: Well Wizard

Pump Types (check one)

☐ Submersible ☐ Peristaltic ☒ Bladder ☐ Inertial Lift Pump ☐ Other (specify): ______

Method (check one)

☒ Low Flow ☐ No Purge ☐ Purge

Options (check one)

☒ Dedicated ☐ Disposable ☐ Portable

Decontamination Method: N/A. Dedicated pump.

Field Analysis

							Final Reading
Date/Time	9/13, 12:30	9/13, 12:35	9/13, 12:40	9/13, 12:45	9/13, 12:50	9/13, 12:55	9/13, 13:00
Depth to Water (ft)	86.33	86.33	86.33	86.33	86.33	86.33	86.33
Volume Purged (L)	3.0	3.5	4.0	4.5	5.0	5.5	6.0
Temp (°C)	12.9	13.1	13.0	12.9	12.9	13.0	13.1
Sp. Cond (umhos/cm)	969	968	971	972	974	973	974
pH	6.85	6.85	6.86	6.87	6.87	6.88	6.88
DO (mg/l)	1.53	1.51	2.06	2.38	2.61	2.78	2.85
ORP (mV)	-7.6	-15.0	-11.7	-10.4	-8.3	-5.1	-3.3
Turbidity (NTU)	4.85	5.25	5.65	5.15	4.22	4.18	4.80

Equipment Depth: ______ Flow Rate: 100 mL/min Volume Removed: 9 L Volume Sampled: 1L

Odor? ☐ Yes ☒ No Color? ☐ Yes ☒ No

Comments: ______

Groundwater Sampling Field Sheet

Disposal Site Name: IPL - Big Bend Landfill Permit No.: 57-SDP-10-90C

Well/Piezometer: MW-11 Weather: 70°, Wind Direction: SW, Cloudy, light precip

Date: 9/12/2023 Sampler Name: Tyler Stirling

Monitoring Well Details

Construction Data

Borehole Diameter (in): ______ Depth to Tope of Screen (ft): 125.41

Casing Diameter (in): 2.01 Casing Material: PVC

Top of Casing Elevation (ft. MSL): 806.16 Ground Surface Elevation (ft. MSL): ______

Field Observations

Locked: ☒ Yes ☐ No

	Before Purging	After Purging	Before Sampling
Depth to Water Level (ft.):	84.02	84.02	84.02
Water Elevation (ft. MSL):	722.14	722.14	722.14

Screen Submerged? (Depth to Water Level < Depth to Top of Screen) ■ Yes ☐ No

	Start	End
Purge Date/Time	9/12, 13:40	9/12, 15:35

Well Conditions Commentary: --

Sampling Equipment (check one)

☒ Pump ☐ Interval Sampler

☐ Bailer ☐ Other (specify): ______

Equipment Name & Description: Well Wizard

Pump Types (check one)

☐ Submersible ☐ Peristaltic ☒ Bladder ☐ Inertial Lift Pump ☐ Other (specify): ______

Method (check one)

☒ Low Flow ☐ No Purge ☐ Purge

Options (check one)

☒ Dedicated ☐ Disposable ☐ Portable

Decontamination Method: N/A. Dedicated pump.

Field Analysis

							Final Reading
Date/Time	9/12, 14:02	9/12, 14:07	9/12, 14:12	9/12, 14:17	9/12, 14:22	9/12, 14:27	9/12, 14:32
Depth to Water (ft)	84.02	84.02	84.02	84.02	84.02	84.02	84.02
Volume Purged (L)	1.65	2.025	2.4	2.775	3.15	3.525	3.9
Temp (°C)	21.6	20.7	19.6	18.7	19.8	19.7	19.5
Sp. Cond (umhos/cm)	880	880	876	867	872	874	868
pH	6.71	6.71	6.72	6.72	6.72	6.73	6.73
DO (mg/l)	3.90	3.04	2.58	2.20	1.87	1.73	1.67
ORP (mV)	108.2	105.7	105.0	100.5	95.1	94.0	91.7
Turbidity (NTU)	5.08	1.58	1.31	1.55	1.36	1.61	1.24

Equipment Depth: ______ Flow Rate: 75mL/min Volume Removed: 8.625 L Volume Sampled: 1L

Odor? ☐ Yes ☒ No Color? ☐ Yes ☒ No

Comments: ______

Groundwater Sampling Field Sheet

Disposal Site Name: IPL - Big Bend Landfill   Permit No.: 57-SDP-10-90C

Well/Piezometer: MW-12   Weather: 68°, Wind Direction: S, Cloudy, No precip

Date: 9/11/2023   Sampler Name: Tyler Stirling

Monitoring Well Details

Construction Data

Borehole Diameter (in): ____   Depth to Tope of Screen (ft): 106.52

Casing Diameter (in): 2.01   Casing Material: PVC

Top of Casing Elevation (ft. MSL): 782.17   Ground Surface Elevation (ft. MSL): ____

Field Observations

Locked: ☒ Yes ☐ No

	Before Purging	After Purging	Before Sampling
Depth to Water Level (ft.):	60.27	60.27	60.27
Water Elevation (ft. MSL):	721.90	721.90	721.90

Screen Submerged? (Depth to Water Level < Depth to Top of Screen) ■ Yes ☐ No

	Start	End
Purge Date/Time	9/11, 14:00	9/11, 15:15

Well Conditions Commentary: --

Sampling Equipment (check one)

☒ Pump ☐ Interval Sampler

☐ Bailer ☐ Other (specify):

Equipment Name & Description: Well Wizard

Pump Types (check one)

☐ Submersible ☐ Peristaltic ☒ Bladder ☐ Inertial Lift Pump ☐ Other (specify):

Method (check one)

☒ Low Flow ☐ No Purge ☐ Purge

Options (check one)

☒ Dedicated ☐ Disposable ☐ Portable

Decontamination Method: N/A. Dedicated pump.

Field Analysis

							Final Reading
Date/Time	9/11, 14:20	9/11, 14:25	9/11, 14:30	9/11, 14:35	9/11, 14:40	9/11, 14:45	9/11, 14:50
Depth to Water (ft)	60.27	60.27	60.27	60.27	60.27	60.27	60.27
Volume Purged (L)	2.0	2.5	3.0	3.5	4.0	4.5	5.0
Temp (°C)	15.1	14.9	14.9	15.0	14.9	14.9	14.6
Sp. Cond (umhos/cm)	835	834	835	837	839	839	839
pH	7.00	6.95	6.93	6.92	6.90	6.89	6.88
DO (mg/l)	5.13	2.04	0.99	0.77	0.66	0.63	0.59
ORP (mV)	-193.1	-218	-231.0	-231.6	-226.4	-221.9	-219.1
Turbidity (NTU)	11.13	4.63	3.34	2.38	2.78	2.06	2.24

Equipment Depth: ____   Flow Rate: 100mL/min   Volume Removed: 6.5 L   Volume Sampled: 1L

Odor? ☒ Yes ☐ No   Color? ☐ Yes ☒ No

Comments:

Groundwater Sampling Field Sheet

Disposal Site Name: IPL - Big Bend Landfill   Permit No.: 57-SDP-10-90C

Well/Piezometer: MW-13   Weather:

Date: 9/11/2023   Sampler Name: Tyler Stirling

Monitoring Well Details

Construction Data

Borehole Diameter (in):   Depth to Tope of Screen (ft): 62.68

Casing Diameter (in): 2.01   Casing Material: PVC

Top of Casing Elevation (ft. MSL): 782.43   Ground Surface Elevation (ft. MSL):

Field Observations

Locked: ☒ Yes ☐ No

	Before Purging	After Purging	Before Sampling
Depth to Water Level (ft.):	23.79	--	--
Water Elevation (ft. MSL):	758.64	--	--

Screen Submerged? (Depth to Water Level < Depth to Top of Screen) ☐ Yes ■ No

	Start	End
Purge Date/Time		

Well Conditions Commentary: --

Sampling Equipment (check one)

☐ Pump ☐ Interval Sampler

☐ Bailer ☐ Other (specify):

Equipment Name & Description:

Pump Types (check one)

☐ Submersible ☐ Peristaltic ☐ Bladder ☐ Inertial Lift Pump ☐ Other (specify):

Method (check one)

☐ Low Flow ☒ No Purge ☐ Purge

Options (check one)

☐ Dedicated ☐ Disposable ☐ Portable

Decontamination Method: N/A

Field Analysis

							Final Reading
Date/Time							
Depth to Water (ft)							
Volume Purged ( )							
Temp (°C)							
Sp. Cond (umhos/cm)							
pH							
DO (mg/l)							
ORP (mV)							
Turbidity (NTU)							

Equipment Depth: Flow Rate: Volume Removed: Volume Sampled:

Odor? ☐ Yes ☒ No   Color? ☐ Yes ☒ No

Comments: Water level point only.

Groundwater Sampling Field Sheet

Disposal Site Name: IPL - Big Bend Landfill Permit No.: 57-SDP-10-90C

Well/Piezometer: MW-14 Weather: 70°, Wind Direction: S, Cloudy, No precip

Date: 9/11/2023 Sampler Name: Tyler Stirling

Monitoring Well Details

Construction Data

Borehole Diameter (in): ______ Depth to Tope of Screen (ft): 27.57

Casing Diameter (in): 2.01 Casing Material: PVC

Top of Casing Elevation (ft. MSL): 782.79 Ground Surface Elevation (ft. MSL): ______

Field Observations

Locked: ☒ Yes ☐ No

	Before Purging	After Purging	Before Sampling
Depth to Water Level (ft.):	23.46	23.46	23.46
Water Elevation (ft. MSL):	759.33	759.33	759.33

Screen Submerged? (Depth to Water Level < Depth to Top of Screen) ■ Yes ☐ No

	Start	End
Purge Date/Time	9/11, 15:05	9/11, 15:55

Well Conditions Commentary: --

Sampling Equipment (check one)

☒ Pump ☐ Interval Sampler

☐ Bailer ☐ Other (specify): ______

Equipment Name & Description: Well Wizard

Pump Types (check one)

☐ Submersible ☐ Peristaltic ☒ Bladder ☐ Inertial Lift Pump ☐ Other (specify): ______

Method (check one)

☒ Low Flow ☐ No Purge ☐ Purge

Options (check one)

☒ Dedicated ☐ Disposable ☐ Portable

Decontamination Method: N/A. Dedicated pump.

Field Analysis

							Final Reading
Date/Time	9/11, 15:10	9/11, 15:15	9/11, 15:20	9/11, 15:25	9/11, 15:30	9/11, 15:35	9/11, 15:40
Depth to Water (ft)	23.46	23.46	23.46	23.46	23.46	23.46	23.46
Volume Purged (L)	0.75	1.5	2.25	3	3.75	4.5	5.25
Temp (°C)	11.3	11.3	11.1	11.1	11.2	11.1	11.3
Sp. Cond (umhos/cm)	428.4	427.4	428.3	428.2	428.7	429.9	429.5
pH	5.86	5.85	5.85	5.85	5.87	5.88	5.90
DO (mg/l)	1.58	1.02	1.16	1.28	1.00	0.94	0.91
ORP (mV)	-36.1	-28.6	-24.0	-22.0	-17.8	-14.4	-13.3
Turbidity (NTU)	1.05	1.78	0.94	0.78	1.24	1.10	0.64

Equipment Depth: ______ Flow Rate: 150 mL/min Volume Removed: 7.5 L Volume Sampled: 1L

Odor? ☐ Yes ☒ No Color? ☐ Yes ☒ No

Comments: ______

Groundwater Sampling Field Sheet

Disposal Site Name: IPL - Big Bend Landfill   Permit No.: 57-SDP-10-90C

Well/Piezometer: MW-15AR   Weather:

Date: 9/13/2023   Sampler Name: Tyler Stirling

Monitoring Well Details

Construction Data

Borehole Diameter (in):   Depth to Tope of Screen (ft): 74.49

Casing Diameter (in): 2.01   Casing Material: PVC

Top of Casing Elevation (ft. MSL): 800.13   Ground Surface Elevation (ft. MSL):

Field Observations

Locked: ☒ Yes ☐ No

	Before Purging	After Purging	Before Sampling
Depth to Water Level (ft.):	86.35	--	--
Water Elevation (ft. MSL):	713.78	--	--

Screen Submerged? (Depth to Water Level < Depth to Top of Screen) ☐ Yes ■ No

	Start	End
Purge Date/Time	9/13, 11:00	9/13,12:00

Well Conditions Commentary: Tubing not long enough to reach water for sample collection.

Sampling Equipment (check one)

☒ Pump ☐ Interval Sampler

☐ Bailer ☐ Other (specify):

Equipment Name & Description:

Pump Types (check one)

☐ Submersible ☐ Peristaltic ☒ Bladder ☐ Inertial Lift Pump ☐ Other (specify):

Method (check one)

☒ Low Flow ☐ No Purge ☐ Purge

Options (check one)

☒ Dedicated ☐ Disposable ☐ Portable

Decontamination Method: N/A, dedicated pump

Field Analysis

							Final Reading
Date/Time							
Depth to Water (ft)							
Volume Purged (L)							
Temp (°C)							
Sp. Cond (umhos/cm)							
pH							
DO (mg/l)							
ORP (mV)							
Turbidity (NTU)							

Equipment Depth: Flow Rate: Volume Removed: Volume Sampled: 1L

Odor? ☐ Yes ☒ No   Color? ☐ Yes ☒ No

Comments:

Groundwater Sampling Field Sheet

Disposal Site Name: IPL - Big Bend Landfill Permit No.: 57-SDP-10-90C

Well/Piezometer: MW-15AR Weather:

Date: 9/13/2023 Sampler Name: Tyler Stirling

Monitoring Well Details

Construction Data

Borehole Diameter (in): Depth to Tope of Screen (ft): 74.49

Casing Diameter (in): 2.01 Casing Material: PVC

Top of Casing Elevation (ft. MSL): 800.13 Ground Surface Elevation (ft. MSL):

Field Observations

Locked: ☒ Yes ☐ No

	Before Purging	After Purging	Before Sampling
Depth to Water Level (ft.):	86.35	--	--
Water Elevation (ft. MSL):	713.78	--	--

Screen Submerged? (Depth to Water Level < Depth to Top of Screen) ☐ Yes ■ No

	Start	End
Purge Date/Time	9/13, 11:00	9/13,12:00

Well Conditions Commentary: Tubing not long enough to reach water for sample collection.

Sampling Equipment (check one)

☒ Pump ☐ Interval Sampler

☐ Bailer ☐ Other (specify):

Equipment Name & Description:

Pump Types (check one)

☐ Submersible ☐ Peristaltic ☒ Bladder ☐ Inertial Lift Pump ☐ Other (specify):

Method (check one)

☒ Low Flow ☐ No Purge ☐ Purge

Options (check one)

☒ Dedicated ☐ Disposable ☐ Portable

Decontamination Method: N/A, dedicated pump

Field Analysis

							Final Reading
Date/Time							
Depth to Water (ft)							
Volume Purged (L)							
Temp (°C)							
Sp. Cond (umhos/cm)							
pH							
DO (mg/l)							
ORP (mV)							
Turbidity (NTU)							

Equipment Depth: Flow Rate: Volume Removed: Volume Sampled: 1L

Odor? ☐ Yes ☒ No Color? ☐ Yes ☒ No

Comments:

Groundwater Sampling Field Sheet

Disposal Site Name: IPL - Big Bend Landfill   Permit No.: 57-SDP-10-90C

Well/Piezometer: MW-16   Weather: 70°, Wind Direction: N, Sunny, No precip

Date: 9/14/2023   Sampler Name: Tyler Stirling

Monitoring Well Details

Construction Data

Borehole Diameter (in): ____   Depth to Tope of Screen (ft): 112.66

Casing Diameter (in): 2.01   Casing Material: PVC

Top of Casing Elevation (ft. MSL): 790.31   Ground Surface Elevation (ft. MSL): ____

Field Observations

Locked: ☒ Yes ☐ No

	Before Purging	After Purging	Before Sampling
Depth to Water Level (ft.):	90.06	90.06	90.06
Water Elevation (ft. MSL):	700.25	700.25	700.25

Screen Submerged? (Depth to Water Level < Depth to Top of Screen) ☐ Yes ■ No

	Start	End
Purge Date/Time	9/14, 12:40	9/14, 14:20

Well Conditions Commentary: --

Sampling Equipment (check one)

☒ Pump ☐ Interval Sampler

☐ Bailer ☐ Other (specify): ____

Equipment Name & Description: Sample Pro

Pump Types (check one)

☐ Submersible ☐ Peristaltic ☒ Bladder ☐ Inertial Lift Pump ☐ Other (specify): ____

Method (check one)

☒ Low Flow ☐ No Purge ☐ Purge

Options (check one)

☒ Dedicated ☐ Disposable ☐ Portable

Decontamination Method: N/A. Dedicated pump.

Field Analysis

							Final Reading
Date/Time	9/14, 13:15	9/14, 13:20	9/14, 13:25	9/14, 13:30	9/14, 13:35	9/14, 13:40	9/14, 13:45
Depth to Water (ft)	90.06	90.06	90.06	90.06	90.06	90.06	90.06
Volume Purged (L)	3.5	4.0	4.5	5.0	5.5	6.0	6.5
Temp (°C)	15.3	15.1	15.0	15.2	15.3	15.3	15.4
Sp. Cond (umhos/cm)	745	747	745	744	744	743	744
pH	7.06	7.06	7.06	7.06	7.06	7.06	7.06
DO (mg/l)	1.19	1.04	0.94	0.86	0.78	0.74	0.70
ORP (mV)	-179.4	-182.0	-183.2	-186.9	-187.8	-190.1	-191.5
Turbidity (NTU)	6.28	5.15	4.16	4.48	3.58	4.97	3.32

Equipment Depth: ____ Flow Rate: 100mL/min Volume Removed: 10 L Volume Sampled: 1L

Odor? ☒ Yes ☐ No   Color? ☐ Yes ☒ No

Comments: ____

Groundwater Sampling Field Sheet

Disposal Site Name: IPL - Big Bend Landfill　Permit No.: 57-SDP-10-90C

Well/Piezometer: MW-17R　Weather:

Date: 9/11/2023　Sampler Name: Tyler Stirling

Monitoring Well Details

Construction Data

Borehole Diameter (in):　Depth to Tope of Screen (ft): 67.15

Casing Diameter (in): 2.01　Casing Material: PVC

Top of Casing Elevation (ft. MSL): 790.27　Ground Surface Elevation (ft. MSL):

Field Observations

Locked: ☒ Yes ☐ No

	Before Purging	After Purging	Before Sampling
Depth to Water Level (ft.):	81.72	--	--
Water Elevation (ft. MSL):	708.55	--	--

Screen Submerged? (Depth to Water Level < Depth to Top of Screen) ☐ Yes ■ No

	Start	End
Purge Date/Time		

Well Conditions Commentary: --

Sampling Equipment (check one)

☐ Pump ☐ Interval Sampler

☐ Bailer ☐ Other (specify):

Equipment Name & Description:

Pump Types (check one)

☐ Submersible ☐ Peristaltic ☐ Bladder ☐ Inertial Lift Pump ☐ Other (specify):

Method (check one)

☐ Low Flow ☒ No Purge ☐ Purge

Options (check one)

☐ Dedicated ☐ Disposable ☐ Portable

Decontamination Method: N/A

Field Analysis

							Final Reading
Date/Time							
Depth to Water (ft)							
Volume Purged ( )							
Temp (°C)							
Sp. Cond (umhos/cm)							
pH							
DO (mg/l)							
ORP (mV)							
Turbidity (NTU)							

Equipment Depth:　Flow Rate:　Volume Removed:　Volume Sampled:

Odor? ☐ Yes ☒ No　Color? ☐ Yes ☒ No

Comments: Water level point only.

Groundwater Sampling Field Sheet

Disposal Site Name: IPL - Big Bend Landfill Permit No.: 57-SDP-10-90C

Well/Piezometer: MW-18 Weather: 70°, Wind Direction: N, Sunny, No precip

Date: 9/11/2023 Sampler Name: Tyler Stirling

Monitoring Well Details

Construction Data

Borehole Diameter (in): ______ Depth to Tope of Screen (ft): 30.45

Casing Diameter (in): 2.01 Casing Material: PVC

Top of Casing Elevation (ft. MSL): 781.74 Ground Surface Elevation (ft. MSL): ______

Field Observations

Locked: ☒ Yes ☐ No

	Before Purging	After Purging	Before Sampling
Depth to Water Level (ft.):	38.08	--	--
Water Elevation (ft. MSL):	743.66	--	--

Screen Submerged? (Depth to Water Level < Depth to Top of Screen) ☐ Yes ■ No

	Start	End
Purge Date/Time		

Well Conditions Commentary: --

Sampling Equipment (check one)

☐ Pump ☐ Interval Sampler

☐ Bailer ☐ Other (specify): ______

Equipment Name & Description: ______

Pump Types (check one)

☐ Submersible ☐ Peristaltic ☐ Bladder ☐ Inertial Lift Pump ☐ Other (specify): ______

Method (check one)

☐ Low Flow ☒ No Purge ☐ Purge

Options (check one)

☐ Dedicated ☐ Disposable ☐ Portable

Decontamination Method: N/A

Field Analysis

							Final Reading
Date/Time							
Depth to Water (ft)							
Volume Purged ( )							
Temp (°C)							
Sp. Cond (umhos/cm)							
pH							
DO (mg/l)							
ORP (mV)							
Turbidity (NTU)							

Equipment Depth: ______ Flow Rate: ______ Volume Removed: ______ Volume Sampled: ______

Odor? ☐ Yes ☒ No Color? ☐ Yes ☒ No

Comments: Water level point only.

Groundwater Sampling Field Sheet

Disposal Site Name: IPL - Big Bend Landfill   Permit No.: 57-SDP-10-90C

Well/Piezometer: MW-20   Weather: 64°, Wind Direction: SW, Sunny, No precip

Date: 9/12/2023   Sampler Name: Tyler Stirling

Monitoring Well Details

Construction Data

Borehole Diameter (in): ______   Depth to Tope of Screen (ft): 22.55

Casing Diameter (in): 2.01   Casing Material: PVC

Top of Casing Elevation (ft. MSL): 786.66   Ground Surface Elevation (ft. MSL): ______

Field Observations

Locked: ☒ Yes ☐ No

	Before Purging	After Purging	Before Sampling
Depth to Water Level (ft.):	29.05	29.05	29.05
Water Elevation (ft. MSL):	757.61	757.61	757.61

Screen Submerged? (Depth to Water Level < Depth to Top of Screen) ☐ Yes ■ No

	Start	End
Purge Date/Time	9/12, 9:45	9/12, 11:20

Well Conditions Commentary: --

Sampling Equipment (check one)

☒ Pump ☐ Interval Sampler

☐ Bailer ☐ Other (specify): ______

Equipment Name & Description: Sample Pro

Pump Types (check one)

☐ Submersible ☐ Peristaltic ☒ Bladder ☐ Inertial Lift Pump ☐ Other (specify): ______

Method (check one)

☒ Low Flow ☐ No Purge ☐ Purge

Options (check one)

☒ Dedicated ☐ Disposable ☐ Portable

Decontamination Method: N/A. Dedicated pump.

Field Analysis

							Final Reading
Date/Time	9/12, 10:20	9/12, 10:25	9/12, 10:30	9/12, 10:35	9/12, 10:40	9/12, 10:45	9/12, 10:50
Depth to Water (ft)	29.05	29.05	29.05	29.05	29.05	29.05	29.05
Volume Purged (L)	3.5	4	4.5	5	5.5	6	6.5
Temp (°C)	14.7	14.8	14.6	14.8	14.9	15.0	15.0
Sp. Cond (umhos/cm)	613	613	614	612	613	610	611
pH	6.14	6.14	6.14	6.14	6.14	6.14	6.14
DO (mg/l)	2.62	2.56	2.55	2.48	2.44	2.41	2.39
ORP (mV)	128.0	126.0	124.4	122.2	121.3	120.1	118.9
Turbidity (NTU)	38.34	27.64	18.75	17.61	10.63	9.57	9.61

Equipment Depth: ______ Flow Rate: 100mL/min Volume Removed: 9.5 Volume Sampled: 1L

Odor? ☐ Yes ☒ No   Color? ☐ Yes ☒ No

Comments: Starts cloudy white color, water color gradually clears up.

Groundwater Sampling Field Sheet

Disposal Site Name: IPL - Big Bend Landfill   Permit No.: 57-SDP-10-90C

Well/Piezometer: MW-21   Weather: 65°, Wind Direction: N, Sunny, No precip

Date: 9/14/2023   Sampler Name: Tyler Stirling

Monitoring Well Details

Construction Data

Borehole Diameter (in): ______   Depth to Tope of Screen (ft): 13.45

Casing Diameter (in): 2.01   Casing Material: PVC

Top of Casing Elevation (ft. MSL): 779.80   Ground Surface Elevation (ft. MSL): ______

Field Observations

Locked: ☒ Yes ☐ No

	Before Purging	After Purging	Before Sampling
Depth to Water Level (ft.):	16.43	16.43	16.43
Water Elevation (ft. MSL):	763.37	763.37	763.37

Screen Submerged? (Depth to Water Level < Depth to Top of Screen) ☐ Yes ■ No

	Start	End
Purge Date/Time	9/14, 9:40	9/14, 10:55

Well Conditions Commentary: --

Sampling Equipment (check one)

☒ Pump ☐ Interval Sampler

☐ Bailer ☒ Other (specify): ______

Equipment Name & Description: Sample Pro

Pump Types (check one)

☐ Submersible ☐ Peristaltic ☒ Bladder ☐ Inertial Lift Pump ☐ Other (specify): ______

Method (check one)

☒ Low Flow ☐ No Purge ☐ Purge

Options (check one)

☒ Dedicated ☐ Disposable ☐ Portable

Decontamination Method: N/A. Dedicated pump.

Field Analysis

							Final Reading
Date/Time	9/14, 10:05	9/14, 10:10	9/14, 10:15	9/14, 10:20	9/14, 10:25	9/14, 10:30	9/14, 10:35
Depth to Water (ft)	16.43	16.43	16.43	16.43	16.43	16.43	16.43
Volume Purged (L)	5	6	7	8	9	10	11
Temp (°C)	12.9	13.1	13.2	13.3	13.3	13.3	13.3
Sp. Cond (umhos/cm)	1155	1154	1151	1152	1152	1151	1149
pH	6.71	6.71	6.72	6.72	6.72	6.73	6.73
DO (mg/l)	5.57	5.64	5.83	5.89	5.95	6.01	6.00
ORP (mV)	104.3	104.7	105.8	105.8	105.9	106.0	106.2
Turbidity (NTU)	19.78	12.05	75.55	58.54	35.59	33.10	31.15

Equipment Depth: ______ Flow Rate: 200mL/min Volume Removed: 15 L Volume Sampled: 1L

Odor? ☐ Yes ☒ No   Color? ☐ Yes ☒ No

Comments: Initial water color cloudy brown, gradually clears

Groundwater Sampling Field Sheet

Disposal Site Name: IPL - Big Bend Landfill   Permit No.: 57-SDP-10-90C

Well/Piezometer: MW-23R   Weather: 70°, Wind Direction: N, Sunny, No precip

Date: 9/14/2023   Sampler Name: Tyler Stirling

Monitoring Well Details

Construction Data

Borehole Diameter (in): ______   Depth to Tope of Screen (ft): 90.2

Casing Diameter (in): 2.01   Casing Material: PVC

Top of Casing Elevation (ft. MSL): 799.54   Ground Surface Elevation (ft. MSL): ______

Field Observations

Locked: ☒ Yes ☐ No

	Before Purging	After Purging	Before Sampling
Depth to Water Level (ft.):	98.41	98.41	98.41
Water Elevation (ft. MSL):	701.13	701.13	701.13

Screen Submerged? (Depth to Water Level < Depth to Top of Screen) ☐ Yes ■ No

	Start	End
Purge Date/Time	9/14, 11:30	9/14, 12:10

Well Conditions Commentary: --

Sampling Equipment (check one)

☒ Pump ☐ Interval Sampler

☐ Bailer ☐ Other (specify):

Equipment Name & Description: Well Wizard

Pump Types (check one)

☐ Submersible ☐ Peristaltic ☒ Bladder ☐ Inertial Lift Pump ☐ Other (specify):

Method (check one)

☒ Low Flow ☐ No Purge ☐ Purge

Options (check one)

☒ Dedicated ☐ Disposable ☐ Portable

Decontamination Method: N/A. Dedicated pump.

Field Analysis

							Final Reading
Date/Time	9/14, 11:40	9/14, 11:45	9/14, 11:50	9/14, 11:55	9/14, 12:00	9/14, 12:05	9/14, 12:10
Depth to Water (ft)	98.41	98.41	98.41	98.41	98.41	98.41	98.41
Volume Purged (L)	2	3	4	5	6	7	8
Temp (°C)	13.2	13.2	13.2	13.2	13.2	13.2	13.3
Sp. Cond (umhos/cm)	820	820	819	818	819	820	819
pH	6.91	6.91	6.91	6.91	6.91	6.91	6.91
DO (mg/l)	6.36	6.29	6.28	6.27	6.30	6.28	6.26
ORP (mV)	111.7	111.3	111.2	111.0	111.2	111.3	111.1
Turbidity (NTU)	13.02	9.94	6.33	5.56	4.24	4.45	3.28

Equipment Depth: ______ Flow Rate: 200mL/min Volume Removed: 9L Volume Sampled: 1L

Odor? ☐ Yes ☒ No   Color? ☐ Yes ☒ No

Comments:

Groundwater Sampling Field Sheet

Disposal Site Name: IPL - Big Bend Landfill Permit No.: 57-SDP-10-90C

Well/Piezometer: MW-24R Weather:

Date: 9/14/2023 Sampler Name: Tyler Stirling

Monitoring Well Details

Construction Data

Borehole Diameter (in): Depth to Tope of Screen (ft): 120.2

Casing Diameter (in): 2.01 Casing Material: PVC

Top of Casing Elevation (ft. MSL): 799.83 Ground Surface Elevation (ft. MSL):

Field Observations

Locked: ☒ Yes ☐ No

	Before Purging	After Purging	Before Sampling
Depth to Water Level (ft.):	99.33	--	--
Water Elevation (ft. MSL):	700.50	--	--

Screen Submerged? (Depth to Water Level < Depth to Top of Screen) ■ Yes ☐ No

	Start	End
Purge Date/Time		

Well Conditions Commentary: Well could not be sampled due to obstruction.

Sampling Equipment (check one)

☐ Pump ☐ Interval Sampler

☐ Bailer ☐ Other (specify):

Equipment Name & Description:

Pump Types (check one)

☐ Submersible ☐ Peristaltic ☐ Bladder ☐ Inertial Lift Pump ☐ Other (specify):

Method (check one)

☐ Low Flow ☒ No Purge ☐ Purge

Options (check one)

☐ Dedicated ☐ Disposable ☐ Portable

Decontamination Method: N/A

Field Analysis

							Final Reading
Date/Time							
Depth to Water (ft)							
Volume Purged ( )							
Temp (°C)							
Sp. Cond (umhos/cm)							
pH							
DO (mg/l)							
ORP (mV)							
Turbidity (NTU)							

Equipment Depth: Flow Rate: Volume Removed: Volume Sampled:

Odor? ☐ Yes ☒ No Color? ☐ Yes ☒ No

Comments:

Groundwater Sampling Field Sheet

Disposal Site Name: IPL - Big Bend Landfill   Permit No.: 57-SDP-10-90C

Well/Piezometer: MW-25R   Weather: 70°F, Wind Direction: SW, Sunny, No precipitation

Date: 9/12/2023   Sampler Name: Tyler Stirling

Monitoring Well Details

Construction Data

Borehole Diameter (in):   Depth to Tope of Screen (ft): 38.41

Casing Diameter (in): 2.01   Casing Material: PVC

Top of Casing Elevation (ft. MSL): 794.07   Ground Surface Elevation (ft. MSL):

Field Observations

Locked: ☒ Yes ☐ No

	Before Purging	After Purging	Before Sampling
Depth to Water Level (ft.):	42.30	43.30	43.30
Water Elevation (ft. MSL):	751.77	750.77	750.77

Screen Submerged? (Depth to Water Level < Depth to Top of Screen) ☐ Yes ■ No

	Start	End
Purge Date/Time	9/12, 11:40	9/12, 13:05

Well Conditions Commentary: --

Sampling Equipment (check one)

☒ Pump ☐ Interval Sampler

☐ Bailer ☐ Other (specify):

Equipment Name & Description: Sample Pro

Pump Types (check one)

☐ Submersible ☐ Peristaltic ☒ Bladder ☐ Inertial Lift Pump ☐ Other (specify):

Method (check one)

☒ Low Flow ☐ No Purge ☐ Purge

Options (check one)

☒ Dedicated ☐ Disposable ☐ Portable

Decontamination Method: N/A. Dedicated pump.

Field Analysis

							Final Reading
Date/Time	9/12, 12:35	9/12, 12:40	9/12, 12:45	9/12, 12:50	9/12, 12:55	9/12, 13:00	9/12, 13:05
Depth to Water (ft)	43.30	43.30	43.30	43.30	43.30	43.30	43.30
Volume Purged (L)	11	12	13	14	15	16	17
Temp (°C)	14.1	14.2	14.2	14.1	14.1	14.2	14.2
Sp. Cond (umhos/cm)	948	948	948	950	950	950	950
pH	6.75	6.75	6.75	6.75	6.75	6.75	6.75
DO (mg/l)	6.50	6.52	6.52	6.55	6.53	6.49	6.51
ORP (mV)	108.4	109.0	109.4	110.3	110.5	110.0	110.2
Turbidity (NTU)	32.37	22.44	20.29	13.21	11.15	10.41	9.79

Equipment Depth: Flow Rate: 200mL/min   Volume Removed: 18 L   Volume Sampled: 1 L

Odor? ☐ Yes ☒ No   Color? ☐ Yes ☒ No

Comments: Initial water color was cloudy white-gradually clears up.

Appendix C

Laboratory Analytical Reports

eurofins Environment Testing

1
2
3
4
5
6
7
8
9
10
11
12
13
14

ANALYTICAL REPORT

PREPARED FOR

Attn: Meghan Blodgett
SCS Engineers
2830 Dairy Drive
Madison, Wisconsin 53718

Generated 10/5/2023 8:57:11 AM

JOB DESCRIPTION

Alliant Big Bend - 25223063

JOB NUMBER

310-264965-1

Eurofins Cedar Falls

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization

Generated
10/5/2023 8:57:11 AM

Authorized for release by
Sandie Fredrick, Project Manager II
Sandra.Fredrick@et.eurofinsus.com
(920)261-1660

Table of Contents

Cover Page 1
Table of Contents 3
Case Narrative 4
Sample Summary 5
Detection Summary 6
Client Sample Results 7
Definitions 8
QC Sample Results 9
QC Association 12
Chronicle 13
Certification Summary 14
Method Summary 15
Chain of Custody 16
Receipt Checklists 18

Case Narrative

Client: SCS Engineers
Project/Site: Alliant Big Bend - 25223063

Job ID: 310-264965-1

Job ID: 310-264965-1

Laboratory: Eurofins Cedar Falls

Narrative

Job Narrative
310-264965-1

Receipt
The sample was received on 9/15/2023 4:20 PM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.0º C.

HPLC/IC
Method 9056A: The following sample was diluted due to the nature of the sample matrix: 2606 Big Bend Rd (310-264965-1). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Sample Summary

Client: SCS Engineers
Project/Site: Alliant Big Bend - 25223063

Job ID: 310-264965-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-264965-1	2606 Big Bend Rd	Water	09/12/23 08:00	09/15/23 16:20

Detection Summary

Client: SCS Engineers
Project/Site: Alliant Big Bend - 25223063

Job ID: 310-264965-1

Client Sample ID: 2606 Big Bend Rd

Lab Sample ID: 310-264965-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	11		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	75		5.0	2.1	mg/L	5		9056A	Total/NA
Barium	86		2.0	0.64	ug/L	1		6020B	Total/NA
Boron	780		100	76	ug/L	1		6020B	Total/NA
Calcium	100		0.50	0.19	mg/L	1		6020B	Total/NA
Copper	2.2	J	5.0	1.8	ug/L	1		6020B	Total/NA
Lead	0.27	J	0.50	0.24	ug/L	1		6020B	Total/NA
Lithium	12		10	2.5	ug/L	1		6020B	Total/NA
Magnesium	37000		500	150	ug/L	1		6020B	Total/NA
Manganese	6.4	J	10	3.6	ug/L	1		6020B	Total/NA
Selenium	6.1		5.0	1.4	ug/L	1		6020B	Total/NA
Zinc	24		20	6.4	ug/L	1		6020B	Total/NA
Bicarbonate Alkalinity as CaCO3	330		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	330		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	450		50	34	mg/L	1		SM 2540C	Total/NA
Oxidation Reduction Potential	203.6				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	6.46				mg/L	1		Field Sampling	Total/NA
Field pH	6.96				SU	1		Field Sampling	Total/NA
Field Conductivity	881				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	15.8				Degrees C	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: SCS Engineers
Project/Site: Alliant Big Bend - 25223063

Job ID: 310-264965-1

Client Sample ID: 2606 Big Bend Rd

Date Collected: 09/12/23 08:00
Date Received: 09/15/23 16:20

Lab Sample ID: 310-264965-1
Matrix: Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**11**		5.0	2.3	mg/L			09/23/23 15:18	5
Fluoride	<0.38		1.0	0.38	mg/L			09/23/23 15:18	5
Sulfate	**75**		5.0	2.1	mg/L			09/23/23 15:18	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.53		2.0	0.53	ug/L		09/19/23 09:30	09/29/23 04:54	1
Barium	**86**		2.0	0.64	ug/L		09/19/23 09:30	09/29/23 04:54	1
Beryllium	<0.33		1.0	0.33	ug/L		09/19/23 09:30	09/29/23 04:54	1
Boron	**780**		100	76	ug/L		09/19/23 09:30	09/29/23 04:54	1
Calcium	**100**		0.50	0.19	mg/L		09/19/23 09:30	09/29/23 04:54	1
Cobalt	<0.17		0.50	0.17	ug/L		09/19/23 09:30	09/29/23 04:54	1
Copper	**2.2**	**J**	5.0	1.8	ug/L		09/19/23 09:30	09/29/23 04:54	1
Iron	<36		100	36	ug/L		09/19/23 09:30	09/29/23 04:54	1
Lead	**0.27**	**J**	0.50	0.24	ug/L		09/19/23 09:30	09/29/23 04:54	1
Lithium	**12**		10	2.5	ug/L		09/19/23 09:30	09/29/23 04:54	1
Magnesium	**37000**		500	150	ug/L		09/19/23 09:30	09/29/23 04:54	1
Manganese	**6.4**	**J**	10	3.6	ug/L		09/19/23 09:30	09/29/23 04:54	1
Molybdenum	<0.91		2.0	0.91	ug/L		09/19/23 09:30	09/29/23 04:54	1
Selenium	**6.1**		5.0	1.4	ug/L		09/19/23 09:30	09/29/23 04:54	1
Zinc	**24**		20	6.4	ug/L		09/19/23 09:30	09/29/23 04:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	<1.7		5.0	1.7	mg/L			09/18/23 13:47	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**330**		5.0	2.5	mg/L			09/20/23 15:51	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<2.5		5.0	2.5	mg/L			09/20/23 15:51	1
Total Alkalinity as CaCO3 (SM 2320B)	**330**		5.0	2.5	mg/L			09/20/23 15:51	1
Total Dissolved Solids (SM 2540C)	**450**		50	34	mg/L			09/18/23 14:42	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Oxidation Reduction Potential	**203.6**				mV			09/12/23 08:00	1
Oxygen, Dissolved	**6.46**				mg/L			09/12/23 08:00	1
Field pH	**6.96**				SU			09/12/23 08:00	1
Field Conductivity	**881**				umhos/cm			09/12/23 08:00	1
Field Temperature	**15.8**				Degrees C			09/12/23 08:00	1

Definitions/Glossary

Client: SCS Engineers
Project/Site: Alliant Big Bend - 25223063

Job ID: 310-264965-1

Qualifiers

Metals

Qualifier	Qualifier Description
E	Result exceeded calibration range.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Client: SCS Engineers
Project/Site: Alliant Big Bend - 25223063

Job ID: 310-264965-1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-400521/3
Matrix: Water
Analysis Batch: 400521

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.45		1.0	0.45	mg/L			09/23/23 12:53	1
Fluoride	<0.075		0.20	0.075	mg/L			09/23/23 12:53	1
Sulfate	<0.42		1.0	0.42	mg/L			09/23/23 12:53	1

Lab Sample ID: LCS 310-400521/4
Matrix: Water
Analysis Batch: 400521

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	9.86		mg/L		99	90 - 110
Fluoride	2.00	2.00		mg/L		100	90 - 110
Sulfate	10.0	10.4		mg/L		104	90 - 110

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-399888/1-A
Matrix: Water
Analysis Batch: 401128

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 399888

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.53		2.0	0.53	ug/L		09/19/23 09:30	09/30/23 19:37	1
Barium	<0.64		2.0	0.64	ug/L		09/19/23 09:30	09/30/23 19:37	1
Beryllium	<0.33		1.0	0.33	ug/L		09/19/23 09:30	09/30/23 19:37	1
Boron	<76		100	76	ug/L		09/19/23 09:30	09/30/23 19:37	1
Calcium	<0.19		0.50	0.19	mg/L		09/19/23 09:30	09/30/23 19:37	1
Cobalt	<0.17		0.50	0.17	ug/L		09/19/23 09:30	09/30/23 19:37	1
Copper	<1.8		5.0	1.8	ug/L		09/19/23 09:30	09/30/23 19:37	1
Iron	<36		100	36	ug/L		09/19/23 09:30	09/30/23 19:37	1
Lead	<0.24		0.50	0.24	ug/L		09/19/23 09:30	09/30/23 19:37	1
Lithium	<2.5		10	2.5	ug/L		09/19/23 09:30	09/30/23 19:37	1
Magnesium	<150		500	150	ug/L		09/19/23 09:30	09/30/23 19:37	1
Manganese	<3.6		10	3.6	ug/L		09/19/23 09:30	09/30/23 19:37	1
Molybdenum	<0.91		2.0	0.91	ug/L		09/19/23 09:30	09/30/23 19:37	1
Selenium	<1.4		5.0	1.4	ug/L		09/19/23 09:30	09/30/23 19:37	1
Zinc	<6.4		20	6.4	ug/L		09/19/23 09:30	09/30/23 19:37	1

Lab Sample ID: LCS 310-399888/2-A
Matrix: Water
Analysis Batch: 401213

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 399888

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	200	236		ug/L		118	80 - 120
Barium	100	120		ug/L		120	80 - 120
Beryllium	100	113		ug/L		113	80 - 120
Boron	200	225		ug/L		112	80 - 120
Calcium	2.00	2.00		mg/L		100	80 - 120
Cobalt	100	120		ug/L		120	80 - 120
Copper	200	235		ug/L		118	80 - 120
Iron	200	211		ug/L		106	80 - 120

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 310-399888/2-A
Matrix: Water
Analysis Batch: 401213

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 399888

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Lead	200	239		ug/L		120	80 - 120
Lithium	200	229		ug/L		115	80 - 120
Magnesium	2000	2050		ug/L		103	80 - 120
Manganese	100	109		ug/L		109	80 - 120
Molybdenum	200	237		ug/L		119	80 - 120
Selenium	400	457	E	ug/L		114	80 - 120
Zinc	200	233		ug/L		116	80 - 120

Method: I-3765-85 - Residue, Non-filterable (TSS)

Lab Sample ID: MB 310-399871/1
Matrix: Water
Analysis Batch: 399871

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<1.7		5.0	1.7	mg/L			09/18/23 13:47	1

Lab Sample ID: LCS 310-399871/2
Matrix: Water
Analysis Batch: 399871

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	102		mg/L		102	75 - 116

Method: SM 2320B - Alkalinity

Lab Sample ID: LCS 310-400183/25
Matrix: Water
Analysis Batch: 400183

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Alkalinity as CaCO3	1000	905		mg/L		90	90 - 110

Lab Sample ID: 310-264965-1 DU
Matrix: Water
Analysis Batch: 400183

Client Sample ID: 2606 Big Bend Rd
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Bicarbonate Alkalinity as CaCO3	330		326		mg/L		0.3	
Carbonate Alkalinity as CaCO3	<2.5		<2.5		mg/L		NC	
Total Alkalinity as CaCO3	330		326		mg/L		0.3	10

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 310-399878/1
Matrix: Water
Analysis Batch: 399878

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<34		50	34	mg/L			09/18/23 14:42	1

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LCS 310-399878/2
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 399878

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	966		mg/L		97	90 - 110

HPLC/IC

Analysis Batch: 400521

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264965-1	2606 Big Bend Rd	Total/NA	Water	9056A	
MB 310-400521/3	Method Blank	Total/NA	Water	9056A	
LCS 310-400521/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 399888

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264965-1	2606 Big Bend Rd	Total/NA	Water	3005A	
MB 310-399888/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-399888/2-A	Lab Control Sample	Total/NA	Water	3005A	

Analysis Batch: 401021

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264965-1	2606 Big Bend Rd	Total/NA	Water	6020B	399888

Analysis Batch: 401128

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-399888/1-A	Method Blank	Total/NA	Water	6020B	399888

Analysis Batch: 401213

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-399888/2-A	Lab Control Sample	Total/NA	Water	6020B	399888

General Chemistry

Analysis Batch: 399871

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264965-1	2606 Big Bend Rd	Total/NA	Water	I-3765-85	
MB 310-399871/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-399871/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Analysis Batch: 399878

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264965-1	2606 Big Bend Rd	Total/NA	Water	SM 2540C	
MB 310-399878/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-399878/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 400183

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264965-1	2606 Big Bend Rd	Total/NA	Water	SM 2320B	
LCS 310-400183/25	Lab Control Sample	Total/NA	Water	SM 2320B	
310-264965-1 DU	2606 Big Bend Rd	Total/NA	Water	SM 2320B	

Field Service / Mobile Lab

Analysis Batch: 401549

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264965-1	2606 Big Bend Rd	Total/NA	Water	Field Sampling	

Lab Chronicle

Client: SCS Engineers
Project/Site: Alliant Big Bend - 25223063

Job ID: 310-264965-1

Client Sample ID: 2606 Big Bend Rd
Date Collected: 09/12/23 08:00
Date Received: 09/15/23 16:20

Lab Sample ID: 310-264965-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	400521	QTZ5	EET CF	09/23/23 15:18
Total/NA	Prep	3005A			399888	QTZ5	EET CF	09/19/23 09:30
Total/NA	Analysis	6020B		1	401021	A6US	EET CF	09/29/23 04:54
Total/NA	Analysis	I-3765-85		1	399871	DGU1	EET CF	09/18/23 13:47
Total/NA	Analysis	SM 2320B		1	400183	MAQ3	EET CF	09/20/23 15:51
Total/NA	Analysis	SM 2540C		1	399878	ENB7	EET CF	09/18/23 14:42
Total/NA	Analysis	Field Sampling		1	401549	BJ0R	EET CF	09/12/23 08:00

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

Laboratory: Eurofins Cedar Falls

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-23

Method Summary

Client: SCS Engineers
Project/Site: Alliant Big Bend - 25223063

Job ID: 310-264965-1

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
SM 2320B	Alkalinity	SM	EET CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CF
Field Sampling	Field Sampling	EPA	EET CF
3005A	Preparation, Total Metals	SW846	EET CF

Protocol References:

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

USGS = "Methods For Analysis Of Water And Fluvial Sediments", USGS, 1989

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

eurofins | Environment Testing America

310-264965 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: Magellan			
City/State:	CITY	STATE	Project:
Receipt Information			
Date/Time Received:	DATE 9/15/23	TIME 1620	Received By: EM

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☒ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other:______

Condition of Cooler/Containers

Sample(s) received in Cooler?	☒ Yes	☐ No	*If yes:* Cooler ID:
Multiple Coolers?	☐ Yes	☒ No	*If yes:* Cooler # _____ of _____
Cooler Custody Seals Present?	☐ Yes	☒ No	*If yes:* Cooler custody seals intact? ☐ Yes ☐ No
Sample Custody Seals Present?	☐ Yes	☒ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes	☒ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:______ ☐ NONE

Thermometer ID: R	Correction Factor (°C): 0

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 2.0	Corrected Temp (°C): 2.0

• **Sample Container Temperature**

Container(s) used:	CONTAINER 1	CONTAINER 2
Uncorrected Temp (°C):		
Corrected Temp (°C):		

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No

NOTE If yes, contact PM before proceeding If no, proceed with login

Additional Comments

Document CED-P-SAM-FRM45521
Revision: 26
Date 27 Jan 2022

Eurofins Cedar Falls

General temperature criteria is 0 to 6°C
Bacteria temperature criteria is 0 to 10°C

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone 319-277-2401 Fax: 319-277-2425

Chain of Custody Record

TestAmerica Des Moines SC
214

eurofins | Environment Testing

Client Information	Sampler: Tyler Stirling	Lab PM: Fredrick, Sandie	Carrier Tracking No(s):	COC No: 310-84931-23683 2
Client Contact: Meghan Blodgett	Phone: 515-505-2716	E-Mail: Sandra Fredrick@et.eurofinsus.com	State of Origin: IA	Page: Page 2 of 3
Company: SCS Engineers	PWSID:			Job #: 25223063
Address: 2830 Dairy Drive	Due Date Requested			
City: Madison	TAT Requested (days):			
State Zip: WI, 53718	Compliance Project: Δ Yes Δ No			
Phone:	PO #: Purchase Order Requested			
Email: mblodgett@scsengineers.com	WO #:			
Project Name: Alliant Big Bend	Project #: 31011020			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Y - Trizma
Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9056A_ORGFM_28D - Chloride, Fluoride & Sulfate	6020B - Metals (16)	2540C_Calcd, I_3766_86	2320B - (MOD) Alkalinity	2320B - Alkalinity	6020B - D. Metals	Total Number of containers	Special Instructions/Note:
				Preservation Code:			N	D	N	N	N	D		
MW-21				Water										
MW-23R				Water										
MW-24R				Water										
MW-25R				Water										
2606 Big Bend Rd	9/12/23	8:00	G	Water			X	X	X	X				Report 2606 seperately from others
LW-01				Liquid										
LW-02				Liquid										
LW-03	~~[illegible]~~	~~[illegible]~~	~~G~~	Liquid				~~X~~						
Field Blank				Liquid										
MW-2				Water										
MW-6				Water										

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ________ Months

Deliverable Requested I II, III IV, Other (specify)

Special Instructions/QC Requirements

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Tyler S	9/15/23 2:00		SS	9/15/23 1020	

Custody Seals Intact: Δ Yes Δ No	Custody Seal No	Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-264965-1

Login Number: 264965
List Number: 1
Creator: Tucker, Sarah L

List Source: Eurofins Cedar Falls

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

ANALYTICAL REPORT

PREPARED FOR

Attn: Meghan Blodgett
SCS Engineers
2830 Dairy Drive
Madison, Wisconsin 53718

Generated 11/7/2023 5:09:14 PM Revision 1

JOB DESCRIPTION

Alliant Big Bend - 25223063

JOB NUMBER

310-264962-1

Eurofins Cedar Falls

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization

Jodie Bracken

Generated
11/7/2023 5:09:14 PM
Revision 1

Authorized for release by
Jodie Bracken, Project Management Assistant II
Jodie.Bracken@ET.EurofinsUS.com
Designee for
Sandie Fredrick, Project Manager II
Sandra.Fredrick@et.eurofinsus.com
(920)261-1660

Table of Contents

Cover Page 1
Table of Contents 3
Case Narrative 4
Sample Summary 5
Detection Summary 6
Client Sample Results 14
Definitions 36
QC Sample Results 37
QC Association 43
Chronicle 48
Certification Summary 54
Method Summary 55
Chain of Custody 56
Receipt Checklists 64
Field Data Sheets 65

Job ID: 310-264962-1

Laboratory: Eurofins Cedar Falls

Narrative

Job Narrative
310-264962-1

Revision
The report being provided is a revision of the original report sent on 10/17/2023. The report has been revised to update the narrative regarding laboratory sample 310-264962-15 (Field Blank)..

Receipt
The samples were received on 9/15/2023 4:20 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 0.4º C, 2.0º C and 2.1º C.

Receipt Exceptions
The following samples were listed on the Chain of Custody (COC): LW-03

HPLC/IC
Methods 300.0, 9056A: The following samples were diluted due to the nature of the sample matrix: MW-5 (310-264962-2), MW-6 (310-264962-3), MW-7 (310-264962-4) and MW-10 (310-264962-5). Elevated reporting limits (RLs) are provided.

Methods 300.0, 9056A: The following samples were diluted due to the nature of the sample matrix: MW-11 (310-264962-6), MW-12 (310-264962-7), MW-14 (310-264962-8), MW-16 (310-264962-9), MW-20 (310-264962-10), MW-21 (310-264962-11), MW-23R (310-264962-12), MW-25R (310-264962-13) and LW-01 (310-264962-14). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method 6020B: The continuing calibration blank (CCB) for analytical batch 310-401021 contained Calcium above the reporting limit (RL). All reported samples associated with this CCB were either ND for this analyte or contained this analyte at a concentration greater than 10X the value found in the CCB; therefore, re-analysis of samples was not performed.

Method 6020B: The result reported for Boron, Calcium, and Molybdenum for the following sample may be attributed to carryover from an earlier analysis: Field Blank (310-264962-15). The sample results were questioned after the sample was already disposed of, so reanalysis of the sample was not possible.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Sample Summary

Client: SCS Engineers
Project/Site: Alliant Big Bend - 25223063

Job ID: 310-264962-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-264962-1	MW-2	Water	09/12/23 14:40	09/15/23 16:20
310-264962-2	MW-5	Water	09/13/23 15:05	09/15/23 16:20
310-264962-3	MW-6	Water	09/13/23 15:12	09/15/23 16:20
310-264962-4	MW-7	Water	09/13/23 09:15	09/15/23 16:20
310-264962-5	MW-10	Water	09/13/23 13:00	09/15/23 16:20
310-264962-6	MW-11	Water	09/12/23 14:32	09/15/23 16:20
310-264962-7	MW-12	Water	09/11/23 14:50	09/15/23 16:20
310-264962-8	MW-14	Water	09/11/23 15:40	09/15/23 16:20
310-264962-9	MW-16	Water	09/14/23 13:45	09/15/23 16:20
310-264962-10	MW-20	Water	09/12/23 10:50	09/15/23 16:20
310-264962-11	MW-21	Water	09/14/23 10:35	09/15/23 16:20
310-264962-12	MW-23R	Water	09/14/23 12:10	09/15/23 16:20
310-264962-13	MW-25R	Water	09/12/23 13:05	09/15/23 16:20
310-264962-14	LW-01	Water	09/13/23 16:00	09/15/23 16:20
310-264962-15	Field Blank	Water	09/14/23 10:45	09/15/23 16:20
310-264962-16	MW-2	Water	09/12/23 14:40	09/15/23 16:20
310-264962-17	MW-6	Water	09/13/23 15:12	09/15/23 16:20
310-264962-21	MW-8R	Water	09/12/23 00:00	09/15/23 16:20
310-264962-22	MW-13	Water	09/12/23 00:00	09/15/23 16:20
310-264962-23	MW-17R	Water	09/12/23 00:00	09/15/23 16:20
310-264962-24	MW-18	Water	09/12/23 00:00	09/15/23 16:20
310-264962-25	LW-03	Water	09/12/23 00:00	09/15/23 16:20

Detection Summary

Client: SCS Engineers
Project/Site: Alliant Big Bend - 25223063

Job ID: 310-264962-1

Client Sample ID: MW-2

Lab Sample ID: 310-264962-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.6		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	61		5.0	2.1	mg/L	5		9056A	Total/NA
Arsenic	2.3		2.0	0.53	ug/L	1		6020B	Total/NA
Barium	82		2.0	0.64	ug/L	1		6020B	Total/NA
Boron	1100		100	76	ug/L	1		6020B	Total/NA
Calcium	110		0.50	0.19	mg/L	1		6020B	Total/NA
Cobalt	2.3		0.50	0.17	ug/L	1		6020B	Total/NA
Iron	12000		100	36	ug/L	1		6020B	Total/NA
Lead	0.36	J	0.50	0.24	ug/L	1		6020B	Total/NA
Lithium	11		10	2.5	ug/L	1		6020B	Total/NA
Magnesium	24000		500	150	ug/L	1		6020B	Total/NA
Manganese	1400		10	3.6	ug/L	1		6020B	Total/NA
Zinc	6.6	J	20	6.4	ug/L	1		6020B	Total/NA
Total Suspended Solids	30		3.8	1.3	mg/L	1		I-3765-85	Total/NA
Bicarbonate Alkalinity as CaCO3	310		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	310		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	440		50	34	mg/L	1		SM 2540C	Total/NA
Groundwater Elevation	731.05				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-17.9				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	0.21				mg/L	1		Field Sampling	Total/NA
Field pH	6.37				SU	1		Field Sampling	Total/NA
Field Conductivity	792				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	13.7				Degrees C	1		Field Sampling	Total/NA

Client Sample ID: MW-5

Lab Sample ID: 310-264962-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	9.9		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	97		5.0	2.1	mg/L	5		9056A	Total/NA
Barium	130		2.0	0.64	ug/L	1		6020B	Total/NA
Boron	880		100	76	ug/L	1		6020B	Total/NA
Calcium	140		0.50	0.19	mg/L	1		6020B	Total/NA
Iron	140		100	36	ug/L	1		6020B	Total/NA
Lead	0.38	J	0.50	0.24	ug/L	1		6020B	Total/NA
Lithium	13		10	2.5	ug/L	1		6020B	Total/NA
Magnesium	38000		500	150	ug/L	1		6020B	Total/NA
Manganese	29		10	3.6	ug/L	1		6020B	Total/NA
Selenium	5.9		5.0	1.4	ug/L	1		6020B	Total/NA
Total Suspended Solids	13		1.9	0.64	mg/L	1		I-3765-85	Total/NA
Bicarbonate Alkalinity as CaCO3	400		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	400		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	430		250	170	mg/L	1		SM 2540C	Total/NA
Groundwater Elevation	720.36				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	104.5				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	6.24				mg/L	1		Field Sampling	Total/NA
Field pH	6.86				SU	1		Field Sampling	Total/NA
Field Conductivity	989				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	12.8				Degrees C	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-6

Lab Sample ID: 310-264962-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	11		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	110		5.0	2.1	mg/L	5		9056A	Total/NA
Arsenic	0.79	J	2.0	0.53	ug/L	1		6020B	Total/NA
Barium	120		2.0	0.64	ug/L	1		6020B	Total/NA
Boron	940		100	76	ug/L	1		6020B	Total/NA
Calcium	130		0.50	0.19	mg/L	1		6020B	Total/NA
Cobalt	0.34	J	0.50	0.17	ug/L	1		6020B	Total/NA
Iron	2100		100	36	ug/L	1		6020B	Total/NA
Lead	0.37	J	0.50	0.24	ug/L	1		6020B	Total/NA
Lithium	17		10	2.5	ug/L	1		6020B	Total/NA
Magnesium	37000		500	150	ug/L	1		6020B	Total/NA
Manganese	230		10	3.6	ug/L	1		6020B	Total/NA
Molybdenum	1.9	J	2.0	0.91	ug/L	1		6020B	Total/NA
Selenium	2.1	J	5.0	1.4	ug/L	1		6020B	Total/NA
Zinc	9.9	J	20	6.4	ug/L	1		6020B	Total/NA
Total Suspended Solids	10		1.9	0.64	mg/L	1		I-3765-85	Total/NA
Bicarbonate Alkalinity as CaCO3	370		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	370		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	420		250	170	mg/L	1		SM 2540C	Total/NA
Groundwater Elevation	721.09				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	12.7				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	0.41				mg/L	1		Field Sampling	Total/NA
Field pH	6.81				SU	1		Field Sampling	Total/NA
Field Conductivity	992				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	16.1				Degrees C	1		Field Sampling	Total/NA

Client Sample ID: MW-7

Lab Sample ID: 310-264962-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	6.8		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	23		5.0	2.1	mg/L	5		9056A	Total/NA
Arsenic	0.55	J	2.0	0.53	ug/L	1		6020B	Total/NA
Barium	120		2.0	0.64	ug/L	1		6020B	Total/NA
Boron	210		100	76	ug/L	1		6020B	Total/NA
Calcium	96		0.50	0.19	mg/L	1		6020B	Total/NA
Lithium	8.9	J	10	2.5	ug/L	1		6020B	Total/NA
Magnesium	32000		500	150	ug/L	1		6020B	Total/NA
Selenium	2.3	J	5.0	1.4	ug/L	1		6020B	Total/NA
Zinc	9.3	J	20	6.4	ug/L	1		6020B	Total/NA
Total Suspended Solids	2.9		1.9	0.64	mg/L	1		I-3765-85	Total/NA
Bicarbonate Alkalinity as CaCO3	340		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	340		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	400		50	34	mg/L	1		SM 2540C	Total/NA
Groundwater Elevation	708.66				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	85.9				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	1.71				mg/L	1		Field Sampling	Total/NA
Field pH	6.93				SU	1		Field Sampling	Total/NA
Field Conductivity	749				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	12.3				Degrees C	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: SCS Engineers
Project/Site: Alliant Big Bend - 25223063

Job ID: 310-264962-1

Client Sample ID: MW-10 — Lab Sample ID: 310-264962-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	11		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	130		5.0	2.1	mg/L	5		9056A	Total/NA
Arsenic	1.4	J	2.0	0.53	ug/L	1		6020B	Total/NA
Barium	100		2.0	0.64	ug/L	1		6020B	Total/NA
Boron	1400		100	76	ug/L	1		6020B	Total/NA
Calcium	130		0.50	0.19	mg/L	1		6020B	Total/NA
Iron	510		100	36	ug/L	1		6020B	Total/NA
Lead	0.37	J	0.50	0.24	ug/L	1		6020B	Total/NA
Lithium	12		10	2.5	ug/L	1		6020B	Total/NA
Magnesium	39000		500	150	ug/L	1		6020B	Total/NA
Manganese	56		10	3.6	ug/L	1		6020B	Total/NA
Molybdenum	2.2		2.0	0.91	ug/L	1		6020B	Total/NA
Zinc	8.1	J	20	6.4	ug/L	1		6020B	Total/NA
Total Suspended Solids	8.1		1.9	0.64	mg/L	1		I-3765-85	Total/NA
Bicarbonate Alkalinity as CaCO3	360		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	360		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	460		250	170	mg/L	1		SM 2540C	Total/NA
Groundwater Elevation	713.82				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-3.3				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	2.85				mg/L	1		Field Sampling	Total/NA
Field pH	6.88				SU	1		Field Sampling	Total/NA
Field Conductivity	974				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	13.1				Degrees C	1		Field Sampling	Total/NA

Client Sample ID: MW-11 — Lab Sample ID: 310-264962-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	19		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	84		5.0	2.1	mg/L	5		9056A	Total/NA
Arsenic	1.0	J	2.0	0.53	ug/L	1		6020B	Total/NA
Barium	90		2.0	0.64	ug/L	1		6020B	Total/NA
Boron	420		100	76	ug/L	1		6020B	Total/NA
Calcium	120		0.50	0.19	mg/L	1		6020B	Total/NA
Cobalt	0.40	J	0.50	0.17	ug/L	1		6020B	Total/NA
Lithium	13		10	2.5	ug/L	1		6020B	Total/NA
Magnesium	36000		500	150	ug/L	1		6020B	Total/NA
Manganese	19		10	3.6	ug/L	1		6020B	Total/NA
Molybdenum	13		2.0	0.91	ug/L	1		6020B	Total/NA
Total Suspended Solids	1.4	J	1.9	0.64	mg/L	1		I-3765-85	Total/NA
Bicarbonate Alkalinity as CaCO3	330		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	330		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	470		50	34	mg/L	1		SM 2540C	Total/NA
Groundwater Elevation	722.14				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	91.7				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	1.67				mg/L	1		Field Sampling	Total/NA
Field pH	6.73				SU	1		Field Sampling	Total/NA
Field Conductivity	868				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	19.5				Degrees C	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-12 Lab Sample ID: 310-264962-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	3.1	J	5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	47		5.0	2.1	mg/L	5		9056A	Total/NA
Arsenic	1.2	J	2.0	0.53	ug/L	1		6020B	Total/NA
Barium	170		2.0	0.64	ug/L	1		6020B	Total/NA
Calcium	110		0.50	0.19	mg/L	1		6020B	Total/NA
Cobalt	0.35	J	0.50	0.17	ug/L	1		6020B	Total/NA
Iron	1700		100	36	ug/L	1		6020B	Total/NA
Lithium	13		10	2.5	ug/L	1		6020B	Total/NA
Magnesium	39000		500	150	ug/L	1		6020B	Total/NA
Manganese	250		10	3.6	ug/L	1		6020B	Total/NA
Molybdenum	1.8	J	2.0	0.91	ug/L	1		6020B	Total/NA
Total Suspended Solids	8.1		1.9	0.64	mg/L	1		I-3765-85	Total/NA
Bicarbonate Alkalinity as CaCO3	390		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	390		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	420		50	34	mg/L	1		SM 2540C	Total/NA
Groundwater Elevation	721.90				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-219.1				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	0.59				mg/L	1		Field Sampling	Total/NA
Field pH	6.88				SU	1		Field Sampling	Total/NA
Field Conductivity	839				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	14.6				Degrees C	1		Field Sampling	Total/NA

Client Sample ID: MW-14 Lab Sample ID: 310-264962-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.3		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	38		5.0	2.1	mg/L	5		9056A	Total/NA
Arsenic	0.79	J	2.0	0.53	ug/L	1		6020B	Total/NA
Barium	52		2.0	0.64	ug/L	1		6020B	Total/NA
Boron	1700		100	76	ug/L	1		6020B	Total/NA
Calcium	49		0.50	0.19	mg/L	1		6020B	Total/NA
Cobalt	0.20	J	0.50	0.17	ug/L	1		6020B	Total/NA
Iron	54	J	100	36	ug/L	1		6020B	Total/NA
Lithium	6.7	J	10	2.5	ug/L	1		6020B	Total/NA
Magnesium	16000		500	150	ug/L	1		6020B	Total/NA
Manganese	72		10	3.6	ug/L	1		6020B	Total/NA
Selenium	11		5.0	1.4	ug/L	1		6020B	Total/NA
Total Suspended Solids	1.9		1.9	0.64	mg/L	1		I-3765-85	Total/NA
Bicarbonate Alkalinity as CaCO3	150		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	150		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	250		50	34	mg/L	1		SM 2540C	Total/NA
Groundwater Elevation	759.33				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-13.3				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	0.91				mg/L	1		Field Sampling	Total/NA
Field pH	5.90				SU	1		Field Sampling	Total/NA
Field Conductivity	429.5				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	11.3				Degrees C	1		Field Sampling	Total/NA

Client Sample ID: MW-16 Lab Sample ID: 310-264962-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.8		5.0	2.3	mg/L	5		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-16 (Continued) Lab Sample ID: 310-264962-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	41		5.0	2.1	mg/L	5		9056A	Total/NA
Arsenic	0.55	J	2.0	0.53	ug/L	1		6020B	Total/NA
Barium	110		2.0	0.64	ug/L	1		6020B	Total/NA
Boron	520		100	76	ug/L	1		6020B	Total/NA
Calcium	93		0.50	0.19	mg/L	1		6020B	Total/NA
Cobalt	0.29	J	0.50	0.17	ug/L	1		6020B	Total/NA
Iron	190		100	36	ug/L	1		6020B	Total/NA
Lithium	10		10	2.5	ug/L	1		6020B	Total/NA
Magnesium	31000		500	150	ug/L	1		6020B	Total/NA
Manganese	45		10	3.6	ug/L	1		6020B	Total/NA
Total Suspended Solids	6.8		1.9	0.64	mg/L	1		I-3765-85	Total/NA
Bicarbonate Alkalinity as CaCO3	330		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	330		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	370		50	34	mg/L	1		SM 2540C	Total/NA
Groundwater Elevation	700.25				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-191.5				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	0.70				mg/L	1		Field Sampling	Total/NA
Field pH	7.06				SU	1		Field Sampling	Total/NA
Field Conductivity	744				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	15.4				Degrees C	1		Field Sampling	Total/NA

Client Sample ID: MW-20 Lab Sample ID: 310-264962-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	12		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	48		5.0	2.1	mg/L	5		9056A	Total/NA
Arsenic	0.92	J	2.0	0.53	ug/L	1		6020B	Total/NA
Barium	82		2.0	0.64	ug/L	1		6020B	Total/NA
Boron	1800		100	76	ug/L	1		6020B	Total/NA
Calcium	74		0.50	0.19	mg/L	1		6020B	Total/NA
Iron	60	J	100	36	ug/L	1		6020B	Total/NA
Lithium	4.6	J	10	2.5	ug/L	1		6020B	Total/NA
Magnesium	21000		500	150	ug/L	1		6020B	Total/NA
Selenium	21		5.0	1.4	ug/L	1		6020B	Total/NA
Total Suspended Solids	2.0		1.9	0.64	mg/L	1		I-3765-85	Total/NA
Bicarbonate Alkalinity as CaCO3	220		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	220		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	300		50	34	mg/L	1		SM 2540C	Total/NA
Groundwater Elevation	757.61				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	118.9				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	2.39				mg/L	1		Field Sampling	Total/NA
Field pH	6.14				SU	1		Field Sampling	Total/NA
Field Conductivity	611				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	15.0				Degrees C	1		Field Sampling	Total/NA

Client Sample ID: MW-21 Lab Sample ID: 310-264962-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	150		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	55		5.0	2.1	mg/L	5		9056A	Total/NA
Arsenic	0.90	J	2.0	0.53	ug/L	1		6020B	Total/NA
Barium	190		2.0	0.64	ug/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-21 (Continued)
Lab Sample ID: 310-264962-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	94	J	100	76	ug/L	1		6020B	Total/NA
Calcium	140		0.50	0.19	mg/L	1		6020B	Total/NA
Iron	100		100	36	ug/L	1		6020B	Total/NA
Lead	0.37	J	0.50	0.24	ug/L	1		6020B	Total/NA
Lithium	7.3	J	10	2.5	ug/L	1		6020B	Total/NA
Magnesium	41000		500	150	ug/L	1		6020B	Total/NA
Manganese	13		10	3.6	ug/L	1		6020B	Total/NA
Total Suspended Solids	13		1.9	0.64	mg/L	1		I-3765-85	Total/NA
Bicarbonate Alkalinity as CaCO3	280		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	280		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	630		250	170	mg/L	1		SM 2540C	Total/NA
Groundwater Elevation	763.37				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	106.2				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	6.00				mg/L	1		Field Sampling	Total/NA
Field pH	6.73				SU	1		Field Sampling	Total/NA
Field Conductivity	1149				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	13.3				Degrees C	1		Field Sampling	Total/NA

Client Sample ID: MW-23R
Lab Sample ID: 310-264962-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	12		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	52		5.0	2.1	mg/L	5		9056A	Total/NA
Barium	120		2.0	0.64	ug/L	1		6020B	Total/NA
Boron	400		100	76	ug/L	1		6020B	Total/NA
Calcium	110		0.50	0.19	mg/L	1		6020B	Total/NA
Lithium	11		10	2.5	ug/L	1		6020B	Total/NA
Magnesium	31000		500	150	ug/L	1		6020B	Total/NA
Selenium	2.5	J	5.0	1.4	ug/L	1		6020B	Total/NA
Total Suspended Solids	1.6	J	1.9	0.64	mg/L	1		I-3765-85	Total/NA
Bicarbonate Alkalinity as CaCO3	330		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	330		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	490		250	170	mg/L	1		SM 2540C	Total/NA
Groundwater Elevation	701.13				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	111.1				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	6.26				mg/L	1		Field Sampling	Total/NA
Field pH	6.91				SU	1		Field Sampling	Total/NA
Field Conductivity	819				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	13.3				Degrees C	1		Field Sampling	Total/NA

Client Sample ID: MW-25R
Lab Sample ID: 310-264962-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	25		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	53		5.0	2.1	mg/L	5		9056A	Total/NA
Barium	160		2.0	0.64	ug/L	1		6020B	Total/NA
Boron	310		100	76	ug/L	1		6020B	Total/NA
Calcium	120		0.50	0.19	mg/L	1		6020B	Total/NA
Lithium	14		10	2.5	ug/L	1		6020B	Total/NA
Magnesium	40000		500	150	ug/L	1		6020B	Total/NA
Selenium	2.6	J	5.0	1.4	ug/L	1		6020B	Total/NA
Total Suspended Solids	3.9		1.9	0.64	mg/L	1		I-3765-85	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-25R (Continued)
Lab Sample ID: 310-264962-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Bicarbonate Alkalinity as CaCO3	390		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	390		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	270		250	170	mg/L	1		SM 2540C	Total/NA
Groundwater Elevation	751.77				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	110.2				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	6.51				mg/L	1		Field Sampling	Total/NA
Field pH	6.75				SU	1		Field Sampling	Total/NA
Field Conductivity	950				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	14.2				Degrees C	1		Field Sampling	Total/NA

Client Sample ID: LW-01
Lab Sample ID: 310-264962-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	730		20	8.4	mg/L	20		9056A	Total/NA
Arsenic	4.9		2.0	0.53	ug/L	1		6020B	Total/NA
Boron	25000		1000	760	ug/L	10		6020B	Total/NA
Calcium	230		0.50	0.19	mg/L	1		6020B	Total/NA
Lithium	33		10	2.5	ug/L	1		6020B	Total/NA
Molybdenum	480		2.0	0.91	ug/L	1		6020B	Total/NA
Total Suspended Solids	3200		60	20	mg/L	1		I-3765-85	Total/NA
Total Dissolved Solids	1000		250	170	mg/L	1		SM 2540C	Total/NA
Oxidation Reduction Potential	64.6				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	7.48				mg/L	1		Field Sampling	Total/NA
Field pH	7.73				SU	1		Field Sampling	Total/NA
Field Conductivity	1431				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	20.1				Degrees C	1		Field Sampling	Total/NA
Leachate Elevation	751.38				ft	1		Field Sampling	Total/NA

Client Sample ID: Field Blank
Lab Sample ID: 310-264962-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	630		100	76	ug/L	1		6020B	Total/NA
Calcium	0.50		0.50	0.19	mg/L	1		6020B	Total/NA
Molybdenum	3.7		2.0	0.91	ug/L	1		6020B	Total/NA

Client Sample ID: MW-2
Lab Sample ID: 310-264962-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cobalt	2.1		0.50	0.17	ug/L	1		6020B	Dissolved
Manganese	1300		10	3.6	ug/L	1		6020B	Dissolved

Client Sample ID: MW-6
Lab Sample ID: 310-264962-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lithium	19		10	2.5	ug/L	1		6020B	Dissolved

Client Sample ID: MW-8R
Lab Sample ID: 310-264962-21

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Groundwater Elevation	711.91				ft	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-13 Lab Sample ID: 310-264962-22

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Groundwater Elevation	758.64				ft	1		Field Sampling	Total/NA

Client Sample ID: MW-17R Lab Sample ID: 310-264962-23

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Groundwater Elevation	708.55				ft	1		Field Sampling	Total/NA

Client Sample ID: MW-18 Lab Sample ID: 310-264962-24

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Groundwater Elevation	743.66				ft	1		Field Sampling	Total/NA

Client Sample ID: LW-03 Lab Sample ID: 310-264962-25

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Leachate Elevation	760.66				ft	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-2
Date Collected: 09/12/23 14:40
Date Received: 09/15/23 16:20

Lab Sample ID: 310-264962-1
Matrix: Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**5.6**		5.0	2.3	mg/L			09/21/23 15:11	5
Fluoride	<0.38		1.0	0.38	mg/L			09/21/23 15:11	5
Sulfate	**61**		5.0	2.1	mg/L			09/21/23 15:11	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**2.3**		2.0	0.53	ug/L		09/19/23 09:30	09/29/23 03:23	1
Barium	**82**		2.0	0.64	ug/L		09/19/23 09:30	09/29/23 03:23	1
Beryllium	<0.33		1.0	0.33	ug/L		09/19/23 09:30	09/29/23 03:23	1
Boron	**1100**		100	76	ug/L		09/19/23 09:30	09/29/23 03:23	1
Calcium	**110**		0.50	0.19	mg/L		09/19/23 09:30	09/29/23 03:23	1
Cobalt	**2.3**		0.50	0.17	ug/L		09/19/23 09:30	09/29/23 03:23	1
Copper	<1.8		5.0	1.8	ug/L		09/19/23 09:30	09/29/23 03:23	1
Iron	**12000**		100	36	ug/L		09/19/23 09:30	09/29/23 03:23	1
Lead	**0.36**	**J**	0.50	0.24	ug/L		09/19/23 09:30	09/29/23 03:23	1
Lithium	**11**		10	2.5	ug/L		09/19/23 09:30	09/29/23 03:23	1
Magnesium	**24000**		500	150	ug/L		09/19/23 09:30	09/29/23 03:23	1
Manganese	**1400**		10	3.6	ug/L		09/19/23 09:30	09/29/23 03:23	1
Molybdenum	<0.91		2.0	0.91	ug/L		09/19/23 09:30	09/29/23 03:23	1
Selenium	<1.4		5.0	1.4	ug/L		09/19/23 09:30	09/29/23 03:23	1
Zinc	**6.6**	**J**	20	6.4	ug/L		09/19/23 09:30	09/29/23 03:23	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**30**		3.8	1.3	mg/L			09/18/23 13:47	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**310**		5.0	2.5	mg/L			09/20/23 13:02	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<2.5		5.0	2.5	mg/L			09/20/23 13:02	1
Total Alkalinity as CaCO3 (SM 2320B)	**310**		5.0	2.5	mg/L			09/20/23 13:02	1
Total Dissolved Solids (SM 2540C)	**440**		50	34	mg/L			09/18/23 14:42	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	**731.05**				ft			09/12/23 14:40	1
Oxidation Reduction Potential	**-17.9**				mV			09/12/23 14:40	1
Oxygen, Dissolved	**0.21**				mg/L			09/12/23 14:40	1
Field pH	**6.37**				SU			09/12/23 14:40	1
Field Conductivity	**792**				umhos/cm			09/12/23 14:40	1
Field Temperature	**13.7**				Degrees C			09/12/23 14:40	1

Client Sample Results

Client: SCS Engineers
Project/Site: Alliant Big Bend - 25223063

Job ID: 310-264962-1

Client Sample ID: MW-5

Date Collected: 09/13/23 15:05
Date Received: 09/15/23 16:20

Lab Sample ID: 310-264962-2
Matrix: Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**9.9**		5.0	2.3	mg/L			09/21/23 15:48	5
Fluoride	<0.38		1.0	0.38	mg/L			09/21/23 15:48	5
Sulfate	**97**		5.0	2.1	mg/L			09/21/23 15:48	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.53		2.0	0.53	ug/L		09/19/23 09:30	09/30/23 20:06	1
Barium	**130**		2.0	0.64	ug/L		09/19/23 09:30	09/30/23 20:06	1
Beryllium	<0.33		1.0	0.33	ug/L		09/19/23 09:30	09/30/23 20:06	1
Boron	**880**		100	76	ug/L		09/19/23 09:30	09/30/23 20:06	1
Calcium	**140**		0.50	0.19	mg/L		09/19/23 09:30	09/30/23 20:06	1
Cobalt	<0.17		0.50	0.17	ug/L		09/19/23 09:30	09/30/23 20:06	1
Copper	<1.8		5.0	1.8	ug/L		09/19/23 09:30	09/30/23 20:06	1
Iron	**140**		100	36	ug/L		09/19/23 09:30	09/30/23 20:06	1
Lead	**0.38**	**J**	0.50	0.24	ug/L		09/19/23 09:30	09/30/23 20:06	1
Lithium	**13**		10	2.5	ug/L		09/19/23 09:30	09/30/23 20:06	1
Magnesium	**38000**		500	150	ug/L		09/19/23 09:30	09/30/23 20:06	1
Manganese	**29**		10	3.6	ug/L		09/19/23 09:30	09/30/23 20:06	1
Molybdenum	<0.91		2.0	0.91	ug/L		09/19/23 09:30	09/30/23 20:06	1
Selenium	**5.9**		5.0	1.4	ug/L		09/19/23 09:30	09/30/23 20:06	1
Zinc	<6.4		20	6.4	ug/L		09/19/23 09:30	09/30/23 20:06	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**13**		1.9	0.64	mg/L			09/19/23 07:53	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**400**		5.0	2.5	mg/L			09/20/23 13:12	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<2.5		5.0	2.5	mg/L			09/20/23 13:12	1
Total Alkalinity as CaCO3 (SM 2320B)	**400**		5.0	2.5	mg/L			09/20/23 13:12	1
Total Dissolved Solids (SM 2540C)	**430**		250	170	mg/L			09/18/23 14:42	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	**720.36**				ft			09/13/23 15:05	1
Oxidation Reduction Potential	**104.5**				mV			09/13/23 15:05	1
Oxygen, Dissolved	**6.24**				mg/L			09/13/23 15:05	1
Field pH	**6.86**				SU			09/13/23 15:05	1
Field Conductivity	**989**				umhos/cm			09/13/23 15:05	1
Field Temperature	**12.8**				Degrees C			09/13/23 15:05	1

Client Sample ID: MW-6
Lab Sample ID: 310-264962-3

Date Collected: 09/13/23 15:12
Matrix: Water
Date Received: 09/15/23 16:20

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	11		5.0	2.3	mg/L			09/21/23 16:00	5
Fluoride	<0.38		1.0	0.38	mg/L			09/21/23 16:00	5
Sulfate	110		5.0	2.1	mg/L			09/21/23 16:00	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.79	J	2.0	0.53	ug/L		09/19/23 09:30	09/30/23 20:08	1
Barium	120		2.0	0.64	ug/L		09/19/23 09:30	09/30/23 20:08	1
Beryllium	<0.33		1.0	0.33	ug/L		09/19/23 09:30	09/30/23 20:08	1
Boron	940		100	76	ug/L		09/19/23 09:30	09/30/23 20:08	1
Calcium	130		0.50	0.19	mg/L		09/19/23 09:30	09/30/23 20:08	1
Cobalt	0.34	J	0.50	0.17	ug/L		09/19/23 09:30	09/30/23 20:08	1
Copper	<1.8		5.0	1.8	ug/L		09/19/23 09:30	09/30/23 20:08	1
Iron	2100		100	36	ug/L		09/19/23 09:30	09/30/23 20:08	1
Lead	0.37	J	0.50	0.24	ug/L		09/19/23 09:30	09/30/23 20:08	1
Lithium	17		10	2.5	ug/L		09/19/23 09:30	09/30/23 20:08	1
Magnesium	37000		500	150	ug/L		09/19/23 09:30	09/30/23 20:08	1
Manganese	230		10	3.6	ug/L		09/19/23 09:30	09/30/23 20:08	1
Molybdenum	1.9	J	2.0	0.91	ug/L		09/19/23 09:30	09/30/23 20:08	1
Selenium	2.1	J	5.0	1.4	ug/L		09/19/23 09:30	09/30/23 20:08	1
Zinc	9.9	J	20	6.4	ug/L		09/19/23 09:30	09/30/23 20:08	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	10		1.9	0.64	mg/L			09/18/23 17:30	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	370		5.0	2.5	mg/L			09/20/23 13:31	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<2.5		5.0	2.5	mg/L			09/20/23 13:31	1
Total Alkalinity as CaCO3 (SM 2320B)	370		5.0	2.5	mg/L			09/20/23 13:31	1
Total Dissolved Solids (SM 2540C)	420		250	170	mg/L			09/18/23 14:42	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	721.09				ft			09/13/23 15:12	1
Oxidation Reduction Potential	12.7				mV			09/13/23 15:12	1
Oxygen, Dissolved	0.41				mg/L			09/13/23 15:12	1
Field pH	6.81				SU			09/13/23 15:12	1
Field Conductivity	992				umhos/cm			09/13/23 15:12	1
Field Temperature	16.1				Degrees C			09/13/23 15:12	1

Client Sample ID: MW-7

Lab Sample ID: 310-264962-4

Date Collected: 09/13/23 09:15
Date Received: 09/15/23 16:20
Matrix: Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**6.8**		5.0	2.3	mg/L			09/21/23 16:48	5
Fluoride	<0.38		1.0	0.38	mg/L			09/21/23 16:48	5
Sulfate	**23**		5.0	2.1	mg/L			09/21/23 16:48	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.55**	**J**	2.0	0.53	ug/L		09/19/23 09:30	09/29/23 03:56	1
Barium	**120**		2.0	0.64	ug/L		09/19/23 09:30	09/29/23 03:56	1
Beryllium	<0.33		1.0	0.33	ug/L		09/19/23 09:30	09/29/23 03:56	1
Boron	**210**		100	76	ug/L		09/19/23 09:30	09/29/23 03:56	1
Calcium	**96**		0.50	0.19	mg/L		09/19/23 09:30	09/29/23 03:56	1
Cobalt	<0.17		0.50	0.17	ug/L		09/19/23 09:30	09/29/23 03:56	1
Copper	<1.8		5.0	1.8	ug/L		09/19/23 09:30	09/29/23 03:56	1
Iron	<36		100	36	ug/L		09/19/23 09:30	09/29/23 03:56	1
Lead	<0.24		0.50	0.24	ug/L		09/19/23 09:30	09/29/23 03:56	1
Lithium	**8.9**	**J**	10	2.5	ug/L		09/19/23 09:30	09/29/23 03:56	1
Magnesium	**32000**		500	150	ug/L		09/19/23 09:30	09/29/23 03:56	1
Manganese	<3.6		10	3.6	ug/L		09/19/23 09:30	09/29/23 03:56	1
Molybdenum	<0.91		2.0	0.91	ug/L		09/19/23 09:30	09/29/23 03:56	1
Selenium	**2.3**	**J**	5.0	1.4	ug/L		09/19/23 09:30	09/29/23 03:56	1
Zinc	**9.3**	**J**	20	6.4	ug/L		09/19/23 09:30	09/29/23 03:56	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**2.9**		1.9	0.64	mg/L			09/18/23 17:30	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**340**		5.0	2.5	mg/L			09/20/23 13:41	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<2.5		5.0	2.5	mg/L			09/20/23 13:41	1
Total Alkalinity as CaCO3 (SM 2320B)	**340**		5.0	2.5	mg/L			09/20/23 13:41	1
Total Dissolved Solids (SM 2540C)	**400**		50	34	mg/L			09/18/23 14:42	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	**708.66**				ft			09/13/23 09:15	1
Oxidation Reduction Potential	**85.9**				mV			09/13/23 09:15	1
Oxygen, Dissolved	**1.71**				mg/L			09/13/23 09:15	1
Field pH	**6.93**				SU			09/13/23 09:15	1
Field Conductivity	**749**				umhos/cm			09/13/23 09:15	1
Field Temperature	**12.3**				Degrees C			09/13/23 09:15	1

Client Sample Results

Client: SCS Engineers
Project/Site: Alliant Big Bend - 25223063

Job ID: 310-264962-1

Client Sample ID: MW-10

Date Collected: 09/13/23 13:00
Date Received: 09/15/23 16:20

Lab Sample ID: 310-264962-5
Matrix: Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	11		5.0	2.3	mg/L			09/21/23 17:00	5
Fluoride	<0.38		1.0	0.38	mg/L			09/21/23 17:00	5
Sulfate	130		5.0	2.1	mg/L			09/21/23 17:00	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.4	J	2.0	0.53	ug/L		09/19/23 09:30	09/29/23 03:59	1
Barium	100		2.0	0.64	ug/L		09/19/23 09:30	09/29/23 03:59	1
Beryllium	<0.33		1.0	0.33	ug/L		09/19/23 09:30	09/29/23 03:59	1
Boron	1400		100	76	ug/L		09/19/23 09:30	09/29/23 03:59	1
Calcium	130		0.50	0.19	mg/L		09/19/23 09:30	09/29/23 03:59	1
Cobalt	<0.17		0.50	0.17	ug/L		09/19/23 09:30	09/29/23 03:59	1
Copper	<1.8		5.0	1.8	ug/L		09/19/23 09:30	09/29/23 03:59	1
Iron	510		100	36	ug/L		09/19/23 09:30	09/29/23 03:59	1
Lead	0.37	J	0.50	0.24	ug/L		09/19/23 09:30	09/29/23 03:59	1
Lithium	12		10	2.5	ug/L		09/19/23 09:30	09/29/23 03:59	1
Magnesium	39000		500	150	ug/L		09/19/23 09:30	09/29/23 03:59	1
Manganese	56		10	3.6	ug/L		09/19/23 09:30	09/29/23 03:59	1
Molybdenum	2.2		2.0	0.91	ug/L		09/19/23 09:30	09/29/23 03:59	1
Selenium	<1.4		5.0	1.4	ug/L		09/19/23 09:30	09/29/23 03:59	1
Zinc	8.1	J	20	6.4	ug/L		09/19/23 09:30	09/29/23 03:59	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	8.1		1.9	0.64	mg/L			09/18/23 17:30	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	360		5.0	2.5	mg/L			09/20/23 14:01	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<2.5		5.0	2.5	mg/L			09/20/23 14:01	1
Total Alkalinity as CaCO3 (SM 2320B)	360		5.0	2.5	mg/L			09/20/23 14:01	1
Total Dissolved Solids (SM 2540C)	460		250	170	mg/L			09/18/23 14:42	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	713.82				ft			09/13/23 13:00	1
Oxidation Reduction Potential	-3.3				mV			09/13/23 13:00	1
Oxygen, Dissolved	2.85				mg/L			09/13/23 13:00	1
Field pH	6.88				SU			09/13/23 13:00	1
Field Conductivity	974				umhos/cm			09/13/23 13:00	1
Field Temperature	13.1				Degrees C			09/13/23 13:00	1

Client Sample Results

Client: SCS Engineers
Project/Site: Alliant Big Bend - 25223063

Job ID: 310-264962-1

Client Sample ID: MW-11

Lab Sample ID: 310-264962-6

Date Collected: 09/12/23 14:32

Matrix: Water

Date Received: 09/15/23 16:20

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**19**		5.0	2.3	mg/L			09/22/23 21:34	5
Fluoride	<0.38		1.0	0.38	mg/L			09/22/23 21:34	5
Sulfate	**84**		5.0	2.1	mg/L			09/22/23 21:34	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**1.0**	**J**	2.0	0.53	ug/L		09/19/23 09:30	09/29/23 04:03	1
Barium	**90**		2.0	0.64	ug/L		09/19/23 09:30	09/29/23 04:03	1
Beryllium	<0.33		1.0	0.33	ug/L		09/19/23 09:30	09/29/23 04:03	1
Boron	**420**		100	76	ug/L		09/19/23 09:30	09/29/23 04:03	1
Calcium	**120**		0.50	0.19	mg/L		09/19/23 09:30	09/29/23 04:03	1
Cobalt	**0.40**	**J**	0.50	0.17	ug/L		09/19/23 09:30	09/29/23 04:03	1
Copper	<1.8		5.0	1.8	ug/L		09/19/23 09:30	09/29/23 04:03	1
Iron	<36		100	36	ug/L		09/19/23 09:30	09/29/23 04:03	1
Lead	<0.24		0.50	0.24	ug/L		09/19/23 09:30	09/29/23 04:03	1
Lithium	**13**		10	2.5	ug/L		09/19/23 09:30	09/29/23 04:03	1
Magnesium	**36000**		500	150	ug/L		09/19/23 09:30	09/29/23 04:03	1
Manganese	**19**		10	3.6	ug/L		09/19/23 09:30	09/29/23 04:03	1
Molybdenum	**13**		2.0	0.91	ug/L		09/19/23 09:30	09/29/23 04:03	1
Selenium	<1.4		5.0	1.4	ug/L		09/19/23 09:30	09/29/23 04:03	1
Zinc	<6.4		20	6.4	ug/L		09/19/23 09:30	09/29/23 04:03	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**1.4**	**J**	1.9	0.64	mg/L			09/18/23 13:47	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**330**		5.0	2.5	mg/L			09/20/23 14:11	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<2.5		5.0	2.5	mg/L			09/20/23 14:11	1
Total Alkalinity as CaCO3 (SM 2320B)	**330**		5.0	2.5	mg/L			09/20/23 14:11	1
Total Dissolved Solids (SM 2540C)	**470**		50	34	mg/L			09/18/23 14:42	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	**722.14**				ft			09/12/23 14:32	1
Oxidation Reduction Potential	**91.7**				mV			09/12/23 14:32	1
Oxygen, Dissolved	**1.67**				mg/L			09/12/23 14:32	1
Field pH	**6.73**				SU			09/12/23 14:32	1
Field Conductivity	**868**				umhos/cm			09/12/23 14:32	1
Field Temperature	**19.5**				Degrees C			09/12/23 14:32	1

Eurofins Cedar Falls

Client Sample Results

Client: SCS Engineers
Project/Site: Alliant Big Bend - 25223063

Job ID: 310-264962-1

Client Sample ID: MW-12

Date Collected: 09/11/23 14:50
Date Received: 09/15/23 16:20

Lab Sample ID: 310-264962-7
Matrix: Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**3.1**	**J**	5.0	2.3	mg/L			09/22/23 21:46	5
Fluoride	<0.38		1.0	0.38	mg/L			09/22/23 21:46	5
Sulfate	**47**		5.0	2.1	mg/L			09/22/23 21:46	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**1.2**	**J**	2.0	0.53	ug/L		09/19/23 09:30	09/29/23 04:06	1
Barium	**170**		2.0	0.64	ug/L		09/19/23 09:30	09/29/23 04:06	1
Beryllium	<0.33		1.0	0.33	ug/L		09/19/23 09:30	09/29/23 04:06	1
Boron	<76		100	76	ug/L		09/19/23 09:30	09/29/23 04:06	1
Calcium	**110**		0.50	0.19	mg/L		09/19/23 09:30	09/29/23 04:06	1
Cobalt	**0.35**	**J**	0.50	0.17	ug/L		09/19/23 09:30	09/29/23 04:06	1
Copper	<1.8		5.0	1.8	ug/L		09/19/23 09:30	09/29/23 04:06	1
Iron	**1700**		100	36	ug/L		09/19/23 09:30	09/29/23 04:06	1
Lead	<0.24		0.50	0.24	ug/L		09/19/23 09:30	09/29/23 04:06	1
Lithium	**13**		10	2.5	ug/L		09/19/23 09:30	09/29/23 04:06	1
Magnesium	**39000**		500	150	ug/L		09/19/23 09:30	09/29/23 04:06	1
Manganese	**250**		10	3.6	ug/L		09/19/23 09:30	09/29/23 04:06	1
Molybdenum	**1.8**	**J**	2.0	0.91	ug/L		09/19/23 09:30	09/29/23 04:06	1
Selenium	<1.4		5.0	1.4	ug/L		09/19/23 09:30	09/29/23 04:06	1
Zinc	<6.4		20	6.4	ug/L		09/19/23 09:30	09/29/23 04:06	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**8.1**		1.9	0.64	mg/L			09/18/23 13:47	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**390**		5.0	2.5	mg/L			09/20/23 14:21	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<2.5		5.0	2.5	mg/L			09/20/23 14:21	1
Total Alkalinity as CaCO3 (SM 2320B)	**390**		5.0	2.5	mg/L			09/20/23 14:21	1
Total Dissolved Solids (SM 2540C)	**420**		50	34	mg/L			09/18/23 14:42	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	**721.90**				ft			09/11/23 14:50	1
Oxidation Reduction Potential	**-219.1**				mV			09/11/23 14:50	1
Oxygen, Dissolved	**0.59**				mg/L			09/11/23 14:50	1
Field pH	**6.88**				SU			09/11/23 14:50	1
Field Conductivity	**839**				umhos/cm			09/11/23 14:50	1
Field Temperature	**14.6**				Degrees C			09/11/23 14:50	1

Client Sample ID: MW-14

Lab Sample ID: 310-264962-8

Date Collected: 09/11/23 15:40

Matrix: Water

Date Received: 09/15/23 16:20

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.3		5.0	2.3	mg/L			09/22/23 21:58	5
Fluoride	<0.38		1.0	0.38	mg/L			09/22/23 21:58	5
Sulfate	38		5.0	2.1	mg/L			09/22/23 21:58	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.79	J	2.0	0.53	ug/L		09/19/23 09:30	09/29/23 04:09	1
Barium	52		2.0	0.64	ug/L		09/19/23 09:30	09/29/23 04:09	1
Beryllium	<0.33		1.0	0.33	ug/L		09/19/23 09:30	09/29/23 04:09	1
Boron	1700		100	76	ug/L		09/19/23 09:30	09/29/23 04:09	1
Calcium	49		0.50	0.19	mg/L		09/19/23 09:30	09/29/23 04:09	1
Cobalt	0.20	J	0.50	0.17	ug/L		09/19/23 09:30	09/29/23 04:09	1
Copper	<1.8		5.0	1.8	ug/L		09/19/23 09:30	09/29/23 04:09	1
Iron	54	J	100	36	ug/L		09/19/23 09:30	09/29/23 04:09	1
Lead	<0.24		0.50	0.24	ug/L		09/19/23 09:30	09/29/23 04:09	1
Lithium	6.7	J	10	2.5	ug/L		09/19/23 09:30	09/29/23 04:09	1
Magnesium	16000		500	150	ug/L		09/19/23 09:30	09/29/23 04:09	1
Manganese	72		10	3.6	ug/L		09/19/23 09:30	09/29/23 04:09	1
Molybdenum	<0.91		2.0	0.91	ug/L		09/19/23 09:30	09/29/23 04:09	1
Selenium	11		5.0	1.4	ug/L		09/19/23 09:30	09/29/23 04:09	1
Zinc	<6.4		20	6.4	ug/L		09/19/23 09:30	09/29/23 04:09	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	1.9		1.9	0.64	mg/L			09/18/23 13:47	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	150		5.0	2.5	mg/L			09/20/23 14:31	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<2.5		5.0	2.5	mg/L			09/20/23 14:31	1
Total Alkalinity as CaCO3 (SM 2320B)	150		5.0	2.5	mg/L			09/20/23 14:31	1
Total Dissolved Solids (SM 2540C)	250		50	34	mg/L			09/18/23 14:42	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	759.33				ft			09/11/23 15:40	1
Oxidation Reduction Potential	-13.3				mV			09/11/23 15:40	1
Oxygen, Dissolved	0.91				mg/L			09/11/23 15:40	1
Field pH	5.90				SU			09/11/23 15:40	1
Field Conductivity	429.5				umhos/cm			09/11/23 15:40	1
Field Temperature	11.3				Degrees C			09/11/23 15:40	1

Client Sample ID: MW-16

Date Collected: 09/14/23 13:45
Date Received: 09/15/23 16:20

Lab Sample ID: 310-264962-9
Matrix: Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.8		5.0	2.3	mg/L			09/22/23 22:10	5
Fluoride	<0.38		1.0	0.38	mg/L			09/22/23 22:10	5
Sulfate	41		5.0	2.1	mg/L			09/22/23 22:10	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.55	J	2.0	0.53	ug/L		09/19/23 09:30	09/29/23 04:27	1
Barium	110		2.0	0.64	ug/L		09/19/23 09:30	09/29/23 04:27	1
Beryllium	<0.33		1.0	0.33	ug/L		09/19/23 09:30	09/29/23 04:27	1
Boron	520		100	76	ug/L		09/19/23 09:30	09/29/23 04:27	1
Calcium	93		0.50	0.19	mg/L		09/19/23 09:30	09/29/23 04:27	1
Cobalt	0.29	J	0.50	0.17	ug/L		09/19/23 09:30	09/29/23 04:27	1
Copper	<1.8		5.0	1.8	ug/L		09/19/23 09:30	09/29/23 04:27	1
Iron	190		100	36	ug/L		09/19/23 09:30	09/29/23 04:27	1
Lead	<0.24		0.50	0.24	ug/L		09/19/23 09:30	09/29/23 04:27	1
Lithium	10		10	2.5	ug/L		09/19/23 09:30	09/29/23 04:27	1
Magnesium	31000		500	150	ug/L		09/19/23 09:30	09/29/23 04:27	1
Manganese	45		10	3.6	ug/L		09/19/23 09:30	09/29/23 04:27	1
Molybdenum	<0.91		2.0	0.91	ug/L		09/19/23 09:30	09/29/23 04:27	1
Selenium	<1.4		5.0	1.4	ug/L		09/19/23 09:30	09/29/23 04:27	1
Zinc	<6.4		20	6.4	ug/L		09/19/23 09:30	09/29/23 04:27	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	6.8		1.9	0.64	mg/L			09/18/23 17:30	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	330		5.0	2.5	mg/L			09/20/23 14:39	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<2.5		5.0	2.5	mg/L			09/20/23 14:39	1
Total Alkalinity as CaCO3 (SM 2320B)	330		5.0	2.5	mg/L			09/20/23 14:39	1
Total Dissolved Solids (SM 2540C)	370		50	34	mg/L			09/18/23 14:42	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	700.25				ft			09/14/23 13:45	1
Oxidation Reduction Potential	-191.5				mV			09/14/23 13:45	1
Oxygen, Dissolved	0.70				mg/L			09/14/23 13:45	1
Field pH	7.06				SU			09/14/23 13:45	1
Field Conductivity	744				umhos/cm			09/14/23 13:45	1
Field Temperature	15.4				Degrees C			09/14/23 13:45	1

Client Sample Results

Client: SCS Engineers
Project/Site: Alliant Big Bend - 25223063

Job ID: 310-264962-1

Client Sample ID: MW-20
Date Collected: 09/12/23 10:50
Date Received: 09/15/23 16:20

Lab Sample ID: 310-264962-10
Matrix: Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**12**		5.0	2.3	mg/L			09/22/23 22:22	5
Fluoride	<0.38		1.0	0.38	mg/L			09/22/23 22:22	5
Sulfate	**48**		5.0	2.1	mg/L			09/22/23 22:22	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.92**	**J**	2.0	0.53	ug/L		09/19/23 09:30	09/29/23 04:33	1
Barium	**82**		2.0	0.64	ug/L		09/19/23 09:30	09/29/23 04:33	1
Beryllium	<0.33		1.0	0.33	ug/L		09/19/23 09:30	09/29/23 04:33	1
Boron	**1800**		100	76	ug/L		09/19/23 09:30	09/29/23 04:33	1
Calcium	**74**		0.50	0.19	mg/L		09/19/23 09:30	09/29/23 04:33	1
Cobalt	<0.17		0.50	0.17	ug/L		09/19/23 09:30	09/29/23 04:33	1
Copper	<1.8		5.0	1.8	ug/L		09/19/23 09:30	09/29/23 04:33	1
Iron	**60**	**J**	100	36	ug/L		09/19/23 09:30	09/29/23 04:33	1
Lead	<0.24		0.50	0.24	ug/L		09/19/23 09:30	09/29/23 04:33	1
Lithium	**4.6**	**J**	10	2.5	ug/L		09/19/23 09:30	09/29/23 04:33	1
Magnesium	**21000**		500	150	ug/L		09/19/23 09:30	09/29/23 04:33	1
Manganese	<3.6		10	3.6	ug/L		09/19/23 09:30	09/29/23 04:33	1
Molybdenum	<0.91		2.0	0.91	ug/L		09/19/23 09:30	09/29/23 04:33	1
Selenium	**21**		5.0	1.4	ug/L		09/19/23 09:30	09/29/23 04:33	1
Zinc	<6.4		20	6.4	ug/L		09/19/23 09:30	09/29/23 04:33	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**2.0**		1.9	0.64	mg/L			09/18/23 13:47	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**220**		5.0	2.5	mg/L			09/20/23 14:49	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<2.5		5.0	2.5	mg/L			09/20/23 14:49	1
Total Alkalinity as CaCO3 (SM 2320B)	**220**		5.0	2.5	mg/L			09/20/23 14:49	1
Total Dissolved Solids (SM 2540C)	**300**		50	34	mg/L			09/18/23 14:42	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	**757.61**				ft			09/12/23 10:50	1
Oxidation Reduction Potential	**118.9**				mV			09/12/23 10:50	1
Oxygen, Dissolved	**2.39**				mg/L			09/12/23 10:50	1
Field pH	**6.14**				SU			09/12/23 10:50	1
Field Conductivity	**611**				umhos/cm			09/12/23 10:50	1
Field Temperature	**15.0**				Degrees C			09/12/23 10:50	1

Client Sample Results

Client: SCS Engineers
Project/Site: Alliant Big Bend - 25223063

Job ID: 310-264962-1

Client Sample ID: MW-21

Date Collected: 09/14/23 10:35
Date Received: 09/15/23 16:20

Lab Sample ID: 310-264962-11
Matrix: Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**150**		5.0	2.3	mg/L			09/22/23 22:34	5
Fluoride	<0.38		1.0	0.38	mg/L			09/22/23 22:34	5
Sulfate	**55**		5.0	2.1	mg/L			09/22/23 22:34	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.90**	**J**	2.0	0.53	ug/L		09/19/23 09:30	09/29/23 04:37	1
Barium	**190**		2.0	0.64	ug/L		09/19/23 09:30	09/29/23 04:37	1
Beryllium	<0.33		1.0	0.33	ug/L		09/19/23 09:30	09/29/23 04:37	1
Boron	**94**	**J**	100	76	ug/L		09/19/23 09:30	09/29/23 04:37	1
Calcium	**140**		0.50	0.19	mg/L		09/19/23 09:30	09/29/23 04:37	1
Cobalt	<0.17		0.50	0.17	ug/L		09/19/23 09:30	09/29/23 04:37	1
Copper	<1.8		5.0	1.8	ug/L		09/19/23 09:30	09/29/23 04:37	1
Iron	**100**		100	36	ug/L		09/19/23 09:30	09/29/23 04:37	1
Lead	**0.37**	**J**	0.50	0.24	ug/L		09/19/23 09:30	09/29/23 04:37	1
Lithium	**7.3**	**J**	10	2.5	ug/L		09/19/23 09:30	09/29/23 04:37	1
Magnesium	**41000**		500	150	ug/L		09/19/23 09:30	09/29/23 04:37	1
Manganese	**13**		10	3.6	ug/L		09/19/23 09:30	09/29/23 04:37	1
Molybdenum	<0.91		2.0	0.91	ug/L		09/19/23 09:30	09/29/23 04:37	1
Selenium	<1.4		5.0	1.4	ug/L		09/19/23 09:30	09/29/23 04:37	1
Zinc	<6.4		20	6.4	ug/L		09/19/23 09:30	09/29/23 04:37	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**13**		1.9	0.64	mg/L			09/18/23 17:30	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**280**		5.0	2.5	mg/L			09/20/23 14:58	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<2.5		5.0	2.5	mg/L			09/20/23 14:58	1
Total Alkalinity as CaCO3 (SM 2320B)	**280**		5.0	2.5	mg/L			09/20/23 14:58	1
Total Dissolved Solids (SM 2540C)	**630**		250	170	mg/L			09/19/23 10:34	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	**763.37**				ft			09/14/23 10:35	1
Oxidation Reduction Potential	**106.2**				mV			09/14/23 10:35	1
Oxygen, Dissolved	**6.00**				mg/L			09/14/23 10:35	1
Field pH	**6.73**				SU			09/14/23 10:35	1
Field Conductivity	**1149**				umhos/cm			09/14/23 10:35	1
Field Temperature	**13.3**				Degrees C			09/14/23 10:35	1

Client Sample Results

Client: SCS Engineers
Project/Site: Alliant Big Bend - 25223063

Job ID: 310-264962-1

Client Sample ID: MW-23R
Date Collected: 09/14/23 12:10
Date Received: 09/15/23 16:20

Lab Sample ID: 310-264962-12
Matrix: Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**12**		5.0	2.3	mg/L			09/22/23 23:11	5
Fluoride	<0.38		1.0	0.38	mg/L			09/22/23 23:11	5
Sulfate	**52**		5.0	2.1	mg/L			09/22/23 23:11	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.53		2.0	0.53	ug/L		09/19/23 09:30	09/29/23 04:40	1
Barium	**120**		2.0	0.64	ug/L		09/19/23 09:30	09/29/23 04:40	1
Beryllium	<0.33		1.0	0.33	ug/L		09/19/23 09:30	09/29/23 04:40	1
Boron	**400**		100	76	ug/L		09/19/23 09:30	09/29/23 04:40	1
Calcium	**110**		0.50	0.19	mg/L		09/19/23 09:30	09/29/23 04:40	1
Cobalt	<0.17		0.50	0.17	ug/L		09/19/23 09:30	09/29/23 04:40	1
Copper	<1.8		5.0	1.8	ug/L		09/19/23 09:30	09/29/23 04:40	1
Iron	<36		100	36	ug/L		09/19/23 09:30	09/29/23 04:40	1
Lead	<0.24		0.50	0.24	ug/L		09/19/23 09:30	09/29/23 04:40	1
Lithium	**11**		10	2.5	ug/L		09/19/23 09:30	09/29/23 04:40	1
Magnesium	**31000**		500	150	ug/L		09/19/23 09:30	09/29/23 04:40	1
Manganese	<3.6		10	3.6	ug/L		09/19/23 09:30	09/29/23 04:40	1
Molybdenum	<0.91		2.0	0.91	ug/L		09/19/23 09:30	09/29/23 04:40	1
Selenium	**2.5**	**J**	5.0	1.4	ug/L		09/19/23 09:30	09/29/23 04:40	1
Zinc	<6.4		20	6.4	ug/L		09/19/23 09:30	09/29/23 04:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**1.6**	**J**	1.9	0.64	mg/L			09/18/23 17:30	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**330**		5.0	2.5	mg/L			09/20/23 15:17	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<2.5		5.0	2.5	mg/L			09/20/23 15:17	1
Total Alkalinity as CaCO3 (SM 2320B)	**330**		5.0	2.5	mg/L			09/20/23 15:17	1
Total Dissolved Solids (SM 2540C)	**490**		250	170	mg/L			09/19/23 10:34	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	**701.13**				ft			09/14/23 12:10	1
Oxidation Reduction Potential	**111.1**				mV			09/14/23 12:10	1
Oxygen, Dissolved	**6.26**				mg/L			09/14/23 12:10	1
Field pH	**6.91**				SU			09/14/23 12:10	1
Field Conductivity	**819**				umhos/cm			09/14/23 12:10	1
Field Temperature	**13.3**				Degrees C			09/14/23 12:10	1

Client Sample Results

Client: SCS Engineers
Project/Site: Alliant Big Bend - 25223063

Job ID: 310-264962-1

Client Sample ID: MW-25R

Date Collected: 09/12/23 13:05
Date Received: 09/15/23 16:20

Lab Sample ID: 310-264962-13

Matrix: Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**25**		5.0	2.3	mg/L			09/22/23 23:23	5
Fluoride	<0.38		1.0	0.38	mg/L			09/22/23 23:23	5
Sulfate	**53**		5.0	2.1	mg/L			09/22/23 23:23	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.53		2.0	0.53	ug/L		09/19/23 09:30	09/29/23 04:44	1
Barium	**160**		2.0	0.64	ug/L		09/19/23 09:30	09/29/23 04:44	1
Beryllium	<0.33		1.0	0.33	ug/L		09/19/23 09:30	09/29/23 04:44	1
Boron	**310**		100	76	ug/L		09/19/23 09:30	09/29/23 04:44	1
Calcium	**120**		0.50	0.19	mg/L		09/19/23 09:30	09/29/23 04:44	1
Cobalt	<0.17		0.50	0.17	ug/L		09/19/23 09:30	09/29/23 04:44	1
Copper	<1.8		5.0	1.8	ug/L		09/19/23 09:30	09/29/23 04:44	1
Iron	<36		100	36	ug/L		09/19/23 09:30	09/29/23 04:44	1
Lead	<0.24		0.50	0.24	ug/L		09/19/23 09:30	09/29/23 04:44	1
Lithium	**14**		10	2.5	ug/L		09/19/23 09:30	09/29/23 04:44	1
Magnesium	**40000**		500	150	ug/L		09/19/23 09:30	09/29/23 04:44	1
Manganese	<3.6		10	3.6	ug/L		09/19/23 09:30	09/29/23 04:44	1
Molybdenum	<0.91		2.0	0.91	ug/L		09/19/23 09:30	09/29/23 04:44	1
Selenium	**2.6**	**J**	5.0	1.4	ug/L		09/19/23 09:30	09/29/23 04:44	1
Zinc	<6.4		20	6.4	ug/L		09/19/23 09:30	09/29/23 04:44	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**3.9**		1.9	0.64	mg/L			09/18/23 13:47	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**390**		5.0	2.5	mg/L			09/20/23 15:27	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<2.5		5.0	2.5	mg/L			09/20/23 15:27	1
Total Alkalinity as CaCO3 (SM 2320B)	**390**		5.0	2.5	mg/L			09/20/23 15:27	1
Total Dissolved Solids (SM 2540C)	**270**		250	170	mg/L			09/18/23 14:42	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	**751.77**				ft			09/12/23 13:05	1
Oxidation Reduction Potential	**110.2**				mV			09/12/23 13:05	1
Oxygen, Dissolved	**6.51**				mg/L			09/12/23 13:05	1
Field pH	**6.75**				SU			09/12/23 13:05	1
Field Conductivity	**950**				umhos/cm			09/12/23 13:05	1
Field Temperature	**14.2**				Degrees C			09/12/23 13:05	1

Client Sample ID: LW-01
Lab Sample ID: 310-264962-14

Date Collected: 09/13/23 16:00
Matrix: Water
Date Received: 09/15/23 16:20

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<2.3		5.0	2.3	mg/L			09/22/23 23:35	5
Fluoride	<0.38		1.0	0.38	mg/L			09/22/23 23:35	5
Sulfate	**730**		20	8.4	mg/L			09/23/23 12:30	20

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**4.9**		2.0	0.53	ug/L		09/19/23 09:30	09/29/23 04:47	1
Boron	**25000**		1000	760	ug/L		09/19/23 09:30	09/30/23 20:12	10
Calcium	**230**		0.50	0.19	mg/L		09/19/23 09:30	09/29/23 04:47	1
Lithium	**33**		10	2.5	ug/L		09/19/23 09:30	09/29/23 04:47	1
Molybdenum	**480**		2.0	0.91	ug/L		09/19/23 09:30	09/29/23 04:47	1
Selenium	<1.4		5.0	1.4	ug/L		09/19/23 09:30	09/29/23 04:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**3200**		60	20	mg/L			09/19/23 08:42	1
Total Dissolved Solids (SM 2540C)	**1000**		250	170	mg/L			09/18/23 14:42	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Oxidation Reduction Potential	**64.6**				mV			09/13/23 16:00	1
Oxygen, Dissolved	**7.48**				mg/L			09/13/23 16:00	1
Field pH	**7.73**				SU			09/13/23 16:00	1
Field Conductivity	**1431**				umhos/cm			09/13/23 16:00	1
Field Temperature	**20.1**				Degrees C			09/13/23 16:00	1
Leachate Elevation	**751.38**				ft			09/13/23 16:00	1

Client Sample ID: Field Blank

Date Collected: 09/14/23 10:45
Date Received: 09/15/23 16:20

Lab Sample ID: 310-264962-15

Matrix: Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.45		1.0	0.45	mg/L			09/22/23 23:47	1
Fluoride	<0.075		0.20	0.075	mg/L			09/22/23 23:47	1
Sulfate	<0.42		1.0	0.42	mg/L			09/22/23 23:47	1

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.53		2.0	0.53	ug/L		09/19/23 09:30	09/29/23 04:50	1
Barium	<0.64		2.0	0.64	ug/L		09/19/23 09:30	09/29/23 04:50	1
Beryllium	<0.33		1.0	0.33	ug/L		09/19/23 09:30	09/29/23 04:50	1
Boron	**630**		100	76	ug/L		09/19/23 09:30	09/29/23 04:50	1
Calcium	**0.50**		0.50	0.19	mg/L		09/19/23 09:30	09/29/23 04:50	1
Cobalt	<0.17		0.50	0.17	ug/L		09/19/23 09:30	09/29/23 04:50	1
Copper	<1.8		5.0	1.8	ug/L		09/19/23 09:30	09/29/23 04:50	1
Iron	<36		100	36	ug/L		09/19/23 09:30	09/29/23 04:50	1
Lead	<0.24		0.50	0.24	ug/L		09/19/23 09:30	09/29/23 04:50	1
Lithium	<2.5		10	2.5	ug/L		09/19/23 09:30	09/29/23 04:50	1
Magnesium	<150		500	150	ug/L		09/19/23 09:30	09/29/23 04:50	1
Manganese	<3.6		10	3.6	ug/L		09/19/23 09:30	09/29/23 04:50	1
Molybdenum	**3.7**		2.0	0.91	ug/L		09/19/23 09:30	09/29/23 04:50	1
Selenium	<1.4		5.0	1.4	ug/L		09/19/23 09:30	09/29/23 04:50	1
Zinc	<6.4		20	6.4	ug/L		09/19/23 09:30	09/29/23 04:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	<1.7		5.0	1.7	mg/L			09/18/23 16:22	1
Total Dissolved Solids (SM 2540C)	<34		50	34	mg/L			09/19/23 10:34	1

Client Sample ID: MW-2
Lab Sample ID: 310-264962-16

Date Collected: 09/12/23 14:40
Matrix: Water
Date Received: 09/15/23 16:20

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	2.1		0.50	0.17	ug/L		10/09/23 11:00	10/12/23 19:32	1
Manganese	1300		10	3.6	ug/L		10/09/23 11:00	10/12/23 19:32	1

Client: SCS Engineers
Project/Site: Alliant Big Bend - 25223063

Job ID: 310-264962-1

Client Sample ID: MW-6
Date Collected: 09/13/23 15:12
Date Received: 09/15/23 16:20

Lab Sample ID: 310-264962-17
Matrix: Water

Method: SW846 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	19		10	2.5	ug/L		10/09/23 11:00	10/13/23 15:27	1

Client Sample ID: MW-8R
Lab Sample ID: 310-264962-21

Date Collected: 09/12/23 00:00
Matrix: Water
Date Received: 09/15/23 16:20

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	711.91				ft			09/12/23 00:00	1

Client Sample ID: MW-13

Lab Sample ID: 310-264962-22

Date Collected: 09/12/23 00:00

Matrix: Water

Date Received: 09/15/23 16:20

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	758.64				ft			09/12/23 00:00	1

Client Sample ID: MW-17R
Date Collected: 09/12/23 00:00
Date Received: 09/15/23 16:20

Lab Sample ID: 310-264962-23
Matrix: Water

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	708.55				ft			09/12/23 00:00	1

Client Sample ID: MW-18
Date Collected: 09/12/23 00:00
Date Received: 09/15/23 16:20

Lab Sample ID: 310-264962-24
Matrix: Water

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	743.66				ft			09/12/23 00:00	1

Client Sample ID: LW-03

Date Collected: 09/12/23 00:00
Date Received: 09/15/23 16:20

Lab Sample ID: 310-264962-25

Matrix: Water

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Leachate Elevation	760.66				ft			09/12/23 00:00	1

Definitions/Glossary

Client: SCS Engineers
Project/Site: Alliant Big Bend - 25223063

Job ID: 310-264962-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
E	Result exceeded calibration range.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-400440/3
Matrix: Water
Analysis Batch: 400440
Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.45		1.0	0.45	mg/L			09/21/23 11:46	1
Fluoride	<0.075		0.20	0.075	mg/L			09/21/23 11:46	1
Sulfate	<0.42		1.0	0.42	mg/L			09/21/23 11:46	1

Lab Sample ID: LCS 310-400440/4
Matrix: Water
Analysis Batch: 400440
Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	9.82		mg/L		98	90 - 110
Fluoride	2.00	1.97		mg/L		99	90 - 110
Sulfate	10.0	10.2		mg/L		102	90 - 110

Lab Sample ID: 310-264962-1 MS
Matrix: Water
Analysis Batch: 400440
Client Sample ID: MW-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.6		25.0	28.7		mg/L		93	80 - 120
Fluoride	<0.38		5.00	4.72		mg/L		94	80 - 120
Sulfate	61		25.0	85.2		mg/L		98	80 - 120

Lab Sample ID: 310-264962-1 MSD
Matrix: Water
Analysis Batch: 400440
Client Sample ID: MW-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	5.6		25.0	28.6		mg/L		92	80 - 120	0	15
Fluoride	<0.38		5.00	4.75		mg/L		95	80 - 120	1	15
Sulfate	61		25.0	84.1		mg/L		94	80 - 120	1	15

Lab Sample ID: MB 310-400507/3
Matrix: Water
Analysis Batch: 400507
Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.45		1.0	0.45	mg/L			09/22/23 20:58	1
Fluoride	<0.075		0.20	0.075	mg/L			09/22/23 20:58	1
Sulfate	<0.42		1.0	0.42	mg/L			09/22/23 20:58	1

Lab Sample ID: LCS 310-400507/4
Matrix: Water
Analysis Batch: 400507
Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	9.65		mg/L		96	90 - 110
Fluoride	2.00	1.94		mg/L		97	90 - 110
Sulfate	10.0	10.3		mg/L		103	90 - 110

QC Sample Results

Client: SCS Engineers
Project/Site: Alliant Big Bend - 25223063

Job ID: 310-264962-1

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-399888/1-A
Matrix: Water
Analysis Batch: 401086

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 399888

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.53		2.0	0.53	ug/L		09/19/23 09:30	09/29/23 13:50	1
Barium	<0.64		2.0	0.64	ug/L		09/19/23 09:30	09/29/23 13:50	1
Beryllium	<0.33		1.0	0.33	ug/L		09/19/23 09:30	09/29/23 13:50	1
Boron	<76		100	76	ug/L		09/19/23 09:30	09/29/23 13:50	1
Calcium	<0.19		0.50	0.19	mg/L		09/19/23 09:30	09/29/23 13:50	1
Cobalt	<0.17		0.50	0.17	ug/L		09/19/23 09:30	09/29/23 13:50	1
Copper	<1.8		5.0	1.8	ug/L		09/19/23 09:30	09/29/23 13:50	1
Iron	<36		100	36	ug/L		09/19/23 09:30	09/29/23 13:50	1
Lead	<0.24		0.50	0.24	ug/L		09/19/23 09:30	09/29/23 13:50	1
Magnesium	<150		500	150	ug/L		09/19/23 09:30	09/29/23 13:50	1
Manganese	<3.6		10	3.6	ug/L		09/19/23 09:30	09/29/23 13:50	1
Selenium	<1.4		5.0	1.4	ug/L		09/19/23 09:30	09/29/23 13:50	1

Lab Sample ID: MB 310-399888/1-A
Matrix: Water
Analysis Batch: 401128

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 399888

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	<2.5		10	2.5	ug/L		09/19/23 09:30	09/30/23 19:37	1
Molybdenum	<0.91		2.0	0.91	ug/L		09/19/23 09:30	09/30/23 19:37	1
Zinc	<6.4		20	6.4	ug/L		09/19/23 09:30	09/30/23 19:37	1

Lab Sample ID: LCS 310-399888/2-A
Matrix: Water
Analysis Batch: 401213

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 399888

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	200	236		ug/L		118	80 - 120
Barium	100	120		ug/L		120	80 - 120
Beryllium	100	113		ug/L		113	80 - 120
Boron	200	225		ug/L		112	80 - 120
Calcium	2.00	2.00		mg/L		100	80 - 120
Cobalt	100	120		ug/L		120	80 - 120
Copper	200	235		ug/L		118	80 - 120
Iron	200	211		ug/L		106	80 - 120
Lead	200	239		ug/L		120	80 - 120
Lithium	200	229		ug/L		115	80 - 120
Magnesium	2000	2050		ug/L		103	80 - 120
Manganese	100	109		ug/L		109	80 - 120
Molybdenum	200	237		ug/L		119	80 - 120
Selenium	400	457	E	ug/L		114	80 - 120
Zinc	200	233		ug/L		116	80 - 120

Lab Sample ID: 310-264962-9 DU
Matrix: Water
Analysis Batch: 401021

Client Sample ID: MW-16
Prep Type: Total/NA
Prep Batch: 399888

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Beryllium	<0.33		<0.33	*-	ug/L		NC	20

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: 310-264962-9 DU
Matrix: Water
Analysis Batch: 401021

Client Sample ID: MW-16
Prep Type: Total/NA
Prep Batch: 399888

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Boron	520			519	*-	ug/L				0.2	20

Lab Sample ID: MB 310-401813/1-A
Matrix: Water
Analysis Batch: 402453

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 401813

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	<0.17		0.50	0.17	ug/L		10/09/23 11:00	10/12/23 19:01	1
Manganese	<3.6		10	3.6	ug/L		10/09/23 11:00	10/12/23 19:01	1

Lab Sample ID: MB 310-401813/1-A
Matrix: Water
Analysis Batch: 402579

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 401813

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	<2.5		10	2.5	ug/L		10/09/23 11:00	10/13/23 14:53	1

Lab Sample ID: LCS 310-401813/2-A
Matrix: Water
Analysis Batch: 402453

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 401813

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Cobalt			100	103		ug/L		103	80 - 120		
Manganese			100	92.9		ug/L		93	80 - 120		

Lab Sample ID: LCS 310-401813/2-A
Matrix: Water
Analysis Batch: 402579

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 401813

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Lithium			200	203		ug/L		101	80 - 120		

Method: I-3765-85 - Residue, Non-filterable (TSS)

Lab Sample ID: MB 310-399871/1
Matrix: Water
Analysis Batch: 399871

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<1.7		5.0	1.7	mg/L			09/18/23 13:47	1

Lab Sample ID: LCS 310-399871/2
Matrix: Water
Analysis Batch: 399871

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Suspended Solids			100	102		mg/L		102	75 - 116		

Method: I-3765-85 - Residue, Non-filterable (TSS) (Continued)

Lab Sample ID: MB 310-399884/1
Matrix: Water
Analysis Batch: 399884

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<1.7		5.0	1.7	mg/L			09/18/23 16:22	1

Lab Sample ID: LCS 310-399884/2
Matrix: Water
Analysis Batch: 399884

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	101		mg/L		101	75 - 116

Lab Sample ID: MB 310-399892/1
Matrix: Water
Analysis Batch: 399892

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<1.7		5.0	1.7	mg/L			09/18/23 17:30	1

Lab Sample ID: LCS 310-399892/2
Matrix: Water
Analysis Batch: 399892

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	100		mg/L		100	75 - 116

Lab Sample ID: MB 310-399917/1
Matrix: Water
Analysis Batch: 399917

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<1.7		5.0	1.7	mg/L			09/19/23 07:53	1

Lab Sample ID: LCS 310-399917/2
Matrix: Water
Analysis Batch: 399917

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	102		mg/L		102	75 - 116

Lab Sample ID: MB 310-399926/1
Matrix: Water
Analysis Batch: 399926

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<1.7		5.0	1.7	mg/L			09/19/23 08:42	1

Lab Sample ID: LCS 310-399926/2
Matrix: Water
Analysis Batch: 399926

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	109		mg/L		109	75 - 116

Method: I-3765-85 - Residue, Non-filterable (TSS)

Lab Sample ID: 310-264962-14 DU
Matrix: Water
Analysis Batch: 399926

Client Sample ID: LW-01
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	3200		2690		mg/L		16	35

Method: SM 2320B - Alkalinity

Lab Sample ID: LCS 310-400183/2
Matrix: Water
Analysis Batch: 400183

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Alkalinity as CaCO3	1000	976		mg/L		98	90 - 110

Lab Sample ID: 310-264962-4 DU
Matrix: Water
Analysis Batch: 400183

Client Sample ID: MW-7
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Bicarbonate Alkalinity as CaCO3	340		342		mg/L		0.08	
Carbonate Alkalinity as CaCO3	<2.5		<2.5		mg/L		NC	
Total Alkalinity as CaCO3	340		342		mg/L		0.08	10

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 310-399878/1
Matrix: Water
Analysis Batch: 399878

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<34		50	34	mg/L			09/18/23 14:42	1

Lab Sample ID: LCS 310-399878/2
Matrix: Water
Analysis Batch: 399878

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	966		mg/L		97	90 - 110

Lab Sample ID: 310-264962-1 DU
Matrix: Water
Analysis Batch: 399878

Client Sample ID: MW-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	440		414		mg/L		7	20

Lab Sample ID: MB 310-399959/1
Matrix: Water
Analysis Batch: 399959

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<34		50	34	mg/L			09/19/23 10:34	1

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LCS 310-399959/2
Matrix: Water
Analysis Batch: 399959

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Dissolved Solids			1000	1000		mg/L		100	90 - 110		

HPLC/IC

Analysis Batch: 400440

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264962-1	MW-2	Total/NA	Water	9056A	
310-264962-2	MW-5	Total/NA	Water	9056A	
310-264962-3	MW-6	Total/NA	Water	9056A	
310-264962-4	MW-7	Total/NA	Water	9056A	
310-264962-5	MW-10	Total/NA	Water	9056A	
MB 310-400440/3	Method Blank	Total/NA	Water	9056A	
LCS 310-400440/4	Lab Control Sample	Total/NA	Water	9056A	
310-264962-1 MS	MW-2	Total/NA	Water	9056A	
310-264962-1 MSD	MW-2	Total/NA	Water	9056A	

Analysis Batch: 400507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264962-6	MW-11	Total/NA	Water	9056A	
310-264962-7	MW-12	Total/NA	Water	9056A	
310-264962-8	MW-14	Total/NA	Water	9056A	
310-264962-9	MW-16	Total/NA	Water	9056A	
310-264962-10	MW-20	Total/NA	Water	9056A	
310-264962-11	MW-21	Total/NA	Water	9056A	
310-264962-12	MW-23R	Total/NA	Water	9056A	
310-264962-13	MW-25R	Total/NA	Water	9056A	
310-264962-14	LW-01	Total/NA	Water	9056A	
310-264962-14	LW-01	Total/NA	Water	9056A	
310-264962-15	Field Blank	Total/NA	Water	9056A	
MB 310-400507/3	Method Blank	Total/NA	Water	9056A	
LCS 310-400507/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 399888

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264962-1	MW-2	Total/NA	Water	3005A	
310-264962-2	MW-5	Total/NA	Water	3005A	
310-264962-3	MW-6	Total/NA	Water	3005A	
310-264962-4	MW-7	Total/NA	Water	3005A	
310-264962-5	MW-10	Total/NA	Water	3005A	
310-264962-6	MW-11	Total/NA	Water	3005A	
310-264962-7	MW-12	Total/NA	Water	3005A	
310-264962-8	MW-14	Total/NA	Water	3005A	
310-264962-9	MW-16	Total/NA	Water	3005A	
310-264962-10	MW-20	Total/NA	Water	3005A	
310-264962-11	MW-21	Total/NA	Water	3005A	
310-264962-12	MW-23R	Total/NA	Water	3005A	
310-264962-13	MW-25R	Total/NA	Water	3005A	
310-264962-14	LW-01	Total/NA	Water	3005A	
310-264962-15	Field Blank	Total/NA	Water	3005A	
MB 310-399888/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-399888/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-264962-9 DU	MW-16	Total/NA	Water	3005A	

Metals

Analysis Batch: 401021

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264962-1	MW-2	Total/NA	Water	6020B	399888
310-264962-4	MW-7	Total/NA	Water	6020B	399888
310-264962-5	MW-10	Total/NA	Water	6020B	399888
310-264962-6	MW-11	Total/NA	Water	6020B	399888
310-264962-7	MW-12	Total/NA	Water	6020B	399888
310-264962-8	MW-14	Total/NA	Water	6020B	399888
310-264962-9	MW-16	Total/NA	Water	6020B	399888
310-264962-10	MW-20	Total/NA	Water	6020B	399888
310-264962-11	MW-21	Total/NA	Water	6020B	399888
310-264962-12	MW-23R	Total/NA	Water	6020B	399888
310-264962-13	MW-25R	Total/NA	Water	6020B	399888
310-264962-14	LW-01	Total/NA	Water	6020B	399888
310-264962-15	Field Blank	Total/NA	Water	6020B	399888
310-264962-9 DU	MW-16	Total/NA	Water	6020B	399888

Analysis Batch: 401086

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-399888/1-A	Method Blank	Total/NA	Water	6020B	399888

Analysis Batch: 401128

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264962-2	MW-5	Total/NA	Water	6020B	399888
310-264962-3	MW-6	Total/NA	Water	6020B	399888
310-264962-14	LW-01	Total/NA	Water	6020B	399888
MB 310-399888/1-A	Method Blank	Total/NA	Water	6020B	399888

Analysis Batch: 401213

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-399888/2-A	Lab Control Sample	Total/NA	Water	6020B	399888

Prep Batch: 401813

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264962-16	MW-2	Dissolved	Water	3005A	
310-264962-17	MW-6	Dissolved	Water	3005A	
MB 310-401813/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-401813/2-A	Lab Control Sample	Total/NA	Water	3005A	

Analysis Batch: 402453

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264962-16	MW-2	Dissolved	Water	6020B	401813
MB 310-401813/1-A	Method Blank	Total/NA	Water	6020B	401813
LCS 310-401813/2-A	Lab Control Sample	Total/NA	Water	6020B	401813

Analysis Batch: 402579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264962-17	MW-6	Dissolved	Water	6020B	401813
MB 310-401813/1-A	Method Blank	Total/NA	Water	6020B	401813
LCS 310-401813/2-A	Lab Control Sample	Total/NA	Water	6020B	401813

General Chemistry

Analysis Batch: 399871

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264962-1	MW-2	Total/NA	Water	I-3765-85	
310-264962-6	MW-11	Total/NA	Water	I-3765-85	
310-264962-7	MW-12	Total/NA	Water	I-3765-85	
310-264962-8	MW-14	Total/NA	Water	I-3765-85	
310-264962-10	MW-20	Total/NA	Water	I-3765-85	
310-264962-13	MW-25R	Total/NA	Water	I-3765-85	
MB 310-399871/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-399871/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Analysis Batch: 399878

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264962-1	MW-2	Total/NA	Water	SM 2540C	
310-264962-2	MW-5	Total/NA	Water	SM 2540C	
310-264962-3	MW-6	Total/NA	Water	SM 2540C	
310-264962-4	MW-7	Total/NA	Water	SM 2540C	
310-264962-5	MW-10	Total/NA	Water	SM 2540C	
310-264962-6	MW-11	Total/NA	Water	SM 2540C	
310-264962-7	MW-12	Total/NA	Water	SM 2540C	
310-264962-8	MW-14	Total/NA	Water	SM 2540C	
310-264962-9	MW-16	Total/NA	Water	SM 2540C	
310-264962-10	MW-20	Total/NA	Water	SM 2540C	
310-264962-13	MW-25R	Total/NA	Water	SM 2540C	
310-264962-14	LW-01	Total/NA	Water	SM 2540C	
MB 310-399878/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-399878/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-264962-1 DU	MW-2	Total/NA	Water	SM 2540C	

Analysis Batch: 399884

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264962-15	Field Blank	Total/NA	Water	I-3765-85	
MB 310-399884/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-399884/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Analysis Batch: 399892

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264962-3	MW-6	Total/NA	Water	I-3765-85	
310-264962-4	MW-7	Total/NA	Water	I-3765-85	
310-264962-5	MW-10	Total/NA	Water	I-3765-85	
310-264962-9	MW-16	Total/NA	Water	I-3765-85	
310-264962-11	MW-21	Total/NA	Water	I-3765-85	
310-264962-12	MW-23R	Total/NA	Water	I-3765-85	
MB 310-399892/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-399892/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Analysis Batch: 399917

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264962-2	MW-5	Total/NA	Water	I-3765-85	
MB 310-399917/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-399917/2	Lab Control Sample	Total/NA	Water	I-3765-85	

General Chemistry

Analysis Batch: 399926

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264962-14	LW-01	Total/NA	Water	I-3765-85	
MB 310-399926/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-399926/2	Lab Control Sample	Total/NA	Water	I-3765-85	
310-264962-14 DU	LW-01	Total/NA	Water	I-3765-85	

Analysis Batch: 399959

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264962-11	MW-21	Total/NA	Water	SM 2540C	
310-264962-12	MW-23R	Total/NA	Water	SM 2540C	
310-264962-15	Field Blank	Total/NA	Water	SM 2540C	
MB 310-399959/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-399959/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 400183

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264962-1	MW-2	Total/NA	Water	SM 2320B	
310-264962-2	MW-5	Total/NA	Water	SM 2320B	
310-264962-3	MW-6	Total/NA	Water	SM 2320B	
310-264962-4	MW-7	Total/NA	Water	SM 2320B	
310-264962-5	MW-10	Total/NA	Water	SM 2320B	
310-264962-6	MW-11	Total/NA	Water	SM 2320B	
310-264962-7	MW-12	Total/NA	Water	SM 2320B	
310-264962-8	MW-14	Total/NA	Water	SM 2320B	
310-264962-9	MW-16	Total/NA	Water	SM 2320B	
310-264962-10	MW-20	Total/NA	Water	SM 2320B	
310-264962-11	MW-21	Total/NA	Water	SM 2320B	
310-264962-12	MW-23R	Total/NA	Water	SM 2320B	
310-264962-13	MW-25R	Total/NA	Water	SM 2320B	
LCS 310-400183/2	Lab Control Sample	Total/NA	Water	SM 2320B	
310-264962-4 DU	MW-7	Total/NA	Water	SM 2320B	

Field Service / Mobile Lab

Analysis Batch: 401541

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264962-1	MW-2	Total/NA	Water	Field Sampling	
310-264962-2	MW-5	Total/NA	Water	Field Sampling	
310-264962-3	MW-6	Total/NA	Water	Field Sampling	
310-264962-4	MW-7	Total/NA	Water	Field Sampling	
310-264962-5	MW-10	Total/NA	Water	Field Sampling	
310-264962-6	MW-11	Total/NA	Water	Field Sampling	
310-264962-7	MW-12	Total/NA	Water	Field Sampling	
310-264962-8	MW-14	Total/NA	Water	Field Sampling	
310-264962-9	MW-16	Total/NA	Water	Field Sampling	
310-264962-10	MW-20	Total/NA	Water	Field Sampling	
310-264962-11	MW-21	Total/NA	Water	Field Sampling	
310-264962-12	MW-23R	Total/NA	Water	Field Sampling	
310-264962-13	MW-25R	Total/NA	Water	Field Sampling	
310-264962-14	LW-01	Total/NA	Water	Field Sampling	

Field Service / Mobile Lab

Analysis Batch: 401593

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264962-14	LW-01	Total/NA	Water	Field Sampling	
310-264962-21	MW-8R	Total/NA	Water	Field Sampling	
310-264962-22	MW-13	Total/NA	Water	Field Sampling	
310-264962-23	MW-17R	Total/NA	Water	Field Sampling	
310-264962-24	MW-18	Total/NA	Water	Field Sampling	
310-264962-25	LW-03	Total/NA	Water	Field Sampling	

Client: SCS Engineers
Project/Site: Alliant Big Bend - 25223063

Job ID: 310-264962-1

Client Sample ID: MW-2 **Lab Sample ID: 310-264962-1**
Date Collected: 09/12/23 14:40 **Matrix: Water**
Date Received: 09/15/23 16:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	400440	QTZ5	EET CF	09/21/23 15:11
Total/NA	Prep	3005A			399888	QTZ5	EET CF	09/19/23 09:30
Total/NA	Analysis	6020B		1	401021	A6US	EET CF	09/29/23 03:23
Total/NA	Analysis	I-3765-85		1	399871	DGU1	EET CF	09/18/23 13:47
Total/NA	Analysis	SM 2320B		1	400183	MAQ3	EET CF	09/20/23 13:02
Total/NA	Analysis	SM 2540C		1	399878	ENB7	EET CF	09/18/23 14:42
Total/NA	Analysis	Field Sampling		1	401541	BJ0R	EET CF	09/12/23 14:40

Client Sample ID: MW-5 **Lab Sample ID: 310-264962-2**
Date Collected: 09/13/23 15:05 **Matrix: Water**
Date Received: 09/15/23 16:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	400440	QTZ5	EET CF	09/21/23 15:48
Total/NA	Prep	3005A			399888	QTZ5	EET CF	09/19/23 09:30
Total/NA	Analysis	6020B		1	401128	A6US	EET CF	09/30/23 20:06
Total/NA	Analysis	I-3765-85		1	399917	DGU1	EET CF	09/19/23 07:53
Total/NA	Analysis	SM 2320B		1	400183	MAQ3	EET CF	09/20/23 13:12
Total/NA	Analysis	SM 2540C		1	399878	ENB7	EET CF	09/18/23 14:42
Total/NA	Analysis	Field Sampling		1	401541	BJ0R	EET CF	09/13/23 15:05

Client Sample ID: MW-6 **Lab Sample ID: 310-264962-3**
Date Collected: 09/13/23 15:12 **Matrix: Water**
Date Received: 09/15/23 16:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	400440	QTZ5	EET CF	09/21/23 16:00
Total/NA	Prep	3005A			399888	QTZ5	EET CF	09/19/23 09:30
Total/NA	Analysis	6020B		1	401128	A6US	EET CF	09/30/23 20:08
Total/NA	Analysis	I-3765-85		1	399892	A4XP	EET CF	09/18/23 17:30
Total/NA	Analysis	SM 2320B		1	400183	MAQ3	EET CF	09/20/23 13:31
Total/NA	Analysis	SM 2540C		1	399878	ENB7	EET CF	09/18/23 14:42
Total/NA	Analysis	Field Sampling		1	401541	BJ0R	EET CF	09/13/23 15:12

Client Sample ID: MW-7 **Lab Sample ID: 310-264962-4**
Date Collected: 09/13/23 09:15 **Matrix: Water**
Date Received: 09/15/23 16:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	400440	QTZ5	EET CF	09/21/23 16:48
Total/NA	Prep	3005A			399888	QTZ5	EET CF	09/19/23 09:30
Total/NA	Analysis	6020B		1	401021	A6US	EET CF	09/29/23 03:56
Total/NA	Analysis	I-3765-85		1	399892	A4XP	EET CF	09/18/23 17:30

Client Sample ID: MW-7 Lab Sample ID: 310-264962-4

Date Collected: 09/13/23 09:15 **Matrix: Water**

Date Received: 09/15/23 16:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	SM 2320B		1	400183	MAQ3	EET CF	09/20/23 13:41
Total/NA	Analysis	SM 2540C		1	399878	ENB7	EET CF	09/18/23 14:42
Total/NA	Analysis	Field Sampling		1	401541	BJ0R	EET CF	09/13/23 09:15

Client Sample ID: MW-10 Lab Sample ID: 310-264962-5

Date Collected: 09/13/23 13:00 **Matrix: Water**

Date Received: 09/15/23 16:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	400440	QTZ5	EET CF	09/21/23 17:00
Total/NA	Prep	3005A			399888	QTZ5	EET CF	09/19/23 09:30
Total/NA	Analysis	6020B		1	401021	A6US	EET CF	09/29/23 03:59
Total/NA	Analysis	I-3765-85		1	399892	A4XP	EET CF	09/18/23 17:30
Total/NA	Analysis	SM 2320B		1	400183	MAQ3	EET CF	09/20/23 14:01
Total/NA	Analysis	SM 2540C		1	399878	ENB7	EET CF	09/18/23 14:42
Total/NA	Analysis	Field Sampling		1	401541	BJ0R	EET CF	09/13/23 13:00

Client Sample ID: MW-11 Lab Sample ID: 310-264962-6

Date Collected: 09/12/23 14:32 **Matrix: Water**

Date Received: 09/15/23 16:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	400507	QTZ5	EET CF	09/22/23 21:34
Total/NA	Prep	3005A			399888	QTZ5	EET CF	09/19/23 09:30
Total/NA	Analysis	6020B		1	401021	A6US	EET CF	09/29/23 04:03
Total/NA	Analysis	I-3765-85		1	399871	DGU1	EET CF	09/18/23 13:47
Total/NA	Analysis	SM 2320B		1	400183	MAQ3	EET CF	09/20/23 14:11
Total/NA	Analysis	SM 2540C		1	399878	ENB7	EET CF	09/18/23 14:42
Total/NA	Analysis	Field Sampling		1	401541	BJ0R	EET CF	09/12/23 14:32

Client Sample ID: MW-12 Lab Sample ID: 310-264962-7

Date Collected: 09/11/23 14:50 **Matrix: Water**

Date Received: 09/15/23 16:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	400507	QTZ5	EET CF	09/22/23 21:46
Total/NA	Prep	3005A			399888	QTZ5	EET CF	09/19/23 09:30
Total/NA	Analysis	6020B		1	401021	A6US	EET CF	09/29/23 04:06
Total/NA	Analysis	I-3765-85		1	399871	DGU1	EET CF	09/18/23 13:47
Total/NA	Analysis	SM 2320B		1	400183	MAQ3	EET CF	09/20/23 14:21
Total/NA	Analysis	SM 2540C		1	399878	ENB7	EET CF	09/18/23 14:42
Total/NA	Analysis	Field Sampling		1	401541	BJ0R	EET CF	09/11/23 14:50

Lab Chronicle

Client: SCS Engineers
Project/Site: Alliant Big Bend - 25223063

Job ID: 310-264962-1

Client Sample ID: MW-14
Date Collected: 09/11/23 15:40
Date Received: 09/15/23 16:20

Lab Sample ID: 310-264962-8
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	400507	QTZ5	EET CF	09/22/23 21:58
Total/NA	Prep	3005A			399888	QTZ5	EET CF	09/19/23 09:30
Total/NA	Analysis	6020B		1	401021	A6US	EET CF	09/29/23 04:09
Total/NA	Analysis	I-3765-85		1	399871	DGU1	EET CF	09/18/23 13:47
Total/NA	Analysis	SM 2320B		1	400183	MAQ3	EET CF	09/20/23 14:31
Total/NA	Analysis	SM 2540C		1	399878	ENB7	EET CF	09/18/23 14:42
Total/NA	Analysis	Field Sampling		1	401541	BJ0R	EET CF	09/11/23 15:40

Client Sample ID: MW-16
Date Collected: 09/14/23 13:45
Date Received: 09/15/23 16:20

Lab Sample ID: 310-264962-9
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	400507	QTZ5	EET CF	09/22/23 22:10
Total/NA	Prep	3005A			399888	QTZ5	EET CF	09/19/23 09:30
Total/NA	Analysis	6020B		1	401021	A6US	EET CF	09/29/23 04:27
Total/NA	Analysis	I-3765-85		1	399892	A4XP	EET CF	09/18/23 17:30
Total/NA	Analysis	SM 2320B		1	400183	MAQ3	EET CF	09/20/23 14:39
Total/NA	Analysis	SM 2540C		1	399878	ENB7	EET CF	09/18/23 14:42
Total/NA	Analysis	Field Sampling		1	401541	BJ0R	EET CF	09/14/23 13:45

Client Sample ID: MW-20
Date Collected: 09/12/23 10:50
Date Received: 09/15/23 16:20

Lab Sample ID: 310-264962-10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	400507	QTZ5	EET CF	09/22/23 22:22
Total/NA	Prep	3005A			399888	QTZ5	EET CF	09/19/23 09:30
Total/NA	Analysis	6020B		1	401021	A6US	EET CF	09/29/23 04:33
Total/NA	Analysis	I-3765-85		1	399871	DGU1	EET CF	09/18/23 13:47
Total/NA	Analysis	SM 2320B		1	400183	MAQ3	EET CF	09/20/23 14:49
Total/NA	Analysis	SM 2540C		1	399878	ENB7	EET CF	09/18/23 14:42
Total/NA	Analysis	Field Sampling		1	401541	BJ0R	EET CF	09/12/23 10:50

Client Sample ID: MW-21
Date Collected: 09/14/23 10:35
Date Received: 09/15/23 16:20

Lab Sample ID: 310-264962-11
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	400507	QTZ5	EET CF	09/22/23 22:34
Total/NA	Prep	3005A			399888	QTZ5	EET CF	09/19/23 09:30
Total/NA	Analysis	6020B		1	401021	A6US	EET CF	09/29/23 04:37
Total/NA	Analysis	I-3765-85		1	399892	A4XP	EET CF	09/18/23 17:30

Client Sample ID: MW-21
Lab Sample ID: 310-264962-11
Date Collected: 09/14/23 10:35
Matrix: Water
Date Received: 09/15/23 16:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	SM 2320B		1	400183	MAQ3	EET CF	09/20/23 14:58
Total/NA	Analysis	SM 2540C		1	399959	ENB7	EET CF	09/19/23 10:34
Total/NA	Analysis	Field Sampling		1	401541	BJ0R	EET CF	09/14/23 10:35

Client Sample ID: MW-23R
Lab Sample ID: 310-264962-12
Date Collected: 09/14/23 12:10
Matrix: Water
Date Received: 09/15/23 16:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	400507	QTZ5	EET CF	09/22/23 23:11
Total/NA	Prep	3005A			399888	QTZ5	EET CF	09/19/23 09:30
Total/NA	Analysis	6020B		1	401021	A6US	EET CF	09/29/23 04:40
Total/NA	Analysis	I-3765-85		1	399892	A4XP	EET CF	09/18/23 17:30
Total/NA	Analysis	SM 2320B		1	400183	MAQ3	EET CF	09/20/23 15:17
Total/NA	Analysis	SM 2540C		1	399959	ENB7	EET CF	09/19/23 10:34
Total/NA	Analysis	Field Sampling		1	401541	BJ0R	EET CF	09/14/23 12:10

Client Sample ID: MW-25R
Lab Sample ID: 310-264962-13
Date Collected: 09/12/23 13:05
Matrix: Water
Date Received: 09/15/23 16:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	400507	QTZ5	EET CF	09/22/23 23:23
Total/NA	Prep	3005A			399888	QTZ5	EET CF	09/19/23 09:30
Total/NA	Analysis	6020B		1	401021	A6US	EET CF	09/29/23 04:44
Total/NA	Analysis	I-3765-85		1	399871	DGU1	EET CF	09/18/23 13:47
Total/NA	Analysis	SM 2320B		1	400183	MAQ3	EET CF	09/20/23 15:27
Total/NA	Analysis	SM 2540C		1	399878	ENB7	EET CF	09/18/23 14:42
Total/NA	Analysis	Field Sampling		1	401541	BJ0R	EET CF	09/12/23 13:05

Client Sample ID: LW-01
Lab Sample ID: 310-264962-14
Date Collected: 09/13/23 16:00
Matrix: Water
Date Received: 09/15/23 16:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	400507	QTZ5	EET CF	09/22/23 23:35
Total/NA	Analysis	9056A		20	400507	QTZ5	EET CF	09/23/23 12:30
Total/NA	Prep	3005A			399888	QTZ5	EET CF	09/19/23 09:30
Total/NA	Analysis	6020B		1	401021	A6US	EET CF	09/29/23 04:47
Total/NA	Prep	3005A			399888	QTZ5	EET CF	09/19/23 09:30
Total/NA	Analysis	6020B		10	401128	A6US	EET CF	09/30/23 20:12
Total/NA	Analysis	I-3765-85		1	399926	DGU1	EET CF	09/19/23 08:42
Total/NA	Analysis	SM 2540C		1	399878	ENB7	EET CF	09/18/23 14:42

Client Sample ID: LW-01

Lab Sample ID: 310-264962-14

Date Collected: 09/13/23 16:00

Matrix: Water

Date Received: 09/15/23 16:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Field Sampling		1	401541	BJ0R	EET CF	09/13/23 16:00
Total/NA	Analysis	Field Sampling		1	401593	BJ0R	EET CF	09/13/23 16:00

Client Sample ID: Field Blank

Lab Sample ID: 310-264962-15

Date Collected: 09/14/23 10:45

Matrix: Water

Date Received: 09/15/23 16:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		1	400507	QTZ5	EET CF	09/22/23 23:47
Total/NA	Prep	3005A			399888	QTZ5	EET CF	09/19/23 09:30
Total/NA	Analysis	6020B		1	401021	A6US	EET CF	09/29/23 04:50
Total/NA	Analysis	I-3765-85		1	399884	A4XP	EET CF	09/18/23 16:22
Total/NA	Analysis	SM 2540C		1	399959	ENB7	EET CF	09/19/23 10:34

Client Sample ID: MW-2

Lab Sample ID: 310-264962-16

Date Collected: 09/12/23 14:40

Matrix: Water

Date Received: 09/15/23 16:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	3005A			401813	KCK5	EET CF	10/09/23 11:00
Dissolved	Analysis	6020B		1	402453	A6US	EET CF	10/12/23 19:32

Client Sample ID: MW-6

Lab Sample ID: 310-264962-17

Date Collected: 09/13/23 15:12

Matrix: Water

Date Received: 09/15/23 16:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	3005A			401813	KCK5	EET CF	10/09/23 11:00
Dissolved	Analysis	6020B		1	402579	A6US	EET CF	10/13/23 15:27

Client Sample ID: MW-8R

Lab Sample ID: 310-264962-21

Date Collected: 09/12/23 00:00

Matrix: Water

Date Received: 09/15/23 16:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Field Sampling		1	401593	BJ0R	EET CF	09/12/23 00:00

Client Sample ID: MW-13

Lab Sample ID: 310-264962-22

Date Collected: 09/12/23 00:00

Matrix: Water

Date Received: 09/15/23 16:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Field Sampling		1	401593	BJ0R	EET CF	09/12/23 00:00

Client Sample ID: MW-17R

Lab Sample ID: 310-264962-23

Date Collected: 09/12/23 00:00

Matrix: Water

Date Received: 09/15/23 16:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Field Sampling		1	401593	BJ0R	EET CF	09/12/23 00:00

Client Sample ID: MW-18

Lab Sample ID: 310-264962-24

Date Collected: 09/12/23 00:00

Matrix: Water

Date Received: 09/15/23 16:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Field Sampling		1	401593	BJ0R	EET CF	09/12/23 00:00

Client Sample ID: LW-03

Lab Sample ID: 310-264962-25

Date Collected: 09/12/23 00:00

Matrix: Water

Date Received: 09/15/23 16:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Field Sampling		1	401593	BJ0R	EET CF	09/12/23 00:00

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

Accreditation/Certification Summary

Client: SCS Engineers

Job ID: 310-264962-1

Project/Site: Alliant Big Bend - 25223063

Laboratory: Eurofins Cedar Falls

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-23

Method Summary

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
SM 2320B	Alkalinity	SM	EET CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CF
Field Sampling	Field Sampling	EPA	EET CF
3005A	Preparation, Total Metals	SW846	EET CF

Protocol References:

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

USGS = "Methods For Analysis Of Water And Fluvial Sediments", USGS, 1989

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

eurofins | Environment Testing America

310-264962 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: SCS			
City/State:	CITY	STATE	Project:

Receipt Information			
Date/Time Received:	DATE 9/15/23	TIME 1020	Received By: EM

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☒ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other:________

Condition of Cooler/Containers			
Sample(s) received in Cooler?	☒ Yes	☐ No	*If yes:* Cooler ID:
Multiple Coolers?	☒ Yes	☐ No	*If yes:* Cooler # 1 of 3
Cooler Custody Seals Present?	☐ Yes	☒ No	*If yes:* Cooler custody seals intact? ☐ Yes ☐ No
Sample Custody Seals Present?	☐ Yes	☒ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes	☒ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:________ ☐ NONE

Thermometer ID: R	Correction Factor (°C): 0

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 0.4	Corrected Temp (°C): 0.4

• **Sample Container Temperature**

	CONTAINER 1	CONTAINER 2
Container(s) used:		
Uncorrected Temp (°C):		
Corrected Temp (°C):		

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No

NOTE. If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

1 W-03 on COC, no containers received

eurofins | Environment Testing America

Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: SCS			
City/State:	CITY	STATE	Project:
Receipt Information			
Date/Time Received:	DATE 9/15/23	TIME 1620	Received By: EM
Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☒ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other:______			
Condition of Cooler/Containers			
Sample(s) received in Cooler?	☒ Yes ☐ No		*If yes:* Cooler ID:
Multiple Coolers?	☒ Yes ☐ No		*If yes:* Cooler # 2 of 3
Cooler Custody Seals Present?	☐ Yes ☒ No		*If yes:* Cooler custody seals intact? ☐ Yes ☐ No
Sample Custody Seals Present?	☐ Yes ☒ No		*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes ☒ No		*If yes:* Which VOA samples are in cooler? ↓
Temperature Record			
Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:______ ☐ NONE			
Thermometer ID: R			Correction Factor (°C): 0
Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): 2.1			Corrected Temp (°C): 2.1
Sample Container Temperature			
Container(s) used:	CONTAINER 1		CONTAINER 2
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No			
a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No			
NOTE. If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			

Document: CED-P-SAM-FRM45521
Revision: 26
Date: 27 Jan 2022

Eurofins Cedar Falls

General temperature criteria is 0 to 6°C
Bacteria temperature criteria is 0 to 10°C

eurofins Environment Testing America

Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: SCS

City/State: CITY STATE | Project:

Receipt Information

Date/Time Received: DATE 9/15/23 TIME 1620 | Received By: EM

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☒ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other:________

Condition of Cooler/Containers

Sample(s) received in Cooler? ☒ Yes ☐ No *If yes:* Cooler ID:

Multiple Coolers? ☒ Yes ☐ No *If yes:* Cooler # 3 of 3

Cooler Custody Seals Present? ☐ Yes ☒ No *If yes:* Cooler custody seals intact? ☐ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☒ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☒ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:________ ☐ NONE

Thermometer ID: R | Correction Factor (°C): 0

Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 2.0 | Corrected Temp (°C): 2.0

Sample Container Temperature

	CONTAINER 1	CONTAINER 2
Container(s) used:		
Uncorrected Temp (°C):		
Corrected Temp (°C):		

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No

NOTE If yes, contact PM before proceeding If no, proceed with login

Additional Comments

Document: CED-P-SAM-FRM45521
Revision 26
Date: 27 Jan 2022

Eurofins Cedar Falls

General temperature criteria is 0 to 6°C
Bacteria temperature criteria is 0 to 10°C

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone. 319-277-2401 Fax: 319-277-2425

Chain of Custody Record

TestAmerica Des Moines SC
214

eurofins | Environment Testing

Client Information	
Sampler: Tyler Stirling	Lab PM: Fredrick, Sandie
Client Contact: Meghan Blodgett	Phone: 515-205-2716
E-Mail: Sandra Fredrick@et.eurofinsus.com	Carrier Tracking No(s):
State of Origin: IA	COC No: 310-84931-23683 1
Page: Page 1 of 3	Job #: 25223063
Company: SCS Engineers	PWSID:
Address: 2830 Dairy Drive	Due Date Requested:
City: Madison	TAT Requested (days):
State Zip: WI 53718	Compliance Project: Δ Yes Δ No
Phone:	PO #: Purchase Order Requested
Email: mblodgett@scsengineers com	WO #:
Project Name: Alliant Big Bend	Project #: 31011020
Site:	SSOW#:

Analysis Requested

Preservation Codes
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA
M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9056A_ORGFM_28D - Chloride, Fluoride & Sulfate	6020B - Metals (16)	2540C_Calcd, I_3766_86	2320B - (MOD) Alkalinity	2320B - Alkalinity	6020B - D. Metals	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	D	N	N	N	D		
MW-2	9/12/23	2 40	G	Water	N		X	X	X	X				Unfiltered samples
MW-5	9/13/23	3:05	G	Water	N		X	X	X	X				can be run right away
MW-6	9/13/23	3:12	G	Water	N		X	X	X	X				★ Hold filtered samples,
MW-7	9/13/23	9 15	G	Water	N		X	X	X	X				SCS will send special
MW-10	9/13/23	1 00	G	Water	N		X	X	X	X				instructions★
MW-11	9/12/23	2:32	G	Water	N		X	X	X	X				
MW-12	9/11/23	2:50	G	Water	N		X	X	X	X				
MW-14	9/11/23	3 40	G	Water	N		X	X	X	X				
~~MW-15AR~~				Water										
MW-16	9/14/23	1:45	G	Water	N		X	X	X	X				
MW-20	9/12/23	10:50	G	Water	N		X	X	X	X				

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* ☐ *Poison B* ☐ *Unknown* ☐ *Radiological*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For ______ Months*

Deliverable Requested I, II, III, IV Other (specify)

Special Instructions/QC Requirements.

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by: Tyler S	Date/Time: 9/15/23 2 00	Company: SCS	Received by: ST	Date/Time: 9/15/23 1020	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No | Cooler Temperature(s) °C and Other Remarks:

Ver 06/08/2021

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone 319-277-2401 Fax: 319-277-2425

Chain of Custody Record

TestAmerica Des Moines SC
214

eurofins

Client Information			
Client Contact: Meghan Blodgett	Sampler: Tyler Stirling	Lab PM: Fredrick, Sandie	Carrier Tracking No(s):
Company: SCS Engineers	Phone: 515-505-2716	E-Mail: Sandra Fredrick@et.eurofinsus.com	State of Origin: IA
Address: 2830 Dairy Drive	PWSID:		COC No: 310-84931-23683 2
City: Madison	Due Date Requested:		Page: Page 2 of 3
State Zip: WI 53718	TAT Requested (days):		Job #: 25223063
Phone:	Compliance Project: Δ Yes Δ No		
Email: mblodgett@scsengineers.com	PO #: Purchase Order Requested		
Project Name: Alliant Big Bend	WO #:		
Site:	Project #: 31011020		
	SSOW#:		

Analysis Requested

Preservation Codes

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA

M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9056A_ORGFM_28D - Chloride, Fluoride & Sulfate	6020B - Metals (15)	2640C_Calcd, I_3765_85	2320B - (MOD) Alkalinity	2320B - Alkalinity	6020B - D. Metals	Total Number of containers	Special Instructions/Note
				Preservation Code:			N	D	N	N	N	D		
MW-21	9/14/23	10 35	G	Water	N	X	X	X	X					unfiltered samples
MW-23R	9/14/23	12:10	G	Water	N	X	X	X	X					can be run right away
~~MW-24R~~				Water	N									
MW-25R	9/12/23	1:05	G	Water	N	X	X	X	X					
2606 Big Bend Rd	9/13/23	4 00	G	Water	N	X	X	X	X					On seperate COC - we want it reported seperate
LW-01	9/13/23	4 00	G	Liquid	N	X	X	X	X					
~~LW-02~~				Liquid										
LW-03	9/14/23	11 00	G	Liquid	N	X	X	X	X					
Field Blank	9/14/23	10 45	G	Liquid	N	X	X	X	X					Anions - filtered
MW-2	9/12/23	2:40	G	Water	Y						X	X		* Hold filtered samples
MW-6	9/13/23	3:12	G	Water	Y						X	X		SCS sends special instr

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested I II III IV Other (specify)

Special Instructions/QC Requirements

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by: Tyler S	Date/Time: 9/15/23 2:00	Company: SCS	Received by: ST	Date/Time: 9/15/23 1020	Company:
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Custody Seals Intact: Δ Yes Δ No	Custody Seal No:		Cooler Temperature(s) °C and Other Remarks:		

Ver: 06/08/2021

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone 319-277-2401 Fax: 319-277-2425

Chain of Custody Record

TestAmerica Des Moines SC
214

eurofins | Environment Testing

Client Information	Sampler:	Lab PM: Fredrick, Sandie	Carrier Tracking No(s):	COC No: 310-84931-23683 3
Client Contact: Meghan Blodgett	Phone:	E-Mail: Sandra.Fredrick@et.eurofinsus.com	State of Origin:	Page: Page 3 of 3
Company: SCS Engineers	PWSID:			Job #:
Address: 2830 Dairy Drive	Due Date Requested:			
City: Madison	TAT Requested (days):			
State, Zip: WI 53718	Compliance Project: Δ Yes Δ No			
Phone:	PO #: Purchase Order Requested			
Email: mblodgett@scsengineers.com	WO #:			
Project Name: Alliant Big Bend	Project #: 31011020			
Site:	SSOW#:			

Preservation Codes
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA
M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)
Other:

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9056A_ORGFM_28D - Chloride, Fluoride & Sulfate	6020B - Metals (16)	2540C_Calcd, L_3766_86	2320B - (MOD) Alkalinity	2320B - Alkalinity	6020B - D. Metals	Total Number of containers	Special Instructions/Note:
				Preservation Code:			N	D	N	N	N	D		
MW-11	9/12/23	2:50		Water	Y						X	X		★Hold filtered samples,
MW-14	9/11/23	3 40		Water	Y						X	X		SCS will send special
~~MW-15AR~~				Water										instructions★
MW-23R	9/14/23	12 10		Water	Y						X	X		Anions-filtered
~~MW-24R~~				Water										

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ______ Months

Deliverable Requested I II, III IV, Other (specify)

Special Instructions/QC Requirements

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by: Tyler E	Date/Time: 9/15/23 2 00	Company: SCS	Received by: ST	Date/Time: 9/15/23 1620	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No | Cooler Temperature(s) °C and Other Remarks:

Ver 06/08/2021

Table 1. Sampling Points and Parameters State Sampling Program
Groundwater Monitoring Big Bend Closed Landfill / SCS Engineers Project #25223063
September 2023 Sampling Program

	GROUNDWATER																			LEACHATE			SUPPLY		
Parameter	MW-2	MW 5	MW-6	MW-7	MW-8R	MW 10	MW 11	MW-12	MW 13	MW-14	MW-15AR	MW-16	MW-17R	MW-18	MW-20	MW-21	MW-23R	MW-24R	MW-25R	LW 01	LW-02	LW-03	2606 Big Bend Rd	Field Blank	TOTAL
Alkalinity (total)	X	X	X	X		X	X	X		X	X	X			X	X	X	X	X				X		
Arsenic (total)	X	X	X	X		X	X	X		X	X	X			X	X	X	X	X	X		X	X	X	19
Barium (total)	X	X	X	X		X	X	X		X	X	X			X	X	X	X	X				X	X	17
Beryllium (total)	X	X	X	X		X	X	X		X	X	X			X	X	X	X	X				X	X	17
Boron (total)	X	X	X	X		X	X	X		X	X	X			X	X	X	X	X	X		X	X	X	19
Calcium (total)	X	X	X	X		X	X	X		X	X	X			X	X	X	X	X	X		X	X	X	19
Cobalt (total)	X	X	X	X		X	X	X		X	X	X			X	X	X	X	X				X	X	17
Copper (total)	X	X	X	X		X	X	X		X	X	X			X	X	X	X	X				X	X	17
Iron (total)	X	X	X	X		X	X	X		X	X	X			X	X	X	X	X				X	X	17
Lead (total)	X	X	X	X		X	X	X		X	X	X			X	X	X	X	X				X	X	17
Lithium (total)	X	X	X	X		X	X	X		X	X	X			X	X	X	X	X	X		X	X	X	19
Magnesium (total)	X	X	X	X		X	X	X		X	X	X			X	X	X	X	X				X	X	17
Manganese (total)	X	X	X	X		X	X	X		X	X	X			X	X	X	X	X				X	X	17
Molybdenum (total)	X	X	X	X		X	X	X		X	X	X			X	X	X	X	X	X		X	X	X	19
Selenium (total)	X	X	X	X		X	X	X		X	X	X			X	X	X	X	X	X		X	X	X	19
Zinc (total)	X	X	X	X		X	X	X		X	X	X			X	X	X	X	X				X	X	17
Chloride (total)	X	X	X	X		X	X	X		X	X	X			X	X	X	X	X	X		X	X	X	19
Fluoride (total)	X	X	X	X		X	X	X		X	X	X			X	X	X	X	X	X		X	X	X	19
Sulfate (total)	X	X	X	X		X	X	X		X	X	X			X	X	X	X	X	X		X	X	X	19
Total Dissolved Solids	X	X	X	X		X	X	X		X	X	X			X	X	X	X	X	X		X	X	X	19
Total Suspended Solids	X	X	X	X		X	X	X		X	X	X			X	X	X	X	X	X		X	X	X	19
Filtered Samples																									
Alkalinity	X		X				X			X	X						X	X							
Metals	X		X				X			X	X						X	X							
Anions (Chloride Fluoride, Sulfate)	X		X				X			X	X						X	X							
Field Parameters																									
pH	X	X	X	X		X	X	X		X	X	X			X	X	X	X	X	X		X	X		18
Conductance	X	X	X	X		X	X	X		X	X	X			X	X	X	X	X	X		X	X		18
Dissolved Oxygen	X	X	X	X		X	X	X		X	X	X			X	X	X	X	X	X		X	X		18
Temperature	X	X	X	X		X	X	X		X	X	X			X	X	X	X	X	X		X	X		18
Depth to Groundwater or Leachate	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			22
Total Well Depth		X	X	X	X	X	X	X	X		X	X	X	X	X	X			X	X	X	X			18
Turbidity (NTU)	X	X	X	X		X	X	X		X	X	X			X	X	X	X	X	X		X	X		18
Color (visual)	X	X	X	X		X	X	X		X	X	X			X	X	X	X	X	X		X	X		18
Odor (qualitative)	X	X	X	X		X	X	X		X	X	X			X	X	X	X	X	X		X	X		18
ORP	X	X	X	X		X	X	X		X	X	X			X	X	X	X	X	X		X	X		18

Notes X = Monitoring point is sampled for this parameter
Groundwater & leachate elevations & total depths only in April Samples collected in September

Table 1, page 1 of 1

Sandra Fredrick

From: Matzuk, Ryan <RMatzuk@scsengineers.com>
Sent: Friday, October 6, 2023 3:33 PM
To: Sandra Fredrick
Cc: Blodgett, Meghan
Subject: Re: Preliminary Eurofins Environment Testing North Central, LLC report files from 310-264962-1 Alliant Big Bend - 25223063

Hi Sandie - Thanks for the pre-lim. Please run the following samples.

MW-2: Dissolved cobalt and dissolved manganese
MW-6: Dissolved lithium

Thank you,

Ryan Matzuk
Hydrogeologist
2830 Dairy Drive
Madison, WI 53718-6751 USA
608-400-9597 (C)
608-216-7326 (W)
rmatzuk@scsengineers.com

Driven by Client Success
www.scsengineers.com

From: Sandie Fredrick <Sandra.Fredrick@et.eurofinsus.com>
Sent: Thursday, October 5, 2023 10:25 AM
To: Radunzel, Ashley <ARadunzel@scsengineers.com>; Jeffrey Maxted <jeffreymaxted@alliantenergy.com>; Jenny Coughlin <JennyCoughlin@alliantenergy.com>; Matthew Bizjack <MatthewBizjack@alliantenergy.com>; Blodgett, Meghan <mblodgett@scsengineers.com>; Burris, Natalie <NBurris@scsengineers.com>; Matzuk, Ryan <RMatzuk@scsengineers.com>; Clark, Sherren <SClark@scsengineers.com>; Karwoski, Thomas <TKarwoski@scsengineers.com>
Subject: Preliminary Eurofins Environment Testing North Central, LLC report files from 310-264962-1 Alliant Big Bend - 25223063

Hello All,

All analysis complete but holds. Please let me know what your preferences are for those.
Thanks
Sandie

Attached please find the report files for job 310-264962-1; Alliant Big Bend - 25223063

Please feel free to contact me if you have any questions.

Thank you.

Sandie Fredrick
Project Manager

Eurofins Chicago
Phone: 920-261-1660

E-mail: Sandra.Fredrick@et.eurofinsus.com

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-264962-1

Login Number: 264962
List Number: 1
Creator: Tucker, Sarah L

List Source: Eurofins Cedar Falls

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

Table 1. Groundwater Monitoring Results - Field Parameters
Big Bend Closed Landfill / SCS Engineers Project No. 25223063.00
September 2023

Sample	Sample Date	Temperature (Deg. C)	pH (Std. Units)	Dissolved Oxygen (mg/L)	Specific Conductivity (µmhos/cm)	ORP (mV)	Groundwater Elevation (amsl)	Leachate Elevation (amsl)
MW-2	9/12/2023	13.7	6.37	0.21	792	-17.9	731.05	--
MW-5	9/13/2023	12.8	6.86	6.24	989	104.5	720.36	--
MW-6	9/13/2023	16.1	6.81	0.41	992	12.7	721.09	--
MW-7	9/13/2023	12.3	6.93	1.71	749	85.9	708.66	--
MW-8R	--	--	--	--	--	--	711.91	--
MW-10	9/13/2023	13.1	6.88	2.85	974	-3.3	713.82	--
MW-11	9/12/2023	19.5	6.73	1.67	868	91.7	722.14	--
MW-12	9/11/2023	14.6	6.88	0.59	839	-219.1	721.90	--
MW-13	--	--	--	--	--	--	758.64	--
MW-14	9/11/2023	11.3	5.90	0.91	429.5	-13.3	759.33	--
MW-15AR	9/13/2023	--	--	--	--	--	713.78	--
MW-16	9/14/2023	15.4	7.06	0.70	744	-191.5	700.25	--
MW-17R	--	--	--	--	--	--	708.55	--
MW-18	--	--	--	--	--	--	743.66	--
MW-20	9/12/2023	15.0	6.14	2.39	611	118.9	757.61	--
MW-21	9/14/2023	13.3	6.73	6.00	1,149	106.2	763.37	--
MW-23R	9/14/2023	13.3	6.91	6.26	819	111.1	701.13	--
MW-24R	9/14/2023	--	--	--	--	--	700.50	--
MW-25R	9/12/2023	14.2	6.75	6.51	950	110.2	751.77	--
LW-01	9/13/2023	20.1	7.73	7.48	1431	64.6	--	751.38
LW-02	--	--	--	--	--	--	--	DRY
LW-03	9/14/2023	--	--	--	--	--	--	760.66
2606 Big Bend Road	9/12/2023	15.8	6.96	6.46	881	203.6	--	--

Abbreviations:
mg/L = milligrams per liter   amsl = above mean sea level   mV = millivolts   µmhos/cm = micromhos per cm

Notes:
None

Created by: MDB   Date: 5/15/2019
Last revision by: RM   Date: 10/2/2023
Checked by: NLB   Date: 10/3/2023

C:\Users\hld0\AppData\Local\Microsoft\Windows\INetCache\Content.Outlook\USG3GGGC\[Big Bend_Field_2309.xlsx]GW Field Parameters

Appendix D

Summary of Groundwater Chemistry – Pre-2019

IPL Big Bend Closed Landfill
Historic Monitoring Results

Arsenic
UNITS: ug/l

CHEMICAL PARAMETER	EVENT	MW-02	MW-05	MW-06	MW-07	MW-10	MW-11	MW-12	MW-14	MW-15A	MW-15AR
Arsenic, Dissolved	1994-Oct		<5	<5	<5	<5		<5	<5		
Arsenic, Dissolved	1995-Apr		<5	<5	<5	<5		<5	<5		
Arsenic, Dissolved	1995-Jan		<5	<5	<5	<5		<50	<50		
Arsenic, Dissolved	1995-Jul		<5	<5	<5	<5		<5	<5		
Arsenic, Dissolved	2001-Sep										
Arsenic, Dissolved	2002-Sep		<1	<1	<1	<1		1.1	<1	<1	
Arsenic, Dissolved	2003-Sep		<1	<1	<1	<1		<1	<1	<1	
Arsenic, Dissolved	2004-Sep		<1	<1	<1	<1		1.4	<1		
Arsenic, Dissolved	2005-Jun										
Arsenic, Dissolved	2005-Sep	<1	<1	<1	<1	<1	<1	<1	<1		
Arsenic, Dissolved	2006-Sep	<1	<1	<1	<1	<1	<1	<1	<1		
Arsenic, Dissolved	2007-Nov					<1					
Arsenic, Dissolved	2007-Sep	1.64	<1	<1	<1		<1	1.41	<1		<1
Arsenic, Dissolved	2008-Sep	2.11	<1	<1	1.75	2	<1	1.75	<1		<1
Arsenic, Dissolved	2009-Dec										
Arsenic, Dissolved	2009-Sep	<1	<1	<1	<1	<1	<1	1.13	<1		<1
Arsenic, Dissolved	2010-Aug	<1	<2	<1	<1	<1	<1	<1	<1		<2
Arsenic, Dissolved	2010-Nov										
Arsenic, Dissolved	2011-Feb										
Arsenic, Dissolved	2011-Sep	<1	<2	<2	<1	<1	<2	<1	<2		<2
Arsenic, Dissolved	2012-Sep	<1	<2	<2	<2	<2	<2	<1	<2		<3
Arsenic, Dissolved	2013-Sep	2	<1	<1	<1	1.1	<1	<1	1.8		<1
Arsenic, Dissolved	2014-Sep	<1	<1	<1	<1	<1	<1	<1	<1		<1
Arsenic, Dissolved	2015-Sep	2.9	<1	1.1	<1	2.7	1.4	1.3	2.9		2.3
Arsenic, Dissolved	2016-Sep	0.5				1		0.76			
Arsenic	2016-Sep	1.3	0.18	1.2	0.39	19.9	1.7	0.81	0.78		0.18
ARSENIC, DISSOLVED	2017-Sep										
ARSENIC	2017-Sep	1.1	0.26	0.32	0.49	9.3	2.2	1.1	0.83		0.87
ARSENIC	2018-Apr										
ARSENIC	2018-Sep	1.4	0.33	0.42	0.5	3.5	14.2	1.3	0.73		0.7

GW Standard:
MCL = 10

IPL Big Bend Closed Landfill
Historic Monitoring Results

Arsenic
UNITS: ug/l

CHEMICAL PARAMETER	EVENT	MW-16	MW-20	MW-21	MW-23	MW-23R	MW-24	MW-24R	MW-25	MW-25R
Arsenic, Dissolved	1994-Oct	<5								
Arsenic, Dissolved	1995-Apr	<5								
Arsenic, Dissolved	1995-Jan	<5								
Arsenic, Dissolved	1995-Jul	<5								
Arsenic, Dissolved	2001-Sep		1.4							
Arsenic, Dissolved	2002-Sep	<1	<1							
Arsenic, Dissolved	2003-Sep	<1	<1							
Arsenic, Dissolved	2004-Sep	<1	<1							
Arsenic, Dissolved	2005-Jun								<1	
Arsenic, Dissolved	2005-Sep	<1	<1						<1	
Arsenic, Dissolved	2006-Sep	<1	<1						<1	
Arsenic, Dissolved	2007-Nov									
Arsenic, Dissolved	2007-Sep	<1	<1						<1	
Arsenic, Dissolved	2008-Sep	<1	2.72						1.05	
Arsenic, Dissolved	2009-Dec				<1		<1			
Arsenic, Dissolved	2009-Sep	<1	<1						<1	
Arsenic, Dissolved	2010-Aug	<1	<1		<2		<1		<2	
Arsenic, Dissolved	2010-Nov			<1						
Arsenic, Dissolved	2011-Feb			<1						
Arsenic, Dissolved	2011-Sep	<2	<1	<1			<1		<2	
Arsenic, Dissolved	2012-Sep	<2	<2	<2			<2		<3	
Arsenic, Dissolved	2013-Sep	<1	1.3	<1			<1		<1	
Arsenic, Dissolved	2014-Sep	<1	<1	2.9			<1			<1
Arsenic, Dissolved	2015-Sep	<1	3.5	<1			<1			<1
Arsenic, Dissolved	2016-Sep			0.55			0.48			
Arsenic	2016-Sep	0.49	0.8	0.57	0.59		3.4			0.44
ARSENIC, DISSOLVED	2017-Sep						0.7			
ARSENIC	2017-Sep	0.46	0.65	0.73			3.1			0.49
ARSENIC	2018-Apr					0.5		4.9		
ARSENIC	2018-Sep	0.6	3	1.2		5.9		3.3		0.8

GW Standard:
MCL = 10

IPL Big Bend Closed Landfill
Historic Monitoring Results

Barium
UNITS: ug/l

CHEMICAL PARAMETER	EVENT	MW-02	MW-05	MW-06	MW-07	MW-10	MW-11	MW-12	MW-14	MW-15A	MW-15AR
Barium, Dissolved	1994-Oct		107	146	140	87		232	149		
Barium, Dissolved	1995-Apr		126	154	141	83		232	125		
Barium, Dissolved	1995-Jan		129	157	138	86		227	143		
Barium, Dissolved	1995-Jul		129	149	135	83		223	114		
Barium, Dissolved	1999-Sep		143	130	119	88		194	70		
Barium, Dissolved	2000-Sep		138	139	119	109		198	99		
Barium, Dissolved	2001-Sep		142	136	119	33		188	72		
Barium, Dissolved	2002-Sep		144	153	123	101		199	82	109	
Barium, Dissolved	2003-Sep		146	146	126	98		198	84	104	
Barium, Dissolved	2004-Sep		144	134	114	104		200	83		
Barium, Dissolved	2005-Jun										
Barium, Dissolved	2005-Sep		141 WT	136 WT	121 WT	96 WT		186 WT	77 WT		
Barium, Dissolved	2006-Sep		139	149	125	93.4		194	74.3		
Barium, Dissolved	2007-Nov					92.5					
Barium, Dissolved	2007-Sep		146	148	122 PH>2			191	96.3		110
Barium, Dissolved	2008-Sep		144	131	133	106		208	74.4		146
Barium, Dissolved	2009-Dec										
Barium, Dissolved	2009-Sep		123	122	128	102		188	71.5		110
Barium, Dissolved	2010-Aug	89.6	127 RL1	121	127	105	118	190	55.6		125 RL1
Barium, Dissolved	2010-Nov										
Barium, Dissolved	2011-Feb										
Barium, Dissolved	2011-Sep	108	123 RL1	111 RL1	126	110	110 RL1	164	52.4 RL1		115 RL1
Barium, Dissolved	2012-Sep	104	129 RL1	126 RL1	144 RL1	128 RL1	135 RL1	205	57.3 RL1		112 RL1
Barium, Dissolved	2013-Sep	96.4	122	129	137	128	125	193	58.6		99.9
Barium, Dissolved	2014-Sep	92	138	130	133	115	128	191	58		94
Barium, Dissolved	2015-Sep	108	138	134	127	112	133	192	50.1		106
Barium, Dissolved	2016-Sep	83				120		190			
Barium	2016-Sep	116	128	145	121	190	103	191	58.5		97.2
BARIUM, DISSOLVED	2017-Sep										
BARIUM	2017-Sep	94.8	131	127	118	154	109	190	54		128
BARIUM	2018-Apr										
BARIUM	2018-Sep	98.3	129	134	124	137	132	197	61.7		102

GW Standard:
MCL = 2000

IPL Big Bend Closed Landfill
Historic Monitoring Results

Barium
UNITS: ug/l

CHEMICAL PARAMETER	EVENT	MW-16	MW-20	MW-21	MW-23	MW-23R	MW-24	MW-24R	MW-25	MW-25R
Barium, Dissolved	1994-Oct	149								
Barium, Dissolved	1995-Apr	132								
Barium, Dissolved	1995-Jan	147								
Barium, Dissolved	1995-Jul	138								
Barium, Dissolved	1999-Sep	133								
Barium, Dissolved	2000-Sep	127								
Barium, Dissolved	2001-Sep	135	151							
Barium, Dissolved	2002-Sep	126	55							
Barium, Dissolved	2003-Sep	134	58							
Barium, Dissolved	2004-Sep	132	37							
Barium, Dissolved	2005-Jun								222	
Barium, Dissolved	2005-Sep	126 WT	44 WT						230 WT	
Barium, Dissolved	2006-Sep	140	42.3						199	
Barium, Dissolved	2007-Nov									
Barium, Dissolved	2007-Sep	132	39.3						188	
Barium, Dissolved	2008-Sep	128	69						180	
Barium, Dissolved	2009-Dec				134		111			
Barium, Dissolved	2009-Sep	117	57.9						149	
Barium, Dissolved	2010-Aug	124	74.6		159 RL1		174		159 RL1	
Barium, Dissolved	2010-Nov			89.9						
Barium, Dissolved	2011-Feb			114						
Barium, Dissolved	2011-Sep	116 RL1	38.6	163			127		137 RL1	
Barium, Dissolved	2012-Sep	130 RL1	63.3 RL1	162 RL1			147 RL1		163 RL1	
Barium, Dissolved	2013-Sep	134	52.8	168			96.6		146	
Barium, Dissolved	2014-Sep	115	49.4	222			102			115
Barium, Dissolved	2015-Sep	127	46.9	180			113			144
Barium, Dissolved	2016-Sep			180			120			
Barium	2016-Sep	107	63.1	178	120		150			96.5
BARIUM, DISSOLVED	2017-Sep						150			
BARIUM	2017-Sep	141	52.1	173			164			93.8
BARIUM	2018-Apr					159		118		
BARIUM	2018-Sep	111	78.8	203		217		91.1		200

GW Standard:
MCL = 2000

IPL Big Bend Closed Landfill
Historic Monitoring Results

Beryllium
UNITS: ug/l

CHEMICAL PARAMETER	EVENT	MW-02	MW-05	MW-06	MW-07	MW-10	MW-11	MW-12	MW-14	MW-15A	MW-15AR
Beryllium, Dissolved	1999-Sep		<10	<10	<10	<10		<10	<10		
Beryllium, Dissolved	2000-Sep		<10	<10	<10	<10		<10	<10		
Beryllium, Dissolved	2001-Sep		<10	<10	<10	<10		<10	<10		
Beryllium, Dissolved	2002-Sep		<10	<10	<10	<10		<10	<10	<10	
Beryllium, Dissolved	2003-Sep		<10	<10	<10	<10		<10	<10	<10	
Beryllium, Dissolved	2004-Sep		<10	<10	<10	<10		<10	<10		
Beryllium, Dissolved	2005-Jun										
Beryllium, Dissolved	2005-Sep		<10	<10	<10	<10		<10	<10		
Beryllium, Dissolved	2006-Sep		<10	<10	<10	<10		<10	<10		
Beryllium, Dissolved	2007-Nov					<10					
Beryllium, Dissolved	2007-Sep		<10	<10	<10 PH>2			<10	<10		<10
Beryllium, Dissolved	2008-Sep		<10	<10	<10	<10		<10	<10		<10
Beryllium, Dissolved	2009-Dec										
Beryllium, Dissolved	2009-Sep		<10	<10	<10	<10		<10	<10		<10
Beryllium, Dissolved	2010-Aug	<10	<10	<10	<10	<10	<10	<10	<10		<10
Beryllium, Dissolved	2010-Nov										
Beryllium, Dissolved	2011-Feb										
Beryllium, Dissolved	2011-Sep	<10	<10	<10	<10	<10	<10	<10	<10		<10
Beryllium, Dissolved	2012-Sep	1.39	<1	<1	<1	<1	<1	<1	<1		<1
Beryllium, Dissolved	2013-Sep	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4		<0.4
Beryllium, Dissolved	2014-Sep	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4		<0.4
Beryllium, Dissolved	2015-Sep	<0.4	0.79	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4		<0.4
Beryllium, Dissolved	2016-Sep	<0.08				<0.08		<0.08			
Beryllium	2016-Sep	<0.08	<0.08	<0.08	<0.08	0.096	<0.08	<0.08	<0.08		<0.08
BERYLLIUM, DISSOLVED	2017-Sep										
BERYLLIUM	2017-Sep	<0.012	<0.012	<0.012	<0.012	0.026	<0.012	<0.012	<0.012		0.047
BERYLLIUM	2018-Apr										
BERYLLIUM	2018-Sep	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12		<0.12

GW Standard:
MCL = 4

IPL Big Bend Closed Landfill
Historic Monitoring Results

Beryllium
UNITS: ug/l

CHEMICAL PARAMETER	EVENT	MW-16	MW-20	MW-21	MW-23	MW-23R	MW-24	MW-24R	MW-25	MW-25R
Beryllium, Dissolved	1999-Sep	<10								
Beryllium, Dissolved	2000-Sep	<10								
Beryllium, Dissolved	2001-Sep	<10	<10							
Beryllium, Dissolved	2002-Sep	<10	<10							
Beryllium, Dissolved	2003-Sep	<10	<10							
Beryllium, Dissolved	2004-Sep	<10	<10							
Beryllium, Dissolved	2005-Jun								<10	
Beryllium, Dissolved	2005-Sep	<10	<10						<10	
Beryllium, Dissolved	2006-Sep	<10	<10						<10	
Beryllium, Dissolved	2007-Nov									
Beryllium, Dissolved	2007-Sep	<10	<10						<10	
Beryllium, Dissolved	2008-Sep	<10	<10						<10	
Beryllium, Dissolved	2009-Dec				<10		<10			
Beryllium, Dissolved	2009-Sep	<10	<10						<10	
Beryllium, Dissolved	2010-Aug	<10 S3	<10		<10		<10		<10	
Beryllium, Dissolved	2010-Nov			<10						
Beryllium, Dissolved	2011-Feb			<10						
Beryllium, Dissolved	2011-Sep	<10	<10	<10			<10		<10	
Beryllium, Dissolved	2012-Sep	1.46	<1	<1			<1		<1	
Beryllium, Dissolved	2013-Sep	<0.4	<0.4	<0.4			<0.4		<0.4	
Beryllium, Dissolved	2014-Sep	<0.4	<0.4	<0.4			<0.4			<0.4
Beryllium, Dissolved	2015-Sep	<0.4	<0.4	<0.4			<0.4			<0.4
Beryllium, Dissolved	2016-Sep			<0.08			<0.08			
Beryllium	2016-Sep	<0.08	<0.08	<0.08	<0.08		0.092			<0.08
BERYLLIUM, DISSOLVED	2017-Sep						<0.012			
BERYLLIUM	2017-Sep	<0.012	<0.012	0.03			0.05			0.018
BERYLLIUM	2018-Apr					0.015		0.021		
BERYLLIUM	2018-Sep	<0.12	0.13	<0.12		0.41		<0.12		<0.12

GW Standard:
MCL = 4

IPL Big Bend Closed Landfill
Historic Monitoring Results

Boron
UNITS: ug/l

CHEMICAL PARAMETER	EVENT	MW-02	MW-05	MW-06	MW-07	MW-10	MW-11	MW-12	MW-14	MW-15AR
Boron, Dissolved	2006-Sep	614	908	897	136	263	448	<100	5280	
Boron, Dissolved	2007-Nov					363				
Boron, Dissolved	2007-Sep	708	482	945	136 PH>2		497	<100	7810	2200
Boron, Dissolved	2008-Sep	2840	786	1160	233 M1	480	790	<100	8560	3300
Boron, Dissolved	2009-Dec									
Boron, Dissolved	2009-Sep	2750	449	1090	137	464	559	<100	7330	2530
Boron, Dissolved	2010-Aug	1100	639	1080	166	612	467	<100	6810	4080
Boron, Dissolved	2010-Nov									
Boron, Dissolved	2011-Feb									
Boron, Dissolved	2011-Sep	2500	844	1030	214	648	711	<100	4550	3850
Boron, Dissolved	2012-Sep	1570	507	1150	607	911	842	<100	4400	3630
Boron, Dissolved	2013-Sep	1150	847	1080	785	1100	737	<100	5080	3190
Boron, Dissolved	2014-Sep	975	537	1000	509	1640	695	<100	3930	2410
Boron, Dissolved	2015-Sep	1160	790	1080	368	2710	736	<100	2790	3180
Boron, Dissolved	2016-Sep	1400				1500		<50		
Boron	2016-Sep	1370	890	1020	371	1450	645	<50	3240	2930
BORON, DISSOLVED	2017-Sep									
BORON	2017-Sep	1930	1310	1190	325	4010	733	83.4	2290	5670
BORON	2018-Apr									
BORON	2018-Sep	1490	809	1120	232	1560	556	30.4	2070	3940

GW Standard:
None

IPL Big Bend Closed Landfill
Historic Monitoring Results

Boron
UNITS: ug/l

CHEMICAL PARAMETER	EVENT	MW-16	MW-20	MW-21	MW-23	MW-23R	MW-24	MW-24R	MW-25	MW-25R
Boron, Dissolved	2006-Sep	719	9520						1670	
Boron, Dissolved	2007-Nov									
Boron, Dissolved	2007-Sep	880	8460 M1						1270	
Boron, Dissolved	2008-Sep	192	2290						1190	
Boron, Dissolved	2009-Dec				2430		2350			
Boron, Dissolved	2009-Sep	<100	2060						558	
Boron, Dissolved	2010-Aug	111 S3	3340		3580		2760		844	
Boron, Dissolved	2010-Nov			<100						
Boron, Dissolved	2011-Feb			<100						
Boron, Dissolved	2011-Sep	174	6310	<100			760		811	
Boron, Dissolved	2012-Sep	544	5610	<100			1060		970	
Boron, Dissolved	2013-Sep	828	4430	<100			<100		440	
Boron, Dissolved	2014-Sep	492	1640	<100			233			299
Boron, Dissolved	2015-Sep	1200	2950	<100			<100			249
Boron, Dissolved	2016-Sep			83			800			
Boron	2016-Sep	87.1	939	81	2740		879			269
BORON, DISSOLVED	2017-Sep						2380			
BORON	2017-Sep	823	3660	110			2480			178
BORON	2018-Apr					2910		44.3		
BORON	2018-Sep	300	1260	97.6		2800		18.3		290

GW Standard:
None

IPL Big Bend Closed Landfill
Historic Monitoring Results

Cobalt
UNITS: ug/l

CHEMICAL PARAMETER	EVENT	MW-02	MW-05	MW-06	MW-07	MW-10	MW-11	MW-12	MW-14	MW-15A	MW-15AR
Cobalt, Dissolved	1999-Sep		<20	<20	<20	<20		<20	<20		
Cobalt, Dissolved	2000-Sep		<20	<20	<20	<20		<20	<20		
Cobalt, Dissolved	2001-Sep		<20	<20	<20	<20		<20	<20		
Cobalt, Dissolved	2002-Sep		<20	<20	<20	<20		<20	<20	<20	
Cobalt, Dissolved	2003-Sep		<20	<20	<20	<20		<20	<20	<20	
Cobalt, Dissolved	2004-Sep		<20	<20	<20	<20		<20 MSO	<20		
Cobalt, Dissolved	2005-Jun										
Cobalt, Dissolved	2005-Sep		<20	<20	<20	<20		<20	<20		
Cobalt, Dissolved	2006-Sep		<20	<20	<20	<20		<20	<20		
Cobalt, Dissolved	2007-Nov					<20					
Cobalt, Dissolved	2007-Sep		<20	<20	<20			<20	<20		<20
Cobalt, Dissolved	2008-Sep		<20	<20	<20	<20		<20	<20		<20
Cobalt, Dissolved	2009-Dec										
Cobalt, Dissolved	2009-Sep		<20 M1	<20	<20	<20		<20	<20		<20
Cobalt, Dissolved	2010-Aug	6.89	3.55	5.88	4.51	<1.55	6.62	5.17 RL1	6.68 RL1		4.51
Cobalt, Dissolved	2010-Nov										
Cobalt, Dissolved	2011-Feb										
Cobalt, Dissolved	2011-Sep	<1.55	<1.55	<1.55	<1.55	<1.55	<1.55	<1.55 RL1	<1.55		<1.55
Cobalt, Dissolved	2012-Sep	3.64	<1.55	3.68	<1.55	<1.55	1.8	<1.55 RL1	<1.55 RL1		<1.55
Cobalt, Dissolved	2013-Sep	<5	<5	<5	<5	<5	<5	<5	<5		<5
Cobalt, Dissolved	2014-Sep	<5	<5	<5	<5	<5	<5	<5	<5		<5
Cobalt, Dissolved	2015-Sep	<5	<5	<5	<5	<5	<5	<5	<5		<5
Cobalt, Dissolved	2016-Sep	0.93				<0.5		<0.5			
Cobalt	2016-Sep	2.1	<0.5	<0.5	<0.5	0.68	<0.5	0.57	1.7		<0.5
COBALT, DISSOLVED	2017-Sep										
COBALT	2017-Sep	2.2	0.043	0.8	0.024	0.31	0.61	0.46	0.4		0.66
COBALT	2018-Apr										
COBALT	2018-Sep	2.4	<0.15	0.2	<0.15	0.22	2.3	0.44	1.1		0.34

GW Standard:
None

IPL Big Bend Closed Landfill
Historic Monitoring Results

Cobalt
UNITS: ug/l

CHEMICAL PARAMETER	EVENT	MW-16	MW-20	MW-21	MW-23	MW-23R	MW-24	MW-24R	MW-25	MW-25R
Cobalt, Dissolved	1999-Sep	<20								
Cobalt, Dissolved	2000-Sep	<20								
Cobalt, Dissolved	2001-Sep	<20	<20							
Cobalt, Dissolved	2002-Sep	<20	<20							
Cobalt, Dissolved	2003-Sep	<20	<20							
Cobalt, Dissolved	2004-Sep	<20	<20							
Cobalt, Dissolved	2005-Jun								<20	
Cobalt, Dissolved	2005-Sep	<20	<20						<20	
Cobalt, Dissolved	2006-Sep	<20	<20						<20	
Cobalt, Dissolved	2007-Nov									
Cobalt, Dissolved	2007-Sep	<20	<20						<20	
Cobalt, Dissolved	2008-Sep	<20	<20						<20	
Cobalt, Dissolved	2009-Dec				<20		<20			
Cobalt, Dissolved	2009-Sep	<20	<20						<20	
Cobalt, Dissolved	2010-Aug	3.92	5.06 RL1		2.67		4.24		<1.55	
Cobalt, Dissolved	2010-Nov			<1.55						
Cobalt, Dissolved	2011-Feb			<1.55						
Cobalt, Dissolved	2011-Sep	<1.55	<1.55 RL1	<1.55			<1.55		<1.55	
Cobalt, Dissolved	2012-Sep	2.79	<1.55 RL1	<1.55			<1.55		<1.55	
Cobalt, Dissolved	2013-Sep	<5	<5	<5			<5		<5	
Cobalt, Dissolved	2014-Sep	<5	<5	<5			<5			<5
Cobalt, Dissolved	2015-Sep	<5	<5	<5			<5			<5
Cobalt, Dissolved	2016-Sep			<0.5			<0.5			
Cobalt	2016-Sep	<0.5	<0.5	<0.5	<0.5		1.3			<0.5
COBALT, DISSOLVED	2017-Sep						0.2			
COBALT	2017-Sep	0.12	0.078	0.52			0.67			0.2
COBALT	2018-Apr					0.3		0.72		
COBALT	2018-Sep	0.22	1.1	0.75		3.7		0.37		0.82

GW Standard:
None

IPL Big Bend Closed Landfill
Historic Monitoring Results

Copper
UNITS: ug/l

CHEMICAL PARAMETER	EVENT	MW-02	MW-05	MW-06	MW-07	MW-10	MW-11	MW-12	MW-14	MW-15A	MW-15AR
Copper, Dissolved	1994-Oct		<20	<20	<20	<20		<20	<20		
Copper, Dissolved	1995-Apr		<20	<20	<20	<20		<20	<20		
Copper, Dissolved	1995-Jan		<20	<20	<20	<20		<20	<20		
Copper, Dissolved	1995-Jul		<20	<20	<20	<20		<20	<20		
Copper, Dissolved	2001-Sep										
Copper, Dissolved	2002-Sep									<20	
Copper, Dissolved	2003-Sep									<20	
Copper, Dissolved	2004-Sep		<20	<20	<20	<20		<20	<20		
Copper, Dissolved	2005-Jun										
Copper, Dissolved	2005-Sep		<20	<20	<20	<20		<20	<20		
Copper, Dissolved	2006-Sep		<20	<20	<20	<20		<20	<20		
Copper, Dissolved	2007-Nov					<20					
Copper, Dissolved	2007-Sep		<20	<20	<20			<20	<20		<20
Copper, Dissolved	2008-Sep		<20	<20	<20	<20		<20	<20		<20
Copper, Dissolved	2009-Dec										
Copper, Dissolved	2009-Sep		<20	<20	<20	<20		<20	<20		<20
Copper, Dissolved	2010-Aug	<20	<20	<20	<20	<20	<20	<20	<20		<20
Copper, Dissolved	2010-Nov										
Copper, Dissolved	2011-Feb										
Copper, Dissolved	2011-Sep	<20	<20	<20	<20	<20	<20	<20	<20		<20
Copper, Dissolved	2012-Sep	<20	<20	<20	<20	<20	<20	<20	<20		<20
Copper, Dissolved	2013-Sep	<10	<10	<10	<10	<10	<10	<10	<10		<10
Copper, Dissolved	2014-Sep	<10	<10	<10	<10	<10	<10	<10	<10		<10
Copper, Dissolved	2015-Sep	<10	<10	11.6	<10	<10	<10	<10	<10		<10
Copper, Dissolved	2016-Sep	0.36				0.57		<0.11			
Copper	2016-Sep	2.1	0.6	1.3	0.95	2.5	1.6	0.57	1.9		0.18
COPPER, DISSOLVED	2017-Sep										
COPPER	2017-Sep	0.8	0.43	0.2	0.36	1	0.35	0.24	1		1.6
COPPER	2018-Apr										
COPPER	2018-Sep	1.6	1.8	2.4	1.7	5.7	9	<0.48	1.4		1.1

GW Standard:
None

IPL Big Bend Closed Landfill
Historic Monitoring Results

Copper
UNITS: ug/l

CHEMICAL PARAMETER	EVENT	MW-16	MW-20	MW-21	MW-23	MW-23R	MW-24	MW-24R	MW-25	MW-25R
Copper, Dissolved	1994-Oct	<20								
Copper, Dissolved	1995-Apr	<20								
Copper, Dissolved	1995-Jan	<20								
Copper, Dissolved	1995-Jul	<20								
Copper, Dissolved	2001-Sep		<20							
Copper, Dissolved	2002-Sep		<20							
Copper, Dissolved	2003-Sep		<20							
Copper, Dissolved	2004-Sep	<20	<20							
Copper, Dissolved	2005-Jun								<20	
Copper, Dissolved	2005-Sep	<20	<20						<20	
Copper, Dissolved	2006-Sep	<20	<20						<20	
Copper, Dissolved	2007-Nov									
Copper, Dissolved	2007-Sep	<20	<20						<20	
Copper, Dissolved	2008-Sep	<20	<20						<20	
Copper, Dissolved	2009-Dec				<20		<20			
Copper, Dissolved	2009-Sep	<20	<20						<20	
Copper, Dissolved	2010-Aug	<20	<20		<20		<20		<20	
Copper, Dissolved	2010-Nov			<20						
Copper, Dissolved	2011-Feb			<20						
Copper, Dissolved	2011-Sep	<20	<20	<20			<20		<20	
Copper, Dissolved	2012-Sep	<20	<20	<20			<20		<20	
Copper, Dissolved	2013-Sep	<10	<10	<10			<10		<10	
Copper, Dissolved	2014-Sep	<10	<10	<10			<10			<10
Copper, Dissolved	2015-Sep	<10	<10	<10			<10			<10
Copper, Dissolved	2016-Sep			1.6			0.62			
Copper	2016-Sep	0.21	1.6	1.7	0.26		7.7			1.6
COPPER, DISSOLVED	2017-Sep						2.2			
COPPER	2017-Sep	0.31	0.67	1.9			6.8			1.8
COPPER	2018-Apr					1.6 B		4.6		
COPPER	2018-Sep	2.5	3.2	2.8		16.7		1.2		2.6

GW Standard:
None

IPL Big Bend Closed Landfill
Historic Monitoring Results

Iron
UNITS: ug/l

CHEMICAL PARAMETER	EVENT	MW-02	MW-05	MW-06	MW-07	MW-10	MW-11	MW-12	MW-14	MW-15A	MW-15AR
Iron, Dissolved	1994-Oct		<100	210	<100	130		760	<100		
Iron, Dissolved	1995-Apr		<100	310	<100	110		1000	<100		
Iron, Dissolved	1995-Jan		600	250	<100	160		340	<100		
Iron, Dissolved	1995-Jul		<100	460	<100	<100		900	<100		
Iron, Dissolved	1995-Oct		<100	330	<100	<100		1600	<100		
Iron, Dissolved	1996-Apr		<30	203	<30	86		1070	<30		
Iron, Dissolved	1996-Oct		<30	347	<30	<30		1270	<30		
Iron, Dissolved	1997-Apr		<100	290	<100	110		1400	<100		
Iron, Dissolved	1997-Oct		<100	260	<100	<100		1200	<100		
Iron, Dissolved	1998-Apr		<100	270	<100	<100		1600	<100	<100	
Iron, Dissolved	1998-Oct		100	430	<100	580		1800	<100		
Iron, Dissolved	1999-Sep		<100	200	<100	120		1600	<100		
Iron, Dissolved	2000-Sep		<100	280	<100	160		1600	<100		
Iron, Dissolved	2001-Sep		<100	260	<100	130		1650	<100		
Iron, Dissolved	2002-Sep		170	540	<100	260		1600	<100	<100	
Iron, Dissolved	2003-Sep		160	470	<100	<100		1530	<100	<100	
Iron, Dissolved	2004-Sep		<100	150	<100	<100		1500	<100		
Iron, Dissolved	2005-Jun										
Iron, Dissolved	2005-Sep		<100	510	<100	<100		1600	<100		
Iron, Dissolved	2006-Sep		<100	763	<100	<100		1610	<100		
Iron, Dissolved	2007-Nov					224					
Iron, Dissolved	2007-Sep		<100	787	<100			1660	<100		<100
Iron, Dissolved	2008-Sep		<100	422	<100	149		2020	165		<100
Iron, Dissolved	2009-Dec										
Iron, Dissolved	2009-Sep		<100	368	<100	103		1860	<100		<100
Iron, Dissolved	2010-Aug	2790	<100	192	<100	496	<100	1820	<100		<100
Iron, Dissolved	2010-Nov										
Iron, Dissolved	2011-Feb										
Iron, Dissolved	2011-Sep	3850	<100	221	<100	126	<100	1500	<100		<100
Iron, Dissolved	2012-Sep	5320	<100	192	<100	250	<100	1710	<100		<100
Iron, Dissolved	2013-Sep	7690	<50	340	<50	218	<50	1730	<50		<50
Iron, Dissolved	2014-Sep	7760	<50	388	<50	182	<50	1760	<50		750
Iron, Dissolved	2015-Sep	14700	<50	430	<50	52.6	<50	1820	<50		<50
Iron, Dissolved	2016-Sep	4600				360		1500			
Iron	2016-Sep	12600	363	3010	77.8	10900	193	1590	838		145
IRON, DISSOLVED	2017-Sep										
IRON	2017-Sep	6860	48.8	240	11.4	4750	154	1710	34.3		1280
IRON	2018-Apr										
IRON, DISSOLVED	2018-Sep	<14.9	<14.9	<14.9	<14.9	<14.9	39.4	<14.9	<14.9		<14.9
IRON	2018-Sep	9690	139	403	35.6	1730	2930	1710	213		951

GW Standard:
None

IPL Big Bend Closed Landfill
Historic Monitoring Results

Iron
UNITS: ug/l

CHEMICAL PARAMETER	EVENT	MW-16	MW-20	MW-21	MW-23	MW-23R	MW-24	MW-24R	MW-25	MW-25R
Iron, Dissolved	1994-Oct	140								
Iron, Dissolved	1995-Apr	<100								
Iron, Dissolved	1995-Jan	<100								
Iron, Dissolved	1995-Jul	<100								
Iron, Dissolved	1995-Oct	<100								
Iron, Dissolved	1996-Apr	31								
Iron, Dissolved	1996-Oct	<30								
Iron, Dissolved	1997-Apr	<100								
Iron, Dissolved	1997-Oct	<100								
Iron, Dissolved	1998-Apr	<100								
Iron, Dissolved	1998-Oct	<100								
Iron, Dissolved	1999-Sep	<100								
Iron, Dissolved	2000-Sep	<100								
Iron, Dissolved	2001-Sep	<100	<100							
Iron, Dissolved	2002-Sep	160	<100							
Iron, Dissolved	2003-Sep	<100	120							
Iron, Dissolved	2004-Sep	<100	<100							
Iron, Dissolved	2005-Jun								<100	
Iron, Dissolved	2005-Sep	<100	<100						<100	
Iron, Dissolved	2006-Sep	<100	<100						129	
Iron, Dissolved	2007-Nov									
Iron, Dissolved	2007-Sep	<100	<100						<100	
Iron, Dissolved	2008-Sep	<100	1450						<100	
Iron, Dissolved	2009-Dec				<100		<100			
Iron, Dissolved	2009-Sep	<100	<100						<100	
Iron, Dissolved	2010-Aug	<100	<100		<100		<100		<100	
Iron, Dissolved	2010-Nov			<100						
Iron, Dissolved	2011-Feb			<100						
Iron, Dissolved	2011-Sep	<100	<100	<100			<100		<100	
Iron, Dissolved	2012-Sep	<100	<100	<100			<100		<100	
Iron, Dissolved	2013-Sep	<50	<50	<50			<50		<50	
Iron, Dissolved	2014-Sep	<50	1290	10700			<50			532
Iron, Dissolved	2015-Sep	<50	<50	<50			<50			<50
Iron, Dissolved	2016-Sep			<13			220			
Iron	2016-Sep	187	648	110	317		3660			835
IRON, DISSOLVED	2017-Sep						196			
IRON	2017-Sep	<9.6	60.7	644			2780			479
IRON	2018-Apr					493		793		
IRON, DISSOLVED	2018-Sep	<14.9	<14.9	<14.9		30.6		<14.9		92.6
IRON	2018-Sep	157	4680	1170		15400		755		1870

GW Standard:
None

IPL Big Bend Closed Landfill
Historic Monitoring Results

Lead
UNITS: ug/l

CHEMICAL PARAMETER	EVENT	MW-02	MW-05	MW-06	MW-07	MW-10	MW-11	MW-12	MW-14	MW-15A	MW-15AR
Lead, Dissolved	1994-Oct		<5	<5	<5	<5		<5	<5		
Lead, Dissolved	1995-Apr		<5	<5	<5	<5		<5	<5		
Lead, Dissolved	1995-Jan		<5	<5	<5	<5		<5	<5		
Lead, Dissolved	1995-Jul		<5	<5	<5	<5		<5	<5		
Lead, Dissolved	2001-Sep										
Lead, Dissolved	2002-Sep									<4	
Lead, Dissolved	2003-Sep									<4	
Lead, Dissolved	2004-Sep		<4	<4	<4	<4		<4	<4		
Lead, Dissolved	2005-Jun										
Lead, Dissolved	2005-Sep		<4	<4	<4	<4		<4	<4		
Lead, Dissolved	2006-Sep		<4	<4	<4	<4		<4	<4		
Lead, Dissolved	2007-Nov					<4					
Lead, Dissolved	2007-Sep		<4	<4	<4 PH>2			<4	<4		<4
Lead, Dissolved	2008-Sep		<4	<4	<4	<4		<4	<4 R		<4
Lead, Dissolved	2009-Dec										
Lead, Dissolved	2009-Sep		<4	<4	<4	<4		<4	31.4		<4
Lead, Dissolved	2010-Aug	<4	<4	<4	<4	<4	<4	<4	<4		<4
Lead, Dissolved	2010-Nov										
Lead, Dissolved	2011-Feb										
Lead, Dissolved	2011-Sep	<4	<4	<4	<4	<4	<4	<4	<4		<4
Lead, Dissolved	2012-Sep	<4	<4	<4	<4	<4	<4	<4	<4		<4
Lead, Dissolved	2013-Sep	<1	<1	<1	<1	<1	<1	<1	<1		<1
Lead, Dissolved	2014-Sep	<1	<1	<1	<1	<1	<1	<1	<1		2.2
Lead, Dissolved	2015-Sep	<1	<1	<1	<1	<1	<1	<1	<1		<1
Lead, Dissolved	2016-Sep	<0.19				<0.19		<0.19			
Lead	2016-Sep	0.52	0.44	0.96	0.41	3.2	0.43	<0.19	0.48		0.37
LEAD, DISSOLVED	2017-Sep										
LEAD	2017-Sep	0.075 B	0.12 B	0.13 B	0.1 B	2.5 B	0.089 B	0.038 B	0.11 B		2.9 B
LEAD	2018-Apr										
LEAD	2018-Sep	0.2	0.14	0.3	0.15	1.5	4.2	<0.12	0.21		1.8

GW Standard:
None

IPL Big Bend Closed Landfill
Historic Monitoring Results

Lead
UNITS: ug/l

CHEMICAL PARAMETER	EVENT	MW-16	MW-20	MW-21	MW-23	MW-23R	MW-24	MW-24R	MW-25	MW-25R
Lead, Dissolved	1994-Oct	<5								
Lead, Dissolved	1995-Apr	<5								
Lead, Dissolved	1995-Jan	<5								
Lead, Dissolved	1995-Jul	<5								
Lead, Dissolved	2001-Sep		<4							
Lead, Dissolved	2002-Sep		<4							
Lead, Dissolved	2003-Sep		<4							
Lead, Dissolved	2004-Sep	<4	<4							
Lead, Dissolved	2005-Jun								<4	
Lead, Dissolved	2005-Sep	<4	<4						<4	
Lead, Dissolved	2006-Sep	<4	<4						<4	
Lead, Dissolved	2007-Nov									
Lead, Dissolved	2007-Sep	<4	<4						<4	
Lead, Dissolved	2008-Sep	<4	<4						<4	
Lead, Dissolved	2009-Dec				<4		<4			
Lead, Dissolved	2009-Sep	<4	<4						<4	
Lead, Dissolved	2010-Aug	<4 S3	<4		<4		<4		<4	
Lead, Dissolved	2010-Nov			<4						
Lead, Dissolved	2011-Feb			<4						
Lead, Dissolved	2011-Sep	<4	<4	<4			<4		<4	
Lead, Dissolved	2012-Sep	<4	<4	<4			<4		<4	
Lead, Dissolved	2013-Sep	<1	<1	<1			<1		<1	
Lead, Dissolved	2014-Sep	<1	1	5.6			<1			<1
Lead, Dissolved	2015-Sep	<1	<1	<1			<1			<1
Lead, Dissolved	2016-Sep			<0.19			<0.19			
Lead	2016-Sep	0.26	0.57	<0.19	0.41		6.2			0.55
LEAD, DISSOLVED	2017-Sep						0.041			
LEAD	2017-Sep	0.1 B	0.099 B	1.1 B			3.6 B			0.32 B
LEAD	2018-Apr					0.66 B		1.4		
LEAD	2018-Sep	0.3	2.2	1.7		15.5		0.27		1.1

GW Standard:
None

IPL Big Bend Closed Landfill
Historic Monitoring Results

Magnesium
UNITS: ug/l

CHEMICAL PARAMETER	EVENT	MW-02	MW-05	MW-06	MW-07	MW-10	MW-11	MW-12	MW-14	MW-15A	MW-15AR
Magnesium, Dissolved	1994-Oct		42000	44000	39000	36000		49000	39000		
Magnesium, Dissolved	1995-Apr		40000	43000	38000	33000		45000	35000		
Magnesium, Dissolved	1995-Jan		40000	45000	38000	35000		43000	36000		
Magnesium, Dissolved	1995-Jul		42000	45000	38000	36000		46000	35000		
Magnesium, Dissolved	1999-Sep		45000	40000	32000	36000		40000	29000		
Magnesium, Dissolved	2000-Sep		44000	42000	34000	37000		43000	37000		
Magnesium, Dissolved	2001-Sep		44100	42000	33600	14500		40600	29500		
Magnesium, Dissolved	2002-Sep		46000	44000	34000	44000		42000	31000	40000	
Magnesium, Dissolved	2003-Sep		43900	42100	33200	39200		40300	29800	40000	
Magnesium, Dissolved	2004-Sep		45000	44000	32000	42000		43000	32000		
Magnesium, Dissolved	2005-Jun										
Magnesium, Dissolved	2005-Sep		48000 WT	47000 WT	36000 WT	43000 WT		45000 WT	31000 WT		
Magnesium, Dissolved	2006-Sep		45300	45800	35100	40400		42500	29900		
Magnesium, Dissolved	2007-Nov					40400					
Magnesium, Dissolved	2007-Sep		44500	44700	32600 PH>2			40200	33100		43800
Magnesium, Dissolved	2008-Sep		49800	48600	37700	43300		45900	36400		47300
Magnesium, Dissolved	2009-Dec										
Magnesium, Dissolved	2009-Sep		45200	46300	36600	42900		42900	31600		39200
Magnesium, Dissolved	2010-Aug	34300	44600	45100	34800	44200	39400	42900	29500		45900
Magnesium, Dissolved	2010-Nov										
Magnesium, Dissolved	2011-Feb										
Magnesium, Dissolved	2011-Sep	38200	44100	40100	34500	43600	36900	38100	25800		43700
Magnesium, Dissolved	2012-Sep	30500	40600	43700	37100	47800	41300	42100 S S3	25100		45300
Magnesium, Dissolved	2013-Sep	26400	40000	41900	35000	46800	38400	40300	21700		40300
Magnesium, Dissolved	2014-Sep	24300	42800	40800	32500	40700	37900	38500	21700		34200
Magnesium, Dissolved	2015-Sep	25300	42400	41900	32000	43100	39000	41000	20100		42200
Magnesium, Dissolved	2016-Sep	29200				47200		42900			
Magnesium	2016-Sep	29100	41300	42400	32200	46600	37000	41000	18100		35800
MAGNESIUM, DISSOLVED	2017-Sep										
MAGNESIUM	2017-Sep	34700	47800	46300	33200	50200	40100	42800	20200		50500
MAGNESIUM	2018-Apr										
MAGNESIUM	2018-Sep	25600	37000	40000	29300	40500	34400	38100	18400		41000

GW Standard:
None

IPL Big Bend Closed Landfill
Historic Monitoring Results

Magnesium
UNITS: ug/l

CHEMICAL PARAMETER	EVENT	MW-16	MW-20	MW-21	MW-23	MW-23R	MW-24	MW-24R	MW-25	MW-25R
Magnesium, Dissolved	1994-Oct	39000								
Magnesium, Dissolved	1995-Apr	37000								
Magnesium, Dissolved	1995-Jan	38000								
Magnesium, Dissolved	1995-Jul	37000								
Magnesium, Dissolved	1999-Sep	34000								
Magnesium, Dissolved	2000-Sep	36000								
Magnesium, Dissolved	2001-Sep	37000	32800							
Magnesium, Dissolved	2002-Sep	35000	29000							
Magnesium, Dissolved	2003-Sep	35800	34100							
Magnesium, Dissolved	2004-Sep	37000	38000							
Magnesium, Dissolved	2005-Jun								52000	
Magnesium, Dissolved	2005-Sep	38000 WT	47000 WT						60000 WT	
Magnesium, Dissolved	2006-Sep	39400	41000						51600	
Magnesium, Dissolved	2007-Nov									
Magnesium, Dissolved	2007-Sep	35300	39700						47700	
Magnesium, Dissolved	2008-Sep	37900	37300						51900	
Magnesium, Dissolved	2009-Dec				42400		47800			
Magnesium, Dissolved	2009-Sep	35400	28800						47100	
Magnesium, Dissolved	2010-Aug	35100	31000		45500		44900		46800	
Magnesium, Dissolved	2010-Nov			31500						
Magnesium, Dissolved	2011-Feb			26800						
Magnesium, Dissolved	2011-Sep	32600	31900	28800			34000		42400	
Magnesium, Dissolved	2012-Sep	35000	28200	34800			39300		45900	
Magnesium, Dissolved	2013-Sep	35100	29700	27200			27900		41600	
Magnesium, Dissolved	2014-Sep	31300	21400	25400			27500			39100
Magnesium, Dissolved	2015-Sep	35200	25000	24300			30200			42800
Magnesium, Dissolved	2016-Sep			23100			35000			
Magnesium	2016-Sep	32300	30000	22400	37900		37800			43200
MAGNESIUM, DISSOLVED	2017-Sep						41200			
MAGNESIUM	2017-Sep	36600	28600	29000			47100			44100
MAGNESIUM	2018-Apr					45000		39000		
MAGNESIUM	2018-Sep	30600	16200	26300		70400		28000		41600

GW Standard:
None

IPL Big Bend Closed Landfill
Historic Monitoring Results

Manganese
UNITS: ug/l

CHEMICAL PARAMETER	EVENT	MW-02	MW-05	MW-06	MW-07	MW-10	MW-11	MW-12	MW-14	MW-15A	MW-15AR
Manganese, Dissolved	1999-Sep		<10	62	<10	54		310	217		
Manganese, Dissolved	2000-Sep		<10	82	<10	221		331	476		
Manganese, Dissolved	2001-Sep		<10	93 *MSO	<10	38		290	87		
Manganese, Dissolved	2002-Sep		13	109 N*	<10	50		330	74	12	
Manganese, Dissolved	2003-Sep		18	94 *,MSO	<10	67		328	119	<10	
Manganese, Dissolved	2004-Sep		<10	97	<10	73 N*		308	104		
Manganese, Dissolved	2005-Jun										
Manganese, Dissolved	2005-Sep		32	114	<10	56		283	241		
Manganese, Dissolved	2006-Sep		<10	125	12.1	33.8		296	162		
Manganese, Dissolved	2007-Nov					26.4 MHA					
Manganese, Dissolved	2007-Sep		<10	117	<10 PH>2			266	309		<10
Manganese, Dissolved	2008-Sep		14.2	103	12.6	31.5		288	254		17.3
Manganese, Dissolved	2009-Dec										
Manganese, Dissolved	2009-Sep		11.3	77.1	10.8	74.5 S3		252	213		<10
Manganese, Dissolved	2010-Aug	760	<10	56.9	14.2	24.1	13.4	284	158		<10
Manganese, Dissolved	2010-Nov										
Manganese, Dissolved	2011-Feb										
Manganese, Dissolved	2011-Sep	945	<10	56	<10	19.7	<10	242	103		<10
Manganese, Dissolved	2012-Sep	1260	<10	61.8	<10	43.8	<10	257	112		17.2
Manganese, Dissolved	2013-Sep	1230	<5	80.4	<5	87.8	8.9	256	177		16
Manganese, Dissolved	2014-Sep	1700	<5	95.1	<5	66.6	9.8	239	124		27.5
Manganese, Dissolved	2015-Sep	1620	<5	93.7	<5	34.2	6.5	235	75.6		5.1
Manganese, Dissolved	2016-Sep	730				170		270			
Manganese	2016-Sep	1360	17.4	180	5	266	38.6	276	360		6.7
MANGANESE, DISSOLVED	2017-Sep										
MANGANESE	2017-Sep	1480 M1	4 B	54.6	1.7 B	77.4	44.8	266	138		29.8
MANGANESE	2018-Apr										
MANGANESE, DISSOLVED	2018-Sep	1280	1.6 B	74.7	0.42 B	56	115	224	42.3		13.7
MANGANESE	2018-Sep	1480	8.2	78.7	0.81 B	88.2	188	257	186		23.5

GW Standard:
SMCL = 50

IPL Big Bend Closed Landfill
Historic Monitoring Results

Manganese
UNITS: ug/l

CHEMICAL PARAMETER	EVENT	MW-16	MW-20	MW-21	MW-23	MW-23R	MW-24	MW-24R	MW-25	MW-25R
Manganese, Dissolved	1999-Sep	<10								
Manganese, Dissolved	2000-Sep	<10								
Manganese, Dissolved	2001-Sep	<10	471							
Manganese, Dissolved	2002-Sep	<10	181							
Manganese, Dissolved	2003-Sep	<10	26							
Manganese, Dissolved	2004-Sep	<10	<10							
Manganese, Dissolved	2005-Jun								36	
Manganese, Dissolved	2005-Sep	14 N*	19						46	
Manganese, Dissolved	2006-Sep	19.5	<10						73.5	
Manganese, Dissolved	2007-Nov									
Manganese, Dissolved	2007-Sep	<10	<10 MHA						<10	
Manganese, Dissolved	2008-Sep	15.2	22.6						17.1	
Manganese, Dissolved	2009-Dec				11.2		44.7			
Manganese, Dissolved	2009-Sep	27.8	<10						14.6	
Manganese, Dissolved	2010-Aug	21 S3	<10		<10		361		<10	
Manganese, Dissolved	2010-Nov			50.2						
Manganese, Dissolved	2011-Feb			257						
Manganese, Dissolved	2011-Sep	<10	<10	113			233		<10	
Manganese, Dissolved	2012-Sep	<10	<10	235			<10		27.4	
Manganese, Dissolved	2013-Sep	<5	<5	5.8			93.3		17.2	
Manganese, Dissolved	2014-Sep	<5	18	159			89.4			140
Manganese, Dissolved	2015-Sep	<5	<5	<5			228			13.6
Manganese, Dissolved	2016-Sep			2.6			140			
Manganese	2016-Sep	18.4	9.2	5.2	7		460			35.2
MANGANESE, DISSOLVED	2017-Sep						110			
MANGANESE	2017-Sep	2.5 B	1.6 B	59.3			208			19.7
MANGANESE	2018-Apr					203		623		
MANGANESE, DISSOLVED	2018-Sep	13.4 D9	2.6 B	1.1 B		26.6		522		3.8 B
MANGANESE	2018-Sep	10.3	40.8	59.2		708		575		89.1

GW Standard:
SMCL = 50

IPL Big Bend Closed Landfill
Historic Monitoring Results

Selenium
UNITS: ug/l

CHEMICAL PARAMETER	EVENT	MW-02	MW-05	MW-06	MW-07	MW-10	MW-11	MW-12	MW-14	MW-15A	MW-15AR
Selenium, Dissolved	1994-Oct		<5	<5	<5	<5		<5	8.4		
Selenium, Dissolved	1995-Apr		<5	<5	<5	<5		<5	24.4		
Selenium, Dissolved	1995-Jan		<5	<5	<5	<5		<5	7.5		
Selenium, Dissolved	1995-Jul		<5	<5	<5	<5		<5	9		
Selenium, Dissolved	1995-Oct								7.1		
Selenium, Dissolved	1996-Apr								24		
Selenium, Dissolved	1996-Oct								24		
Selenium, Dissolved	1997-Apr								12.5		
Selenium, Dissolved	1997-Oct								15.9		
Selenium, Dissolved	1998-Apr								28.3		
Selenium, Dissolved	1998-Oct								21.1		
Selenium, Dissolved	1999-Sep		<5	<5	<5	<5		<5	36.2		
Selenium, Dissolved	2000-Sep		<5	<5	<5	<5		<5	70.2		
Selenium, Dissolved	2001-Sep		<5	<5	<5	<5		<5	45.5		
Selenium, Dissolved	2002-Sep		<5	<5	<5	<5		<5	31.7	6.9	
Selenium, Dissolved	2003-Sep		<5	<5	<5	<5		<5	61.4	7.6	
Selenium, Dissolved	2004-Sep	<5	<5	<10	<5	<5	<5	<5	21		
Selenium, Dissolved	2005-Jun										
Selenium, Dissolved	2005-Sep	<5	<5	<5	<5	<5	<5	<5	14.3		
Selenium, Dissolved	2006-Sep	<5	<5	<5	<5	<5	<5	<5	9.57		
Selenium, Dissolved	2007-Nov					<5					
Selenium, Dissolved	2007-Sep	<5	<5	<5	<5		<5	<5	6.74		<5
Selenium, Dissolved	2008-Sep	6.05	5.38	<5	<5	<5	7.07	<5	13.8		10.1
Selenium, Dissolved	2009-Dec										
Selenium, Dissolved	2009-Sep	5.63	5.15	<5	<5	<5	<5	<5	37.1		6.15
Selenium, Dissolved	2010-Aug	<5	7.85	<5	<5	<5	<5	<5	34		12.8
Selenium, Dissolved	2010-Nov										
Selenium, Dissolved	2011-Feb										
Selenium, Dissolved	2011-Sep	<5	9.82	6.65	<5	<5	6.58	<5	29.5		12.8
Selenium, Dissolved	2012-Sep	<5	<5	6.03	<5	<5	<5	<5	27.9		9.91
Selenium, Dissolved	2013-Sep	1	6.5	4.6	4.7	<1	5.1	<1	33.3		11.6
Selenium, Dissolved	2014-Sep	<1	3.7	3.2	3.1	4.5	4.2	<1	34.6		8.5
Selenium, Dissolved	2015-Sep	<1	4.4	2.9	2.6	9.9	4.8	<1	20.8		12.6
Selenium, Dissolved	2016-Sep	4.5				1.6		<0.18			
Selenium	2016-Sep	6.2	9.1	4.9	2.7	1.2	1	<0.18	19.6		10.4
SELENIUM, DISSOLVED	2017-Sep										
SELENIUM	2017-Sep	1.3	13.5	7.1	2.3	13	3.8	<0.086	25.1		22.1
SELENIUM	2018-Apr										
SELENIUM	2018-Sep	1.1	7	5.3	2.1	1.3	1.9	<0.16	22.3		13.3

GW Standard:
MCL = 50

IPL Big Bend Closed Landfill
Historic Monitoring Results

Selenium
UNITS: ug/l

CHEMICAL PARAMETER	EVENT	MW-16	MW-20	MW-21	MW-23	MW-23R	MW-24	MW-24R	MW-25	MW-25R
Selenium, Dissolved	1994-Oct	<5								
Selenium, Dissolved	1995-Apr	<5								
Selenium, Dissolved	1995-Jan	<5								
Selenium, Dissolved	1995-Jul	<5								
Selenium, Dissolved	1995-Oct									
Selenium, Dissolved	1996-Apr									
Selenium, Dissolved	1996-Oct									
Selenium, Dissolved	1997-Apr									
Selenium, Dissolved	1997-Oct									
Selenium, Dissolved	1998-Apr									
Selenium, Dissolved	1998-Oct									
Selenium, Dissolved	1999-Sep	<5								
Selenium, Dissolved	2000-Sep	<5								
Selenium, Dissolved	2001-Sep	<5	14.9							
Selenium, Dissolved	2002-Sep	<5	14.6							
Selenium, Dissolved	2003-Sep	<5	95.4							
Selenium, Dissolved	2004-Sep	<5	41.4							
Selenium, Dissolved	2005-Jun								19.5	
Selenium, Dissolved	2005-Sep	<5	81.2						<5	
Selenium, Dissolved	2006-Sep	<5	80.9						13.9	
Selenium, Dissolved	2007-Nov									
Selenium, Dissolved	2007-Sep	<5	35.1						7.77	
Selenium, Dissolved	2008-Sep	<5	30.9						8.83	
Selenium, Dissolved	2009-Dec				5.93		<5			
Selenium, Dissolved	2009-Sep	<5	11.3						<5	
Selenium, Dissolved	2010-Aug	<5	14.9		11.3		8.02		<5	
Selenium, Dissolved	2010-Nov			<5						
Selenium, Dissolved	2011-Feb			<5						
Selenium, Dissolved	2011-Sep	<5	44.4	<5			<5		<5	
Selenium, Dissolved	2012-Sep	<5	39.1	<5			<5		<5	
Selenium, Dissolved	2013-Sep	1.2	28.7	<1			<1		2.8	
Selenium, Dissolved	2014-Sep	<1	9.3	1.4			<1			1.8
Selenium, Dissolved	2015-Sep	1.2	31	1.5			<1			1.4
Selenium, Dissolved	2016-Sep			1.1			3.3			
Selenium	2016-Sep	<0.18	6.9	1	9.6		3.8			2.4
SELENIUM, DISSOLVED	2017-Sep						11.6			
SELENIUM	2017-Sep	2.1	31.9	0.9			11.9			0.97
SELENIUM	2018-Apr					10.4		0.19		
SELENIUM	2018-Sep	<0.16	6.3	2.1		11.1		<0.16		5.2

GW Standard:
MCL = 50

IPL Big Bend Closed Landfill
Historic Monitoring Results

Zinc
UNITS: ug/l

CHEMICAL PARAMETER	EVENT	MW-02	MW-05	MW-06	MW-07	MW-10	MW-11	MW-12	MW-14	MW-15A	MW-15AR
Zinc, Dissolved	1994-Oct		<20	<20	<20	<20		<20	<20		
Zinc, Dissolved	1995-Apr		<20	<20	<20	<20		<20	<20		
Zinc, Dissolved	1995-Jan		<20	<20	<20	<20		<20	<20		
Zinc, Dissolved	1995-Jul		<20	<20	<20	<20		<20	<20		
Zinc, Dissolved	2001-Sep										
Zinc, Dissolved	2002-Sep									<20	
Zinc, Dissolved	2003-Sep									<20	
Zinc, Dissolved	2004-Sep		<20	<20	<20	<20		<20	<20		
Zinc, Dissolved	2005-Jun										
Zinc, Dissolved	2005-Sep		44	23	<20	27		21	27		
Zinc, Dissolved	2006-Sep	25	31.8	34.8	24.7	23.9	21.2	42.8	41.1		
Zinc, Dissolved	2007-Nov					49.8					
Zinc, Dissolved	2007-Sep	30.3	44.6	39.5	33.6		33.7	31.5	36.8		48
Zinc, Dissolved	2008-Sep	26.3	29.3	27.2	27.2	30.2	26.6	26.1	31.9		30.7
Zinc, Dissolved	2009-Dec										
Zinc, Dissolved	2009-Sep	49.5	48.1	45.3	41.7	54.4	41.5	38	43.4		44.3
Zinc, Dissolved	2010-Aug	<20	<20	<20	<20	<20	<20	<20	<20		<20
Zinc, Dissolved	2010-Nov										
Zinc, Dissolved	2011-Feb										
Zinc, Dissolved	2011-Sep	<20	<20	<20	<20	<20	<20	<20	<20		<20
Zinc, Dissolved	2012-Sep	32.4	<20	28.4	<20	<20	<20	<20	<20		<20
Zinc, Dissolved	2013-Sep	<50	<50	<50	<50	<50	<50	<50	<50		<50
Zinc, Dissolved	2014-Sep	<50	<50	<50	<50	<50	<50	<50	<50		<50
Zinc, Dissolved	2015-Sep	<50	<50	<50	<50	<50	<50	<50	<50		<50
Zinc, Dissolved	2016-Sep	2 B				2.9 B		3.5 B			
Zinc	2016-Sep	8.3 B	4 B	8.1 B	8.1 B	12.7 B	28.3	3.2 B	7.3 B		2.4 B
ZINC, DISSOLVED	2017-Sep										
ZINC	2017-Sep	2 B	2 B	1.5 B	5.5 B	3.6 B	2.4 B	1.4 B	3.4 B		7 B
ZINC	2018-Apr										
ZINC	2018-Sep	6.6	4.9	6	8.4	12.7	20.3	<3.7	6		7.8

GW Standard:
SMCL = 5000

IPL Big Bend Closed Landfill
Historic Monitoring Results

Zinc
UNITS: ug/l

CHEMICAL PARAMETER	EVENT	MW-16	MW-20	MW-21	MW-23	MW-23R	MW-24	MW-24R	MW-25	MW-25R
Zinc, Dissolved	1994-Oct	<20								
Zinc, Dissolved	1995-Apr	<20								
Zinc, Dissolved	1995-Jan	<20								
Zinc, Dissolved	1995-Jul	<20								
Zinc, Dissolved	2001-Sep		<20							
Zinc, Dissolved	2002-Sep		<20							
Zinc, Dissolved	2003-Sep		<20							
Zinc, Dissolved	2004-Sep	<20	<20							
Zinc, Dissolved	2005-Jun								<20	
Zinc, Dissolved	2005-Sep	22	36						28	
Zinc, Dissolved	2006-Sep	24.6	30						25.9	
Zinc, Dissolved	2007-Nov									
Zinc, Dissolved	2007-Sep	31.5	63.6						41.8	
Zinc, Dissolved	2008-Sep	21.7	34.2						33.6	
Zinc, Dissolved	2009-Dec				39.1		40			
Zinc, Dissolved	2009-Sep	34.9	29.5						50.9	
Zinc, Dissolved	2010-Aug	<20	<20		<20		<20		<20	
Zinc, Dissolved	2010-Nov			23						
Zinc, Dissolved	2011-Feb			29.6						
Zinc, Dissolved	2011-Sep	<20	<20	<20			<20		<20	
Zinc, Dissolved	2012-Sep	<20	21.4	<20			<20		<20	
Zinc, Dissolved	2013-Sep	<50	<50	<50			<50		<50	
Zinc, Dissolved	2014-Sep	<50	<50	<50			<50			<50
Zinc, Dissolved	2015-Sep	<50	<50	<50			<50			<50
Zinc, Dissolved	2016-Sep			3.4 B			4.1 B			
Zinc	2016-Sep	2.5 B	3.8 B	14.2 B	3.7 B		22			7.2 B
ZINC, DISSOLVED	2017-Sep						26.4			
ZINC	2017-Sep	2.2 B	1.8 B	4.7 B			36.4			4.7 B
ZINC	2018-Apr					6.3 B		7.7 B		
ZINC	2018-Sep	6.4	11.5	8		44.8		<3.7		8.2

GW Standard:
SMCL = 5000

IPL Big Bend Closed Landfill
Historic Monitoring Results

Chloride
UNITS: mg/l

CHEMICAL PARAMETER	EVENT	MW-02	MW-05	MW-06	MW-07	MW-10	MW-11	MW-12	MW-14	MW-15A	MW-15AR
Chloride	1994-Oct		9.9	12	24	<5		<5	7.5		
Chloride	1995-Apr		11	14	22	5		<5	9		
Chloride	1995-Jan		10	13	23	<5		<5	8.8		
Chloride	1995-Jul		11	12	22	5.9		<5	6.8		
Chloride	1995-Oct		11	12	21	6.7		<5	8.7		
Chloride	1996-Apr		11	12	17	7.7		4.3	11		
Chloride	1996-Oct		11.2	12.2	20.9	4.5		2.6	10.4		
Chloride	1997-Apr		14	14	21	8.1		<5	10		
Chloride	1997-Oct		13	13	19	8.9		<5	8.2		
Chloride	1998-Apr		22.3	13.9	19.2	19.4		<5	<5	23.1	
Chloride	1998-Oct		15	13	19	16		<5	5.3		
Chloride	1999-Sep		14	14	20	13		<5	9.6		
Chloride	2000-Sep		14.2	14.6	16.6	7.7		<5	9.6		
Chloride	2001-Sep		13.4	13.9	14.7	10.6		5.6	10.1		
Chloride	2002-Sep		11.8	14.4	15.5	18.3		<5	8.3	21.6	
Chloride	2003-Sep		11.1	14.5	12.8	10.4		<5	11.5		
Chloride	2004-Sep		11.8	13.9	11.5	10.4		<5	10		
Chloride	2005-Jun										
Chloride	2005-Sep		9.6	14.7	10.5	10.6		<5	10.1		
Chloride	2006-Sep		12.7	15.7	10.2	11.1		<5	12.4		
Chloride	2007-Nov					13					
Chloride	2007-Sep		9.83	16	10.1 PH>2			<5	9.42		20.3
Chloride	2008-Sep		14.6	17.2	9.74	13.3		<5	8.22		15.7
Chloride	2009-Dec										
Chloride	2009-Sep		14.6	16.9	11.2	13.4		<5	5.47		14.3
Chloride	2010-Aug	34.8	16.3	17.8	10.8	15.5	21.3	<5	<5		16.9
Chloride	2010-Nov										
Chloride	2011-Feb										
Chloride	2011-Sep	25.5	18.1	18.3	10.7	18.3	20	<5	3.36		19.3
Chloride	2012-Sep	15	15.4	18.7	10.2	22.5	19.5	<5	<5		17.5
Chloride	2013-Sep	12.5	14.9	16.5	9.4	21.5	16.4	2.7	2.7		13.7
Chloride	2014-Sep	11.8	9.7	18.6	8.5	19.9	17.2	2.4	2.5		12.8
Chloride	2015-Sep	10.1	10	17.5	7	18.5	14.3	2.6	2.6		18
Chloride	2016-Sep	9.5	14.5	17.7	6.4	19	10.8	2.7	2.1		14.7
CHLORIDE	2017-Sep	13	17.4	15.4	6	20.4	10.2	2.8	1.8		19
CHLORIDE	2018-Apr										
CHLORIDE	2018-Sep	8.9	14.6	17	6.1	21.3	10.1	2.4	1.7		23.7

GW Standard:
SMCL = 250

IPL Big Bend Closed Landfill
Historic Monitoring Results

Chloride
UNITS: mg/l

CHEMICAL PARAMETER	MW-16	MW-20	MW-21	MW-23	MW-23R	MW-24	MW-24R	MW-25	MW-25R
Chloride	11								
Chloride	8.3								
Chloride	15								
Chloride	8.8								
Chloride	22								
Chloride	12								
Chloride	17								
Chloride	16								
Chloride	30								
Chloride	15.5								
Chloride	20								
Chloride	22								
Chloride	25.7								
Chloride	23.8	28.6							
Chloride	17.2	19							
Chloride	19.4	13							
Chloride	18.5	<5							
Chloride								44.9	
Chloride	18.7	5.4						43.4	
Chloride	18.5	5.94						47.2	
Chloride									
Chloride	16.4	6.3 MHA						52.2	
Chloride	12.3	7.63						40.9	
Chloride				18		14.7			
Chloride	11.4	<5						46.2	
Chloride	13.4	<5		17.8		26.6		38.7	
Chloride			13.9						
Chloride			11.7						
Chloride	11.4	<2	28.8			49.2		32.3	
Chloride	14.3	<5	12.6			12.9		33.6	
Chloride	11	2.1	10.8			3		31.3	
Chloride	10.4	1.4	4.7			4.2			28.3
Chloride	10.5	2.4	4			4.1			24.5
Chloride	7	8	30.3	19.6		8			19.7
CHLORIDE	9.8	2.4	44.1			13.4			17.6
CHLORIDE					15.4		4.5		
CHLORIDE	9.2	9.2	85.2		21.1		1.6		12.9

GW Standard:
SMCL = 250

IPL Big Bend Closed Landfill
Historic Monitoring Results

Sulfate
UNITS: mg/l

CHEMICAL PARAMETER	EVENT	MW-02	MW-05	MW-06	MW-07	MW-10	MW-11	MW-12	MW-14	MW-15A	MW-15AR
Sulfate	1999-Sep		81	130	41	130		40	150		
Sulfate	2000-Sep		140	160	39	130		56	290		
Sulfate	2001-Sep		120	140	36	140		48	210		
Sulfate	2002-Sep		120	150 NS	36	150		49	210	130	
Sulfate	2003-Sep		100	150	35	160		51	220		
Sulfate	2004-Sep	100	320	150 R	33	170	76	51	230		
Sulfate	2005-Jun										
Sulfate	2005-Sep	110	130	250	36	270	100	55	350		
Sulfate	2006-Sep	131	142	174	154	30.4	83.8	248	17.6		
Sulfate	2007-Sep	73.4	89	179	34.1 PH>2		83.3	61.8	324		160
Sulfate	2007-Nov					170					
Sulfate	2008-Sep	123	126	174	36	153	91.6 S	47.5	264		179
Sulfate	2009-Sep	162	115	176 S3,S	37.6	159	71.9	48.9	232		144
Sulfate	2009-Dec										
Sulfate	2010-Aug	80.4	135	152	38.9	166	67.6	47.9	152		230
Sulfate	2010-Nov										
Sulfate	2011-Feb										
Sulfate	2011-Sep	153	290	154	43.9	209	93.6	46.9	113		232
Sulfate	2012-Sep	91.6	91.5	157	69.5	228	89	52.3	103		193
Sulfate	2013-Sep	75.1	108	141	66	223	76.9	49	122		178
Sulfate	2014-Sep	76.9	86.2	140	51.2	194	75.2	49	109		134
Sulfate	2015-Sep	84.2	97.3	132	40.1	188	76	48.1	69.3		183
Sulfate	2016-Sep	73.2	115	133	32.6	204	72.2	50.2	76.3		147
SULFATE	2017-Sep	113	168	138	31.1	265	70.3	49.6	55.6		293
SULFATE	2018-Apr										
SULFATE	2018-Sep	85.3	115	141	28.6	207	72.7 M1	52.8	51.7		227

GW Standard:
SMCL = 250

IPL Big Bend Closed Landfill
Historic Monitoring Results

Sulfate
UNITS: mg/l

CHEMICAL PARAMETER	EVENT	MW-16	MW-20	MW-21	MW-23	MW-23R	MW-24	MW-24R	MW-25	MW-25R
Sulfate	1999-Sep	65								
Sulfate	2000-Sep	75								
Sulfate	2001-Sep	76	140							
Sulfate	2002-Sep	59	170							
Sulfate	2003-Sep	70	300							
Sulfate	2004-Sep	74	360							
Sulfate	2005-Jun								170	
Sulfate	2005-Sep	90	360						260	
Sulfate	2006-Sep	280	74						127	
Sulfate	2007-Sep	97.7	302						107	
Sulfate	2007-Nov									
Sulfate	2008-Sep	40	173						92.6	
Sulfate	2009-Sep	38.5	127						70.5	
Sulfate	2009-Dec				160 S, S3		160			
Sulfate	2010-Aug	42.2	161		219		178		85.5	
Sulfate	2010-Nov			52.9						
Sulfate	2011-Feb			61.2						
Sulfate	2011-Sep	42.1	161	123			69.4		74.3	
Sulfate	2012-Sep	75.3	94.8	58.7			120		87	
Sulfate	2013-Sep	71.5	172	57.1			44.2		72.3	
Sulfate	2014-Sep	56.5	98.9	64.1			61.5			72.1
Sulfate	2015-Sep	76.6	101	75.5			63.4			68.6
Sulfate	2016-Sep	31.6	71.2	37.5	150		94.5			61.6
SULFATE	2017-Sep	62.7	90.2	53.6			176			63.5
SULFATE	2018-Apr					183		23.4		
SULFATE	2018-Sep	36.1	38.4	56		186		13.7		64

GW Standard:
SMCL = 250

IPL Big Bend Closed Landfill
Historic Monitoring Results

pH, Field
UNITS: su

CHEMICAL PARAMETER	EVENT	MW-02	MW-05	MW-06	MW-07	MW-10	MW-11	MW-12	MW-14	MW-15A	MW-15AR
pH, Field	1994-Oct		7.38	7.2	7.33	7.2		7.17	6.24		
pH, Field	1995-Jan		6.55	6.59	6.56	7.01		6.38	6.32		
pH, Field	1995-Apr		7.33	7.31	7.29	7.26		6.71	7.17		
pH, Field	1995-Jul		6.85	7.17	7.36	7.18		7.22	6.21		
pH, Field	1995-Oct		7.08	6.98	6.84	6.95		6.86	7.97		
pH, Field	1996-Apr		7.6	7.5	7.6	7.7		7.5	6.3		
pH, Field	1996-Oct		7.3	7	7.4	7.4		7.4	6.4		
pH, Field	1997-Apr		7.4	7.4	7.5	7.6		7.9	6.3		
pH, Field	1997-Oct		7.7	7.7	7.9	7.9		7.7	6.5		
pH, Field	1998-Apr		6.95	6.98	6.9	7.11		6.85	6	7.09	
pH, Field	1998-Oct		6.7	6.8	7	6.9		7	6		
pH, Field	1999-Sep		6.7	6.7	6.9	6.9		6.4	5.5		
pH, Field	2000-Sep		7.1	7.14	7.38	7.31		6.99	6.16		
pH, Field	2001-Sep		6.98	7.21	7.34	7.12		6.97	5.9		
pH, Field	2002-Sep		7.2	7.29	7.06	6.74		7.12	6.64	6.9	
pH, Field	2003-Sep		6.97	7.06	7.18	6.45		7	6.39		
pH, Field	2004-Sep	6.67	7.26	7.18	7.22	7.01	7.14	7.14	6.07		
pH, Field	2005-Jun										
pH, Field	2005-Sep	6.72	7.07	7.52	7.35	7.27	7.24	6.5	6.7		
pH, Field	2006-Sep	6.73	7.31	7.04	7.15	7.26	7.16	6.83	6.21		
pH, Field	2007-Sep	6.58	6.93	6.93	6.64		7	6.78	5.58		7.16
pH, Field	2007-Nov					7.14					
pH, Field	2008-Sep	6.38	7.19	7.06	7.2	7.24	6.76	6.8	5.78		7.14
pH, Field	2009-Sep	6.88	6.61	6.87	7.02	7.5	6.87	5.68	5.77		7.03
pH, Field	2010-Aug	6.82	7.11	7.1	7.19	7.09	7.14	7.02	6.38		7.02
pH, Field	2010-Nov										
pH, Field	2011-Feb										
pH, Field	2011-Sep	6.79	7.22	7.32	7.35	7.04	7.28	7.05	6.44		7.17
pH, Field	2012-Sep	7.16	7.14	7.14	7.49	7.72	7.09	6.61	6.16		7.37
pH, Field	2013-Sep	6.87	7.04	7.22	7.17	7.27	7.11	7.04	6.04		7.12
pH, Field	2014-Sep	6.42	7.08	7.11	7.49	7.26	6.57	6.94	6.14		7.13
pH, Field	2015-Sep	6.43	6.58	6.65	7.26	6.75	6.85	6.77	6.15		6.55
pH, Field	2016-Sep	7.17	8.71	9.41	11.08	7.11	8.09	6.9	7.5		12.55
pH, field	2017-Sep	6.86	6.9	7.54	7	6.88	6.35	6.6	6.12		7.09
PH, FIELD	2018-Apr										
pH, field	2018-Sep	6.9	7.03	7.13	6.75	7.39	7.23	7.23	6.34		7.17

GW Standard:
SMCL = 8.5

IPL Big Bend Closed Landfill
Historic Monitoring Results

pH, Field
UNITS: su

CHEMICAL PARAMETER	EVENT	MW-16	MW-20	MW-21	MW-23	MW-23R	MW-24	MW-24R	MW-25	MW-25R
pH, Field	1994-Oct	7.11								
pH, Field	1995-Jan	6.59								
pH, Field	1995-Apr	7.26								
pH, Field	1995-Jul	7.31								
pH, Field	1995-Oct	6.89								
pH, Field	1996-Apr	7.6								
pH, Field	1996-Oct	7.5								
pH, Field	1997-Apr	7.5								
pH, Field	1997-Oct	7.8								
pH, Field	1998-Apr	6.9								
pH, Field	1998-Oct	6.8								
pH, Field	1999-Sep	6.8								
pH, Field	2000-Sep	7.36								
pH, Field	2001-Sep	7.27	6.85							
pH, Field	2002-Sep	6.96	6.6							
pH, Field	2003-Sep	7.12	6.94							
pH, Field	2004-Sep	7.22	6.23							
pH, Field	2005-Jun								6.9	
pH, Field	2005-Sep	7.27	6.37						7.01	
pH, Field	2006-Sep	7.22	6.34						6.98	
pH, Field	2007-Sep	7.32	6.21						6.9	
pH, Field	2007-Nov									
pH, Field	2008-Sep	7.52	6.91						7.01	
pH, Field	2009-Sep	7.1	6.37						6.9	
pH, Field	2010-Aug	7.2	6.17		7.05		7.24		7.09	
pH, Field	2010-Nov			7.41						
pH, Field	2011-Feb			7.21						
pH, Field	2011-Sep	7.24	6.8	7.13			7.42		6.92	
pH, Field	2012-Sep	7.76	6.27	7.35			7.36		7.04	
pH, Field	2013-Sep	7.28	6.3	7.12			7.31		6.98	
pH, Field	2014-Sep	7.4	6.03	6.79			7.42			7.29
pH, Field	2015-Sep	6.43	5.76	6.43			6.5			6.58
pH, Field	2016-Sep	8.69	7.18	7.26	7.58		8.58			7.4
pH, field	2017-Sep	7.29	6.01	6.47			7.97			7.93
PH, FIELD	2018-Apr					<0.05		<0.05		
pH, field	2018-Sep	7.04	6.47	7.5		7.16		7.31		7.07

GW Standard:
SMCL = 8.5

IPL Big Bend Closed Landfill
Historic Monitoring Results

Temperature
UNITS: deg c

CHEMICAL PARAMETER	EVENT	MW-02	MW-05	MW-06	MW-07	MW-10	MW-11	MW-12	MW-14	MW-15A	MW-15AR
Temperature	1994-Oct		14.6	13.4	12.1	12		15.6	15.2		
Temperature	1995-Jan		9.2	10.8	10.2	11.2		11.4	11.8		
Temperature	1995-Apr		21.7	21.2	21.1	22.8		21.3	21.7		
Temperature	1995-Jul		27.9	26	26.1	26.5		27.3	27		
Temperature	1995-Oct		10.7	9	9	11.8		9.6	9.1		
Temperature	1996-Apr		10	10.5	9.5	8.5		10	10		
Temperature	1996-Oct		11	11	13	12		12	12.5		
Temperature	1997-Apr		11	11	11	11		11	12		
Temperature	1997-Oct		11	11	11	11		11	10		
Temperature	1998-Apr		12	10.5	12	11.5		10	10.5	12	
Temperature	1998-Oct		14.3	15.5	13.8	15		12.5	12.6		
Temperature	1999-Sep		12.9	11.7	14	12		12.5	12.1		
Temperature	2000-Sep		20.6	18.1	16.7	15.9		18.3	18		
Temperature	2001-Sep		13.6 SA	13.7 SA	13.5 SA	13.4 SA		14 SA	14.9 SA		
Temperature	2002-Sep		14.7 SA	15.8 SA	16.2 SA	17.7 SA		15.5 SA	14.5 SA	18.8 SA	
Temperature	2003-Sep		15.6 SA	15.1 SA	13.9 SA	21.7 SA		14.2 SA	17.6 SA		
Temperature	2004-Sep	16.2 SA	17.6 SA	16.4 SA	14.9 SA	22 SA	15.5 SA	17.4 SA	17.1 SA		
Temperature	2005-Jun										
Temperature	2005-Sep	16.4 SA	17.8 SA	13.5 SA	13.2 SA	17.5 SA	14.6 SA	14.9 SA	15.8 SA		
Temperature	2006-Sep	15.4	14.4	14	13.6	14.9	13.4	14.4	13.2		
Temperature	2007-Sep	13.1	12.6	12.2	12.4		12.2	12	13.3		12.7
Temperature	2007-Nov					12					
Temperature	2008-Sep	14.7	12.1	12.1	11.2	15.6	12.8	13.1	12.8		14.8
Temperature	2009-Sep	16.2	14.3	14.1	13.5	14.8	13.3	16.8	15		14.2
Temperature	2010-Aug	13.7	16	13.1	12.5	16.5	14.6	14.5	12.6		14
Temperature	2010-Nov										
Temperature	2011-Feb										
Temperature	2011-Sep	16.9	18.8	17	16.6	17.5	14.8	17.1	17.3		17.7
Temperature	2012-Sep	13.38	13.51	13.95	13.03	14.12	12.87	12.8	15.79		12.65
Temperature	2013-Sep	12.7	14.7	14.2	13	15.7	12.7	12.2	15.6		16.4
Temperature	2014-Sep	17.08	13.04	13.94	12.02	16.45	24.87	13.38	18.64		14.44
Temperature	2015-Sep	12.27	15.43	14.34	13.96	17.1	13.4	11.51	12.36		13.46
Temperature	2016-Sep	16	14	14.2	14.2	15.6	15	14.5	16.5		16.5
Temperature	2017-Sep	11.6	12.7	11.9	12.8	11.9	11.9	11.5	13		12.8
TEMPERATURE	2018-Apr										
Temperature	2018-Sep	15.2	13.5	14.6	12.6	13.1	16.1	12.3	12.3		12.7

GW Standard:
None

IPL Big Bend Closed Landfill
Historic Monitoring Results

Temperature
UNITS: deg c

CHEMICAL PARAMETER	EVENT	MW-16	MW-20	MW-21	MW-23	MW-23R	MW-24	MW-24R	MW-25	MW-25R
Temperature	1994-Oct	11.7								
Temperature	1995-Jan	10								
Temperature	1995-Apr	21.1								
Temperature	1995-Jul	26.9								
Temperature	1995-Oct	9.4								
Temperature	1996-Apr	10								
Temperature	1996-Oct	14								
Temperature	1997-Apr	10								
Temperature	1997-Oct	11								
Temperature	1998-Apr	12.5								
Temperature	1998-Oct	15.5								
Temperature	1999-Sep	11								
Temperature	2000-Sep	16.5								
Temperature	2001-Sep	14.1 SA	14.1 SA							
Temperature	2002-Sep	18.1 SA	14.8 SA							
Temperature	2003-Sep	15.3 SA	14 SA							
Temperature	2004-Sep	13.7 SA	11.9 SA							
Temperature	2005-Jun								14.1	
Temperature	2005-Sep	16 SA	12.3 SA						16 SA	
Temperature	2006-Sep	15.4	13						12.9	
Temperature	2007-Sep	13	11.2						11.9	
Temperature	2007-Nov									
Temperature	2008-Sep	12.3	12.4						12.2	
Temperature	2009-Sep	13.4	13.9						13.3	
Temperature	2010-Aug	15	13.5		15.8		16.2		14.5	
Temperature	2010-Nov			11.7						
Temperature	2011-Feb			10.4						
Temperature	2011-Sep	15.8	16.4	15.9			16.5		14.3	
Temperature	2012-Sep	13.06	13.35	11.49			12.3		12.26	
Temperature	2013-Sep	13.7	13.3	13.9			19.5		13.2	
Temperature	2014-Sep	11.6	16.22	13.2			16.12			18.69
Temperature	2015-Sep	14.87	16.91	15.25			14.44			13.24
Temperature	2016-Sep	15.2	14.8	17	12		13			12.7
Temperature	2017-Sep	17.2	12.1	14			14.3			11.9
TEMPERATURE	2018-Apr					<0.25		<0.25		
Temperature	2018-Sep	12.9	12.3	13.4		14.1		14.9		13.7

GW Standard:
None

IPL Big Bend Closed Landfill
Historic Monitoring Results

Conductance, Specific
UNITS: umhos/cm

CHEMICAL PARAMETER	EVENT	MW-02	MW-05	MW-06	MW-07	MW-10	MW-11	MW-12	MW-14	MW-15A	MW-15AR
Conductance, Specific	1994-Oct		902	1005	885	754		877	992		
Conductance, Specific	1995-Jan		938	971	897	766		886	930		
Conductance, Specific	1995-Apr		885	942	833	715		862	878		
Conductance, Specific	1995-Jul		798	823	777	733		775	620		
Conductance, Specific	1995-Oct		1249	1309	1171	1109		1175	1230		
Conductance, Specific	1996-Apr		970	980	890	850		910	940		
Conductance, Specific	1996-Oct		840	960	870	820		900	880		
Conductance, Specific	1997-Apr		1020	980	930	890		940	890		
Conductance, Specific	1997-Oct		1120	1090	960	900		1020	980		
Conductance, Specific	1998-Apr		1000	830	730	880		840	970	930	
Conductance, Specific	1998-Oct		880	760	700	740		640	720		
Conductance, Specific	1999-Sep		980	800	630	800		720	660		
Conductance, Specific	2000-Sep		983	953	763	826		832	904		
Conductance, Specific	2001-Sep		983	917	747	843		806	772		
Conductance, Specific	2002-Sep		971	927	710	974		806	768	915	
Conductance, Specific	2003-Sep		990	983	740	890		815	783		
Conductance, Specific	2004-Sep	822	958	921	696	1007	815	786	779		
Conductance, Specific	2005-Jun										
Conductance, Specific	2005-Sep	767	969	974	716	884	875	805	717		
Conductance, Specific	2006-Sep	766	1005	988	737	881	873	808	718		
Conductance, Specific	2007-Sep	791	990	1005	716		890	812	827		1026
Conductance, Specific	2007-Nov					876					
Conductance, Specific	2008-Sep	864	970	1019	751	910	923	801	787		1000
Conductance, Specific	2009-Sep	931	912	951	725	870	849	808	725		878
Conductance, Specific	2010-Aug	888	977	979	751	934	816	798	689		1076
Conductance, Specific	2010-Nov										
Conductance, Specific	2011-Feb										
Conductance, Specific	2011-Sep	1056	1011	980	758	981	859	927	635		1095
Conductance, Specific	2012-Sep	875	937	999	832	1070	896	827	638		1090
Conductance, Specific	2013-Sep	818	962	975	810	1060	880	825	598		987
Conductance, Specific	2014-Sep	790	571	950	748	1010	871	798	594		857
Conductance, Specific	2015-Sep	726	887	881	659	941	804	714	477		966
Conductance, Specific	2016-Sep	1296	1571	1587	1153	1664	1349	1358	772		1494
Conductance, Specific	2017-Sep	841	966	493.2	641	1079	766	760	419.5		1110
CONDUCTANCE, SPECIFIC	2018-Apr										
Conductance, Specific	2018-Sep	795	944	959	696	1012	778	807	455		1073

GW Standard:
None

IPL Big Bend Closed Landfill
Historic Monitoring Results

Conductance, Specific
UNITS: umhos/cm

CHEMICAL PARAMETER	MW-16	MW-20	MW-21	MW-23	MW-23R	MW-24	MW-24R	MW-25	MW-25R
Conductance, Specific	821								
Conductance, Specific	813								
Conductance, Specific	710								
Conductance, Specific	688								
Conductance, Specific	1087								
Conductance, Specific	790								
Conductance, Specific	840								
Conductance, Specific	840								
Conductance, Specific	1010								
Conductance, Specific	660								
Conductance, Specific	670								
Conductance, Specific	680								
Conductance, Specific	836								
Conductance, Specific	845	920							
Conductance, Specific	772	795							
Conductance, Specific	818	932							
Conductance, Specific	789	1005							
Conductance, Specific								1190	
Conductance, Specific	790	1109						1189	
Conductance, Specific	811	977						1097	
Conductance, Specific	820	952						1072	
Conductance, Specific									
Conductance, Specific	708	860						1017	
Conductance, Specific	674	683						975	
Conductance, Specific	711	709		1062		1017		964	
Conductance, Specific			680						
Conductance, Specific			664						
Conductance, Specific	726	822	719			858		946	
Conductance, Specific	833	715	769			916		982	
Conductance, Specific	814	785	700			646		947	
Conductance, Specific	749	596	634			669			911
Conductance, Specific	746	664	624			671			867
Conductance, Specific	1123	1171	988	1506		1142			1483
Conductance, Specific	716	641.8	702			883			476.5
CONDUCTANCE, SPECIFIC					<1		<1		
Conductance, Specific	682	437	798		981		589		915

GW Standard:
None

IPL Big Bend Closed Landfill
Historic Monitoring Results

LW-01, LW-02, and LW-03

WELL ID	SAMPLE MONTH	Depth to Leachate	Leachate Elevation	Depth To Bottom	Well Dry	Arsenic	Boron	Selenium	Sulfate	pH, Field	Temperature	Conductance, Specific
LW-01	Apr-12	39.44	761.88									
LW-01	Sep-12	39.15	762.17			<5	10800	<5	461	7.3	12.79	1302
LW-01	Apr-13	40.32	761									
LW-01	Sep-13	38.69	762.63			3.7	20100	<1	829	7.32	13.4	1748
LW-01	Apr-14	40.08	761.24	41.35								
LW-01	Sep-14	38.81	762.51	41.14		7.8	20700	3.6	747	7.38	13.06	1668
LW-01	Apr-15	39.89	761.43									
LW-01	Sep-15	38.21	763.11	41.36		11.4	18600	4.8	711	6.16	13.76	1606
LW-01	Apr-16	37.95	763.37									
LW-01	Sep-16	37.55	763.77			5.1	34700	1	1060	8.45	14.8	37.6
LW-01	Apr-17		763.52									
LW-01	Sep-17		763.77			5.2	59600	0.39	1280	7.62	12.7	1996
LW-01	Apr-18		751.84									
LW-01	Sep-18		751.81			24	39000	17	1400	8.08	14.1	2264
LW-02	Apr-12	19.34	789.83									
LW-02	Sep-12	DRY	789.42		YES							
LW-02	Apr-13	19.33	789.84									
LW-02	Sep-13	19.36	789.81									
LW-02	Apr-14	19.37	789.8	19.67								
LW-02	Sep-14		789.8	19.53	YES							
LW-02	Apr-15	19.7	789.47		YES							
LW-02	Sep-15	19.17	790	19.82								
LW-02	Apr-16	19.51	789.66									
LW-02	Sep-16	19.5	789.67									
LW-02	Apr-17		789.55									
LW-02	Sep-17		789.55									
LW-02	Apr-18		778.85									
LW-02	Sep-18		778.85									
LW-03	Apr-12	37.59	771.11									
LW-03	Sep-12	37.85	770.85									
LW-03	Apr-13	37.52	771.18									
LW-03	Sep-13	37.48	771.12			10.2	494	2.3				
LW-03	Apr-14	37.67	771.03	38.33								
LW-03	Sep-14	37.57	771.13	38.21	YES							
LW-03	Apr-15	38.3	770.4		YES							
LW-03	Sep-15			38.3	YES							
LW-03	Apr-16	37.46	771.24									
LW-03	Sep-16	36	772.7									
LW-03	Apr-17		771.1									
LW-03	Sep-17		771.2			17.6	356	4	4.1			
LW-03	Apr-18		760.66									
LW-03	Sep-18		760.59									

Units for arsenic, boron, and selenium are ug/l.
Units for sulfate are mg/l.

Note: All site wells were re-surveyed on November 1, 2018. apparent changes from historical leachate elevations reflect a difference in surveyed top of casing elevations, not an acutal change in leachate levels.

Appendix E

Statistical Evaluation of Groundwater Monitoring Results

November 30, 2023
File No. 25223063.00

TECHNICAL MEMORANDUM

SUBJECT: Statistical Evaluation of Groundwater Monitoring Results
Big Bend Closed CCR Landfill, September 2023 Sampling Event

PREPARED BY: Ryan Matzuk

CHECKED BY: Charles Hostetler

STATISTICAL METHOD

The statistical analysis uses a prediction interval approach as recommended for detection monitoring in the March 2009 U.S. Environmental Protection Agency (U.S. EPA) Unified Guidance for Statistical Analysis of Groundwater Monitoring Data at Resource Conservation and Recovery Act (RCRA) facilities. For the prediction interval evaluation, interwell testing was selected based on the considerations outlined in Chapter 6 of the Unified Guidance. The statistical program used to calculate the interwell prediction interval is Sanitas™ (Version 9.6.37).

The Big Bend monitoring data are evaluated in two well groups, representing the shallow and deep groundwater systems. For the shallow groundwater system, monitoring well MW-21 is used as the background well. For the deep groundwater system, MW-12 is used as the background well.

TIME SERIES PLOTS

Time series plots are prepared for the required monitoring parameters to show the concentration variations over time. Time series graphs are included in **Attachments E1** (shallow) and **E2** (deep). For metals, the time series plots only show monitoring results since 2016, when the monitoring program transitioned from dissolved metals to total metals analysis. For chloride and sulfate, which are not typically affected by filtering, older historical results for background wells MW-12, for the deep groundwater flow system, and MW-21, for the shallow groundwater flow system, are included in the time series plots and are used in the determination of background for the statistical evaluation.

For the two background wells (MW-12 and MW-21), data points that were previously removed from the dataset as outliers or as otherwise not representative of background are flagged with an "X" in the time series data tables and shown on the time series plots by a lighter color data point that is not included in the times series plot line. Evaluation of these data points and the 2023 data for use in the current event statistical analysis is discussed in the following section.

OUTLIER ANALYSIS

An outlier analysis is performed for background monitoring results at upgradient wells MW-12 and MW-21. A statistical outlier is a value that is extremely different from the other values in the data set.

The Sanitas outlier tests identify data points that do not appear to fit the distribution of the rest of the data set and determine if they differ significantly from the rest of the data. The outlier analysis performed in Sanitas includes the following steps:

1) Run normality test (Shapiro Wilk/Francia).

2) If normally distributed, run U.S. EPA's 1989 Outlier Test to identify suspected outliers.
   a) If number of background samples is less than or equal to 25, run Dixon's test for suspected outliers.
   b) If number of background samples is more than 25, run Rosner's test for suspected outliers.

3) If not normally distributed, run Tukey's test for outliers.

4) Review data flagged as possible outliers to evaluate whether they should be removed from the background data set. Also review time series plots for possible outliers that were not picked up in the statistical evaluation (e.g., outlier test may not identify outliers when two values are similar to each other, but very different from all other data).

Results identified as statistical outliers are checked for possible lab instrument failure, field collection problems, or data entry errors; however, outliers may exist naturally in the data if there is an extremely wide inherent or temporal variability in the data. The Unified Guidance states that unless a likely error can be identified, the outlier should not be removed.

Prior to the statistical outlier analysis, some chloride results for both the shallow and deep background wells were removed from the background dataset based on visual review of the time series plots. These results were also removed from the background data set for the previous data evaluation:

- **Chloride, Shallow (MW-21).** Recent results for upgradient well MW-21 have shown a fairly sharp increasing trend, with levels since 2017 being higher than previous results. To be conservative, the chloride results for 2017 and later were excluded from the upper prediction limit (UPL) calculations. With those results removed, the distribution of data was found to be lognormal and no outliers were identified.

- **Sulfate, Shallow (MW-21).** One high result from the September 2006 event was previously flagged by Sanitas as a statistical outlier and removed from the dataset based on visual inspection of the data. The high result was inconsistent with subsequent results (approximately 5X typical), and may reflect a lab dilution or calculation error. With the September 2021 sulfate result added, the 2006 result still appears to be a clear outlier (see time series plot); therefore, it was not added back into the dataset for statistical outlier screening. With the outlier removed, the remaining 20 values fit a normal distribution.

- **Chloride, Deep (MW-12).** Most of the results for upgradient well MW-12 before 2013 were reported as non-detects with a detection limit of 5 milligrams per liter (mg/L). More recently, a lower detection limit has been used and chloride has been detected at concentrations ranging from 2.2 to 3.5 mg/l. Based on these results, the non-detect results before 2013 were excluded from further analysis. With the current population starting in 2013 included, the sample results were found to be normally distributed and no outliers were identified.

For the September 2023 sampling event, the following background values from MW-12 and MW-21 were identified as potential outliers and handled as described:

- **Copper, Shallow (MW-21).** One high results from the September 2018 event was flagged by Sanitas as a statistical outlier. This result was kept in the dataset because there was no known explanation for the higher result, and it appeared to be within the range of potential natural variation relative to the other observed copper concentrations.

- **Zinc, Shallow (MW-21).** One high result from the September 2022 event was flagged by Sanitas as a statistical outlier. This value is much higher than previous results for MW-21, but other wells at the site showed a similar increase in zinc for the 2022 event. There is no known explanation for the higher results at multiple wells. To be conservative, the September 2022 result for zinc was removed from the dataset as an outlier for this analysis. If future results confirm the increase in zinc, then the September 2022 value may be used in future analysis. The September 2023 zinc concentration was below the limit of detection.

- **Sulfate, Deep (MW-12).** One high result from the September 2011 event was flagged by Sanitas as a statistical outlier. Consistent with the previous statistical analysis, this result was kept in the dataset because there was no known explanation for the higher result, and it appeared to be within the range of potential natural variation relative to the other observed sulfate concentrations (approximately 2X typical values).

Outlier analysis results are included in **Attachments E3** (shallow) and **E4** (deep).

INTERWELL PREDICTION LIMITS

Interwell UPLs are calculated for the shallow and deep groundwater systems using data from the background wells for each monitored constituent, with outliers removed as noted above. The prediction limit analysis performed in Sanitas includes the following steps:

1) If 50 percent or more of results are non-detect, apply a non-parametric UPL. For small background sample sizes, the non-parametric UPL is the highest background value. For a parameter with 100 percent non-detects in the background values, the Double Quantification Rule applies, which says that a statistically significant increase (SSI) occurs when two results exceeding the quantification limit are reported for a compliance well.

2) If fewer than 50 percent of the results are non-detect, run normality test (Shapiro Wilk/Francia) to assess whether the data fit a normal distribution or can be transformed to fit a normal distribution (e.g., lognormal).

3) If normal or transformed normal, calculate parametric UPL.

4) If not normal or transformed normal, calculate non-parametric UPL.

For evaluation of parameters with less than 100 percent non-detects in the background sampling, the non-detects were replaced with the detection limit, unless the non-detects represented less than 15 percent of the total samples, in which case one-half of the detection limit was used.

Consistent with the Unified Guidance, parametric prediction limits are calculated based on a 1-of-2 retesting protocol and a target 10 percent annual site-wide false positive rate. Sanitas establishes the per-test significance level based on user inputs of the number of events per year, number of constituents being evaluated, and number of compliance wells. For the 2023 event, the following values were used:

Parameter	Value	Comments
Evaluations per year	1	September event
Constituents analyzed	14	Shallow: 20 constituents sampled. Deep: 20 constituents sampled. Beryllium and selenium not counted because all background results are non-detect. For Shallow and Deep units calcium, fluoride, lithium, molybdenum, TDS, and TSS are not counted because they were added to the program in 2023 and have an insufficient amount of data required to produce prediction limits.
Compliance wells	13	7 shallow and 6 deep

Non-parametric prediction limits are also based on a 1-of-2 retesting protocol. The non-parametric limit is the highest value in the background dataset. Due to the small sample size, the false positive rate for the non-parametric tests is higher than for the parametric tests, but will go down as more background data are obtained.

For results with 100 percent non-detects in the background data, evaluation under the Double Quantification Rule means that a SSI has not occurred for a compliance well unless two sample results from the well exceed the laboratory's reporting limit or quantification limit. For evaluation of parameters with less than 100 percent non-detects in the background sampling, the non-detects were replaced with the detection limit, unless the non-detects represent less than 15 percent of the total samples, in which case one-half of the detection limit was used.

Although the limits are based on a 1-of-2 retesting approach, retesting is not required. Because the site is closed and has been monitored for many years, retesting will typically not be performed unless a new potential SSI is identified. If retesting is not performed, a result above the UPL is presumed to represent an SSI above the interwell background level. Only results that exceed the laboratory's limit of quantification or reporting limit are compared to the UPL; therefore, a J-flagged value above the UPL is not an SSI.

Interwell prediction limit analysis results for 2023 are included in **Attachments E5** (shallow) and **E6** (deep).

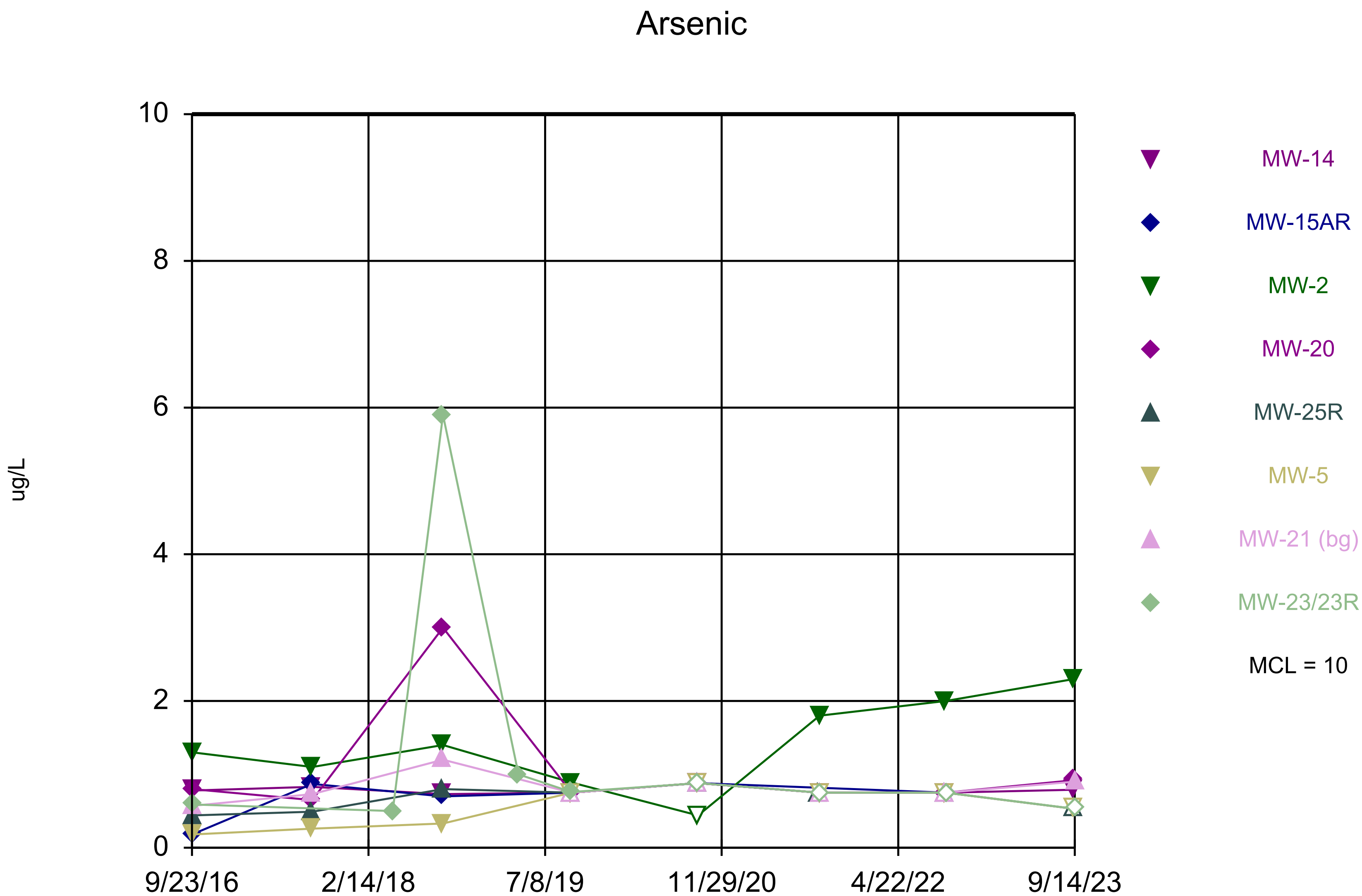
RM/AJR/CJH

I:\25223063.00\Deliverables\2023 AWQR\Appendix E - Stats\Appendix E_Stats Memo.docx

Attachment E1

Times Series Graphs – Shallow

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Time Series Analysis Run 10/23/2023 11:17 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Time Series

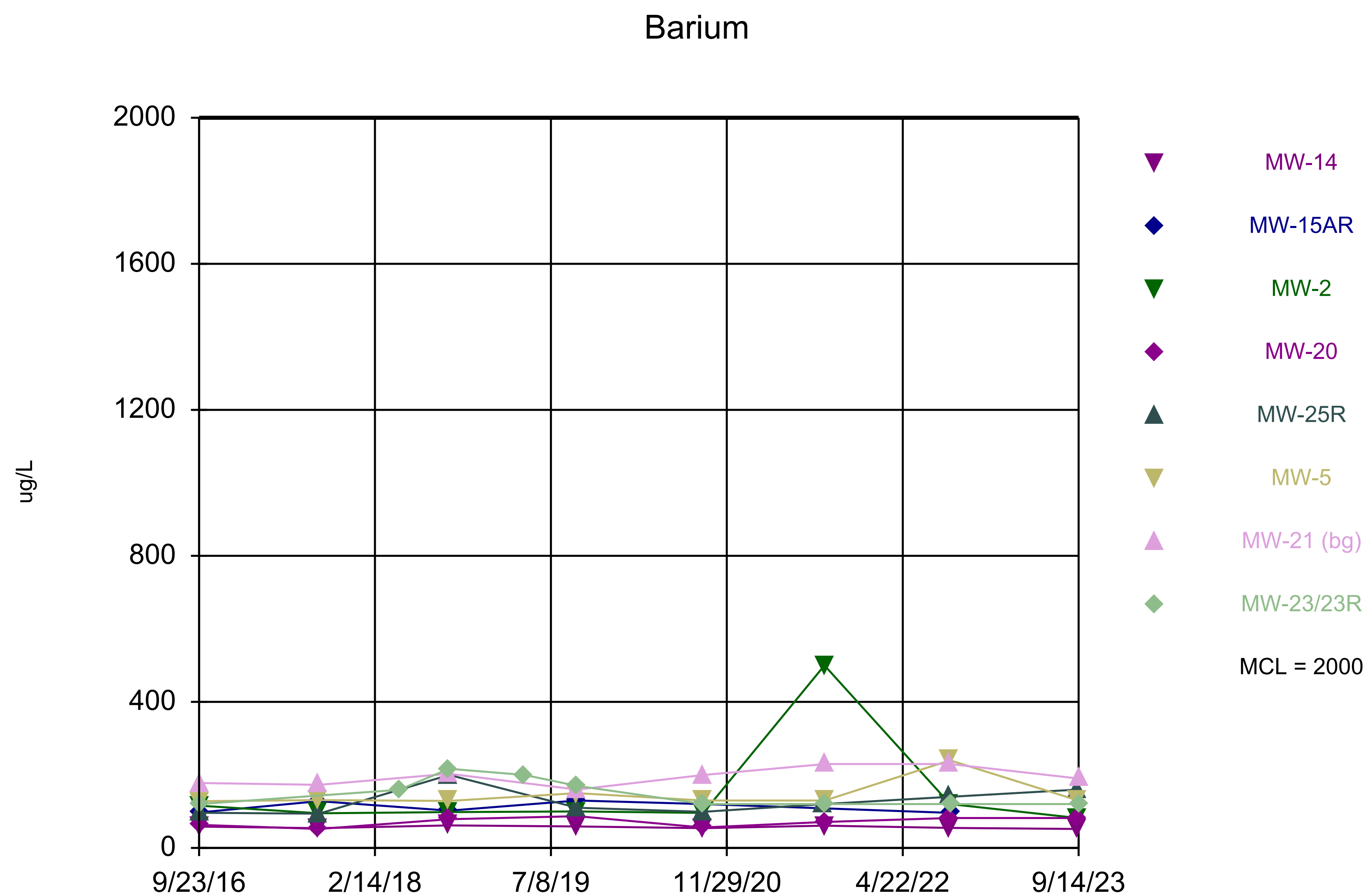
Constituent: Arsenic (ug/L) Analysis Run 10/23/2023 11:19 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-14	MW-15AR	MW-2	MW-20	MW-25R	MW-5	MW-21 (bg)	MW-23/23R
9/23/2016	0.78 (J)	0.18 (J)	1.3	0.8 (J)	0.44 (J)	0.18 (J)	0.57 (J)	0.59 (J)
9/5/2017	0.83 (J)	0.87 (J)	1.1	0.65 (J)	0.49 (J)	0.26 (J)	0.73 (J)	
4/25/2018								0.5 (J)
9/17/2018	0.73 (J)	0.7 (J)	1.4	3	0.8 (J)	0.33 (J)	1.2	5.9
4/23/2019								1 (J)
9/23/2019	<0.75	<0.75	0.89 (J)	<0.75	<0.75	<0.75	<0.75	0.76 (J)
9/21/2020				<0.88	<0.88			
9/22/2020	<0.88		<0.88			<0.88		
9/23/2020							<0.88	
9/24/2020		<0.88						<0.88
9/7/2021					<0.75			
9/8/2021	<0.75		1.8 (J)	0.75 (J)				
9/9/2021						<0.75		<0.75
9/10/2021							<0.75	
9/6/2022	0.75 (J)			<0.75	<0.75			
9/7/2022			2			<0.75	<0.75	
9/8/2022								<0.75
9/9/2022		<0.75						
9/11/2023	0.79 (J)							
9/12/2023			2.3	0.92 (J)	<0.53 (U)			
9/13/2023						<0.53 (U)		
9/14/2023							0.9 (J)	<0.53 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Time Series Analysis Run 10/23/2023 11:17 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

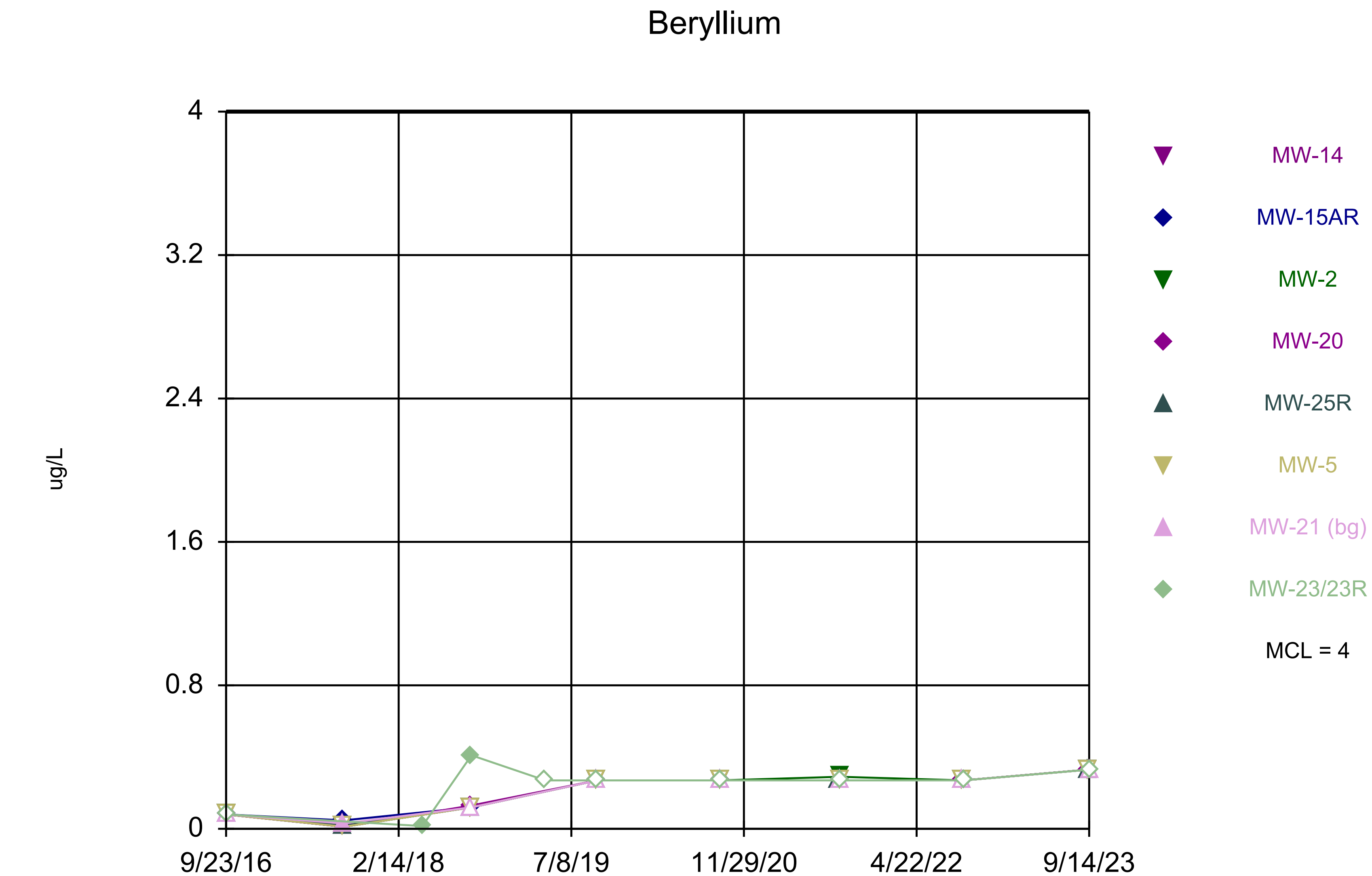
Time Series

Constituent: Barium (ug/L) Analysis Run 10/23/2023 11:19 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-14	MW-15AR	MW-2	MW-20	MW-25R	MW-5	MW-21 (bg)	MW-23/23R
9/23/2016	58.5	97.2	116	63.1	96.5	128	178	120
9/5/2017	54	128	94.8	52.1	93.8	131	173	
4/25/2018								159
9/17/2018	61.7	102	98.3	78.8	200	129	203	217
4/23/2019								200
9/23/2019	59	130	100	87	110	150	160	170
9/21/2020				56	99			
9/22/2020	54		96			130		
9/23/2020							200	
9/24/2020		120						120
9/7/2021					120 (B)			
9/8/2021	61 (B)		500 (B)	71 (B)				
9/9/2021						130 (B)		120 (B)
9/10/2021							230 (B)	
9/6/2022	55			82	140			
9/7/2022			120			240	230	
9/8/2022								120
9/9/2022		96						
9/11/2023	52							
9/12/2023			82	82	160			
9/13/2023						130		
9/14/2023							190	120

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Time Series Analysis Run 10/23/2023 11:17 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Time Series

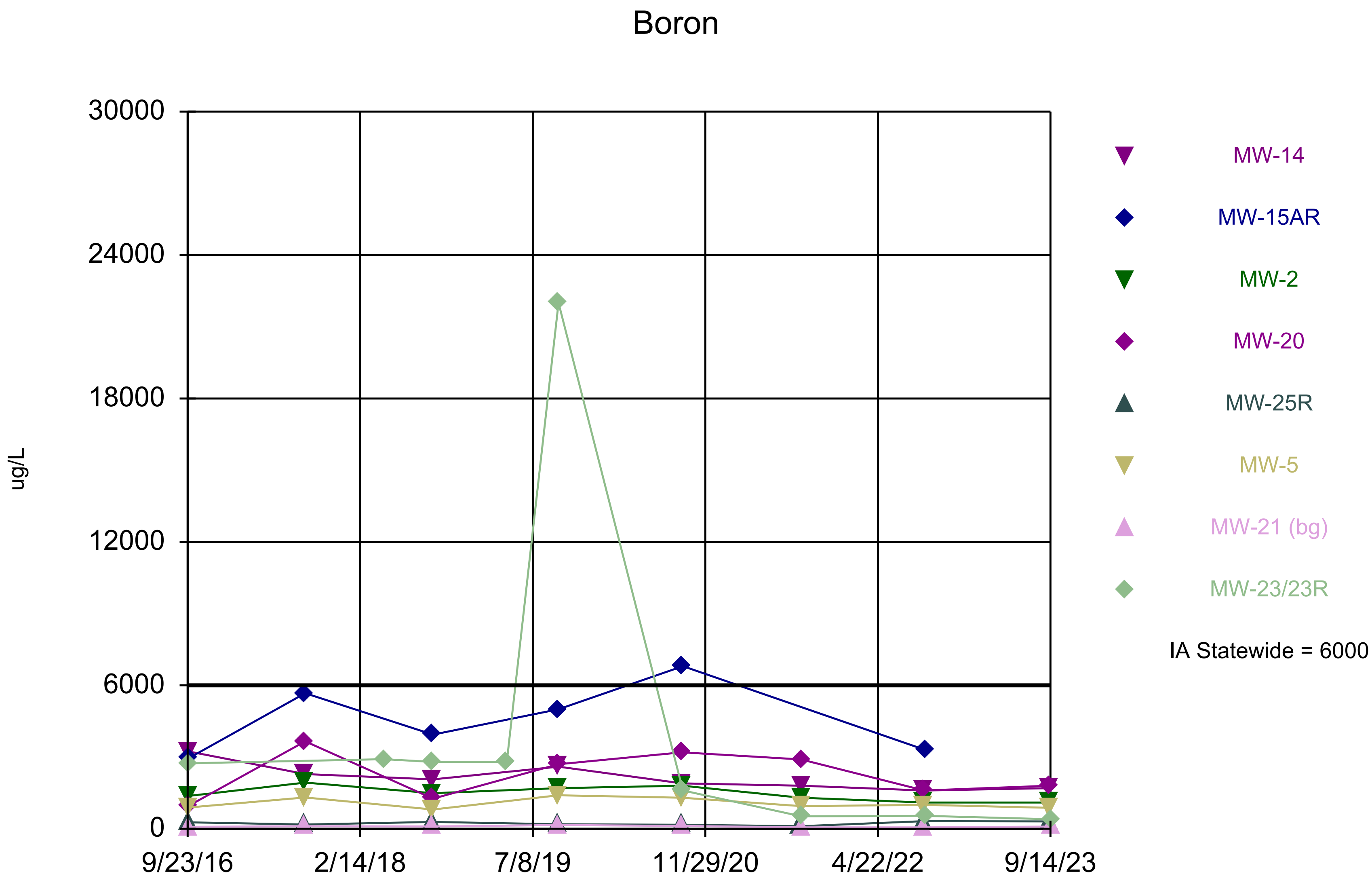
Constituent: Beryllium (ug/L) Analysis Run 10/23/2023 11:19 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-14	MW-15AR	MW-2	MW-20	MW-25R	MW-5	MW-21 (bg)	MW-23/23R
9/23/2016	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08
9/5/2017	<0.012	0.047 (J)	<0.012	<0.012	0.018 (J)	<0.012	0.03 (J)	
4/25/2018								0.015 (J)
9/17/2018	<0.12	<0.12	<0.12	0.13 (J)	<0.12	<0.12	<0.12	0.41 (J)
4/23/2019								<0.27
9/23/2019	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
9/21/2020				<0.27	<0.27			
9/22/2020	<0.27		<0.27			<0.27		
9/23/2020							<0.27	
9/24/2020		<0.27						<0.27
9/7/2021					<0.27			
9/8/2021	<0.27		0.29 (J)	<0.27				
9/9/2021						<0.27		<0.27
9/10/2021							<0.27	
9/6/2022	<0.27			<0.27	<0.27			
9/7/2022			<0.27			<0.27	<0.27	
9/8/2022								<0.27
9/9/2022		<0.27						
9/11/2023	<0.33 (U)							
9/12/2023			<0.33 (U)	<0.33 (U)	<0.33 (U)			
9/13/2023						<0.33 (U)		
9/14/2023							<0.33 (U)	<0.33 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Time Series Analysis Run 10/23/2023 11:17 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

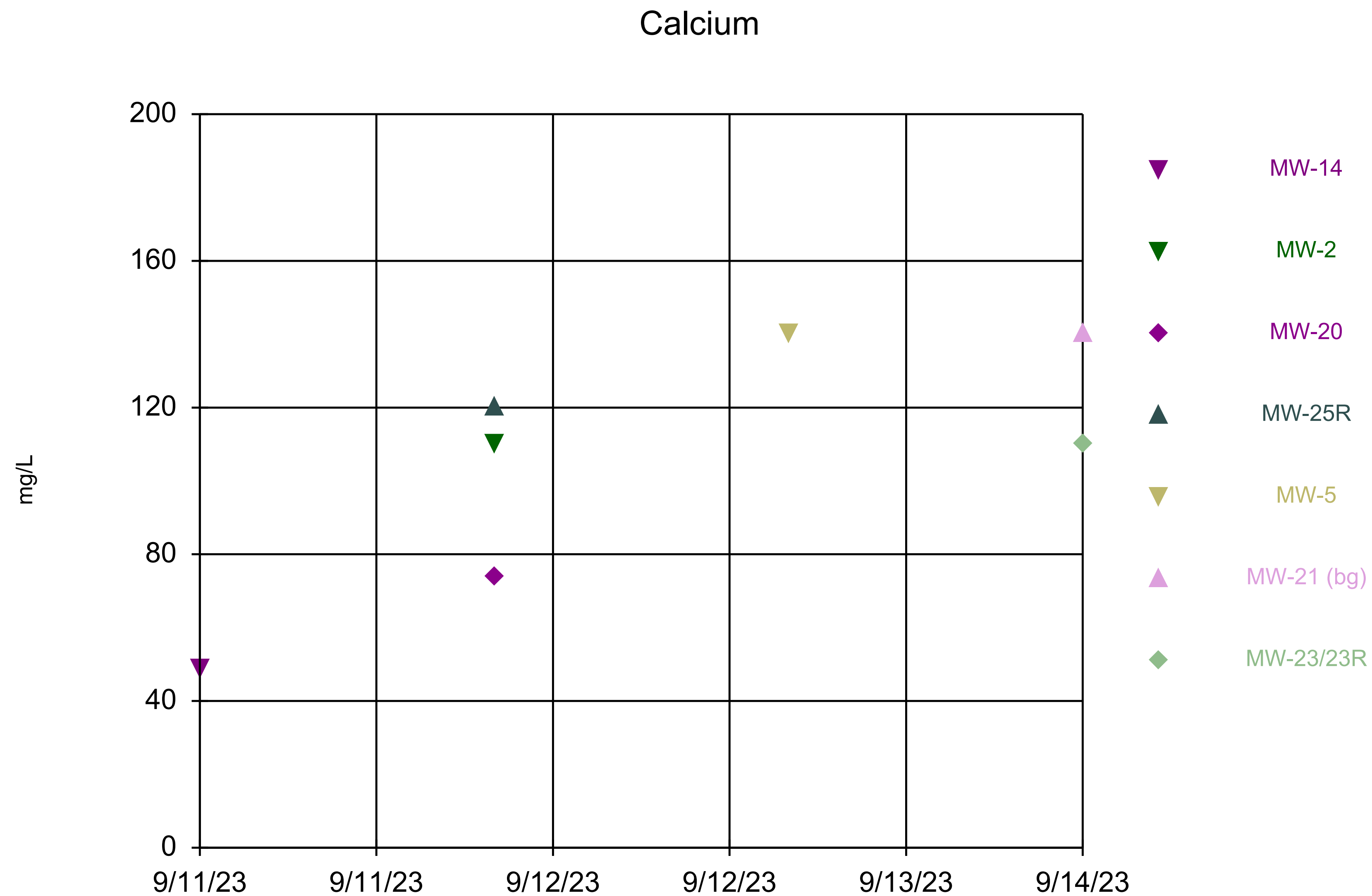
Time Series

Constituent: Boron (ug/L)   Analysis Run 10/23/2023 11:19 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-14	MW-15AR	MW-2	MW-20	MW-25R	MW-5	MW-21 (bg)	MW-23/23R
9/23/2016	3240	2930	1370	939	269	890	81 (J)	2740
9/5/2017	2290	5670	1930	3660	178	1310	110	
4/25/2018								2910
9/17/2018	2070	3940	1490	1260	290	809	97.6 (J)	2800
4/23/2019								2800
9/23/2019	2600	5000	1700	2700	190 (J)	1400	160 (J,B)	22000 (B)
9/21/2020				3200	170			
9/22/2020	1900		1800			1300		
9/23/2020							120	
9/24/2020		6800						1600
9/7/2021					110			
9/8/2021	1800		1300	2900				
9/9/2021						950		520
9/10/2021							63 (J)	
9/6/2022	1600			1600	320			
9/7/2022			1100			1000	63 (J)	
9/8/2022								540
9/9/2022		3300						
9/11/2023	1700							
9/12/2023			1100	1800	310			
9/13/2023						880		
9/14/2023							94 (J)	400

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Time Series Analysis Run 10/23/2023 11:17 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

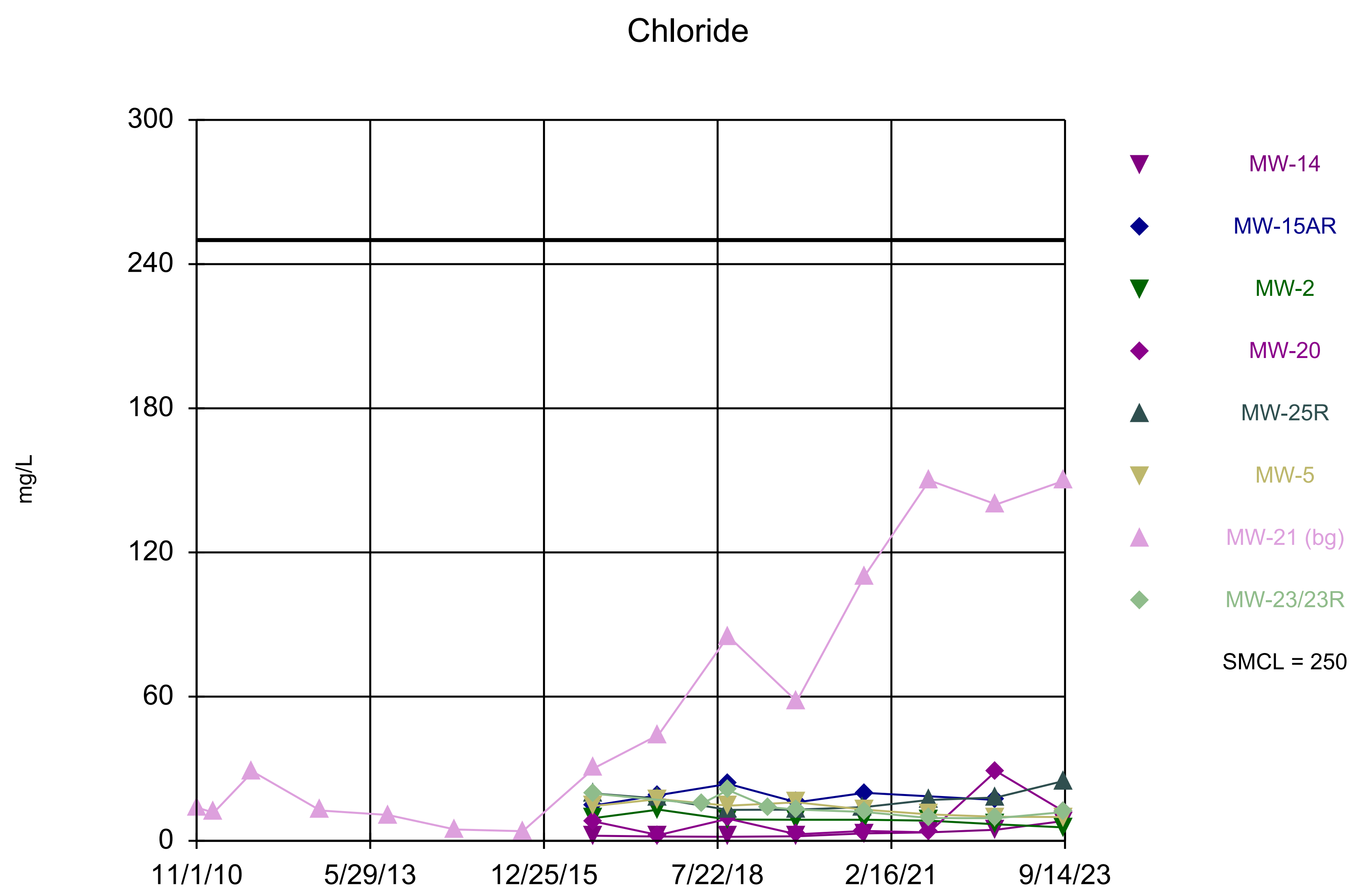
Time Series

Constituent: Calcium (mg/L)   Analysis Run 10/23/2023 11:19 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-14	MW-2	MW-20	MW-25R	MW-5	MW-21 (bg)	MW-23/23R
9/11/2023	49						
9/12/2023		110	74	120			
9/13/2023					140		
9/14/2023						140	110

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Time Series Analysis Run 10/23/2023 11:17 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

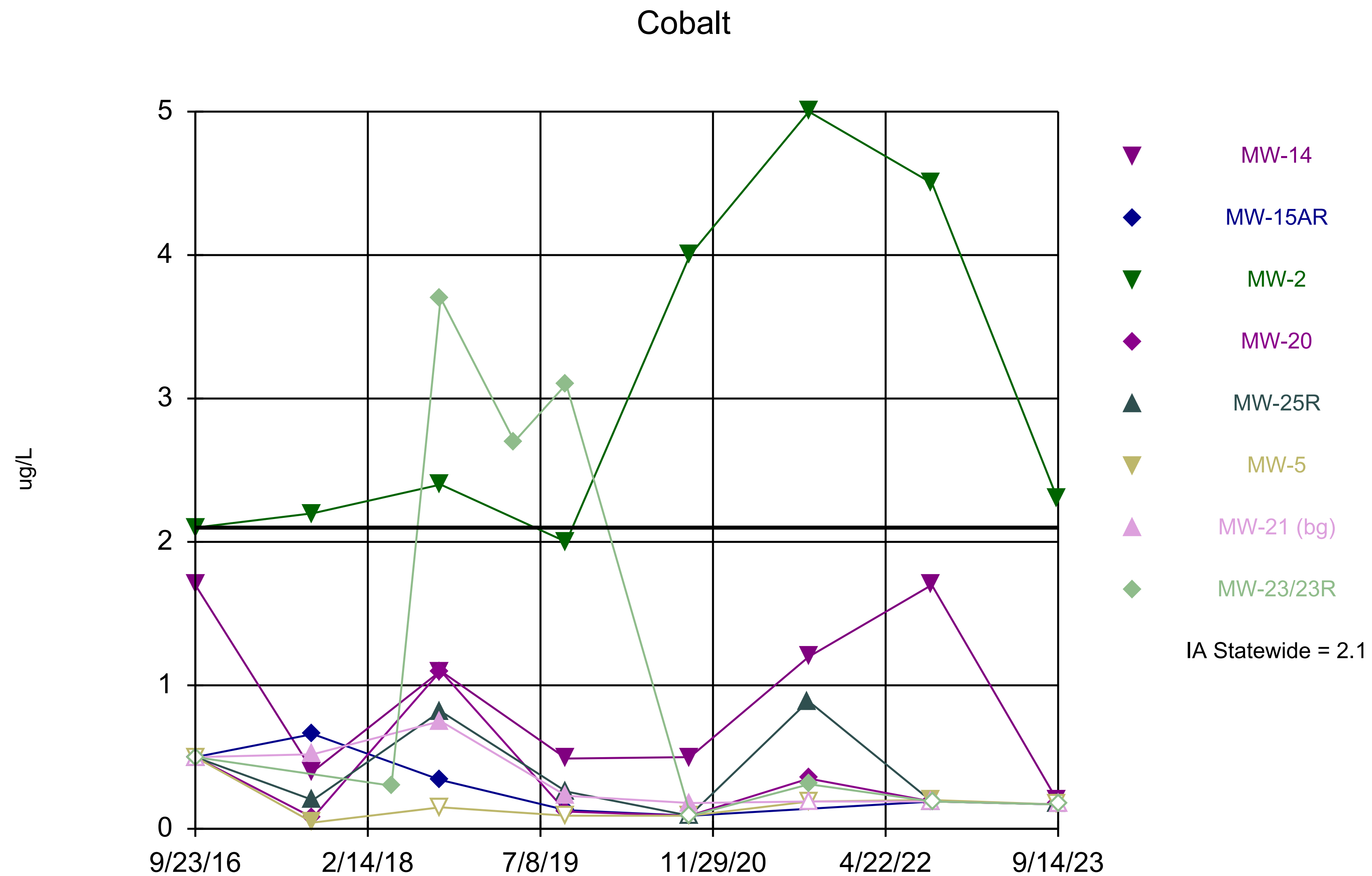
Time Series

Constituent: Chloride (mg/L) Analysis Run 10/23/2023 11:19 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-14	MW-15AR	MW-2	MW-20	MW-25R	MW-5	MW-21 (bg)	MW-23/23R
11/1/2010							13.9	
2/1/2011							11.7	
9/1/2011							28.8	
9/1/2012							12.6	
9/1/2013							10.8	
9/1/2014							4.7	
9/1/2015							4	
9/23/2016	2.1	14.7	9.5	8	19.7	14.5	30.3	19.6
9/5/2017	1.8	19	13	2.4	17.6	17.4	44.1 (X)	
4/25/2018								15.4
9/17/2018	1.7	23.7	8.9	9.2	12.9	14.6	85.2 (X)	21.1
4/23/2019								14
9/23/2019	1.9 (J)	16	8.8	2.7 (J)	13	16	58 (X)	13
9/21/2020				4.1 (J)	14			
9/22/2020	3.1 (J)		8.8			13		
9/23/2020							110 (X)	
9/24/2020		20						12
9/7/2021					17			
9/8/2021	3.5 (J)		8.4	3.5 (J)				
9/9/2021						11		9.5
9/10/2021							150 (X)	
9/6/2022	4.6 (J)			29	18			
9/7/2022			6.9			10	140 (X)	
9/8/2022								9.4
9/9/2022		17						
9/11/2023	8.3							
9/12/2023			5.6	12	25			
9/13/2023						9.9		
9/14/2023							150 (X)	12

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Time Series Analysis Run 10/23/2023 11:17 AM View: shallow
Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Time Series

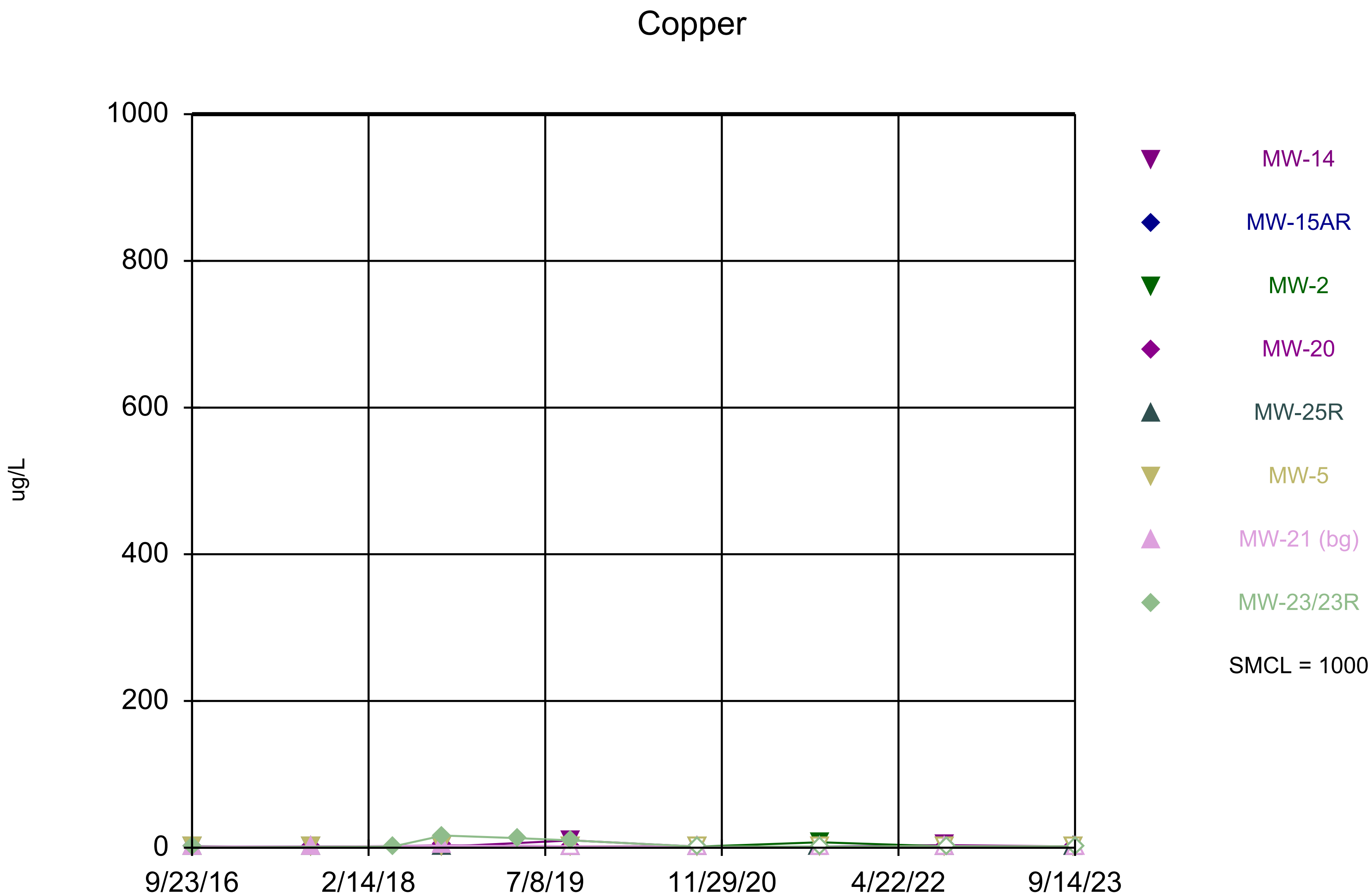
Constituent: Cobalt (ug/L)   Analysis Run 10/23/2023 11:19 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-14	MW-15AR	MW-2	MW-20	MW-25R	MW-5	MW-21 (bg)	MW-23/23R
9/23/2016	1.7	<0.5	2.1	<0.5	<0.5	<0.5	<0.5	<0.5
9/5/2017	0.4 (J)	0.66 (J)	2.2	0.078 (J)	0.2 (J)	0.043 (J)	0.52 (J)	
4/25/2018								0.3 (J)
9/17/2018	1.1	0.34 (J)	2.4	1.1	0.82 (J)	<0.15	0.75 (J)	3.7
4/23/2019								2.7
9/23/2019	0.49 (J)	0.13 (J)	2	0.12 (J)	0.26 (J)	<0.091	0.23 (J)	3.1
9/21/2020				<0.091	<0.091			
9/22/2020	0.5		4			<0.091		
9/23/2020							0.18 (J)	
9/24/2020		<0.091						<0.091
9/7/2021					0.89			
9/8/2021	1.2		5	0.35 (J)				
9/9/2021						<0.19		0.31 (J)
9/10/2021							<0.19	
9/6/2022	1.7			<0.19	<0.19			
9/7/2022			4.5 (D)			0.2 (J)	<0.19	
9/8/2022								<0.19
9/9/2022		<0.19						
9/11/2023	0.2 (J)							
9/12/2023			2.3	<0.17 (U)	<0.17 (U)			
9/13/2023						<0.17 (U)		
9/14/2023							<0.17 (U)	<0.17 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Time Series Analysis Run 10/23/2023 11:17 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Time Series

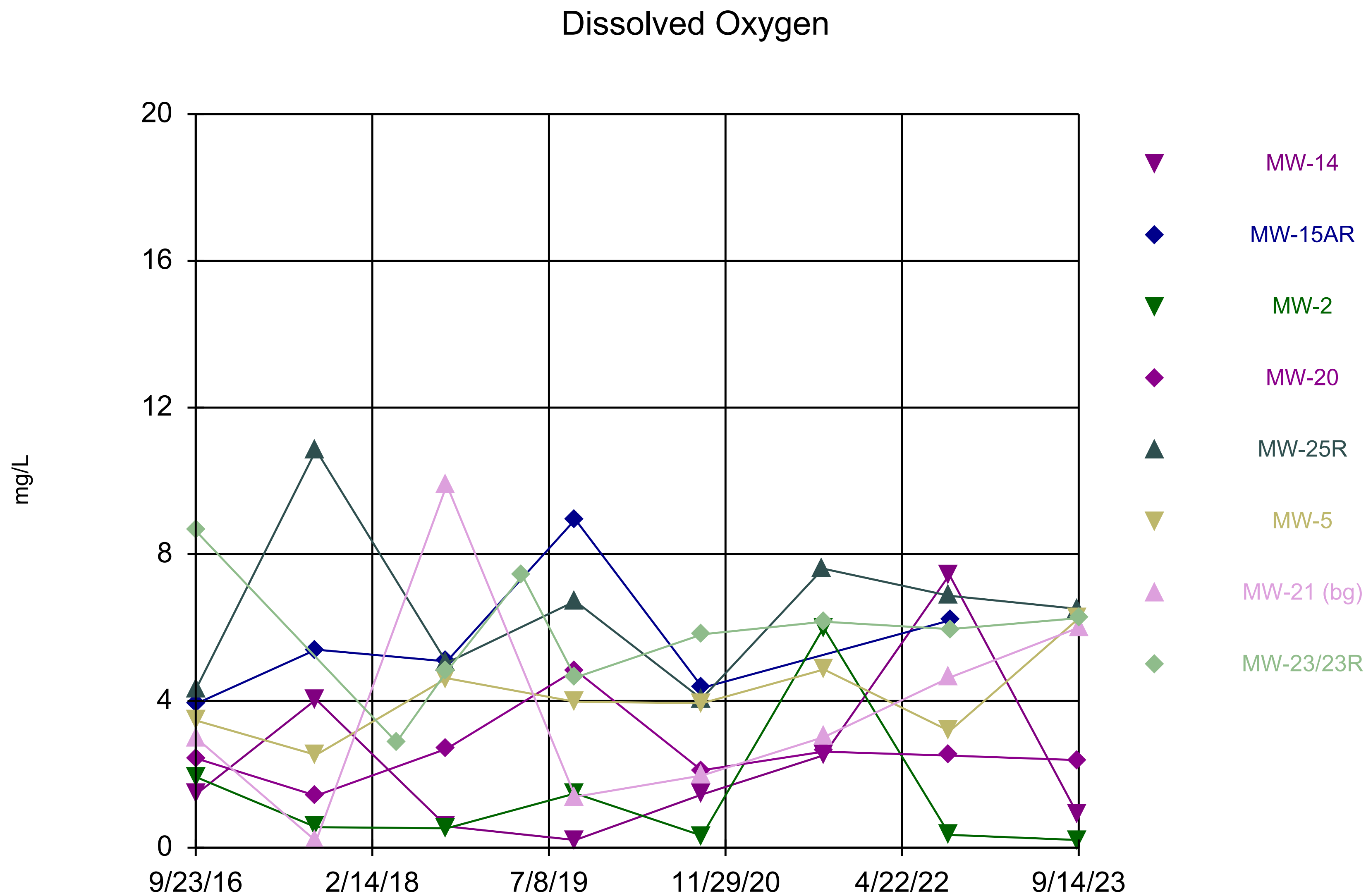
Constituent: Copper (ug/L)   Analysis Run 10/23/2023 11:19 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-14	MW-15AR	MW-2	MW-20	MW-25R	MW-5	MW-21 (bg)	MW-23/23R
9/23/2016	1.9	0.18 (J)	2.1	1.6	1.6	0.6 (J)	1.7	0.26 (J)
9/5/2017	1	1.6	0.8 (J)	0.67 (J)	1.8	0.43 (J)	1.9	
4/25/2018								1.6
9/17/2018	1.4	1.1	1.6	3.2	2.6	1.8	2.8	16.7
4/23/2019								13
9/23/2019	9.9	<2	<2	<2	<2	<2	<2	10
9/21/2020				<1.5	<1.5			
9/22/2020	<1.5		<1.5			<1.5		
9/23/2020							<1.5	
9/24/2020		<1.5						<1.5
9/7/2021					1.5 (J)			
9/8/2021	1.5 (J)		7.5	1.5 (J)				
9/9/2021						<1.4		<1.4
9/10/2021							<1.4	
9/6/2022	3.5 (J)			<1.8	<1.8			
9/7/2022			<1.8			<1.8	<1.8	
9/8/2022								<1.8
9/9/2022		<1.8						
9/11/2023	<1.8 (U)							
9/12/2023			<1.8 (U)	<1.8 (U)	<1.8 (U)			
9/13/2023						<1.8 (U)		
9/14/2023							<1.8 (U)	<1.8 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Time Series Analysis Run 10/23/2023 11:17 AM View: shallow

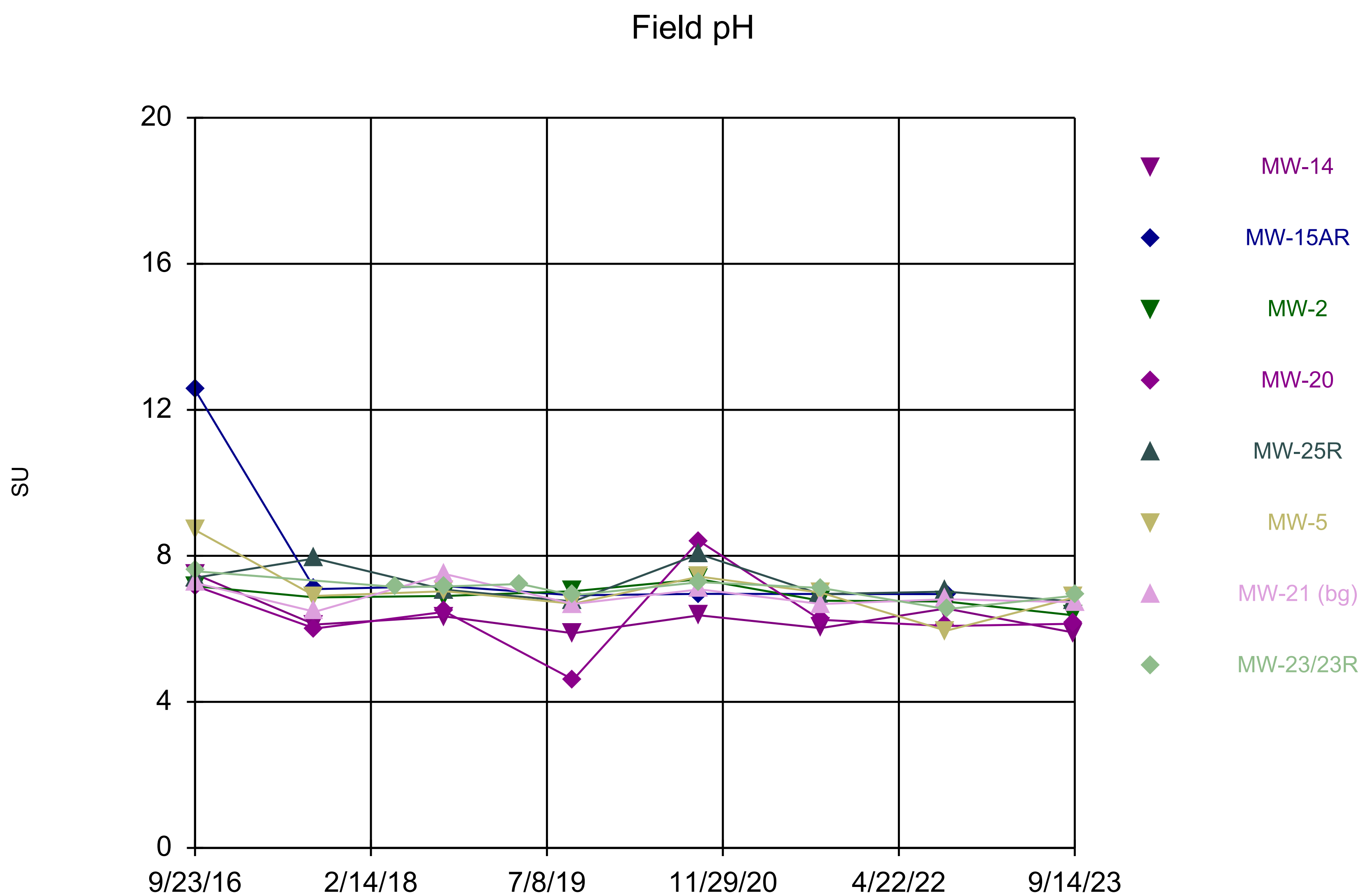
Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Time Series

Constituent: Dissolved Oxygen (mg/L)   Analysis Run 10/23/2023 11:19 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-14	MW-15AR	MW-2	MW-20	MW-25R	MW-5	MW-21 (bg)	MW-23/23R
9/23/2016	1.45	3.92	1.93	2.44	4.31	3.47	3	8.64
9/5/2017	4.04	5.4	0.56	1.42	10.84	2.53	0.18	
4/25/2018								2.88
9/17/2018	0.58	5.08	0.53	2.7	5.04	4.62	9.89	4.81
4/23/2019								7.42
9/23/2019	0.21	8.95	1.48	4.84	6.72	3.98	1.39	4.64
9/21/2020				2.11	4.06			
9/22/2020	1.45		0.33			3.94		
9/23/2020							1.97	
9/24/2020		4.36						5.82
9/7/2021					7.61			
9/8/2021	2.52		6	2.62				
9/9/2021						4.86		6.16
9/10/2021							3.02	
9/6/2022	7.44			2.51	6.87			
9/7/2022			0.35			3.18	4.64	
9/8/2022								5.96
9/9/2022		6.2						
9/11/2023	0.91							
9/12/2023			0.21	2.39	6.51			
9/13/2023						6.24		
9/14/2023							6	6.26



Time Series Analysis Run 10/23/2023 11:17 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

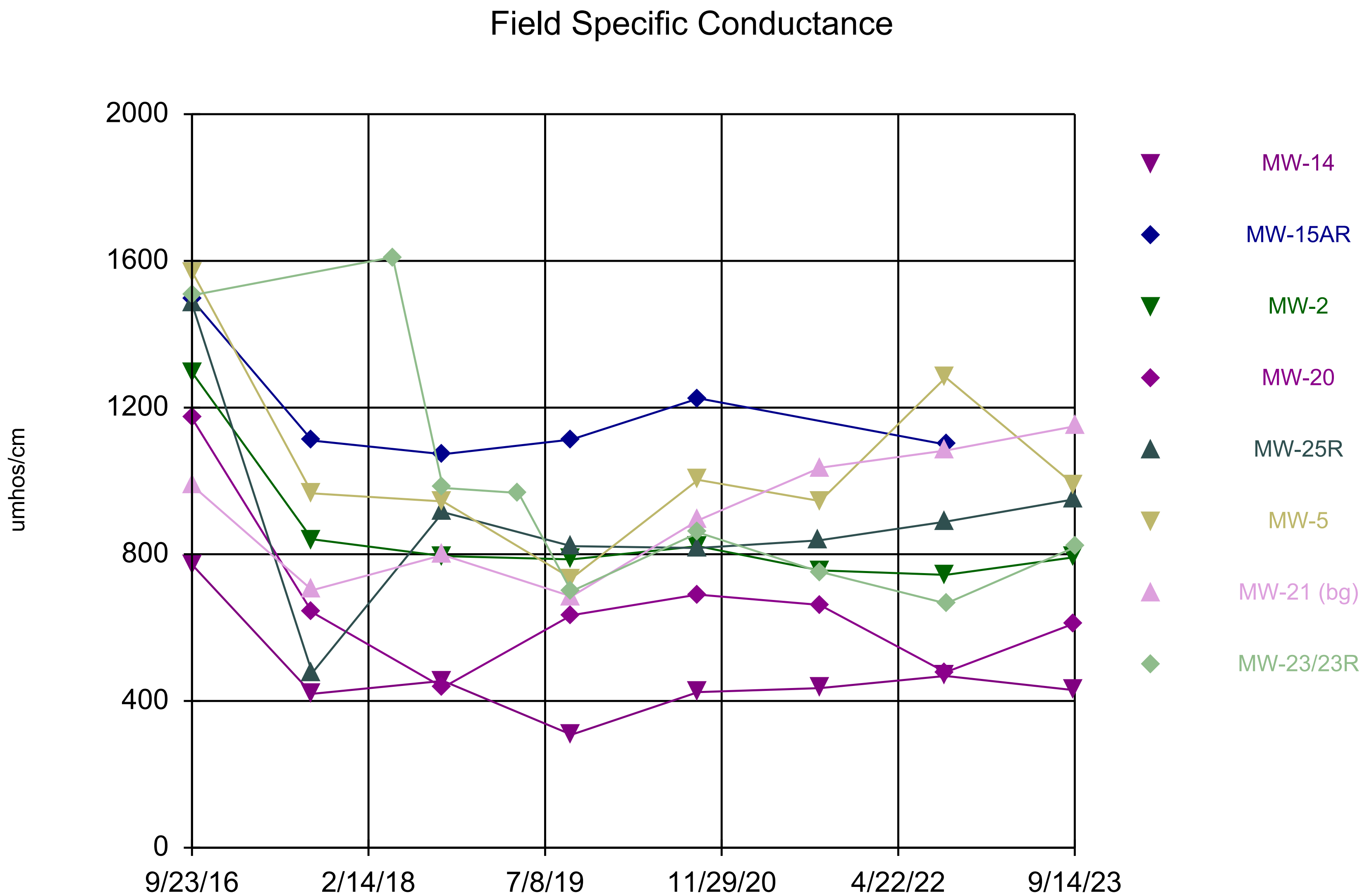
Time Series

Constituent: Field pH (SU)   Analysis Run 10/23/2023 11:20 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-14	MW-15AR	MW-2	MW-20	MW-25R	MW-5	MW-21 (bg)	MW-23/23R
9/23/2016	7.5	12.55	7.17	7.18	7.4	8.71	7.26	7.58
9/5/2017	6.12	7.09	6.86	6.01	7.93	6.9	6.47	
4/25/2018								7.15
9/17/2018	6.34	7.17	6.9	6.47	7.07	7.03	7.5	7.16
4/23/2019								7.23
9/23/2019	5.88	6.92	7.03	4.61	6.75	6.69	6.68	6.92
9/21/2020				8.41	8.05			
9/22/2020	6.37		7.36			7.43		
9/23/2020							7.08	
9/24/2020		6.96						7.28
9/7/2021					6.95			
9/8/2021	6.02		6.77	6.25				
9/9/2021						6.99		7.12
9/10/2021							6.68	
9/6/2022	6.56			6.08	7.02			
9/7/2022			6.75			5.95	6.81	
9/8/2022								6.54
9/9/2022		6.95						
9/11/2023	5.9							
9/12/2023			6.37	6.14	6.75			
9/13/2023						6.86		
9/14/2023							6.73	6.91

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Time Series Analysis Run 10/23/2023 11:17 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

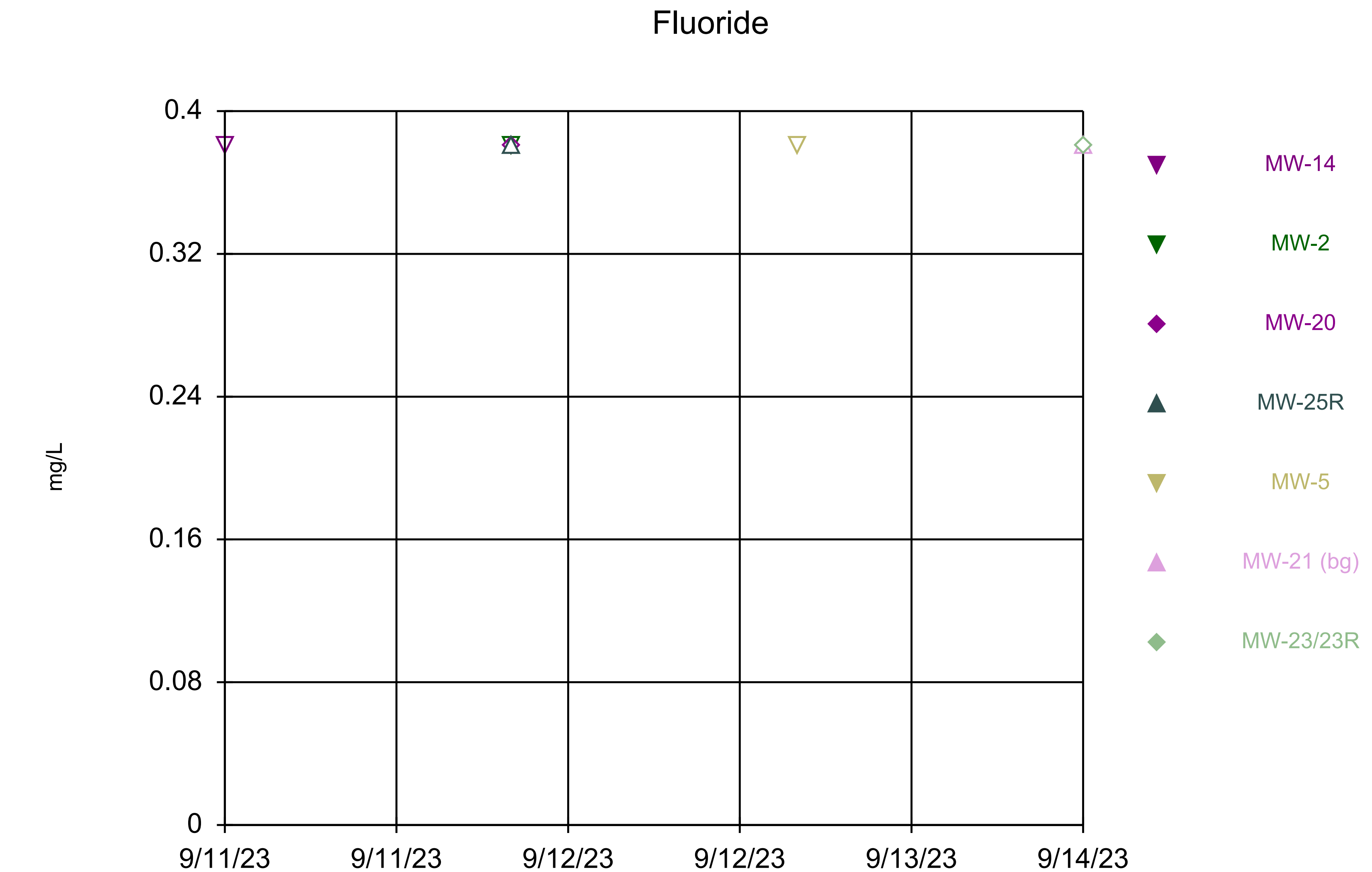
Time Series

Constituent: Field Specific Conductance (umhos/cm) Analysis Run 10/23/2023 11:20 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-14	MW-15AR	MW-2	MW-20	MW-25R	MW-5	MW-21 (bg)	MW-23/23R
9/23/2016	772	1494	1296	1171	1483	1571	988	1506
9/5/2017	419.5	1110	841	641.8	476.5	966	702	
4/25/2018								1610
9/17/2018	455	1073	795	437	915	944	798	981
4/23/2019								967
9/23/2019	308	1113	786	634	822	734	685	699
9/21/2020				690	817			
9/22/2020	424.1		822			1003		
9/23/2020							893	
9/24/2020		1225						859
9/7/2021					838			
9/8/2021	435		756	662				
9/9/2021						945		752
9/10/2021							1036	
9/6/2022	468.1			478.4	889			
9/7/2022			744			1282	1083	
9/8/2022								666
9/9/2022		1099						
9/11/2023	429.5							
9/12/2023			792	611	950			
9/13/2023						989		
9/14/2023							1149	819

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Time Series Analysis Run 10/23/2023 11:17 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Time Series

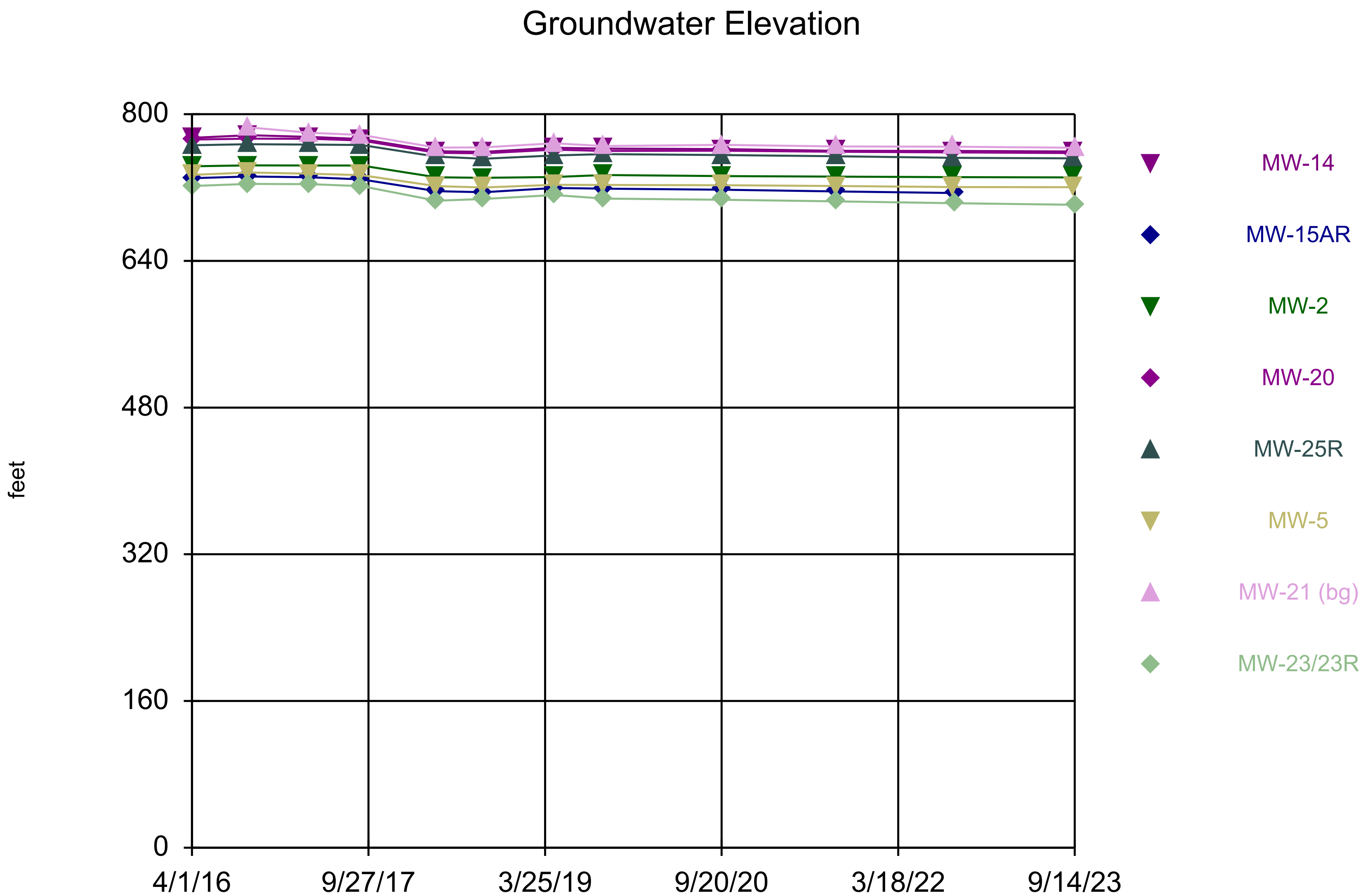
Constituent: Fluoride (mg/L)   Analysis Run 10/23/2023 11:20 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-14	MW-2	MW-20	MW-25R	MW-5	MW-21 (bg)	MW-23/23R
9/11/2023	<0.38 (U)						
9/12/2023		<0.38 (U)	<0.38 (U)	<0.38 (U)			
9/13/2023					<0.38 (U)		
9/14/2023						<0.38 (U)	<0.38 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Time Series   Analysis Run 10/23/2023 11:17 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

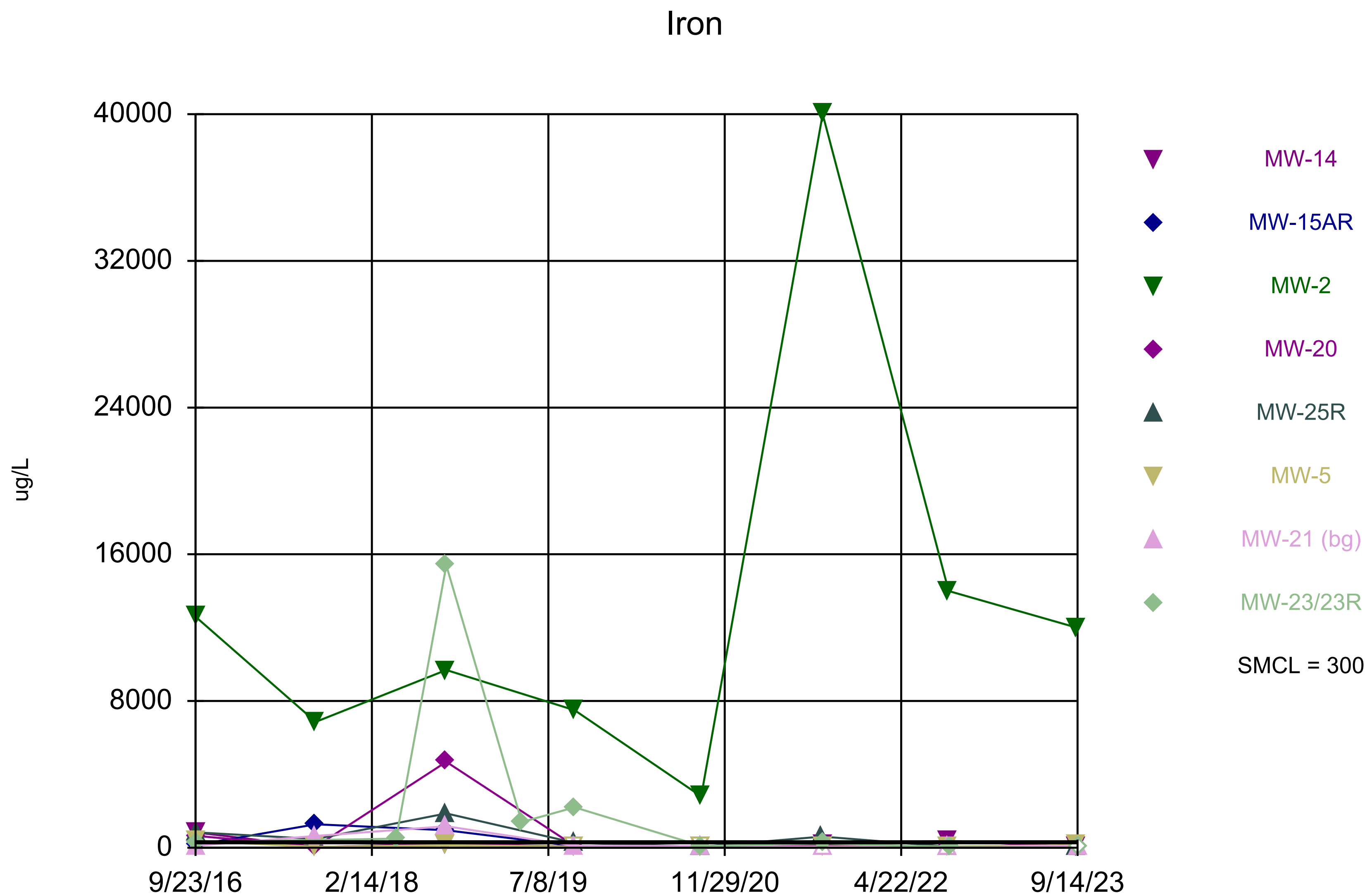
Time Series

Constituent: Groundwater Elevation (feet) Analysis Run 10/23/2023 11:20 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-14	MW-15AR	MW-2	MW-20	MW-25R	MW-5	MW-21 (bg)	MW-23/23R
4/1/2016	774.17	730.09	743.15	772.22	766.02	733.75		721.62
9/23/2016	776.97	731.95	744.19	773.31	767.17	736.37	785.54	723.89
4/1/2017	775.17	731.2	743.99	773.16	766.82	735.09	779.67	723.7
9/5/2017	772.82	728.88	743.99	771.19	766.34	733.47	777.34	721.48
4/25/2018	759.5356	716.03	731.1388	757.8623	753.6187	721.5403	763.5023	705.67
9/17/2018	758.8656	714.89	730.5288	757.2523	751.2687	720.0603	763.8023	707.41
4/23/2019	763.3256	719.44	731.3988	761.3123	754.9487	722.9203	768.1923	711.8
9/23/2019	762.4456	718.74	733.6188	759.8223	756.3787	722.8403	765.2623	707.94
9/21/2020				760.11	755.38			
9/22/2020	761.94		732.42			722.52		
9/23/2020							766.48	
9/24/2020		717.59						706.64
9/7/2021					754.01			
9/8/2021	759.94		731.84	759.01				
9/9/2021		715.69				721.63		704.82
9/10/2021							764.83	
9/6/2022	759.86			758.2	752.35			
9/7/2022			731.25			720.5	764.45	
9/8/2022								702.85
9/9/2022		713.99						
9/11/2023	759.33							
9/12/2023			731.05	757.61	751.77			
9/13/2023						720.36		
9/14/2023							763.37	701.13

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Time Series Analysis Run 10/23/2023 11:17 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Time Series

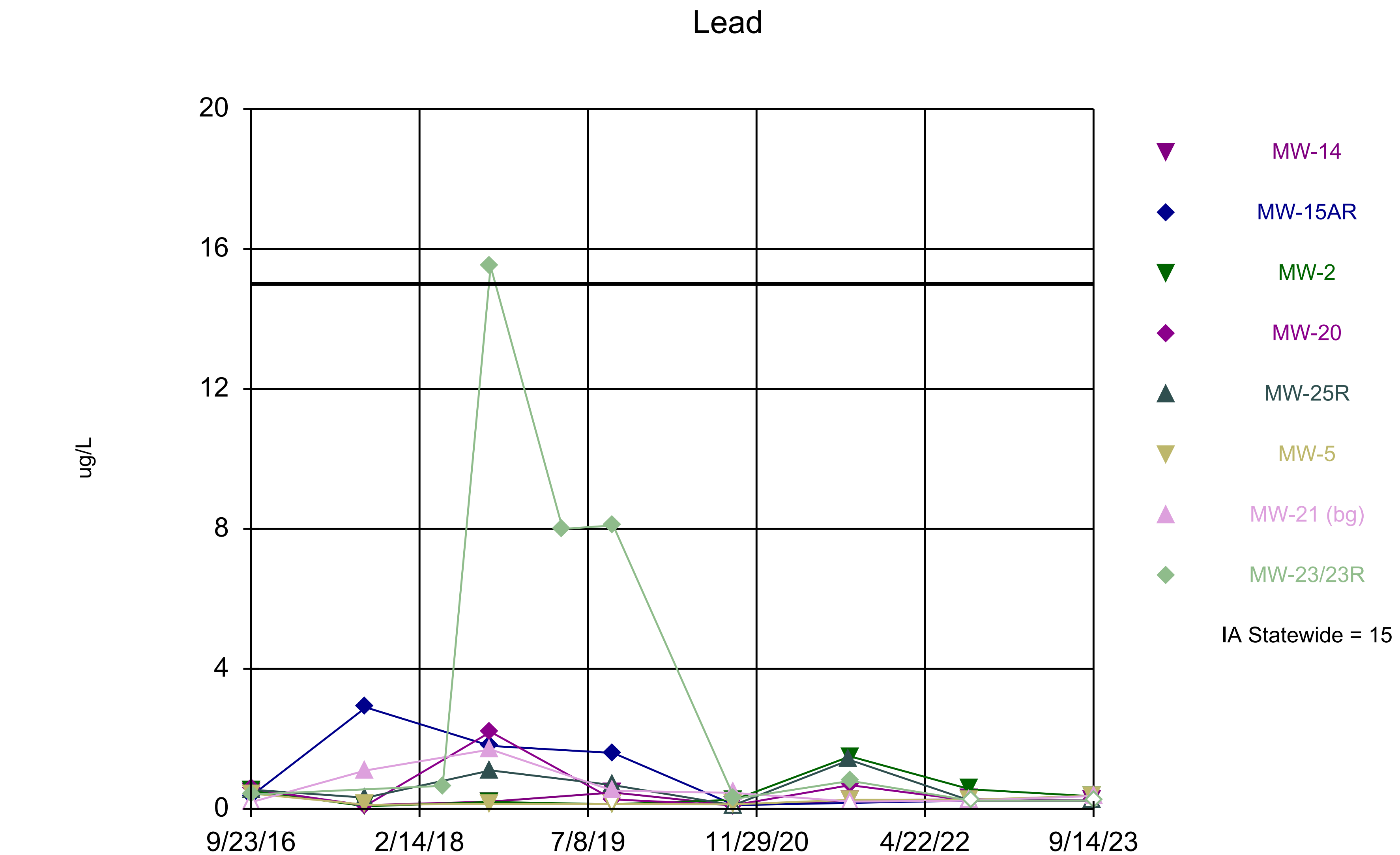
Constituent: Iron (ug/L)   Analysis Run 10/23/2023 11:20 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-14	MW-15AR	MW-2	MW-20	MW-25R	MW-5	MW-21 (bg)	MW-23/23R
9/23/2016	838	145	12600	648	835	363	110	317
9/5/2017	34.3 (J)	1280	6860	60.7	479	48.8 (J)	644	
4/25/2018								493
9/17/2018	213	951	9690	4680	1870	139	1170	15400
4/23/2019								1400
9/23/2019	67 (J)	88 (J)	7500	93 (J)	270	<66	110	2200
9/21/2020				<50	<50			
9/22/2020	<50		2800			<50		
9/23/2020							78 (J)	
9/24/2020		<50						90 (J)
9/7/2021					610			
9/8/2021	200		40000	180				
9/9/2021						71 (J)		240
9/10/2021							<36	
9/6/2022	370			40 (J)	56 (J)			
9/7/2022			14000			70 (J)	<36	
9/8/2022								40 (J)
9/9/2022		<36						
9/11/2023	54 (J)							
9/12/2023			12000	60 (J)	<36 (U)			
9/13/2023						140		
9/14/2023							100	<36 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Time Series Analysis Run 10/23/2023 11:17 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Time Series

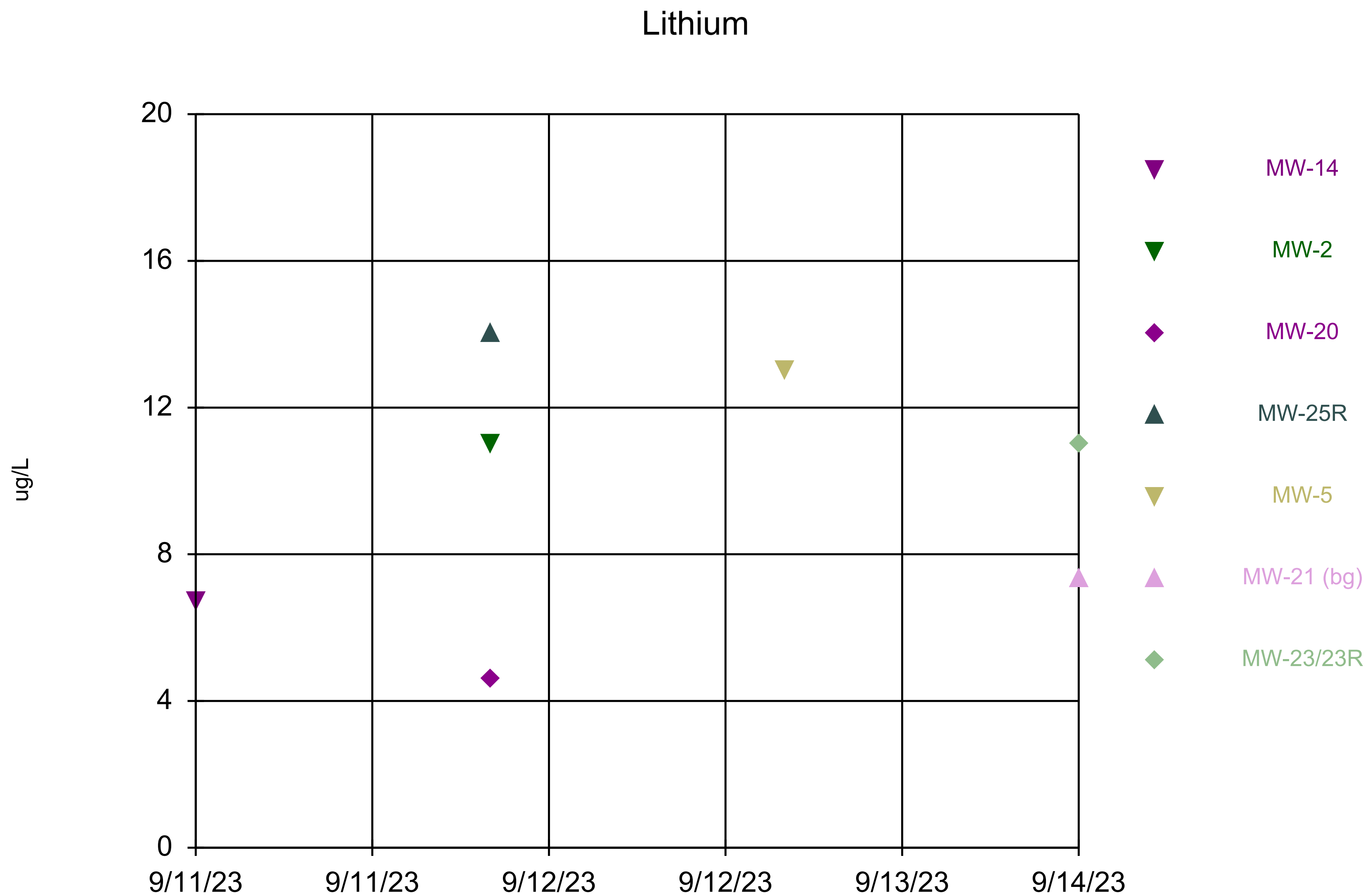
Constituent: Lead (ug/L)   Analysis Run 10/23/2023 11:20 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-14	MW-15AR	MW-2	MW-20	MW-25R	MW-5	MW-21 (bg)	MW-23/23R
9/23/2016	0.48 (J)	0.37 (J)	0.52 (J)	0.57 (J)	0.55 (J)	0.44 (J)	<0.19	0.41 (J)
9/5/2017	0.11 (J)	2.9	0.075 (J)	0.099 (J)	0.32 (J)	0.12 (J)	1.1	
4/25/2018								0.66 (J)
9/17/2018	0.21 (J)	1.8	0.2 (J)	2.2	1.1	0.14 (J)	1.7	15.5
4/23/2019								8
9/23/2019	0.47 (J)	1.6	<0.27	<0.27	0.68	<0.27	0.52	8.1
9/21/2020				<0.11	<0.11			
9/22/2020	<0.11		0.26 (J)			0.13 (J)		
9/23/2020							0.46 (J)	
9/24/2020		<0.11						0.29 (J)
9/7/2021					1.4			
9/8/2021	0.24 (J)		1.5	0.68				
9/9/2021						0.26 (J)		0.8
9/10/2021							<0.21	
9/6/2022	0.28 (J)			<0.24	<0.24			
9/7/2022			0.56			0.26 (J)	<0.24	
9/8/2022								<0.24
9/9/2022		<0.24						
9/11/2023	<0.24 (U)							
9/12/2023			0.36 (J)	<0.24 (U)	<0.24 (U)			
9/13/2023						0.38 (J)		
9/14/2023							0.37 (J)	<0.24 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Time Series Analysis Run 10/23/2023 11:17 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

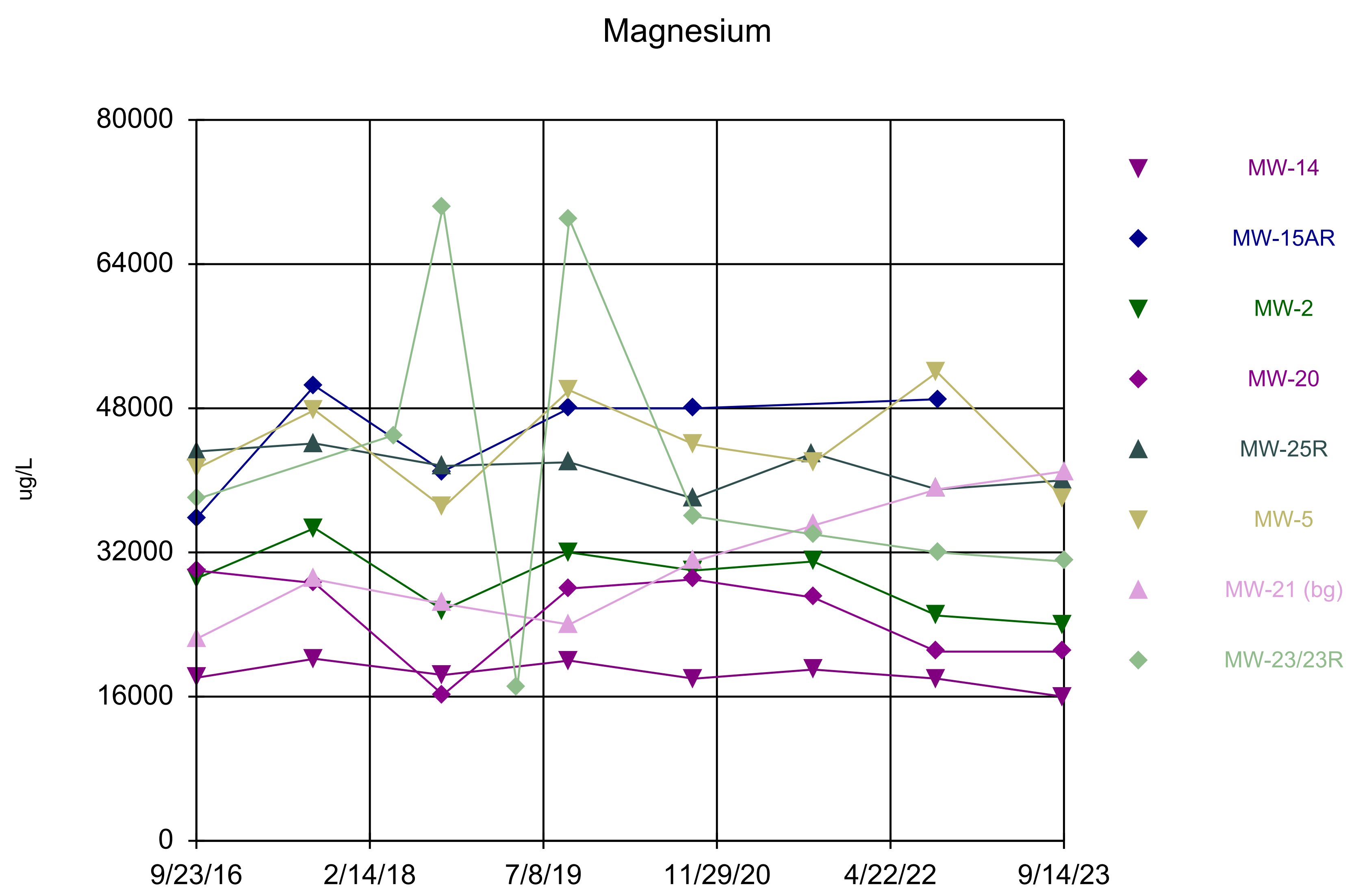
Time Series

Constituent: Lithium (ug/L)   Analysis Run 10/23/2023 11:20 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-14	MW-2	MW-20	MW-25R	MW-5	MW-21 (bg)	MW-23/23R
9/11/2023	6.7 (J)						
9/12/2023		11	4.6 (J)	14			
9/13/2023					13		
9/14/2023						7.3 (J)	11

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Time Series Analysis Run 10/23/2023 11:17 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

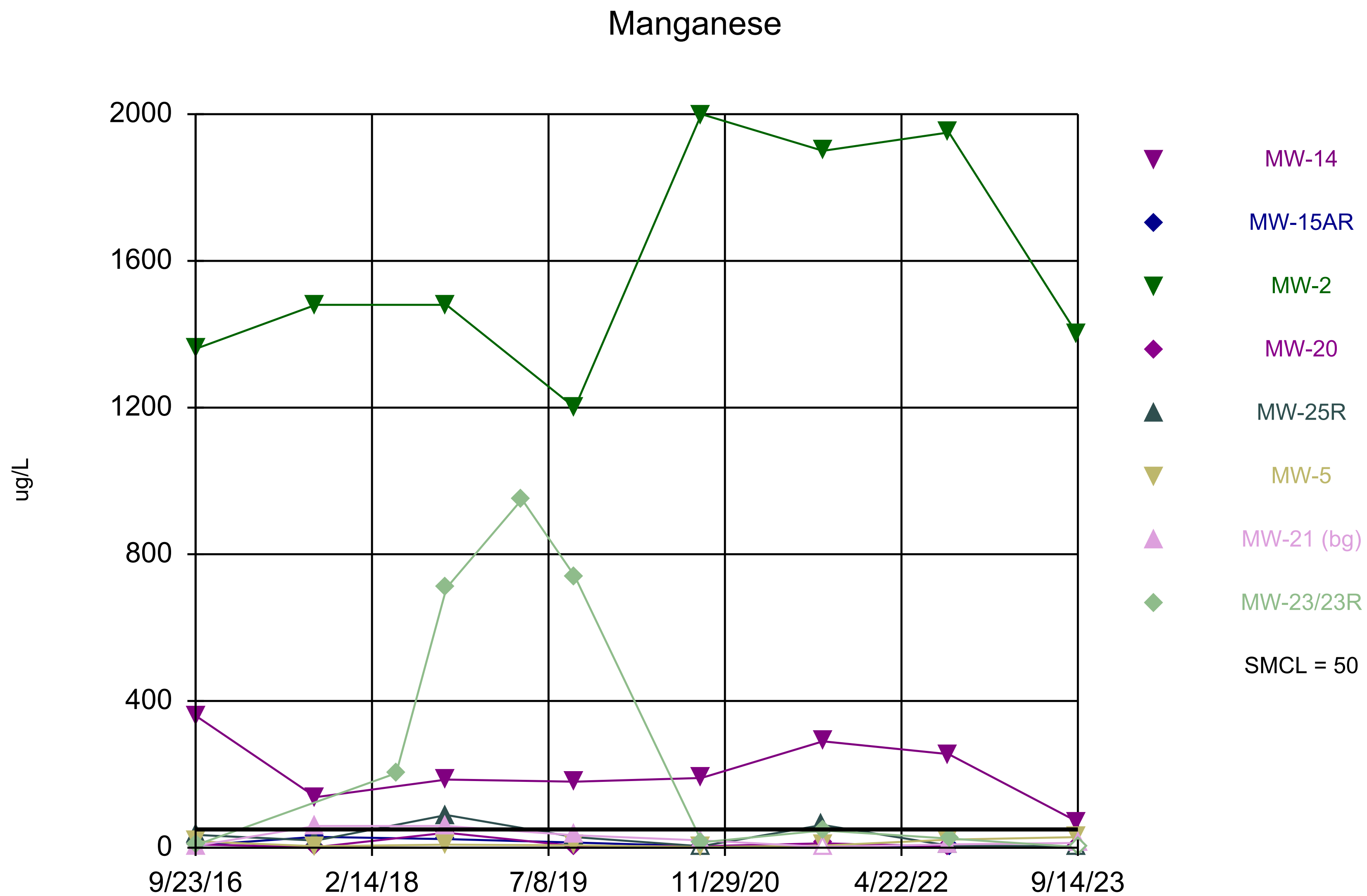
Time Series

Constituent: Magnesium (ug/L)   Analysis Run 10/23/2023 11:20 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-14	MW-15AR	MW-2	MW-20	MW-25R	MW-5	MW-21 (bg)	MW-23/23R
9/23/2016	18100	35800	29100	30000	43200	41300	22400	37900
9/5/2017	20200	50500	34700	28600	44100	47800	29000	
4/25/2018								45000
9/17/2018	18400	41000	25600	16200	41600	37000	26300	70400
4/23/2019								17000
9/23/2019	20000	48000	32000	28000	42000	50000	24000	69000
9/21/2020				29000	38000			
9/22/2020	18000		30000			44000		
9/23/2020							31000	
9/24/2020		48000						36000
9/7/2021					43000			
9/8/2021	19000		31000	27000				
9/9/2021						42000		34000
9/10/2021							35000	
9/6/2022	18000			21000	39000			
9/7/2022			25000			52000	39000	
9/8/2022								32000
9/9/2022		49000						
9/11/2023	16000							
9/12/2023			24000	21000	40000			
9/13/2023						38000		
9/14/2023							41000	31000

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Time Series Analysis Run 10/23/2023 11:17 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Time Series

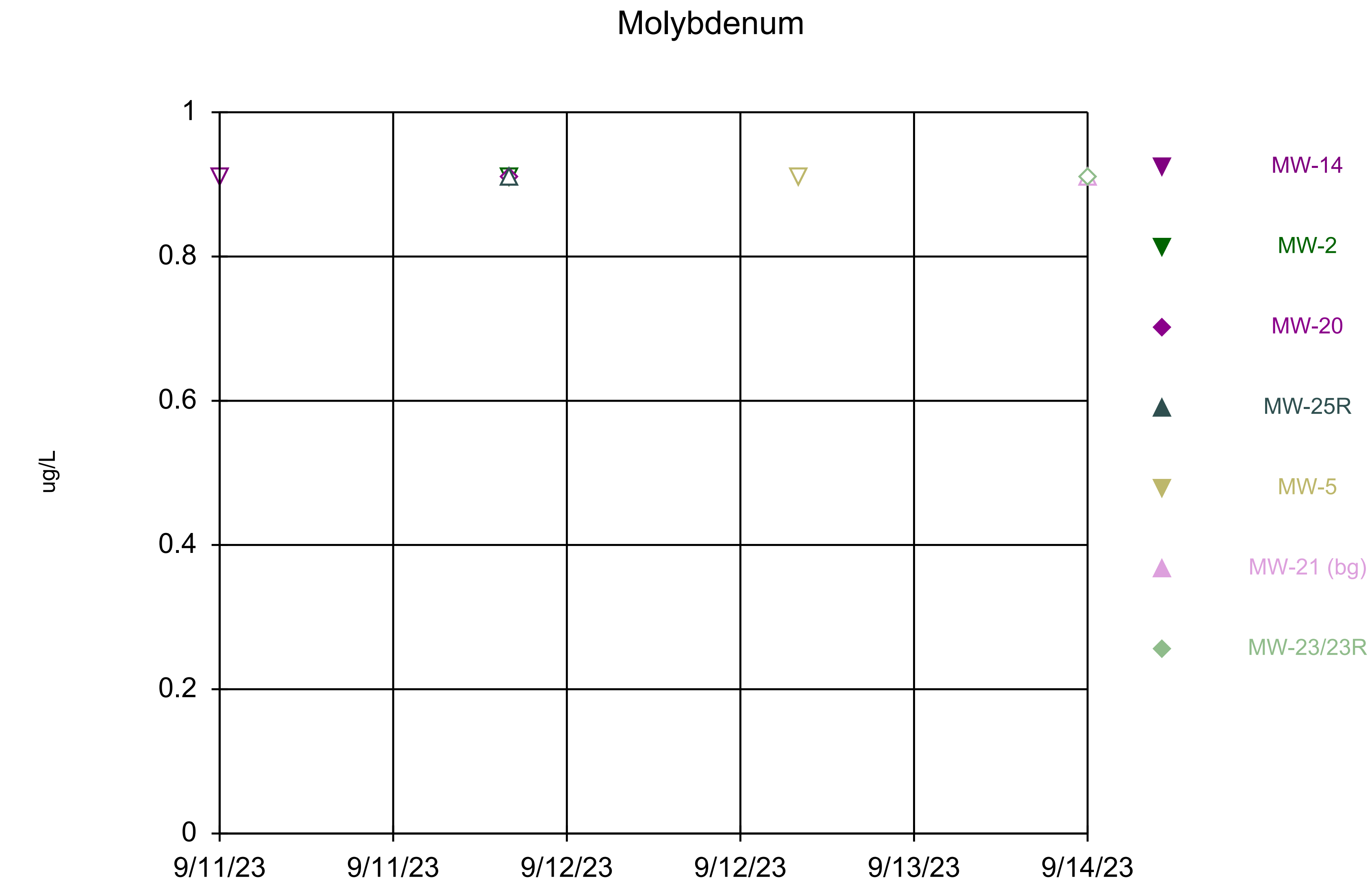
Constituent: Manganese (ug/L) Analysis Run 10/23/2023 11:20 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-14	MW-15AR	MW-2	MW-20	MW-25R	MW-5	MW-21 (bg)	MW-23/23R
9/23/2016	360	6.7	1360	9.2	35.2	17.4	5.2	7
9/5/2017	138	29.8	1480	1.6	19.7	4	59.3	
4/25/2018								203
9/17/2018	186	23.5	1480	40.8	89.1	8.2	59.2	708
4/23/2019								950
9/23/2019	180	14	1200	4.6 (J)	29	6.6 (J)	34	740
9/21/2020				<4	<4			
9/22/2020	190		2000			<4		
9/23/2020							20	
9/24/2020		<4						15
9/7/2021					62			
9/8/2021	290		1900	12				
9/9/2021						6 (J)		47
9/10/2021							<4.4	
9/6/2022	255 (D)			<3.6	5.7 (J)			
9/7/2022			1950 (D)			22	9.1 (J)	
9/8/2022								25
9/9/2022		<3.6						
9/11/2023	72							
9/12/2023			1400	<3.6 (U)	<3.6 (U)			
9/13/2023						29		
9/14/2023							13	<3.6 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Time Series Analysis Run 10/23/2023 11:17 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

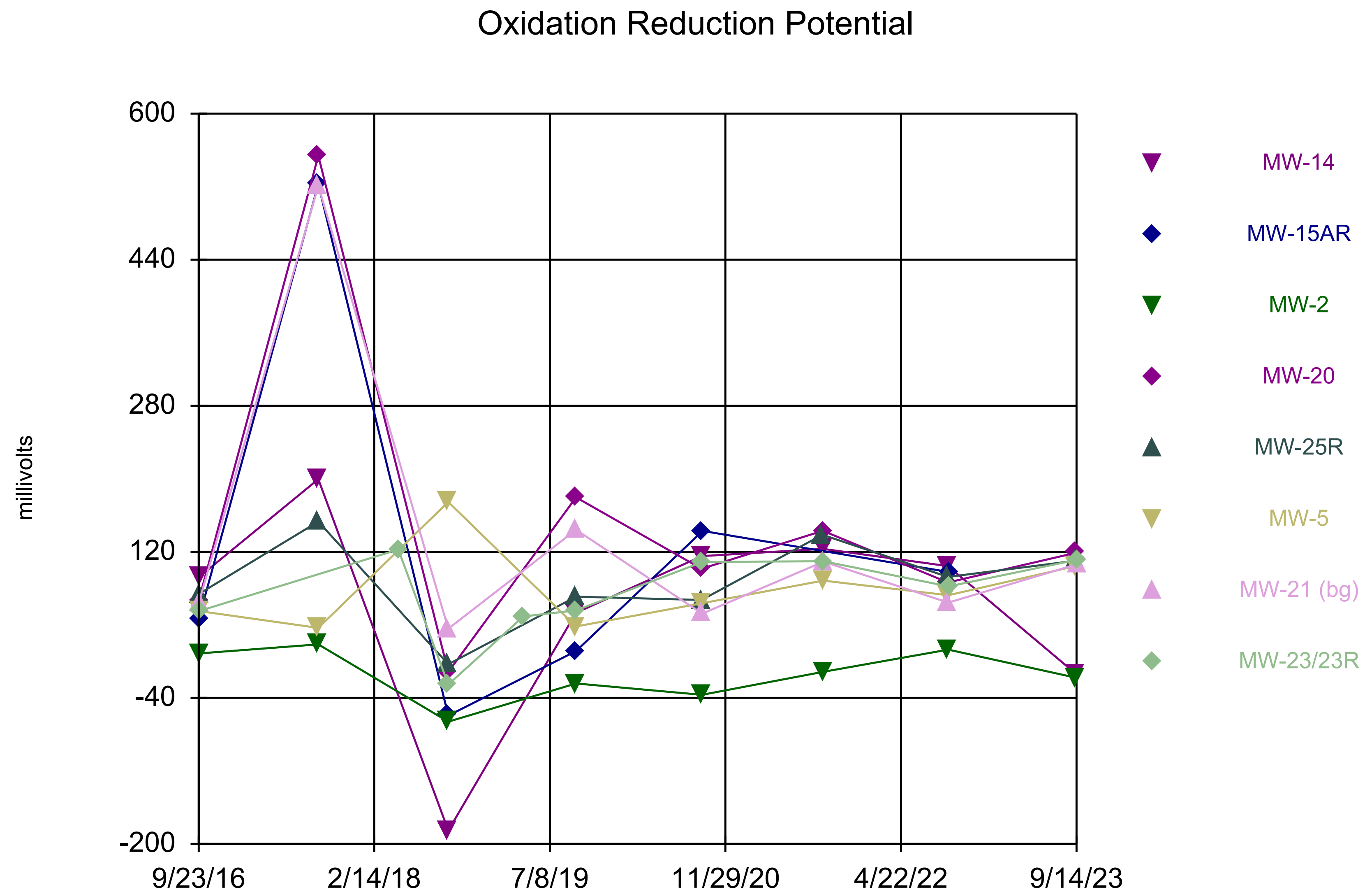
Time Series

Constituent: Molybdenum (ug/L)   Analysis Run 10/23/2023 11:20 AM   View: shallow
Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-14	MW-2	MW-20	MW-25R	MW-5	MW-21 (bg)	MW-23/23R
9/11/2023	<0.91 (U)						
9/12/2023		<0.91 (U)	<0.91 (U)	<0.91 (U)			
9/13/2023					<0.91 (U)		
9/14/2023						<0.91 (U)	<0.91 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Time Series Analysis Run 10/23/2023 11:17 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

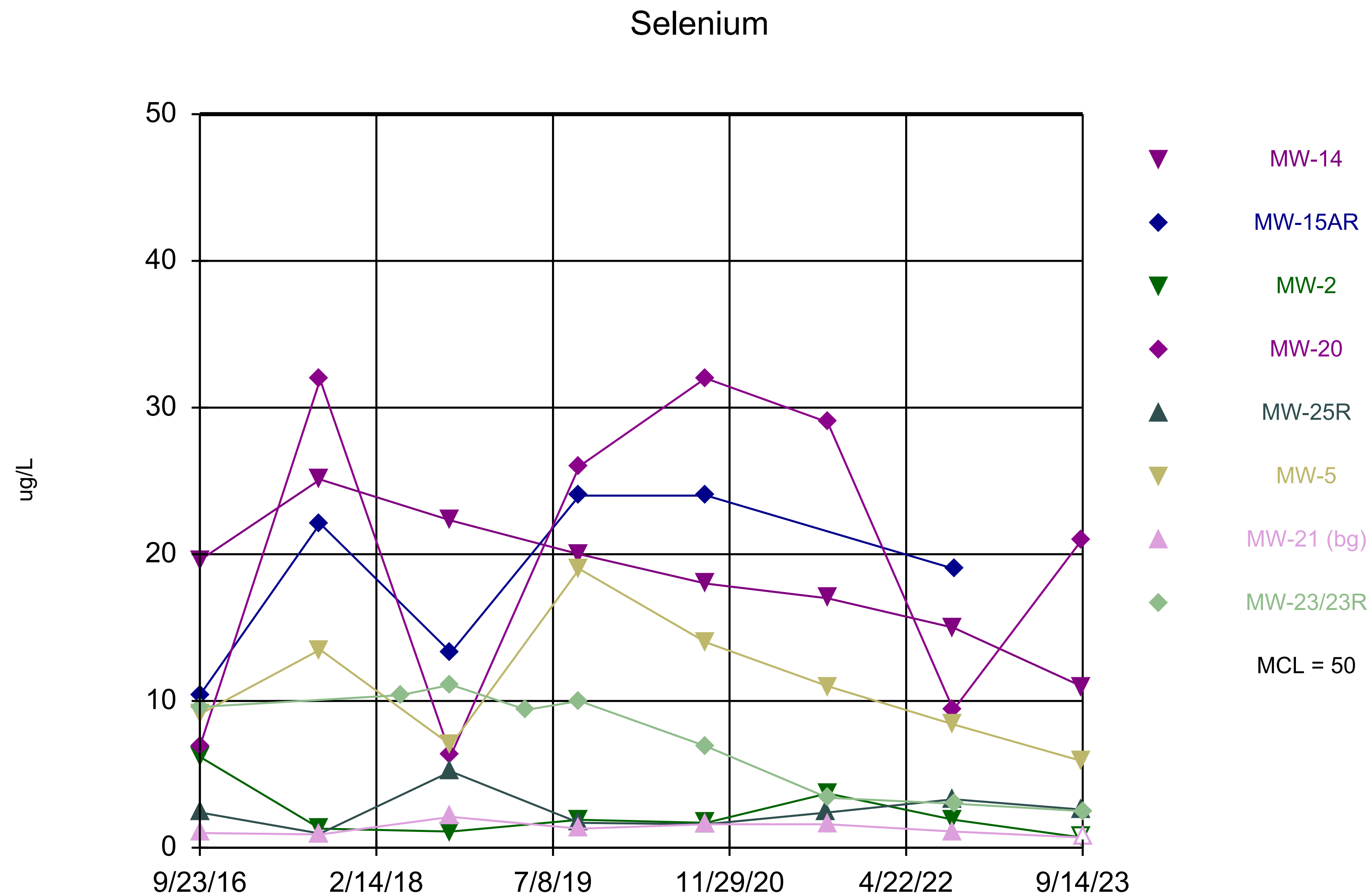
Time Series

Constituent: Oxidation Reduction Potential (millivolts) Analysis Run 10/23/2023 11:20 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-14	MW-15AR	MW-2	MW-20	MW-25R	MW-5	MW-21 (bg)	MW-23/23R
9/23/2016	92.1	46.5	8.6	66.5	73.8	55.1	63.8	55
9/5/2017	199.6	522.6	18.6	553.8	153.1	36.7	521	
4/25/2018								122.5
9/17/2018	-185.3	-59.5	-66.1	-11.7	-3.1	174.6	35.8	-25.4
4/23/2019								49.2
9/23/2019	53.2	11.3	-24.3	179.7	70.9	38.2	144.2	55.9
9/21/2020				101.5	67.3			
9/22/2020	115.3		-36.7			63.7		
9/23/2020							52.2	
9/24/2020		142.8						108.9
9/7/2021					138.7			
9/8/2021	123.2		-11.5	143				
9/9/2021						88.5		109.7
9/10/2021							109.2	
9/6/2022	104.4			86.4	92.5			
9/7/2022			12.9			72.4	64.4	
9/8/2022								82.1
9/9/2022		97.9						
9/11/2023	-13.3							
9/12/2023			-17.9	118.9	110.2			
9/13/2023						104.5		
9/14/2023							106.2	111.1

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Time Series   Analysis Run 10/23/2023 11:17 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Time Series

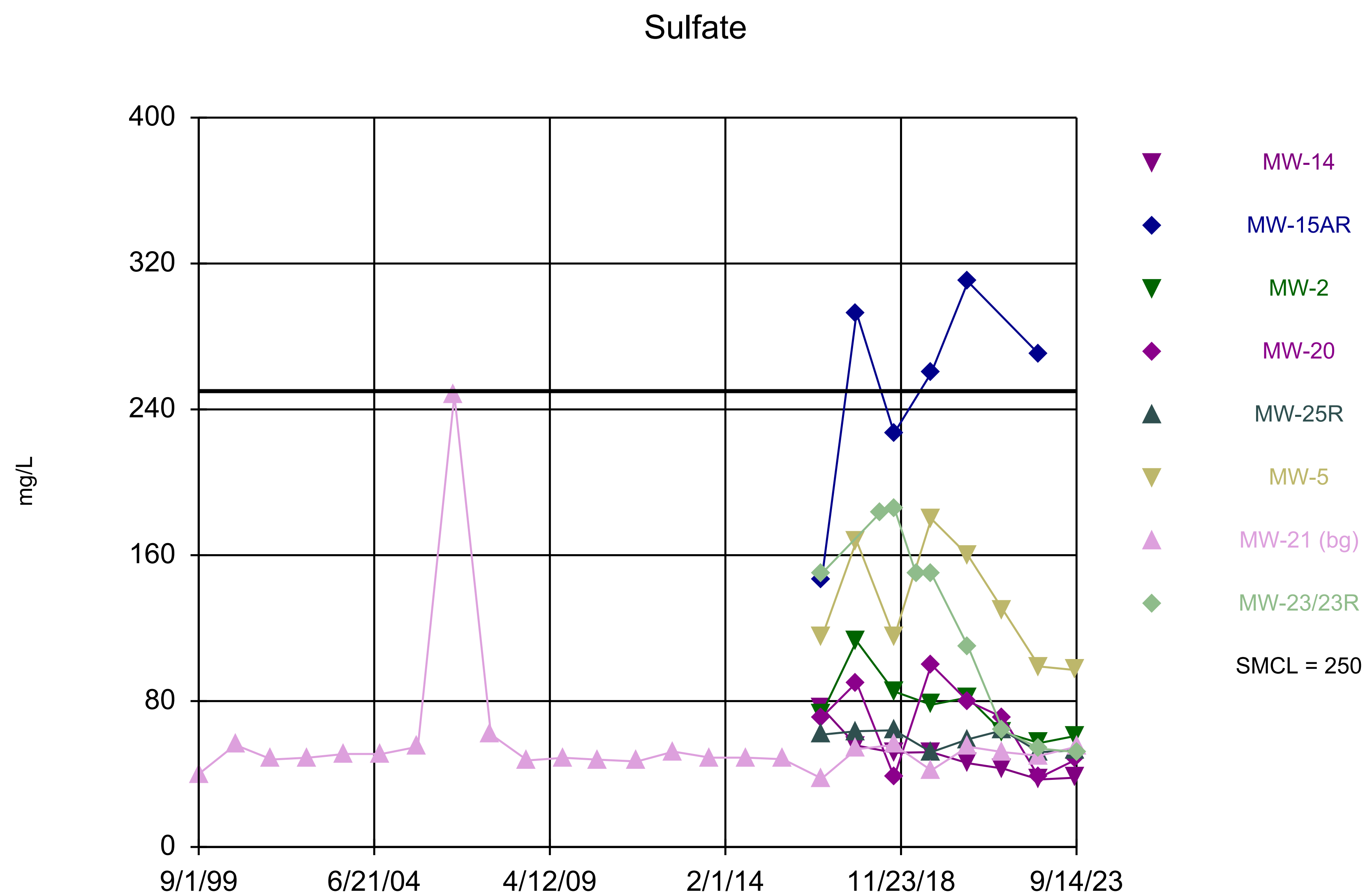
Constituent: Selenium (ug/L)   Analysis Run 10/23/2023 11:20 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-14	MW-15AR	MW-2	MW-20	MW-25R	MW-5	MW-21 (bg)	MW-23/23R
9/23/2016	19.6	10.4	6.2	6.9	2.4	9.1	1	9.6
9/5/2017	25.1	22.1	1.3	31.9	0.97 (J)	13.5	0.9 (J)	
4/25/2018								10.4
9/17/2018	22.3	13.3	1.1	6.3	5.2	7	2.1	11.1
4/23/2019								9.4
9/23/2019	20	24	1.9 (J)	26	1.7 (J)	19	1.3 (J)	10
9/21/2020				32	1.6 (J)			
9/22/2020	18		1.7 (J)			14		
9/23/2020							1.6 (J)	
9/24/2020		24						6.9
9/7/2021					2.4 (J)			
9/8/2021	17		3.7 (J)	29				
9/9/2021						11		3.4 (J)
9/10/2021							1.6 (J)	
9/6/2022	15			9.4	3.3 (J)			
9/7/2022			1.9 (J)			8.4	1.1 (J)	
9/8/2022								3 (J)
9/9/2022		19						
9/11/2023	11							
9/12/2023			<1.4 (U)	21	2.6 (J)			
9/13/2023						5.9		
9/14/2023							<1.4 (U)	2.5 (J)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Time Series Analysis Run 10/23/2023 11:17 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

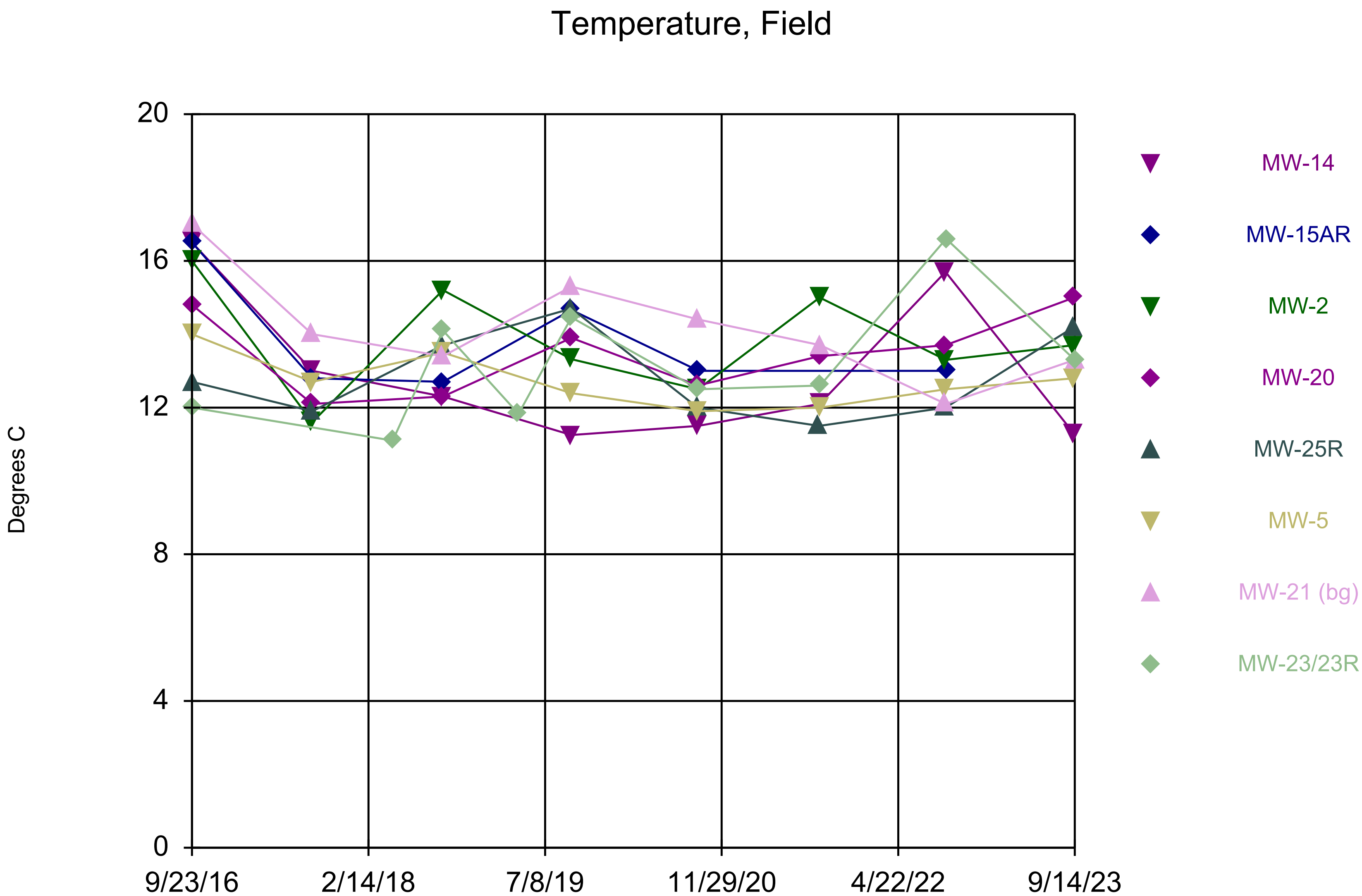
Time Series

Constituent: Sulfate (mg/L)   Analysis Run 10/23/2023 11:20 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-14	MW-15AR	MW-2	MW-20	MW-25R	MW-5	MW-21 (bg)	MW-23/23R
9/1/1999							40	
9/1/2000							56	
9/1/2001							48	
9/1/2002							49	
9/1/2003							51	
9/1/2004							51	
9/1/2005							55	
9/1/2006							248 (X)	
9/1/2007							61.8	
9/1/2008							47.5	
9/1/2009							48.9	
8/1/2010							47.9	
9/1/2011							46.9	
9/1/2012							52.3	
9/1/2013							49	
9/1/2014							49	
9/1/2015							48.1	
9/23/2016	76.3	147	73.2	71.2	61.6	115	37.5	150
9/5/2017	55.6	293	113	90.2	63.5	168	53.6	
4/25/2018								183
9/17/2018	51.7	227	85.3	38.4	64	115	56	186
4/23/2019								150
9/23/2019	52	260	78	100	52	180	42	150
9/21/2020				80	59			
9/22/2020	46		82			160		
9/23/2020							55	
9/24/2020		310						110
9/7/2021					64			
9/8/2021	43		63	71				
9/9/2021						130		64
9/10/2021							52	
9/6/2022	37			38	52			
9/7/2022			57			99	50	
9/8/2022								54
9/9/2022		270						
9/11/2023	38							
9/12/2023			61	48	53			
9/13/2023						97		
9/14/2023							55	52

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Time Series Analysis Run 10/23/2023 11:17 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

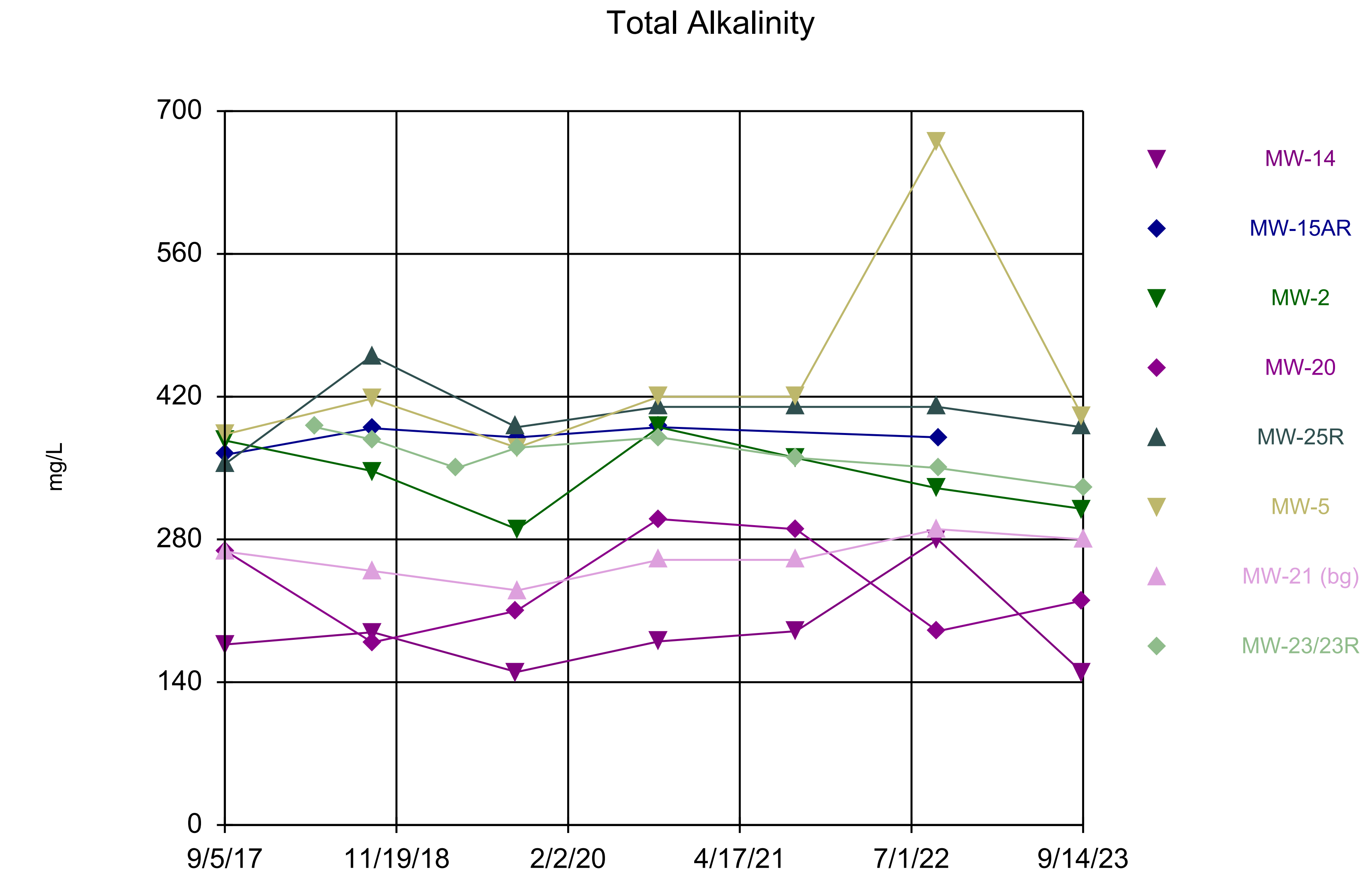
Time Series

Constituent: Temperature, Field (Degrees C)   Analysis Run 10/23/2023 11:20 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-14	MW-15AR	MW-2	MW-20	MW-25R	MW-5	MW-21 (bg)	MW-23/23R
9/23/2016	16.5	16.5	16	14.8	12.7	14	17	12
9/5/2017	13	12.8	11.6	12.1	11.9	12.7	14	
4/25/2018								11.1
9/17/2018	12.3	12.7	15.2	12.3	13.7	13.5	13.4	14.1
4/23/2019								11.83
9/23/2019	11.25	14.66	13.32	13.9	14.7	12.39	15.3	14.46
9/21/2020				12.6	12			
9/22/2020	11.5		12.5			11.9		
9/23/2020							14.4	
9/24/2020		13						12.5
9/7/2021					11.5			
9/8/2021	12.1		15	13.4				
9/9/2021						12		12.6
9/10/2021							13.7	
9/6/2022	15.7			13.7	12			
9/7/2022			13.3			12.5	12.1	
9/8/2022								16.6
9/9/2022		13						
9/11/2023	11.3							
9/12/2023			13.7	15	14.2			
9/13/2023						12.8		
9/14/2023							13.3	13.3

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Time Series Analysis Run 10/23/2023 11:17 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Time Series

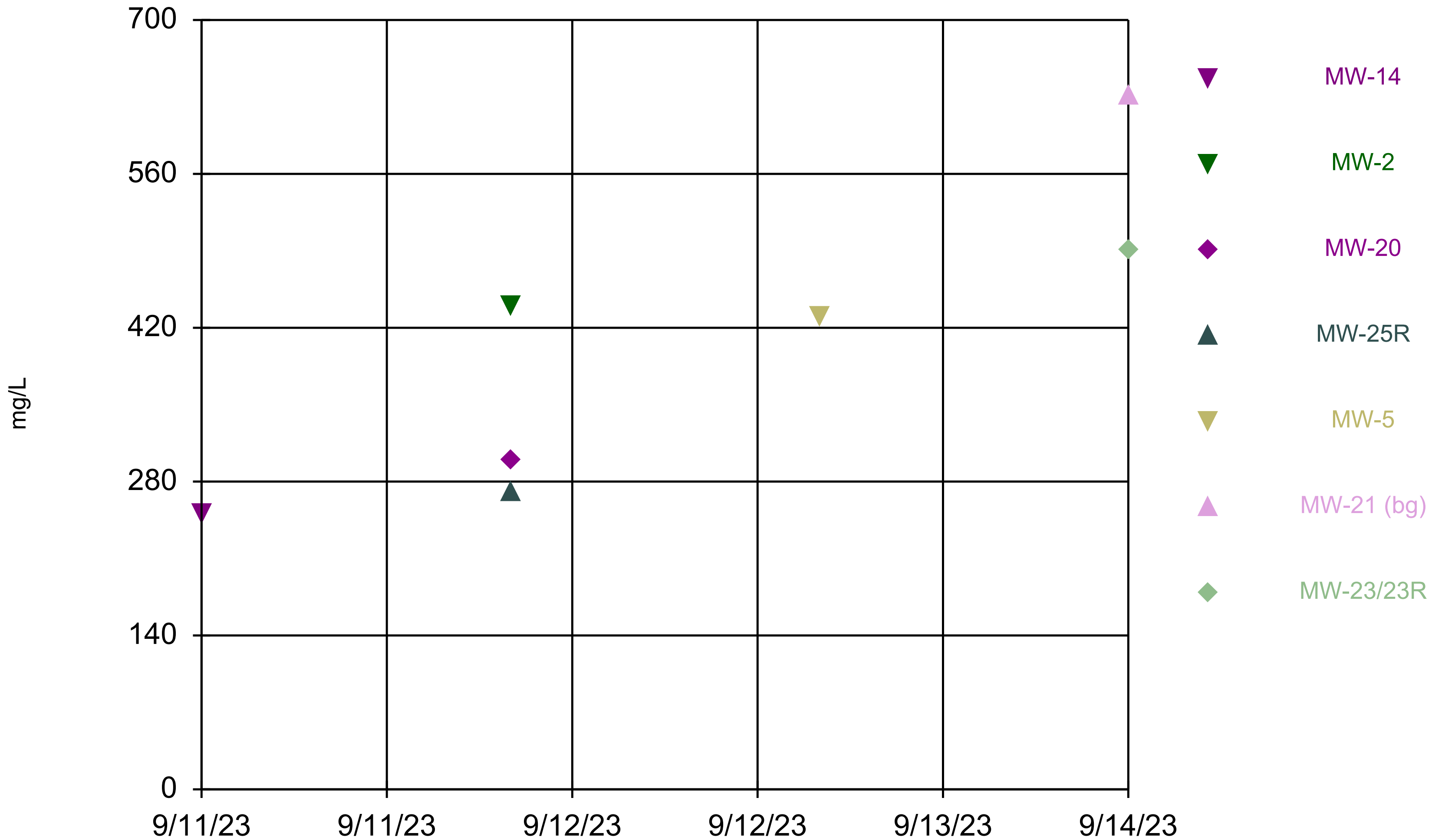
Constituent: Total Alkalinity (mg/L)   Analysis Run 10/23/2023 11:20 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-14	MW-15AR	MW-2	MW-20	MW-25R	MW-5	MW-21 (bg)	MW-23/23R
9/5/2017			377			383		
9/6/2017		363		269	354			
9/7/2017	177						268	
4/25/2018								390
9/17/2018					460	418		378
9/18/2018				179				
9/19/2018	189	389	347					
9/20/2018							249	
4/23/2019								350
9/23/2019	150			210	390			
9/24/2019		380	290			370		370
9/25/2019							230	
9/21/2020				300	410			
9/22/2020	180		390			420		
9/23/2020							260	
9/24/2020		390						380
9/7/2021					410			
9/8/2021	190		360	290				
9/9/2021						420		360
9/10/2021							260	
9/6/2022	280			190	410			
9/7/2022			330			670	290	
9/8/2022								350
9/9/2022		380						
9/11/2023	150							
9/12/2023			310	220	390			
9/13/2023						400		
9/14/2023							280	330

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Total Dissolved Solids



Time Series Analysis Run 10/23/2023 11:17 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

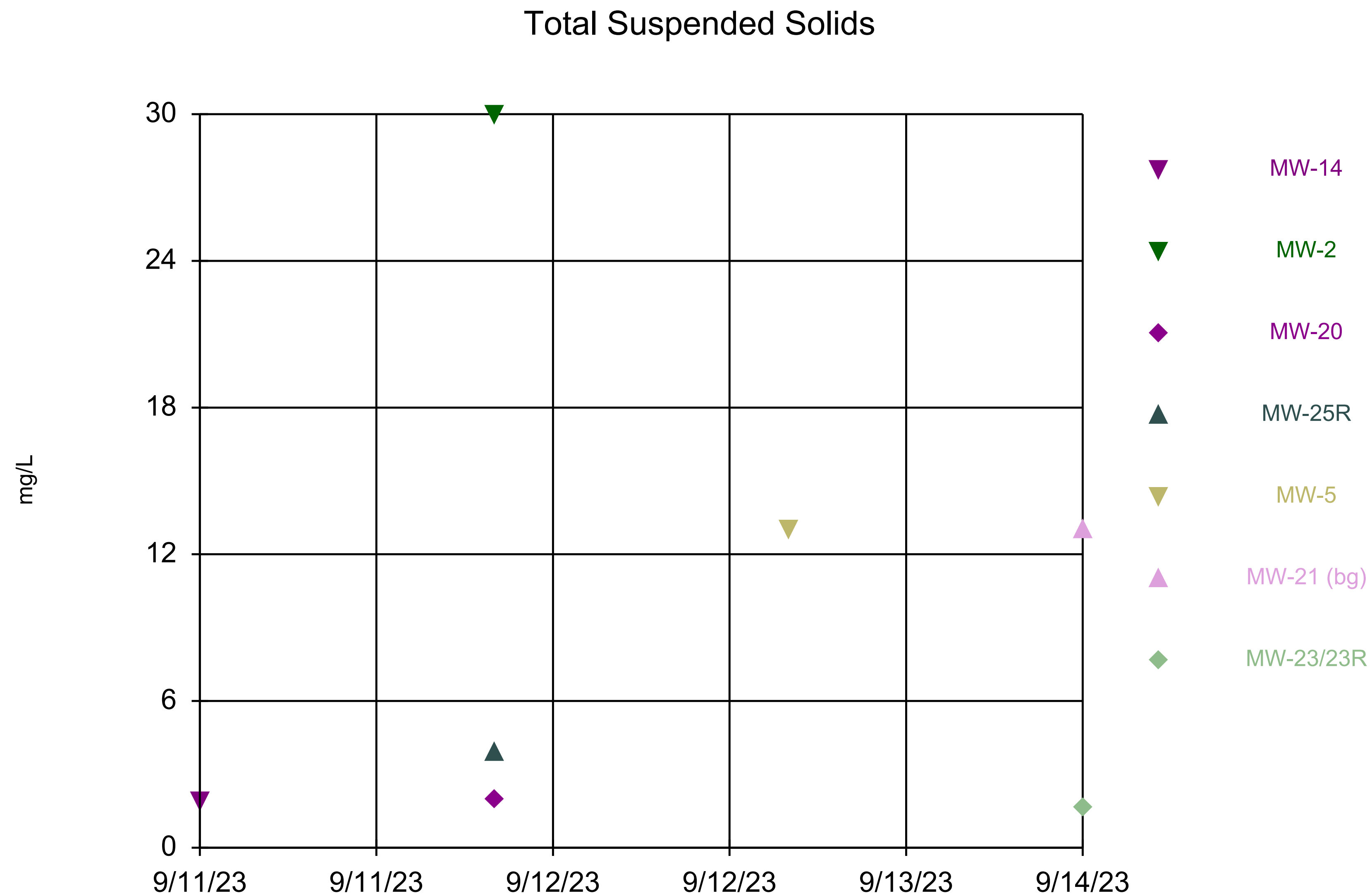
Time Series

Constituent: Total Dissolved Solids (mg/L)   Analysis Run 10/23/2023 11:20 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-14	MW-2	MW-20	MW-25R	MW-5	MW-21 (bg)	MW-23/23R
9/11/2023	250						
9/12/2023		440	300	270			
9/13/2023					430		
9/14/2023						630	490

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Time Series Analysis Run 10/23/2023 11:17 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

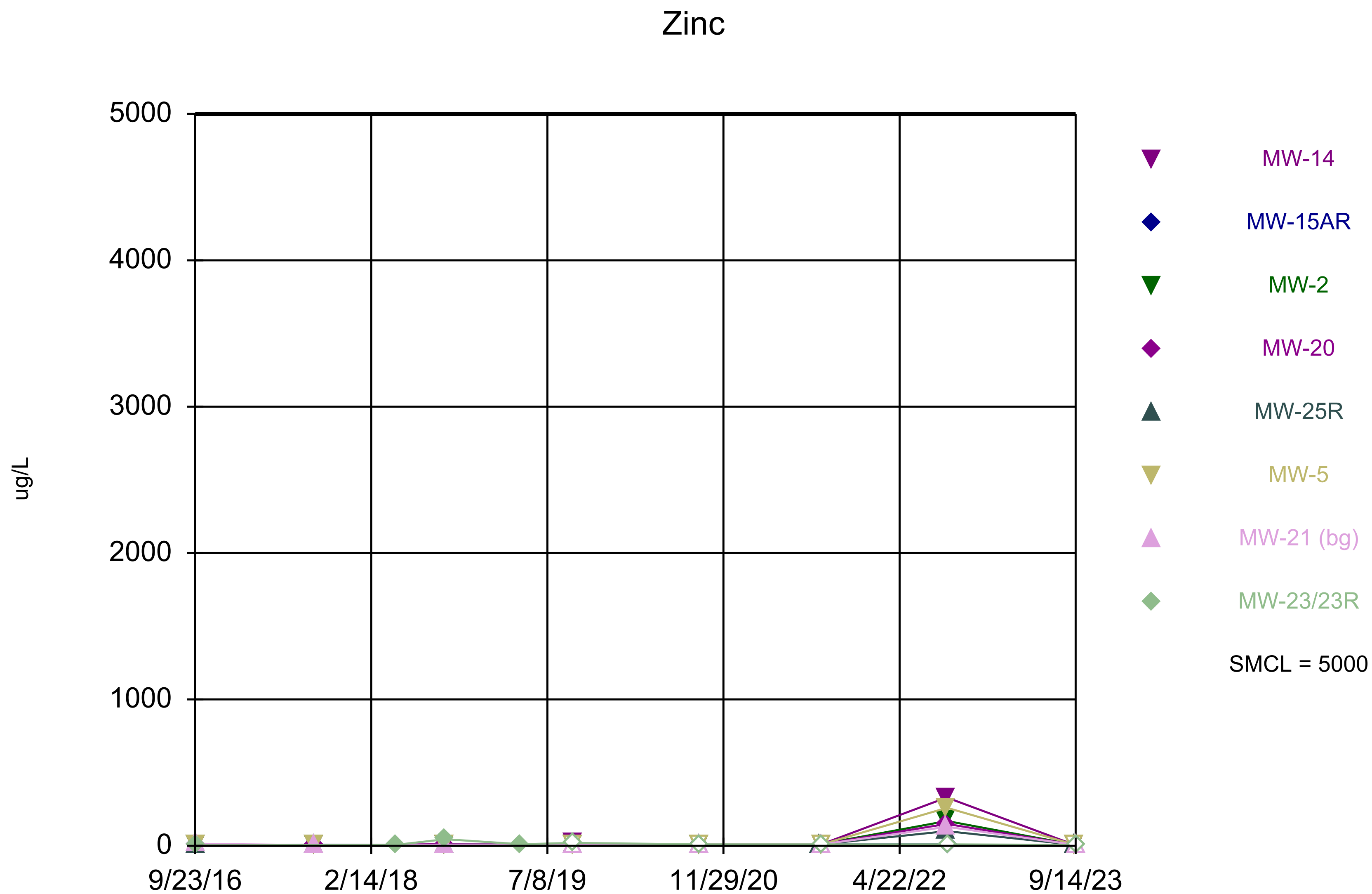
Time Series

Constituent: Total Suspended Solids (mg/L)   Analysis Run 10/23/2023 11:20 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-14	MW-2	MW-20	MW-25R	MW-5	MW-21 (bg)	MW-23/23R
9/11/2023	1.9						
9/12/2023		30	2	3.9			
9/13/2023					13		
9/14/2023						13	1.6 (J)

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Time Series Analysis Run 10/23/2023 11:18 AM View: shallow
Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Time Series

Constituent: Zinc (ug/L) Analysis Run 10/23/2023 11:20 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

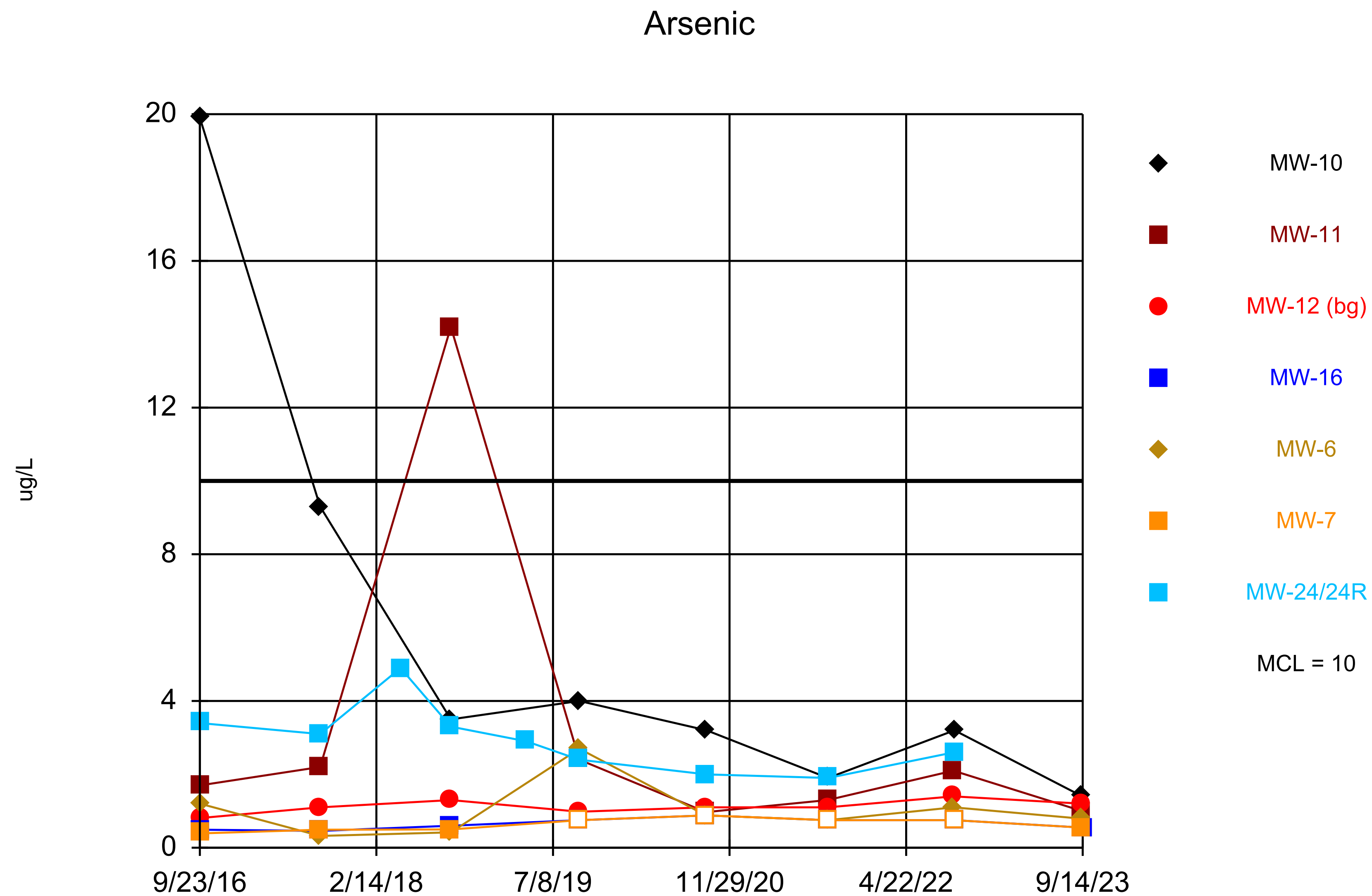
	MW-14	MW-15AR	MW-2	MW-20	MW-25R	MW-5	MW-21 (bg)	MW-23/23R
9/23/2016	7.3 (J)	2.4 (J)	8.3 (J)	3.8 (J)	7.2 (J)	4 (J)	14.2	3.7 (J)
9/5/2017	3.4 (J)	7 (J)	2 (J)	1.8 (J)	4.7 (J)	2 (J)	4.7 (J)	
4/25/2018								6.3 (J)
9/17/2018	6 (J)	7.8 (J)	6.6 (J)	11.5	8.2 (J)	4.9 (J)	8 (J)	44.8
4/23/2019								11 (J)
9/23/2019	15 (J)	<10	<10	<10	<10	<10	<10	<20
9/21/2020				<10	<10			
9/22/2020	<10		<10			<10		
9/23/2020							<10	
9/24/2020		<10						<10
9/7/2021					<10			
9/8/2021	<10		12 (J)	<10				
9/9/2021						<10		<10
9/10/2021							<10	
9/6/2022	330			150	100			
9/7/2022			170			260	130 (X)	
9/8/2022								<10
9/9/2022		<10						
9/11/2023	<6.4 (U)							
9/12/2023			6.6 (J)	<6.4 (U)	<6.4 (U)			
9/13/2023						<6.4 (U)		
9/14/2023							<6.4 (U)	<6.4 (U)

ND substitution: RL or RL/2 if <15% NDs.

Attachment E2

Times Series Graphs – Deep

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Time Series Analysis Run 10/23/2023 11:37 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Time Series

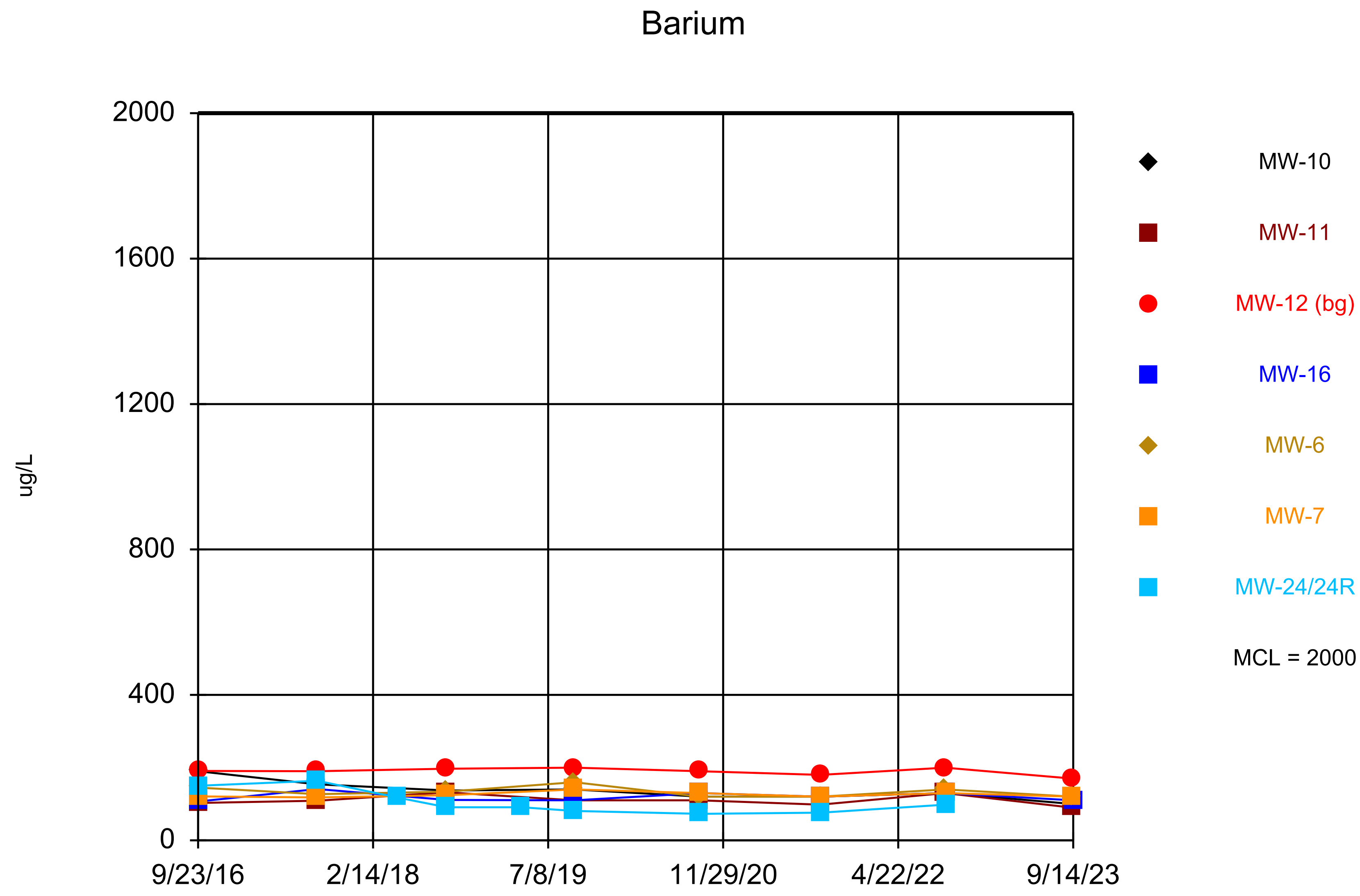
Constituent: Arsenic (ug/L)   Analysis Run 10/23/2023 11:39 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-10	MW-11	MW-12 (bg)	MW-16	MW-6	MW-7	MW-24/24R
9/23/2016	19.9	1.7	0.81 (J)	0.49 (J)	1.2	0.39 (J)	3.4
9/5/2017	9.3	2.2	1.1	0.46 (J)	0.32 (J)	0.49 (J)	3.1
4/25/2018							4.9
9/17/2018	3.5	14.2	1.3	0.6 (J)	0.42 (J)	0.5 (J)	3.3
4/23/2019							2.9
9/23/2019	4	2.4	0.98 (J)	<0.75	2.7	<0.75	2.4
9/21/2020			1.1 (J)				
9/22/2020		0.97 (J)			<0.88		
9/23/2020				<0.88		<0.88	
9/24/2020	3.2						2
9/8/2021		1.3 (J)	1.1 (J)				
9/9/2021	1.9 (J)			<0.75	<0.75	<0.75	
9/10/2021							1.9 (J)
9/6/2022		2.1	1.4 (J)				
9/7/2022					1.1 (J)		
9/8/2022				<0.75		<0.75	2.6
9/9/2022	3.2						
9/11/2023			1.2 (J)				
9/12/2023		1 (J)					
9/13/2023	1.4 (J)				0.79 (J)	0.55 (J)	
9/14/2023				0.55 (J)			

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Time Series Analysis Run 10/23/2023 11:37 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

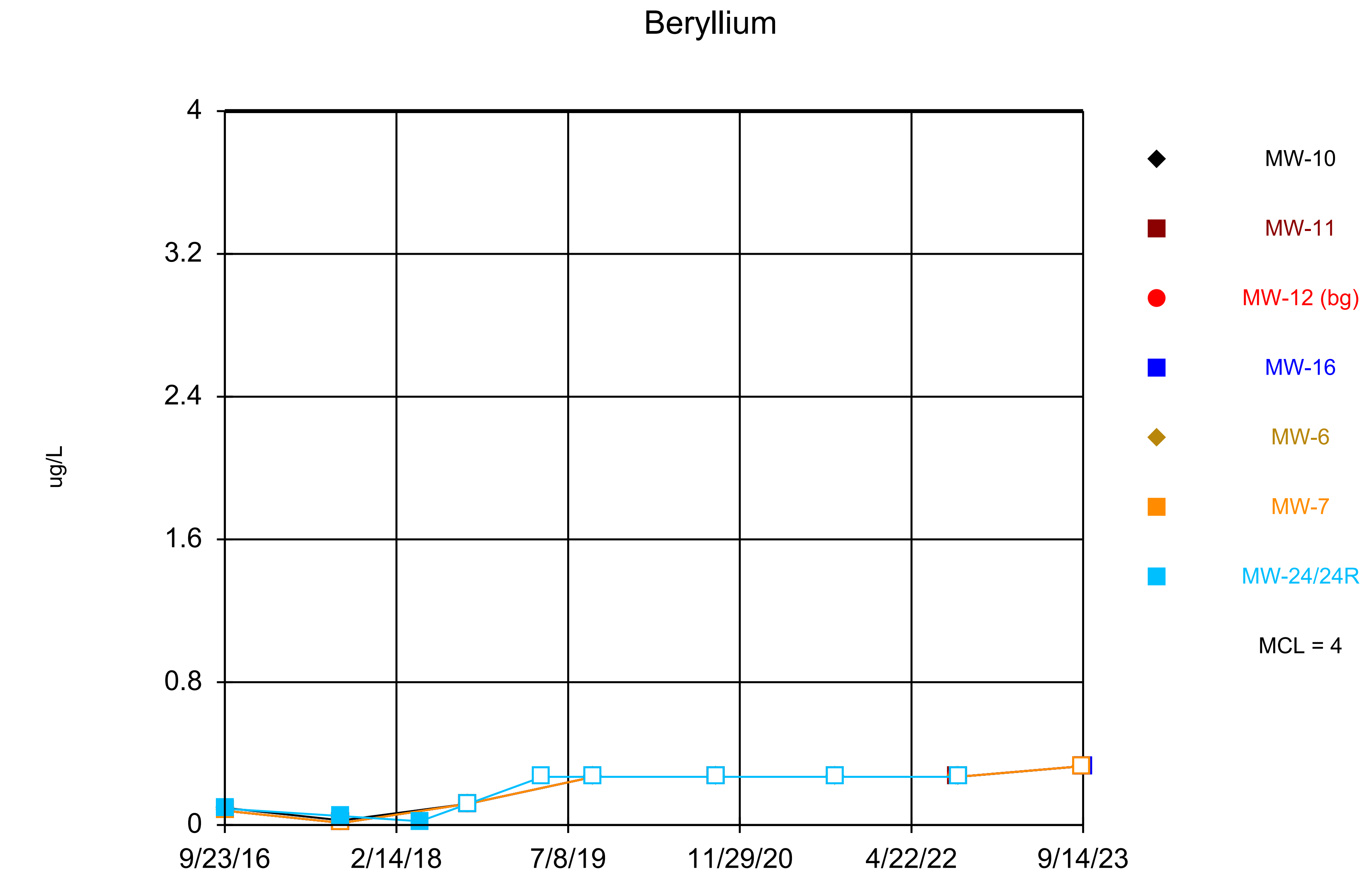
Time Series

Constituent: Barium (ug/L)   Analysis Run 10/23/2023 11:39 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-10	MW-11	MW-12 (bg)	MW-16	MW-6	MW-7	MW-24/24R
9/23/2016	190	103	191	107	145	121	150
9/5/2017	154	109	190	141	127	118	164
4/25/2018							118
9/17/2018	137	132	197	111	134	124	91.1
4/23/2019							91
9/23/2019	140	110	200	110	160	140	81
9/21/2020			190				
9/22/2020		110			120		
9/23/2020				130		130	
9/24/2020	120						73
9/8/2021		98 (B)	180 (B)				
9/9/2021	120 (B)			120 (B)	120 (B)	120 (B)	
9/10/2021							76 (B)
9/6/2022		130	200				
9/7/2022					140		
9/8/2022				130		130	98
9/9/2022	130						
9/11/2023			170				
9/12/2023		90					
9/13/2023	100				120	120	
9/14/2023				110			

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Time Series Analysis Run 10/23/2023 11:37 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Time Series

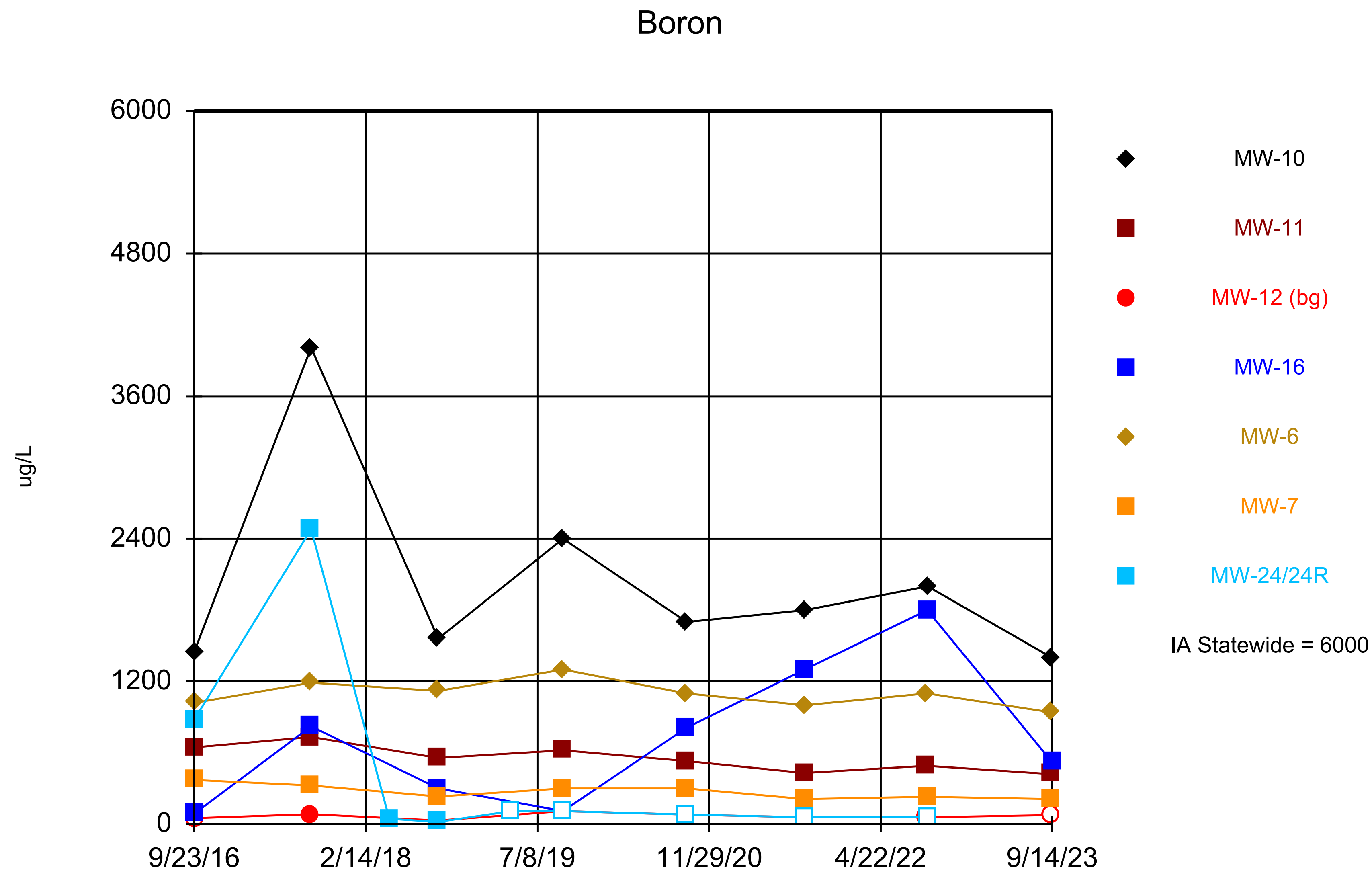
Constituent: Beryllium (ug/L)   Analysis Run 10/23/2023 11:39 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-10	MW-11	MW-12 (bg)	MW-16	MW-6	MW-7	MW-24/24R
9/23/2016	0.096 (J)	<0.08	<0.08	<0.08	<0.08	<0.08	0.092 (J)
9/5/2017	0.026 (J)	<0.012	<0.012	<0.012	<0.012	<0.012	0.05 (J)
4/25/2018							0.021 (J)
9/17/2018	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
4/23/2019							<0.27
9/23/2019	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
9/21/2020			<0.27				
9/22/2020		<0.27			<0.27		
9/23/2020				<0.27		<0.27	
9/24/2020	<0.27						<0.27
9/8/2021		<0.27	<0.27				
9/9/2021	<0.27			<0.27	<0.27	<0.27	
9/10/2021							<0.27
9/6/2022		<0.27	<0.27				
9/7/2022					<0.27		
9/8/2022				<0.27		<0.27	<0.27
9/9/2022	<0.27						
9/11/2023			<0.33 (U)				
9/12/2023		<0.33 (U)					
9/13/2023	<0.33 (U)				<0.33 (U)	<0.33 (U)	
9/14/2023				<0.33 (U)			

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Time Series Analysis Run 10/23/2023 11:37 AM View: Deep
Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Time Series

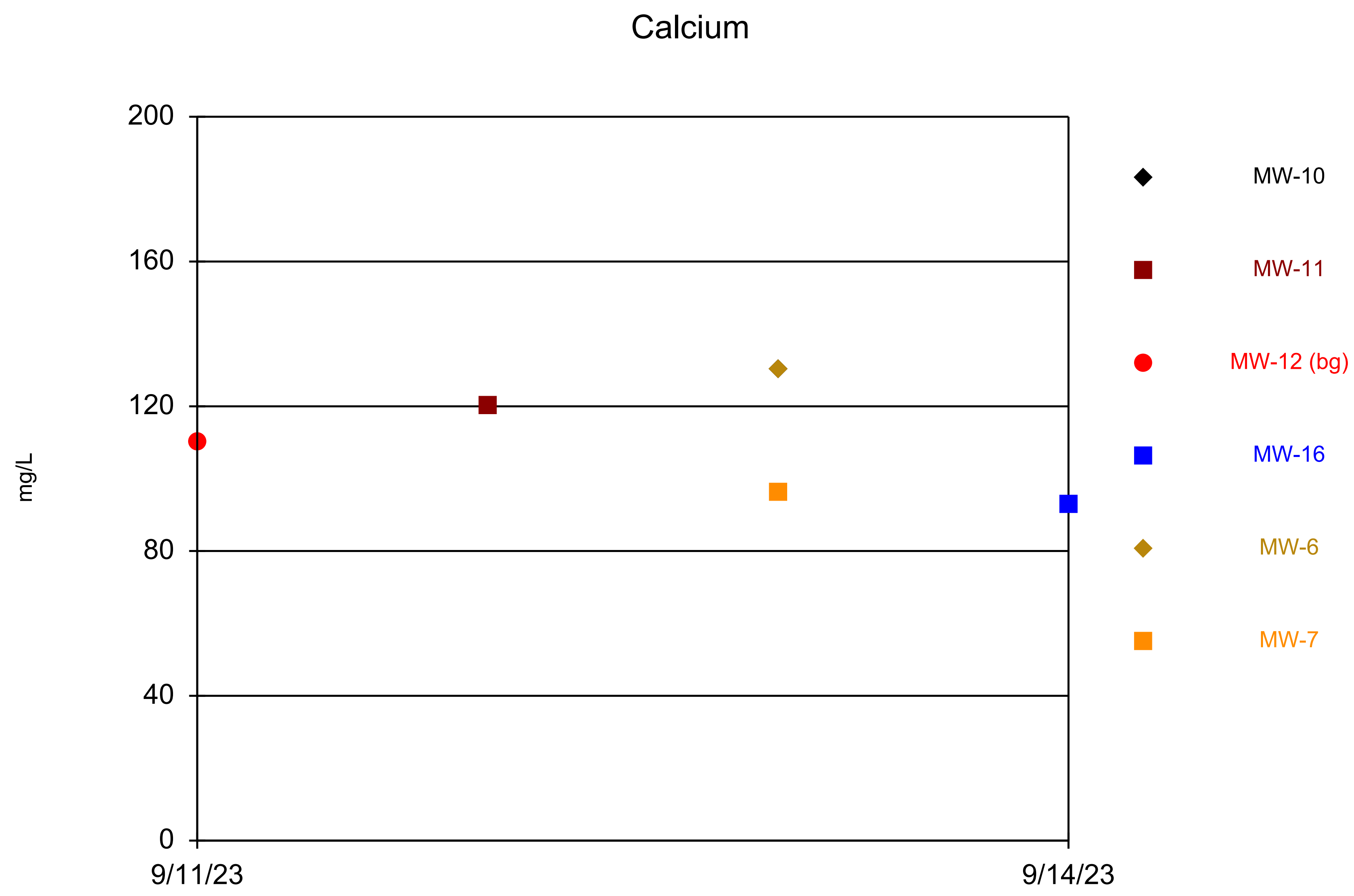
Constituent: Boron (ug/L) Analysis Run 10/23/2023 11:39 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-10	MW-11	MW-12 (bg)	MW-16	MW-6	MW-7	MW-24/24R
9/23/2016	1450	645	<50	87.1 (J)	1020	371	879
9/5/2017	4010	733	83.4 (J)	823	1190	325	2480
4/25/2018							44.3 (J)
9/17/2018	1560	556	30.4 (J)	300	1120	232	18.3 (J)
4/23/2019							<110
9/23/2019	2400	620	<110	110 (J)	1300	300	<110
9/21/2020			<80				
9/22/2020		530			1100		
9/23/2020				810		300	
9/24/2020	1700						<80
9/8/2021		430	<58				
9/9/2021	1800			1300	1000	210	
9/10/2021							<58
9/6/2022		490	<58				
9/7/2022					1100		
9/8/2022				1800		230	<58
9/9/2022	2000						
9/11/2023			<76 (U)				
9/12/2023		420					
9/13/2023	1400				940	210	
9/14/2023				520			

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Time Series Analysis Run 10/23/2023 11:37 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

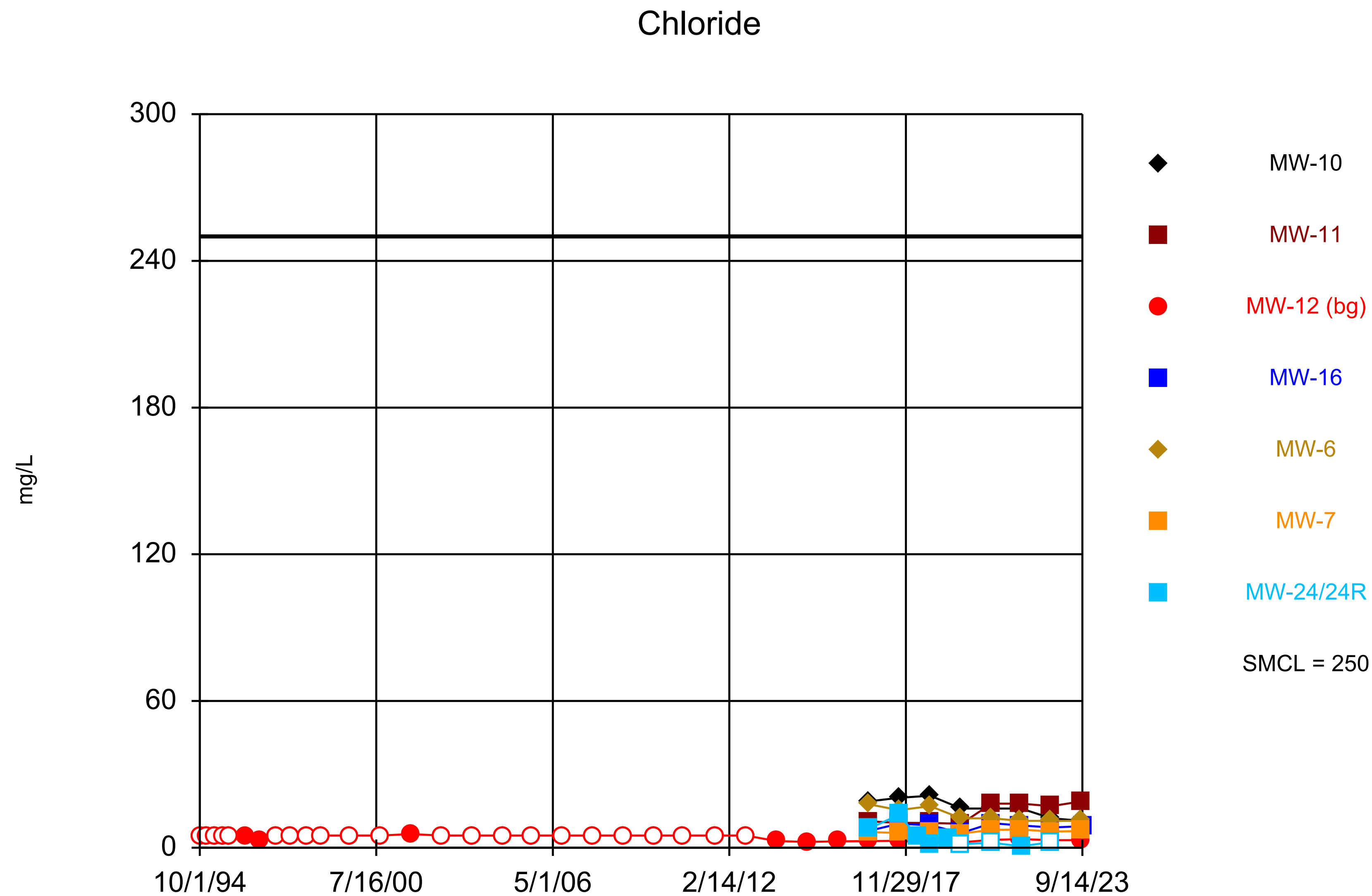
Time Series

Constituent: Calcium (mg/L)   Analysis Run 10/23/2023 11:39 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-10	MW-11	MW-12 (bg)	MW-16	MW-6	MW-7
9/11/2023			110			
9/12/2023		120				
9/13/2023	130				130	96
9/14/2023				93		

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Time Series Analysis Run 10/23/2023 11:37 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Time Series

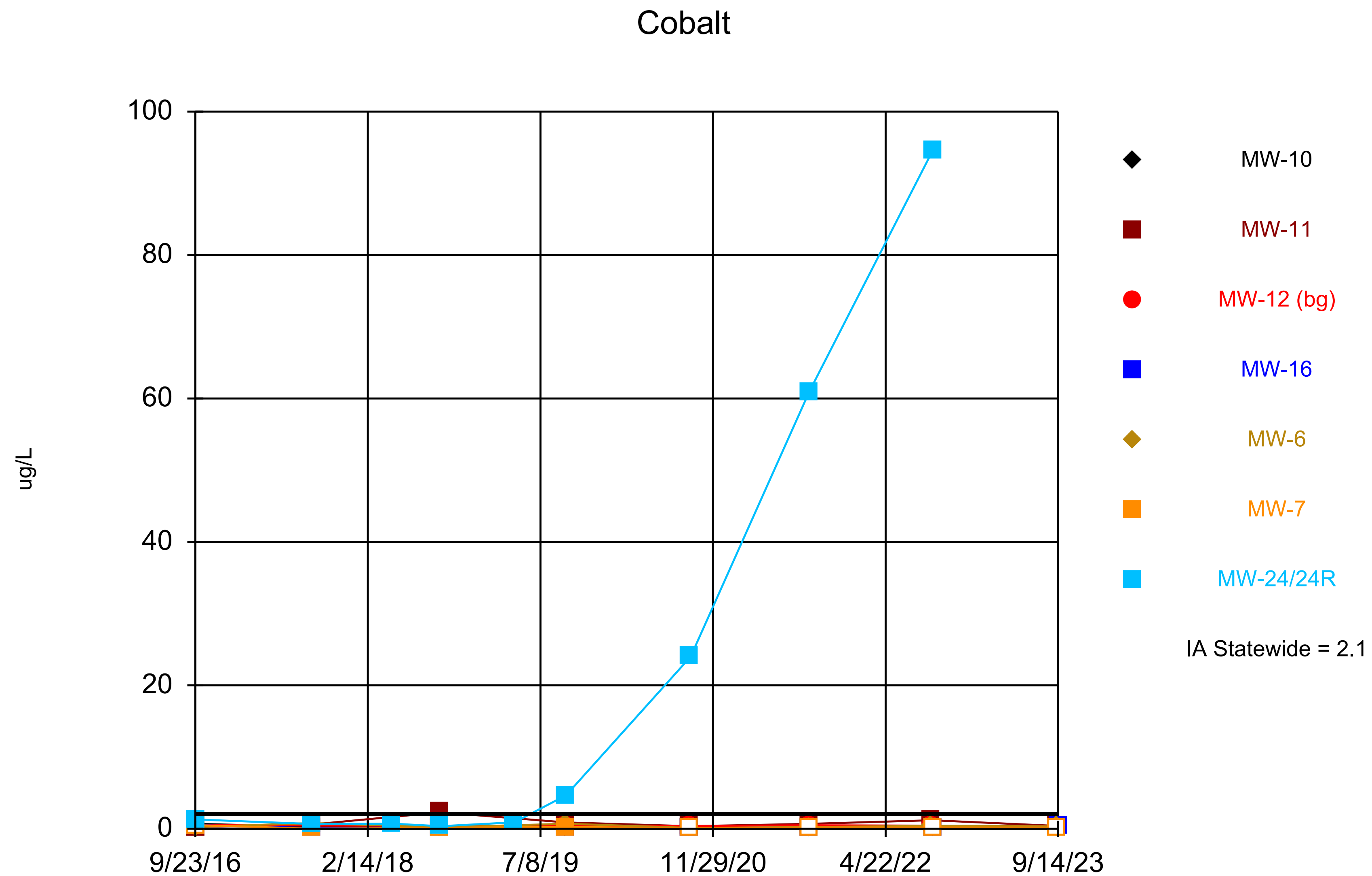
Constituent: Chloride (mg/L) Analysis Run 10/23/2023 11:39 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-10	MW-11	MW-12 (bg)	MW-16	MW-6	MW-7	MW-24/24R
10/1/1994			<5 (X)				
1/1/1995			<5 (X)				
4/1/1995			<5 (X)				
7/1/1995			<5 (X)				
10/1/1995			<5 (X)				
4/1/1996			4.3 (X)				
10/1/1996			2.6 (X)				
4/1/1997			<5 (X)				
10/1/1997			<5 (X)				
4/1/1998			<5 (X)				
10/1/1998			<5 (X)				
9/1/1999			<5 (X)				
9/1/2000			<5 (X)				
9/1/2001			5.6 (X)				
9/1/2002			<5 (X)				
9/1/2003			<5 (X)				
9/1/2004			<5 (X)				
9/1/2005			<5 (X)				
9/1/2006			<5 (X)				
9/1/2007			<5 (X)				
9/1/2008			<5 (X)				
9/1/2009			<5 (X)				
8/1/2010			<5 (X)				
9/1/2011			<5 (X)				
9/1/2012			<5 (X)				
9/1/2013			2.7				
9/1/2014			2.4				
9/1/2015			2.6				
9/23/2016	19	10.8	2.7	7	17.7	6.4	8
9/5/2017	20.4	10.2	2.8	9.8	15.4	6	13.4
4/25/2018							4.5
9/17/2018	21.3	10.1	2.4	9.2	17	6.1	1.6
4/23/2019							3.4 (J)
9/23/2019	16	9.8	2.2 (J)	6	12	5.8	<1.5
9/21/2020			3.2 (J)				
9/22/2020		18			12		
9/23/2020				10		7.3	
9/24/2020	16						<2
9/8/2021		18	3.5 (J)				
9/9/2021	16			9.1	11	7.4	
9/10/2021							0.59 (J)
9/6/2022		17	3.1 (J)				
9/7/2022					11		
9/8/2022				8.3		6.6	<2.3
9/9/2022	12						
9/11/2023			3.1 (J)				
9/12/2023		19					
9/13/2023	11				11	6.8	
9/14/2023				8.8			

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Time Series Analysis Run 10/23/2023 11:37 AM View: Deep
Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Time Series

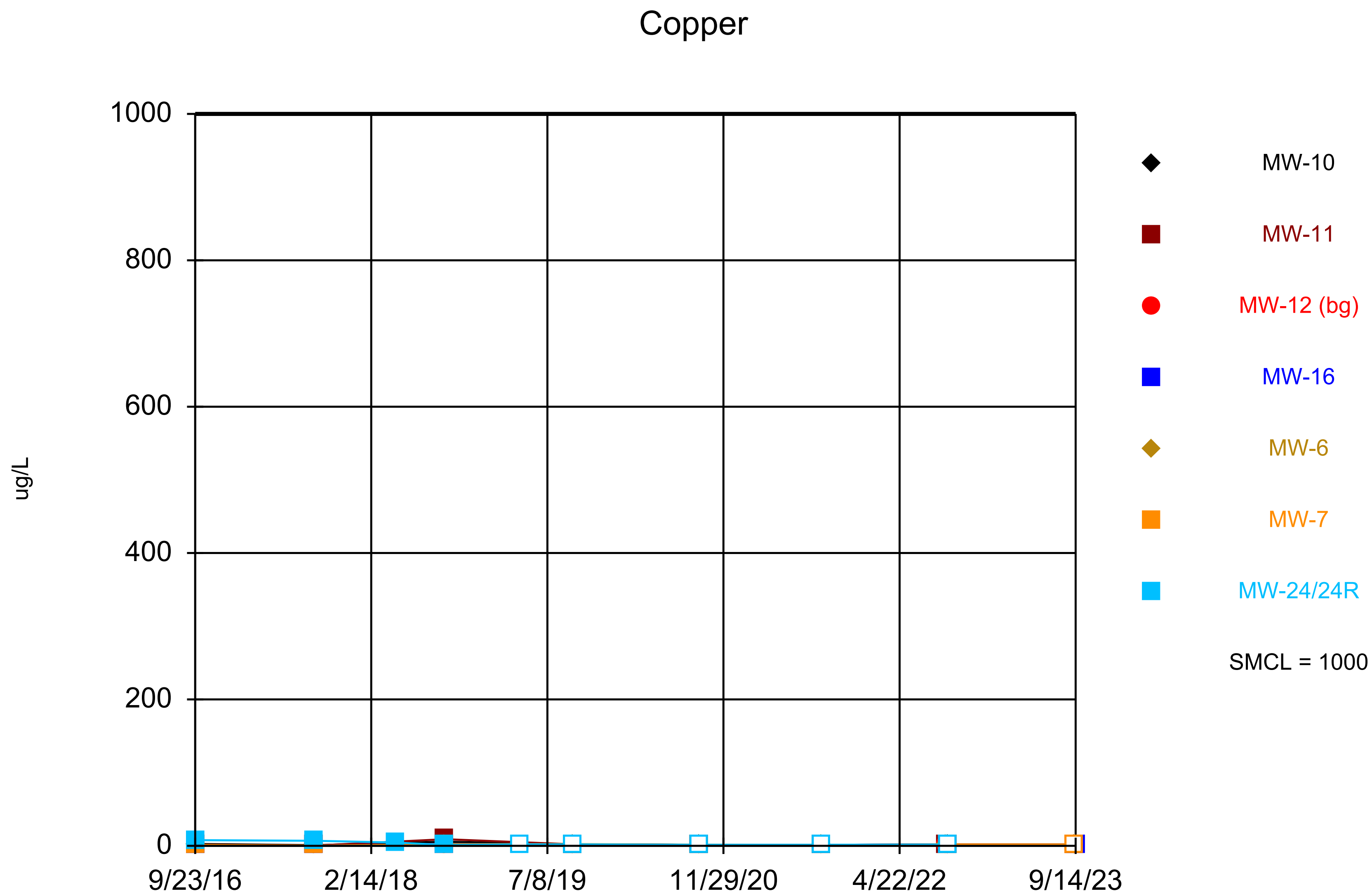
Constituent: Cobalt (ug/L)   Analysis Run 10/23/2023 11:39 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-10	MW-11	MW-12 (bg)	MW-16	MW-6	MW-7	MW-24/24R
9/23/2016	0.68 (J)	<0.5	0.57 (J)	<0.5	<0.5	<0.5	1.3
9/5/2017	0.31 (J)	0.61 (J)	0.46 (J)	0.12 (J)	0.8 (J)	0.024 (J)	0.67 (J)
4/25/2018							0.72 (J)
9/17/2018	0.22 (J)	2.3	0.44 (J)	0.22 (J)	0.2 (J)	<0.15	0.37 (J)
4/23/2019							0.9
9/23/2019	0.2 (J)	0.89	0.4 (J)	0.16 (J)	0.71	0.25 (J)	4.7
9/21/2020			0.4 (J)				
9/22/2020		0.37 (J)			0.13 (J)		
9/23/2020				<0.091		<0.091	
9/24/2020	0.14 (J)						24
9/8/2021		0.69	0.49 (J)				
9/9/2021	<0.19			<0.19	0.23 (J)	<0.19	
9/10/2021							61
9/6/2022		1.2	0.43 (J)				
9/7/2022					0.44 (J)		
9/8/2022				<0.19		<0.19	94.5 (D)
9/9/2022	0.19 (J)						
9/11/2023			0.35 (J)				
9/12/2023		0.4 (J)					
9/13/2023	<0.17 (U)				0.34 (J)	<0.17 (U)	
9/14/2023				0.29 (J)			

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Time Series Analysis Run 10/23/2023 11:37 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Time Series

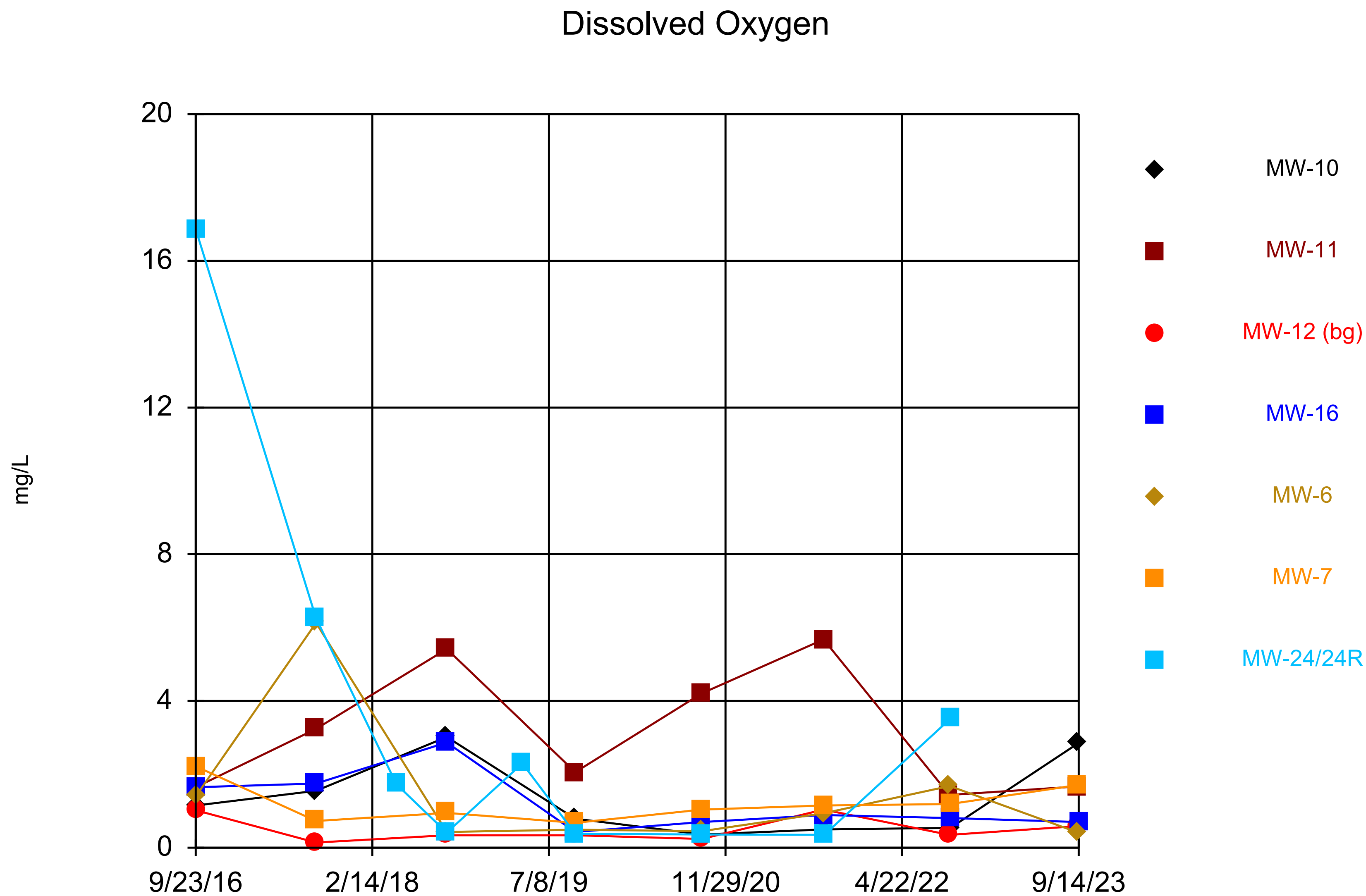
Constituent: Copper (ug/L)   Analysis Run 10/23/2023 11:39 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-10	MW-11	MW-12 (bg)	MW-16	MW-6	MW-7	MW-24/24R
9/23/2016	2.5	1.6	0.57 (J)	0.21 (J)	1.3	0.95 (J)	7.7
9/5/2017	1	0.35 (J)	0.24 (J)	0.31 (J)	0.2 (J)	0.36 (J)	6.8
4/25/2018							4.6
9/17/2018	5.7	9	<0.48	2.5	2.4	1.7	1.2
4/23/2019							<2
9/23/2019	<2	<2	<2	<2	2.4 (J)	<2	<2
9/21/2020			<1.5				
9/22/2020		<1.5			1.6 (J)		
9/23/2020				1.5 (J)		<1.5	
9/24/2020	<1.5						<1.5
9/8/2021		<1.4	<1.4				
9/9/2021	<1.4			<1.4	<1.4	<1.4	
9/10/2021							<1.4
9/6/2022		<1.8	<1.8				
9/7/2022					<1.8		
9/8/2022				<1.8		<1.8	<1.8
9/9/2022	<1.8						
9/11/2023			<1.8 (U)				
9/12/2023		<1.8 (U)					
9/13/2023	<1.8 (U)				<1.8 (U)	<1.8 (U)	
9/14/2023				<1.8 (U)			

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Time Series Analysis Run 10/23/2023 11:37 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

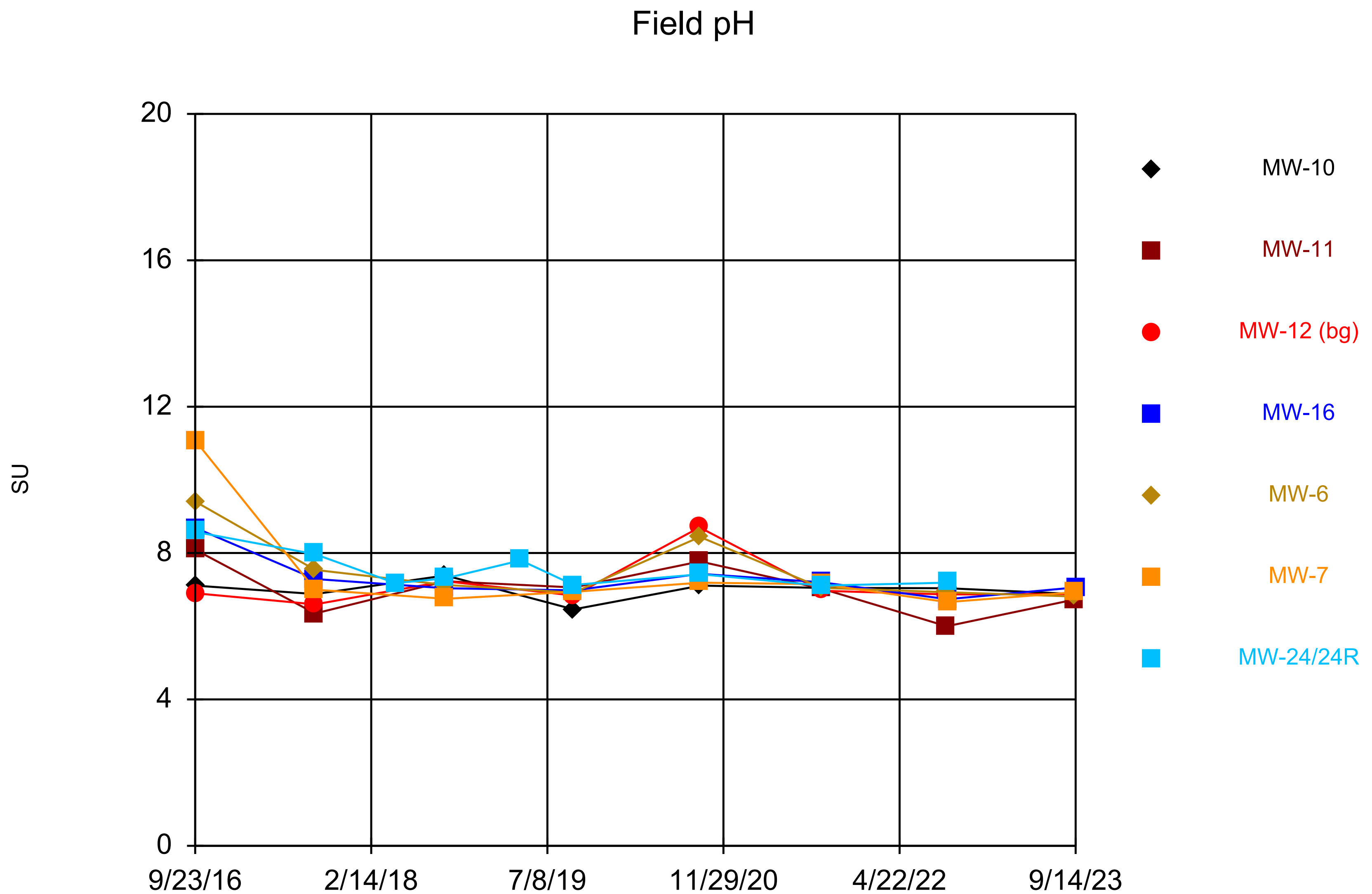
Time Series

Constituent: Dissolved Oxygen (mg/L)   Analysis Run 10/23/2023 11:39 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-10	MW-11	MW-12 (bg)	MW-16	MW-6	MW-7	MW-24/24R
9/23/2016	1.15	1.65	1.02	1.65	1.4	2.22	16.86
9/5/2017	1.55	3.24	0.14	1.75	6.13	0.73	6.26
4/25/2018							1.73
9/17/2018	3.02	5.42	0.34	2.87	0.43	0.95	0.41
4/23/2019							2.3
9/23/2019	0.79	2.06	0.34	0.43	0.49	0.68	0.38
9/21/2020			0.24				
9/22/2020		4.21			0.45		
9/23/2020				0.7		1.04	
9/24/2020	0.36						0.36
9/8/2021		5.68	1.04		0.94		
9/9/2021	0.5			0.89		1.15	
9/10/2021							0.35
9/6/2022		1.44	0.35				
9/7/2022					1.68		
9/8/2022				0.81		1.19	3.51
9/9/2022	0.54						
9/11/2023			0.59				
9/12/2023		1.67					
9/13/2023	2.85				0.41	1.71	
9/14/2023				0.7			

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Time Series Analysis Run 10/23/2023 11:37 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

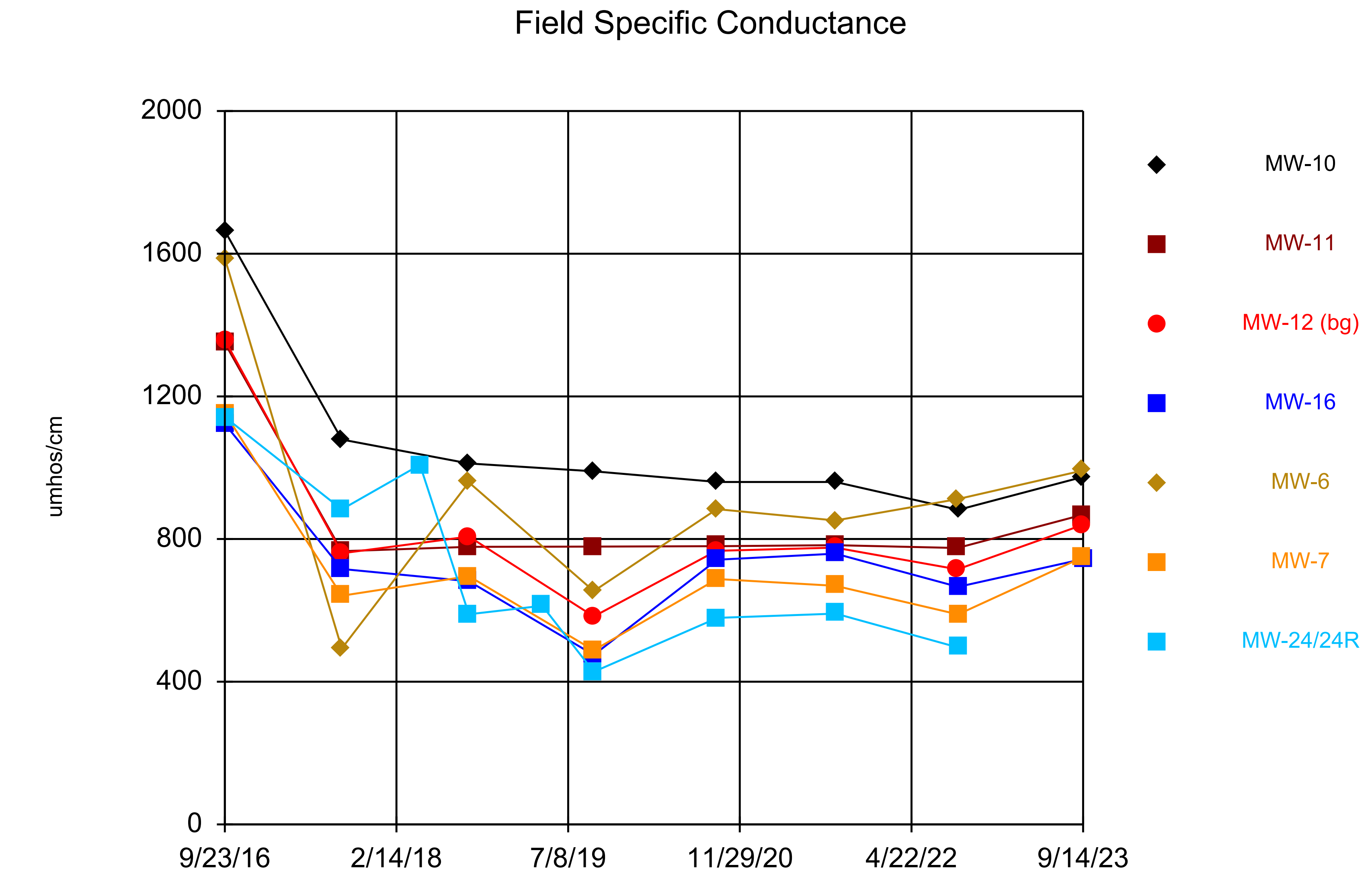
Time Series

Constituent: Field pH (SU)   Analysis Run 10/23/2023 11:39 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-10	MW-11	MW-12 (bg)	MW-16	MW-6	MW-7	MW-24/24R
9/23/2016	7.11	8.09	6.9	8.69	9.41	11.08	8.58
9/5/2017	6.88	6.35	6.6	7.29	7.54	7	7.97
4/25/2018							7.18
9/17/2018	7.39	7.23	7.23	7.04	7.13	6.75	7.31
4/23/2019							7.8
9/23/2019	6.46	7.06	6.84	6.98	6.92	6.94	7.13
9/21/2020			8.7				
9/22/2020		7.77			8.44		
9/23/2020				7.43		7.19	
9/24/2020	7.11						7.42
9/8/2021		7.03	6.97				
9/9/2021	7.05			7.2	7.05	7.15	
9/10/2021							7.11
9/6/2022		6	6.87				
9/7/2022					6.93		
9/8/2022				6.74		6.66	7.19
9/9/2022	7.04						
9/11/2023			6.88				
9/12/2023		6.73					
9/13/2023	6.88				6.81	6.93	
9/14/2023				7.06			

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Time Series Analysis Run 10/23/2023 11:38 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

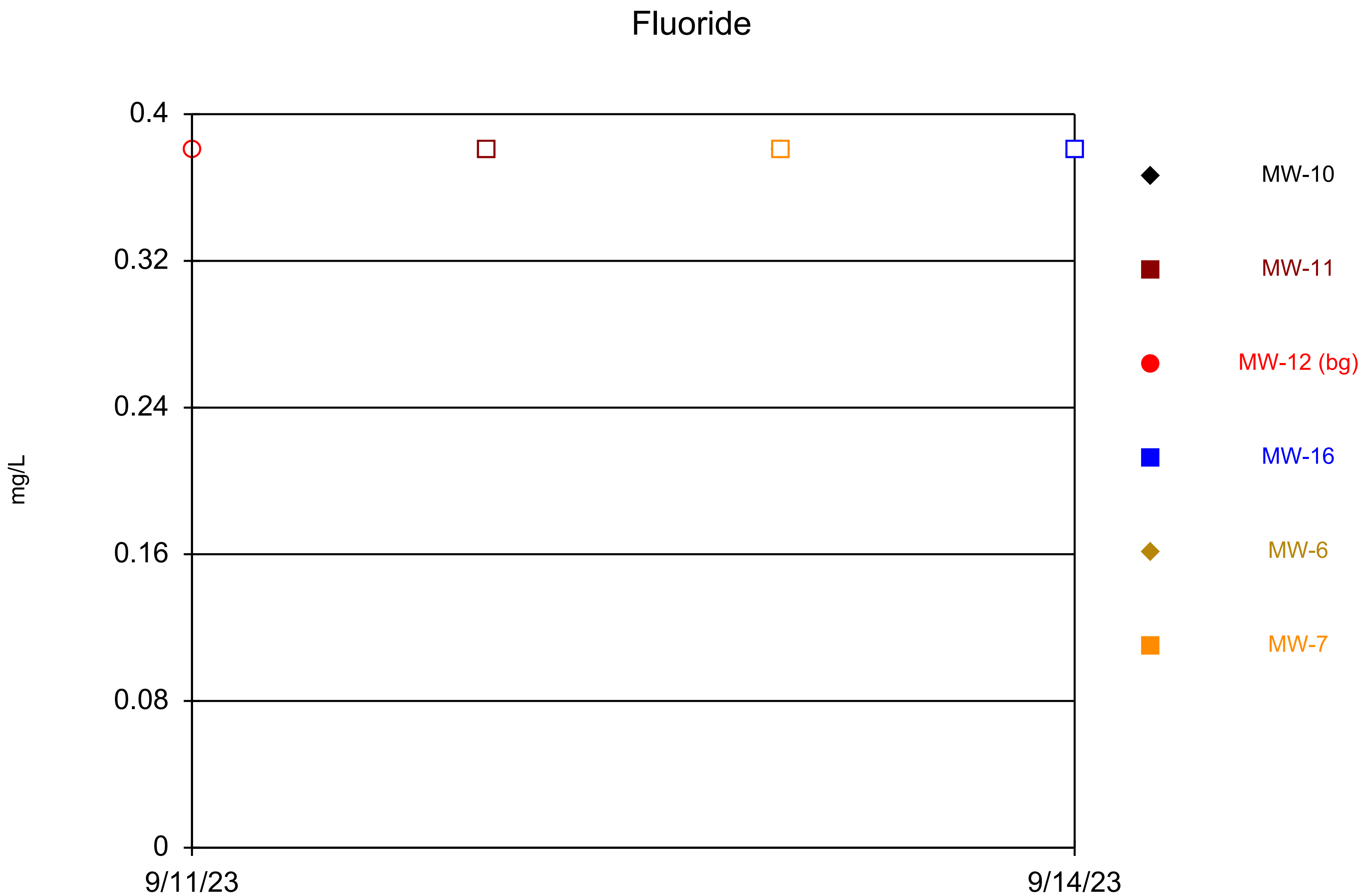
Time Series

Constituent: Field Specific Conductance (umhos/cm)   Analysis Run 10/23/2023 11:39 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-10	MW-11	MW-12 (bg)	MW-16	MW-6	MW-7	MW-24/24R
9/23/2016	1664	1349	1358	1123	1587	1153	1142
9/5/2017	1079	766	760	716	493.2	641	883
4/25/2018							1008
9/17/2018	1012	778	807	682	959	696	589
4/23/2019							613
9/23/2019	990	779	583	475	654	488	428
9/21/2020			767				
9/22/2020		780			884		
9/23/2020				742		688	
9/24/2020	960						579
9/8/2021		783	776				
9/9/2021	960			759	852	669	
9/10/2021							590.8
9/6/2022		775	715				
9/7/2022					912		
9/8/2022				666		588.9	496.1
9/9/2022	882						
9/11/2023			839				
9/12/2023		868					
9/13/2023	974				992	749	
9/14/2023				744			

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Time Series   Analysis Run 10/23/2023 11:38 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Time Series

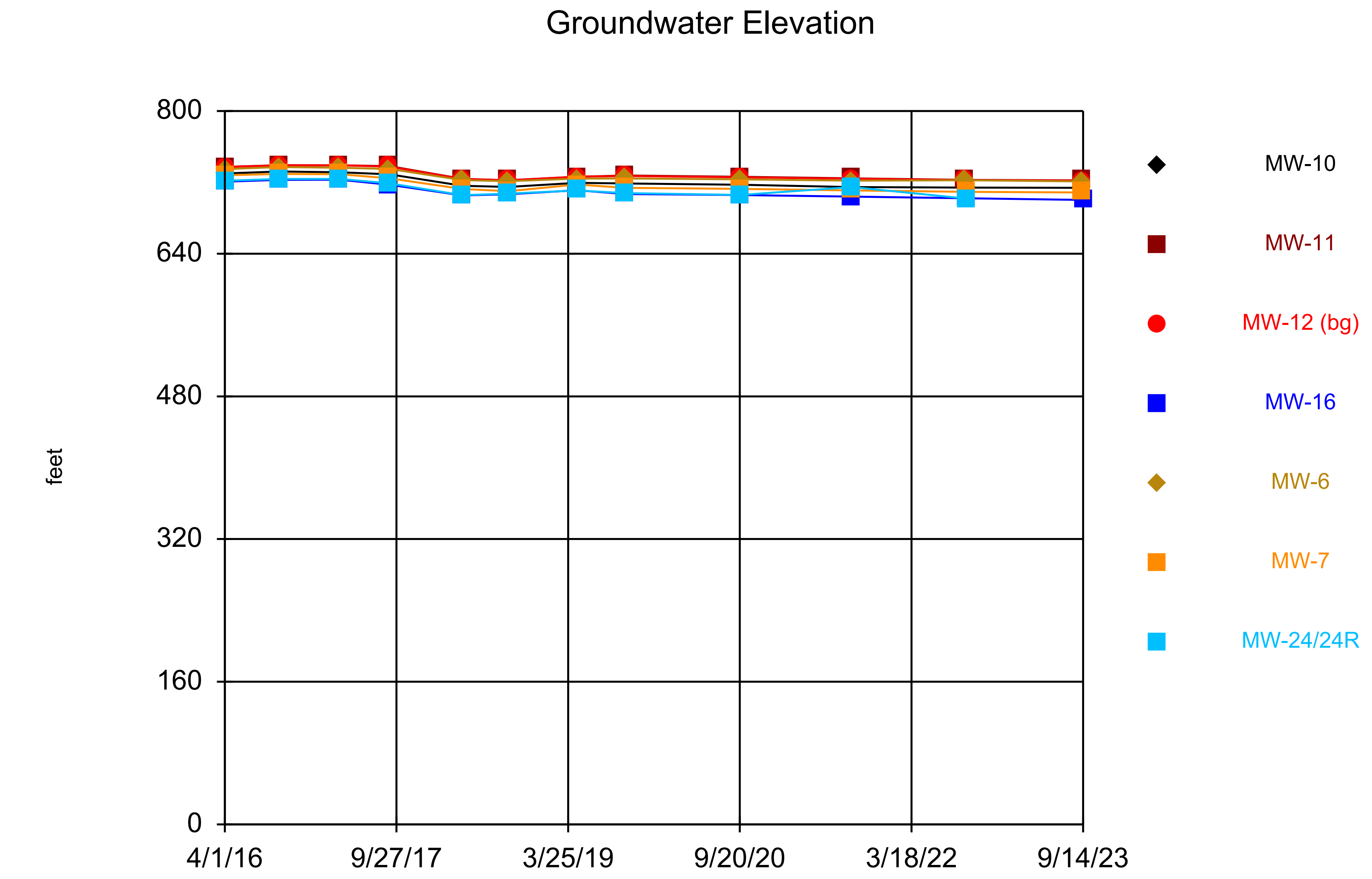
Constituent: Fluoride (mg/L)   Analysis Run 10/23/2023 11:39 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-10	MW-11	MW-12 (bg)	MW-16	MW-6	MW-7
9/11/2023			<0.38 (U)			
9/12/2023		<0.38 (U)				
9/13/2023	<0.38 (U)				<0.38 (U)	<0.38 (U)
9/14/2023				<0.38 (U)		

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Time Series Analysis Run 10/23/2023 11:38 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

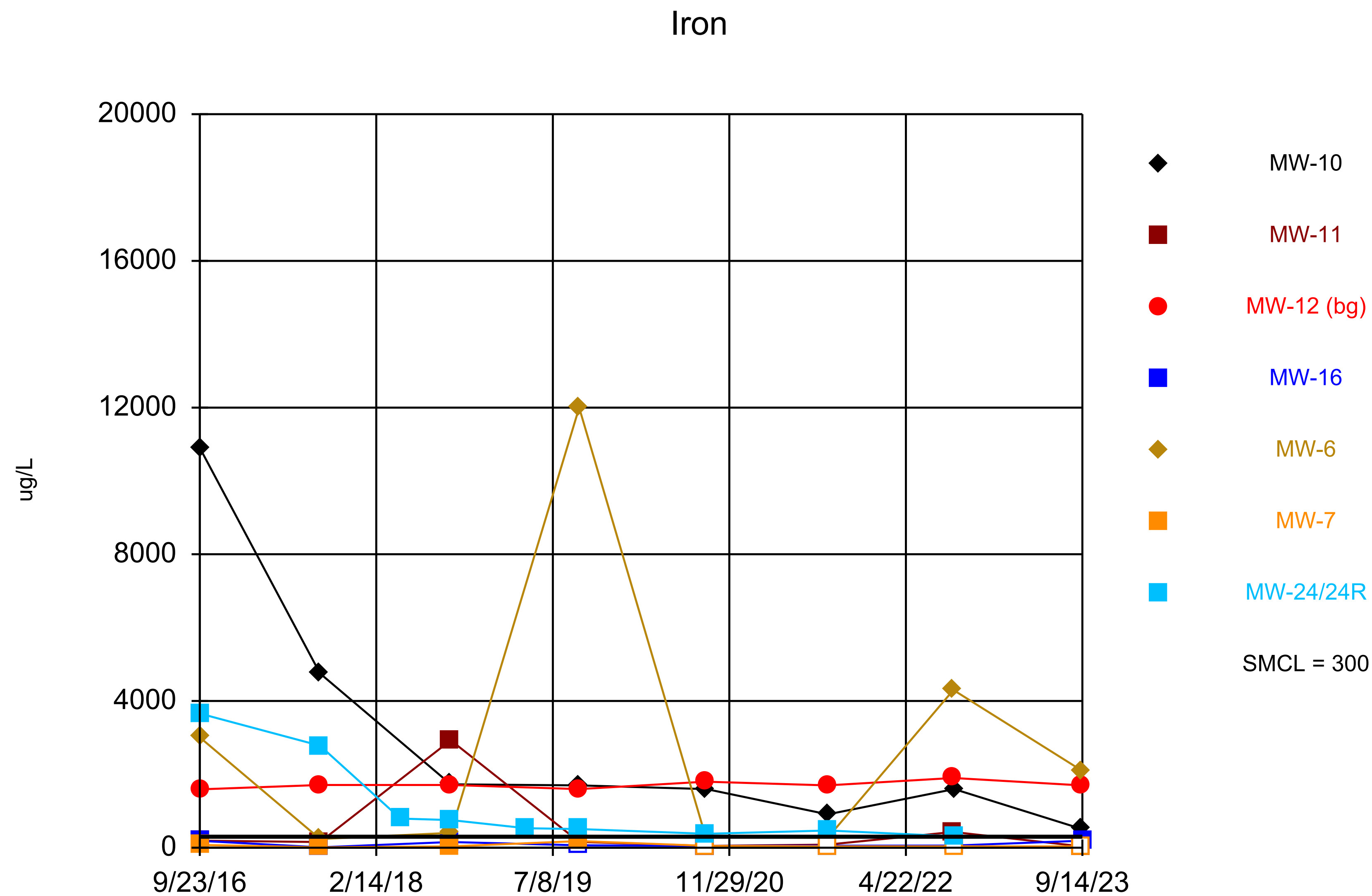
Time Series

Constituent: Groundwater Elevation (feet)   Analysis Run 10/23/2023 11:39 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-10	MW-11	MW-12 (bg)	MW-16	MW-6	MW-7	MW-24/24R
4/1/2016	730.04	737.41	737.23	720.76	734.9	727.93	721.76
9/23/2016	732.17	739.21	739.05	722.77	737.25	729.45	723.84
4/1/2017	731.27	739.14	739.04	722.96	736.38	729.16	723.8
9/5/2017	728.95	738.2	737.7	717.24	735.01	724.49	718.93
4/25/2018	716.1465	723.9643	723.5664	705.3648	722.5274	712.5044	705.63
9/17/2018	714.7965	722.3643	722.3064	706.5848	721.3174	710.1244	707.32
4/23/2019	719.4365	726.3043	726.3964	711.0948	724.1674	717.5244	710.87
9/23/2019	718.7665	727.6043	727.1164	706.8948	724.4274	713.8844	707.87
9/21/2020			725.66				
9/22/2020		726.21			723.4		
9/23/2020				705.71		712.7	
9/24/2020	717.3						705.82
9/8/2021		724.48	724.06				
9/9/2021	714.74			704	721.94	710.87	
9/10/2021							714.69
9/6/2022		722.7	722.52				
9/7/2022					722.27		
9/8/2022				702.2		709.39	701.81
9/9/2022	714.05						
9/11/2023			721.9				
9/12/2023		722.14					
9/13/2023	713.82				721.09	708.66	
9/14/2023				700.25			

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Time Series Analysis Run 10/23/2023 11:38 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Time Series

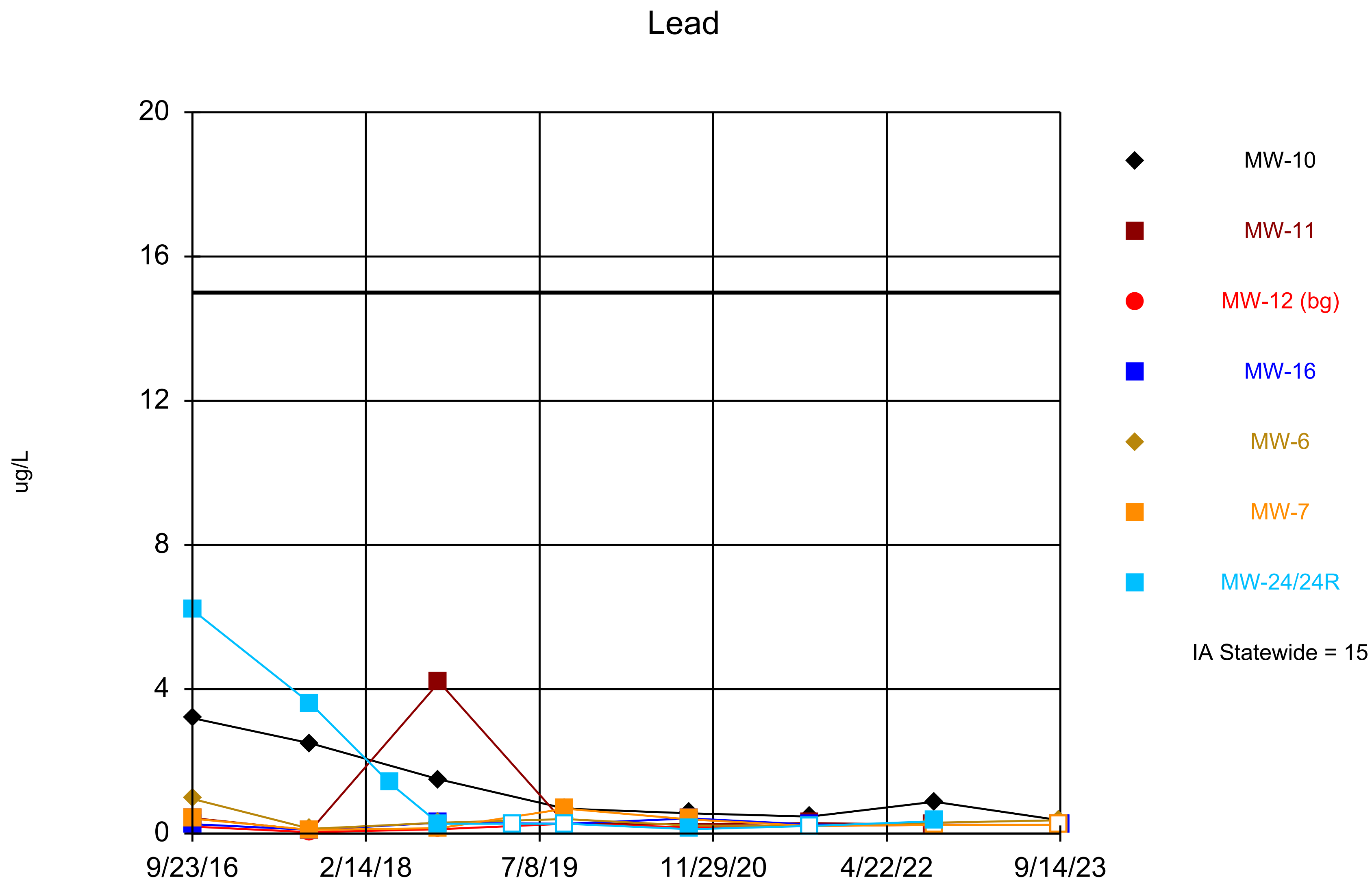
Constituent: Iron (ug/L) Analysis Run 10/23/2023 11:39 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-10	MW-11	MW-12 (bg)	MW-16	MW-6	MW-7	MW-24/24R
9/23/2016	10900	193	1590	187	3010	77.8	3660
9/5/2017	4750	154	1710	<9.6	240	11.4 (J)	2780
4/25/2018							793
9/17/2018	1730	2930	1710	157	403	35.6 (J)	755
4/23/2019							530
9/23/2019	1700	160	1600	<66	12000	180	510
9/21/2020			1800				
9/22/2020		<50			290		
9/23/2020				<50		<50	
9/24/2020	1600						380
9/8/2021		82 (J)	1700				
9/9/2021	910			53 (J)	270	<36	
9/10/2021							470
9/6/2022		430	1900				
9/7/2022					4300		
9/8/2022				59 (J)		<36	310
9/9/2022	1600						
9/11/2023			1700				
9/12/2023		<36 (U)					
9/13/2023	510				2100	<36 (U)	
9/14/2023				190			

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Time Series Analysis Run 10/23/2023 11:38 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Time Series

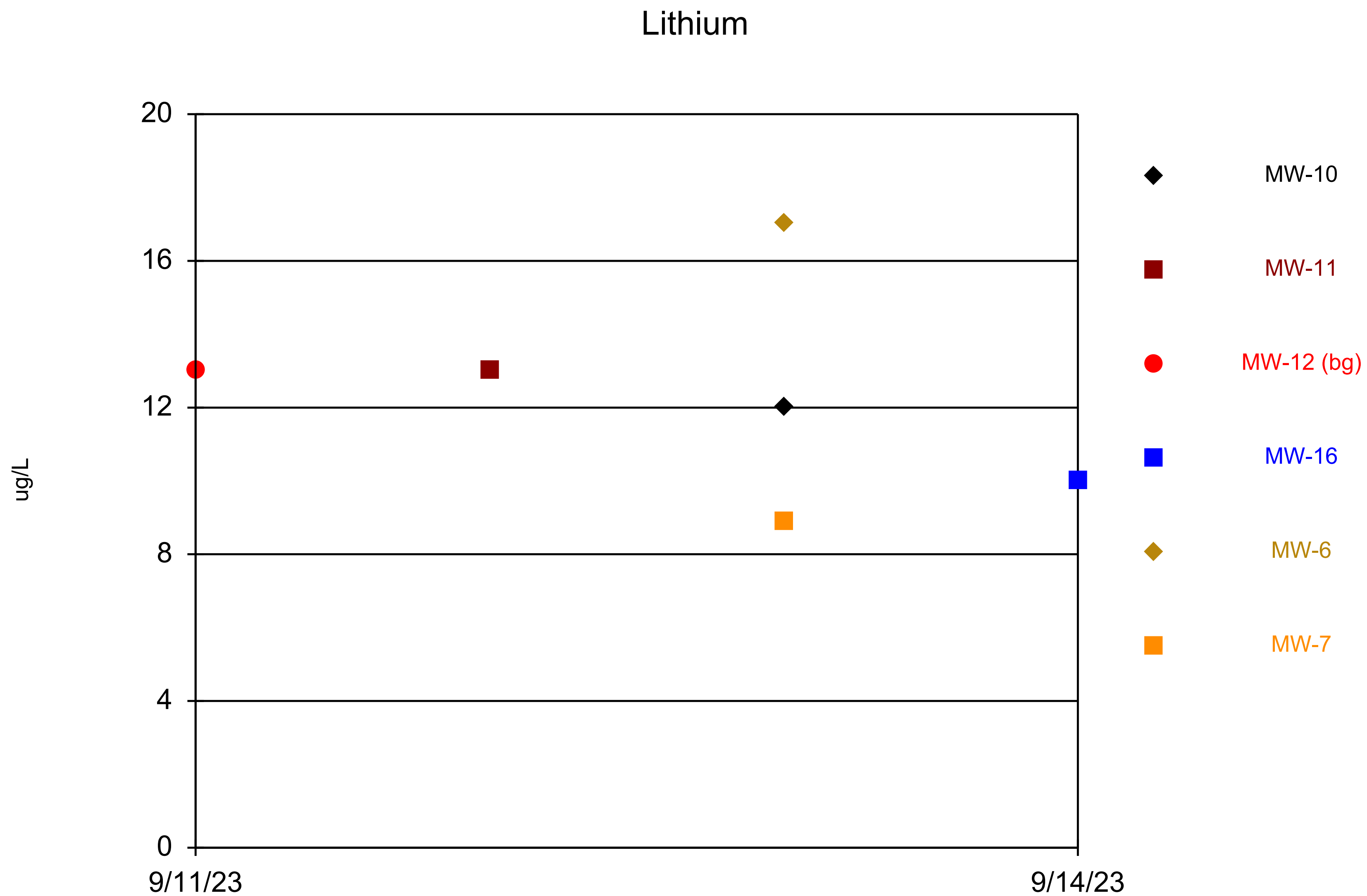
Constituent: Lead (ug/L)   Analysis Run 10/23/2023 11:39 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-10	MW-11	MW-12 (bg)	MW-16	MW-6	MW-7	MW-24/24R
9/23/2016	3.2	0.43 (J)	<0.19	0.26 (J)	0.96 (J)	0.41 (J)	6.2
9/5/2017	2.5	0.089 (J)	0.038 (J)	0.1 (J)	0.13 (J)	0.1 (J)	3.6
4/25/2018							1.4
9/17/2018	1.5	4.2	<0.12	0.3 (J)	0.3 (J)	0.15 (J)	0.27 (J)
4/23/2019							<0.27
9/23/2019	0.69	<0.27	<0.27	<0.27	0.4 (J)	0.69	<0.27
9/21/2020			0.17 (J)				
9/22/2020		0.26 (J)			0.22 (J)		
9/23/2020				0.42 (J)		0.39 (J)	
9/24/2020	0.56						0.12 (J)
9/8/2021		0.29 (J)	<0.21				
9/9/2021	0.47 (J)			0.25 (J)	0.21 (J)	<0.21	
9/10/2021							<0.21
9/6/2022		0.25 (J)	<0.24				
9/7/2022					0.3 (J)		
9/8/2022				<0.24		<0.24	0.34 (J)
9/9/2022	0.88						
9/11/2023			<0.24 (U)				
9/12/2023		<0.24 (U)					
9/13/2023	0.37 (J)				0.37 (J)	<0.24 (U)	
9/14/2023				<0.24 (U)			

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Time Series Analysis Run 10/23/2023 11:38 AM View: Deep

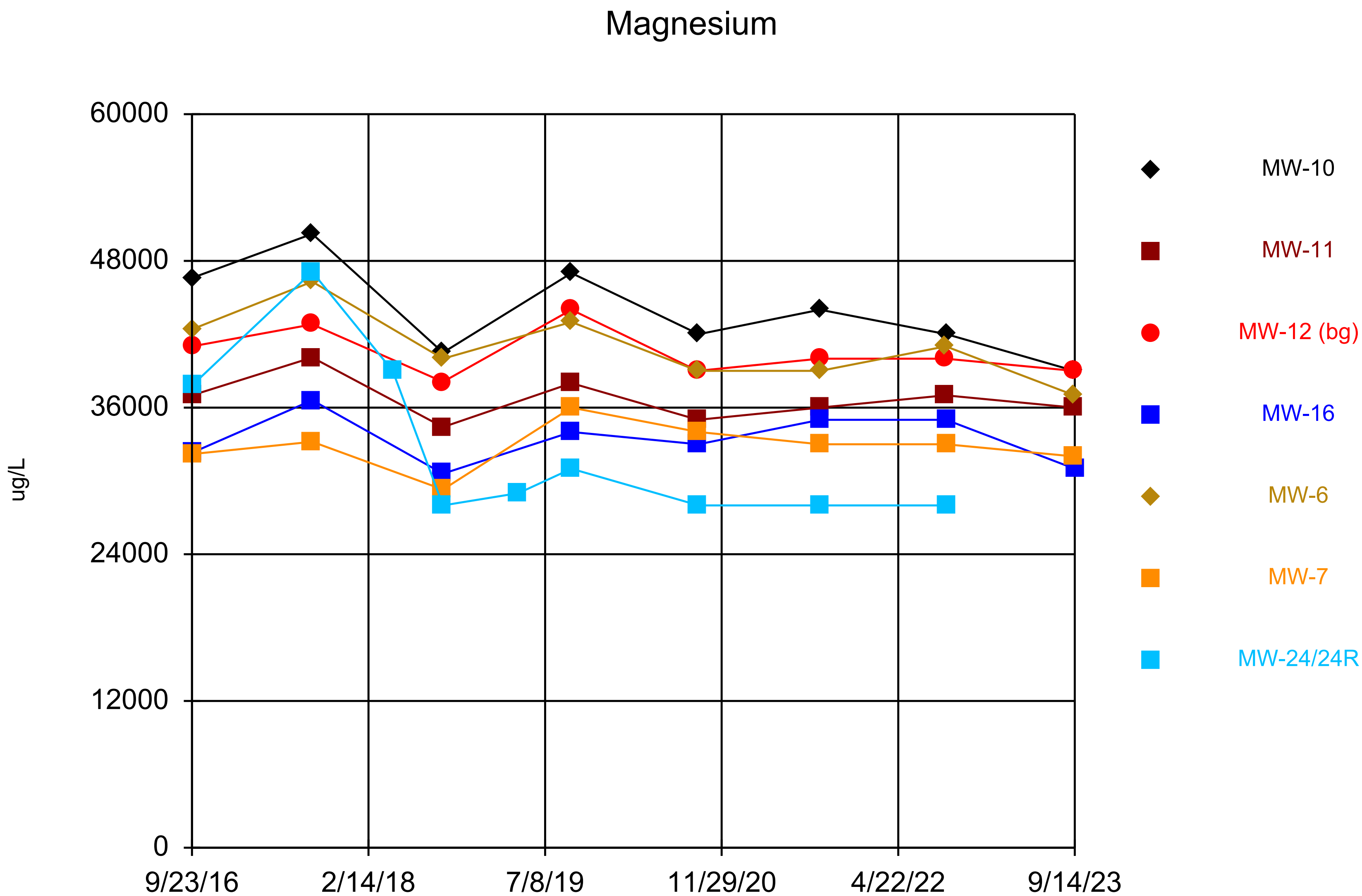
Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Time Series

Constituent: Lithium (ug/L) Analysis Run 10/23/2023 11:39 AM View: Deep
Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-10	MW-11	MW-12 (bg)	MW-16	MW-6	MW-7
9/11/2023			13			
9/12/2023		13				
9/13/2023	12				17	8.9 (J)
9/14/2023				10		

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Time Series Analysis Run 10/23/2023 11:38 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

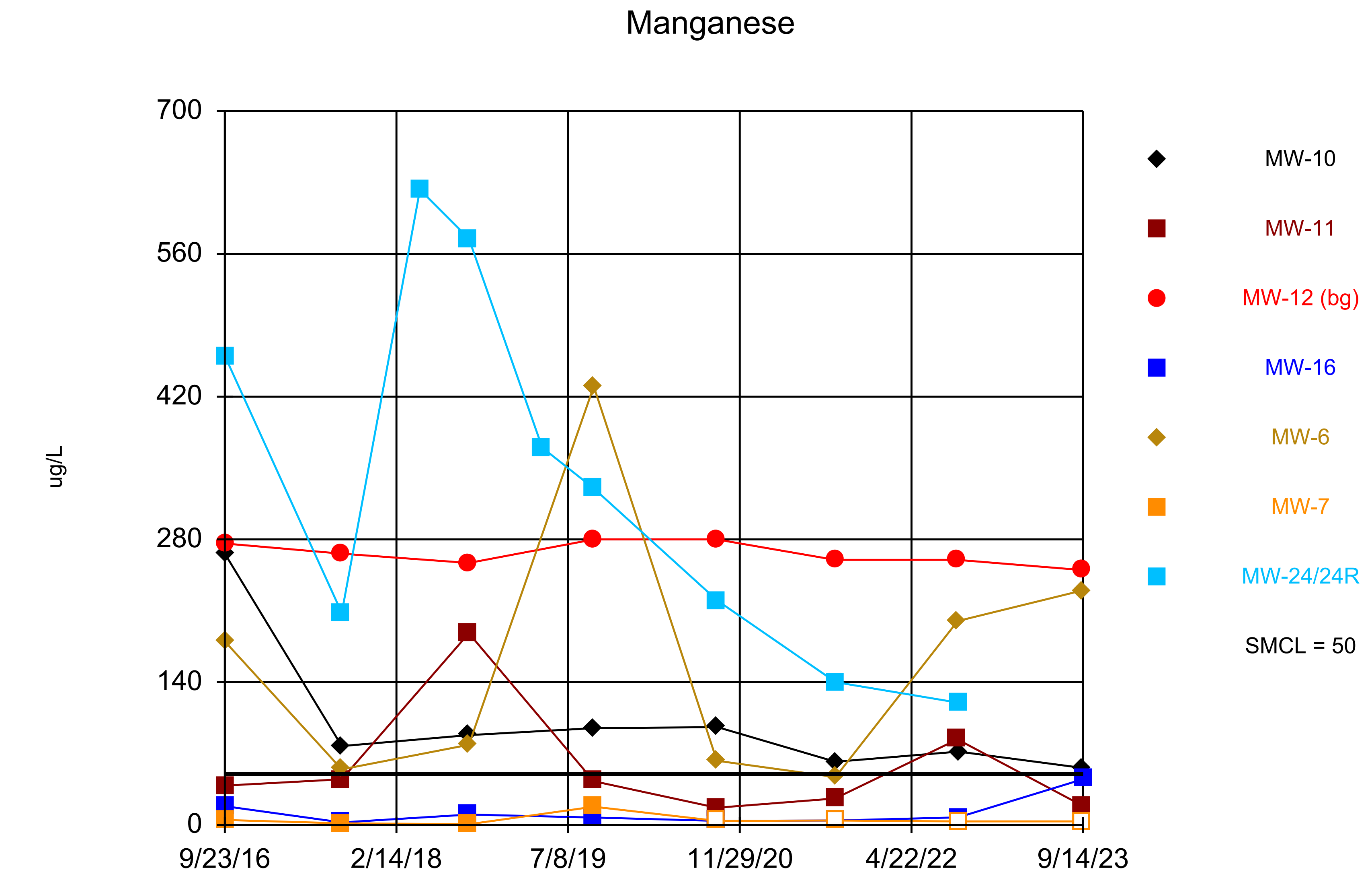
Time Series

Constituent: Magnesium (ug/L) Analysis Run 10/23/2023 11:39 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-10	MW-11	MW-12 (bg)	MW-16	MW-6	MW-7	MW-24/24R
9/23/2016	46600	37000	41000	32300	42400	32200	37800
9/5/2017	50200	40100	42800	36600	46300	33200	47100
4/25/2018							39000
9/17/2018	40500	34400	38100	30600	40000	29300	28000
4/23/2019							29000
9/23/2019	47000	38000	44000	34000	43000	36000	31000
9/21/2020			39000				
9/22/2020		35000			39000		
9/23/2020				33000		34000	
9/24/2020	42000						28000
9/8/2021		36000	40000				
9/9/2021	44000			35000	39000	33000	
9/10/2021							28000
9/6/2022		37000	40000				
9/7/2022					41000		
9/8/2022				35000		33000	28000
9/9/2022	42000						
9/11/2023			39000				
9/12/2023		36000					
9/13/2023	39000				37000	32000	
9/14/2023				31000			

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Time Series Analysis Run 10/23/2023 11:38 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Time Series

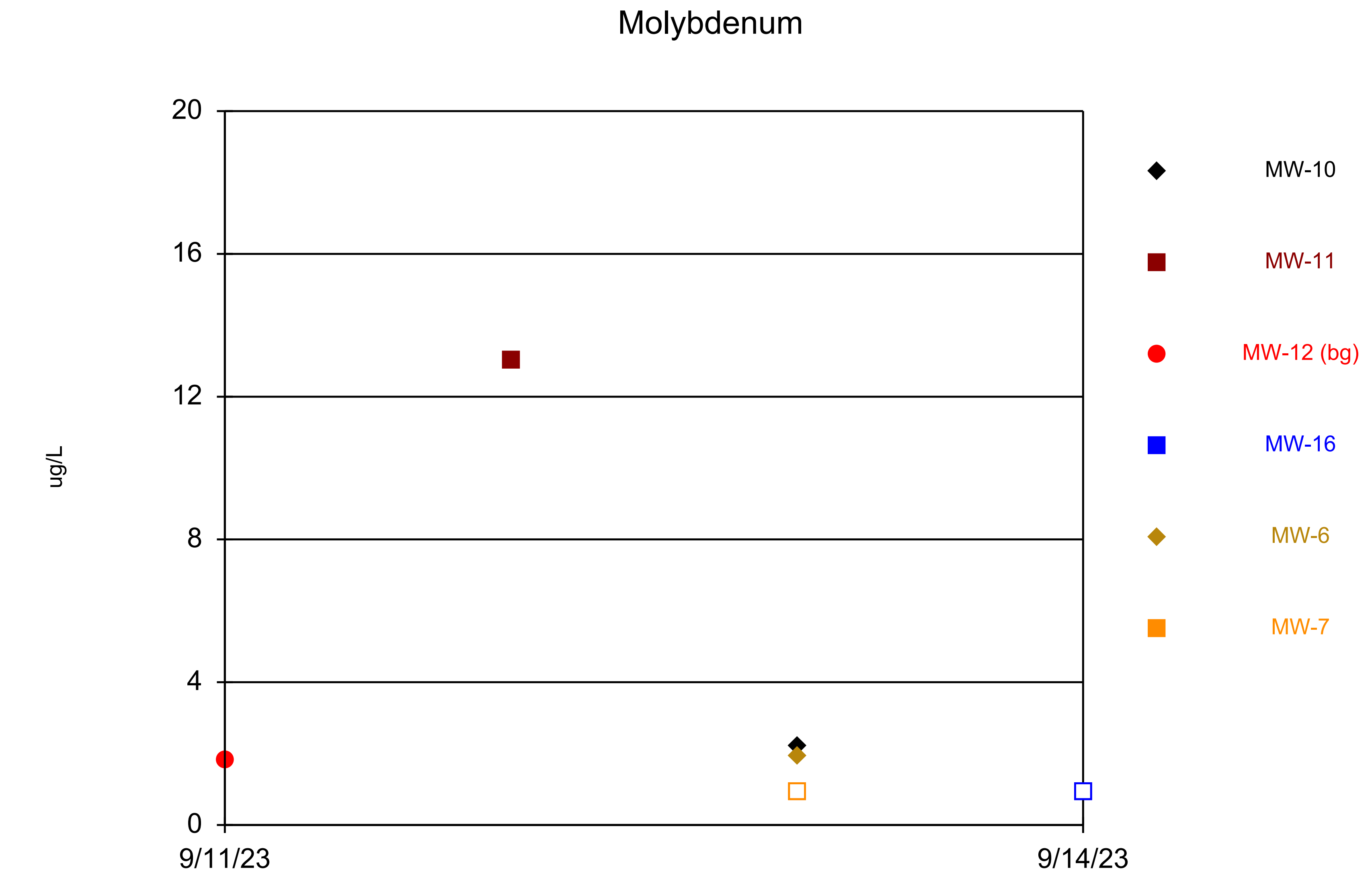
Constituent: Manganese (ug/L) Analysis Run 10/23/2023 11:39 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-10	MW-11	MW-12 (bg)	MW-16	MW-6	MW-7	MW-24/24R
9/23/2016	266	38.6	276	18.4	180	5	460
9/5/2017	77.4	44.8	266	2.5	54.6	1.7	208
4/25/2018							623
9/17/2018	88.2	188	257	10.3	78.7	0.81 (J)	575
4/23/2019							370
9/23/2019	95	43	280	7.3 (J)	430	18	330
9/21/2020			280				
9/22/2020		17			63		
9/23/2020				<4		<4	
9/24/2020	96						220
9/8/2021		26	260				
9/9/2021	62			<4.4	47	<4.4	
9/10/2021							140
9/6/2022		84	260				
9/7/2022					200		
9/8/2022				7.5 (J)		<3.6	120
9/9/2022	72						
9/11/2023			250				
9/12/2023		19					
9/13/2023	56				230	<3.6 (U)	
9/14/2023				45			

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Time Series Analysis Run 10/23/2023 11:38 AM View: Deep
Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Time Series

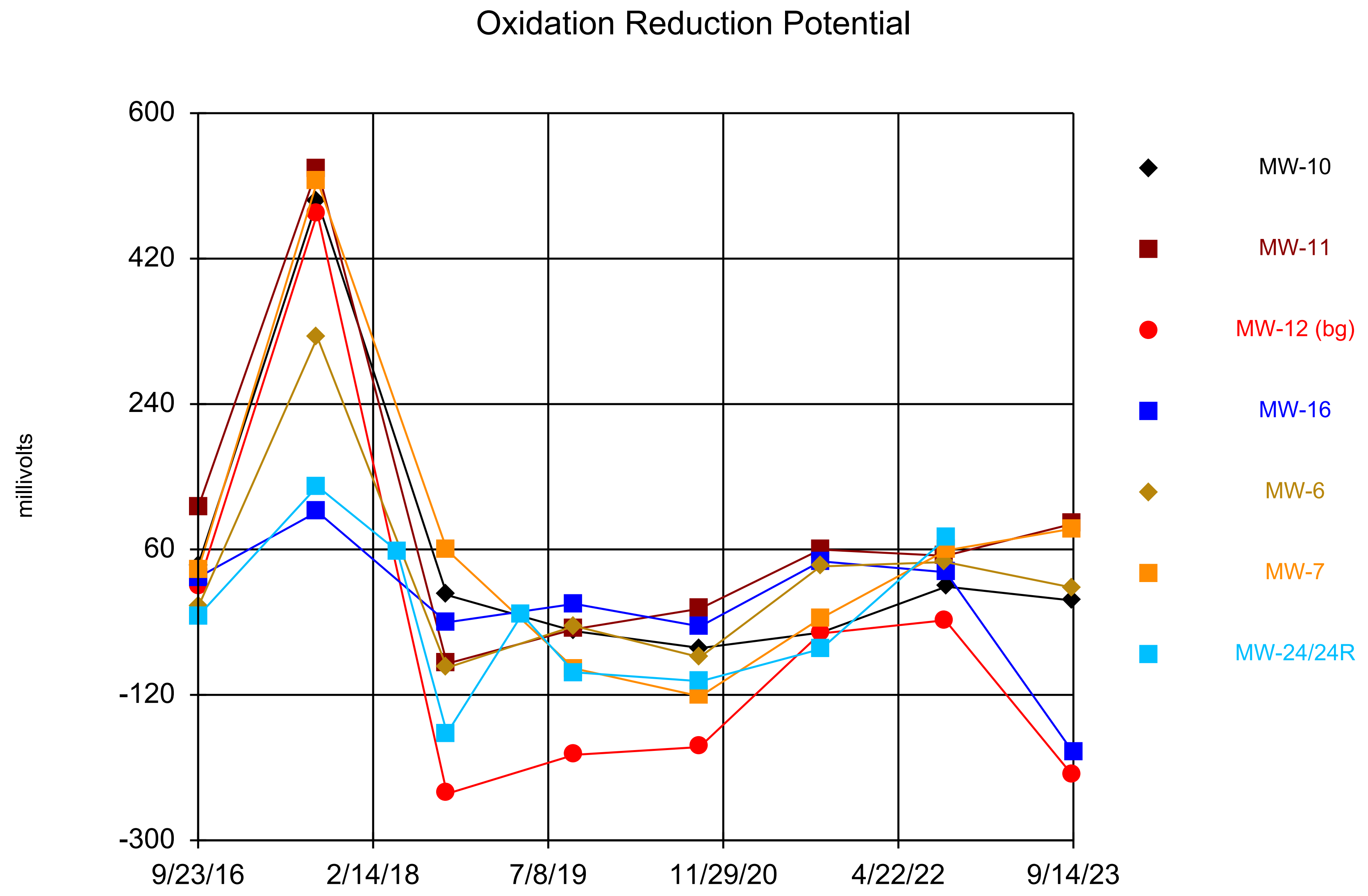
Constituent: Molybdenum (ug/L)   Analysis Run 10/23/2023 11:39 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-10	MW-11	MW-12 (bg)	MW-16	MW-6	MW-7
9/11/2023			1.8 (J)			
9/12/2023		13				
9/13/2023	2.2				1.9 (J)	<0.91 (U)
9/14/2023				<0.91 (U)		

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Time Series   Analysis Run 10/23/2023 11:38 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

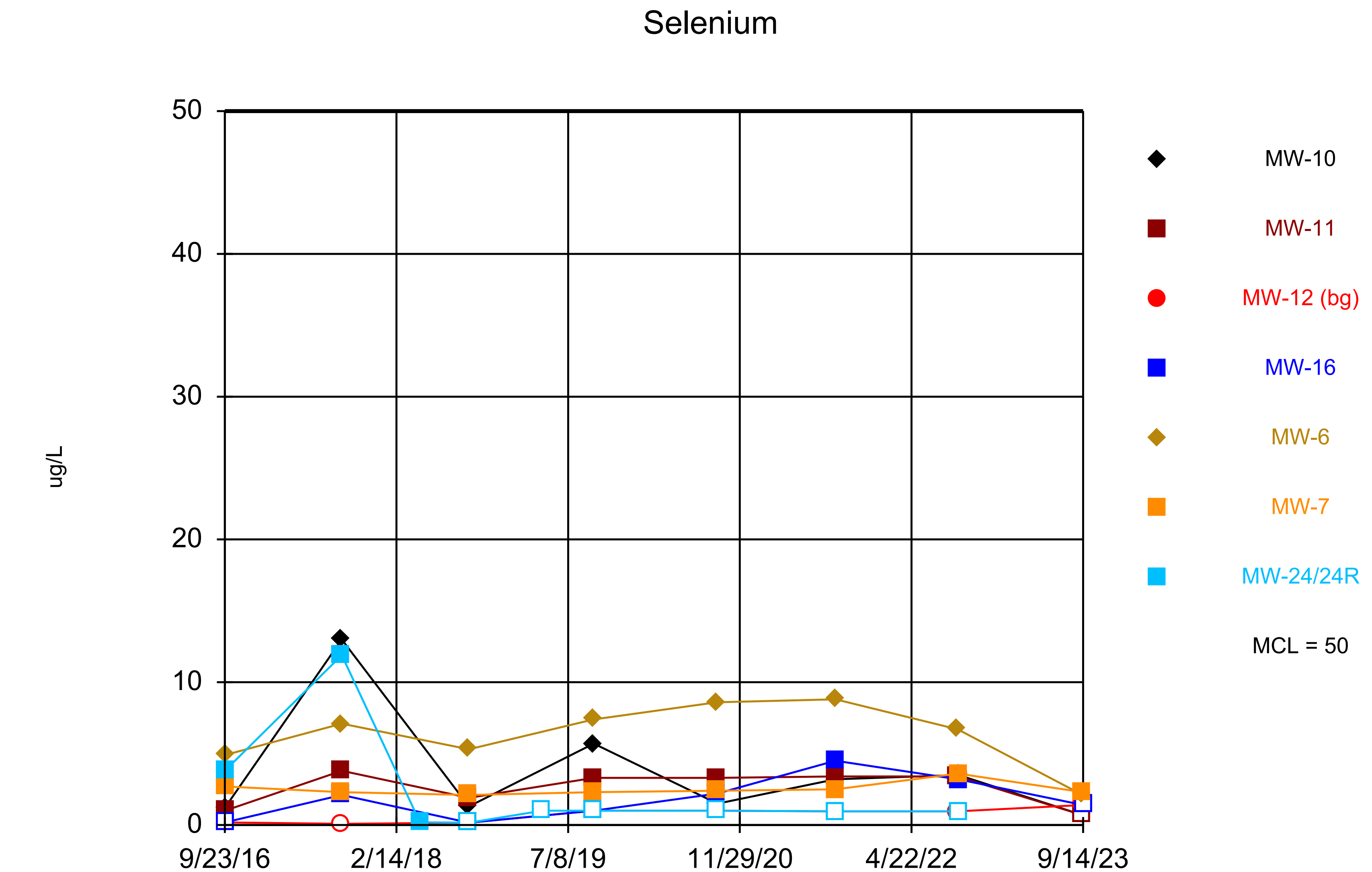
Time Series

Constituent: Oxidation Reduction Potential (millivolts)   Analysis Run 10/23/2023 11:39 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-10	MW-11	MW-12 (bg)	MW-16	MW-6	MW-7	MW-24/24R
9/23/2016	40.7	112	15	25.5	-11.4	34.3	-22.4
9/5/2017	491.7	531.5	476.1	106.7	322.6	516.3	138.2
4/25/2018							58.3
9/17/2018	3.6	-81.3	-242.3	-30.2	-86.4	59.3	-167.3
4/23/2019							-20.6
9/23/2019	-41	-38.7	-194.1	-7.3	-34.8	-87.3	-92.1
9/21/2020			-184.5				
9/22/2020		-13.3			-73.3		
9/23/2020				-35.3		-121.7	
9/24/2020	-62						-103.1
9/8/2021		59.9	-44		38.9		
9/9/2021	-42.8			45.3		-25.1	
9/10/2021							-63.2
9/6/2022		52.1	-27.6				
9/7/2022					44.5		
9/8/2022				31.8		58.7	73.6
9/9/2022	14						
9/11/2023			-219.1				
9/12/2023		91.7					
9/13/2023	-3.3				12.7	85.9	
9/14/2023				-191.5			

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Time Series Analysis Run 10/23/2023 11:38 AM View: Deep
Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Time Series

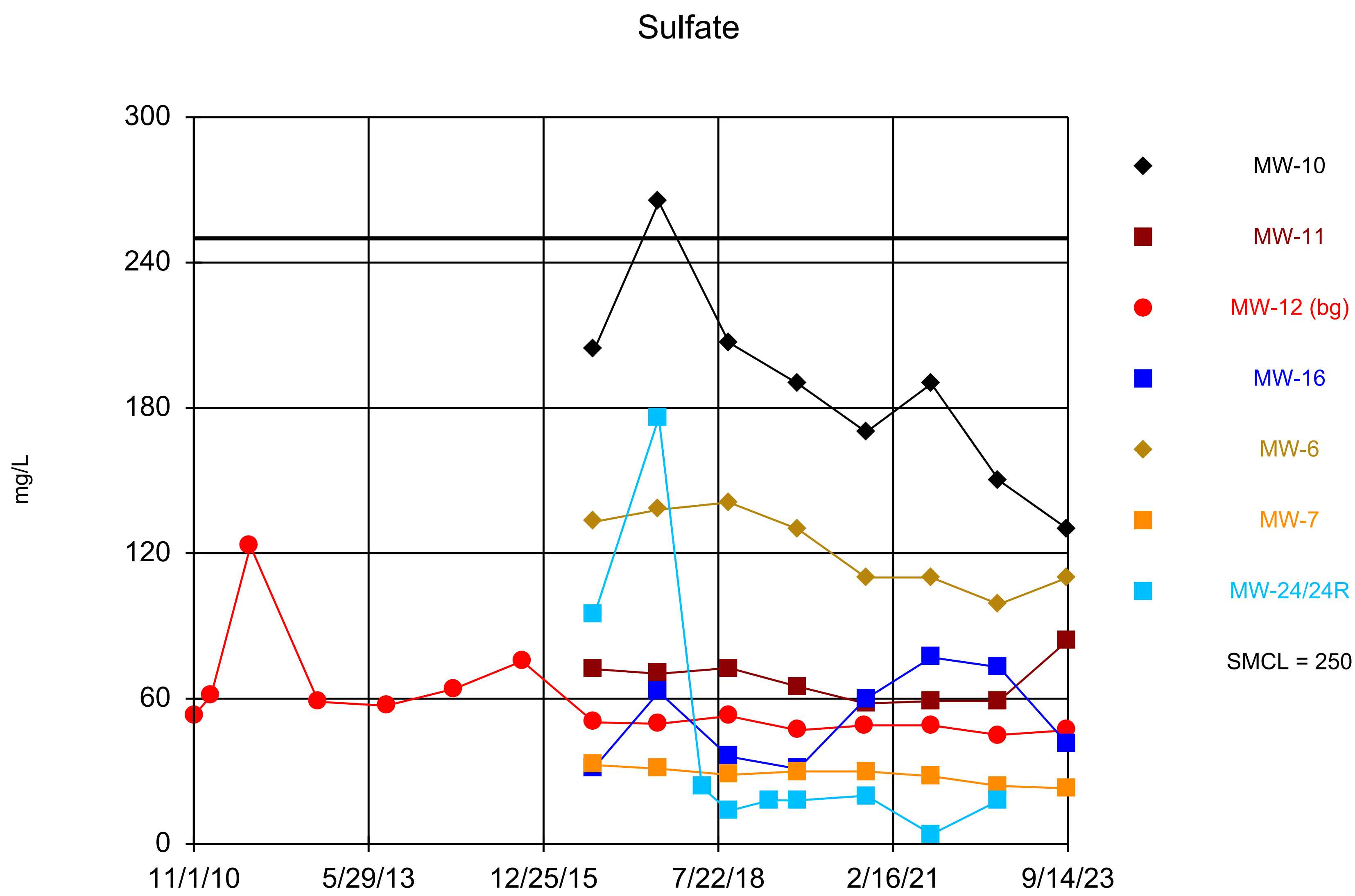
Constituent: Selenium (ug/L)   Analysis Run 10/23/2023 11:39 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-10	MW-11	MW-12 (bg)	MW-16	MW-6	MW-7	MW-24/24R
9/23/2016	1.2	1	<0.18	<0.18	4.9	2.7	3.8
9/5/2017	13	3.8	<0.086	2.1	7.1	2.3	11.9
4/25/2018							0.19 (J)
9/17/2018	1.3	1.9	<0.16	<0.16	5.3	2.1	<0.16
4/23/2019							<1
9/23/2019	5.7	3.3 (J)	<1	<1	7.4	2.3 (J)	<1
9/21/2020			<1				
9/22/2020		3.3 (J)			8.6		
9/23/2020				2.2 (J)		2.4 (J)	
9/24/2020	1.5 (J)						<1
9/8/2021		3.4 (J)	<0.96				
9/9/2021	3.2 (J)			4.5 (J)	8.8	2.5 (J)	
9/10/2021							<0.96
9/6/2022		3.4 (J,B)	<0.96				
9/7/2022					6.7		
9/8/2022				3.2 (J)		3.6 (J,B)	<0.96
9/9/2022	3.5 (J,B)						
9/11/2023			<1.4 (U)				
9/12/2023		<1.4 (U)					
9/13/2023	<1.4 (U)				2.1 (J)	2.3 (J)	
9/14/2023				<1.4 (U)			

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Time Series Analysis Run 10/23/2023 11:38 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

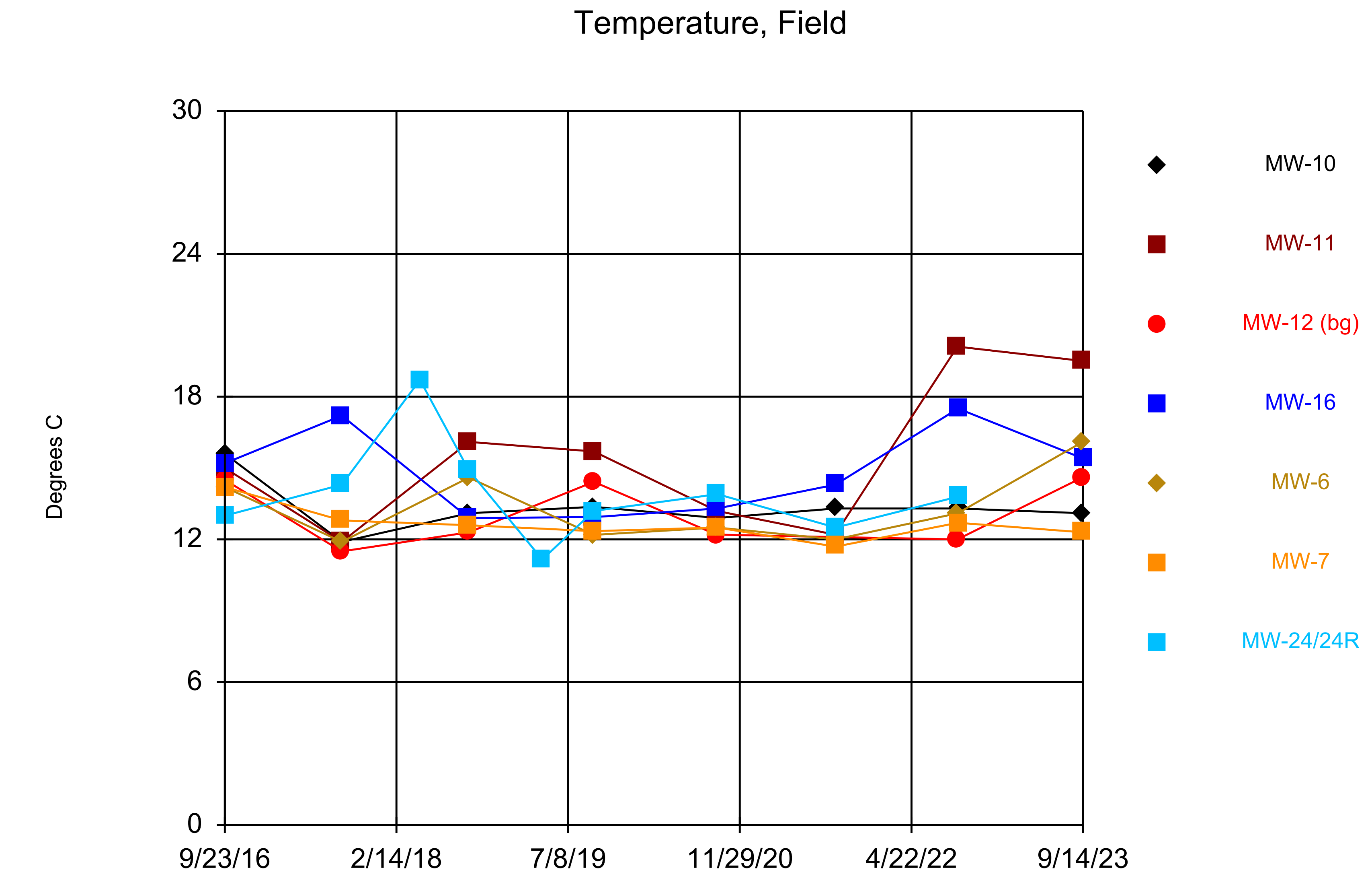
Time Series

Constituent: Sulfate (mg/L)   Analysis Run 10/23/2023 11:39 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-10	MW-11	MW-12 (bg)	MW-16	MW-6	MW-7	MW-24/24R
11/1/2010			52.9				
2/1/2011			61.2				
9/1/2011			123				
9/1/2012			58.7				
9/1/2013			57.1				
9/1/2014			64.1				
9/1/2015			75.5				
9/23/2016	204	72.2	50.2	31.6	133	32.6	94.5
9/5/2017	265	70.3	49.6	62.7	138	31.1	176
4/25/2018							23.4
9/17/2018	207	72.7	52.8	36.1	141	28.6	13.7
4/23/2019							18
9/23/2019	190	65	47	31	130	30	18
9/21/2020			49				
9/22/2020		58			110		
9/23/2020				60		30	
9/24/2020	170						20
9/8/2021		59	49				
9/9/2021	190			77	110	28	
9/10/2021							4
9/6/2022		59	45				
9/7/2022					99		
9/8/2022				73		24	18
9/9/2022	150						
9/11/2023			47				
9/12/2023		84					
9/13/2023	130				110	23	
9/14/2023				41			

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Time Series Analysis Run 10/23/2023 11:38 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

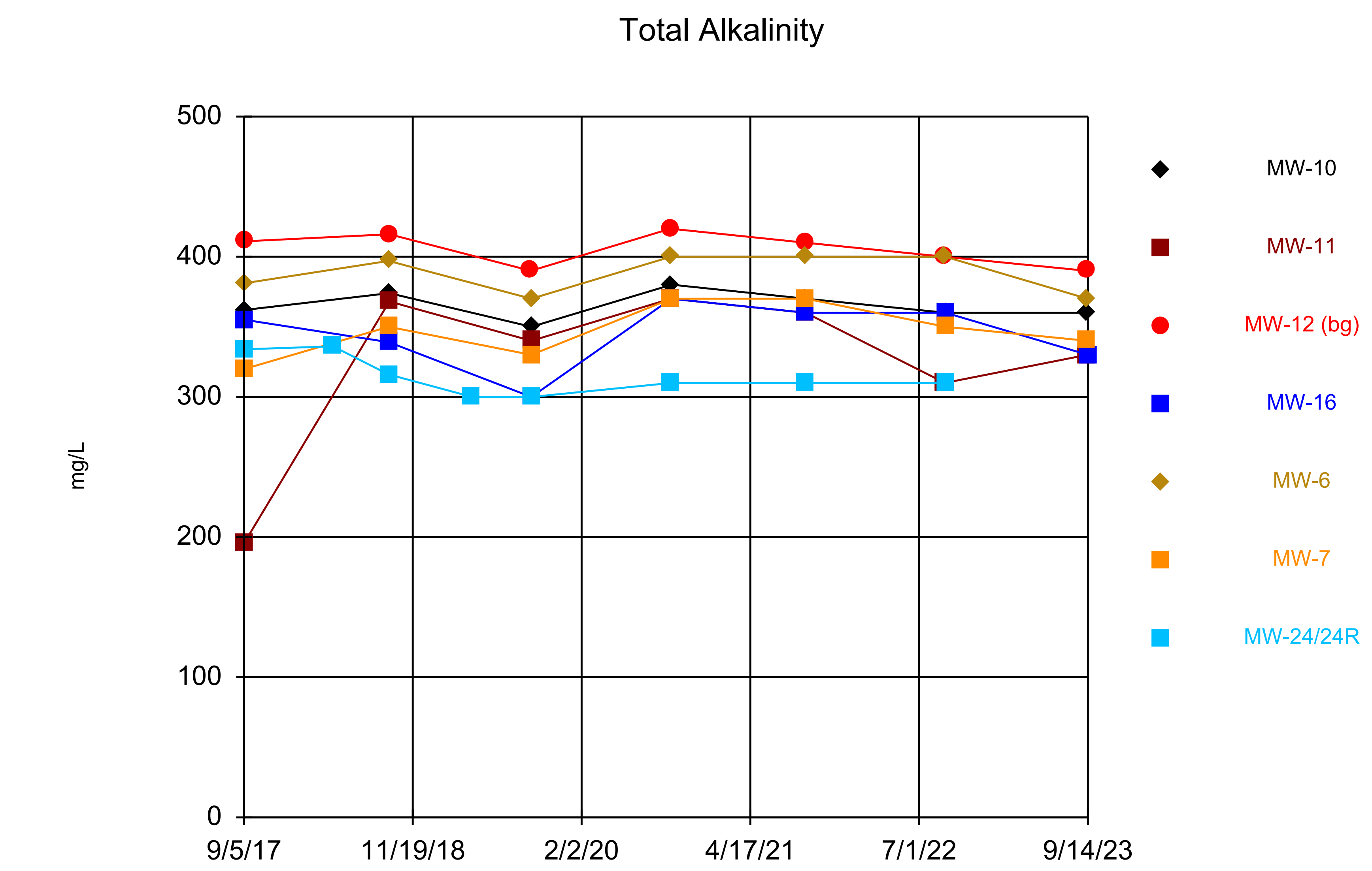
Time Series

Constituent: Temperature, Field (Degrees C)   Analysis Run 10/23/2023 11:39 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-10	MW-11	MW-12 (bg)	MW-16	MW-6	MW-7	MW-24/24R
9/23/2016	15.6	15	14.5	15.2	14.2	14.2	13
9/5/2017	11.9	11.9	11.5	17.2	11.9	12.8	14.3
4/25/2018							18.7
9/17/2018	13.1	16.1	12.3	12.9	14.6	12.6	14.9
4/23/2019							11.16
9/23/2019	13.37	15.7	14.42	12.94	12.19	12.35	13.2
9/21/2020			12.2				
9/22/2020		13.2			12.5		
9/23/2020				13.3		12.5	
9/24/2020	12.9						13.9
9/8/2021		12.2	12.1				
9/9/2021	13.3			14.3	12	11.7	
9/10/2021							12.5
9/6/2022		20.1	12				
9/7/2022					13.1		
9/8/2022				17.5		12.7	13.8
9/9/2022	13.3						
9/11/2023			14.6				
9/12/2023		19.5					
9/13/2023	13.1				16.1	12.3	
9/14/2023				15.4			

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Time Series Analysis Run 10/23/2023 11:38 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

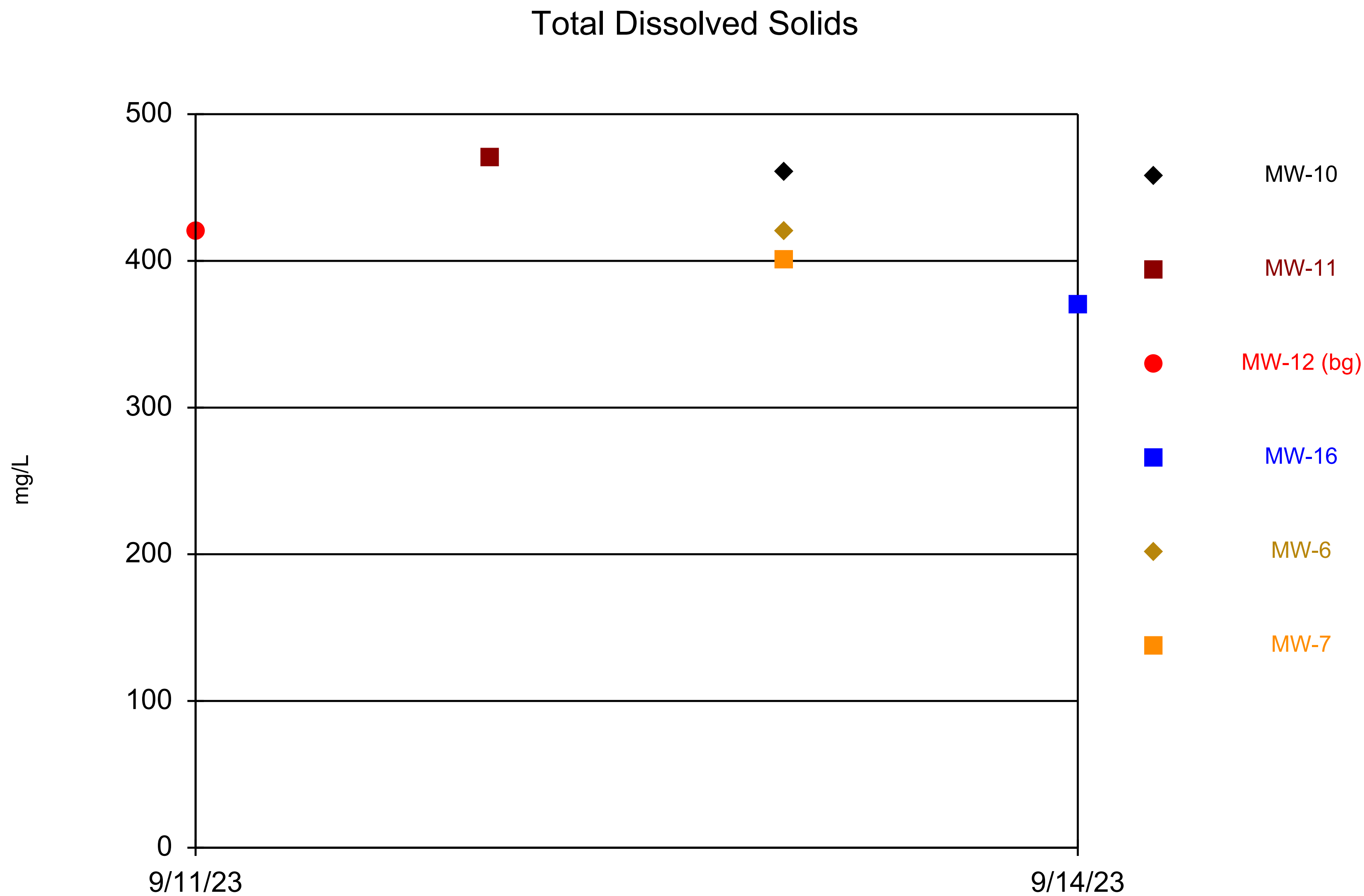
Time Series

Constituent: Total Alkalinity (mg/L) Analysis Run 10/23/2023 11:39 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-10	MW-11	MW-12 (bg)	MW-16	MW-6	MW-7	MW-24/24R
9/5/2017					381		
9/6/2017	362	196					334
9/7/2017			411	355		320	
4/25/2018							336
9/17/2018					397	350	316
9/18/2018				339			
9/19/2018	374	368	416				
4/23/2019							300
9/23/2019			390				
9/24/2019	350	340		300	370	330	300
9/21/2020			420				
9/22/2020		370			400		
9/23/2020				370		370	
9/24/2020	380						310
9/8/2021		360	410				
9/9/2021	370			360	400	370	
9/10/2021							310
9/6/2022		310	400				
9/7/2022					400		
9/8/2022				360		350	310
9/9/2022	360						
9/11/2023			390				
9/12/2023		330					
9/13/2023	360				370	340	
9/14/2023				330			

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Time Series   Analysis Run 10/23/2023 11:38 AM   View: Deep
Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

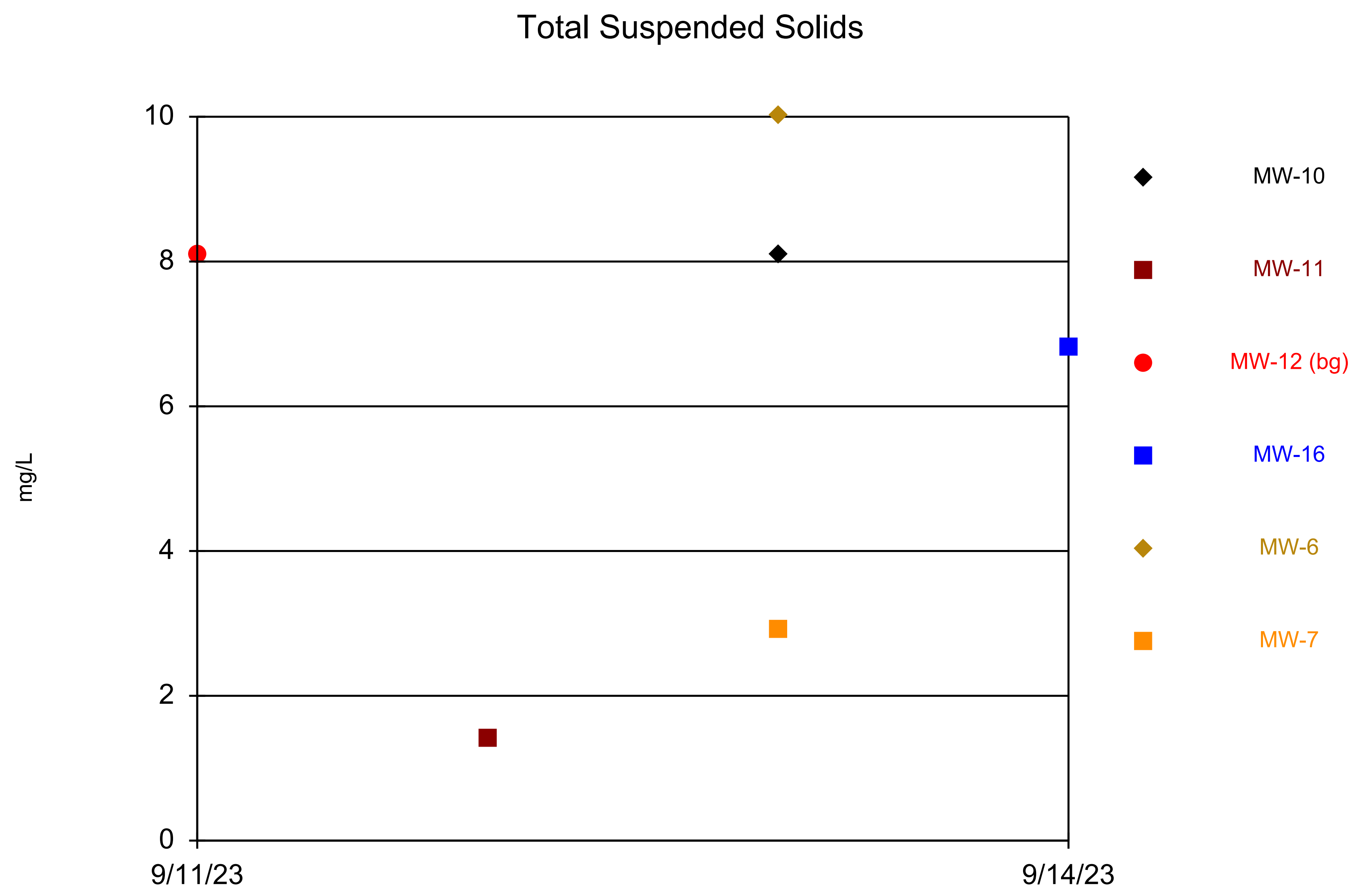
Time Series

Constituent: Total Dissolved Solids (mg/L)   Analysis Run 10/23/2023 11:39 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-10	MW-11	MW-12 (bg)	MW-16	MW-6	MW-7
9/11/2023			420			
9/12/2023		470				
9/13/2023	460				420	400
9/14/2023				370		

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Time Series Analysis Run 10/23/2023 11:38 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

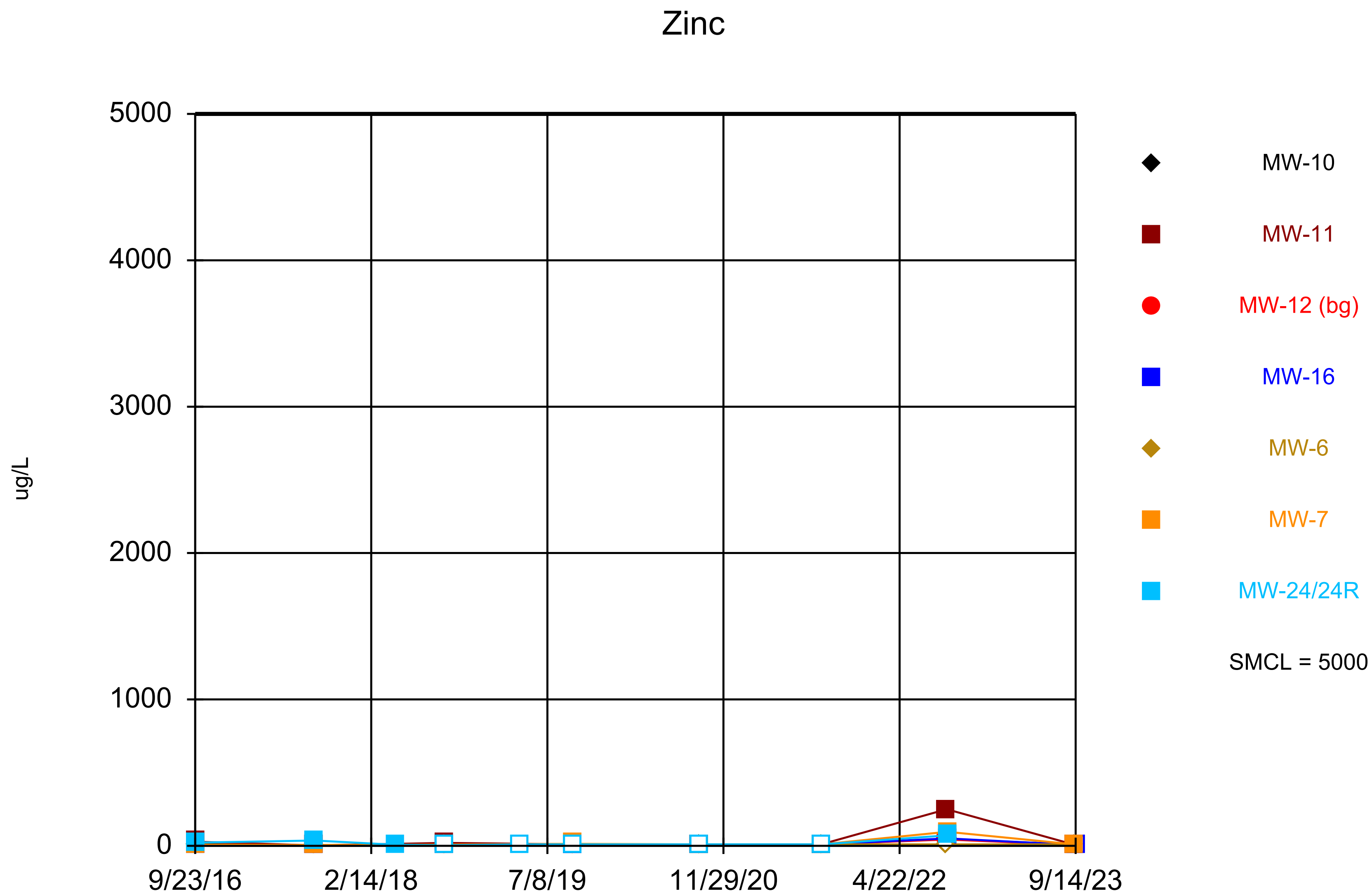
Time Series

Constituent: Total Suspended Solids (mg/L) Analysis Run 10/23/2023 11:39 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-10	MW-11	MW-12 (bg)	MW-16	MW-6	MW-7
9/11/2023			8.1			
9/12/2023		1.4 (J)				
9/13/2023	8.1				10	2.9
9/14/2023				6.8		

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Time Series Analysis Run 10/23/2023 11:38 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Time Series

Constituent: Zinc (ug/L)   Analysis Run 10/23/2023 11:39 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-10	MW-11	MW-12 (bg)	MW-16	MW-6	MW-7	MW-24/24R
9/23/2016	12.7	28.3	3.2 (J)	2.5 (J)	8.1 (J)	8.1 (J)	22
9/5/2017	3.6 (J)	2.4 (J)	1.4 (J)	2.2 (J)	1.5 (J)	5.5 (J)	36.4
4/25/2018							7.7 (J)
9/17/2018	12.7	20.3	<3.7	6.4 (J)	6 (J)	8.4 (J)	<3.7
4/23/2019							<10
9/23/2019	<10	<10	<10	<10	<10	14 (J)	<10
9/21/2020			<10				
9/22/2020		<10			<10		
9/23/2020				<10		<10	
9/24/2020	<10						<10
9/8/2021		<10	<10				
9/9/2021	<10			<10	<10	<10	
9/10/2021							<10
9/6/2022		250	43				
9/7/2022					<10		
9/8/2022				51		96	71
9/9/2022	46						
9/11/2023			<6.4 (U)				
9/12/2023		<6.4 (U)					
9/13/2023	8.1 (J)				9.9 (J)	9.3 (J)	
9/14/2023				<6.4 (U)			

ND substitution: RL or RL/2 if <15% NDs.

Attachment E3

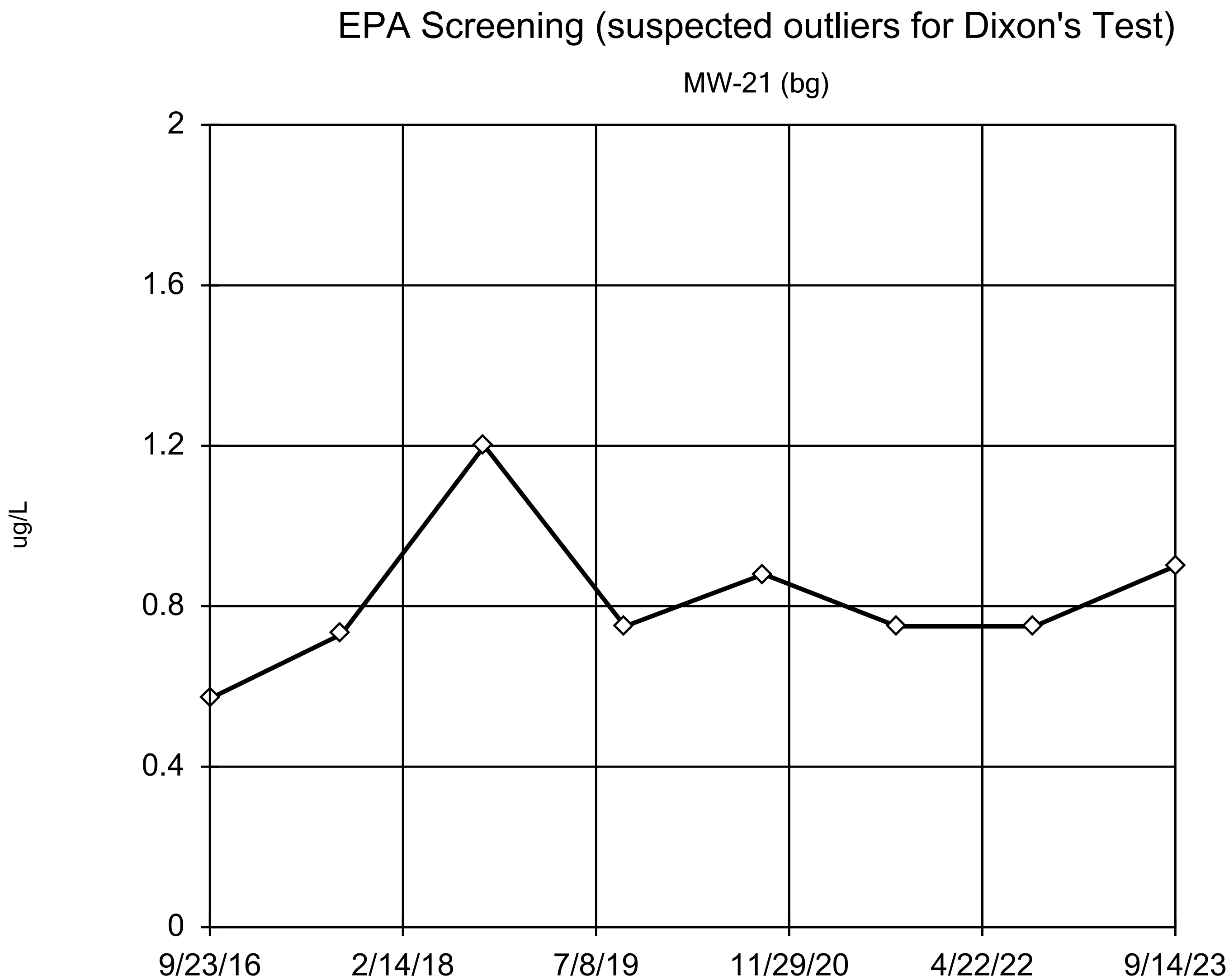
Outlier Analysis Results – Shallow

Outlier Analysis

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB   Printed 10/23/2023, 11:06 AM

Constituent	Well	Outlier	Value(s)	Date(s)	Method	Alpha	N	Mean	Std. Dev.	Distribution	Normality Test
Arsenic (ug/L)	MW-21 (bg)	No	n/a	n/a	EPA 1989	0.05	8	0.8162	0.185	normal	ShapiroWilk
Barium (ug/L)	MW-21 (bg)	No	n/a	n/a	EPA 1989	0.05	8	195.5	25.52	normal	ShapiroWilk
Beryllium (ug/L)	MW-21 (bg)	No	n/a	n/a	NP (nrm)	NaN	8	0.205	0.1108	unknown	ShapiroWilk
Boron (ug/L)	MW-21 (bg)	No	n/a	n/a	EPA 1989	0.05	8	98.58	32.13	normal	ShapiroWilk
Chloride (mg/L)	MW-21 (bg)	No	n/a	n/a	EPA 1989	0.05	8	14.6	9.898	ln(x)	ShapiroWilk
Cobalt (ug/L)	MW-21 (bg)	No	n/a	n/a	NP (nrm)	NaN	8	0.3412	0.2196	unknown	ShapiroWilk
Copper (ug/L)	**MW-21 (bg)**	**Yes**	**2.8**	**9/17/2018**	**Dixon`s**	**0.05**	**8**	**1.862**	**0.4274**	**normal**	**ShapiroWilk**
Iron (ug/L)	MW-21 (bg)	No	n/a	n/a	EPA 1989	0.05	8	285.5	409.6	ln(x)	ShapiroWilk
Lead (ug/L)	MW-21 (bg)	No	n/a	n/a	EPA 1989	0.05	8	0.5987	0.533	ln(x)	ShapiroWilk
Magnesium (ug/L)	MW-21 (bg)	No	n/a	n/a	EPA 1989	0.05	8	30963	6856	normal	ShapiroWilk
Manganese (ug/L)	MW-21 (bg)	No	n/a	n/a	EPA 1989	0.05	8	25.25	23.18	ln(x)	ShapiroWilk
Selenium (ug/L)	MW-21 (bg)	No	n/a	n/a	EPA 1989	0.05	8	1.287	0.4581	normal	ShapiroWilk
Sulfate (mg/L)	MW-21 (bg)	No	n/a	n/a	EPA 1989	0.05	24	50.1	5.367	normal	ShapiroWilk
Zinc (ug/L)	**MW-21 (bg)**	**Yes**	**130**	**9/7/2022**	**Dixon`s**	**0.05**	**8**	**24.16**	**42.86**	**normal**	**ShapiroWilk**

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



n = 8

Dixon's will not be run. No suspect values identified or unable to establish suspect values. Mean 0.8162, std. dev. 0.185, critical Tn 2.032

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.8745
Critical = 0.851
The distribution was found to be normally distributed.

Constituent: Arsenic   Analysis Run 10/23/2023 10:59 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

EPA 1989 Outlier Screening

Constituent: Arsenic (ug/L) Analysis Run 10/23/2023 11:06 AM View: shallow

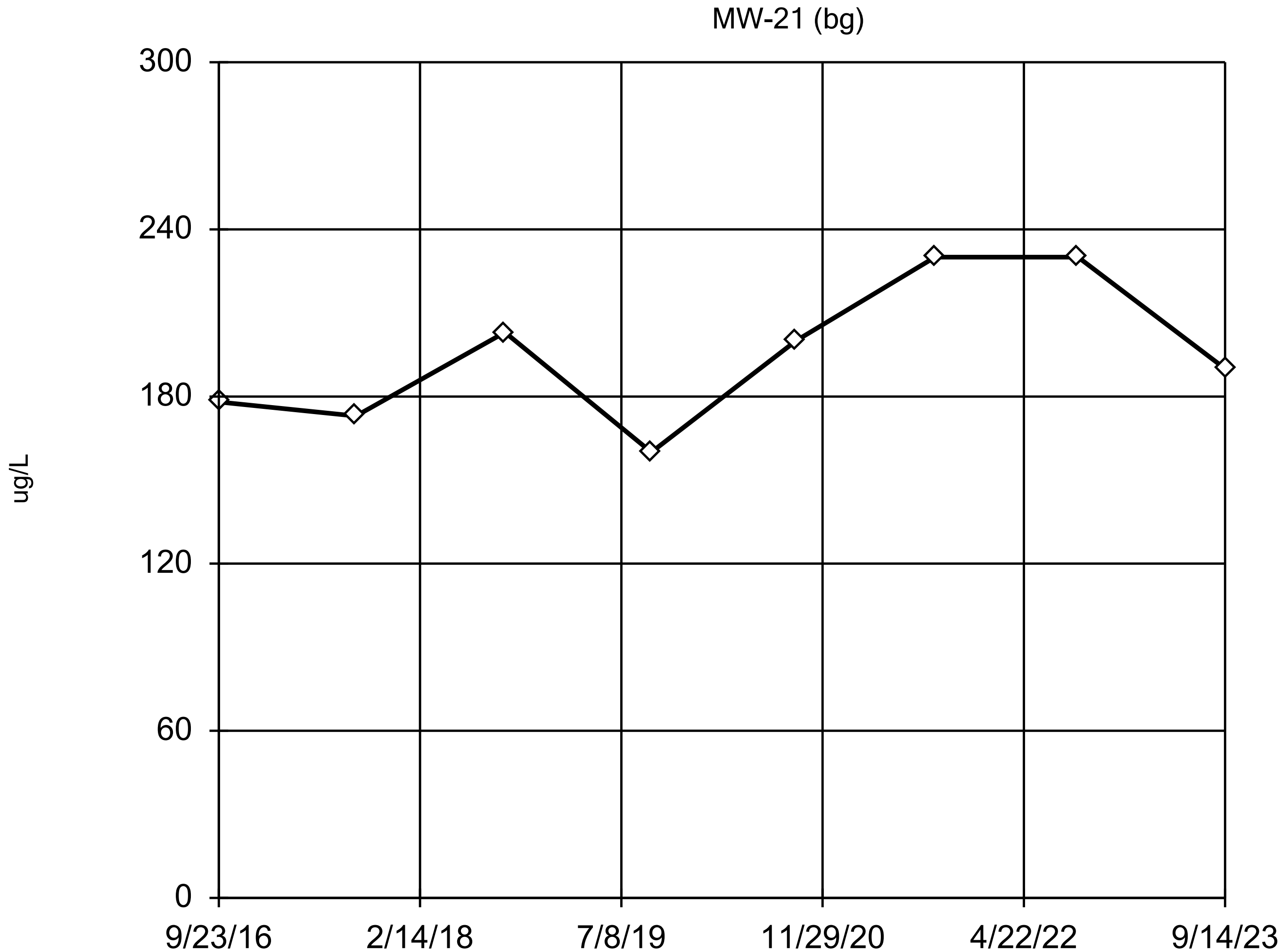
Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-21 (bg)
9/23/2016	0.57 (J)
9/5/2017	0.73 (J)
9/17/2018	1.2
9/23/2019	<0.75
9/23/2020	<0.88
9/10/2021	<0.75
9/7/2022	<0.75
9/14/2023	0.9 (J)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

EPA Screening (suspected outliers for Dixon's Test)



n = 8

Dixon's will not be run. No suspect values identified or unable to establish suspect values. Mean 195.5, std. dev. 25.52, critical Tn 2.032

Normality test used: Shapiro Wilk@alpha = 0.1
Calculated = 0.9356
Critical = 0.851
The distribution was found to be normally distributed.

Constituent: Barium Analysis Run 10/23/2023 10:59 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

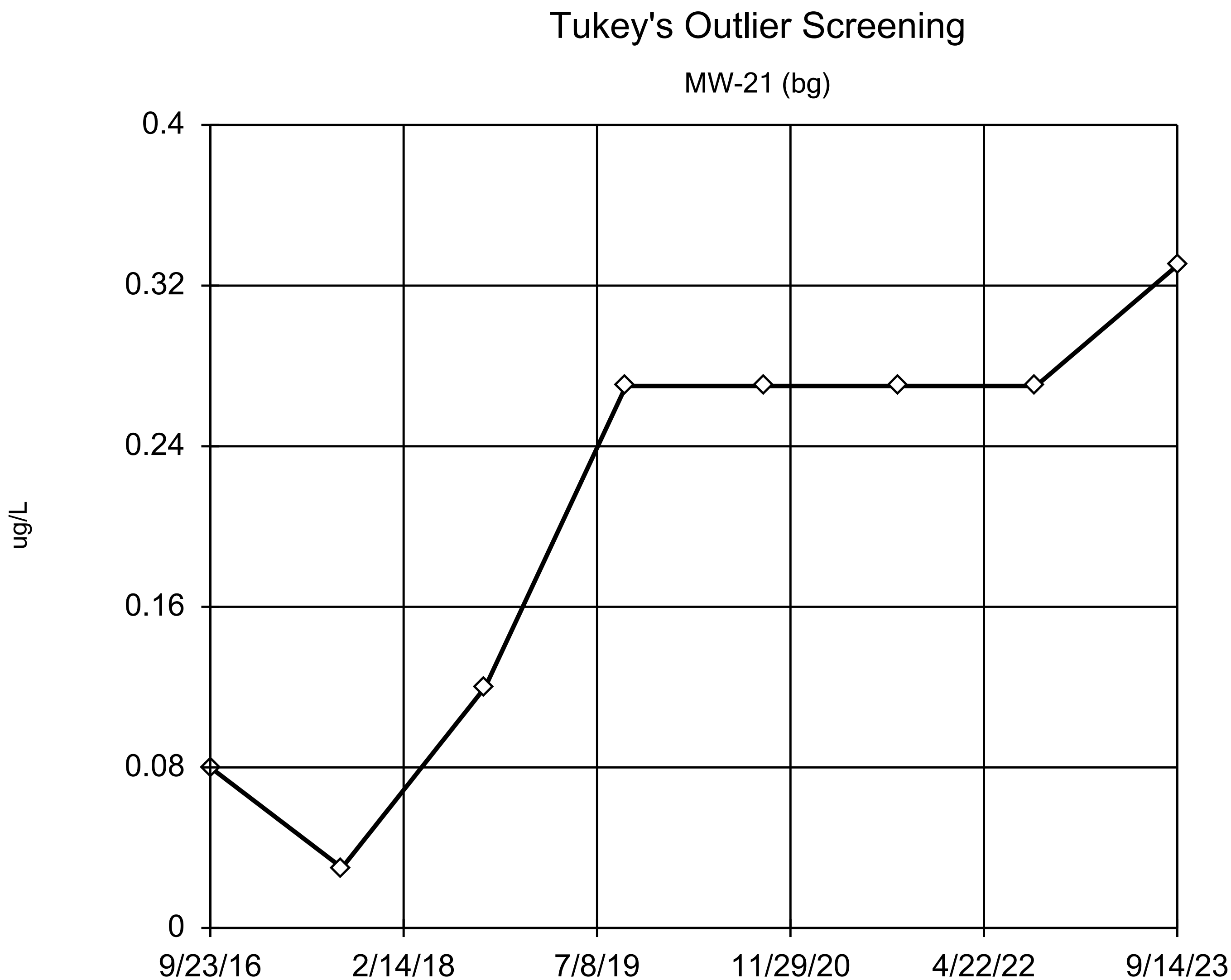
EPA 1989 Outlier Screening

Constituent: Barium (ug/L)   Analysis Run 10/23/2023 11:06 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-21 (bg)
9/23/2016	178
9/5/2017	173
9/17/2018	203
9/23/2019	160
9/23/2020	200
9/10/2021	230 (B)
9/7/2022	230
9/14/2023	190

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



n = 8

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).

High cutoff = 0.4224, low cutoff = -0.3793, based on IQR multiplier of 3.

Constituent: Beryllium Analysis Run 10/23/2023 10:59 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Tukey's Outlier Screening

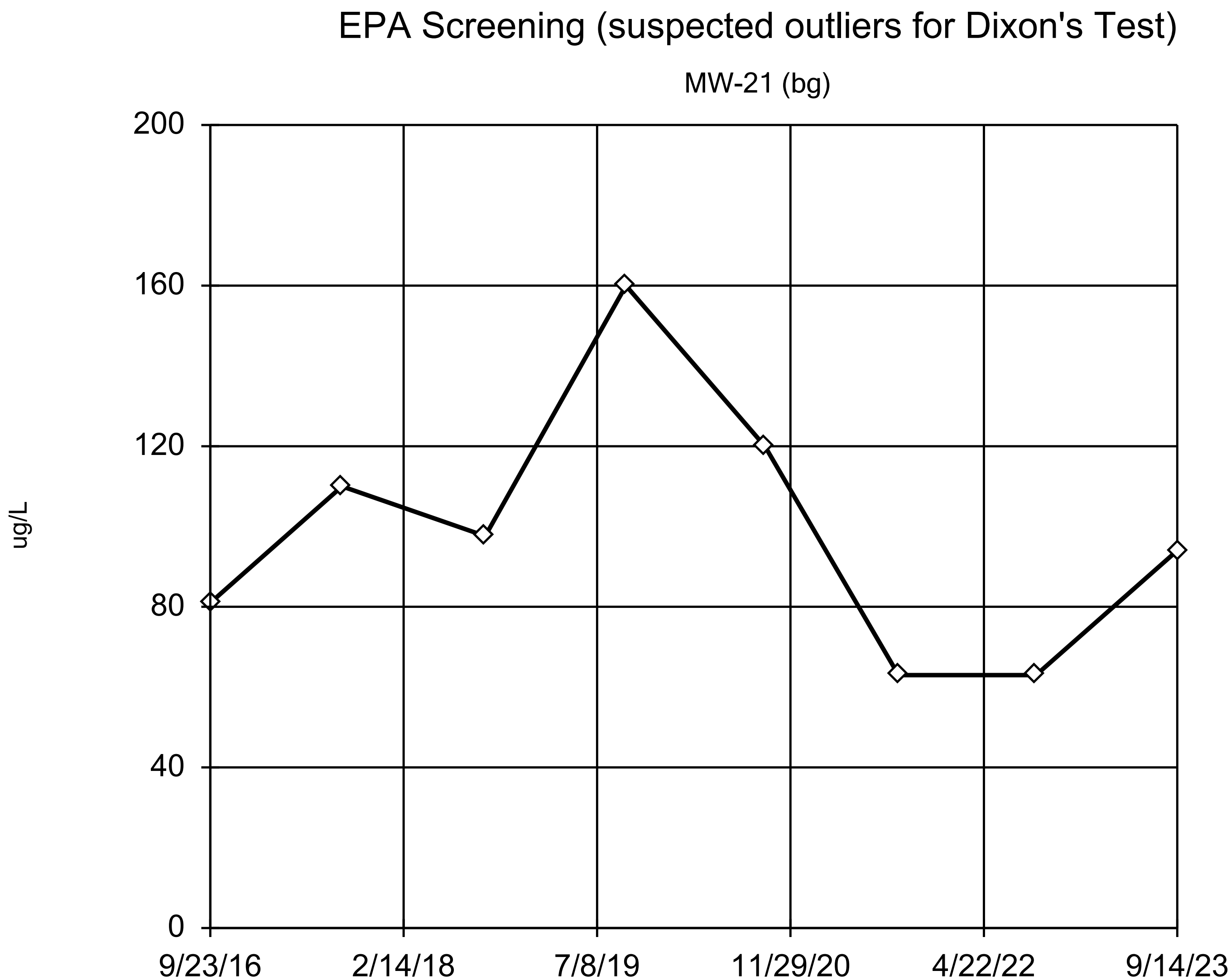
Constituent: Beryllium (ug/L)   Analysis Run 10/23/2023 11:06 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-21 (bg)
9/23/2016	<0.08
9/5/2017	0.03 (J)
9/17/2018	<0.12
9/23/2019	<0.27
9/23/2020	<0.27
9/10/2021	<0.27
9/7/2022	<0.27
9/14/2023	<0.33 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



n = 8

Dixon's will not be run. No suspect values identified or unable to establish suspect values. Mean 98.58, std. dev. 32.13, critical Tn 2.032

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.9306
Critical = 0.851
The distribution was found to be normally distributed.

Constituent: Boron Analysis Run 10/23/2023 10:59 AM View: shallow
Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

EPA 1989 Outlier Screening

Constituent: Boron (ug/L)   Analysis Run 10/23/2023 11:06 AM   View: shallow

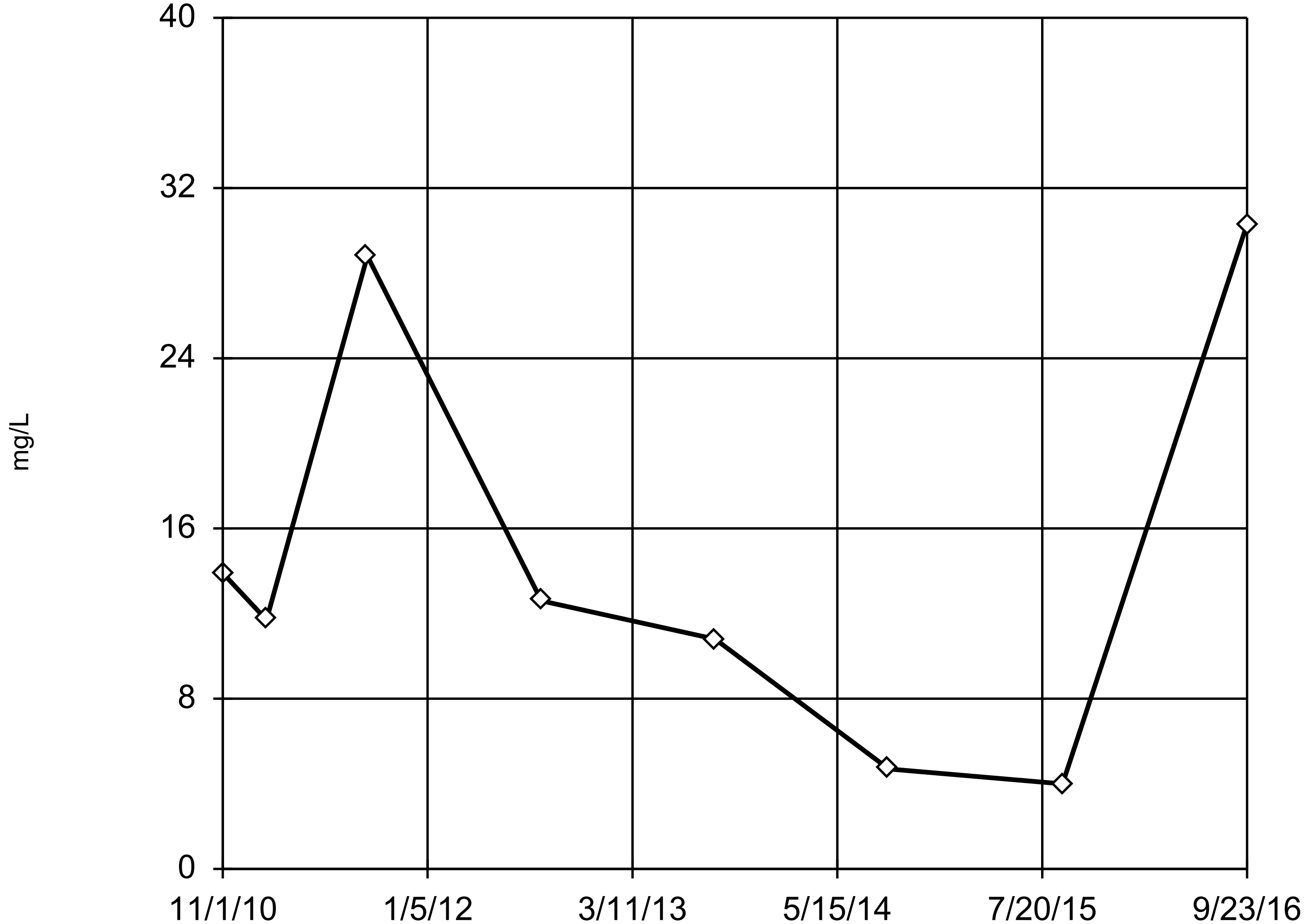
Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-21 (bg)
9/23/2016	81 (J)
9/5/2017	110
9/17/2018	97.6 (J)
9/23/2019	160 (J,B)
9/23/2020	120
9/10/2021	63 (J)
9/7/2022	63 (J)
9/14/2023	94 (J)

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

EPA Screening (suspected outliers for Dixon's Test)

MW-21 (bg)



n = 8

Dixon's will not be run.
No suspect values identified or unable to establish suspect values.
Mean 14.6, std. dev. 9.898, critical Tn 2.032

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.9118
Critical = 0.851 (after natural log transformation)
The distribution was found to be log-normal.

Constituent: Chloride   Analysis Run 10/23/2023 10:59 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

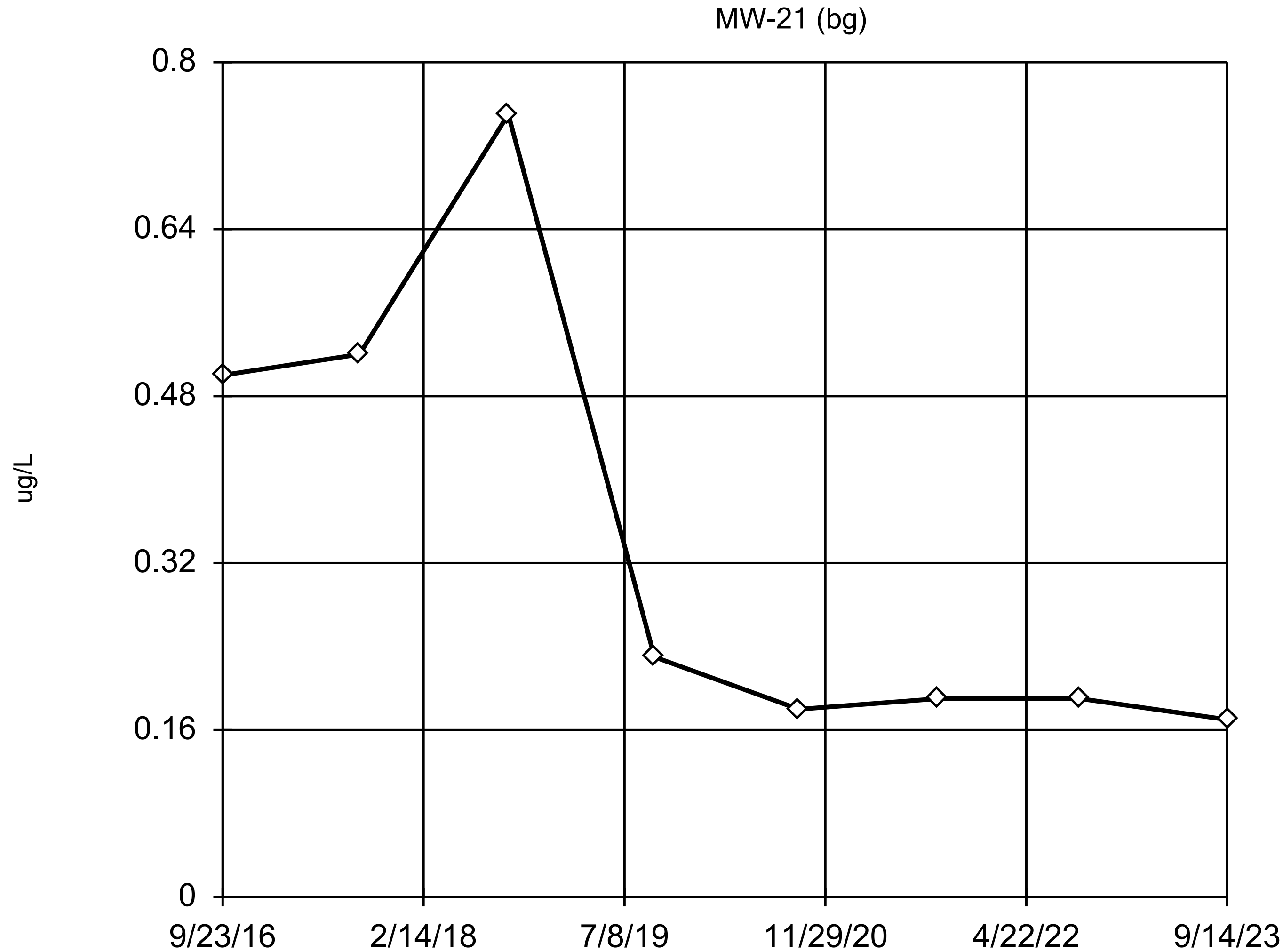
EPA 1989 Outlier Screening

Constituent: Chloride (mg/L)   Analysis Run 10/23/2023 11:06 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-21 (bg)
11/1/2010	13.9
2/1/2011	11.7
9/1/2011	28.8
9/1/2012	12.6
9/1/2013	10.8
9/1/2014	4.7
9/1/2015	4
9/23/2016	30.3
9/5/2017	44.1 (X)
9/17/2018	85.2 (X)
9/23/2019	58 (X)
9/23/2020	110 (X)
9/10/2021	150 (X)
9/7/2022	140 (X)
9/14/2023	150 (X)

Tukey's Outlier Screening



n = 8

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

High cutoff = 10.69, low cutoff = 0.008823, based on IQR multiplier of 3.

Constituent: Cobalt   Analysis Run 10/23/2023 10:59 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Tukey's Outlier Screening

Constituent: Cobalt (ug/L)   Analysis Run 10/23/2023 11:06 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

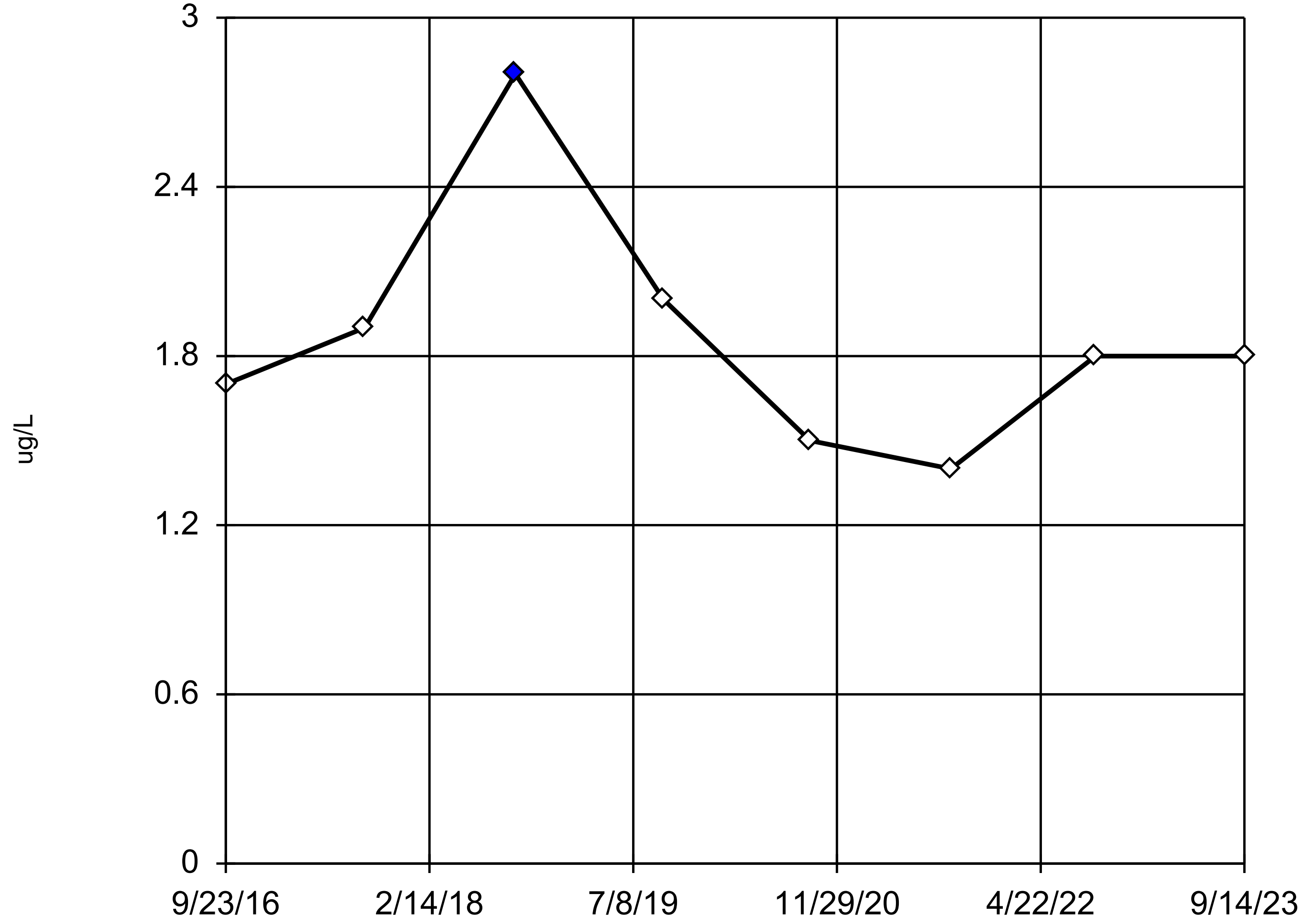
	MW-21 (bg)
9/23/2016	<0.5
9/5/2017	0.52 (J)
9/17/2018	0.75 (J)
9/23/2019	0.23 (J)
9/23/2020	0.18 (J)
9/10/2021	<0.19
9/7/2022	<0.19
9/14/2023	<0.17 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Dixon's Outlier Test

MW-21 (bg)



n = 8

Statistical outlier is drawn as solid.
Testing for 1 high outlier.
Mean = 1.862.
Std. Dev. = 0.4274.
2.8: c = 0.6154
tabl = 0.554.
Alpha = 0.05.

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.9454
Critical = 0.838
The distribution, after removal of suspect value, was found to be normally distributed.

Constituent: Copper   Analysis Run 10/23/2023 10:59 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Dixon's Outlier Test

Constituent: Copper (ug/L)   Analysis Run 10/23/2023 11:06 AM   View: shallow

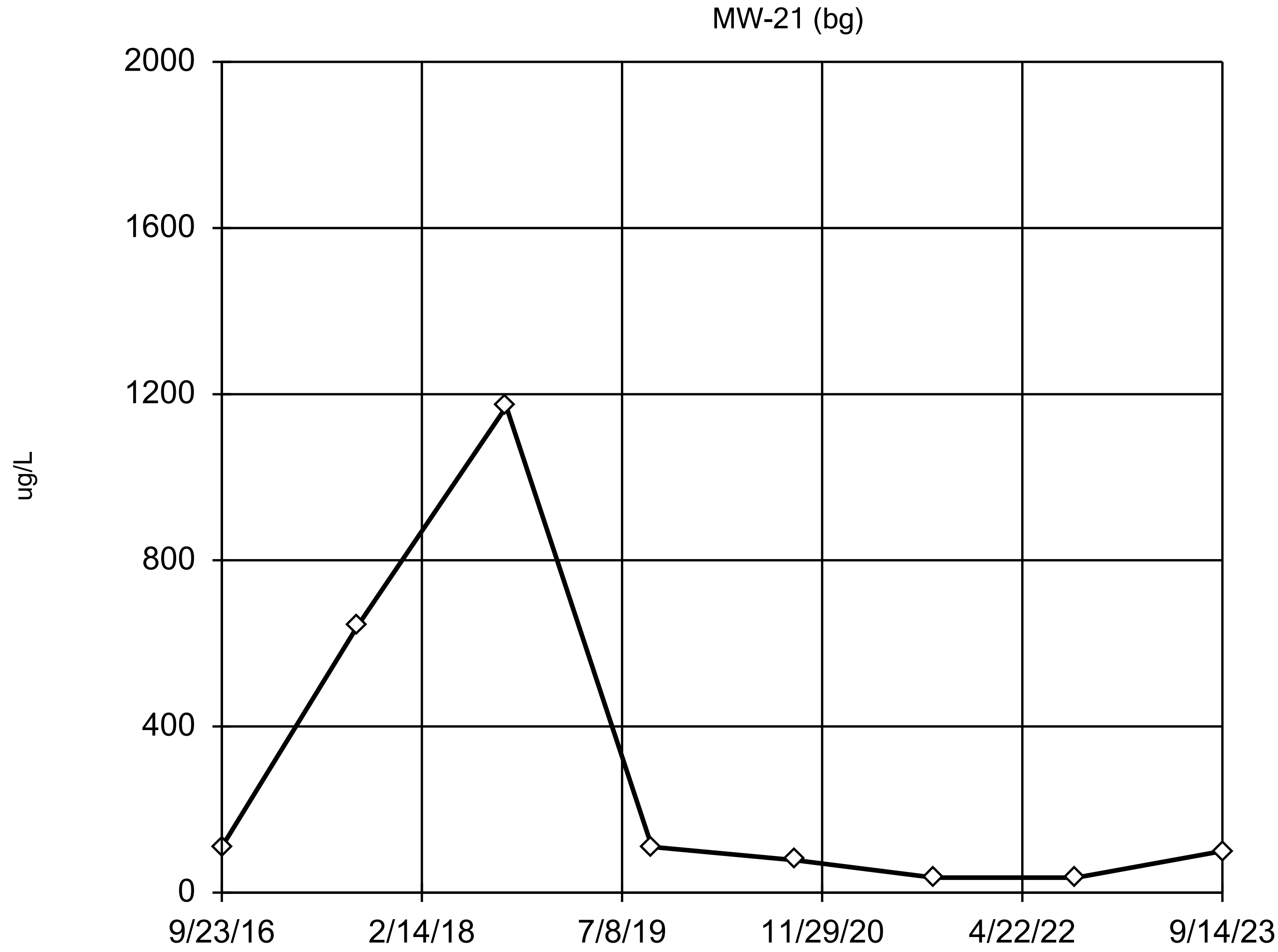
Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-21 (bg)
9/23/2016	1.7
9/5/2017	1.9
9/17/2018	2.8 (O)
9/23/2019	<2
9/23/2020	<1.5
9/10/2021	<1.4
9/7/2022	<1.8
9/14/2023	<1.8 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

EPA Screening (suspected outliers for Dixon's Test)



n = 8

Dixon's will not be run. No suspect values identified or unable to establish suspect values. Mean 285.5, std. dev. 409.6, critical Tn 2.032

Normality test used: Shapiro Wilk@alpha = 0.1
Calculated = 0.8596
Critical = 0.851 (after natural log transformation)
The distribution was found to be log-normal.

Constituent: Iron   Analysis Run 10/23/2023 11:00 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

EPA 1989 Outlier Screening

Constituent: Iron (ug/L) Analysis Run 10/23/2023 11:06 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

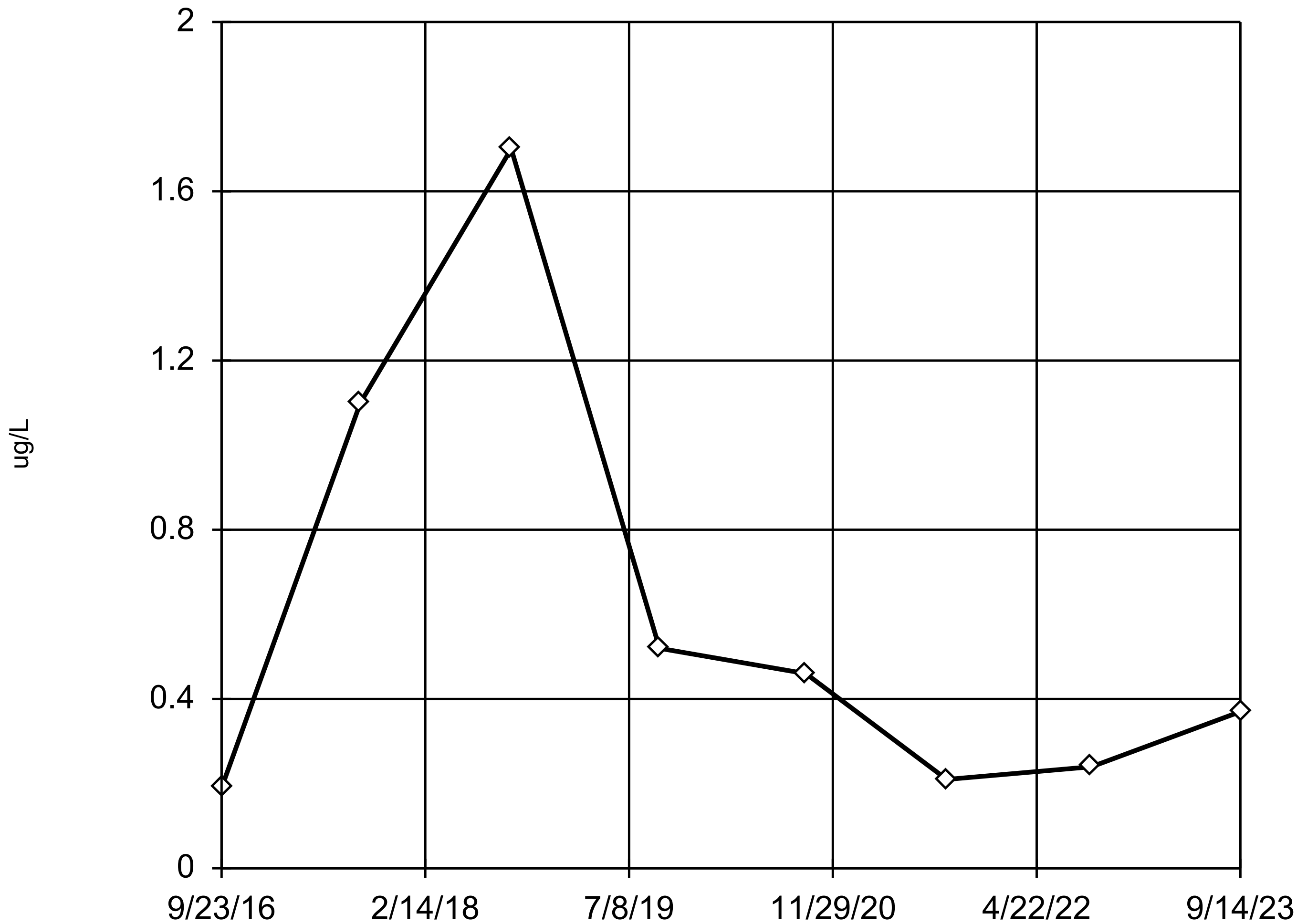
	MW-21 (bg)
9/23/2016	110
9/5/2017	644
9/17/2018	1170
9/23/2019	110
9/23/2020	78 (J)
9/10/2021	<36
9/7/2022	<36
9/14/2023	100

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

EPA Screening (suspected outliers for Dixon's Test)

MW-21 (bg)



n = 8

Dixon's will not be run.
No suspect values identified or unable to establish suspect values.
Mean 0.5987, std. dev. 0.533, critical Tn 2.032

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.9181
Critical = 0.851 (after natural log transformation)
The distribution was found to be log-normal.

Constituent: Lead   Analysis Run 10/23/2023 11:00 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

EPA 1989 Outlier Screening

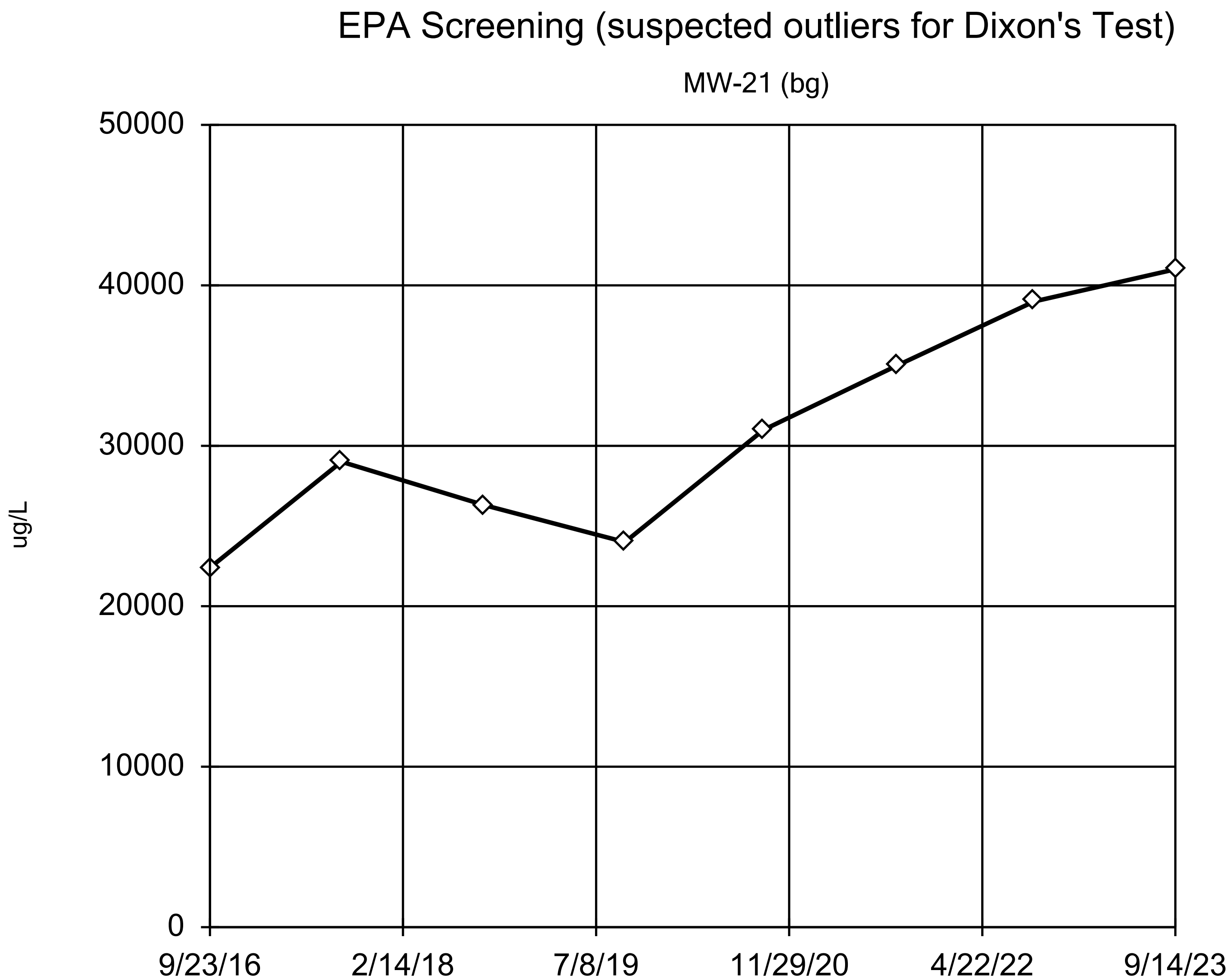
Constituent: Lead (ug/L) Analysis Run 10/23/2023 11:06 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-21 (bg)
9/23/2016	<0.19
9/5/2017	1.1
9/17/2018	1.7
9/23/2019	0.52
9/23/2020	0.46 (J)
9/10/2021	<0.21
9/7/2022	<0.24
9/14/2023	0.37 (J)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



n = 8

Dixon's will not be run. No suspect values identified or unable to establish suspect values. Mean 30963, std. dev. 6856, critical Tn 2.032

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.9448
Critical = 0.851
The distribution was found to be normally distributed.

Constituent: Magnesium Analysis Run 10/23/2023 11:00 AM View: shallow
Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

EPA 1989 Outlier Screening

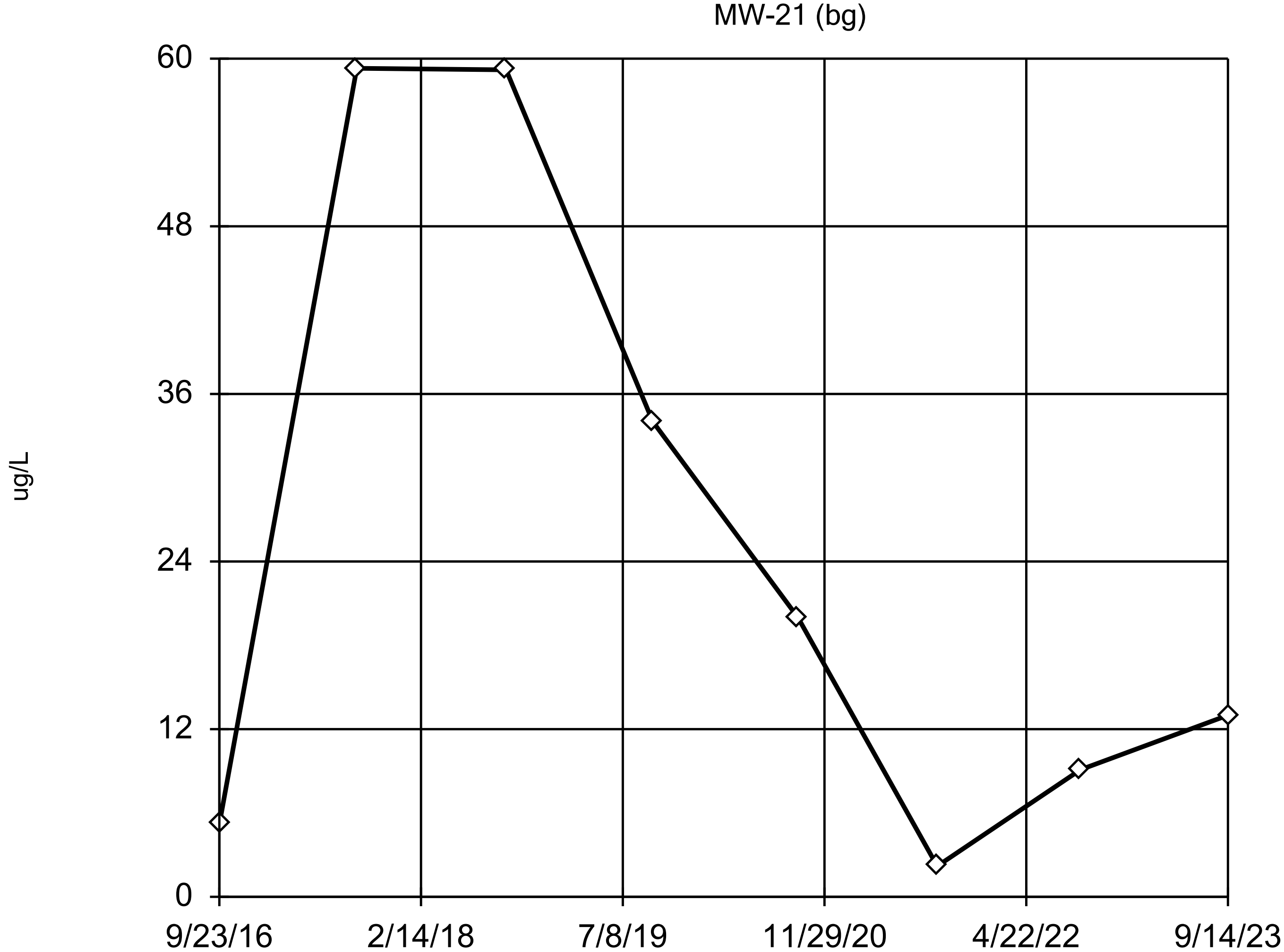
Constituent: Magnesium (ug/L)   Analysis Run 10/23/2023 11:06 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-21 (bg)
9/23/2016	22400
9/5/2017	29000
9/17/2018	26300
9/23/2019	24000
9/23/2020	31000
9/10/2021	35000
9/7/2022	39000
9/14/2023	41000

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

EPA Screening (suspected outliers for Dixon's Test)



n = 8

Dixon's will not be run.
No suspect values identified or unable to establish suspect values.
Mean 25.25, std. dev. 23.18, critical Tn 2.032

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.9485
Critical = 0.851 (after natural log transformation)
The distribution was found to be log-normal.

Constituent: Manganese   Analysis Run 10/23/2023 11:00 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

EPA 1989 Outlier Screening

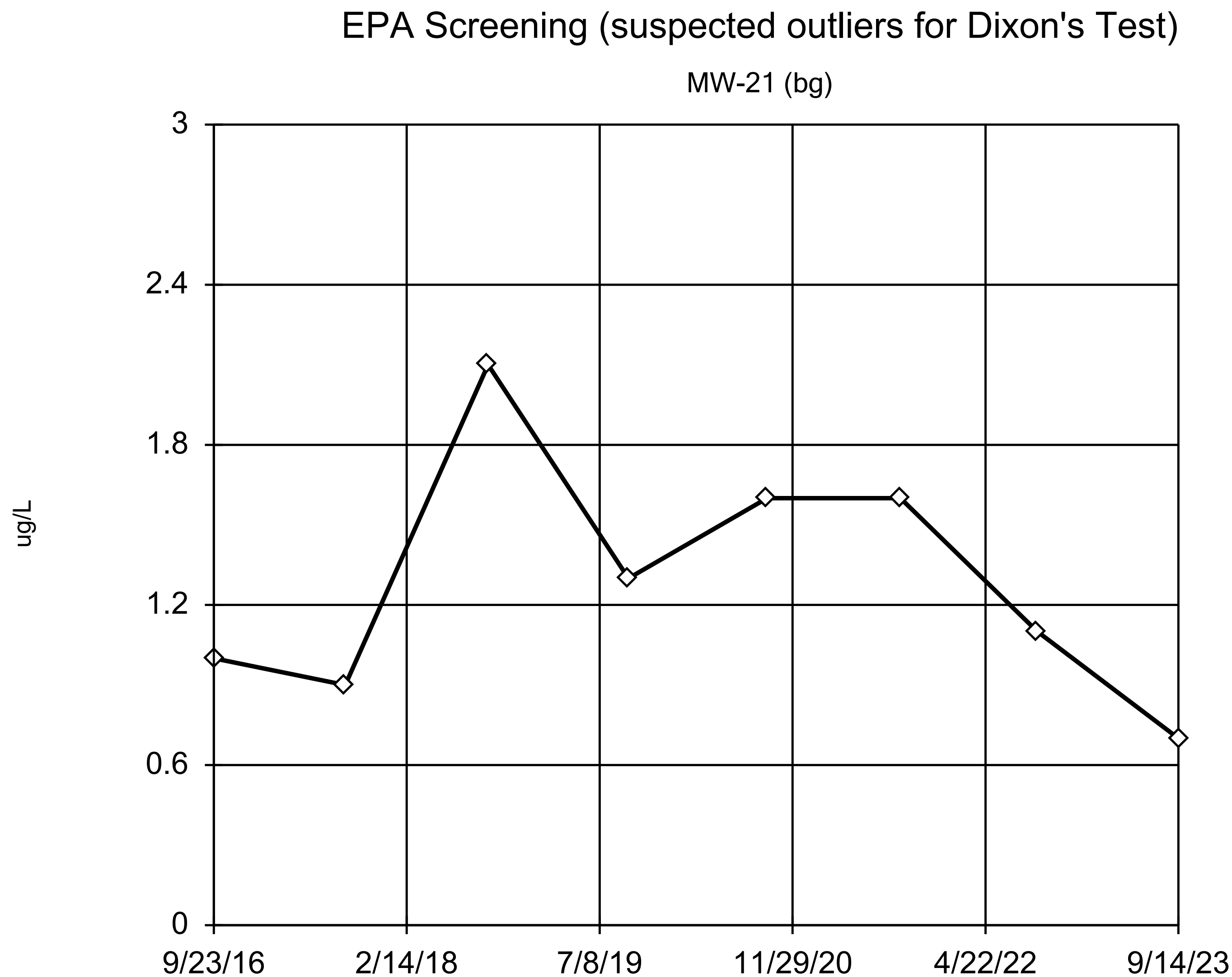
Constituent: Manganese (ug/L)   Analysis Run 10/23/2023 11:06 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-21 (bg)
9/23/2016	5.2
9/5/2017	59.3
9/17/2018	59.2
9/23/2019	34
9/23/2020	20
9/10/2021	<4.4
9/7/2022	9.1 (J)
9/14/2023	13

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



n = 8

Dixon's will not be run. No suspect values identified or unable to establish suspect values. Mean 1.287, std. dev. 0.4581, critical Tn 2.032

Normality test used: Shapiro Wilk@alpha = 0.1 Calculated = 0.9554 Critical = 0.851 The distribution was found to be normally distributed.

Constituent: Selenium   Analysis Run 10/23/2023 11:00 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

EPA 1989 Outlier Screening

Constituent: Selenium (ug/L)   Analysis Run 10/23/2023 11:06 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

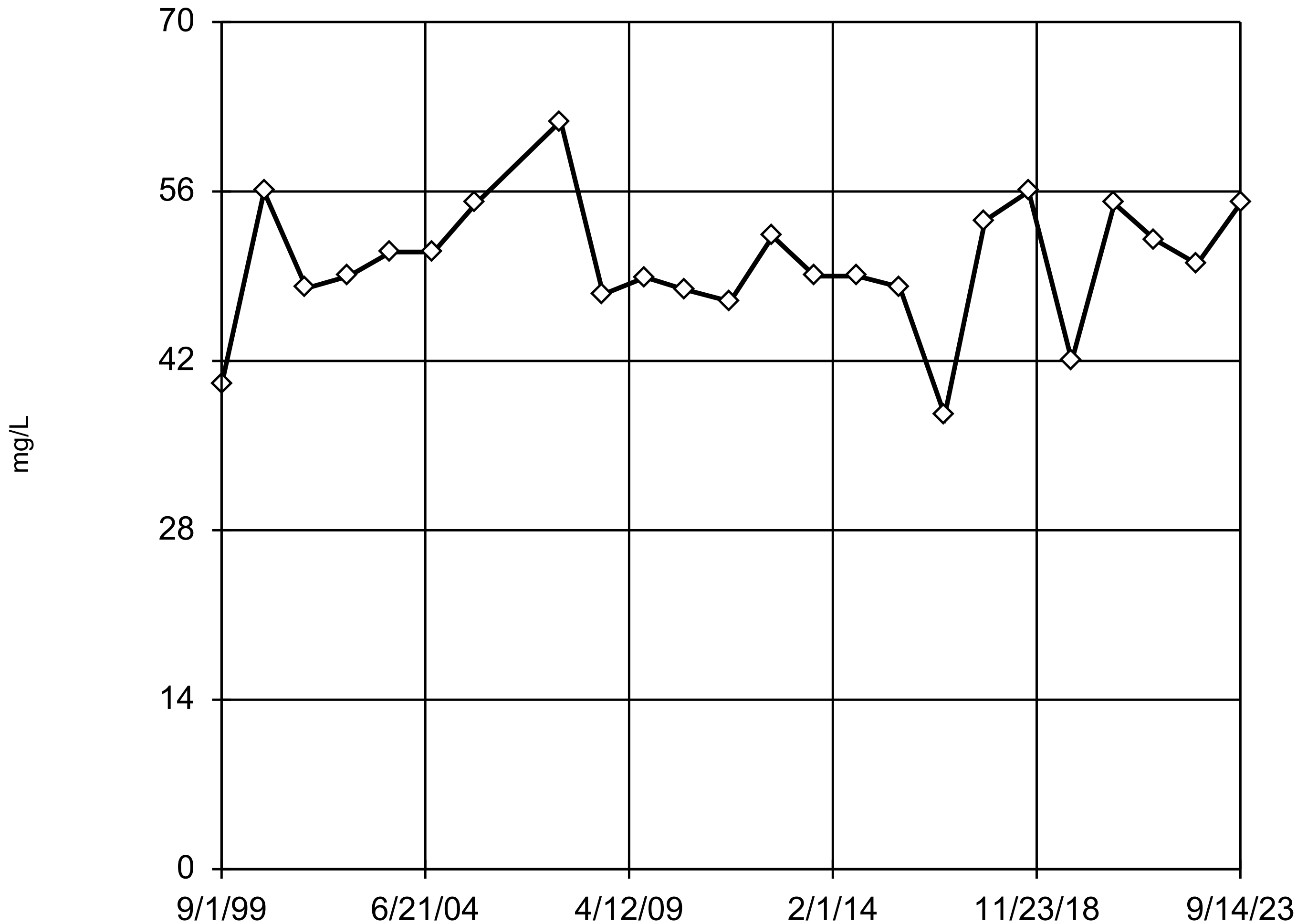
	MW-21 (bg)
9/23/2016	1
9/5/2017	0.9 (J)
9/17/2018	2.1
9/23/2019	1.3 (J)
9/23/2020	1.6 (J)
9/10/2021	1.6 (J)
9/7/2022	1.1 (J)
9/14/2023	<1.4 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

EPA Screening (suspected outliers for Dixon's Test)

MW-21 (bg)



n = 24

Dixon's will not be run.
No suspect values identified or unable to establish suspect values.
Mean 50.1, std. dev. 5.367, critical Tn 2.644

Normality test used:
Shapiro Wilk@alpha = 0.01
Calculated = 0.9548
Critical = 0.884
The distribution was found to be normally distributed.

Constituent: Sulfate   Analysis Run 10/23/2023 11:00 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

EPA 1989 Outlier Screening

Constituent: Sulfate (mg/L)   Analysis Run 10/23/2023 11:06 AM   View: shallow

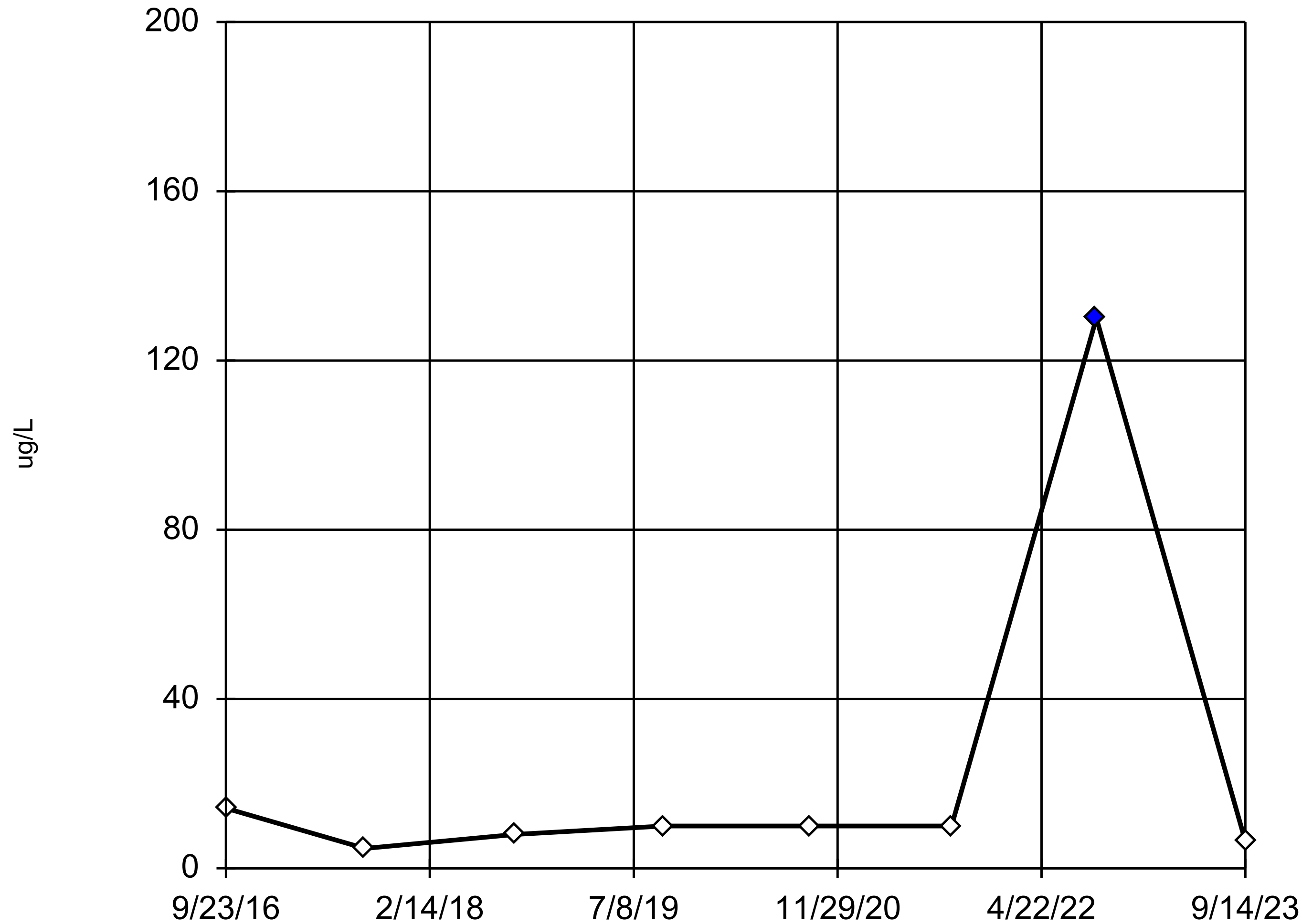
Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-21 (bg)
9/1/1999	40
9/1/2000	56
9/1/2001	48
9/1/2002	49
9/1/2003	51
9/1/2004	51
9/1/2005	55
9/1/2006	248 (X)
9/1/2007	61.8
9/1/2008	47.5
9/1/2009	48.9
8/1/2010	47.9
9/1/2011	46.9
9/1/2012	52.3
9/1/2013	49
9/1/2014	49
9/1/2015	48.1
9/23/2016	37.5
9/5/2017	53.6
9/17/2018	56
9/23/2019	42
9/23/2020	55
9/10/2021	52
9/7/2022	50
9/14/2023	55

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Dixon's Outlier Test

MW-21 (bg)



n = 8

Statistical outlier is drawn as solid.
Testing for 1 high outlier.
Mean = 24.16.
Std. Dev. = 42.86.
130: c = 0.9369
tabl = 0.554.
Alpha = 0.05.

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.945
Critical = 0.838
The distribution, after removal of suspect value, was found to be normally distributed.

Constituent: Zinc   Analysis Run 10/23/2023 11:00 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Dixon's Outlier Test

Constituent: Zinc (ug/L) Analysis Run 10/23/2023 11:06 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-21 (bg)
9/23/2016	14.2
9/5/2017	4.7 (J)
9/17/2018	8 (J)
9/23/2019	<10
9/23/2020	<10
9/10/2021	<10
9/7/2022	130 (O)
9/14/2023	<6.4 (U)

ND substitution: RL or RL/2 if <15% NDs.

Attachment E4

Outlier Analysis Results - Deep

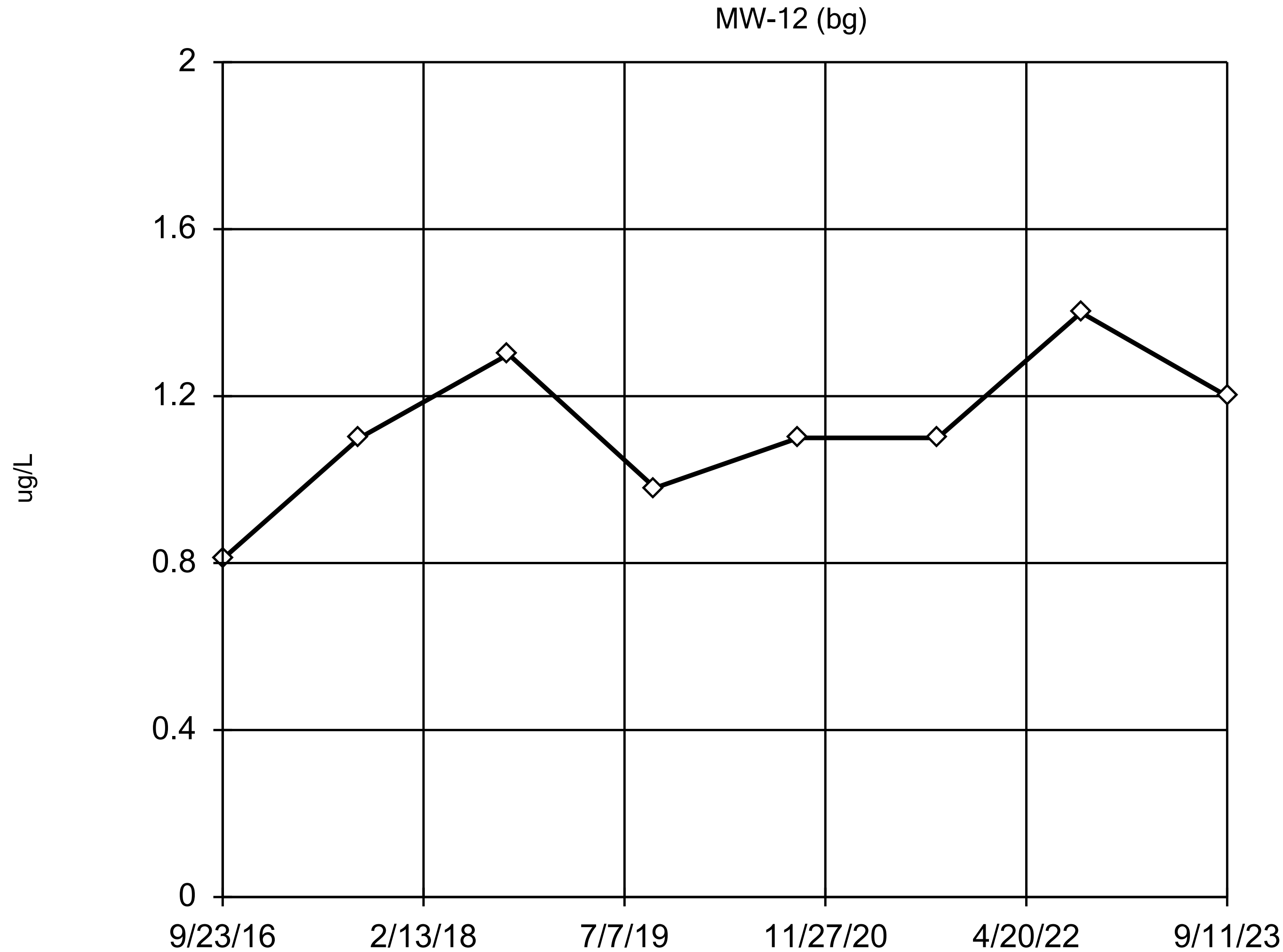
Outlier Analysis

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB   Printed 10/23/2023, 11:51 AM

Constituent	Well	Outlier	Value(s)	Date(s)	Method	Alpha	N	Mean	Std. Dev.	Distribution	Normality Test
Arsenic (ug/L)	MW-12 (bg)	No	n/a	n/a	EPA 1989	0.05	8	1.124	0.1828	normal	ShapiroWilk
Barium (ug/L)	MW-12 (bg)	No	n/a	n/a	EPA 1989	0.05	8	189.8	10.35	normal	ShapiroWilk
Beryllium (ug/L)	MW-12 (bg)	No	n/a	n/a	NP (nrm)	NaN	8	0.2028	0.115	unknown	ShapiroWilk
Boron (ug/L)	MW-12 (bg)	No	n/a	n/a	EPA 1989	0.05	8	68.23	24.34	normal	ShapiroWilk
Chloride (mg/L)	MW-12 (bg)	No	n/a	n/a	NP (nrm)	NaN	36	4.256	1.094	unknown	ShapiroWilk
Cobalt (ug/L)	MW-12 (bg)	No	n/a	n/a	EPA 1989	0.05	8	0.4425	0.06671	normal	ShapiroWilk
Copper (ug/L)	MW-12 (bg)	No	n/a	n/a	EPA 1989	0.05	8	1.224	0.6889	normal	ShapiroWilk
Iron (ug/L)	MW-12 (bg)	No	n/a	n/a	EPA 1989	0.05	8	1714	100.6	normal	ShapiroWilk
Lead (ug/L)	MW-12 (bg)	No	n/a	n/a	Dixon`s	0.05	8	0.1847	0.07558	normal	ShapiroWilk
Magnesium (ug/L)	MW-12 (bg)	No	n/a	n/a	EPA 1989	0.05	8	40488	2020	normal	ShapiroWilk
Manganese (ug/L)	MW-12 (bg)	No	n/a	n/a	EPA 1989	0.05	8	266.1	11.34	normal	ShapiroWilk
Selenium (ug/L)	MW-12 (bg)	No	n/a	n/a	NP (nrm)	NaN	8	0.7182	0.4988	unknown	ShapiroWilk
Sulfate (mg/L)	**MW-12 (bg)**	**Yes**	**123**	**9/1/2011**	**Dixon`s**	**0.05**	**15**	**58.81**	**19.51**	**ln(x)**	**ShapiroWilk**
Zinc (ug/L)	MW-12 (bg)	No	n/a	n/a	EPA 1989	0.05	8	10.96	13.39	ln(x)	ShapiroWilk

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

EPA Screening (suspected outliers for Dixon's Test)



n = 8

Dixon's will not be run. No suspect values identified or unable to establish suspect values. Mean 1.124, std. dev. 0.1828, critical Tn 2.032

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.9673
Critical = 0.851
The distribution was found to be normally distributed.

Constituent: Arsenic   Analysis Run 10/23/2023 11:46 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

EPA 1989 Outlier Screening

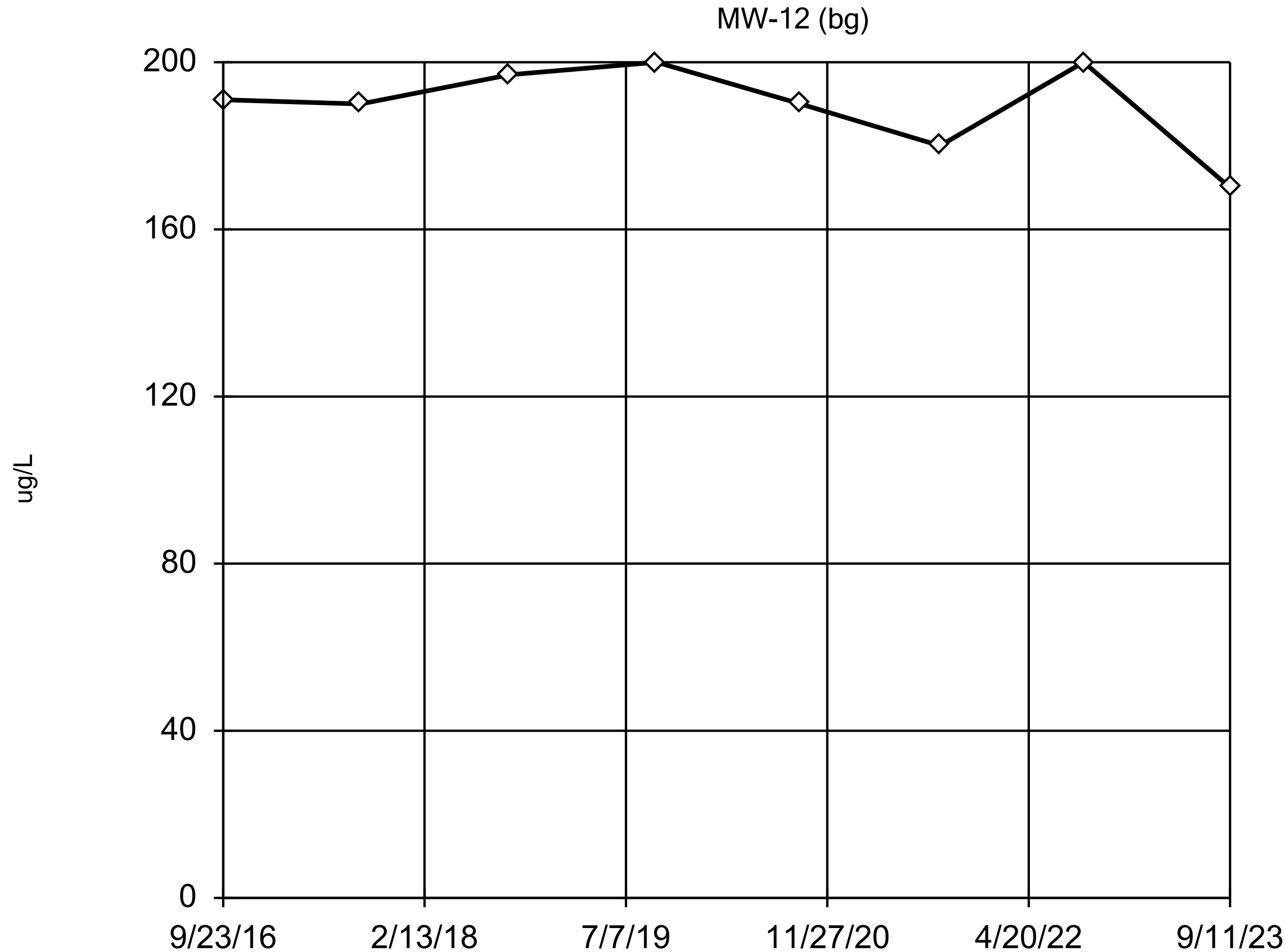
Constituent: Arsenic (ug/L)   Analysis Run 10/23/2023 11:51 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-12 (bg)
9/23/2016	0.81 (J)
9/5/2017	1.1
9/17/2018	1.3
9/23/2019	0.98 (J)
9/21/2020	1.1 (J)
9/8/2021	1.1 (J)
9/6/2022	1.4 (J)
9/11/2023	1.2 (J)

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

EPA Screening (suspected outliers for Dixon's Test)



n = 8

Dixon's will not be run.
No suspect values identified or unable to establish suspect values.
Mean 189.8, std. dev. 10.35, critical Tn 2.032

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.8854
Critical = 0.851
The distribution was found to be normally distributed.

Constituent: Barium   Analysis Run 10/23/2023 11:46 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

EPA 1989 Outlier Screening

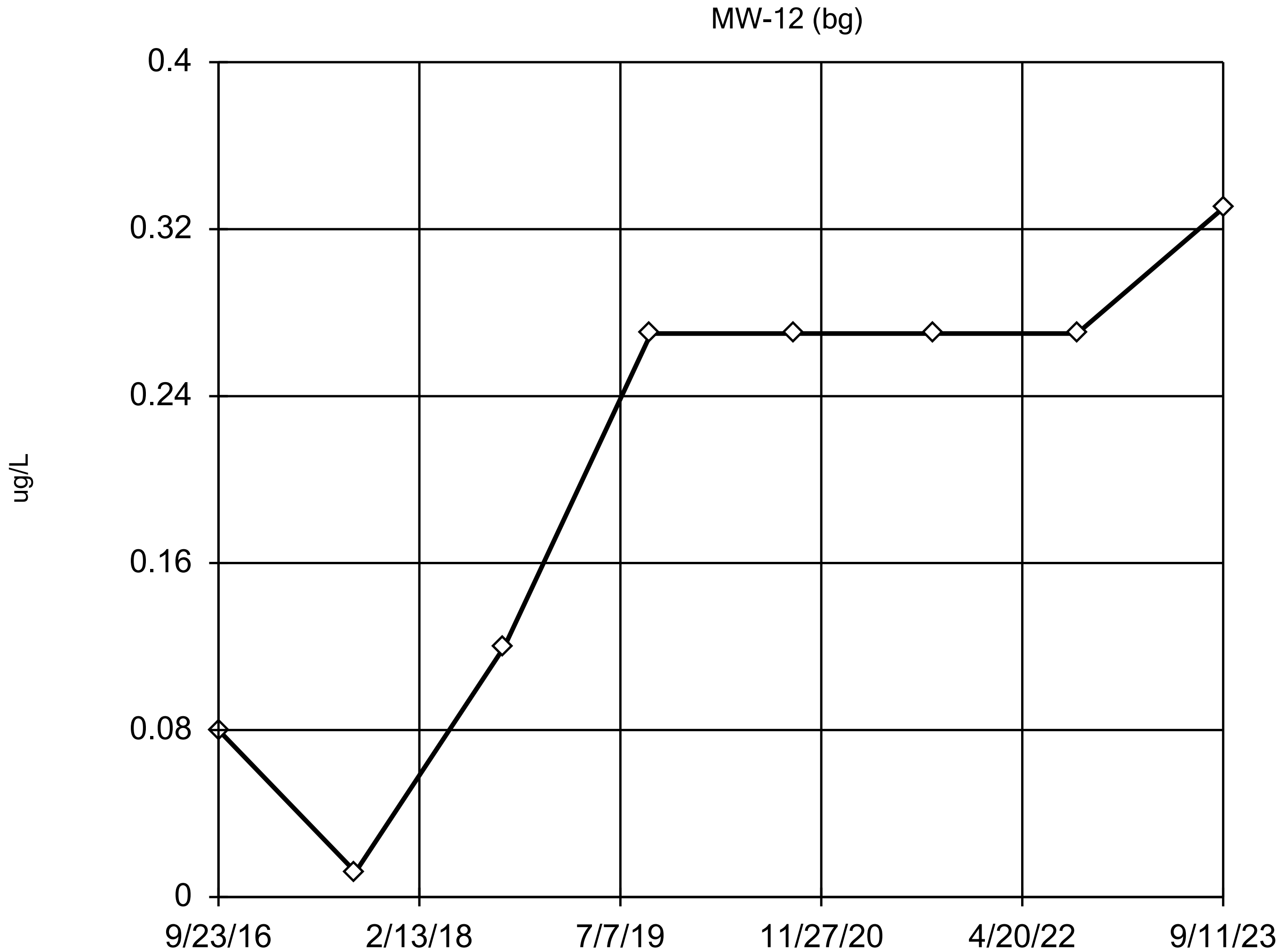
Constituent: Barium (ug/L)   Analysis Run 10/23/2023 11:51 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-12 (bg)
9/23/2016	191
9/5/2017	190
9/17/2018	197
9/23/2019	200
9/21/2020	190
9/8/2021	180 (B)
9/6/2022	200
9/11/2023	170

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Tukey's Outlier Screening



n = 8

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

High cutoff = 0.5103, low cutoff = -0.4208, based on IQR multiplier of 3.

Constituent: Beryllium Analysis Run 10/23/2023 11:46 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

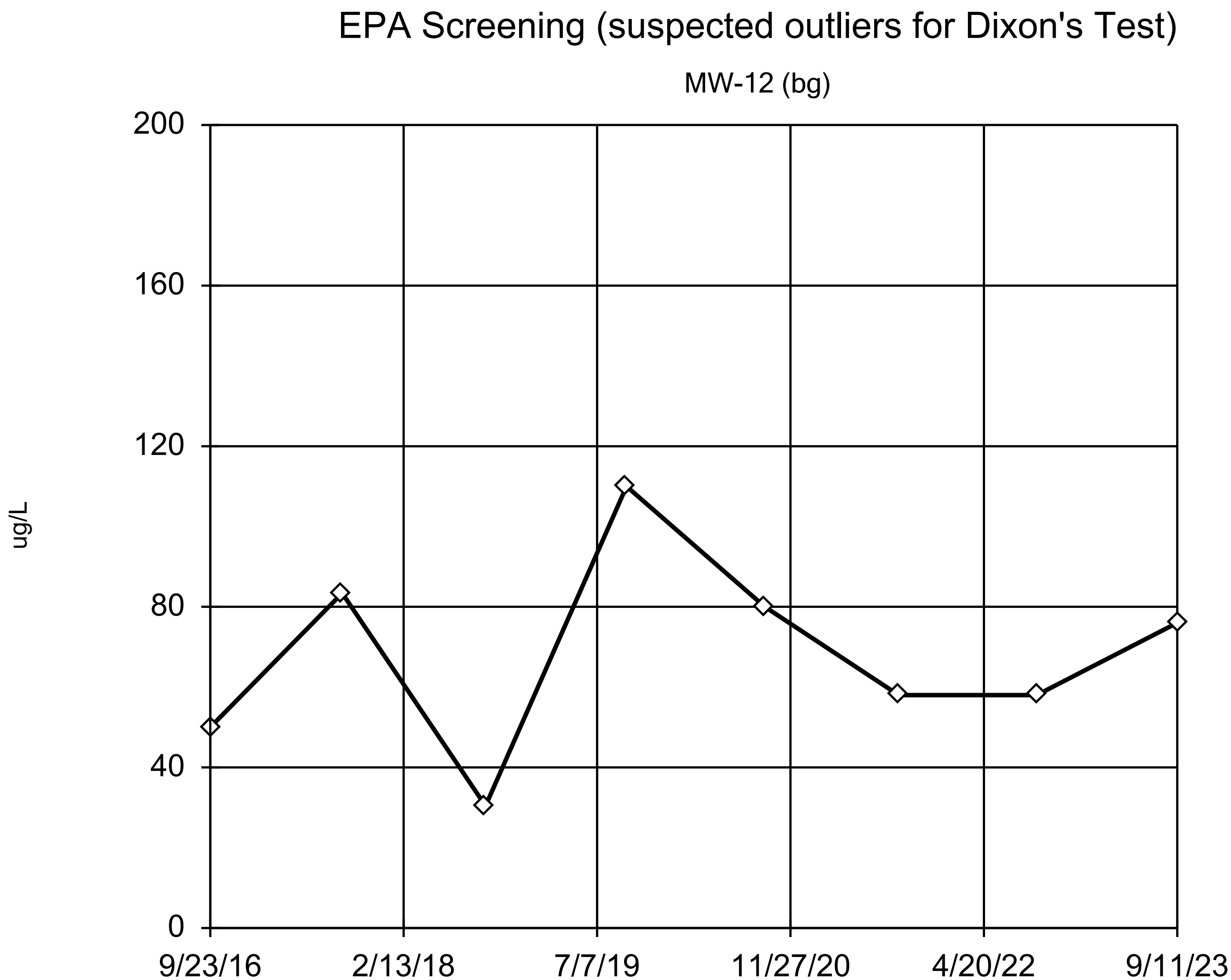
Tukey's Outlier Screening

Constituent: Beryllium (ug/L)   Analysis Run 10/23/2023 11:51 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-12 (bg)
9/23/2016	<0.08
9/5/2017	<0.012
9/17/2018	<0.12
9/23/2019	<0.27
9/21/2020	<0.27
9/8/2021	<0.27
9/6/2022	<0.27
9/11/2023	<0.33 (U)

ND substitution: RL or RL/2 if <15% NDs.



n = 8

Dixon's will not be run. No suspect values identified or unable to establish suspect values. Mean 68.23, std. dev. 24.34, critical Tn 2.032

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.9751
Critical = 0.851
The distribution was found to be normally distributed.

Constituent: Boron   Analysis Run 10/23/2023 11:46 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

EPA 1989 Outlier Screening

Constituent: Boron (ug/L)   Analysis Run 10/23/2023 11:51 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

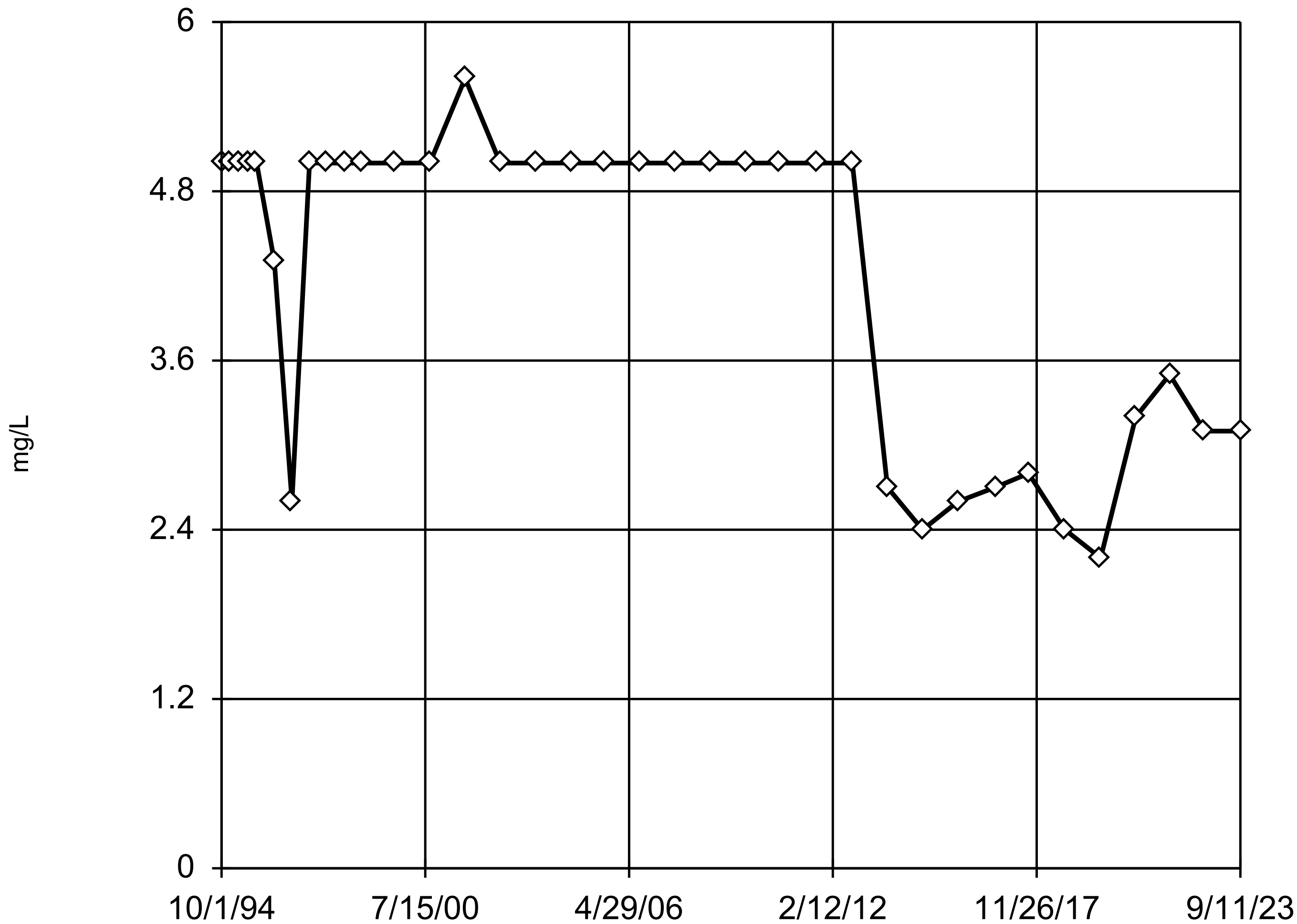
	MW-12 (bg)
9/23/2016	<50
9/5/2017	83.4 (J)
9/17/2018	30.4 (J)
9/23/2019	<110
9/21/2020	<80
9/8/2021	<58
9/6/2022	<58
9/11/2023	<76 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Tukey's Outlier Screening

MW-12 (bg)



n = 36

No outliers found.
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.01 alpha level.

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

High cutoff = 6.254, low cutoff = -5.926, based on IQR multiplier of 3.

Constituent: Chloride   Analysis Run 10/23/2023 11:46 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Tukey's Outlier Screening

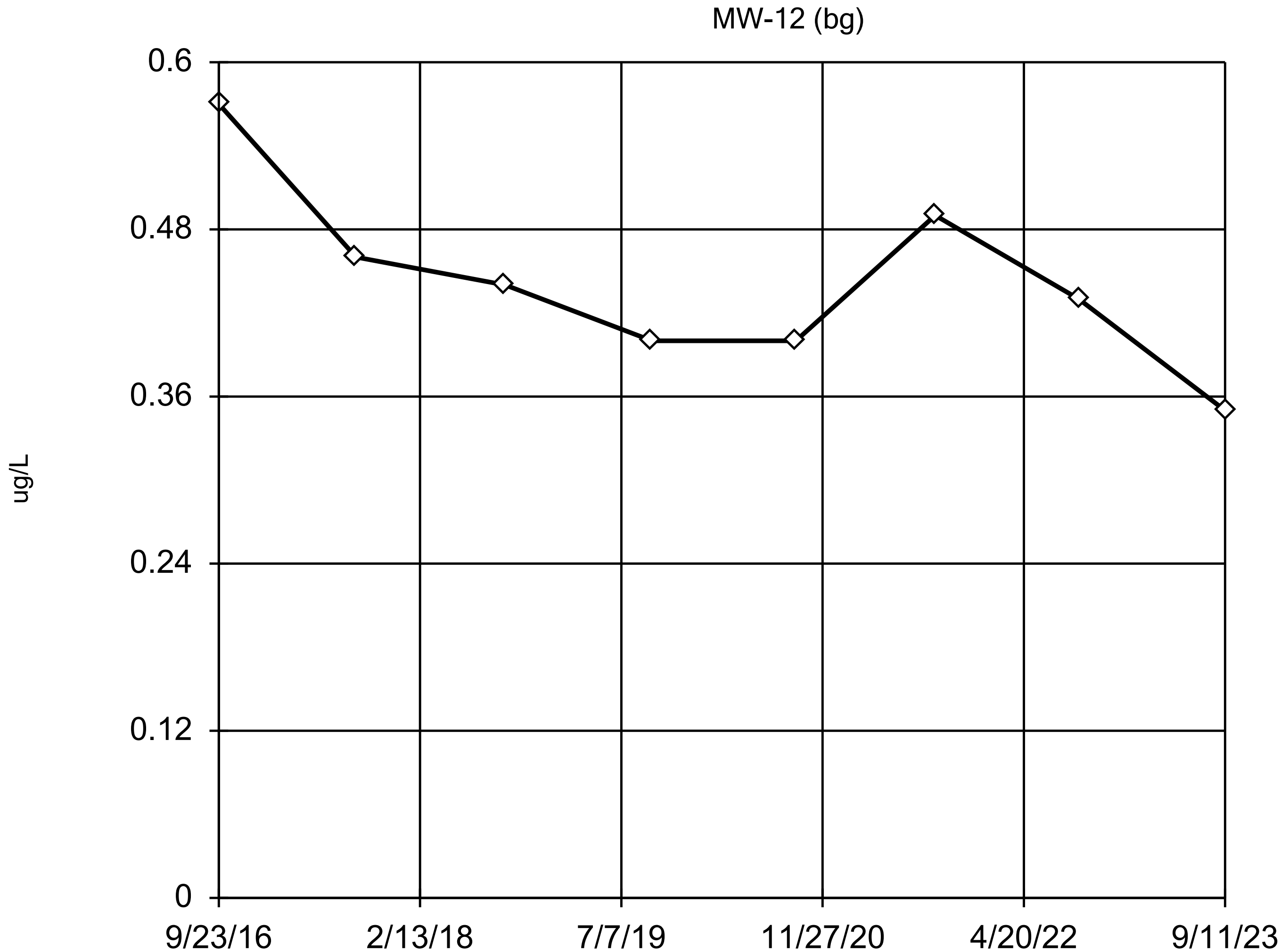
Constituent: Chloride (mg/L) Analysis Run 10/23/2023 11:51 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-12 (bg)
10/1/1994	<5 (X)
1/1/1995	<5 (X)
4/1/1995	<5 (X)
7/1/1995	<5 (X)
10/1/1995	<5 (X)
4/1/1996	4.3 (X)
10/1/1996	2.6 (X)
4/1/1997	<5 (X)
10/1/1997	<5 (X)
4/1/1998	<5 (X)
10/1/1998	<5 (X)
9/1/1999	<5 (X)
9/1/2000	<5 (X)
9/1/2001	5.6 (X)
9/1/2002	<5 (X)
9/1/2003	<5 (X)
9/1/2004	<5 (X)
9/1/2005	<5 (X)
9/1/2006	<5 (X)
9/1/2007	<5 (X)
9/1/2008	<5 (X)
9/1/2009	<5 (X)
8/1/2010	<5 (X)
9/1/2011	<5 (X)
9/1/2012	<5 (X)
9/1/2013	2.7
9/1/2014	2.4
9/1/2015	2.6
9/23/2016	2.7
9/5/2017	2.8
9/17/2018	2.4
9/23/2019	2.2 (J)
9/21/2020	3.2 (J)
9/8/2021	3.5 (J)
9/6/2022	3.1 (J)
9/11/2023	3.1 (J)

ND substitution: RL or RL/2 if <15% NDs.

EPA Screening (suspected outliers for Dixon's Test)



n = 8

Dixon's will not be run. No suspect values identified or unable to establish suspect values. Mean 0.4425, std. dev. 0.06671, critical Tn 2.032

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.9568
Critical = 0.851
The distribution was found to be normally distributed.

Constituent: Cobalt   Analysis Run 10/23/2023 11:46 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

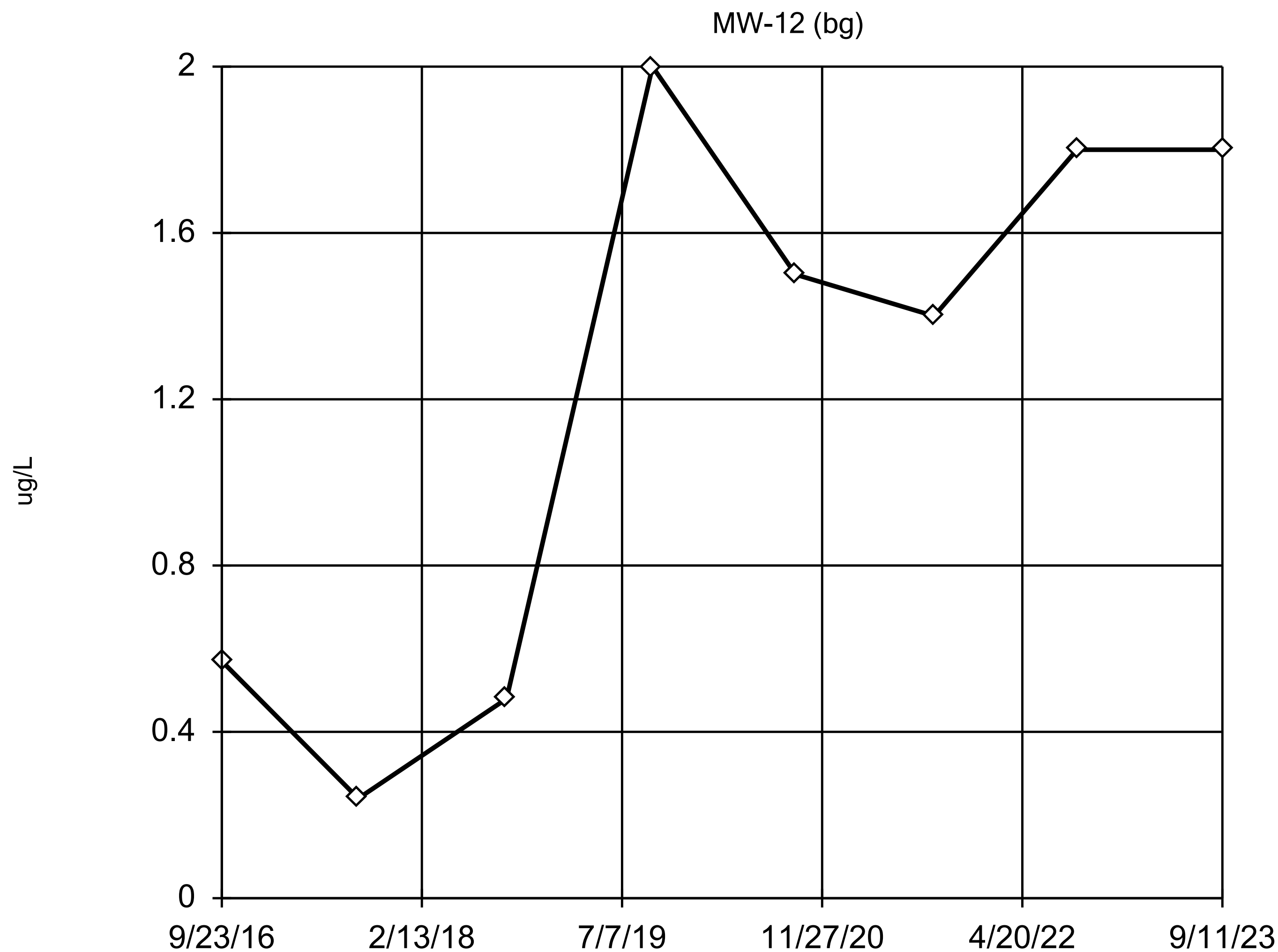
EPA 1989 Outlier Screening

Constituent: Cobalt (ug/L) Analysis Run 10/23/2023 11:51 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-12 (bg)
9/23/2016	0.57 (J)
9/5/2017	0.46 (J)
9/17/2018	0.44 (J)
9/23/2019	0.4 (J)
9/21/2020	0.4 (J)
9/8/2021	0.49 (J)
9/6/2022	0.43 (J)
9/11/2023	0.35 (J)

EPA Screening (suspected outliers for Dixon's Test)



n = 8

Dixon's will not be run.
No suspect values identified or unable to establish suspect values.
Mean 1.224, std. dev. 0.6889, critical Tn 2.032

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.8727
Critical = 0.851
The distribution was found to be normally distributed.

Constituent: Copper   Analysis Run 10/23/2023 11:46 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

EPA 1989 Outlier Screening

Constituent: Copper (ug/L)   Analysis Run 10/23/2023 11:51 AM   View: Deep

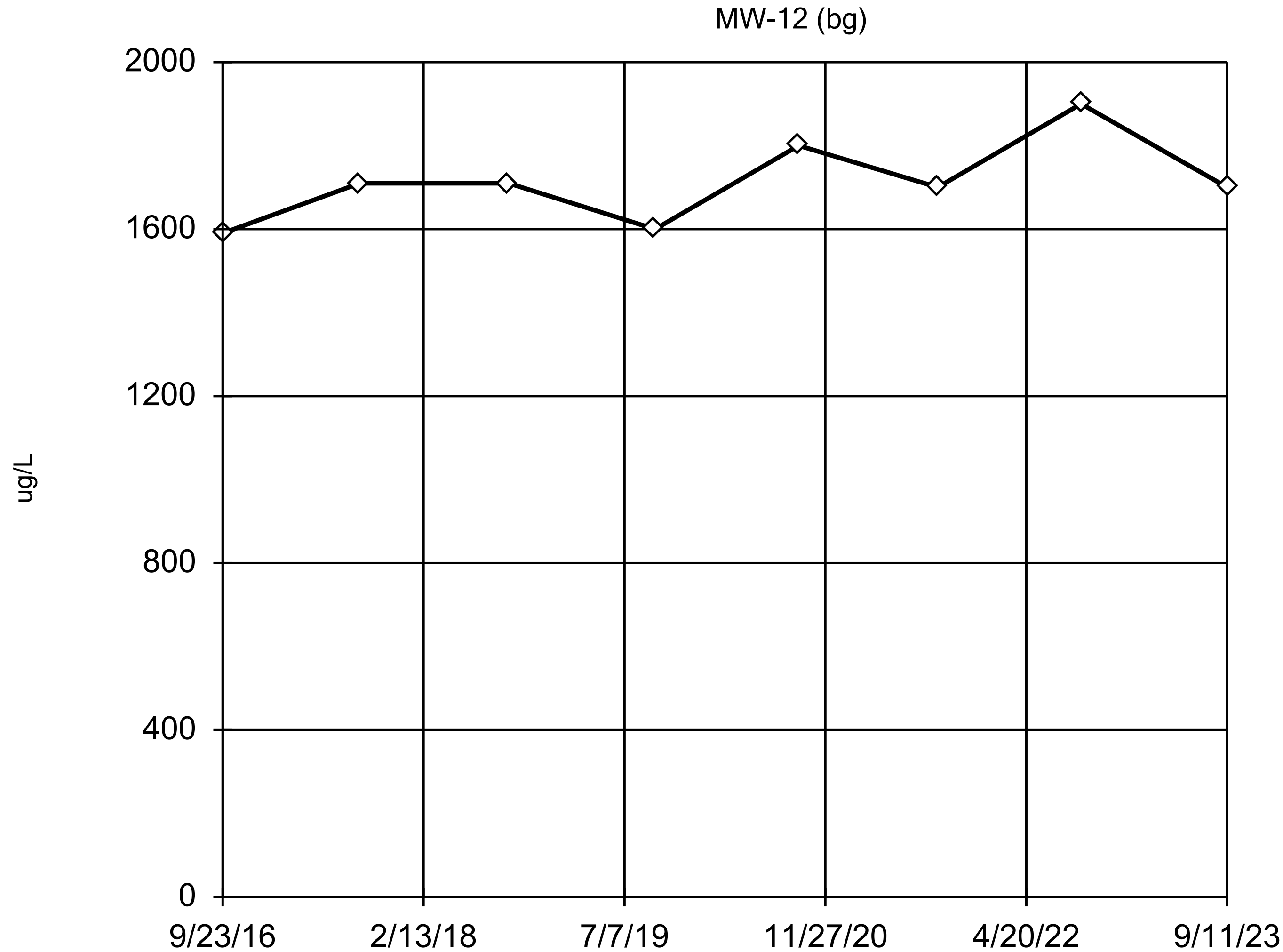
Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-12 (bg)
9/23/2016	0.57 (J)
9/5/2017	0.24 (J)
9/17/2018	<0.48
9/23/2019	<2
9/21/2020	<1.5
9/8/2021	<1.4
9/6/2022	<1.8
9/11/2023	<1.8 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

EPA Screening (suspected outliers for Dixon's Test)



n = 8

Dixon's will not be run.
No suspect values identified or unable to establish suspect values.
Mean 1714, std. dev. 100.6, critical Tn 2.032

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.9056
Critical = 0.851
The distribution was found to be normally distributed.

Constituent: Iron   Analysis Run 10/23/2023 11:47 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

EPA 1989 Outlier Screening

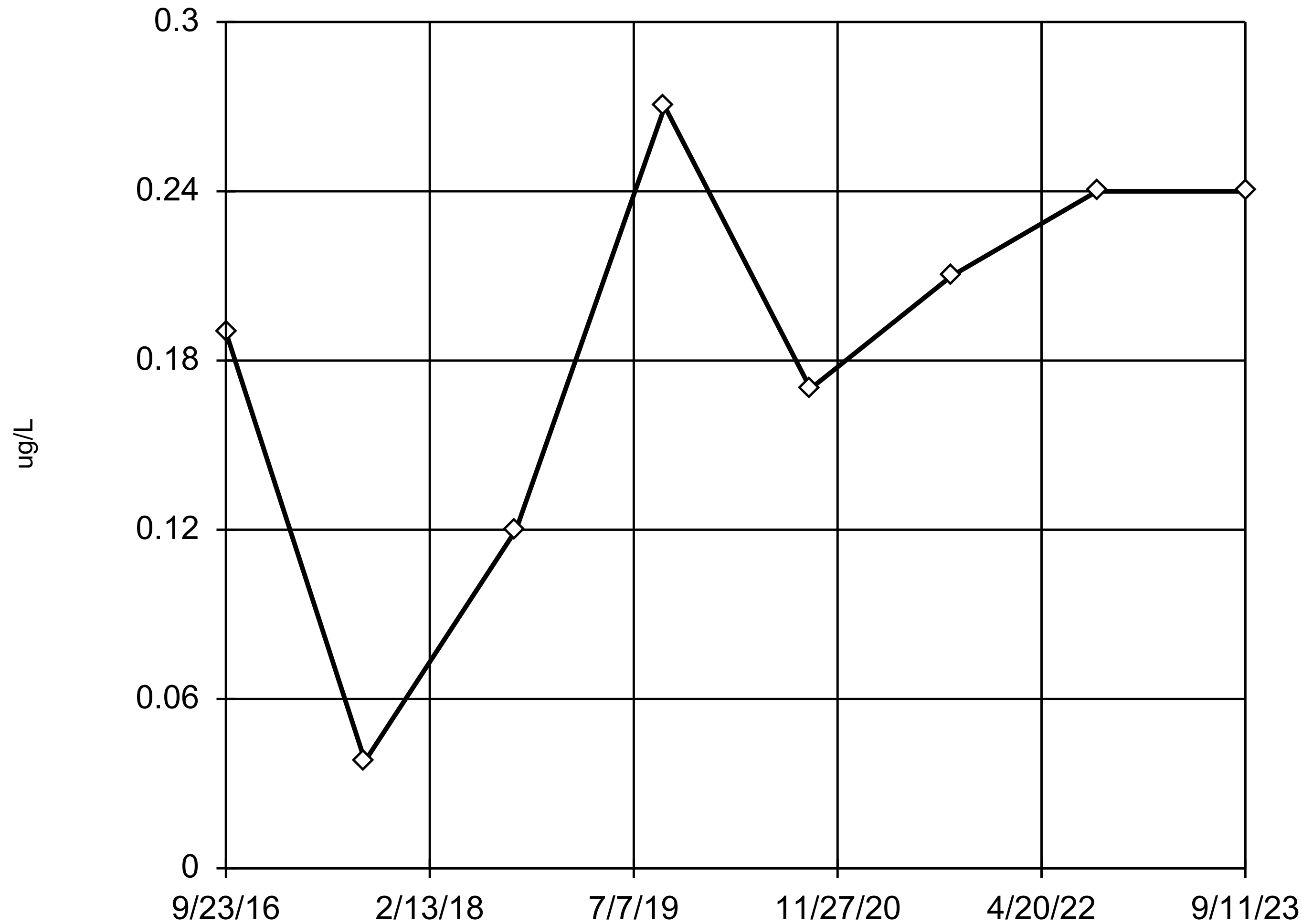
Constituent: Iron (ug/L)   Analysis Run 10/23/2023 11:51 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-12 (bg)
9/23/2016	1590
9/5/2017	1710
9/17/2018	1710
9/23/2019	1600
9/21/2020	1800
9/8/2021	1700
9/6/2022	1900
9/11/2023	1700

Dixon's Outlier Test

MW-12 (bg)



n = 8

No statistical outliers.
Testing for 1 low outlier.
Mean = 0.1847.
Std. Dev. = 0.07558.
0.038 (J): c = 0.4059
tabl = 0.554.
Alpha = 0.05.

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.9638
Critical = 0.838
The distribution was found to be normally distributed.

Constituent: Lead   Analysis Run 10/23/2023 11:47 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Dixon's Outlier Test

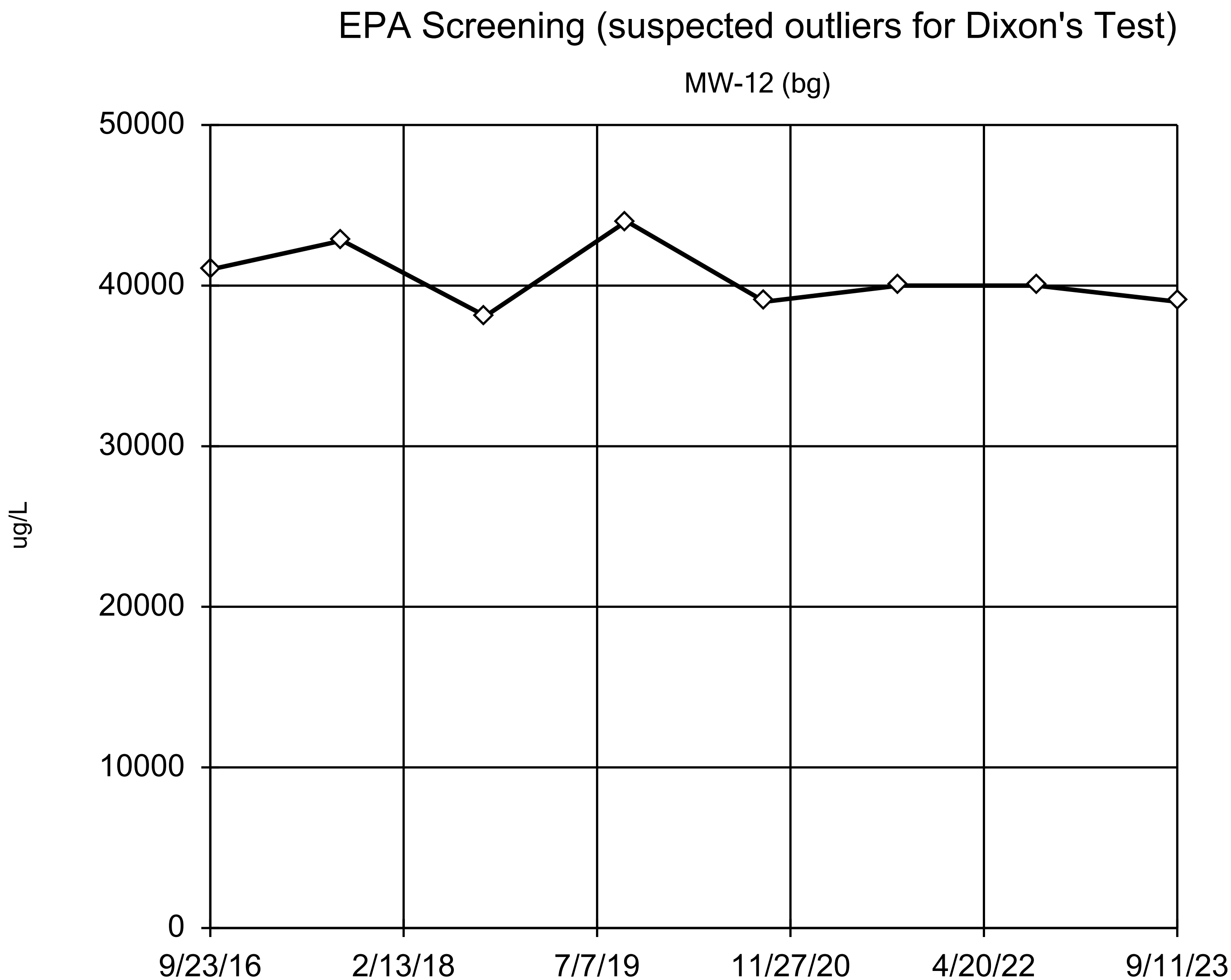
Constituent: Lead (ug/L) Analysis Run 10/23/2023 11:51 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-12 (bg)
9/23/2016	<0.19
9/5/2017	0.038 (J)
9/17/2018	<0.12
9/23/2019	<0.27
9/21/2020	0.17 (J)
9/8/2021	<0.21
9/6/2022	<0.24
9/11/2023	<0.24 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



n = 8

Dixon's will not be run.
No suspect values identified or unable to establish suspect values.
Mean 40488, std. dev. 2020, critical Tn 2.032

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.9188
Critical = 0.851
The distribution was found to be normally distributed.

Constituent: Magnesium Analysis Run 10/23/2023 11:47 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

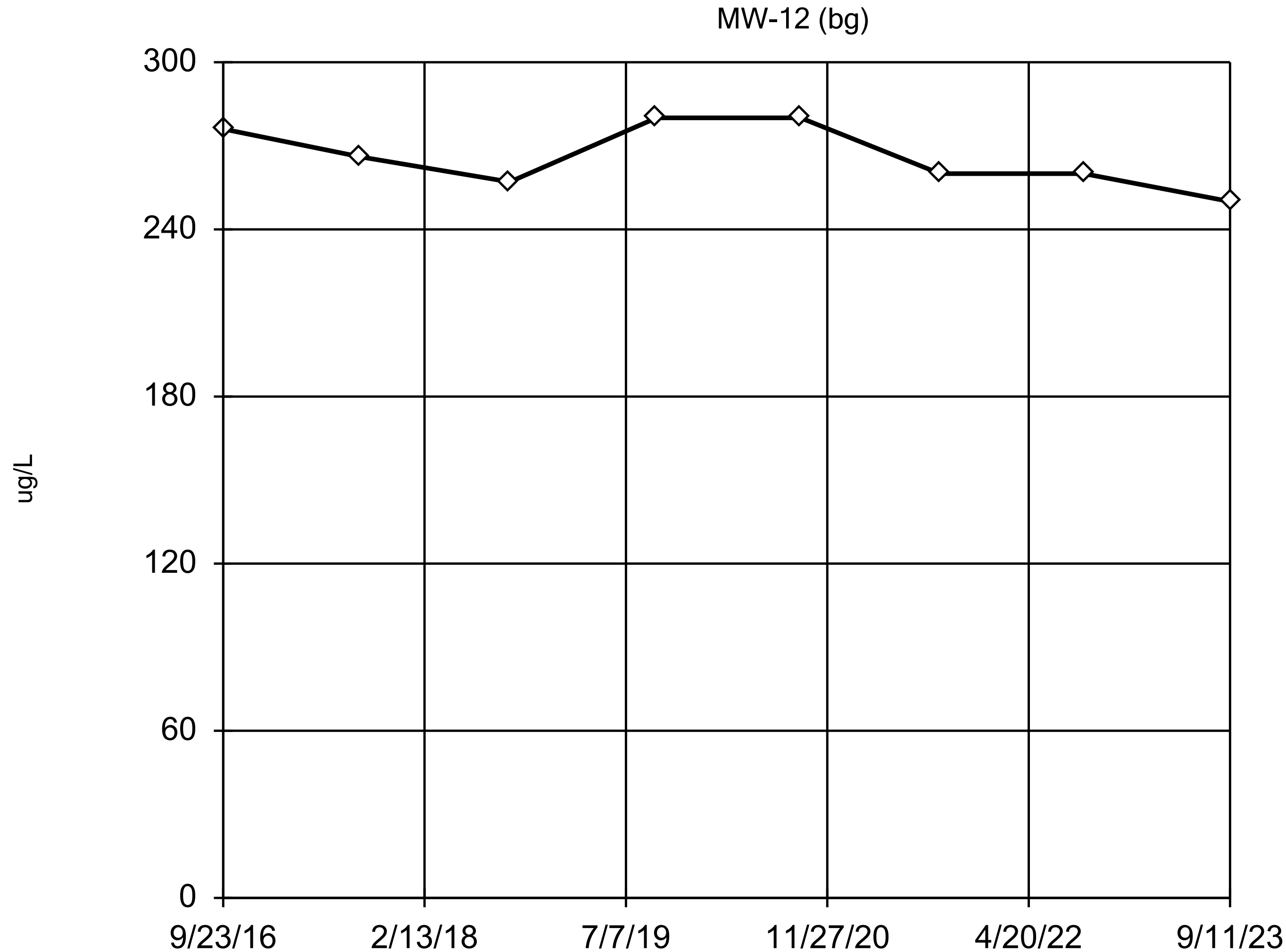
EPA 1989 Outlier Screening

Constituent: Magnesium (ug/L) Analysis Run 10/23/2023 11:51 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-12 (bg)
9/23/2016	41000
9/5/2017	42800
9/17/2018	38100
9/23/2019	44000
9/21/2020	39000
9/8/2021	40000
9/6/2022	40000
9/11/2023	39000

EPA Screening (suspected outliers for Dixon's Test)



n = 8

Dixon's will not be run. No suspect values identified or unable to establish suspect values. Mean 266.1, std. dev. 11.34, critical Tn 2.032

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.9053
Critical = 0.851
The distribution was found to be normally distributed.

Constituent: Manganese Analysis Run 10/23/2023 11:47 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

EPA 1989 Outlier Screening

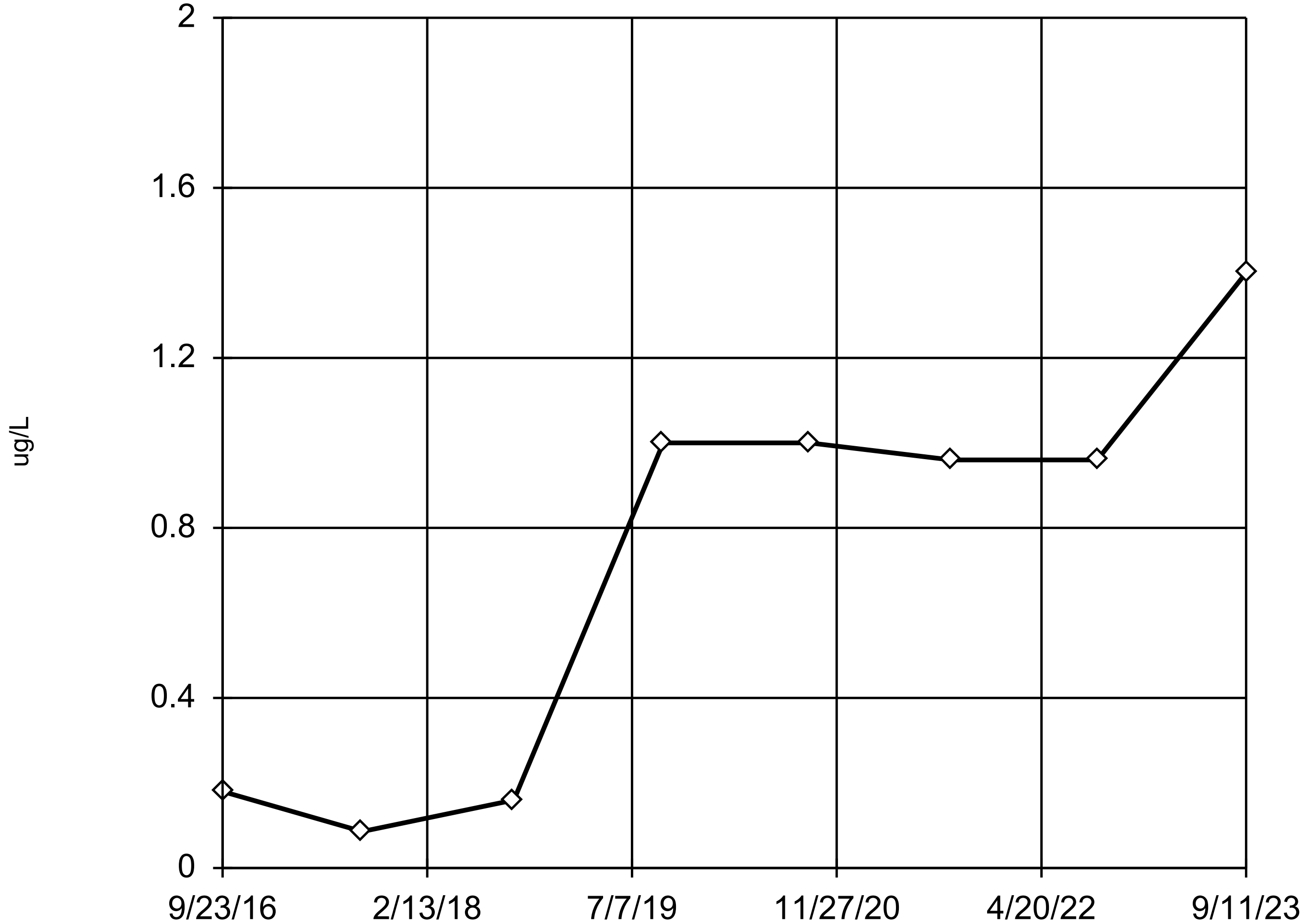
Constituent: Manganese (ug/L)   Analysis Run 10/23/2023 11:51 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-12 (bg)
9/23/2016	276
9/5/2017	266
9/17/2018	257
9/23/2019	280
9/21/2020	280
9/8/2021	260
9/6/2022	260
9/11/2023	250

Tukey's Outlier Screening

MW-12 (bg)



n = 8

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

High cutoff = 1.978, low cutoff = -1.698, based on IQR multiplier of 3.

Constituent: Selenium Analysis Run 10/23/2023 11:47 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Tukey's Outlier Screening

Constituent: Selenium (ug/L)   Analysis Run 10/23/2023 11:51 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

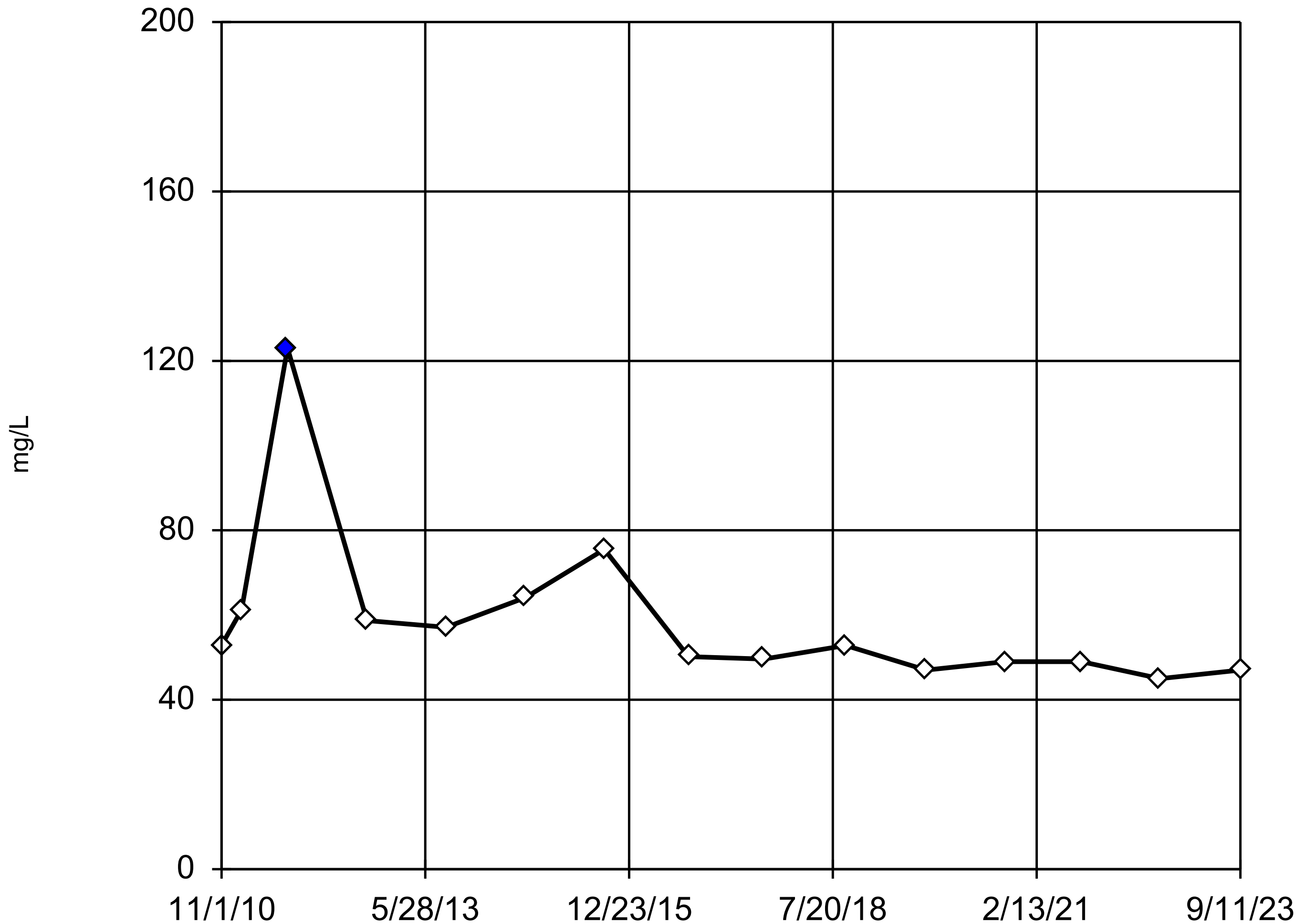
	MW-12 (bg)
9/23/2016	<0.18
9/5/2017	<0.086
9/17/2018	<0.16
9/23/2019	<1
9/21/2020	<1
9/8/2021	<0.96
9/6/2022	<0.96
9/11/2023	<1.4 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Dixon's Outlier Test

MW-12 (bg)



n = 15

Statistical outlier is drawn as solid.
Testing for 1 high outlier.
Mean = 58.81.
Std. Dev. = 19.51.
123: c = 0.6775
tabl = 0.525.
Alpha = 0.05.

Normality test used:
Shapiro Wilk@alpha = 0.05
Calculated = 0.9112
Critical = 0.874 (after natural log transformation)
The distribution, after removal of suspect value, was found to be lognormal.

Constituent: Sulfate Analysis Run 10/23/2023 11:47 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

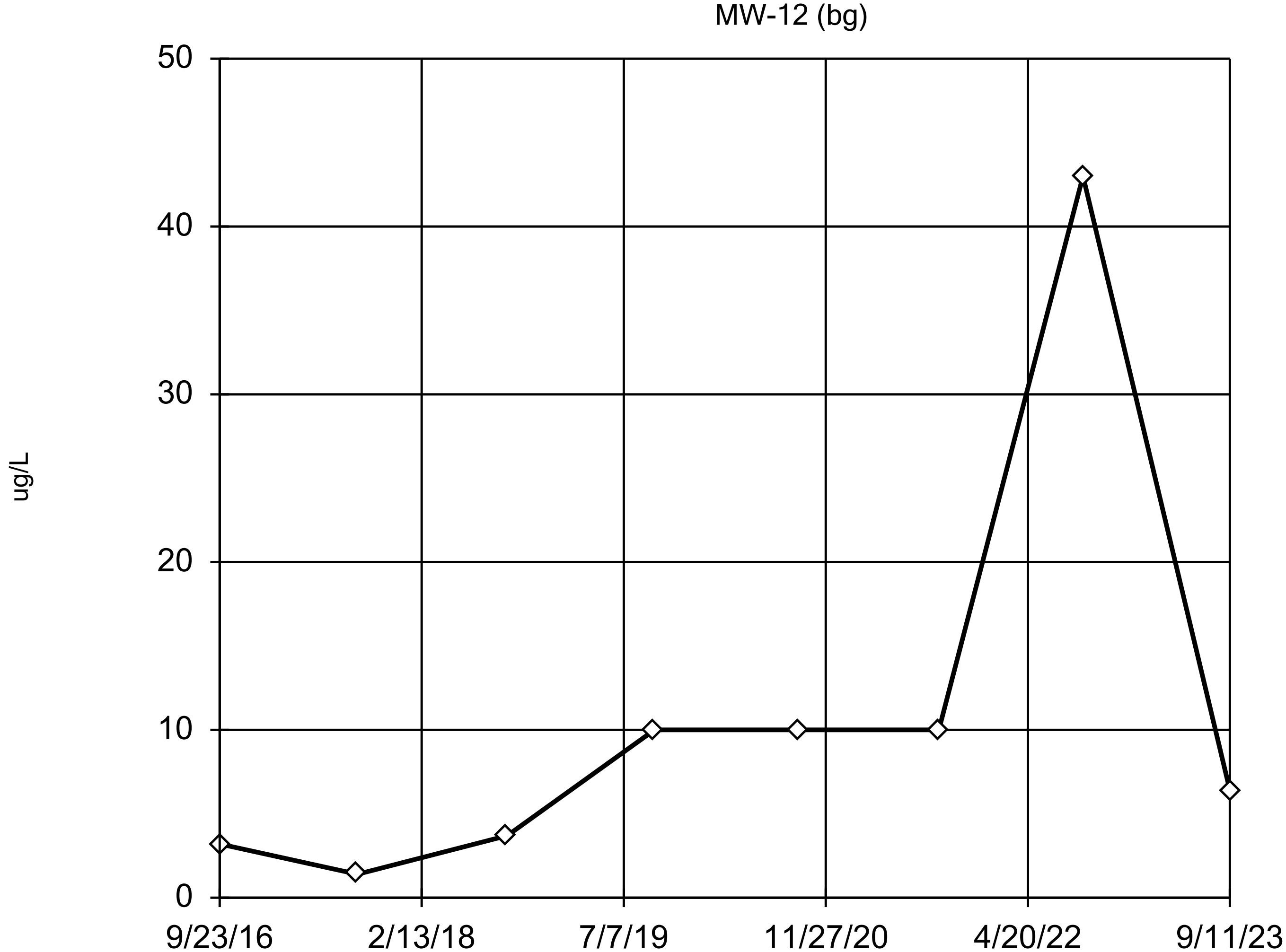
Dixon's Outlier Test

Constituent: Sulfate (mg/L)   Analysis Run 10/23/2023 11:51 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-12 (bg)
11/1/2010	52.9
2/1/2011	61.2
9/1/2011	123 (O)
9/1/2012	58.7
9/1/2013	57.1
9/1/2014	64.1
9/1/2015	75.5
9/23/2016	50.2
9/5/2017	49.6
9/17/2018	52.8
9/23/2019	47
9/21/2020	49
9/8/2021	49
9/6/2022	45
9/11/2023	47

EPA Screening (suspected outliers for Dixon's Test)



n = 8

Dixon's will not be run. No suspect values identified or unable to establish suspect values. Mean 10.96, std. dev. 13.39, critical Tn 2.032

Normality test used: Shapiro Wilk@alpha = 0.1
Calculated = 0.9502
Critical = 0.851 (after natural log transformation)
The distribution was found to be log-normal.

Constituent: Zinc   Analysis Run 10/23/2023 11:47 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

EPA 1989 Outlier Screening

Constituent: Zinc (ug/L)   Analysis Run 10/23/2023 11:51 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-12 (bg)
9/23/2016	3.2 (J)
9/5/2017	1.4 (J)
9/17/2018	<3.7
9/23/2019	<10
9/21/2020	<10
9/8/2021	<10
9/6/2022	43
9/11/2023	<6.4 (U)

ND substitution: RL or RL/2 if <15% NDs.

Attachment E5

Interwell Prediction Limit Analysis Results – Shallow

Prediction Limit

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB   Printed 10/23/2023, 11:31 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Wells	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Arsenic (ug/L)	MW-14	1.20	n/a	9/11/2023	0.79J	No	8	MW-21	n/a	n/a	50	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Arsenic (ug/L)	MW-15AR	1.20	n/a	9/9/2022	0.75ND	No	8	MW-21	n/a	n/a	50	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Arsenic (ug/L)	**MW-2**	**1.20**	**n/a**	**9/12/2023**	**2.3**	**Yes**	**8**	**MW-21**	**n/a**	**n/a**	**50**	**n/a**	**n/a**	**0.01611**	**NP Inter (NDs) 1 of 2**
Arsenic (ug/L)	MW-20	1.20	n/a	9/12/2023	0.92J	No	8	MW-21	n/a	n/a	50	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Arsenic (ug/L)	MW-25R	1.20	n/a	9/12/2023	0.53ND	No	8	MW-21	n/a	n/a	50	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Arsenic (ug/L)	MW-5	1.20	n/a	9/13/2023	0.53ND	No	8	MW-21	n/a	n/a	50	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Arsenic (ug/L)	MW-23/23R	1.20	n/a	9/14/2023	0.53ND	No	8	MW-21	n/a	n/a	50	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Barium (ug/L)	MW-14	277	n/a	9/11/2023	52	No	8	MW-21	195.5	25.52	0	None	No	0.0005787	Param Inter 1 of 2
Barium (ug/L)	MW-15AR	277	n/a	9/9/2022	96	No	8	MW-21	195.5	25.52	0	None	No	0.0005787	Param Inter 1 of 2
Barium (ug/L)	MW-2	277	n/a	9/12/2023	82	No	8	MW-21	195.5	25.52	0	None	No	0.0005787	Param Inter 1 of 2
Barium (ug/L)	MW-20	277	n/a	9/12/2023	82	No	8	MW-21	195.5	25.52	0	None	No	0.0005787	Param Inter 1 of 2
Barium (ug/L)	MW-25R	277	n/a	9/12/2023	160	No	8	MW-21	195.5	25.52	0	None	No	0.0005787	Param Inter 1 of 2
Barium (ug/L)	MW-5	277	n/a	9/13/2023	130	No	8	MW-21	195.5	25.52	0	None	No	0.0005787	Param Inter 1 of 2
Barium (ug/L)	MW-23/23R	277	n/a	9/14/2023	120	No	8	MW-21	195.5	25.52	0	None	No	0.0005787	Param Inter 1 of 2
Beryllium (ug/L)	MW-14	0.330	n/a	9/11/2023	0.33ND	No	8	MW-21	n/a	n/a	87.5	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Beryllium (ug/L)	MW-15AR	0.330	n/a	9/9/2022	0.27ND	No	8	MW-21	n/a	n/a	87.5	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Beryllium (ug/L)	MW-2	0.330	n/a	9/12/2023	0.33ND	No	8	MW-21	n/a	n/a	87.5	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Beryllium (ug/L)	MW-20	0.330	n/a	9/12/2023	0.33ND	No	8	MW-21	n/a	n/a	87.5	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Beryllium (ug/L)	MW-25R	0.330	n/a	9/12/2023	0.33ND	No	8	MW-21	n/a	n/a	87.5	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Beryllium (ug/L)	MW-5	0.330	n/a	9/13/2023	0.33ND	No	8	MW-21	n/a	n/a	87.5	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Beryllium (ug/L)	MW-23/23R	0.330	n/a	9/14/2023	0.33ND	No	8	MW-21	n/a	n/a	87.5	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Boron (ug/L)	**MW-14**	**202**	**n/a**	**9/11/2023**	**1700**	**Yes**	**8**	**MW-21**	**98.58**	**32.13**	**0**	**None**	**No**	**0.0005787**	**Param Inter 1 of 2**
Boron (ug/L)	**MW-15AR**	**202**	**n/a**	**9/9/2022**	**3300**	**Yes**	**8**	**MW-21**	**98.58**	**32.13**	**0**	**None**	**No**	**0.0005787**	**Param Inter 1 of 2**
Boron (ug/L)	**MW-2**	**202**	**n/a**	**9/12/2023**	**1100**	**Yes**	**8**	**MW-21**	**98.58**	**32.13**	**0**	**None**	**No**	**0.0005787**	**Param Inter 1 of 2**
Boron (ug/L)	**MW-20**	**202**	**n/a**	**9/12/2023**	**1800**	**Yes**	**8**	**MW-21**	**98.58**	**32.13**	**0**	**None**	**No**	**0.0005787**	**Param Inter 1 of 2**
Boron (ug/L)	**MW-25R**	**202**	**n/a**	**9/12/2023**	**310**	**Yes**	**8**	**MW-21**	**98.58**	**32.13**	**0**	**None**	**No**	**0.0005787**	**Param Inter 1 of 2**
Boron (ug/L)	**MW-5**	**202**	**n/a**	**9/13/2023**	**880**	**Yes**	**8**	**MW-21**	**98.58**	**32.13**	**0**	**None**	**No**	**0.0005787**	**Param Inter 1 of 2**
Boron (ug/L)	**MW-23/23R**	**202**	**n/a**	**9/14/2023**	**400**	**Yes**	**8**	**MW-21**	**98.58**	**32.13**	**0**	**None**	**No**	**0.0005787**	**Param Inter 1 of 2**
Chloride (mg/L)	MW-14	123	n/a	9/11/2023	8.3	No	8	MW-21	2.464	0.7312	0	None	ln(x)	0.0005787	Param Inter 1 of 2
Chloride (mg/L)	MW-15AR	123	n/a	9/9/2022	17	No	8	MW-21	2.464	0.7312	0	None	ln(x)	0.0005787	Param Inter 1 of 2
Chloride (mg/L)	MW-2	123	n/a	9/12/2023	5.6	No	8	MW-21	2.464	0.7312	0	None	ln(x)	0.0005787	Param Inter 1 of 2
Chloride (mg/L)	MW-20	123	n/a	9/12/2023	12	No	8	MW-21	2.464	0.7312	0	None	ln(x)	0.0005787	Param Inter 1 of 2
Chloride (mg/L)	MW-25R	123	n/a	9/12/2023	25	No	8	MW-21	2.464	0.7312	0	None	ln(x)	0.0005787	Param Inter 1 of 2
Chloride (mg/L)	MW-5	123	n/a	9/13/2023	9.9	No	8	MW-21	2.464	0.7312	0	None	ln(x)	0.0005787	Param Inter 1 of 2
Chloride (mg/L)	MW-23/23R	123	n/a	9/14/2023	12	No	8	MW-21	2.464	0.7312	0	None	ln(x)	0.0005787	Param Inter 1 of 2
Cobalt (ug/L)	MW-14	0.750	n/a	9/11/2023	0.2J	No	8	MW-21	n/a	n/a	50	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Cobalt (ug/L)	MW-15AR	0.750	n/a	9/9/2022	0.19ND	No	8	MW-21	n/a	n/a	50	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Cobalt (ug/L)	**MW-2**	**0.750**	**n/a**	**9/12/2023**	**2.3**	**Yes**	**8**	**MW-21**	**n/a**	**n/a**	**50**	**n/a**	**n/a**	**0.01611**	**NP Inter (NDs) 1 of 2**
Cobalt (ug/L)	MW-20	0.750	n/a	9/12/2023	0.17ND	No	8	MW-21	n/a	n/a	50	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Cobalt (ug/L)	MW-25R	0.750	n/a	9/12/2023	0.17ND	No	8	MW-21	n/a	n/a	50	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Cobalt (ug/L)	MW-5	0.750	n/a	9/13/2023	0.17ND	No	8	MW-21	n/a	n/a	50	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Cobalt (ug/L)	MW-23/23R	0.750	n/a	9/14/2023	0.17ND	No	8	MW-21	n/a	n/a	50	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Copper (ug/L)	MW-14	2.80	n/a	9/11/2023	1.8ND	No	8	MW-21	n/a	n/a	62.5	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Copper (ug/L)	MW-15AR	2.80	n/a	9/9/2022	1.8ND	No	8	MW-21	n/a	n/a	62.5	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Copper (ug/L)	MW-2	2.80	n/a	9/12/2023	1.8ND	No	8	MW-21	n/a	n/a	62.5	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Copper (ug/L)	MW-20	2.80	n/a	9/12/2023	1.8ND	No	8	MW-21	n/a	n/a	62.5	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Copper (ug/L)	MW-25R	2.80	n/a	9/12/2023	1.8ND	No	8	MW-21	n/a	n/a	62.5	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Copper (ug/L)	MW-5	2.80	n/a	9/13/2023	1.8ND	No	8	MW-21	n/a	n/a	62.5	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Copper (ug/L)	MW-23/23R	2.80	n/a	9/14/2023	1.8ND	No	8	MW-21	n/a	n/a	62.5	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Iron (ug/L)	MW-14	7470	n/a	9/11/2023	54J	No	8	MW-21	4.883	1.258	25	None	ln(x)	0.0005787	Param Inter 1 of 2

Prediction Limit

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB   Printed 10/23/2023, 11:31 AM

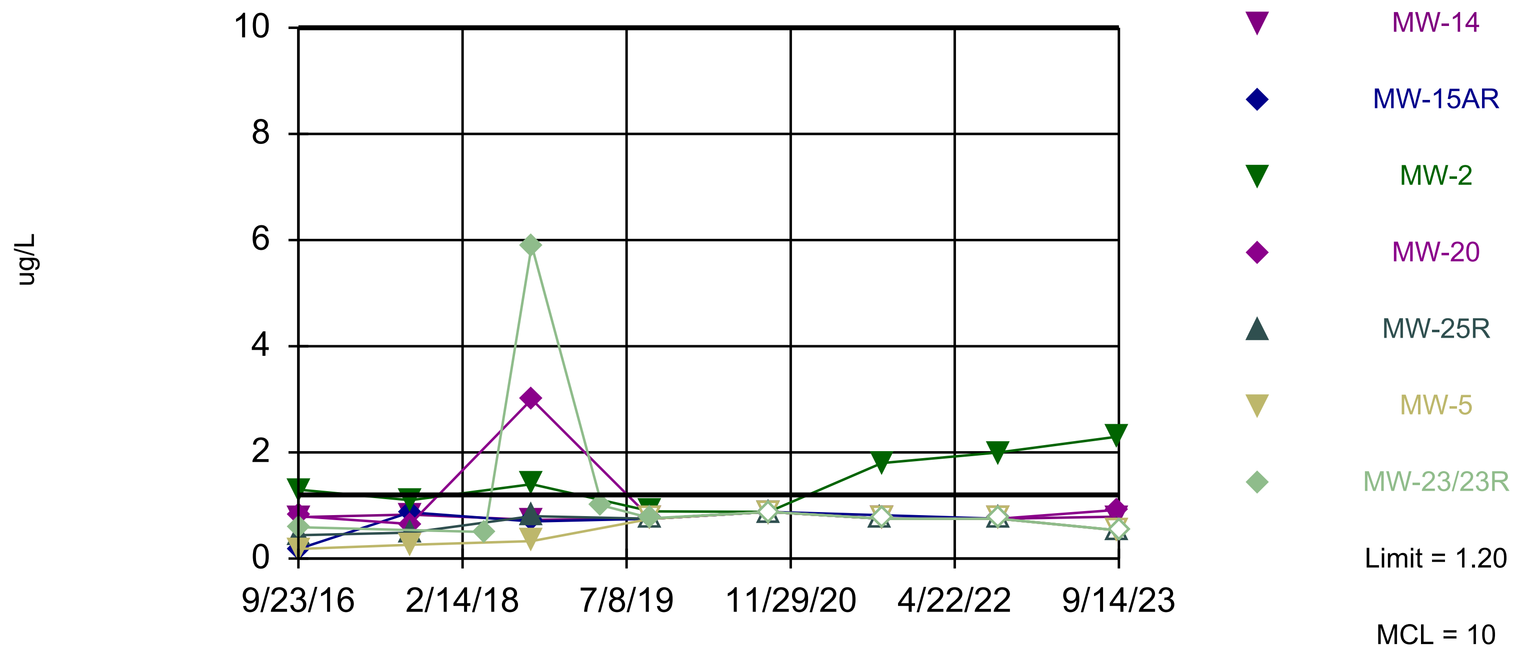
Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Wells	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Iron (ug/L)	MW-15AR	7470	n/a	9/9/2022	36ND	No	8	MW-21	4.883	1.258	25	None	ln(x)	0.0005787	Param Inter 1 of 2
Iron (ug/L)	**MW-2**	**7470**	**n/a**	**9/12/2023**	**12000**	**Yes**	**8**	**MW-21**	**4.883**	**1.258**	**25**	**None**	**ln(x)**	**0.0005787**	**Param Inter 1 of 2**
Iron (ug/L)	MW-20	7470	n/a	9/12/2023	60J	No	8	MW-21	4.883	1.258	25	None	ln(x)	0.0005787	Param Inter 1 of 2
Iron (ug/L)	MW-25R	7470	n/a	9/12/2023	36ND	No	8	MW-21	4.883	1.258	25	None	ln(x)	0.0005787	Param Inter 1 of 2
Iron (ug/L)	MW-5	7470	n/a	9/13/2023	140	No	8	MW-21	4.883	1.258	25	None	ln(x)	0.0005787	Param Inter 1 of 2
Iron (ug/L)	MW-23/23R	7470	n/a	9/14/2023	36ND	No	8	MW-21	4.883	1.258	25	None	ln(x)	0.0005787	Param Inter 1 of 2
Lead (ug/L)	MW-14	5.6	n/a	9/11/2023	0.24ND	No	8	MW-21	-0.8059	0.7878	37.5	None	ln(x)	0.0005787	Param Inter 1 of 2
Lead (ug/L)	MW-15AR	5.6	n/a	9/9/2022	0.24ND	No	8	MW-21	-0.8059	0.7878	37.5	None	ln(x)	0.0005787	Param Inter 1 of 2
Lead (ug/L)	MW-2	5.6	n/a	9/12/2023	0.36J	No	8	MW-21	-0.8059	0.7878	37.5	None	ln(x)	0.0005787	Param Inter 1 of 2
Lead (ug/L)	MW-20	5.6	n/a	9/12/2023	0.24ND	No	8	MW-21	-0.8059	0.7878	37.5	None	ln(x)	0.0005787	Param Inter 1 of 2
Lead (ug/L)	MW-25R	5.6	n/a	9/12/2023	0.24ND	No	8	MW-21	-0.8059	0.7878	37.5	None	ln(x)	0.0005787	Param Inter 1 of 2
Lead (ug/L)	MW-5	5.6	n/a	9/13/2023	0.38J	No	8	MW-21	-0.8059	0.7878	37.5	None	ln(x)	0.0005787	Param Inter 1 of 2
Lead (ug/L)	MW-23/23R	5.6	n/a	9/14/2023	0.24ND	No	8	MW-21	-0.8059	0.7878	37.5	None	ln(x)	0.0005787	Param Inter 1 of 2
Magnesium (ug/L)	MW-14	53000	n/a	9/11/2023	16000	No	8	MW-21	30963	6856	0	None	No	0.0005787	Param Inter 1 of 2
Magnesium (ug/L)	MW-15AR	53000	n/a	9/9/2022	49000	No	8	MW-21	30963	6856	0	None	No	0.0005787	Param Inter 1 of 2
Magnesium (ug/L)	MW-2	53000	n/a	9/12/2023	24000	No	8	MW-21	30963	6856	0	None	No	0.0005787	Param Inter 1 of 2
Magnesium (ug/L)	MW-20	53000	n/a	9/12/2023	21000	No	8	MW-21	30963	6856	0	None	No	0.0005787	Param Inter 1 of 2
Magnesium (ug/L)	MW-25R	53000	n/a	9/12/2023	40000	No	8	MW-21	30963	6856	0	None	No	0.0005787	Param Inter 1 of 2
Magnesium (ug/L)	MW-5	53000	n/a	9/13/2023	38000	No	8	MW-21	30963	6856	0	None	No	0.0005787	Param Inter 1 of 2
Magnesium (ug/L)	MW-23/23R	53000	n/a	9/14/2023	31000	No	8	MW-21	30963	6856	0	None	No	0.0005787	Param Inter 1 of 2
Manganese (ug/L)	MW-14	661	n/a	9/11/2023	72	No	8	MW-21	2.737	1.171	12.5	None	ln(x)	0.0005787	Param Inter 1 of 2
Manganese (ug/L)	MW-15AR	661	n/a	9/9/2022	1.8ND	No	8	MW-21	2.737	1.171	12.5	None	ln(x)	0.0005787	Param Inter 1 of 2
Manganese (ug/L)	**MW-2**	**661**	**n/a**	**9/12/2023**	**1400**	**Yes**	**8**	**MW-21**	**2.737**	**1.171**	**12.5**	**None**	**ln(x)**	**0.0005787**	**Param Inter 1 of 2**
Manganese (ug/L)	MW-20	661	n/a	9/12/2023	1.8ND	No	8	MW-21	2.737	1.171	12.5	None	ln(x)	0.0005787	Param Inter 1 of 2
Manganese (ug/L)	MW-25R	661	n/a	9/12/2023	1.8ND	No	8	MW-21	2.737	1.171	12.5	None	ln(x)	0.0005787	Param Inter 1 of 2
Manganese (ug/L)	MW-5	661	n/a	9/13/2023	29	No	8	MW-21	2.737	1.171	12.5	None	ln(x)	0.0005787	Param Inter 1 of 2
Manganese (ug/L)	MW-23/23R	661	n/a	9/14/2023	1.8ND	No	8	MW-21	2.737	1.171	12.5	None	ln(x)	0.0005787	Param Inter 1 of 2
Selenium (ug/L)	**MW-14**	**2.76**	**n/a**	**9/11/2023**	**11**	**Yes**	**8**	**MW-21**	**1.287**	**0.4581**	**12.5**	**None**	**No**	**0.0005787**	**Param Inter 1 of 2**
Selenium (ug/L)	**MW-15AR**	**2.76**	**n/a**	**9/9/2022**	**19**	**Yes**	**8**	**MW-21**	**1.287**	**0.4581**	**12.5**	**None**	**No**	**0.0005787**	**Param Inter 1 of 2**
Selenium (ug/L)	MW-2	2.76	n/a	9/12/2023	0.7ND	No	8	MW-21	1.287	0.4581	12.5	None	No	0.0005787	Param Inter 1 of 2
Selenium (ug/L)	**MW-20**	**2.76**	**n/a**	**9/12/2023**	**21**	**Yes**	**8**	**MW-21**	**1.287**	**0.4581**	**12.5**	**None**	**No**	**0.0005787**	**Param Inter 1 of 2**
Selenium (ug/L)	MW-25R	2.76	n/a	9/12/2023	2.6J	No	8	MW-21	1.287	0.4581	12.5	None	No	0.0005787	Param Inter 1 of 2
Selenium (ug/L)	**MW-5**	**2.76**	**n/a**	**9/13/2023**	**5.9**	**Yes**	**8**	**MW-21**	**1.287**	**0.4581**	**12.5**	**None**	**No**	**0.0005787**	**Param Inter 1 of 2**
Selenium (ug/L)	MW-23/23R	2.76	n/a	9/14/2023	2.5J	No	8	MW-21	1.287	0.4581	12.5	None	No	0.0005787	Param Inter 1 of 2
Sulfate (mg/L)	MW-14	62.3	n/a	9/11/2023	38	No	24	MW-21	50.1	5.367	0	None	No	0.0005787	Param Inter 1 of 2
Sulfate (mg/L)	**MW-15AR**	**62.3**	**n/a**	**9/9/2022**	**270**	**Yes**	**24**	**MW-21**	**50.1**	**5.367**	**0**	**None**	**No**	**0.0005787**	**Param Inter 1 of 2**
Sulfate (mg/L)	MW-2	62.3	n/a	9/12/2023	61	No	24	MW-21	50.1	5.367	0	None	No	0.0005787	Param Inter 1 of 2
Sulfate (mg/L)	MW-20	62.3	n/a	9/12/2023	48	No	24	MW-21	50.1	5.367	0	None	No	0.0005787	Param Inter 1 of 2
Sulfate (mg/L)	MW-25R	62.3	n/a	9/12/2023	53	No	24	MW-21	50.1	5.367	0	None	No	0.0005787	Param Inter 1 of 2
Sulfate (mg/L)	**MW-5**	**62.3**	**n/a**	**9/13/2023**	**97**	**Yes**	**24**	**MW-21**	**50.1**	**5.367**	**0**	**None**	**No**	**0.0005787**	**Param Inter 1 of 2**
Sulfate (mg/L)	MW-23/23R	62.3	n/a	9/14/2023	52	No	24	MW-21	50.1	5.367	0	None	No	0.0005787	Param Inter 1 of 2
Zinc (ug/L)	MW-14	14.2	n/a	9/11/2023	6.4ND	No	7	MW-21	n/a	n/a	57.14	n/a	n/a	0.01959	NP Inter (NDs) 1 of 2
Zinc (ug/L)	MW-15AR	14.2	n/a	9/9/2022	10ND	No	7	MW-21	n/a	n/a	57.14	n/a	n/a	0.01959	NP Inter (NDs) 1 of 2
Zinc (ug/L)	MW-2	14.2	n/a	9/12/2023	6.6J	No	7	MW-21	n/a	n/a	57.14	n/a	n/a	0.01959	NP Inter (NDs) 1 of 2
Zinc (ug/L)	MW-20	14.2	n/a	9/12/2023	6.4ND	No	7	MW-21	n/a	n/a	57.14	n/a	n/a	0.01959	NP Inter (NDs) 1 of 2
Zinc (ug/L)	MW-25R	14.2	n/a	9/12/2023	6.4ND	No	7	MW-21	n/a	n/a	57.14	n/a	n/a	0.01959	NP Inter (NDs) 1 of 2
Zinc (ug/L)	MW-5	14.2	n/a	9/13/2023	6.4ND	No	7	MW-21	n/a	n/a	57.14	n/a	n/a	0.01959	NP Inter (NDs) 1 of 2
Zinc (ug/L)	MW-23/23R	14.2	n/a	9/14/2023	6.4ND	No	7	MW-21	n/a	n/a	57.14	n/a	n/a	0.01959	NP Inter (NDs) 1 of 2

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Exceeds Limit: MW-2

Arsenic

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 49%. Limit is highest of 8 background values. 50% NDs. Annual per-constituent alpha = 0.1903. Individual comparison alpha = 0.01611 (1 of 2). Comparing 7 points to limit. Assumes 6 future values. Insufficient data to test for seasonality; data will not be deseasonalized.

Prediction Limit Analysis Run 10/23/2023 11:26 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Prediction Limit

Constituent: Arsenic (ug/L)   Analysis Run 10/23/2023 11:31 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-14	MW-23/23R	MW-21 (bg)	MW-5	MW-25R	MW-15AR	MW-20	MW-2
9/23/2016	0.78 (J)	0.59 (J)	0.57 (J)	0.18 (J)	0.44 (J)	0.18 (J)	0.8 (J)	1.3
9/5/2017	0.83 (J)		0.73 (J)	0.26 (J)	0.49 (J)	0.87 (J)	0.65 (J)	1.1
4/25/2018		0.5 (J)						
9/17/2018	0.73 (J)	5.9	1.2	0.33 (J)	0.8 (J)	0.7 (J)	3	1.4
4/23/2019		1 (J)						
9/23/2019	<0.75	0.76 (J)	<0.75	<0.75	<0.75	<0.75	<0.75	0.89 (J)
9/21/2020					<0.88		<0.88	
9/22/2020	<0.88			<0.88				<0.88
9/23/2020			<0.88					
9/24/2020		<0.88				<0.88		
9/7/2021					<0.75			
9/8/2021	<0.75						0.75 (J)	1.8 (J)
9/9/2021		<0.75		<0.75				
9/10/2021			<0.75					
9/6/2022	0.75 (J)				<0.75		<0.75	
9/7/2022			<0.75	<0.75				2
9/8/2022		<0.75						
9/9/2022						<0.75		
9/11/2023	0.79 (J)							
9/12/2023					<0.53 (U)		0.92 (J)	2.3
9/13/2023				<0.53 (U)				
9/14/2023		<0.53 (U)	0.9 (J)					

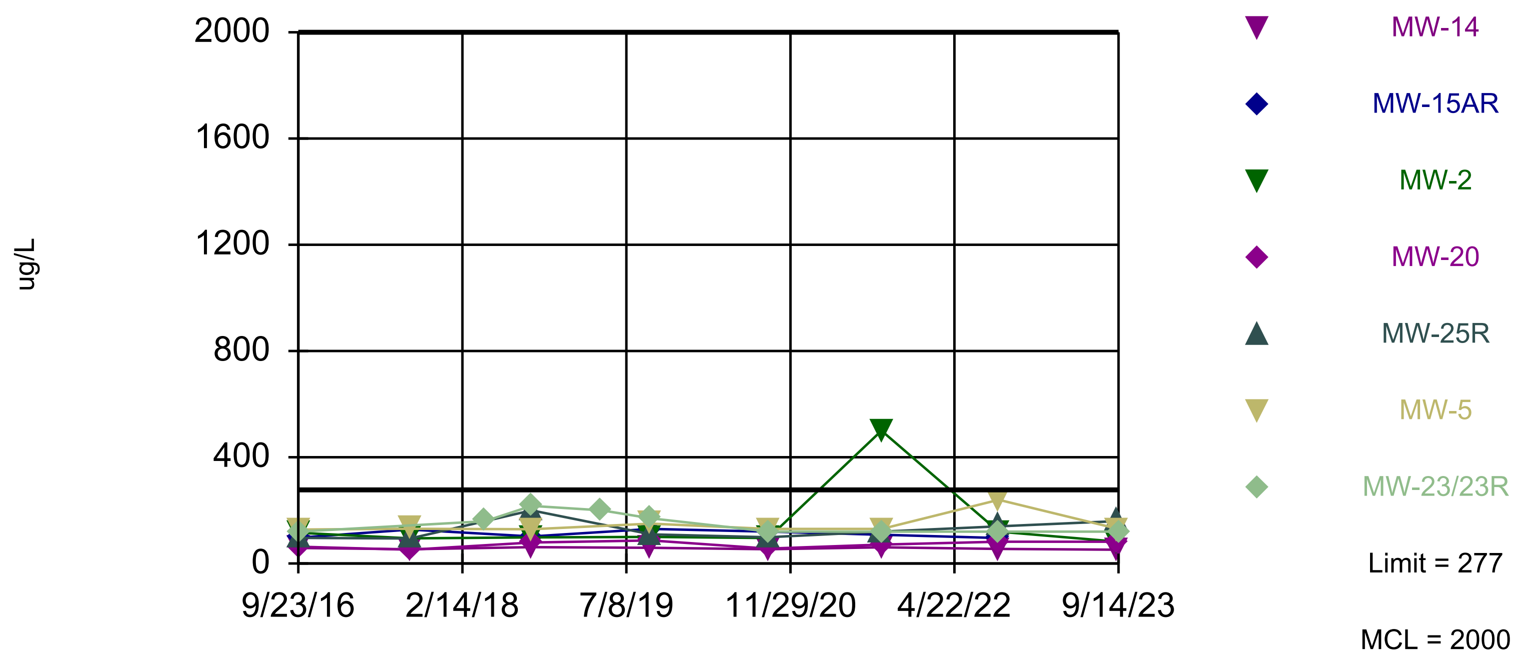
ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Within Limit

Barium

Interwell Parametric



Background Data Summary: Mean=195.5, Std. Dev.=25.52, n=8. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.1, calculated = 0.9356, critical = 0.851. Kappa = 3.209 (c=14, w=13, 1 of 2, event alpha = 0.1). Report alpha = 0.007498. Individual comparison alpha = 0.0005787. Comparing 7 points to limit. Assumes 6 future values.

Prediction Limit Analysis Run 10/23/2023 11:26 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Prediction Limit

Constituent: Barium (ug/L) Analysis Run 10/23/2023 11:31 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

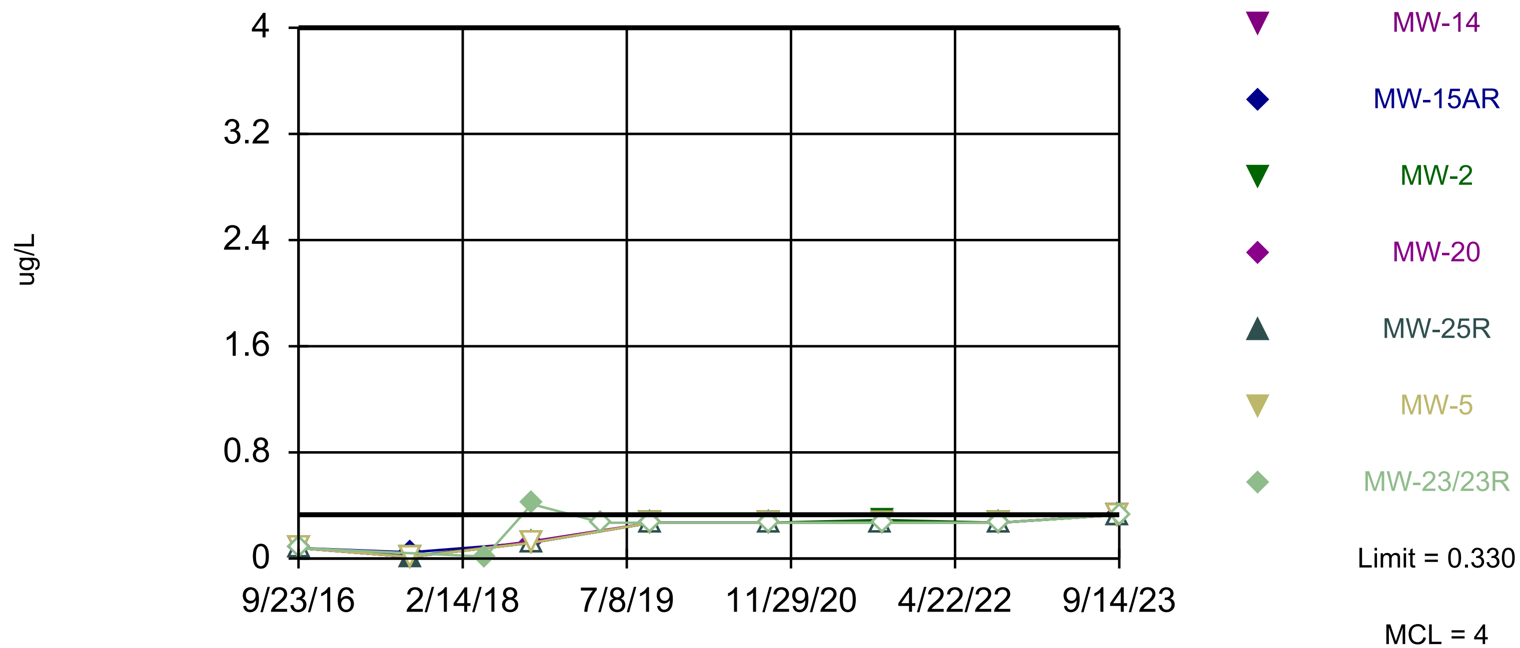
	MW-14	MW-15AR	MW-2	MW-20	MW-25R	MW-5	MW-21 (bg)	MW-23/23R
9/23/2016	58.5	97.2	116	63.1	96.5	128	178	120
9/5/2017	54	128	94.8	52.1	93.8	131	173	
4/25/2018								159
9/17/2018	61.7	102	98.3	78.8	200	129	203	217
4/23/2019								200
9/23/2019	59	130	100	87	110	150	160	170
9/21/2020				56	99			
9/22/2020	54		96			130		
9/23/2020							200	
9/24/2020		120						120
9/7/2021					120 (B)			
9/8/2021	61 (B)		500 (B)	71 (B)				
9/9/2021						130 (B)		120 (B)
9/10/2021							230 (B)	
9/6/2022	55			82	140			
9/7/2022			120			240	230	
9/8/2022								120
9/9/2022		96						
9/11/2023	52							
9/12/2023			82	82	160			
9/13/2023						130		
9/14/2023							190	120

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Beryllium

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 49%. Limit is highest of 8 background values. 87.5% NDs. Annual per-constituent alpha = 0.1903. Individual comparison alpha = 0.01611 (1 of 2). Comparing 7 points to limit. Assumes 6 future values. Insufficient data to test for seasonality; data will not be deseasonalized.

Prediction Limit Analysis Run 10/23/2023 11:26 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Prediction Limit

Constituent: Beryllium (ug/L) Analysis Run 10/23/2023 11:31 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-14	MW-23/23R	MW-21 (bg)	MW-5	MW-25R	MW-15AR	MW-20	MW-2
9/23/2016	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08
9/5/2017	<0.012		0.03 (J)	<0.012	0.018 (J)	0.047 (J)	<0.012	<0.012
4/25/2018		0.015 (J)						
9/17/2018	<0.12	0.41 (J)	<0.12	<0.12	<0.12	<0.12	0.13 (J)	<0.12
4/23/2019		<0.27						
9/23/2019	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
9/21/2020					<0.27		<0.27	
9/22/2020	<0.27			<0.27				<0.27
9/23/2020			<0.27					
9/24/2020		<0.27				<0.27		
9/7/2021					<0.27			
9/8/2021	<0.27						<0.27	0.29 (J)
9/9/2021		<0.27		<0.27				
9/10/2021			<0.27					
9/6/2022	<0.27				<0.27		<0.27	
9/7/2022			<0.27	<0.27				<0.27
9/8/2022		<0.27						
9/9/2022						<0.27		
9/11/2023	<0.33 (U)							
9/12/2023					<0.33 (U)		<0.33 (U)	<0.33 (U)
9/13/2023				<0.33 (U)				
9/14/2023		<0.33 (U)	<0.33 (U)					

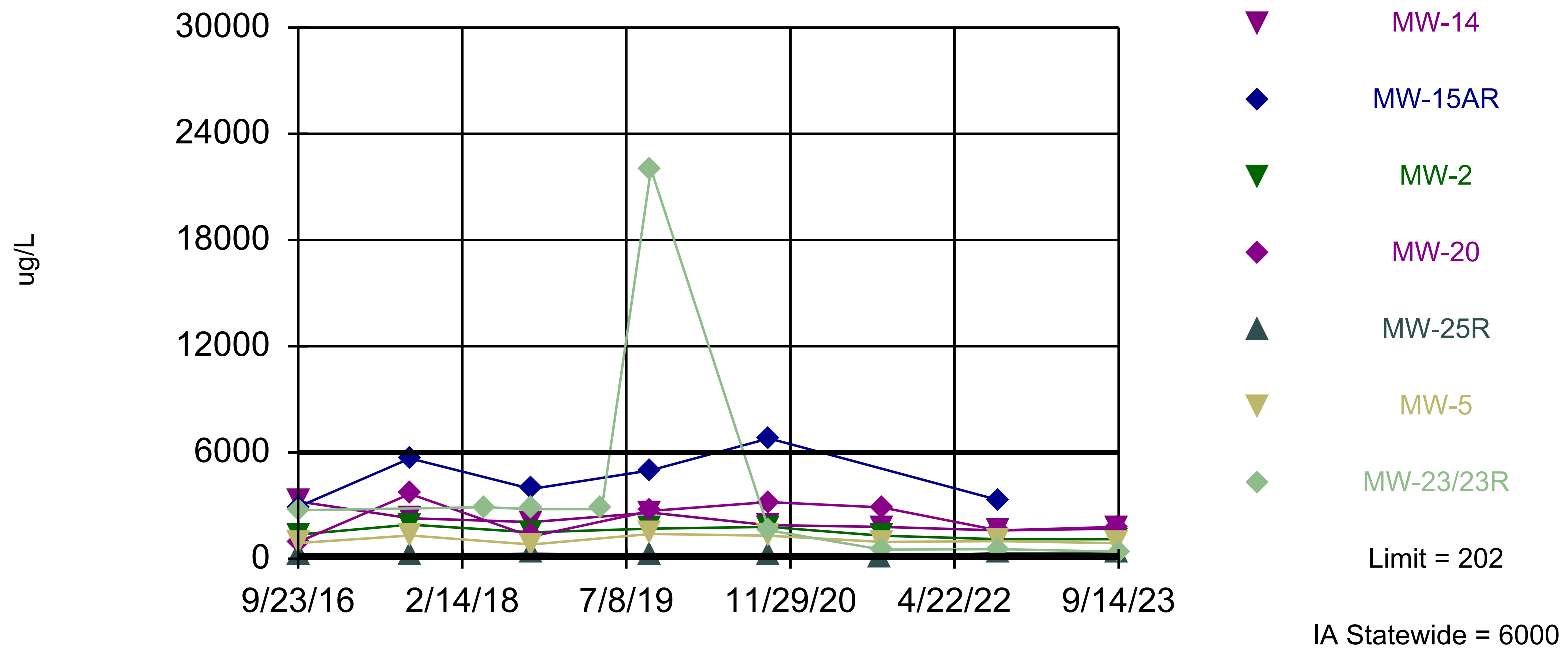
ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Exceeds Limit: MW-14, MW-15AR, MW-2, MW-20, MW-25R, MW-5, MW-23/23R

Boron

Interwell Parametric



Background Data Summary: Mean=98.58, Std. Dev.=32.13, n=8. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.1, calculated = 0.9306, critical = 0.851. Kappa = 3.209 (c=14, w=13, 1 of 2, event alpha = 0.1). Report alpha = 0.007498. Individual comparison alpha = 0.0005787. Comparing 7 points to limit. Assumes 6 future values.

Prediction Limit Analysis Run 10/23/2023 11:26 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Prediction Limit

Constituent: Boron (ug/L) Analysis Run 10/23/2023 11:31 AM View: shallow

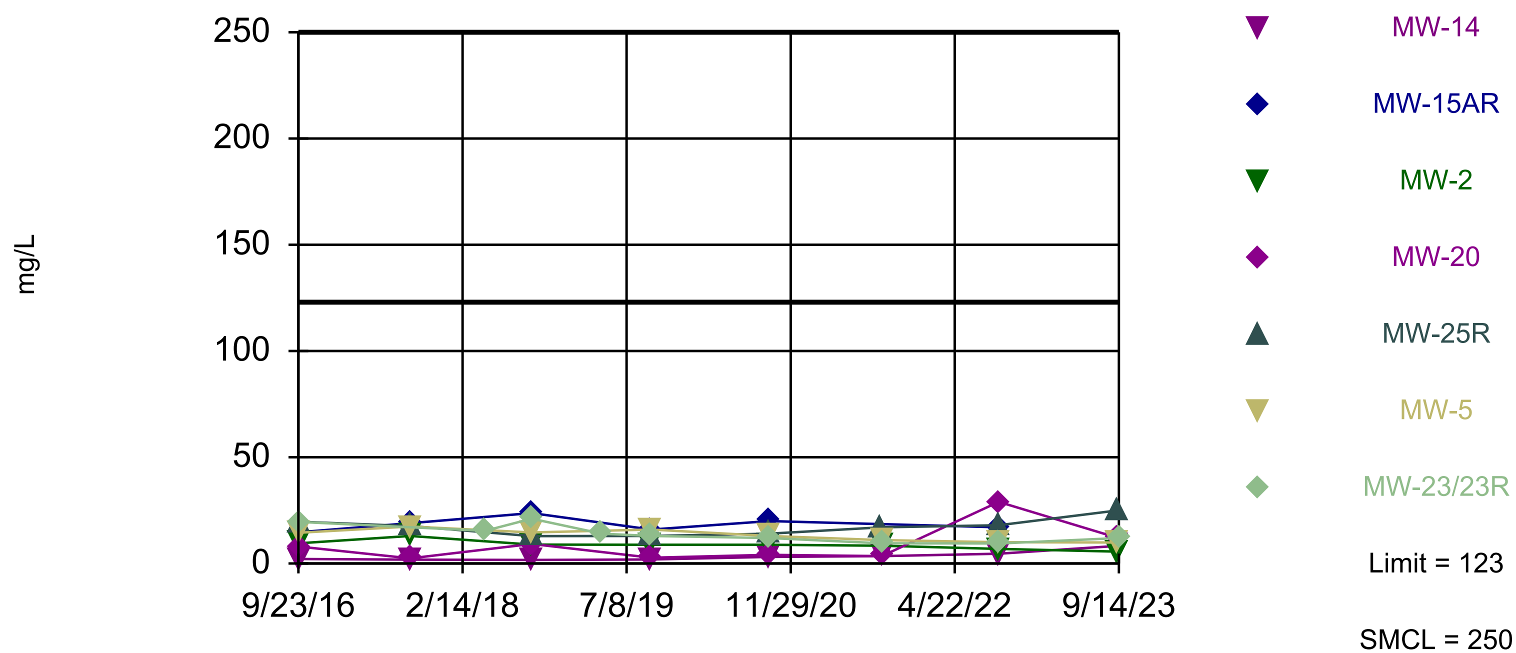
Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-14	MW-15AR	MW-2	MW-20	MW-25R	MW-5	MW-21 (bg)	MW-23/23R
9/23/2016	3240	2930	1370	939	269	890	81 (J)	2740
9/5/2017	2290	5670	1930	3660	178	1310	110	
4/25/2018								2910
9/17/2018	2070	3940	1490	1260	290	809	97.6 (J)	2800
4/23/2019								2800
9/23/2019	2600	5000	1700	2700	190 (J)	1400	160 (J,B)	22000 (B)
9/21/2020				3200	170			
9/22/2020	1900		1800			1300		
9/23/2020							120	
9/24/2020		6800						1600
9/7/2021					110			
9/8/2021	1800		1300	2900				
9/9/2021						950		520
9/10/2021							63 (J)	
9/6/2022	1600			1600	320			
9/7/2022			1100			1000	63 (J)	
9/8/2022								540
9/9/2022		3300						
9/11/2023	1700							
9/12/2023			1100	1800	310			
9/13/2023						880		
9/14/2023							94 (J)	400

Within Limit

Chloride

Interwell Parametric



Background Data Summary (based on natural log transformation): Mean=2.464, Std. Dev.=0.7312, n=8. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.1, calculated = 0.9118, critical = 0.851. Kappa = 3.209 (c=14, w=13, 1 of 2, event alpha = 0.1). Report alpha = 0.007498. Individual comparison alpha = 0.0005787. Comparing 7 points to limit. Assumes 6 future values.

Prediction Limit Analysis Run 10/23/2023 11:26 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Prediction Limit

Constituent: Chloride (mg/L)   Analysis Run 10/23/2023 11:31 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

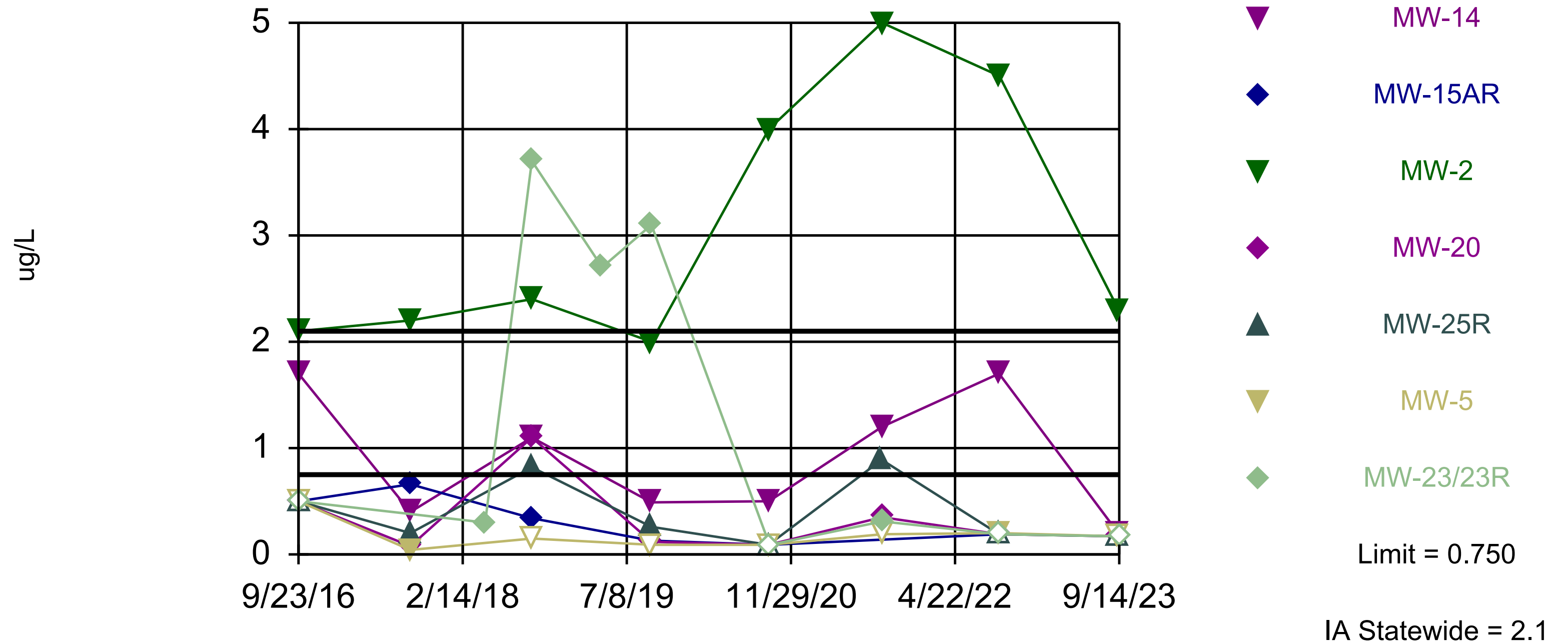
	MW-14	MW-15AR	MW-2	MW-20	MW-25R	MW-5	MW-21 (bg)	MW-23/23R
11/1/2010							13.9	
2/1/2011							11.7	
9/1/2011							28.8	
9/1/2012							12.6	
9/1/2013							10.8	
9/1/2014							4.7	
9/1/2015							4	
9/23/2016	2.1	14.7	9.5	8	19.7	14.5	30.3	19.6
9/5/2017	1.8	19	13	2.4	17.6	17.4		
4/25/2018								15.4
9/17/2018	1.7	23.7	8.9	9.2	12.9	14.6		21.1
4/23/2019								14
9/23/2019	1.9 (J)	16	8.8	2.7 (J)	13	16		13
9/21/2020				4.1 (J)	14			
9/22/2020	3.1 (J)		8.8			13		
9/24/2020		20						12
9/7/2021					17			
9/8/2021	3.5 (J)		8.4	3.5 (J)				
9/9/2021						11		9.5
9/6/2022	4.6 (J)			29	18			
9/7/2022			6.9			10		
9/8/2022								9.4
9/9/2022		17						
9/11/2023	8.3							
9/12/2023			5.6	12	25			
9/13/2023						9.9		
9/14/2023								12

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Exceeds Limit: MW-2

Cobalt

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 49%. Limit is highest of 8 background values. 50% NDs. Annual per-constituent alpha = 0.1903. Individual comparison alpha = 0.01611 (1 of 2). Comparing 7 points to limit. Assumes 6 future values. Insufficient data to test for seasonality; data will not be deseasonalized.

Prediction Limit Analysis Run 10/23/2023 11:26 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Prediction Limit

Constituent: Cobalt (ug/L)   Analysis Run 10/23/2023 11:31 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-14	MW-23/23R	MW-21 (bg)	MW-5	MW-25R	MW-15AR	MW-20	MW-2
9/23/2016	1.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.1
9/5/2017	0.4 (J)		0.52 (J)	0.043 (J)	0.2 (J)	0.66 (J)	0.078 (J)	2.2
4/25/2018		0.3 (J)						
9/17/2018	1.1	3.7	0.75 (J)	<0.15	0.82 (J)	0.34 (J)	1.1	2.4
4/23/2019		2.7						
9/23/2019	0.49 (J)	3.1	0.23 (J)	<0.091	0.26 (J)	0.13 (J)	0.12 (J)	2
9/21/2020					<0.091		<0.091	
9/22/2020	0.5			<0.091				4
9/23/2020			0.18 (J)					
9/24/2020		<0.091				<0.091		
9/7/2021					0.89			
9/8/2021	1.2						0.35 (J)	5
9/9/2021		0.31 (J)		<0.19				
9/10/2021			<0.19					
9/6/2022	1.7				<0.19		<0.19	
9/7/2022			<0.19	0.2 (J)				4.5 (D)
9/8/2022		<0.19						
9/9/2022						<0.19		
9/11/2023	0.2 (J)							
9/12/2023					<0.17 (U)		<0.17 (U)	2.3
9/13/2023				<0.17 (U)				
9/14/2023		<0.17 (U)	<0.17 (U)					

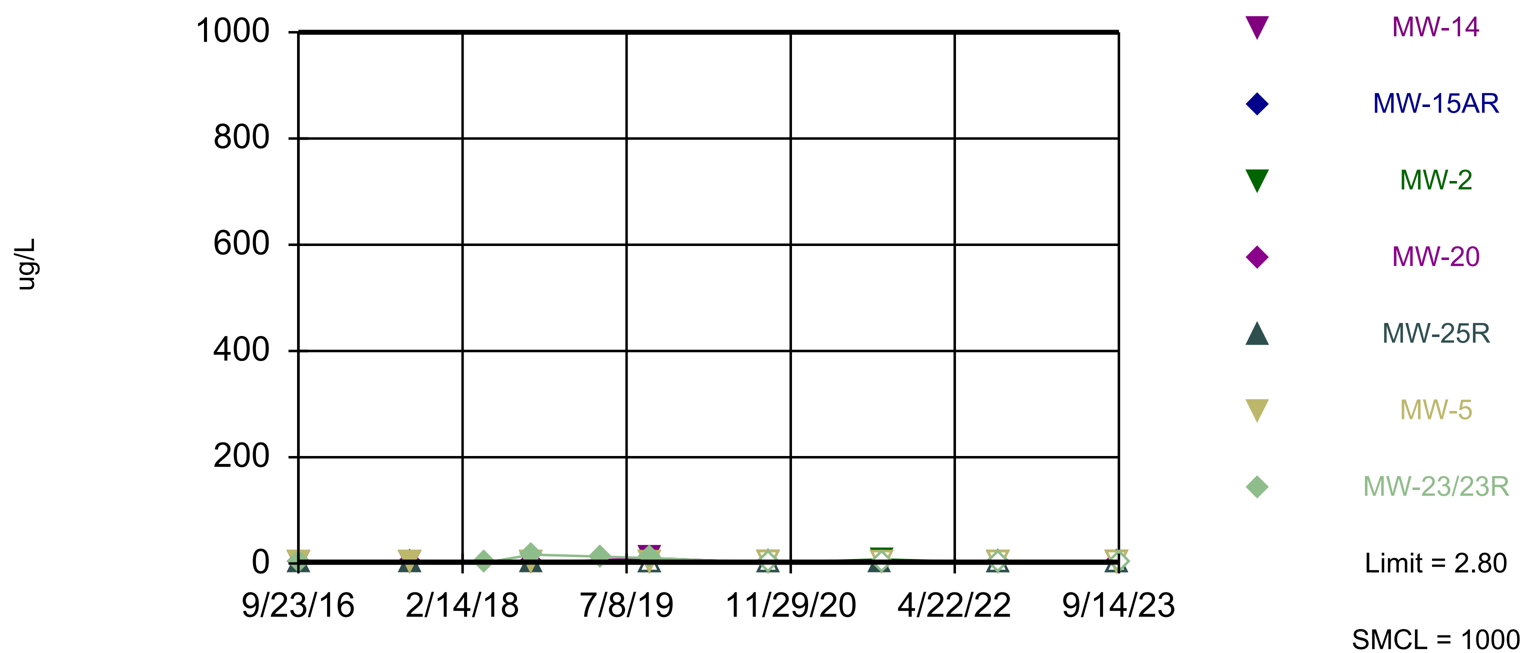
ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Copper

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 49%. Limit is highest of 8 background values. 62.5% NDs. Annual per-constituent alpha = 0.1903. Individual comparison alpha = 0.01611 (1 of 2). Comparing 7 points to limit. Assumes 6 future values. Insufficient data to test for seasonality; data will not be deseasonalized.

Prediction Limit Analysis Run 10/23/2023 11:26 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Prediction Limit

Constituent: Copper (ug/L) Analysis Run 10/23/2023 11:31 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-14	MW-23/23R	MW-21 (bg)	MW-5	MW-25R	MW-15AR	MW-20	MW-2
9/23/2016	1.9	0.26 (J)	1.7	0.6 (J)	1.6	0.18 (J)	1.6	2.1
9/5/2017	1		1.9	0.43 (J)	1.8	1.6	0.67 (J)	0.8 (J)
4/25/2018		1.6						
9/17/2018	1.4	16.7	2.8	1.8	2.6	1.1	3.2	1.6
4/23/2019		13						
9/23/2019	9.9	10	<2	<2	<2	<2	<2	<2
9/21/2020					<1.5		<1.5	
9/22/2020	<1.5			<1.5				<1.5
9/23/2020			<1.5					
9/24/2020		<1.5				<1.5		
9/7/2021					1.5 (J)			
9/8/2021	1.5 (J)						1.5 (J)	7.5
9/9/2021		<1.4		<1.4				
9/10/2021			<1.4					
9/6/2022	3.5 (J)				<1.8		<1.8	
9/7/2022			<1.8	<1.8				<1.8
9/8/2022		<1.8						
9/9/2022						<1.8		
9/11/2023	<1.8 (U)							
9/12/2023					<1.8 (U)		<1.8 (U)	<1.8 (U)
9/13/2023				<1.8 (U)				
9/14/2023		<1.8 (U)	<1.8 (U)					

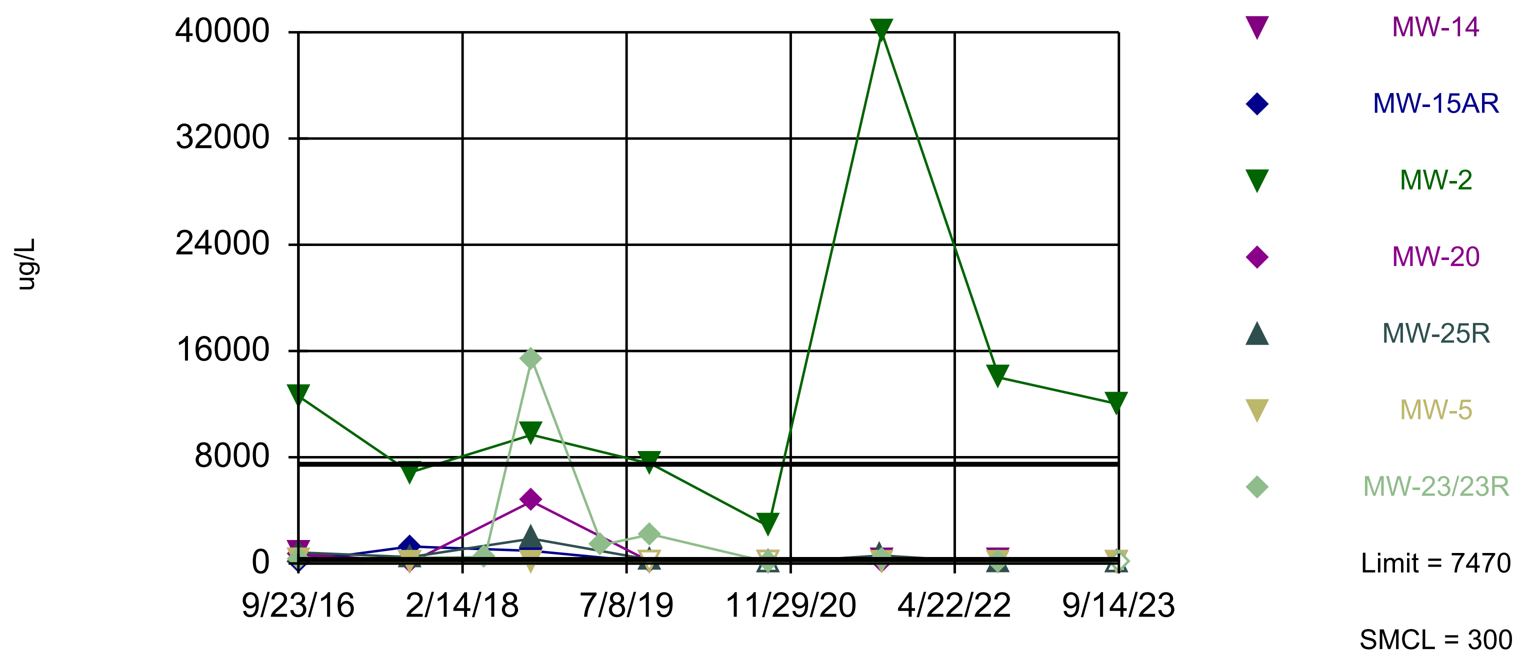
ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Exceeds Limit: MW-2

Iron

Interwell Parametric



Background Data Summary (based on natural log transformation): Mean=4.883, Std. Dev.=1.258, n=8, 25% NDs. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.1, calculated = 0.8596, critical = 0.851. Kappa = 3.209 (c=14, w=13, 1 of 2, event alpha = 0.1). Report alpha = 0.007498. Individual comparison alpha = 0.0005787. Comparing 7 points to limit. Assumes 6 future values.

Prediction Limit Analysis Run 10/23/2023 11:26 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Prediction Limit

Constituent: Iron (ug/L) Analysis Run 10/23/2023 11:31 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-14	MW-15AR	MW-2	MW-20	MW-25R	MW-5	MW-21 (bg)	MW-23/23R
9/23/2016	838	145	12600	648	835	363	110	317
9/5/2017	34.3 (J)	1280	6860	60.7	479	48.8 (J)	644	
4/25/2018								493
9/17/2018	213	951	9690	4680	1870	139	1170	15400
4/23/2019								1400
9/23/2019	67 (J)	88 (J)	7500	93 (J)	270	<66	110	2200
9/21/2020				<50	<50			
9/22/2020	<50		2800			<50		
9/23/2020							78 (J)	
9/24/2020		<50						90 (J)
9/7/2021					610			
9/8/2021	200		40000	180				
9/9/2021						71 (J)		240
9/10/2021							<36	
9/6/2022	370			40 (J)	56 (J)			
9/7/2022			14000			70 (J)	<36	
9/8/2022								40 (J)
9/9/2022		<36						
9/11/2023	54 (J)							
9/12/2023			12000	60 (J)	<36 (U)			
9/13/2023						140		
9/14/2023							100	<36 (U)

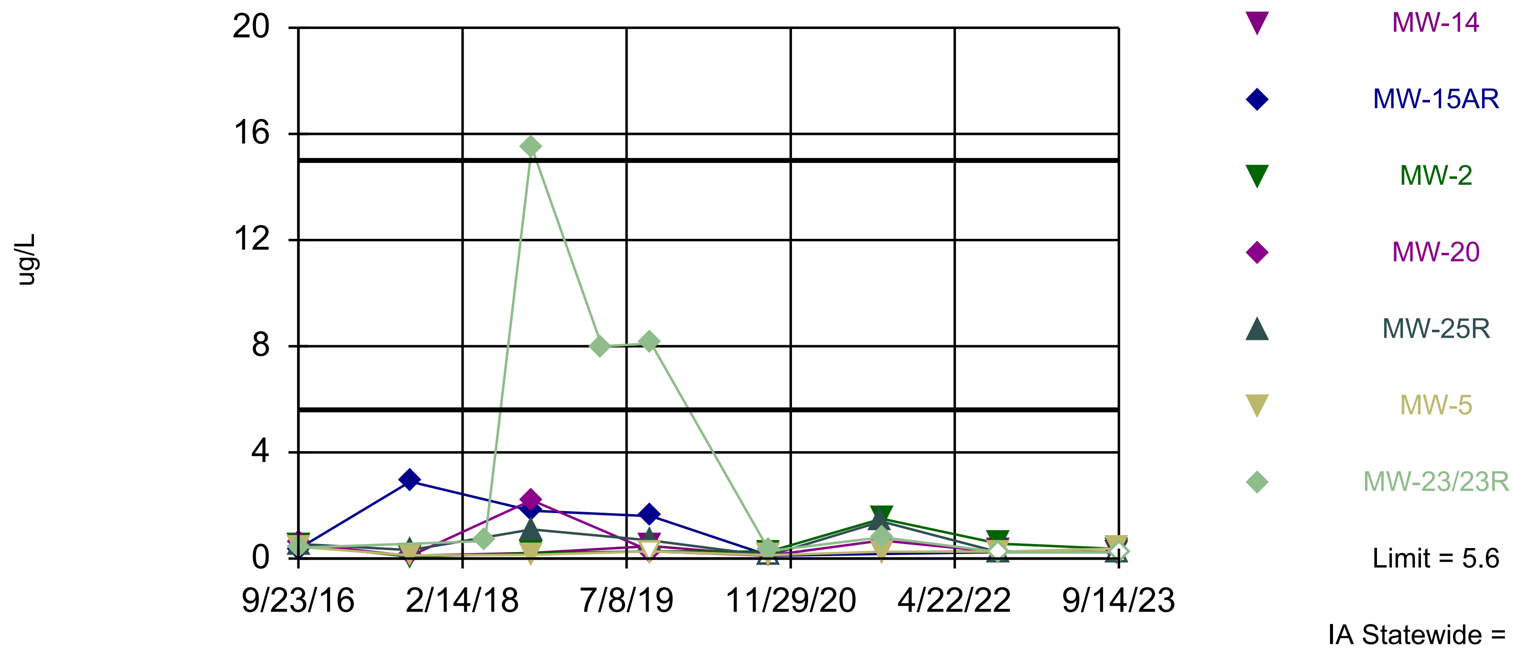
ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Lead

Interwell Parametric



Background Data Summary (based on natural log transformation): Mean=-0.8059, Std. Dev.=0.7878, n=8, 37.5% NDs. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.1, calculated = 0.9181, critical = 0.851. Kappa = 3.209 (c=14, w=13, 1 of 2, event alpha = 0.1). Report alpha = 0.007498. Individual comparison alpha = 0.0005787. Comparing 7 points to limit. Assumes 6 future values.

Prediction Limit   Analysis Run 10/23/2023 11:26 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Prediction Limit

Constituent: Lead (ug/L)   Analysis Run 10/23/2023 11:31 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-14	MW-15AR	MW-2	MW-20	MW-25R	MW-5	MW-21 (bg)	MW-23/23R
9/23/2016	0.48 (J)	0.37 (J)	0.52 (J)	0.57 (J)	0.55 (J)	0.44 (J)	<0.19	0.41 (J)
9/5/2017	0.11 (J)	2.9	0.075 (J)	0.099 (J)	0.32 (J)	0.12 (J)	1.1	
4/25/2018								0.66 (J)
9/17/2018	0.21 (J)	1.8	0.2 (J)	2.2	1.1	0.14 (J)	1.7	15.5
4/23/2019								8
9/23/2019	0.47 (J)	1.6	<0.27	<0.27	0.68	<0.27	0.52	8.1
9/21/2020				<0.11	<0.11			
9/22/2020	<0.11		0.26 (J)			0.13 (J)		
9/23/2020							0.46 (J)	
9/24/2020		<0.11						0.29 (J)
9/7/2021					1.4			
9/8/2021	0.24 (J)		1.5	0.68				
9/9/2021						0.26 (J)		0.8
9/10/2021							<0.21	
9/6/2022	0.28 (J)			<0.24	<0.24			
9/7/2022			0.56			0.26 (J)	<0.24	
9/8/2022								<0.24
9/9/2022		<0.24						
9/11/2023	<0.24 (U)							
9/12/2023			0.36 (J)	<0.24 (U)	<0.24 (U)			
9/13/2023						0.38 (J)		
9/14/2023							0.37 (J)	<0.24 (U)

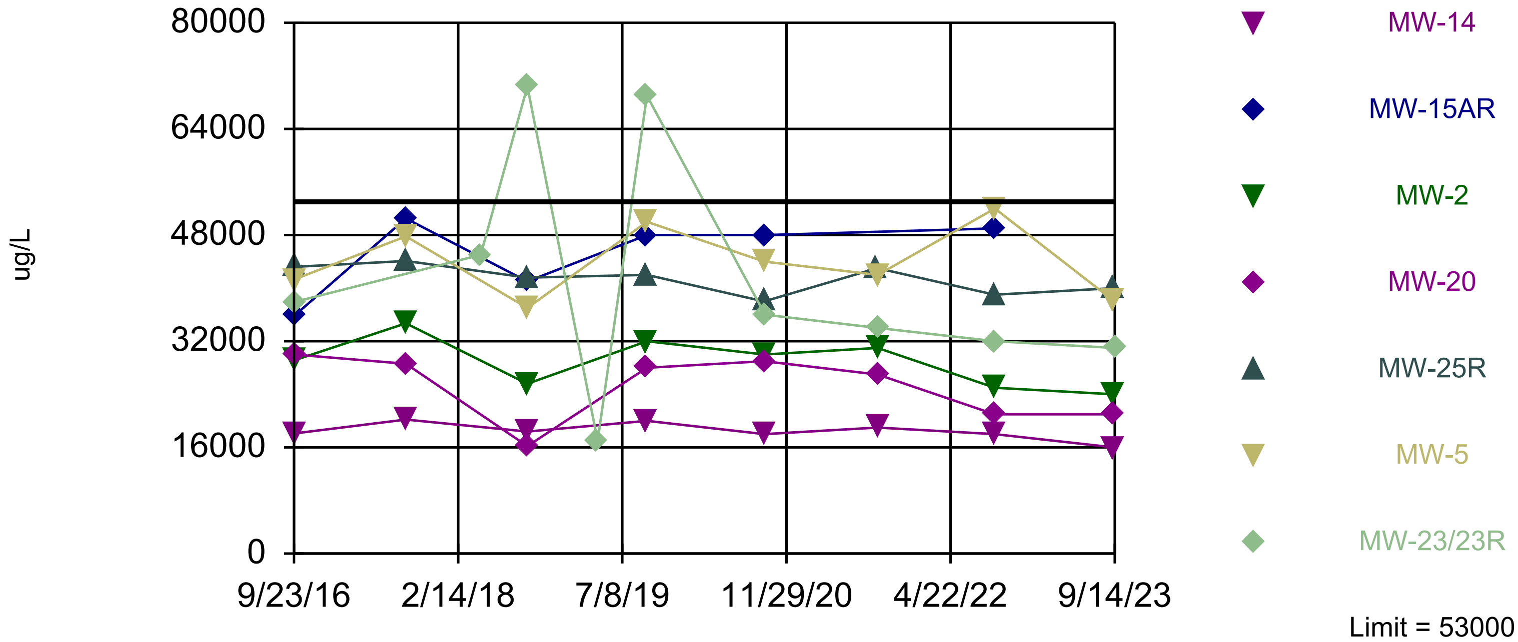
ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Within Limit

Magnesium

Interwell Parametric



Background Data Summary: Mean=30963, Std. Dev.=6856, n=8. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.1, calculated = 0.9448, critical = 0.851. Kappa = 3.209 (c=14, w=13, 1 of 2, event alpha = 0.1). Report alpha = 0.007498. Individual comparison alpha = 0.0005787. Comparing 7 points to limit. Assumes 6 future values.

Prediction Limit Analysis Run 10/23/2023 11:26 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Prediction Limit

Constituent: Magnesium (ug/L) Analysis Run 10/23/2023 11:31 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

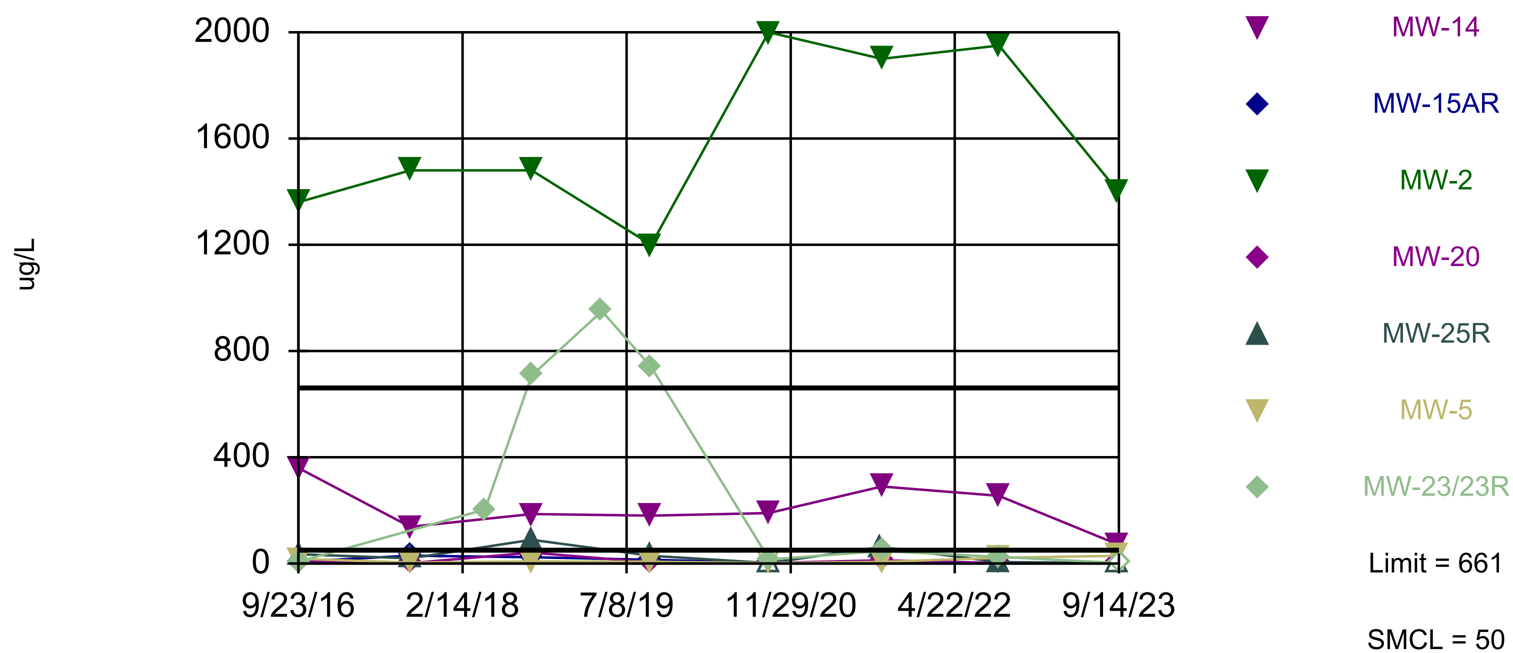
	MW-14	MW-15AR	MW-2	MW-20	MW-25R	MW-5	MW-21 (bg)	MW-23/23R
9/23/2016	18100	35800	29100	30000	43200	41300	22400	37900
9/5/2017	20200	50500	34700	28600	44100	47800	29000	
4/25/2018								45000
9/17/2018	18400	41000	25600	16200	41600	37000	26300	70400
4/23/2019								17000
9/23/2019	20000	48000	32000	28000	42000	50000	24000	69000
9/21/2020				29000	38000			
9/22/2020	18000		30000			44000		
9/23/2020							31000	
9/24/2020		48000						36000
9/7/2021					43000			
9/8/2021	19000		31000	27000				
9/9/2021						42000		34000
9/10/2021							35000	
9/6/2022	18000			21000	39000			
9/7/2022			25000			52000	39000	
9/8/2022								32000
9/9/2022		49000						
9/11/2023	16000							
9/12/2023			24000	21000	40000			
9/13/2023						38000		
9/14/2023							41000	31000

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Exceeds Limit: MW-2

Manganese

Interwell Parametric



Background Data Summary (based on natural log transformation): Mean=2.737, Std. Dev.=1.171, n=8, 12.5% NDs. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.1, calculated = 0.9485, critical = 0.851. Kappa = 3.209 (c=14, w=13, 1 of 2, event alpha = 0.1). Report alpha = 0.007498. Individual comparison alpha = 0.0005787. Comparing 7 points to limit. Assumes 6 future values.

Prediction Limit Analysis Run 10/23/2023 11:27 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Prediction Limit

Constituent: Manganese (ug/L)   Analysis Run 10/23/2023 11:31 AM   View: shallow
Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-14	MW-15AR	MW-2	MW-20	MW-25R	MW-5	MW-21 (bg)	MW-23/23R
9/23/2016	360	6.7	1360	9.2	35.2	17.4	5.2	7
9/5/2017	138	29.8	1480	1.6	19.7	4	59.3	
4/25/2018								203
9/17/2018	186	23.5	1480	40.8	89.1	8.2	59.2	708
4/23/2019								950
9/23/2019	180	14	1200	4.6 (J)	29	6.6 (J)	34	740
9/21/2020				<4	<4			
9/22/2020	190		2000			<4		
9/23/2020							20	
9/24/2020		<4						15
9/7/2021					62			
9/8/2021	290		1900	12				
9/9/2021						6 (J)		47
9/10/2021							<4.4	
9/6/2022	255 (D)			<3.6	5.7 (J)			
9/7/2022			1950 (D)			22	9.1 (J)	
9/8/2022								25
9/9/2022		<3.6						
9/11/2023	72							
9/12/2023			1400	<3.6 (U)	<3.6 (U)			
9/13/2023						29		
9/14/2023							13	<3.6 (U)

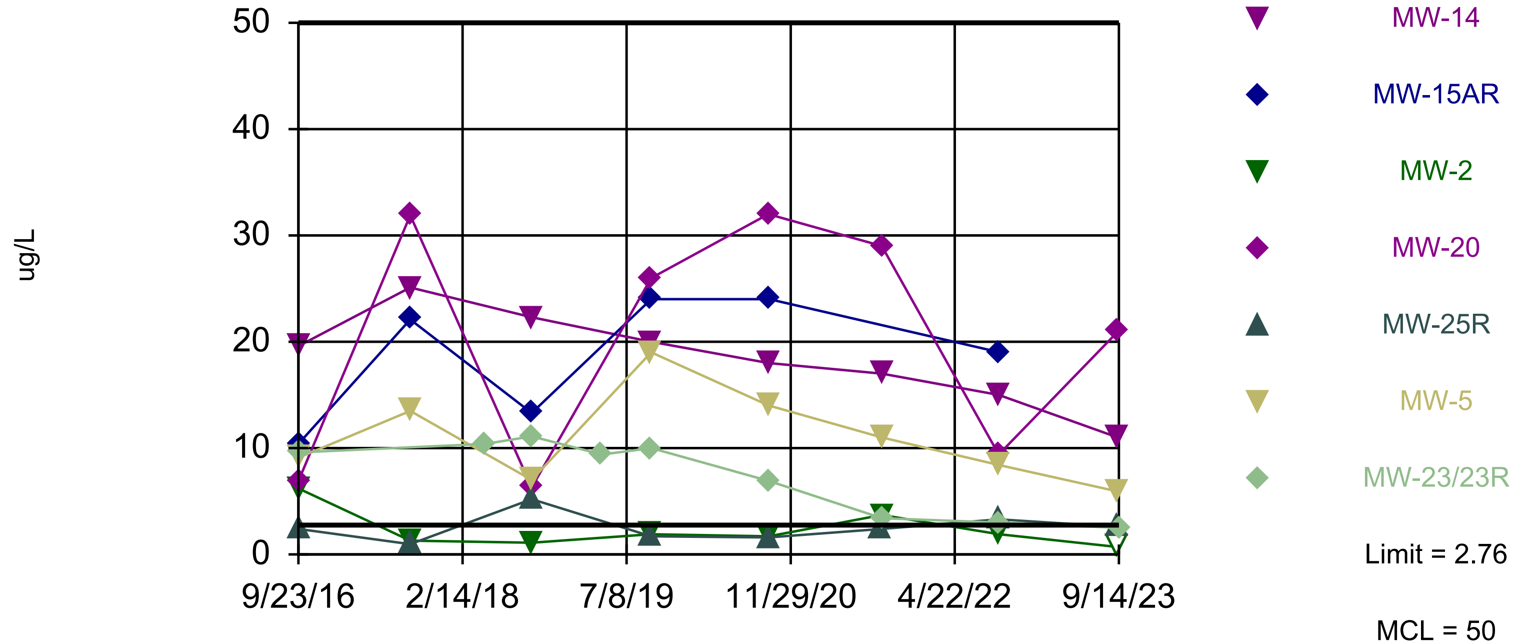
ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Exceeds Limit: MW-14, MW-15AR, MW-20, MW-5

Selenium

Interwell Parametric



Background Data Summary: Mean=1.287, Std. Dev.=0.4581, n=8, 12.5% NDs. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.1, calculated = 0.9554, critical = 0.851. Kappa = 3.209 (c=14, w=13, 1 of 2, event alpha = 0.1). Report alpha = 0.007498. Individual comparison alpha = 0.0005787. Comparing 7 points to limit. Assumes 6 future values.

Prediction Limit   Analysis Run 10/23/2023 11:27 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Prediction Limit

Constituent: Selenium (ug/L)   Analysis Run 10/23/2023 11:31 AM   View: shallow

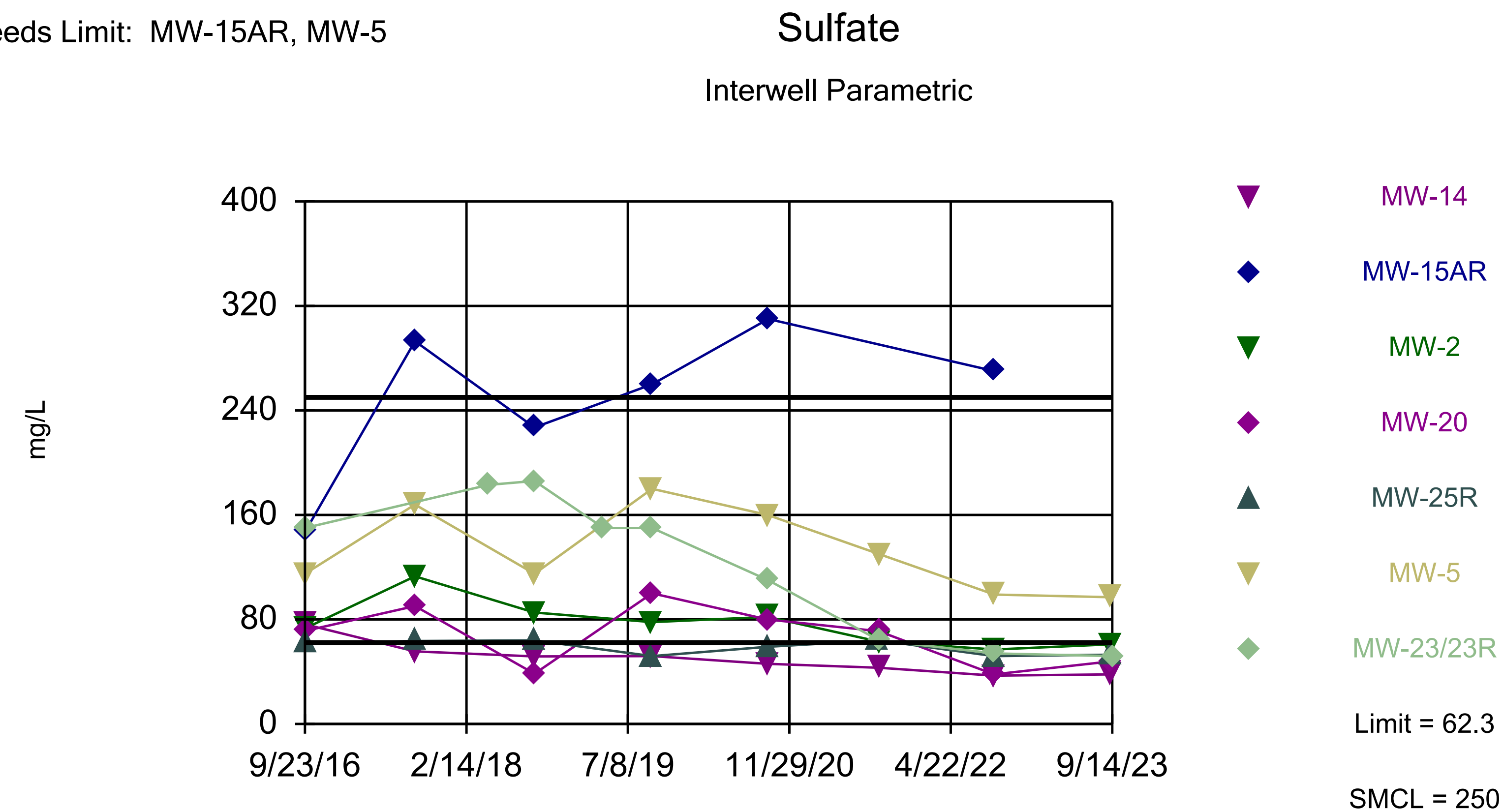
Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-14	MW-15AR	MW-2	MW-20	MW-25R	MW-5	MW-21 (bg)	MW-23/23R
9/23/2016	19.6	10.4	6.2	6.9	2.4	9.1	1	9.6
9/5/2017	25.1	22.1	1.3	31.9	0.97 (J)	13.5	0.9 (J)	
4/25/2018								10.4
9/17/2018	22.3	13.3	1.1	6.3	5.2	7	2.1	11.1
4/23/2019								9.4
9/23/2019	20	24	1.9 (J)	26	1.7 (J)	19	1.3 (J)	10
9/21/2020				32	1.6 (J)			
9/22/2020	18		1.7 (J)			14		
9/23/2020							1.6 (J)	
9/24/2020		24						6.9
9/7/2021					2.4 (J)			
9/8/2021	17		3.7 (J)	29				
9/9/2021						11		3.4 (J)
9/10/2021							1.6 (J)	
9/6/2022	15			9.4	3.3 (J)			
9/7/2022			1.9 (J)			8.4	1.1 (J)	
9/8/2022								3 (J)
9/9/2022		19						
9/11/2023	11							
9/12/2023			<1.4 (U)	21	2.6 (J)			
9/13/2023						5.9		
9/14/2023							<1.4 (U)	2.5 (J)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Exceeds Limit: MW-15AR, MW-5



Background Data Summary: Mean=50.1, Std. Dev.=5.367, n=24. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9548, critical = 0.884. Kappa = 2.28 (c=14, w=13, 1 of 2, event alpha = 0.1). Report alpha = 0.007498. Individual comparison alpha = 0.0005787. Comparing 7 points to limit. Assumes 6 future values.

Prediction Limit Analysis Run 10/23/2023 11:27 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Prediction Limit

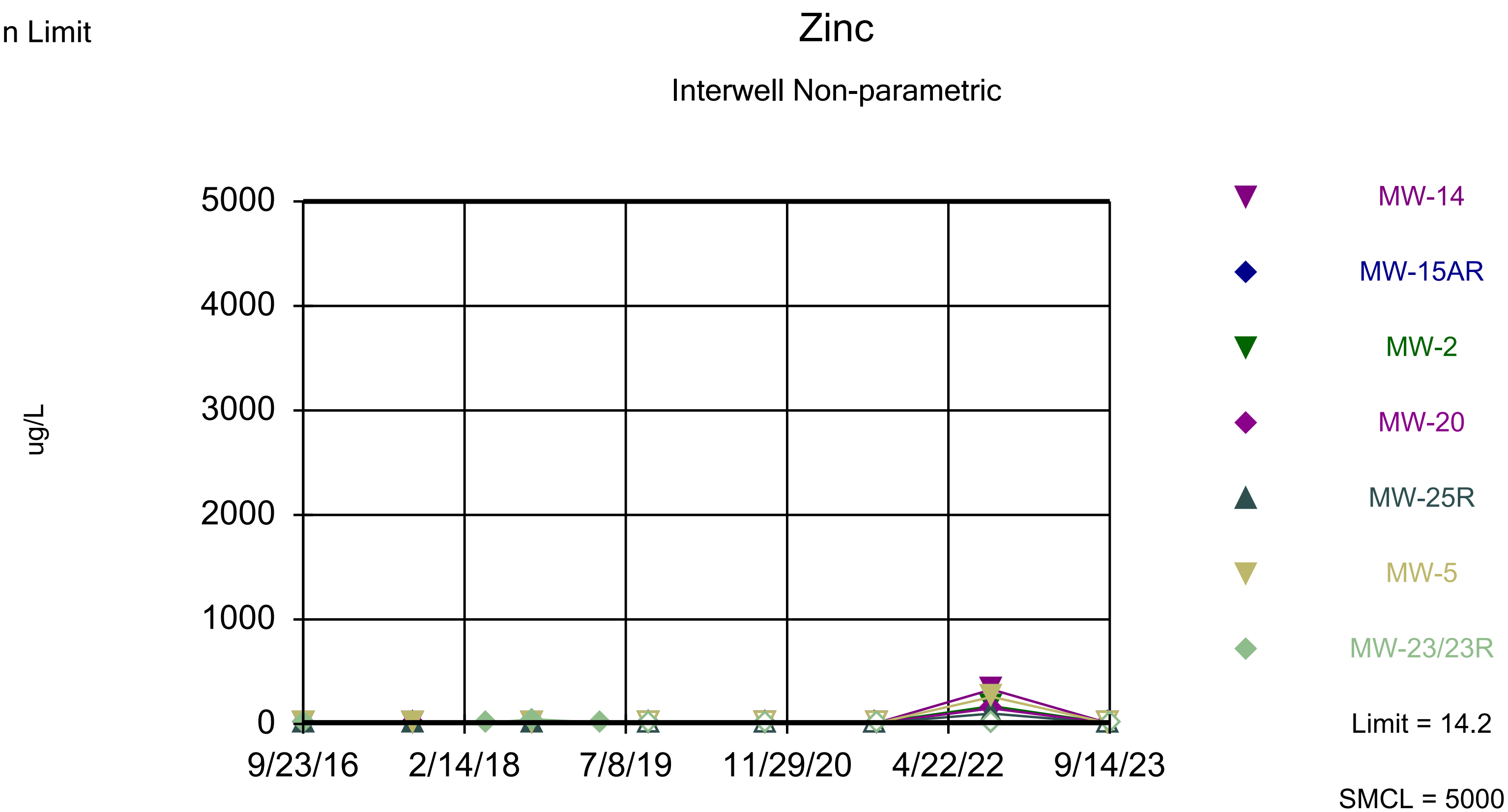
Constituent: Sulfate (mg/L) Analysis Run 10/23/2023 11:31 AM View: shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-14	MW-15AR	MW-2	MW-20	MW-25R	MW-5	MW-21 (bg)	MW-23/23R
9/1/1999							40	
9/1/2000							56	
9/1/2001							48	
9/1/2002							49	
9/1/2003							51	
9/1/2004							51	
9/1/2005							55	
9/1/2007							61.8	
9/1/2008							47.5	
9/1/2009							48.9	
8/1/2010							47.9	
9/1/2011							46.9	
9/1/2012							52.3	
9/1/2013							49	
9/1/2014							49	
9/1/2015							48.1	
9/23/2016	76.3	147	73.2	71.2	61.6	115	37.5	150
9/5/2017	55.6	293	113	90.2	63.5	168	53.6	
4/25/2018								183
9/17/2018	51.7	227	85.3	38.4	64	115	56	186
4/23/2019								150
9/23/2019	52	260	78	100	52	180	42	150
9/21/2020				80	59			
9/22/2020	46		82			160		
9/23/2020							55	
9/24/2020		310						110
9/7/2021					64			
9/8/2021	43		63	71				
9/9/2021						130		64
9/10/2021							52	
9/6/2022	37			38	52			
9/7/2022			57			99	50	
9/8/2022								54
9/9/2022		270						
9/11/2023	38							
9/12/2023			61	48	53			
9/13/2023						97		
9/14/2023							55	52

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 49%. Limit is highest of 7 background values. 57.14% NDs. Annual per-constituent alpha = 0.2268. Individual comparison alpha = 0.01959 (1 of 2). Comparing 7 points to limit. Assumes 6 future values. Insufficient data to test for seasonality; data will not be deseasonalized.

Prediction Limit   Analysis Run 10/23/2023 11:27 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Prediction Limit

Constituent: Zinc (ug/L)   Analysis Run 10/23/2023 11:31 AM   View: shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-14	MW-23/23R	MW-21 (bg)	MW-5	MW-20	MW-2	MW-15AR	MW-25R
9/23/2016	7.3 (J)	3.7 (J)	14.2	4 (J)	3.8 (J)	8.3 (J)	2.4 (J)	7.2 (J)
9/5/2017	3.4 (J)		4.7 (J)	2 (J)	1.8 (J)	2 (J)	7 (J)	4.7 (J)
4/25/2018		6.3 (J)						
9/17/2018	6 (J)	44.8	8 (J)	4.9 (J)	11.5	6.6 (J)	7.8 (J)	8.2 (J)
4/23/2019		11 (J)						
9/23/2019	15 (J)	<20	<10	<10	<10	<10	<10	<10
9/21/2020					<10			<10
9/22/2020	<10			<10		<10		
9/23/2020			<10					
9/24/2020		<10					<10	
9/7/2021								<10
9/8/2021	<10				<10	12 (J)		
9/9/2021		<10		<10				
9/10/2021			<10					
9/6/2022	330				150			100
9/7/2022				260		170		
9/8/2022		<10						
9/9/2022							<10	
9/11/2023	<6.4 (U)							
9/12/2023					<6.4 (U)	6.6 (J)		<6.4 (U)
9/13/2023				<6.4 (U)				
9/14/2023		<6.4 (U)	<6.4 (U)					

ND substitution: RL or RL/2 if <15% NDs.

Attachment E6

Interwell Prediction Limit Analysis Results - Deep

Prediction Limit

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB Printed 10/23/2023, 11:58 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Wells	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Arsenic (ug/L)	MW-10	1.71	n/a	9/13/2023	1.4J	No	8	MW-12	1.124	0.1828	0	None	No	0.0005787	Param Inter 1 of 2
Arsenic (ug/L)	MW-11	1.71	n/a	9/12/2023	1J	No	8	MW-12	1.124	0.1828	0	None	No	0.0005787	Param Inter 1 of 2
Arsenic (ug/L)	MW-16	1.71	n/a	9/14/2023	0.55J	No	8	MW-12	1.124	0.1828	0	None	No	0.0005787	Param Inter 1 of 2
Arsenic (ug/L)	MW-6	1.71	n/a	9/13/2023	0.79J	No	8	MW-12	1.124	0.1828	0	None	No	0.0005787	Param Inter 1 of 2
Arsenic (ug/L)	MW-7	1.71	n/a	9/13/2023	0.55J	No	8	MW-12	1.124	0.1828	0	None	No	0.0005787	Param Inter 1 of 2
Arsenic (ug/L)	**MW-24/24R**	**1.71**	**n/a**	**9/8/2022**	**2.6**	**Yes**	**8**	**MW-12**	**1.124**	**0.1828**	**0**	**None**	**No**	**0.0005787**	**Param Inter 1 of 2**
Barium (ug/L)	MW-10	223	n/a	9/13/2023	100	No	8	MW-12	189.8	10.35	0	None	No	0.0005787	Param Inter 1 of 2
Barium (ug/L)	MW-11	223	n/a	9/12/2023	90	No	8	MW-12	189.8	10.35	0	None	No	0.0005787	Param Inter 1 of 2
Barium (ug/L)	MW-16	223	n/a	9/14/2023	110	No	8	MW-12	189.8	10.35	0	None	No	0.0005787	Param Inter 1 of 2
Barium (ug/L)	MW-6	223	n/a	9/13/2023	120	No	8	MW-12	189.8	10.35	0	None	No	0.0005787	Param Inter 1 of 2
Barium (ug/L)	MW-7	223	n/a	9/13/2023	120	No	8	MW-12	189.8	10.35	0	None	No	0.0005787	Param Inter 1 of 2
Barium (ug/L)	MW-24/24R	223	n/a	9/8/2022	98	No	8	MW-12	189.8	10.35	0	None	No	0.0005787	Param Inter 1 of 2
Boron (ug/L)	**MW-10**	**110**	**n/a**	**9/13/2023**	**1400**	**Yes**	**8**	**MW-12**	**n/a**	**n/a**	**75**	**n/a**	**n/a**	**0.01611**	**NP Inter (NDs) 1 of 2**
Boron (ug/L)	**MW-11**	**110**	**n/a**	**9/12/2023**	**420**	**Yes**	**8**	**MW-12**	**n/a**	**n/a**	**75**	**n/a**	**n/a**	**0.01611**	**NP Inter (NDs) 1 of 2**
Boron (ug/L)	**MW-16**	**110**	**n/a**	**9/14/2023**	**520**	**Yes**	**8**	**MW-12**	**n/a**	**n/a**	**75**	**n/a**	**n/a**	**0.01611**	**NP Inter (NDs) 1 of 2**
Boron (ug/L)	**MW-6**	**110**	**n/a**	**9/13/2023**	**940**	**Yes**	**8**	**MW-12**	**n/a**	**n/a**	**75**	**n/a**	**n/a**	**0.01611**	**NP Inter (NDs) 1 of 2**
Boron (ug/L)	**MW-7**	**110**	**n/a**	**9/13/2023**	**210**	**Yes**	**8**	**MW-12**	**n/a**	**n/a**	**75**	**n/a**	**n/a**	**0.01611**	**NP Inter (NDs) 1 of 2**
Boron (ug/L)	MW-24/24R	110	n/a	9/8/2022	58ND	No	8	MW-12	n/a	n/a	75	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Chloride (mg/L)	**MW-10**	**3.89**	**n/a**	**9/13/2023**	**11**	**Yes**	**11**	**MW-12**	**2.791**	**0.3961**	**0**	**None**	**No**	**0.0005787**	**Param Inter 1 of 2**
Chloride (mg/L)	**MW-11**	**3.89**	**n/a**	**9/12/2023**	**19**	**Yes**	**11**	**MW-12**	**2.791**	**0.3961**	**0**	**None**	**No**	**0.0005787**	**Param Inter 1 of 2**
Chloride (mg/L)	**MW-16**	**3.89**	**n/a**	**9/14/2023**	**8.8**	**Yes**	**11**	**MW-12**	**2.791**	**0.3961**	**0**	**None**	**No**	**0.0005787**	**Param Inter 1 of 2**
Chloride (mg/L)	**MW-6**	**3.89**	**n/a**	**9/13/2023**	**11**	**Yes**	**11**	**MW-12**	**2.791**	**0.3961**	**0**	**None**	**No**	**0.0005787**	**Param Inter 1 of 2**
Chloride (mg/L)	**MW-7**	**3.89**	**n/a**	**9/13/2023**	**6.8**	**Yes**	**11**	**MW-12**	**2.791**	**0.3961**	**0**	**None**	**No**	**0.0005787**	**Param Inter 1 of 2**
Chloride (mg/L)	MW-24/24R	3.89	n/a	9/8/2022	1.15ND	No	11	MW-12	2.791	0.3961	0	None	No	0.0005787	Param Inter 1 of 2
Cobalt (ug/L)	MW-10	0.657	n/a	9/13/2023	0.085ND	No	8	MW-12	0.4425	0.06671	0	None	No	0.0005787	Param Inter 1 of 2
Cobalt (ug/L)	MW-11	0.657	n/a	9/12/2023	0.4J	No	8	MW-12	0.4425	0.06671	0	None	No	0.0005787	Param Inter 1 of 2
Cobalt (ug/L)	MW-16	0.657	n/a	9/14/2023	0.29J	No	8	MW-12	0.4425	0.06671	0	None	No	0.0005787	Param Inter 1 of 2
Cobalt (ug/L)	MW-6	0.657	n/a	9/13/2023	0.34J	No	8	MW-12	0.4425	0.06671	0	None	No	0.0005787	Param Inter 1 of 2
Cobalt (ug/L)	MW-7	0.657	n/a	9/13/2023	0.085ND	No	8	MW-12	0.4425	0.06671	0	None	No	0.0005787	Param Inter 1 of 2
Cobalt (ug/L)	**MW-24/24R**	**0.657**	**n/a**	**9/8/2022**	**94.5**	**Yes**	**8**	**MW-12**	**0.4425**	**0.06671**	**0**	**None**	**No**	**0.0005787**	**Param Inter 1 of 2**
Copper (ug/L)	MW-10	2.00	n/a	9/13/2023	1.8ND	No	8	MW-12	n/a	n/a	75	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Copper (ug/L)	MW-11	2.00	n/a	9/12/2023	1.8ND	No	8	MW-12	n/a	n/a	75	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Copper (ug/L)	MW-16	2.00	n/a	9/14/2023	1.8ND	No	8	MW-12	n/a	n/a	75	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Copper (ug/L)	MW-6	2.00	n/a	9/13/2023	1.8ND	No	8	MW-12	n/a	n/a	75	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Copper (ug/L)	MW-7	2.00	n/a	9/13/2023	1.8ND	No	8	MW-12	n/a	n/a	75	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Copper (ug/L)	MW-24/24R	2.00	n/a	9/8/2022	1.8ND	No	8	MW-12	n/a	n/a	75	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Iron (ug/L)	MW-10	2040	n/a	9/13/2023	510	No	8	MW-12	1714	100.6	0	None	No	0.0005787	Param Inter 1 of 2
Iron (ug/L)	MW-11	2040	n/a	9/12/2023	18ND	No	8	MW-12	1714	100.6	0	None	No	0.0005787	Param Inter 1 of 2
Iron (ug/L)	MW-16	2040	n/a	9/14/2023	190	No	8	MW-12	1714	100.6	0	None	No	0.0005787	Param Inter 1 of 2
Iron (ug/L)	**MW-6**	**2040**	**n/a**	**9/13/2023**	**2100**	**Yes**	**8**	**MW-12**	**1714**	**100.6**	**0**	**None**	**No**	**0.0005787**	**Param Inter 1 of 2**
Iron (ug/L)	MW-7	2040	n/a	9/13/2023	18ND	No	8	MW-12	1714	100.6	0	None	No	0.0005787	Param Inter 1 of 2
Iron (ug/L)	MW-24/24R	2040	n/a	9/8/2022	310	No	8	MW-12	1714	100.6	0	None	No	0.0005787	Param Inter 1 of 2
Lead (ug/L)	MW-10	0.270	n/a	9/13/2023	0.37J	No	8	MW-12	n/a	n/a	75	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Lead (ug/L)	MW-11	0.270	n/a	9/12/2023	0.24ND	No	8	MW-12	n/a	n/a	75	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Lead (ug/L)	MW-16	0.270	n/a	9/14/2023	0.24ND	No	8	MW-12	n/a	n/a	75	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Lead (ug/L)	MW-6	0.270	n/a	9/13/2023	0.37J	No	8	MW-12	n/a	n/a	75	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Lead (ug/L)	MW-7	0.270	n/a	9/13/2023	0.24ND	No	8	MW-12	n/a	n/a	75	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Lead (ug/L)	MW-24/24R	0.270	n/a	9/8/2022	0.34J	No	8	MW-12	n/a	n/a	75	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Magnesium (ug/L)	MW-10	47000	n/a	9/13/2023	39000	No	8	MW-12	40488	2020	0	None	No	0.0005787	Param Inter 1 of 2
Magnesium (ug/L)	MW-11	47000	n/a	9/12/2023	36000	No	8	MW-12	40488	2020	0	None	No	0.0005787	Param Inter 1 of 2

Prediction Limit

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB Printed 10/23/2023, 11:58 AM

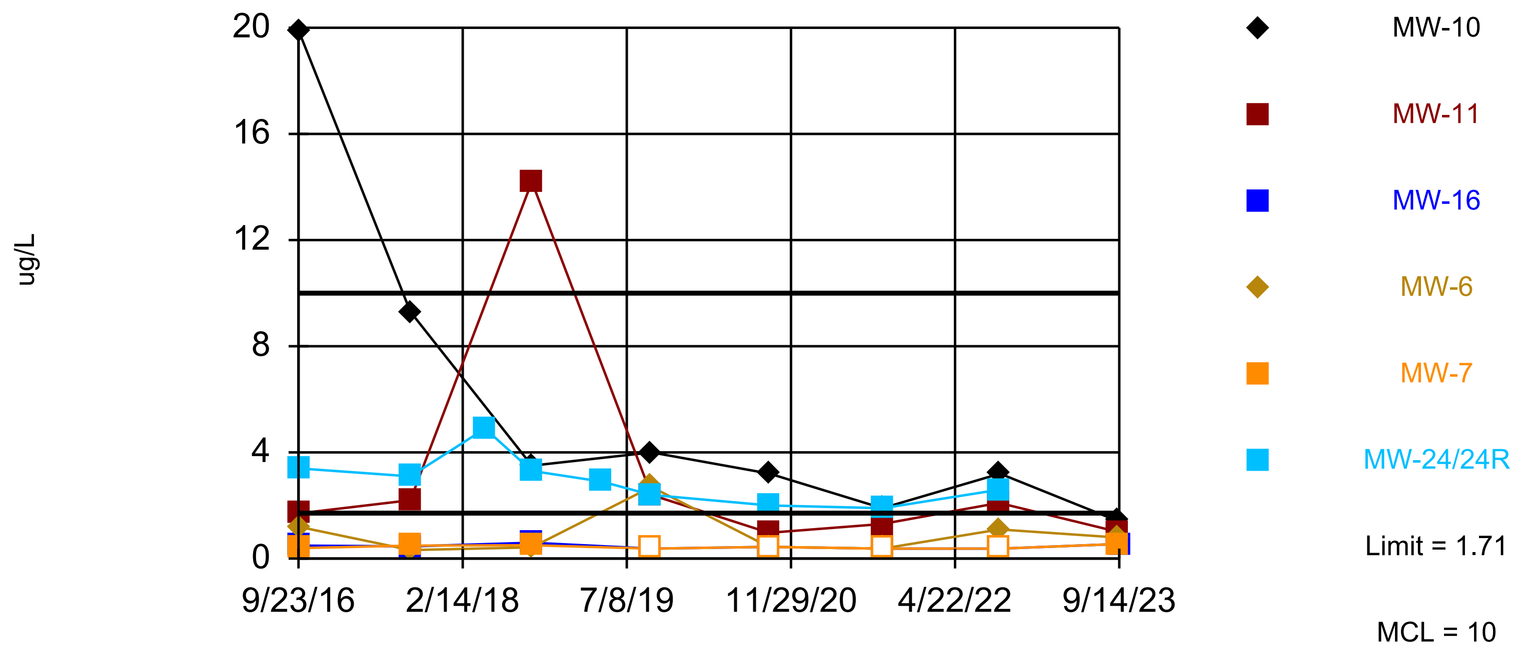
Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Wells	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Magnesium (ug/L)	MW-16	47000	n/a	9/14/2023	31000	No	8	MW-12	40488	2020	0	None	No	0.0005787	Param Inter 1 of 2
Magnesium (ug/L)	MW-6	47000	n/a	9/13/2023	37000	No	8	MW-12	40488	2020	0	None	No	0.0005787	Param Inter 1 of 2
Magnesium (ug/L)	MW-7	47000	n/a	9/13/2023	32000	No	8	MW-12	40488	2020	0	None	No	0.0005787	Param Inter 1 of 2
Magnesium (ug/L)	MW-24/24R	47000	n/a	9/8/2022	28000	No	8	MW-12	40488	2020	0	None	No	0.0005787	Param Inter 1 of 2
Manganese (ug/L)	MW-10	303	n/a	9/13/2023	56	No	8	MW-12	266.1	11.34	0	None	No	0.0005787	Param Inter 1 of 2
Manganese (ug/L)	MW-11	303	n/a	9/12/2023	19	No	8	MW-12	266.1	11.34	0	None	No	0.0005787	Param Inter 1 of 2
Manganese (ug/L)	MW-16	303	n/a	9/14/2023	45	No	8	MW-12	266.1	11.34	0	None	No	0.0005787	Param Inter 1 of 2
Manganese (ug/L)	MW-6	303	n/a	9/13/2023	230	No	8	MW-12	266.1	11.34	0	None	No	0.0005787	Param Inter 1 of 2
Manganese (ug/L)	MW-7	303	n/a	9/13/2023	1.8ND	No	8	MW-12	266.1	11.34	0	None	No	0.0005787	Param Inter 1 of 2
Manganese (ug/L)	MW-24/24R	303	n/a	9/8/2022	120	No	8	MW-12	266.1	11.34	0	None	No	0.0005787	Param Inter 1 of 2
Sulfate (mg/L)	**MW-10**	**123**	**n/a**	**9/13/2023**	**130**	**Yes**	**15**	**MW-12**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.006529**	**NP Inter (normality) ...**
Sulfate (mg/L)	MW-11	123	n/a	9/12/2023	84	No	15	MW-12	n/a	n/a	0	n/a	n/a	0.006529	NP Inter (normality) ...
Sulfate (mg/L)	MW-16	123	n/a	9/14/2023	41	No	15	MW-12	n/a	n/a	0	n/a	n/a	0.006529	NP Inter (normality) ...
Sulfate (mg/L)	MW-6	123	n/a	9/13/2023	110	No	15	MW-12	n/a	n/a	0	n/a	n/a	0.006529	NP Inter (normality) ...
Sulfate (mg/L)	MW-7	123	n/a	9/13/2023	23	No	15	MW-12	n/a	n/a	0	n/a	n/a	0.006529	NP Inter (normality) ...
Sulfate (mg/L)	MW-24/24R	123	n/a	9/8/2022	18	No	15	MW-12	n/a	n/a	0	n/a	n/a	0.006529	NP Inter (normality) ...
Zinc (ug/L)	MW-10	43.0	n/a	9/13/2023	8.1J	No	8	MW-12	n/a	n/a	62.5	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Zinc (ug/L)	MW-11	43.0	n/a	9/12/2023	6.4ND	No	8	MW-12	n/a	n/a	62.5	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Zinc (ug/L)	MW-16	43.0	n/a	9/14/2023	6.4ND	No	8	MW-12	n/a	n/a	62.5	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Zinc (ug/L)	MW-6	43.0	n/a	9/13/2023	9.9J	No	8	MW-12	n/a	n/a	62.5	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Zinc (ug/L)	MW-7	43.0	n/a	9/13/2023	9.3J	No	8	MW-12	n/a	n/a	62.5	n/a	n/a	0.01611	NP Inter (NDs) 1 of 2
Zinc (ug/L)	**MW-24/24R**	**43.0**	**n/a**	**9/8/2022**	**71**	**Yes**	**8**	**MW-12**	**n/a**	**n/a**	**62.5**	**n/a**	**n/a**	**0.01611**	**NP Inter (NDs) 1 of 2**

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Exceeds Limit: MW-24/24R

Arsenic

Interwell Parametric



Background Data Summary: Mean=1.124, Std. Dev.=0.1828, n=8. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.1, calculated = 0.9673, critical = 0.851. Kappa = 3.209 (c=14, w=13, 1 of 2, event alpha = 0.1). Report alpha = 0.007498. Individual comparison alpha = 0.0005787. Comparing 6 points to limit. Assumes 7 future values.

Prediction Limit Analysis Run 10/23/2023 11:53 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Prediction Limit

Constituent: Arsenic (ug/L)   Analysis Run 10/23/2023 11:58 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-10	MW-11	MW-12 (bg)	MW-16	MW-6	MW-7	MW-24/24R
9/23/2016	19.9	1.7	0.81 (J)	0.49 (J)	1.2	0.39 (J)	3.4
9/5/2017	9.3	2.2	1.1	0.46 (J)	0.32 (J)	0.49 (J)	3.1
4/25/2018							4.9
9/17/2018	3.5	14.2	1.3	0.6 (J)	0.42 (J)	0.5 (J)	3.3
4/23/2019							2.9
9/23/2019	4	2.4	0.98 (J)	<0.75	2.7	<0.75	2.4
9/21/2020			1.1 (J)				
9/22/2020		0.97 (J)			<0.88		
9/23/2020				<0.88		<0.88	
9/24/2020	3.2						2
9/8/2021		1.3 (J)	1.1 (J)				
9/9/2021	1.9 (J)			<0.75	<0.75	<0.75	
9/10/2021							1.9 (J)
9/6/2022		2.1	1.4 (J)				
9/7/2022					1.1 (J)		
9/8/2022				<0.75		<0.75	2.6
9/9/2022	3.2						
9/11/2023			1.2 (J)				
9/12/2023		1 (J)					
9/13/2023	1.4 (J)				0.79 (J)	0.55 (J)	
9/14/2023				0.55 (J)			

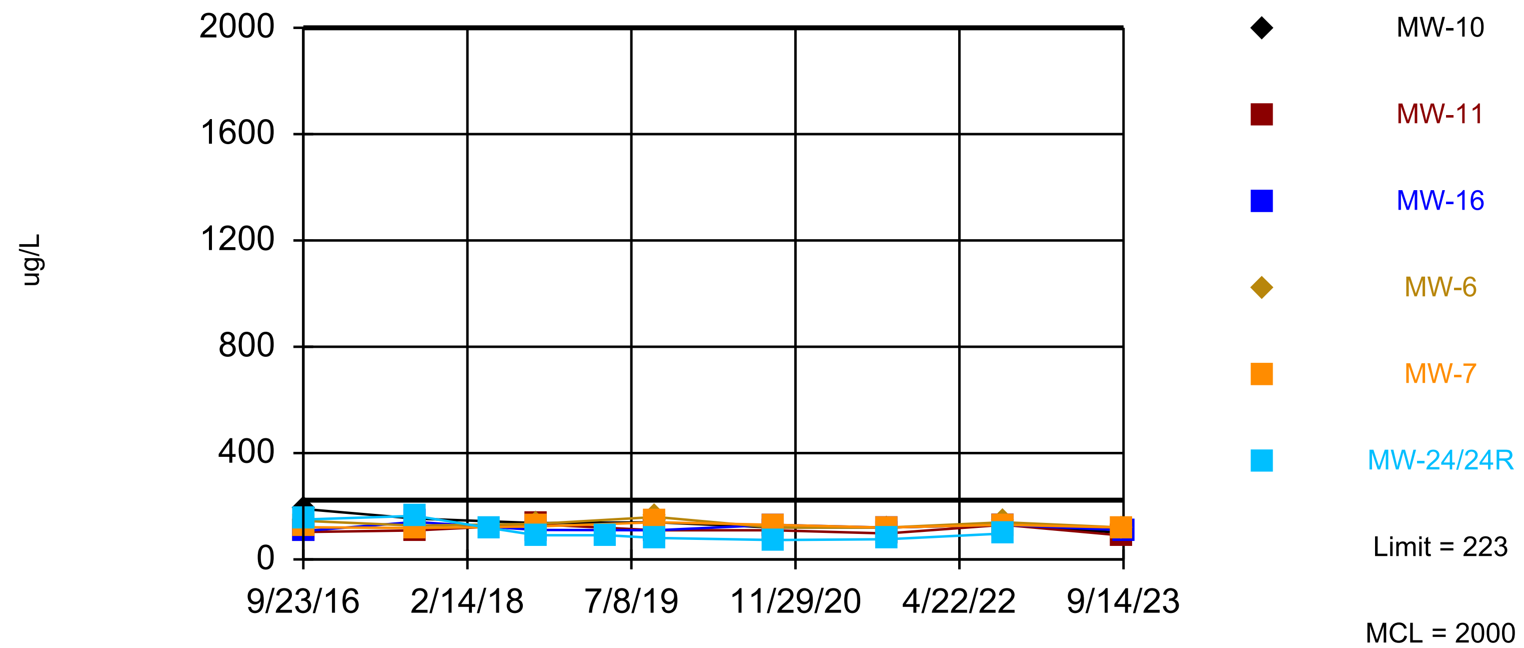
ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Within Limit

Barium

Interwell Parametric



Background Data Summary: Mean=189.8, Std. Dev.=10.35, n=8. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.1, calculated = 0.8854, critical = 0.851. Kappa = 3.209 (c=14, w=13, 1 of 2, event alpha = 0.1). Report alpha = 0.007498. Individual comparison alpha = 0.0005787. Comparing 6 points to limit. Assumes 7 future values.

Prediction Limit Analysis Run 10/23/2023 11:53 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Prediction Limit

Constituent: Barium (ug/L)   Analysis Run 10/23/2023 11:58 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

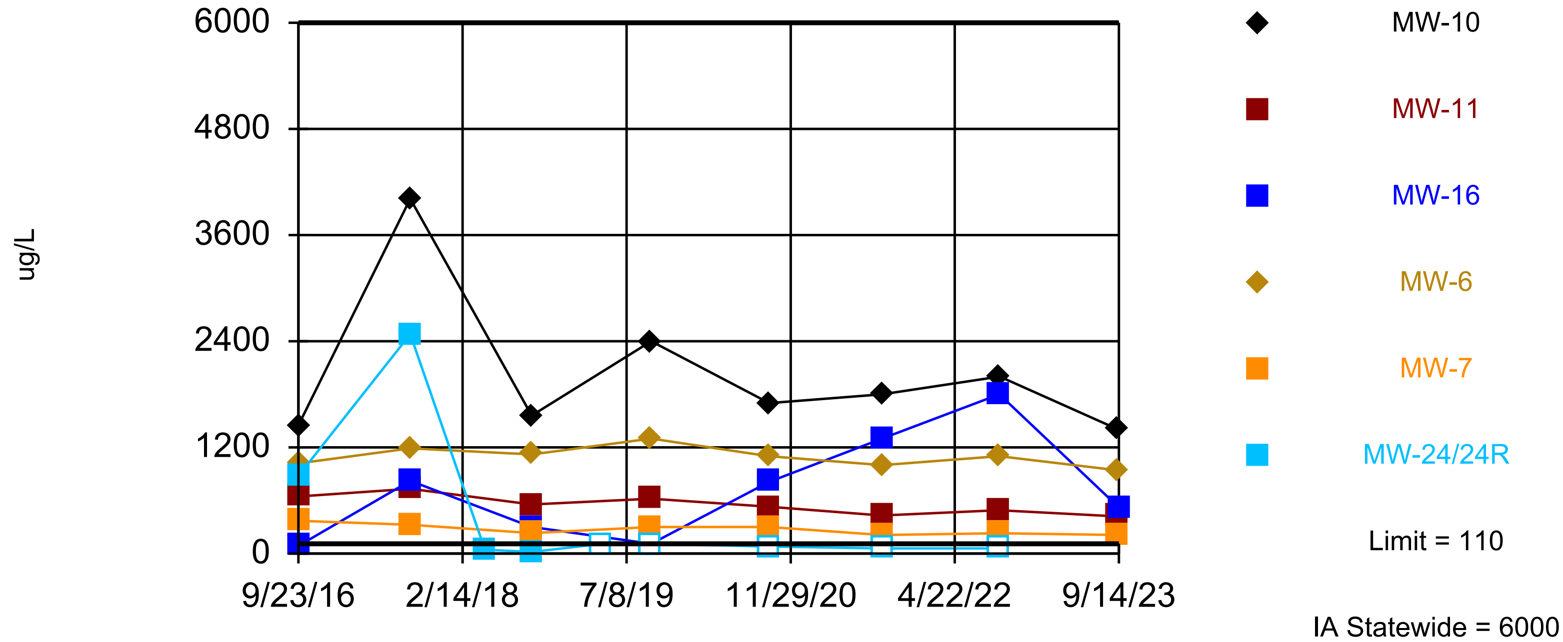
	MW-10	MW-11	MW-12 (bg)	MW-16	MW-6	MW-7	MW-24/24R
9/23/2016	190	103	191	107	145	121	150
9/5/2017	154	109	190	141	127	118	164
4/25/2018							118
9/17/2018	137	132	197	111	134	124	91.1
4/23/2019							91
9/23/2019	140	110	200	110	160	140	81
9/21/2020			190				
9/22/2020		110			120		
9/23/2020				130		130	
9/24/2020	120						73
9/8/2021		98 (B)	180 (B)				
9/9/2021	120 (B)			120 (B)	120 (B)	120 (B)	
9/10/2021							76 (B)
9/6/2022		130	200				
9/7/2022					140		
9/8/2022				130		130	98
9/9/2022	130						
9/11/2023			170				
9/12/2023		90					
9/13/2023	100				120	120	
9/14/2023				110			

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Exceeds Limit: MW-10, MW-11, MW-16, MW-6, MW-7

Boron

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 49%. Limit is highest of 8 background values. 75% NDs. Annual per-constituent alpha = 0.1903. Individual comparison alpha = 0.01611 (1 of 2). Comparing 6 points to limit. Assumes 7 future values. Insufficient data to test for seasonality; data will not be deseasonalized.

Prediction Limit Analysis Run 10/23/2023 11:53 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Prediction Limit

Constituent: Boron (ug/L) Analysis Run 10/23/2023 11:58 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-10	MW-7	MW-16	MW-6	MW-24/24R	MW-11	MW-12 (bg)
9/23/2016	1450	371	87.1 (J)	1020	879	645	<50
9/5/2017	4010	325	823	1190	2480	733	83.4 (J)
4/25/2018					44.3 (J)		
9/17/2018	1560	232	300	1120	18.3 (J)	556	30.4 (J)
4/23/2019					<110		
9/23/2019	2400	300	110 (J)	1300	<110	620	<110
9/21/2020							<80
9/22/2020				1100		530	
9/23/2020		300	810				
9/24/2020	1700				<80		
9/8/2021						430	<58
9/9/2021	1800	210	1300	1000			
9/10/2021					<58		
9/6/2022						490	<58
9/7/2022				1100			
9/8/2022		230	1800		<58		
9/9/2022	2000						
9/11/2023							<76 (U)
9/12/2023						420	
9/13/2023	1400	210		940			
9/14/2023			520				

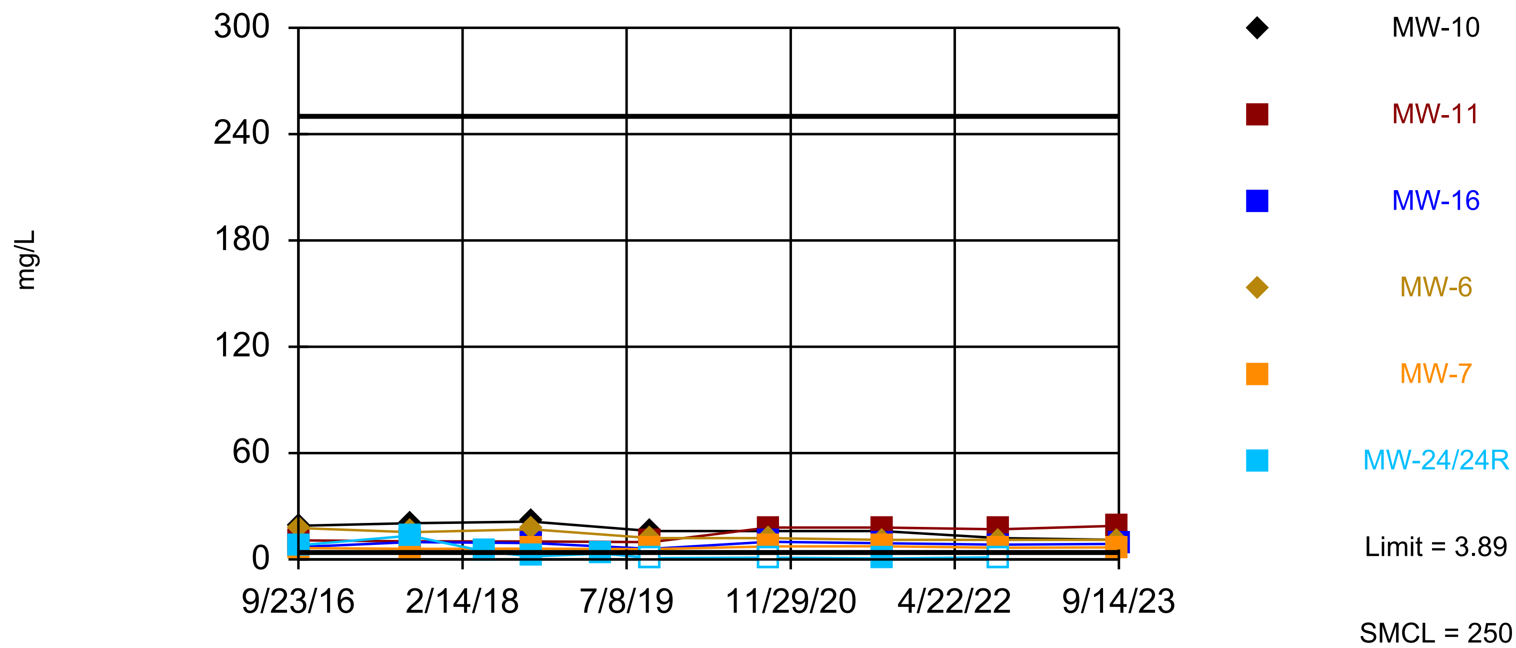
ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Exceeds Limit: MW-10, MW-11, MW-16, MW-6, MW-7

Chloride

Interwell Parametric



Background Data Summary: Mean=2.791, Std. Dev.=0.3961, n=11. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9641, critical = 0.85. Kappa = 2.78 (c=14, w=13, 1 of 2, event alpha = 0.1). Report alpha = 0.007498. Individual comparison alpha = 0.0005787. Comparing 6 points to limit. Assumes 7 future values.

Prediction Limit Analysis Run 10/23/2023 11:53 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Prediction Limit

Constituent: Chloride (mg/L)   Analysis Run 10/23/2023 11:58 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-10	MW-11	MW-12 (bg)	MW-16	MW-6	MW-7	MW-24/24R
9/1/2013			2.7				
9/1/2014			2.4				
9/1/2015			2.6				
9/23/2016	19	10.8	2.7	7	17.7	6.4	8
9/5/2017	20.4	10.2	2.8	9.8	15.4	6	13.4
4/25/2018							4.5
9/17/2018	21.3	10.1	2.4	9.2	17	6.1	1.6
4/23/2019							3.4 (J)
9/23/2019	16	9.8	2.2 (J)	6	12	5.8	<1.5
9/21/2020			3.2 (J)				
9/22/2020		18			12		
9/23/2020				10		7.3	
9/24/2020	16						<2
9/8/2021		18	3.5 (J)				
9/9/2021	16			9.1	11	7.4	
9/10/2021							0.59 (J)
9/6/2022		17	3.1 (J)				
9/7/2022					11		
9/8/2022				8.3		6.6	<2.3
9/9/2022	12						
9/11/2023			3.1 (J)				
9/12/2023		19					
9/13/2023	11				11	6.8	
9/14/2023				8.8			

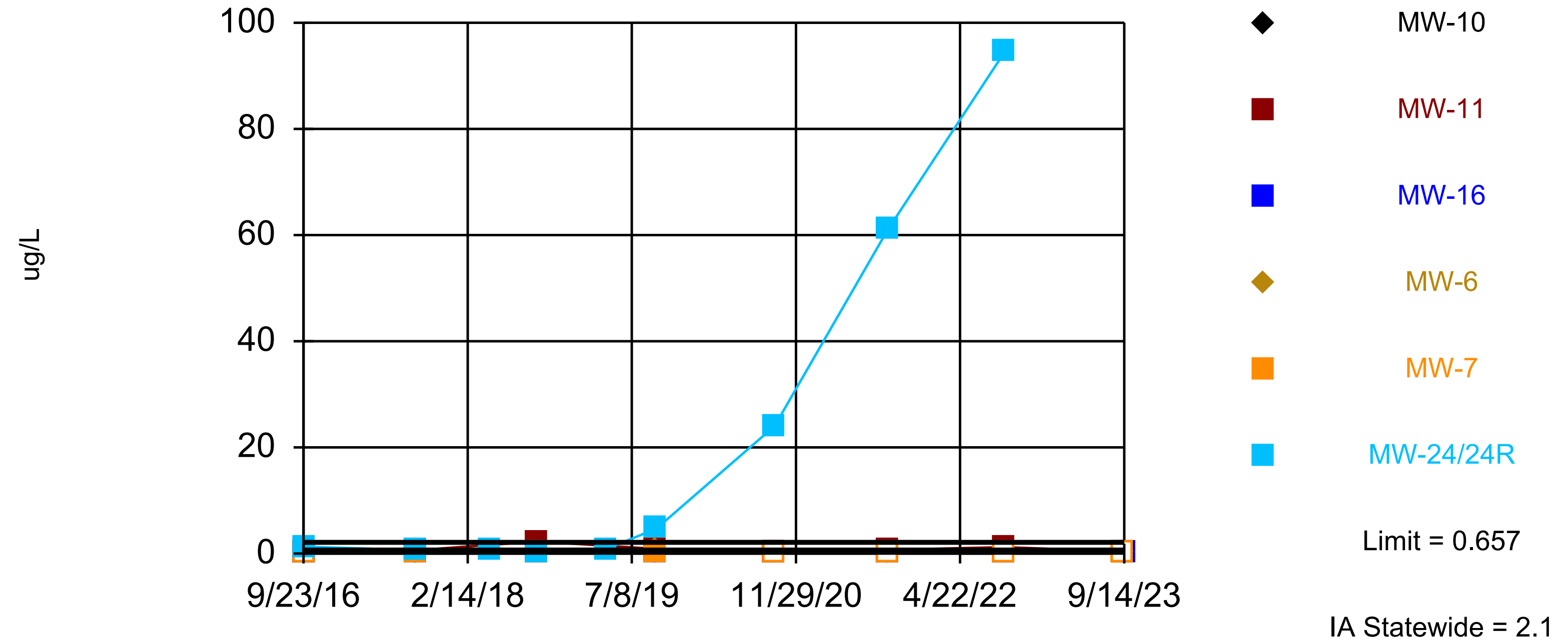
ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Exceeds Limit: MW-24/24R

Cobalt

Interwell Parametric



Background Data Summary: Mean=0.4425, Std. Dev.=0.06671, n=8. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.1, calculated = 0.9568, critical = 0.851. Kappa = 3.209 (c=14, w=13, 1 of 2, event alpha = 0.1). Report alpha = 0.007498. Individual comparison alpha = 0.0005787. Comparing 6 points to limit. Assumes 7 future values.

Prediction Limit   Analysis Run 10/23/2023 11:53 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Prediction Limit

Constituent: Cobalt (ug/L) Analysis Run 10/23/2023 11:58 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-10	MW-11	MW-12 (bg)	MW-16	MW-6	MW-7	MW-24/24R
9/23/2016	0.68 (J)	<0.5	0.57 (J)	<0.5	<0.5	<0.5	1.3
9/5/2017	0.31 (J)	0.61 (J)	0.46 (J)	0.12 (J)	0.8 (J)	0.024 (J)	0.67 (J)
4/25/2018							0.72 (J)
9/17/2018	0.22 (J)	2.3	0.44 (J)	0.22 (J)	0.2 (J)	<0.15	0.37 (J)
4/23/2019							0.9
9/23/2019	0.2 (J)	0.89	0.4 (J)	0.16 (J)	0.71	0.25 (J)	4.7
9/21/2020			0.4 (J)				
9/22/2020		0.37 (J)			0.13 (J)		
9/23/2020				<0.091		<0.091	
9/24/2020	0.14 (J)						24
9/8/2021		0.69	0.49 (J)				
9/9/2021	<0.19			<0.19	0.23 (J)	<0.19	
9/10/2021							61
9/6/2022		1.2	0.43 (J)				
9/7/2022					0.44 (J)		
9/8/2022				<0.19		<0.19	94.5 (D)
9/9/2022	0.19 (J)						
9/11/2023			0.35 (J)				
9/12/2023		0.4 (J)					
9/13/2023	<0.17 (U)				0.34 (J)	<0.17 (U)	
9/14/2023				0.29 (J)			

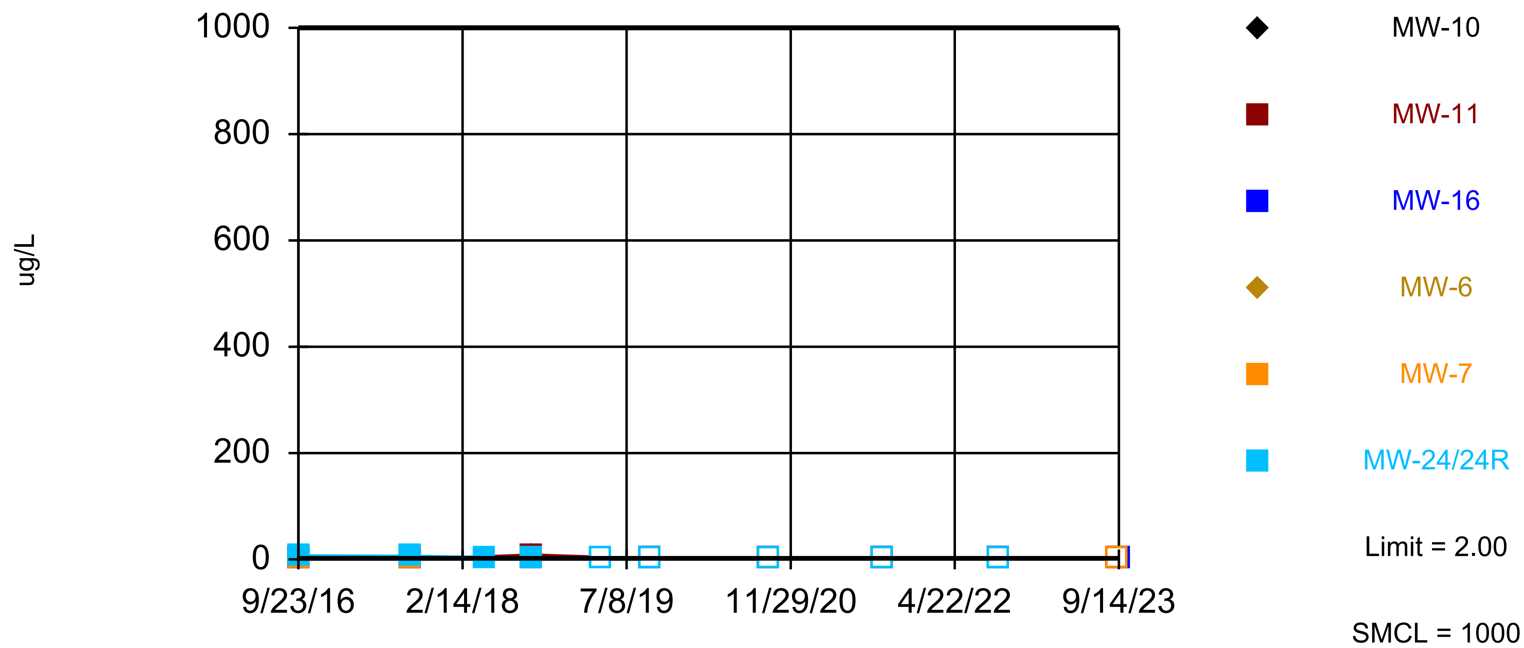
ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Copper

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 49%. Limit is highest of 8 background values. 75% NDs. Annual per-constituent alpha = 0.1903. Individual comparison alpha = 0.01611 (1 of 2). Comparing 6 points to limit. Assumes 7 future values. Insufficient data to test for seasonality; data will not be deseasonalized.

Prediction Limit Analysis Run 10/23/2023 11:54 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Prediction Limit

Constituent: Copper (ug/L)   Analysis Run 10/23/2023 11:58 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-10	MW-7	MW-16	MW-6	MW-24/24R	MW-11	MW-12 (bg)
9/23/2016	2.5	0.95 (J)	0.21 (J)	1.3	7.7	1.6	0.57 (J)
9/5/2017	1	0.36 (J)	0.31 (J)	0.2 (J)	6.8	0.35 (J)	0.24 (J)
4/25/2018					4.6		
9/17/2018	5.7	1.7	2.5	2.4	1.2	9	<0.48
4/23/2019					<2		
9/23/2019	<2	<2	<2	2.4 (J)	<2	<2	<2
9/21/2020							<1.5
9/22/2020				1.6 (J)		<1.5	
9/23/2020		<1.5	1.5 (J)				
9/24/2020	<1.5				<1.5		
9/8/2021						<1.4	<1.4
9/9/2021	<1.4	<1.4	<1.4	<1.4			
9/10/2021					<1.4		
9/6/2022						<1.8	<1.8
9/7/2022				<1.8			
9/8/2022		<1.8	<1.8		<1.8		
9/9/2022	<1.8						
9/11/2023							<1.8 (U)
9/12/2023						<1.8 (U)	
9/13/2023	<1.8 (U)	<1.8 (U)		<1.8 (U)			
9/14/2023			<1.8 (U)				

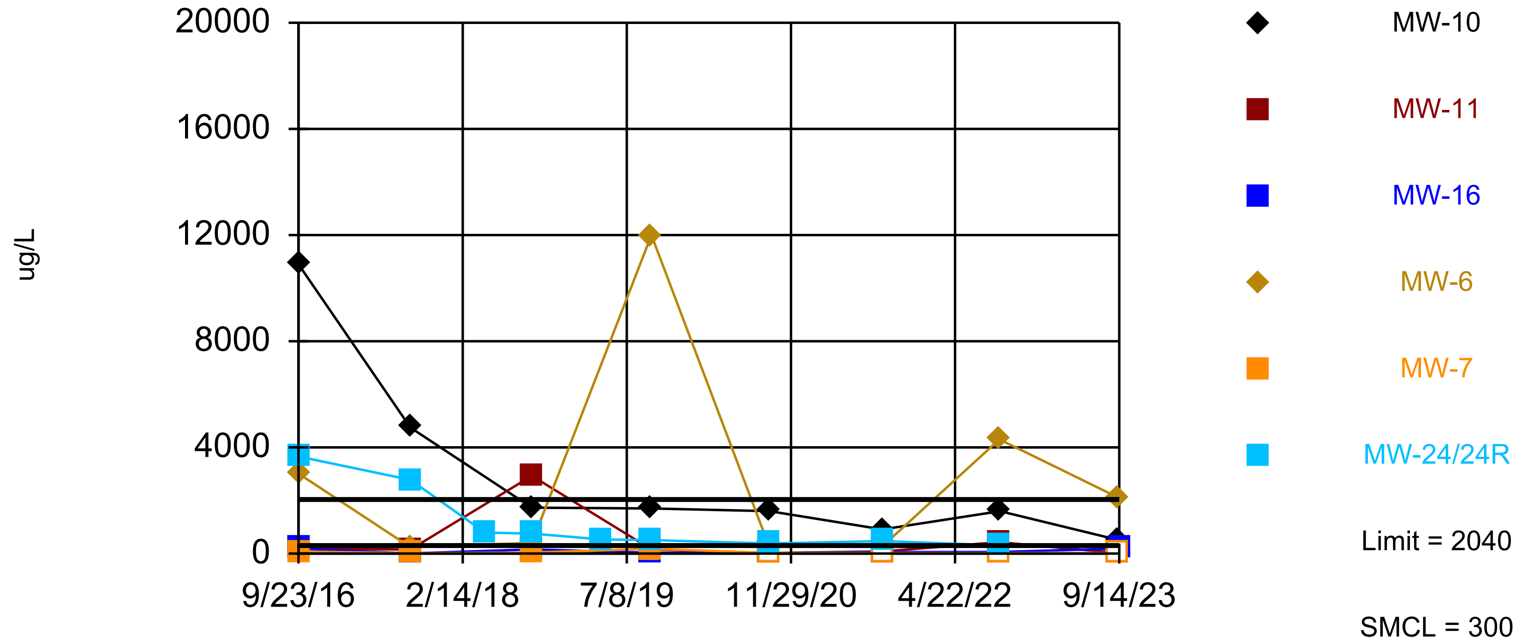
ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Exceeds Limit: MW-6

Iron

Interwell Parametric



Background Data Summary: Mean=1714, Std. Dev.=100.6, n=8. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.1, calculated = 0.9056, critical = 0.851. Kappa = 3.209 (c=14, w=13, 1 of 2, event alpha = 0.1). Report alpha = 0.007498. Individual comparison alpha = 0.0005787. Comparing 6 points to limit. Assumes 7 future values.

Prediction Limit Analysis Run 10/23/2023 11:54 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Prediction Limit

Constituent: Iron (ug/L) Analysis Run 10/23/2023 11:58 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-10	MW-11	MW-12 (bg)	MW-16	MW-6	MW-7	MW-24/24R
9/23/2016	10900	193	1590	187	3010	77.8	3660
9/5/2017	4750	154	1710	<9.6	240	11.4 (J)	2780
4/25/2018							793
9/17/2018	1730	2930	1710	157	403	35.6 (J)	755
4/23/2019							530
9/23/2019	1700	160	1600	<66	12000	180	510
9/21/2020			1800				
9/22/2020		<50			290		
9/23/2020				<50		<50	
9/24/2020	1600						380
9/8/2021		82 (J)	1700				
9/9/2021	910			53 (J)	270	<36	
9/10/2021							470
9/6/2022		430	1900				
9/7/2022					4300		
9/8/2022				59 (J)		<36	310
9/9/2022	1600						
9/11/2023			1700				
9/12/2023		<36 (U)					
9/13/2023	510				2100	<36 (U)	
9/14/2023				190			

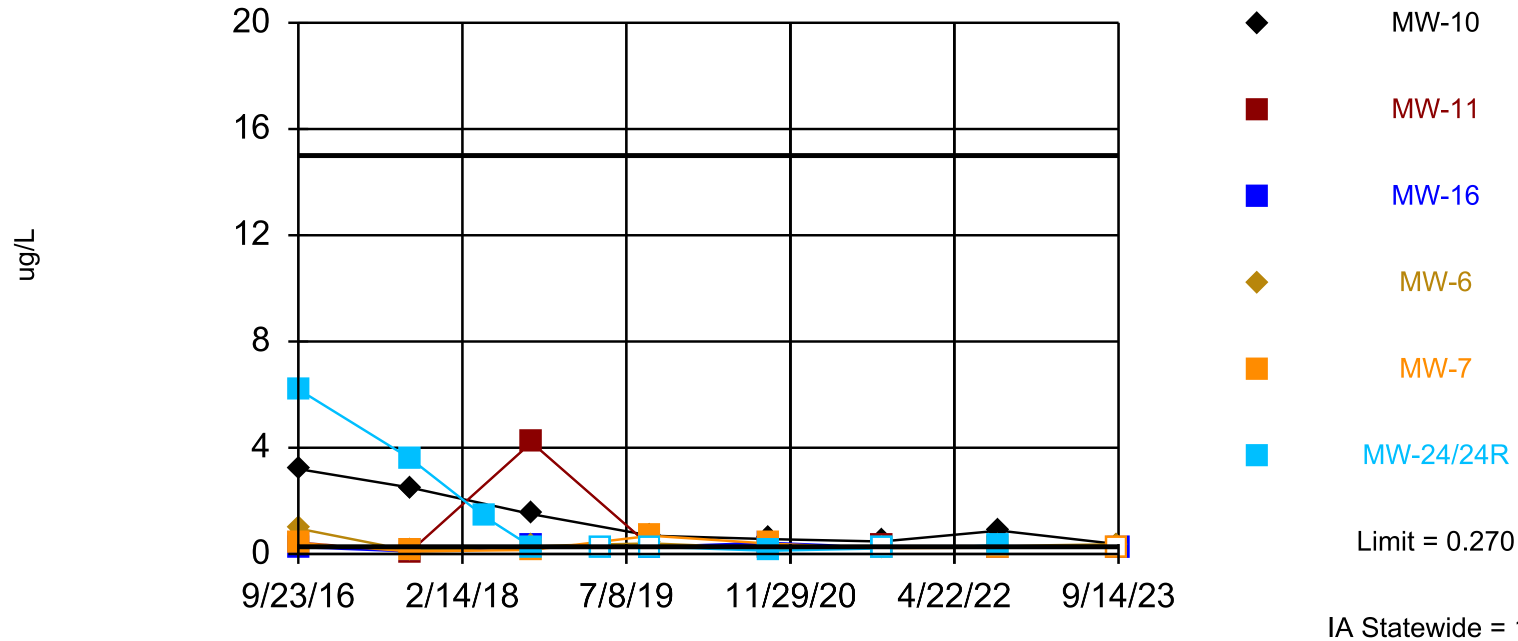
ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Lead

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 49%. Limit is highest of 8 background values. 75% NDs. Annual per-constituent alpha = 0.1903. Individual comparison alpha = 0.01611 (1 of 2). Comparing 6 points to limit. Assumes 7 future values. Insufficient data to test for seasonality; data will not be deseasonalized.

Prediction Limit Analysis Run 10/23/2023 11:54 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Prediction Limit

Constituent: Lead (ug/L) Analysis Run 10/23/2023 11:58 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

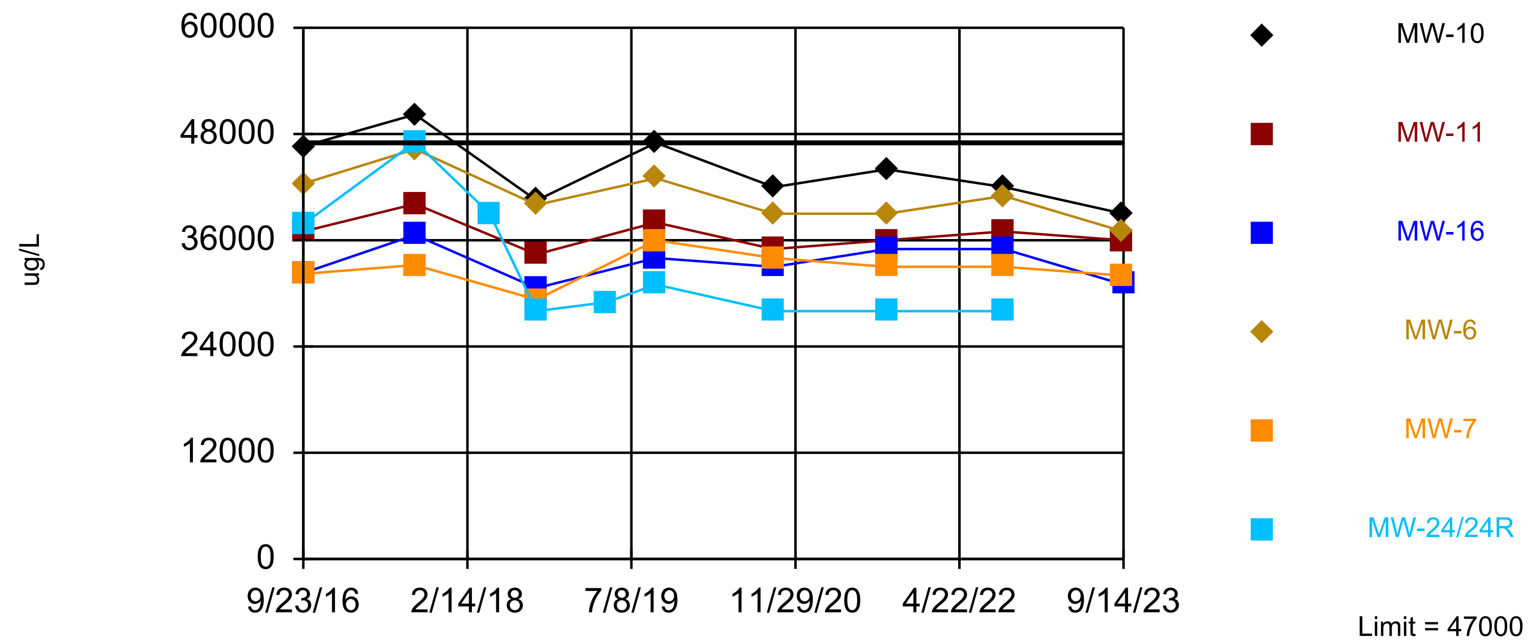
	MW-10	MW-7	MW-16	MW-6	MW-24/24R	MW-11	MW-12 (bg)
9/23/2016	3.2	0.41 (J)	0.26 (J)	0.96 (J)	6.2	0.43 (J)	<0.19
9/5/2017	2.5	0.1 (J)	0.1 (J)	0.13 (J)	3.6	0.089 (J)	0.038 (J)
4/25/2018					1.4		
9/17/2018	1.5	0.15 (J)	0.3 (J)	0.3 (J)	0.27 (J)	4.2	<0.12
4/23/2019					<0.27		
9/23/2019	0.69	0.69	<0.27	0.4 (J)	<0.27	<0.27	<0.27
9/21/2020							0.17 (J)
9/22/2020				0.22 (J)		0.26 (J)	
9/23/2020		0.39 (J)	0.42 (J)				
9/24/2020	0.56				0.12 (J)		
9/8/2021						0.29 (J)	<0.21
9/9/2021	0.47 (J)	<0.21	0.25 (J)	0.21 (J)			
9/10/2021					<0.21		
9/6/2022						0.25 (J)	<0.24
9/7/2022				0.3 (J)			
9/8/2022		<0.24	<0.24		0.34 (J)		
9/9/2022	0.88						
9/11/2023							<0.24 (U)
9/12/2023						<0.24 (U)	
9/13/2023	0.37 (J)	<0.24 (U)		0.37 (J)			
9/14/2023			<0.24 (U)				

ND substitution: RL or RL/2 if <15% NDs.

Within Limit

Magnesium

Interwell Parametric



Background Data Summary: Mean=40488, Std. Dev.=2020, n=8. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.1, calculated = 0.9188, critical = 0.851. Kappa = 3.209 (c=14, w=13, 1 of 2, event alpha = 0.1). Report alpha = 0.007498. Individual comparison alpha = 0.0005787. Comparing 6 points to limit. Assumes 7 future values.

Prediction Limit Analysis Run 10/23/2023 11:54 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Prediction Limit

Constituent: Magnesium (ug/L)   Analysis Run 10/23/2023 11:58 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

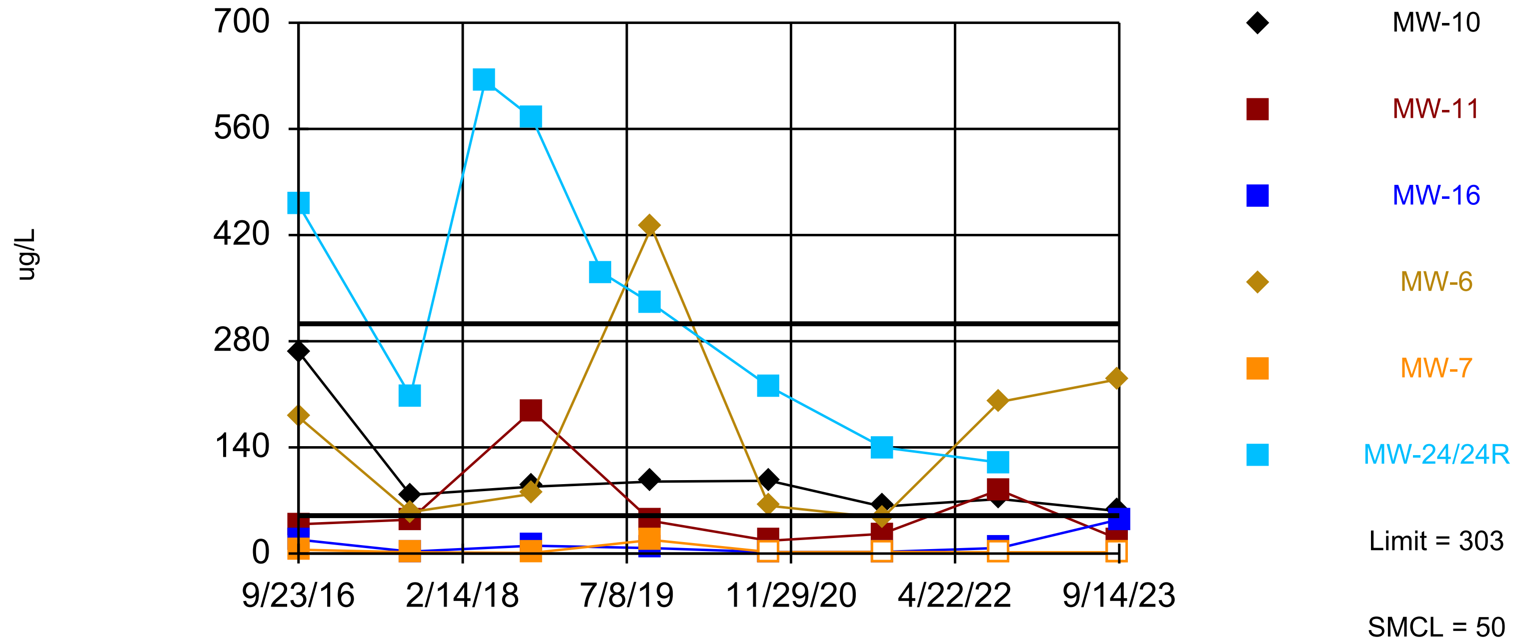
	MW-10	MW-11	MW-12 (bg)	MW-16	MW-6	MW-7	MW-24/24R
9/23/2016	46600	37000	41000	32300	42400	32200	37800
9/5/2017	50200	40100	42800	36600	46300	33200	47100
4/25/2018							39000
9/17/2018	40500	34400	38100	30600	40000	29300	28000
4/23/2019							29000
9/23/2019	47000	38000	44000	34000	43000	36000	31000
9/21/2020			39000				
9/22/2020		35000			39000		
9/23/2020				33000		34000	
9/24/2020	42000						28000
9/8/2021		36000	40000				
9/9/2021	44000			35000	39000	33000	
9/10/2021							28000
9/6/2022		37000	40000				
9/7/2022					41000		
9/8/2022				35000		33000	28000
9/9/2022	42000						
9/11/2023			39000				
9/12/2023		36000					
9/13/2023	39000				37000	32000	
9/14/2023				31000			

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Manganese

Interwell Parametric



Background Data Summary: Mean=266.1, Std. Dev.=11.34, n=8. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.1, calculated = 0.9053, critical = 0.851. Kappa = 3.209 (c=14, w=13, 1 of 2, event alpha = 0.1). Report alpha = 0.007498. Individual comparison alpha = 0.0005787. Comparing 6 points to limit. Assumes 7 future values.

Prediction Limit Analysis Run 10/23/2023 11:54 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Prediction Limit

Constituent: Manganese (ug/L) Analysis Run 10/23/2023 11:58 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-10	MW-11	MW-12 (bg)	MW-16	MW-6	MW-7	MW-24/24R
9/23/2016	266	38.6	276	18.4	180	5	460
9/5/2017	77.4	44.8	266	2.5	54.6	1.7	208
4/25/2018							623
9/17/2018	88.2	188	257	10.3	78.7	0.81 (J)	575
4/23/2019							370
9/23/2019	95	43	280	7.3 (J)	430	18	330
9/21/2020			280				
9/22/2020		17			63		
9/23/2020				<4		<4	
9/24/2020	96						220
9/8/2021		26	260				
9/9/2021	62			<4.4	47	<4.4	
9/10/2021							140
9/6/2022		84	260				
9/7/2022					200		
9/8/2022				7.5 (J)		<3.6	120
9/9/2022	72						
9/11/2023			250				
9/12/2023		19					
9/13/2023	56				230	<3.6 (U)	
9/14/2023				45			

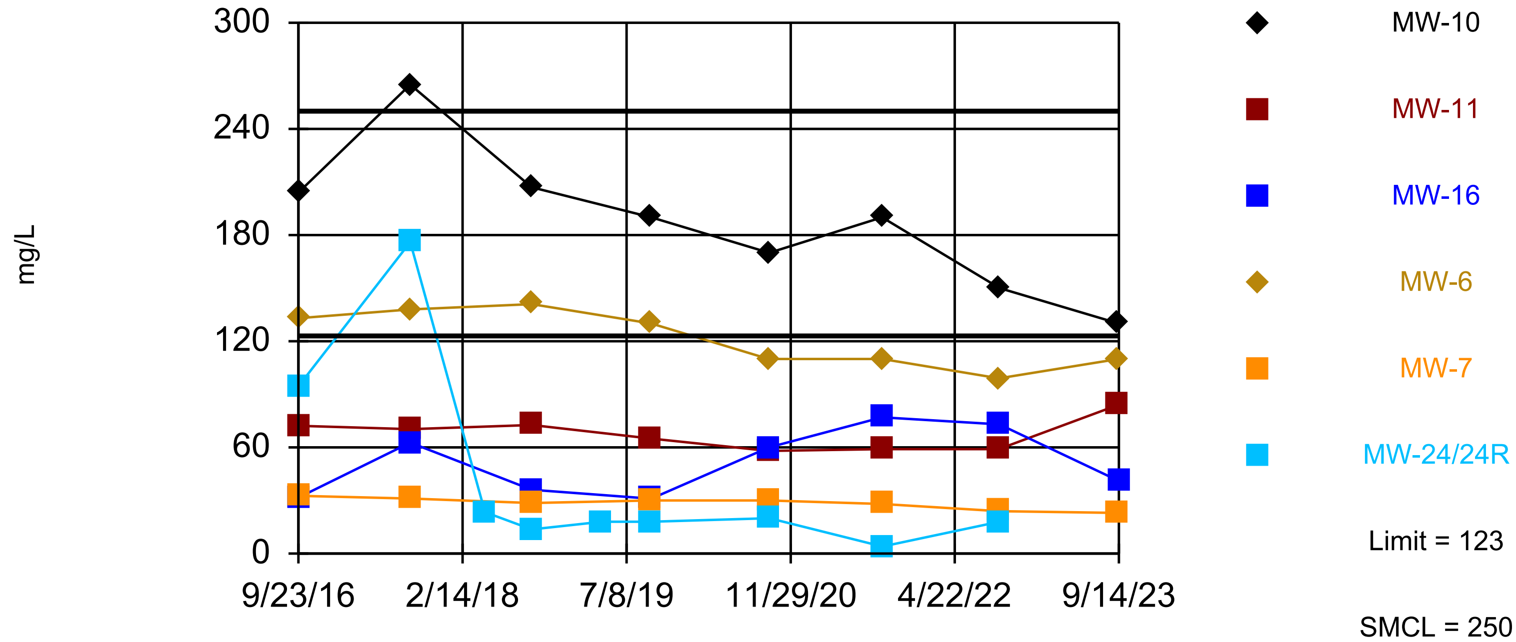
ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Exceeds Limit: MW-10

Sulfate

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.05 alpha level. Limit is highest of 15 background values. Annual per-constituent alpha = 0.08163. Individual comparison alpha = 0.006529 (1 of 2). Comparing 6 points to limit. Assumes 7 future values. Insufficient data to test for seasonality; data will not be deseasonalized.

Prediction Limit Analysis Run 10/23/2023 11:54 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 10/23/2023 11:58 AM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

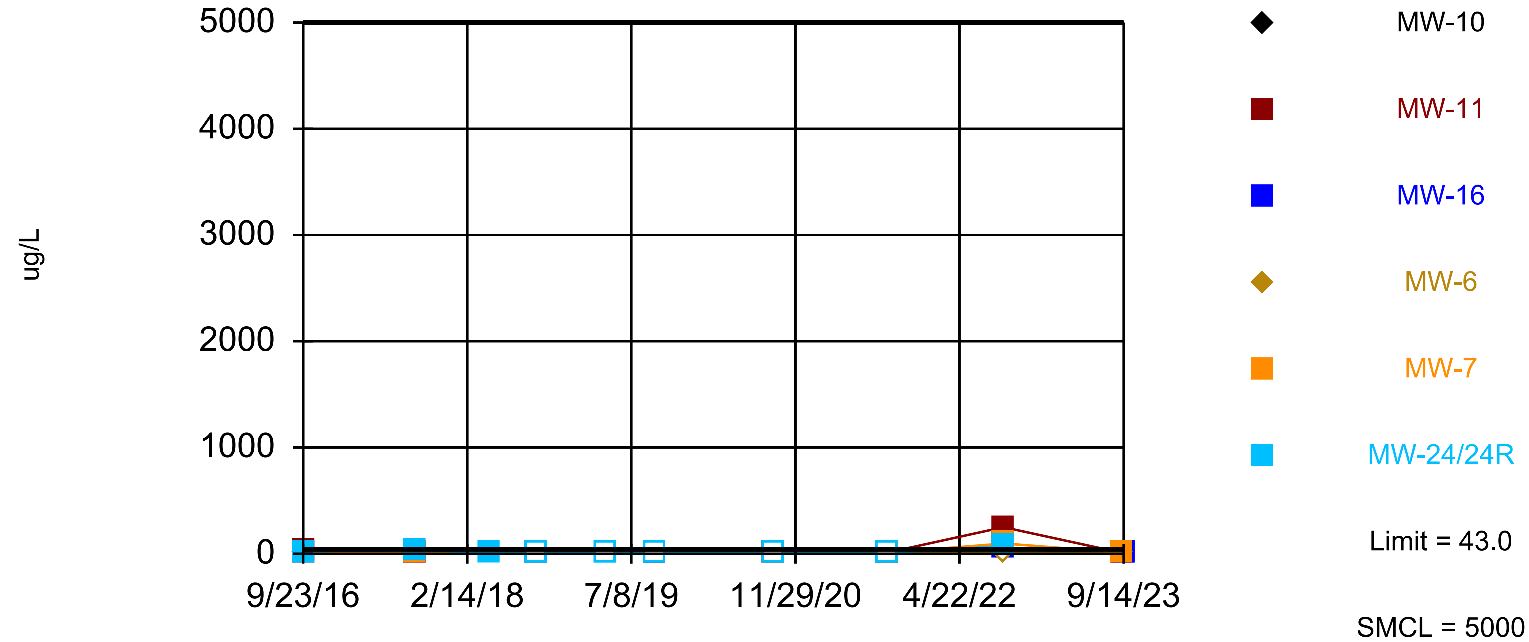
	MW-12 (bg)	MW-10	MW-24/24R	MW-7	MW-6	MW-16	MW-11
11/1/2010	52.9						
2/1/2011	61.2						
9/1/2011	123						
9/1/2012	58.7						
9/1/2013	57.1						
9/1/2014	64.1						
9/1/2015	75.5						
9/23/2016	50.2	204	94.5	32.6	133	31.6	72.2
9/5/2017	49.6	265	176	31.1	138	62.7	70.3
4/25/2018			23.4				
9/17/2018	52.8	207	13.7	28.6	141	36.1	72.7
4/23/2019			18				
9/23/2019	47	190	18	30	130	31	65
9/21/2020	49						
9/22/2020					110		58
9/23/2020				30		60	
9/24/2020		170	20				
9/8/2021	49						59
9/9/2021		190		28	110	77	
9/10/2021			4				
9/6/2022	45						59
9/7/2022					99		
9/8/2022			18	24		73	
9/9/2022		150					
9/11/2023	47						
9/12/2023							84
9/13/2023		130		23	110		
9/14/2023						41	

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Exceeds Limit: MW-24/24R

Zinc

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 49%. Limit is highest of 8 background values. 62.5% NDs. Annual per-constituent alpha = 0.1903. Individual comparison alpha = 0.01611 (1 of 2). Comparing 6 points to limit. Assumes 7 future values. Insufficient data to test for seasonality; data will not be deseasonalized.

Prediction Limit   Analysis Run 10/23/2023 11:54 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Prediction Limit

Constituent: Zinc (ug/L)   Analysis Run 10/23/2023 11:58 AM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-10	MW-7	MW-16	MW-6	MW-24/24R	MW-11	MW-12 (bg)
9/23/2016	12.7	8.1 (J)	2.5 (J)	8.1 (J)	22	28.3	3.2 (J)
9/5/2017	3.6 (J)	5.5 (J)	2.2 (J)	1.5 (J)	36.4	2.4 (J)	1.4 (J)
4/25/2018					7.7 (J)		
9/17/2018	12.7	8.4 (J)	6.4 (J)	6 (J)	<3.7	20.3	<3.7
4/23/2019					<10		
9/23/2019	<10	14 (J)	<10	<10	<10	<10	<10
9/21/2020							<10
9/22/2020				<10		<10	
9/23/2020		<10	<10				
9/24/2020	<10				<10		
9/8/2021						<10	<10
9/9/2021	<10	<10	<10	<10			
9/10/2021					<10		
9/6/2022						250	43
9/7/2022				<10			
9/8/2022		96	51		71		
9/9/2022	46						
9/11/2023							<6.4 (U)
9/12/2023						<6.4 (U)	
9/13/2023	8.1 (J)	9.3 (J)		9.9 (J)			
9/14/2023			<6.4 (U)				

ND substitution: RL or RL/2 if <15% NDs.

Appendix F

Trend Analysis

Trend Test

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB   Printed 10/26/2023, 3:44 PM

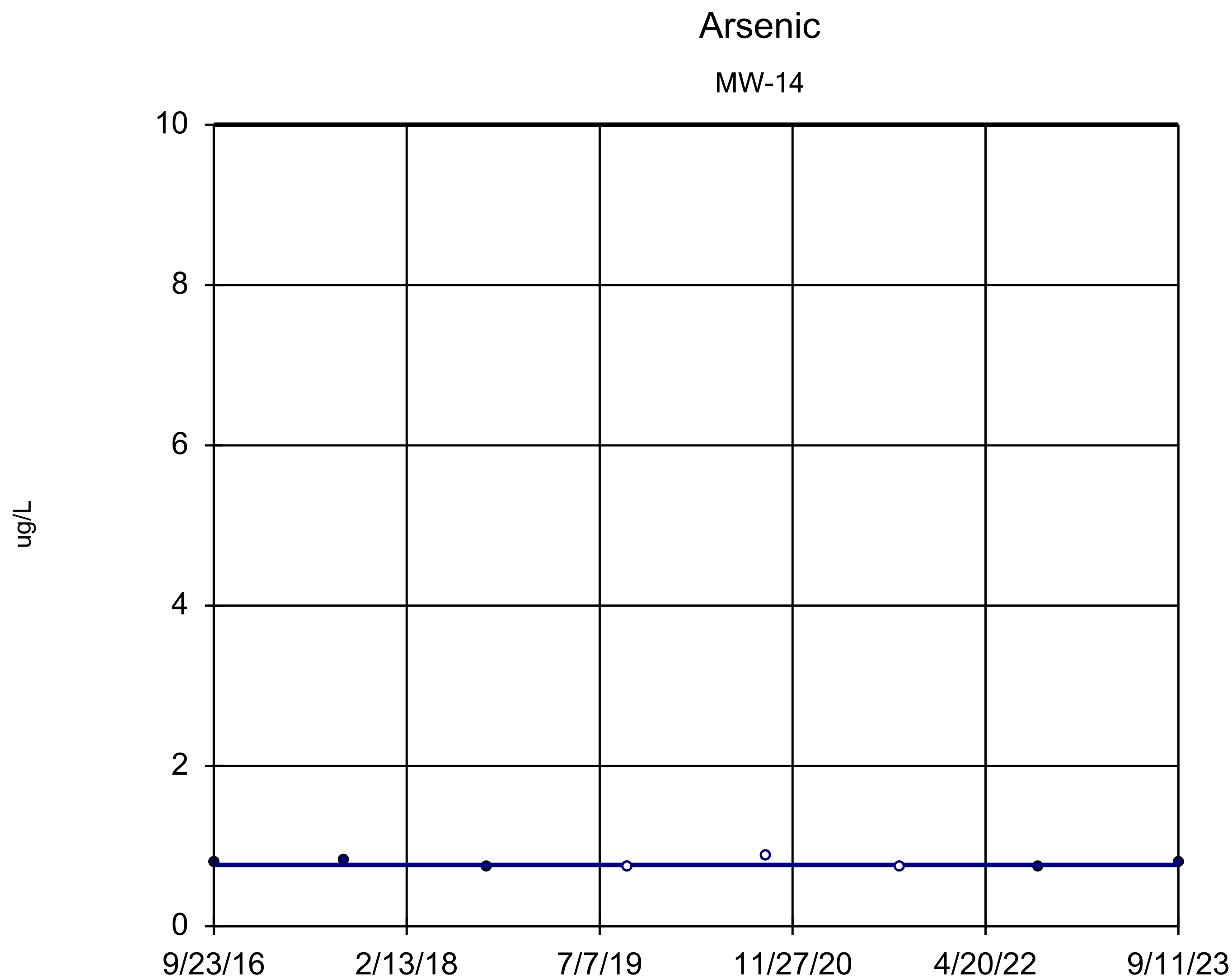
Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Arsenic (ug/L)	MW-14	0	1	20	No	8	37.5	n/a	n/a	0.02	NP
Arsenic (ug/L)	MW-15AR	0.04919	6	13	No	6	50	n/a	n/a	0.02	NP
Arsenic (ug/L)	MW-2	0.1627	12	20	No	8	12.5	n/a	n/a	0.02	NP
Arsenic (ug/L)	MW-20	0.006722	3	20	No	8	37.5	n/a	n/a	0.02	NP
Arsenic (ug/L)	MW-25R	0.009775	5	20	No	8	62.5	n/a	n/a	0.02	NP
Arsenic (ug/L)	MW-5	0.07989	13	20	No	8	62.5	n/a	n/a	0.02	NP
Arsenic (ug/L)	MW-21 (bg)	0.01898	11	20	No	8	50	n/a	n/a	0.02	NP
Arsenic (ug/L)	MW-23/23R	-0.03267	-7	-23	No	9	44.44	n/a	n/a	0.02	NP
Barium (ug/L)	MW-14	-0.6305	-7	-20	No	8	0	n/a	n/a	0.02	NP
Barium (ug/L)	MW-15AR	-0.2012	-1	-13	No	6	0	n/a	n/a	0.02	NP
Barium (ug/L)	MW-2	-0.3735	0	20	No	8	0	n/a	n/a	0.02	NP
Barium (ug/L)	MW-20	2.942	11	20	No	8	0	n/a	n/a	0.02	NP
Barium (ug/L)	MW-25R	7.604	14	20	No	8	0	n/a	n/a	0.02	NP
Barium (ug/L)	MW-5	0.3692	9	20	No	8	0	n/a	n/a	0.02	NP
Barium (ug/L)	MW-21 (bg)	7.167	9	20	No	8	0	n/a	n/a	0.02	NP
Barium (ug/L)	MW-23/23R	-8.073	-12	-23	No	9	0	n/a	n/a	0.02	NP
Boron (ug/L)	**MW-14**	**-145.6**	**-22**	**-20**	**Yes**	**8**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Boron (ug/L)	MW-15AR	369.9	3	13	No	6	0	n/a	n/a	0.02	NP
Boron (ug/L)	MW-2	-88.14	-13	-20	No	8	0	n/a	n/a	0.02	NP
Boron (ug/L)	MW-20	93.77	2	20	No	8	0	n/a	n/a	0.02	NP
Boron (ug/L)	MW-25R	4.932	2	20	No	8	0	n/a	n/a	0.02	NP
Boron (ug/L)	MW-5	-19.04	-4	-20	No	8	0	n/a	n/a	0.02	NP
Boron (ug/L)	MW-21 (bg)	-2.838	-5	-20	No	8	0	n/a	n/a	0.02	NP
Boron (ug/L)	MW-23/23R	-456.4	-19	-23	No	9	0	n/a	n/a	0.02	NP
Cobalt (ug/L)	MW-14	-0.01661	-1	-20	No	8	0	n/a	n/a	0.02	NP
Cobalt (ug/L)	MW-15AR	-0.09374	-9	-13	No	6	50	n/a	n/a	0.02	NP
Cobalt (ug/L)	MW-2	0.2244	12	20	No	8	0	n/a	n/a	0.02	NP
Cobalt (ug/L)	MW-20	-0.02438	-2	-20	No	8	50	n/a	n/a	0.02	NP
Cobalt (ug/L)	MW-25R	-0.02317	-8	-20	No	8	50	n/a	n/a	0.02	NP
Cobalt (ug/L)	MW-5	0.01132	5	20	No	8	75	n/a	n/a	0.02	NP
Cobalt (ug/L)	MW-21 (bg)	-0.05094	-17	-20	No	8	50	n/a	n/a	0.02	NP
Cobalt (ug/L)	MW-23/23R	-0.07796	-14	-23	No	9	44.44	n/a	n/a	0.02	NP
Copper (ug/L)	MW-14	0.09062	7	20	No	8	25	n/a	n/a	0.02	NP
Copper (ug/L)	MW-15AR	0.1952	7	13	No	6	50	n/a	n/a	0.02	NP
Copper (ug/L)	MW-2	0.0452	3	20	No	8	50	n/a	n/a	0.02	NP
Copper (ug/L)	MW-20	0.01434	2	20	No	8	50	n/a	n/a	0.02	NP
Copper (ug/L)	MW-25R	-8.7e-9	-2	-20	No	8	50	n/a	n/a	0.02	NP
Copper (ug/L)	MW-5	0.1666	9	20	No	8	62.5	n/a	n/a	0.02	NP
Copper (ug/L)	MW-21 (bg)	-0.03497	-5	-20	No	8	62.5	n/a	n/a	0.02	NP
Copper (ug/L)	MW-23/23R	-0.02067	-1	-23	No	9	44.44	n/a	n/a	0.02	NP
Lead (ug/L)	MW-14	-1.4e-9	0	20	No	8	25	n/a	n/a	0.02	NP
Lead (ug/L)	MW-15AR	-0.3919	-7	-13	No	6	33.33	n/a	n/a	0.02	NP
Lead (ug/L)	MW-2	0.04048	10	20	No	8	12.5	n/a	n/a	0.02	NP
Lead (ug/L)	MW-20	-0.00885	-3	-20	No	8	50	n/a	n/a	0.02	NP
Lead (ug/L)	MW-25R	-0.03022	-5	-20	No	8	37.5	n/a	n/a	0.02	NP
Lead (ug/L)	MW-5	0.02366	7	20	No	8	12.5	n/a	n/a	0.02	NP
Lead (ug/L)	MW-21 (bg)	-0.07723	-6	-20	No	8	37.5	n/a	n/a	0.02	NP
Lead (ug/L)	MW-23/23R	-0.08694	-13	-23	No	9	22.22	n/a	n/a	0.02	NP
Manganese (ug/L)	MW-14	-8.434	-2	-20	No	8	0	n/a	n/a	0.02	NP
Manganese (ug/L)	MW-15AR	-4.999	-9	-13	No	6	33.33	n/a	n/a	0.02	NP

Trend Test

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB   Printed 10/26/2023, 3:44 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Manganese (ug/L)	MW-2	55.42	7	20	No	8	0	n/a	n/a	0.02	NP
Manganese (ug/L)	MW-20	-0.295	-7	-20	No	8	37.5	n/a	n/a	0.02	NP
Manganese (ug/L)	MW-25R	-4.742	-12	-20	No	8	25	n/a	n/a	0.02	NP
Manganese (ug/L)	MW-5	1.466	6	20	No	8	12.5	n/a	n/a	0.02	NP
Manganese (ug/L)	MW-21 (bg)	-6.627	-10	-20	No	8	12.5	n/a	n/a	0.02	NP
Manganese (ug/L)	MW-23/23R	-22.64	-8	-23	No	9	11.11	n/a	n/a	0.02	NP
Selenium (ug/L)	**MW-14**	**-2.006**	**-22**	**-20**	**Yes**	**8**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Selenium (ug/L)	MW-15AR	1.432	6	13	No	6	0	n/a	n/a	0.02	NP
Selenium (ug/L)	MW-2	-0.1466	-5	-20	No	8	12.5	n/a	n/a	0.02	NP
Selenium (ug/L)	MW-20	0.2263	2	20	No	8	0	n/a	n/a	0.02	NP
Selenium (ug/L)	MW-25R	0.1789	7	20	No	8	0	n/a	n/a	0.02	NP
Selenium (ug/L)	MW-5	-0.8206	-8	-20	No	8	0	n/a	n/a	0.02	NP
Selenium (ug/L)	MW-21 (bg)	-0.03809	-3	-20	No	8	12.5	n/a	n/a	0.02	NP
Selenium (ug/L)	**MW-23/23R**	**-1.473**	**-26**	**-23**	**Yes**	**9**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Zinc (ug/L)	MW-14	1.009	9	20	No	8	37.5	n/a	n/a	0.02	NP
Zinc (ug/L)	MW-15AR	1.088	12	13	No	6	50	n/a	n/a	0.02	NP
Zinc (ug/L)	MW-2	1.353	12	20	No	8	25	n/a	n/a	0.02	NP
Zinc (ug/L)	MW-20	1.007	7	20	No	8	50	n/a	n/a	0.02	NP
Zinc (ug/L)	MW-25R	0.6527	11	20	No	8	50	n/a	n/a	0.02	NP
Zinc (ug/L)	MW-5	1.605	15	20	No	8	50	n/a	n/a	0.02	NP
Zinc (ug/L)	MW-21 (bg)	0	-2	-17	No	7	57.14	n/a	n/a	0.02	NP
Zinc (ug/L)	MW-23/23R	0	-1	-23	No	9	55.56	n/a	n/a	0.02	NP

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



n = 8

Slope = 0
units per year.

Mann-Kendall
statistic = 1
critical = 20

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

MCL = 10.

Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:40 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

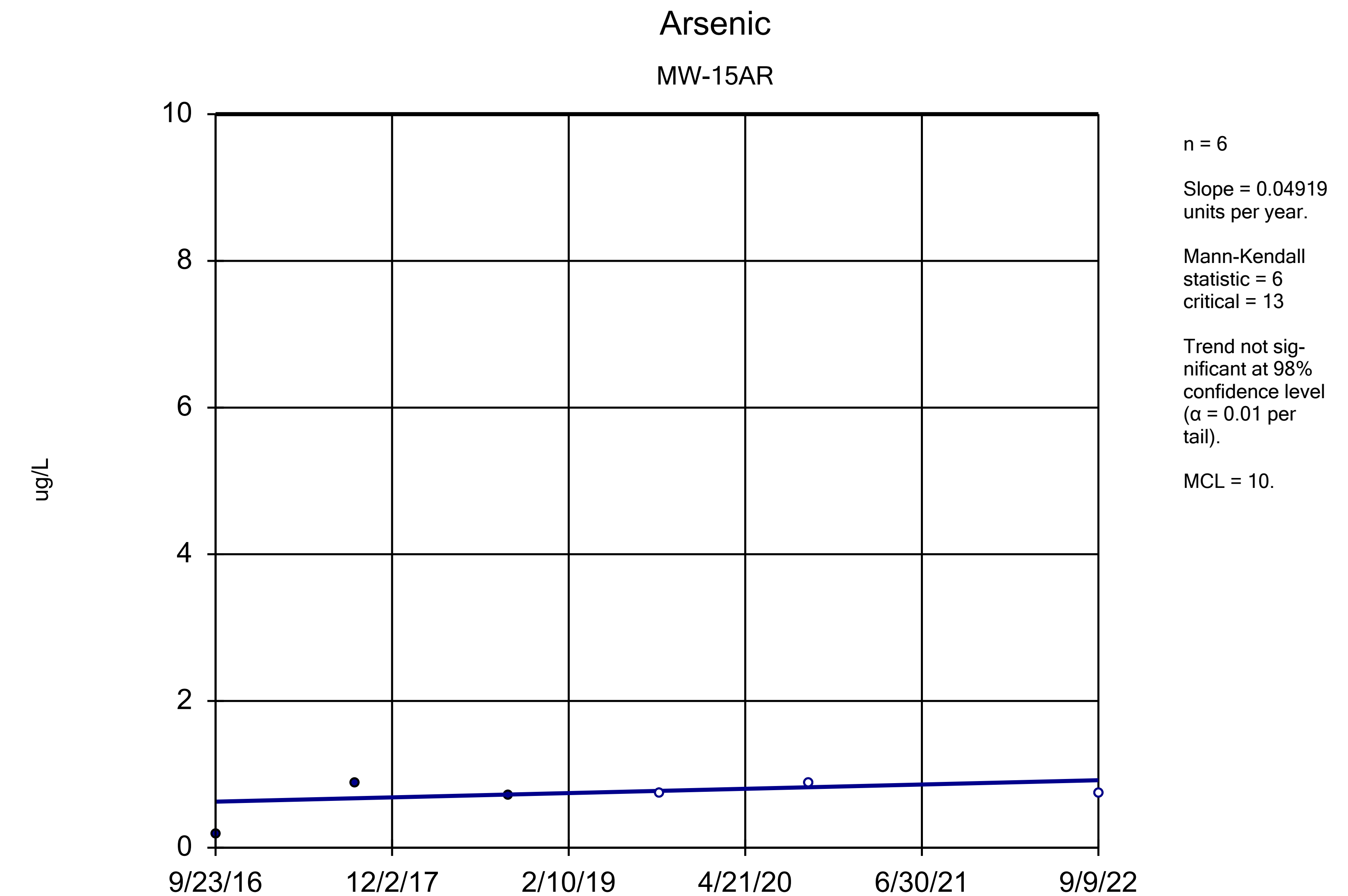
Constituent: Arsenic (ug/L)   Analysis Run 10/26/2023 3:44 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-14
9/23/2016	0.78 (J)
9/5/2017	0.83 (J)
9/17/2018	0.73 (J)
9/23/2019	<0.75
9/22/2020	<0.88
9/8/2021	<0.75
9/6/2022	0.75 (J)
9/11/2023	0.79 (J)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope Estimator   Analysis Run 10/26/2023 3:40 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

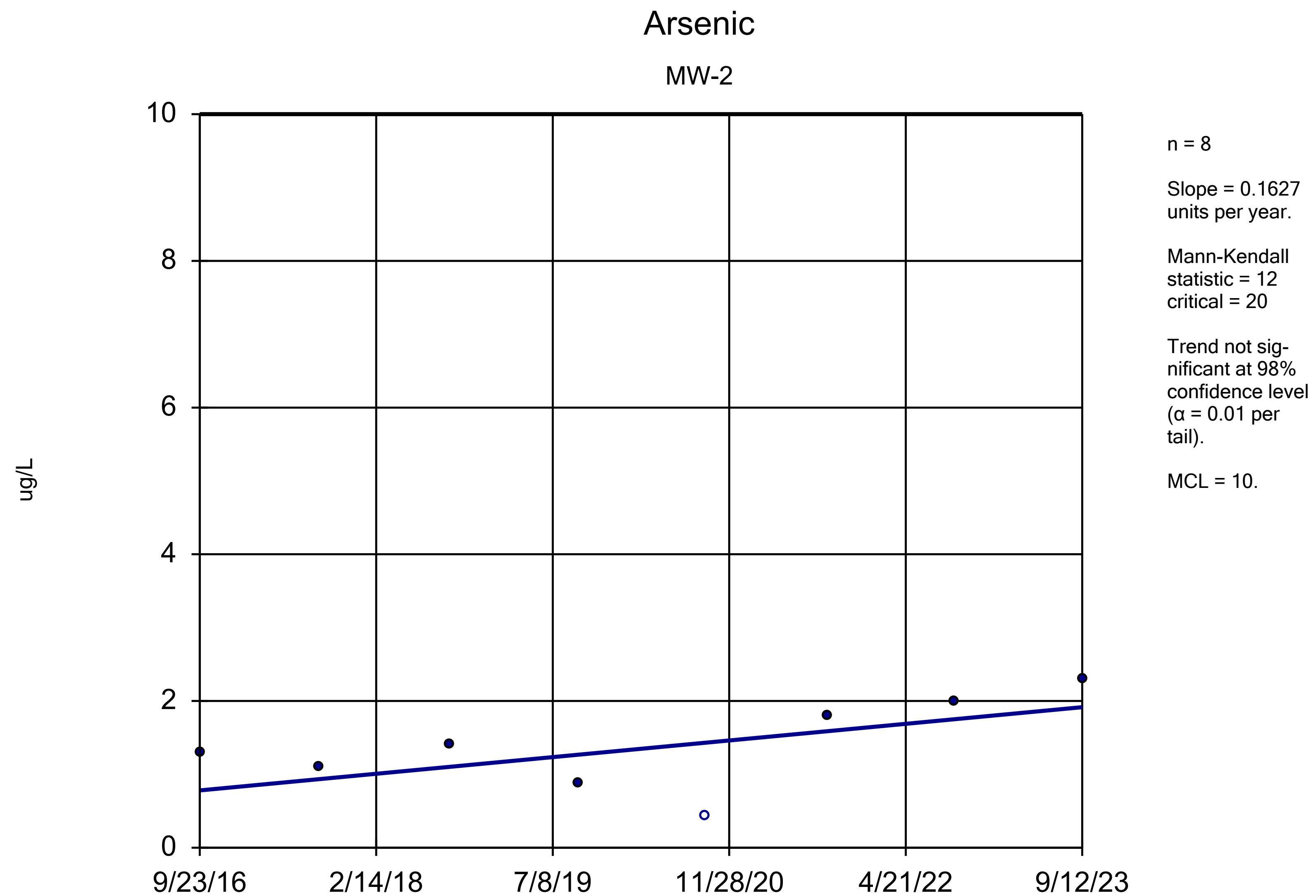
Constituent: Arsenic (ug/L)   Analysis Run 10/26/2023 3:44 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-15AR
9/23/2016	0.18 (J)
9/5/2017	0.87 (J)
9/17/2018	0.7 (J)
9/23/2019	<0.75
9/24/2020	<0.88
9/9/2022	<0.75

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:40 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

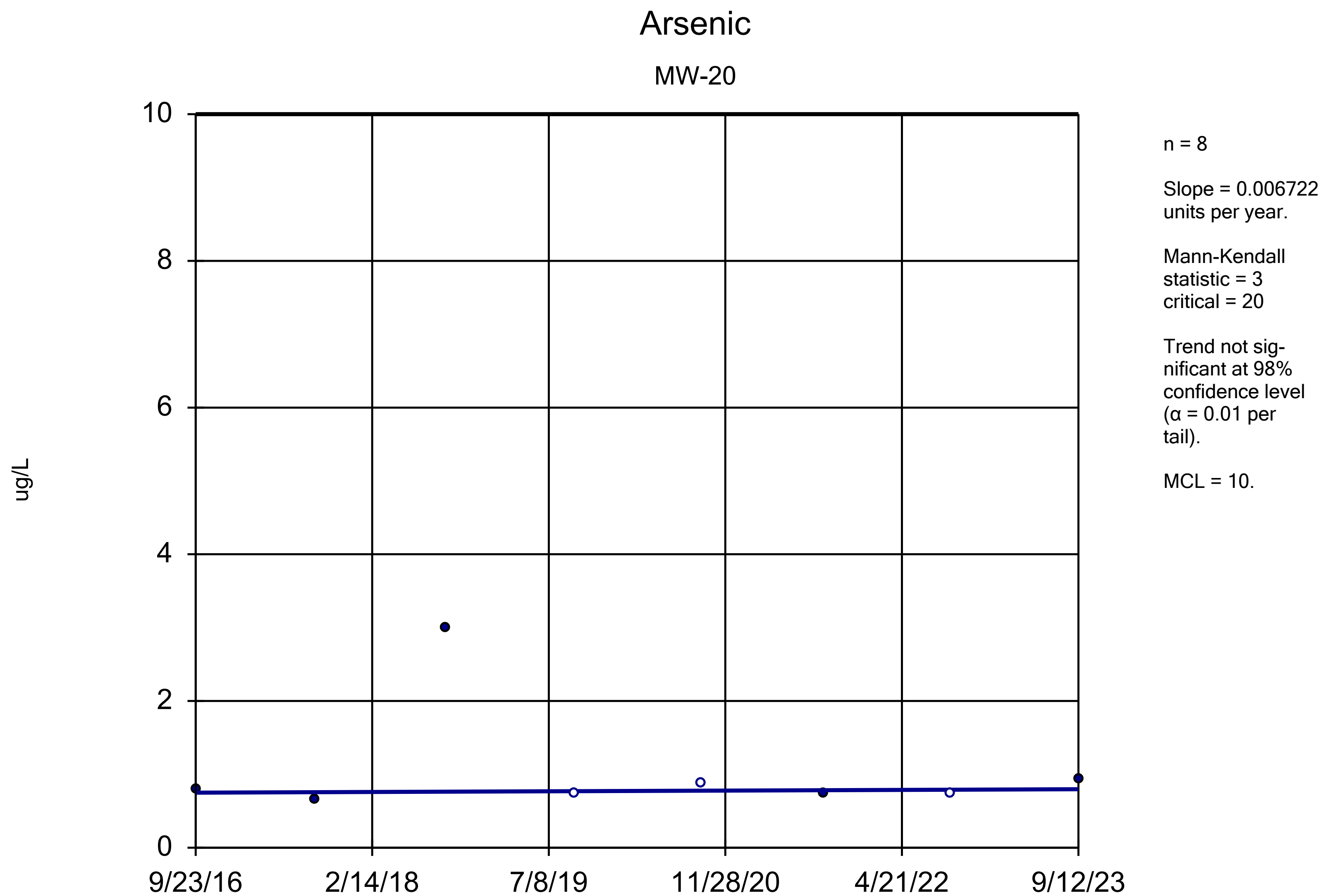
Constituent: Arsenic (ug/L) Analysis Run 10/26/2023 3:44 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-2
9/23/2016	1.3
9/5/2017	1.1
9/17/2018	1.4
9/23/2019	0.89 (J)
9/22/2020	<0.88
9/8/2021	1.8 (J)
9/7/2022	2
9/12/2023	2.3

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:40 PM   View: Shallow
Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

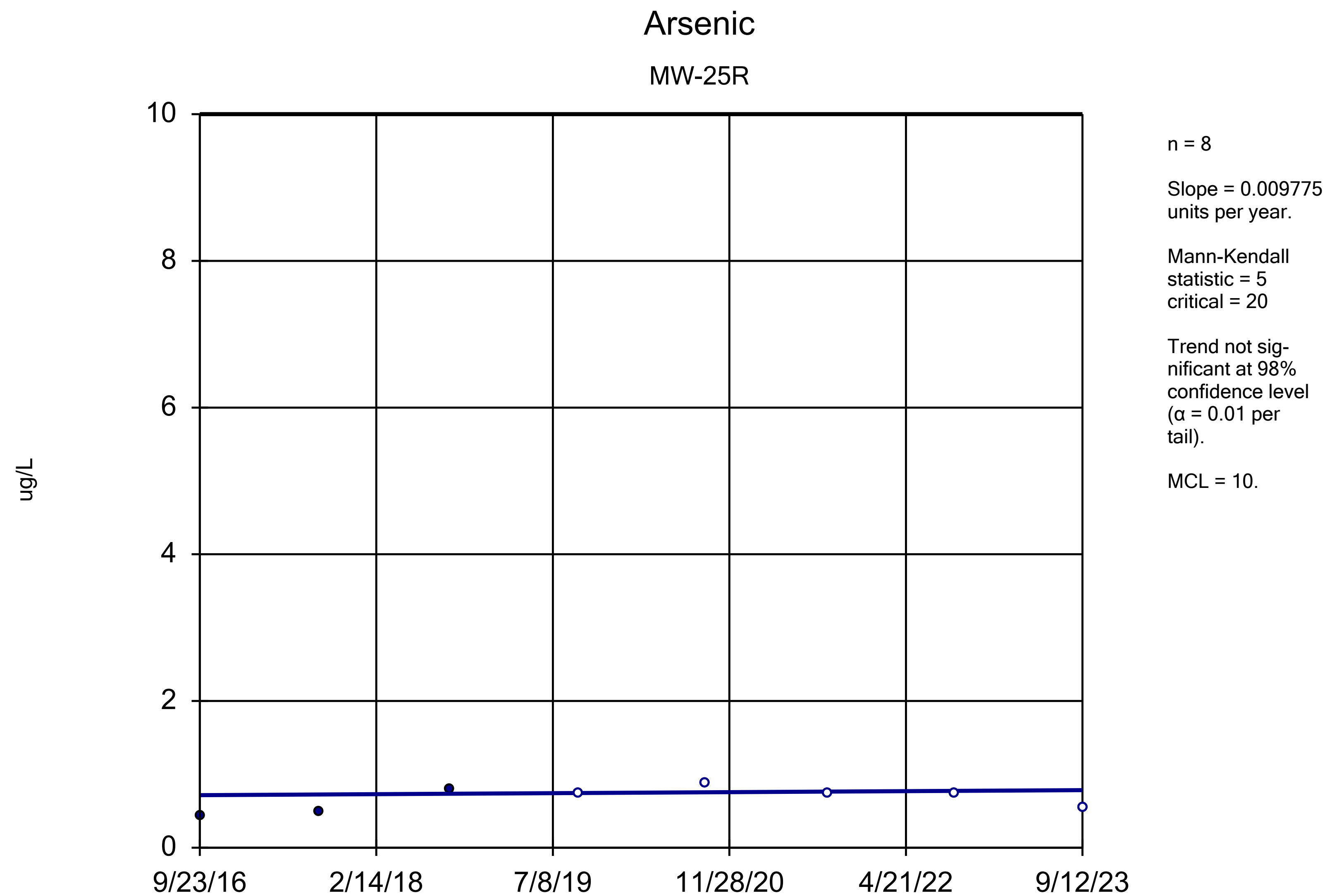
Constituent: Arsenic (ug/L) Analysis Run 10/26/2023 3:44 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-20
9/23/2016	0.8 (J)
9/5/2017	0.65 (J)
9/17/2018	3
9/23/2019	<0.75
9/21/2020	<0.88
9/8/2021	0.75 (J)
9/6/2022	<0.75
9/12/2023	0.92 (J)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:40 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

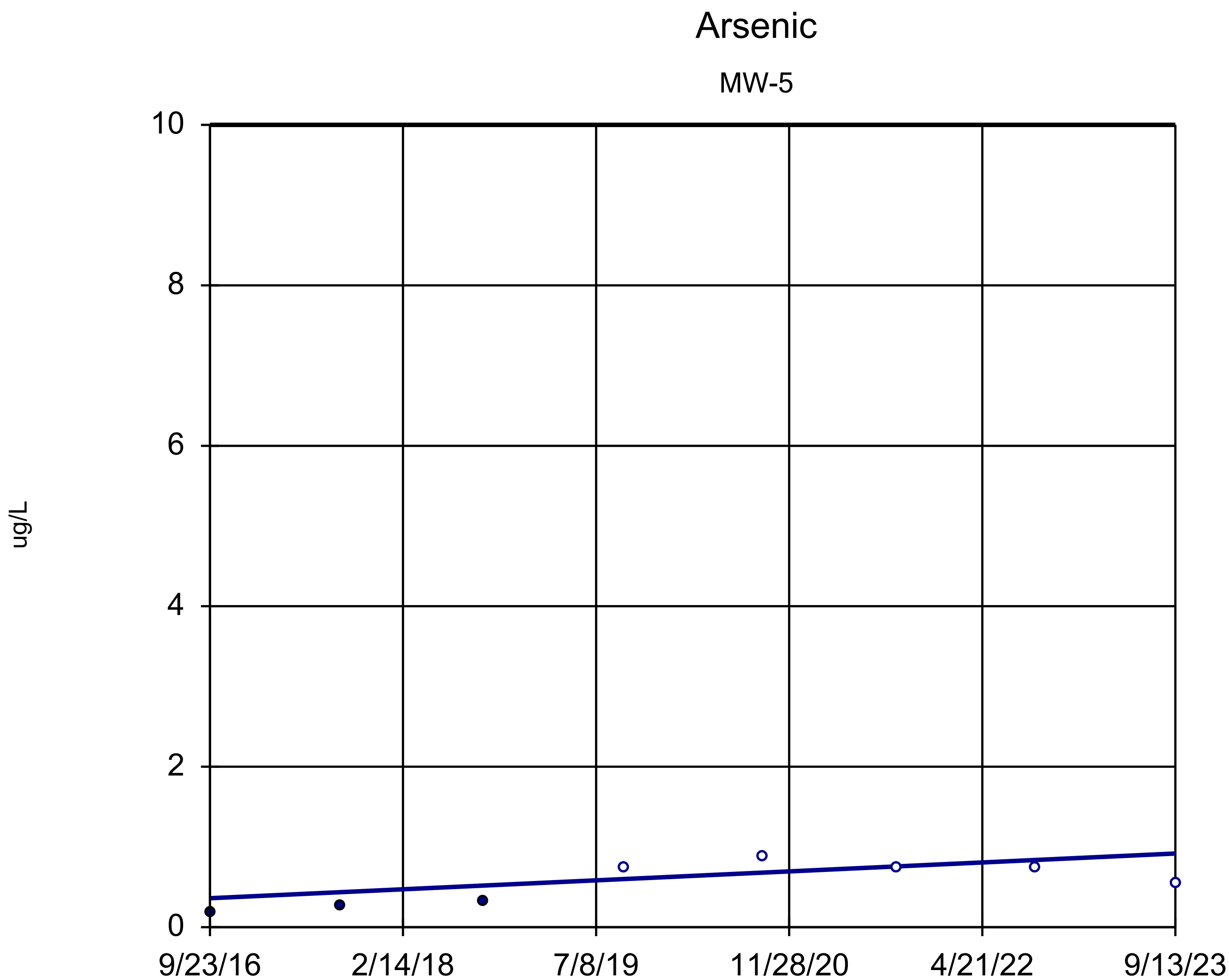
Constituent: Arsenic (ug/L)   Analysis Run 10/26/2023 3:44 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-25R
9/23/2016	0.44 (J)
9/5/2017	0.49 (J)
9/17/2018	0.8 (J)
9/23/2019	<0.75
9/21/2020	<0.88
9/7/2021	<0.75
9/6/2022	<0.75
9/12/2023	<0.53 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



n = 8

Slope = 0.07989 units per year.

Mann-Kendall statistic = 13 critical = 20

Trend not significant at 98% confidence level (α = 0.01 per tail).

MCL = 10.

Sen's Slope and 95% Confidence Band Analysis Run 10/26/2023 3:40 PM View: Shallow

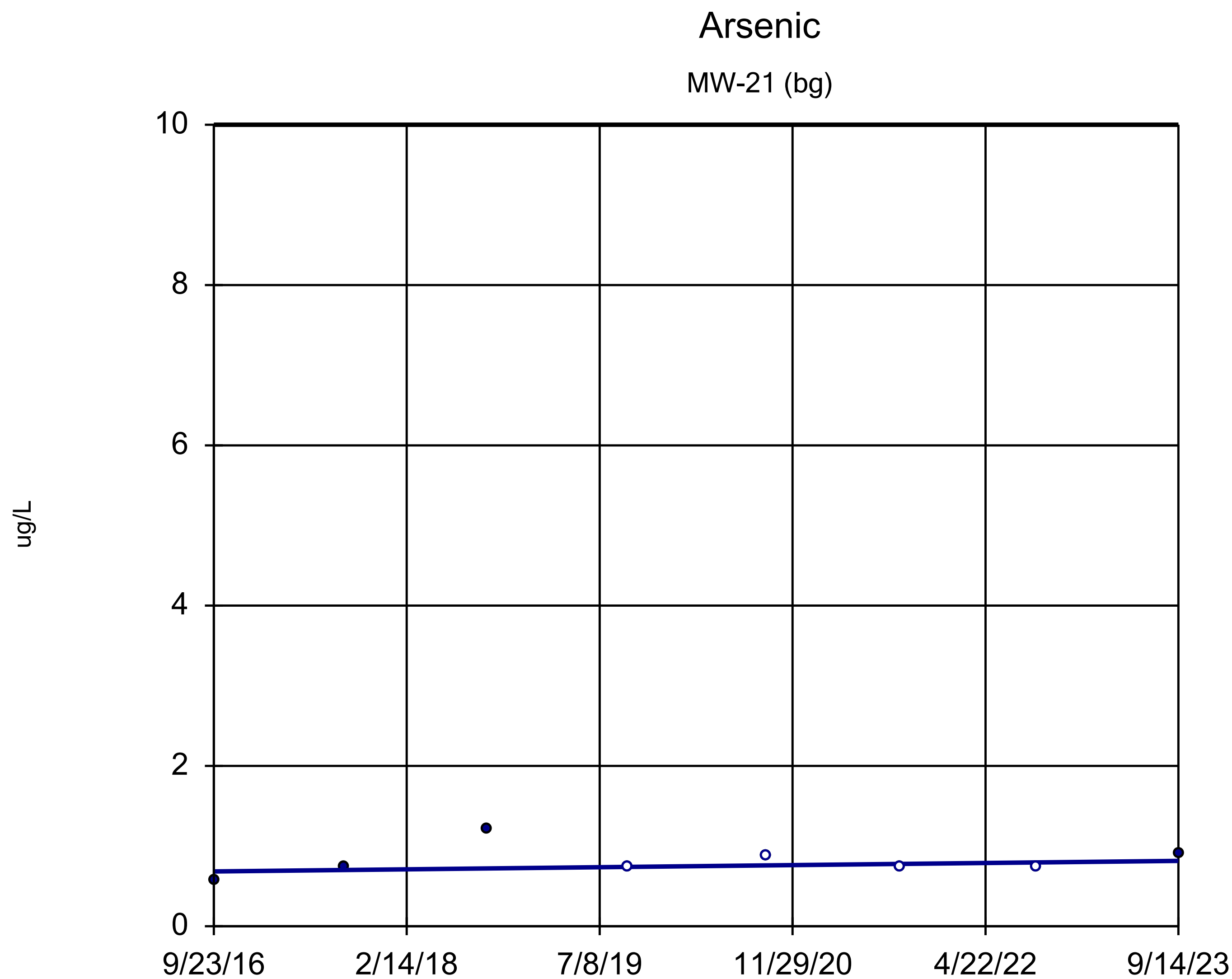
Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Sen's Slope Estimator

	MW-5
9/23/2016	0.18 (J)
9/5/2017	0.26 (J)
9/17/2018	0.33 (J)
9/23/2019	<0.75
9/22/2020	<0.88
9/9/2021	<0.75
9/7/2022	<0.75
9/13/2023	<0.53 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



n = 8

Slope = 0.01898 units per year.

Mann-Kendall statistic = 11 critical = 20

Trend not significant at 98% confidence level (α = 0.01 per tail).

MCL = 10.

Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:40 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

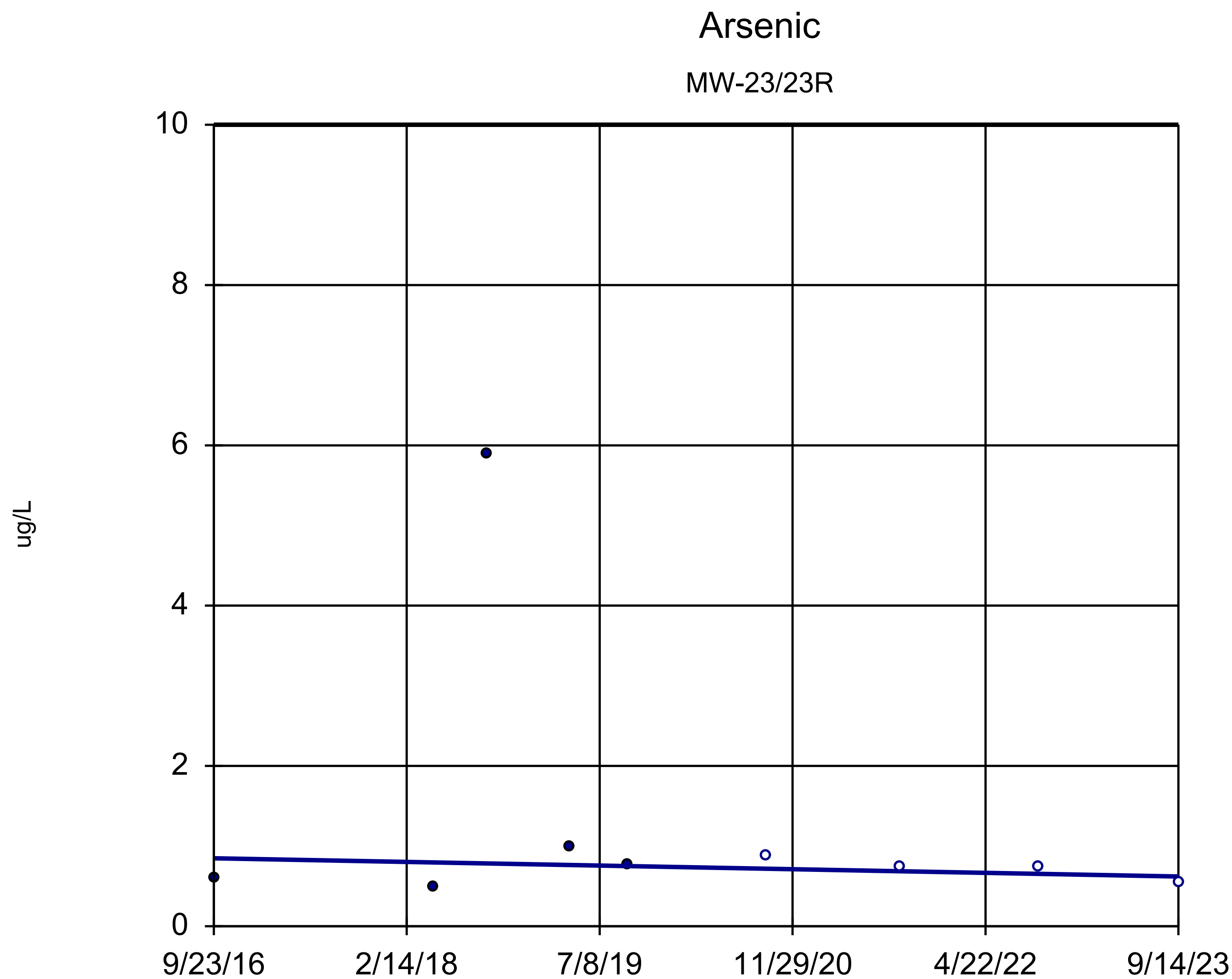
Sen's Slope Estimator

Constituent: Arsenic (ug/L)   Analysis Run 10/26/2023 3:44 PM   View: Shallow
Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-21 (bg)
9/23/2016	0.57 (J)
9/5/2017	0.73 (J)
9/17/2018	1.2
9/23/2019	<0.75
9/23/2020	<0.88
9/10/2021	<0.75
9/7/2022	<0.75
9/14/2023	0.9 (J)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



n = 9

Slope = -0.03267 units per year.

Mann-Kendall statistic = -7 critical = -23

Trend not significant at 98% confidence level (α = 0.01 per tail).

MCL = 10.

Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:40 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

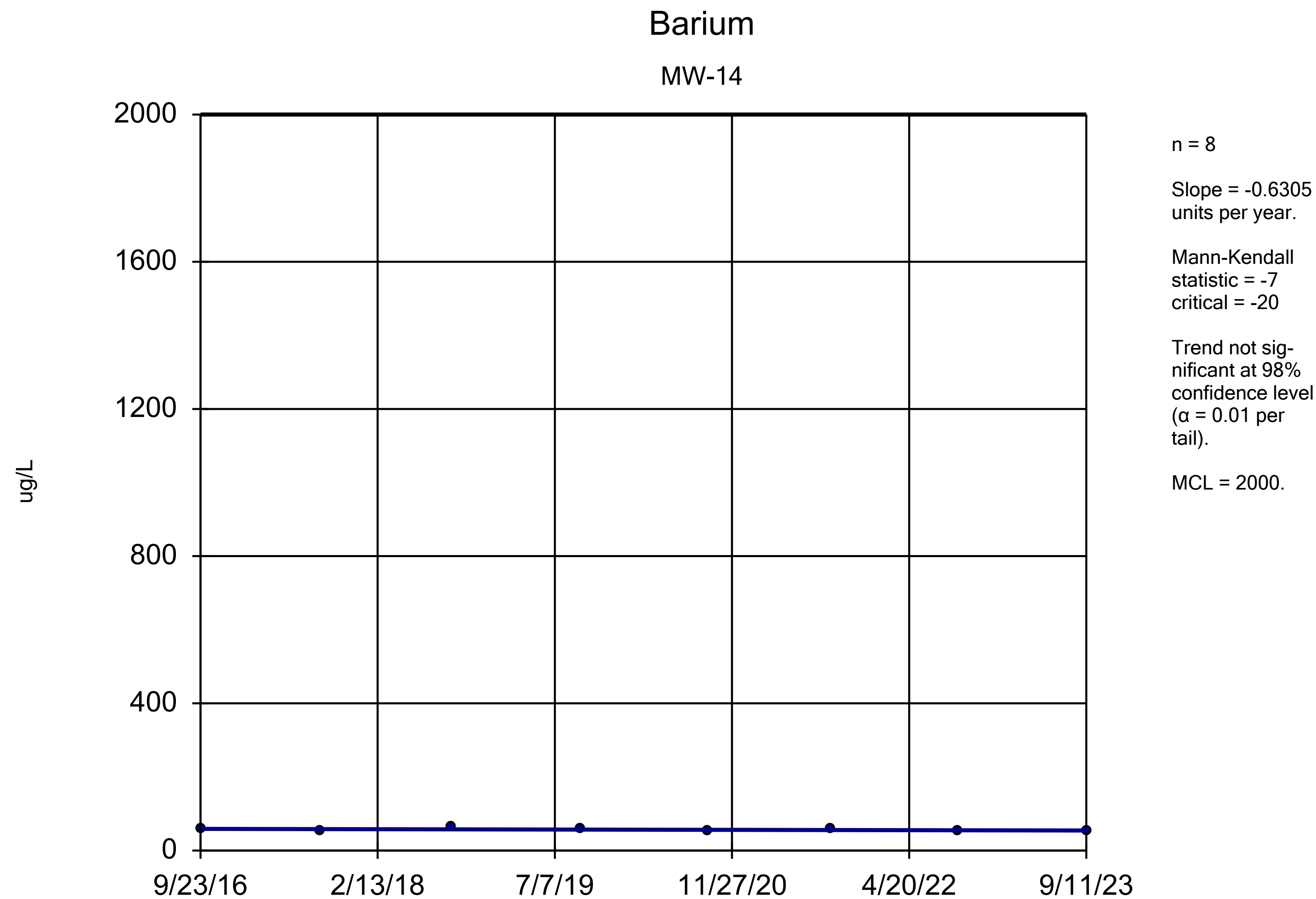
Constituent: Arsenic (ug/L) Analysis Run 10/26/2023 3:44 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-23/23R
9/23/2016	0.59 (J)
4/25/2018	0.5 (J)
9/17/2018	5.9
4/23/2019	1 (J)
9/23/2019	0.76 (J)
9/24/2020	<0.88
9/9/2021	<0.75
9/8/2022	<0.75
9/14/2023	<0.53 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band Analysis Run 10/26/2023 3:40 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

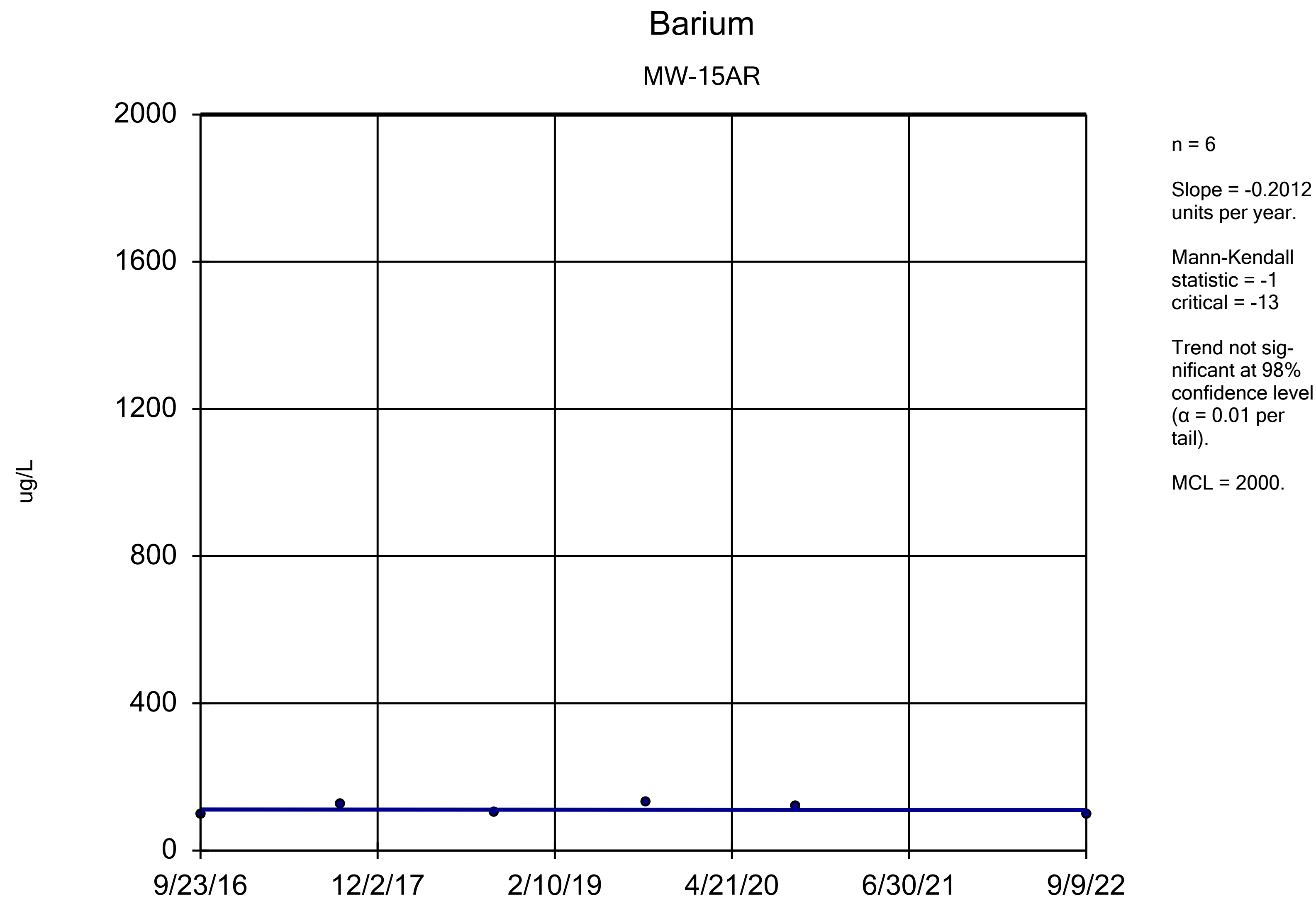
Sen's Slope Estimator

Constituent: Barium (ug/L)   Analysis Run 10/26/2023 3:44 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-14
9/23/2016	58.5
9/5/2017	54
9/17/2018	61.7
9/23/2019	59
9/22/2020	54
9/8/2021	61 (B)
9/6/2022	55
9/11/2023	52

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope Estimator   Analysis Run 10/26/2023 3:41 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

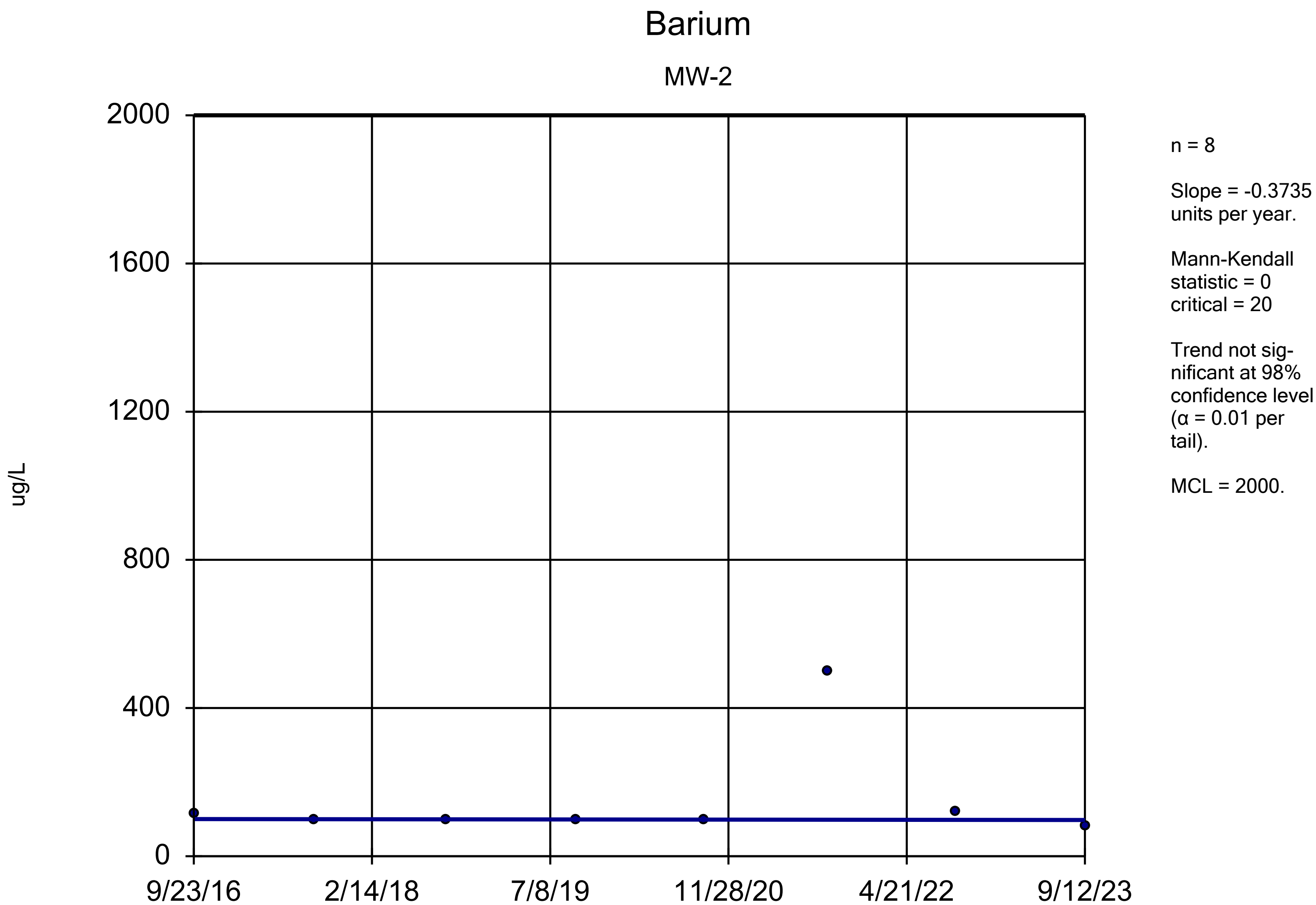
Sen's Slope Estimator

Constituent: Barium (ug/L)   Analysis Run 10/26/2023 3:44 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-15AR
9/23/2016	97.2
9/5/2017	128
9/17/2018	102
9/23/2019	130
9/24/2020	120
9/9/2022	96

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:41 PM   View: Shallow

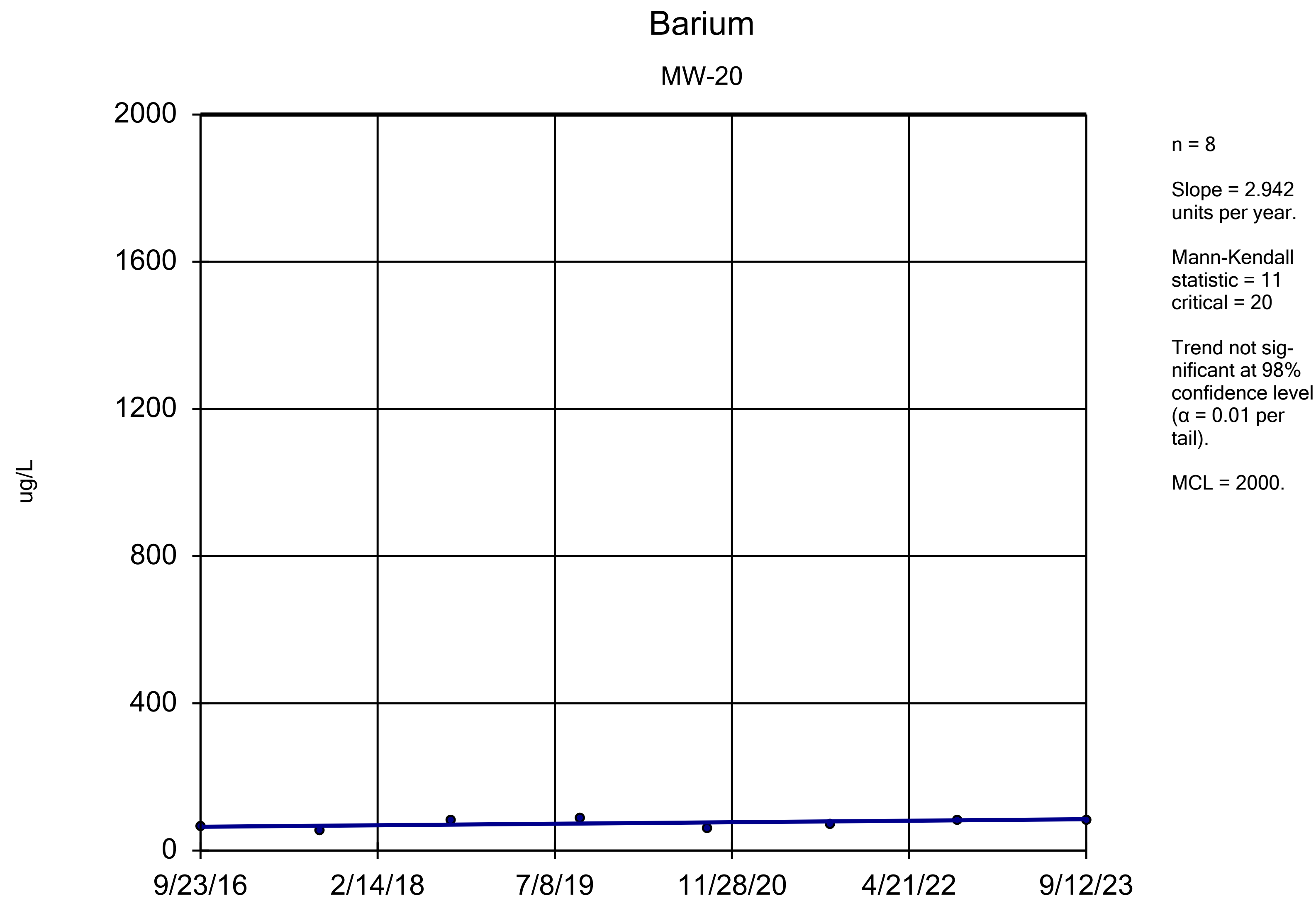
Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

Constituent: Barium (ug/L) Analysis Run 10/26/2023 3:44 PM View: Shallow
Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-2
9/23/2016	116
9/5/2017	94.8
9/17/2018	98.3
9/23/2019	100
9/22/2020	96
9/8/2021	500 (B)
9/7/2022	120
9/12/2023	82

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:41 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

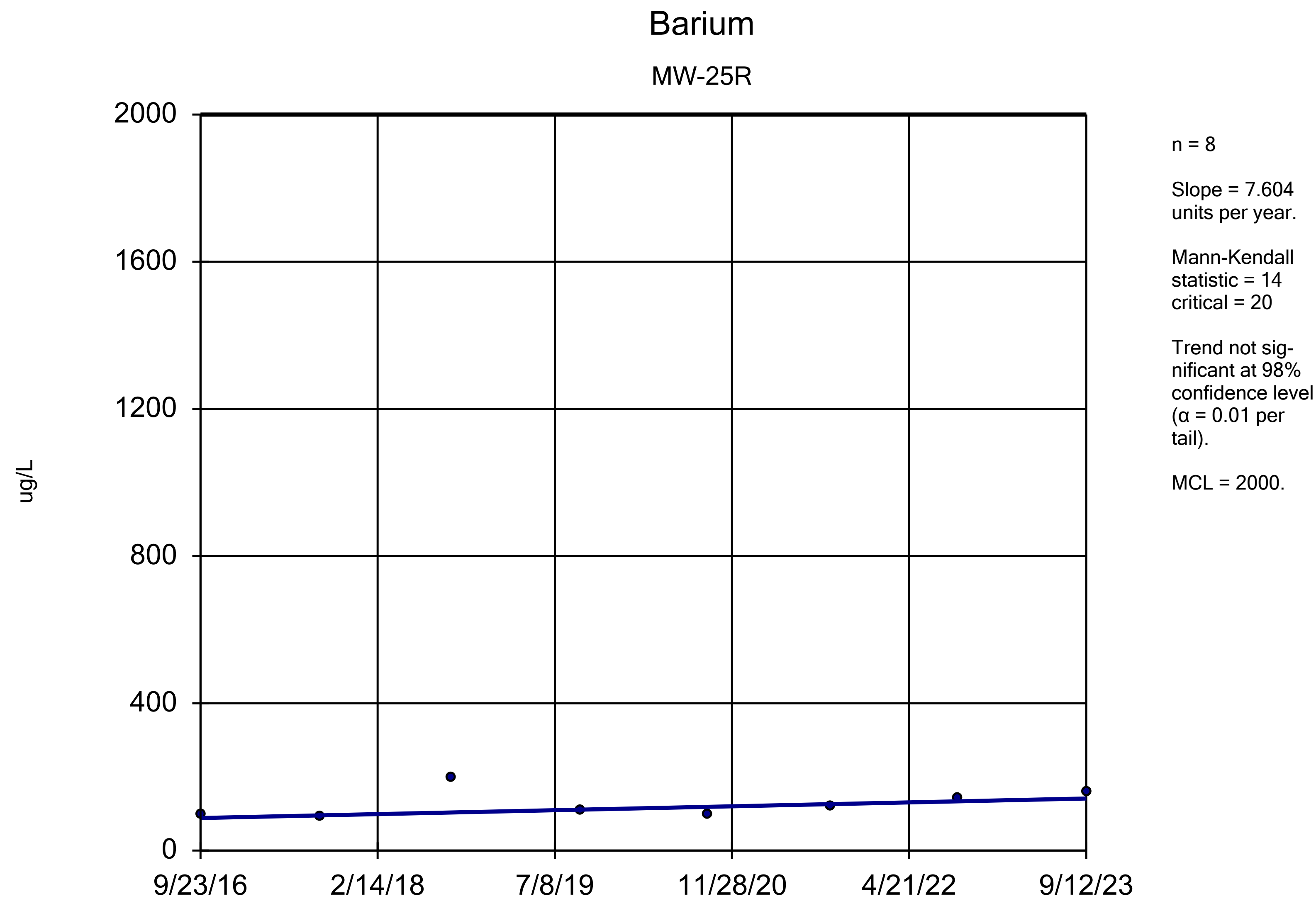
Sen's Slope Estimator

Constituent: Barium (ug/L)   Analysis Run 10/26/2023 3:44 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-20
9/23/2016	63.1
9/5/2017	52.1
9/17/2018	78.8
9/23/2019	87
9/21/2020	56
9/8/2021	71 (B)
9/6/2022	82
9/12/2023	82

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:41 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

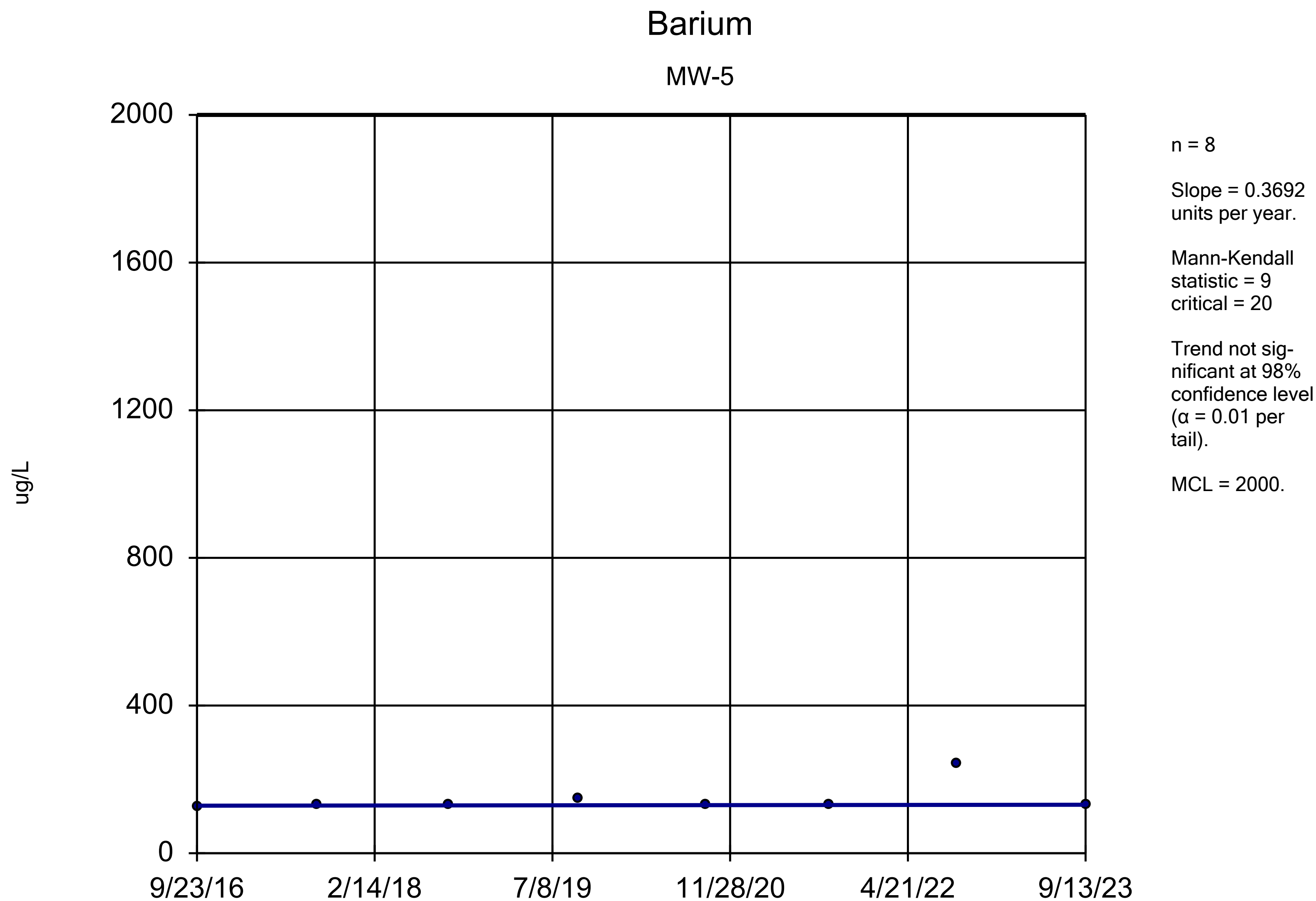
Sen's Slope Estimator

Constituent: Barium (ug/L)   Analysis Run 10/26/2023 3:44 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-25R
9/23/2016	96.5
9/5/2017	93.8
9/17/2018	200
9/23/2019	110
9/21/2020	99
9/7/2021	120 (B)
9/6/2022	140
9/12/2023	160

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:41 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

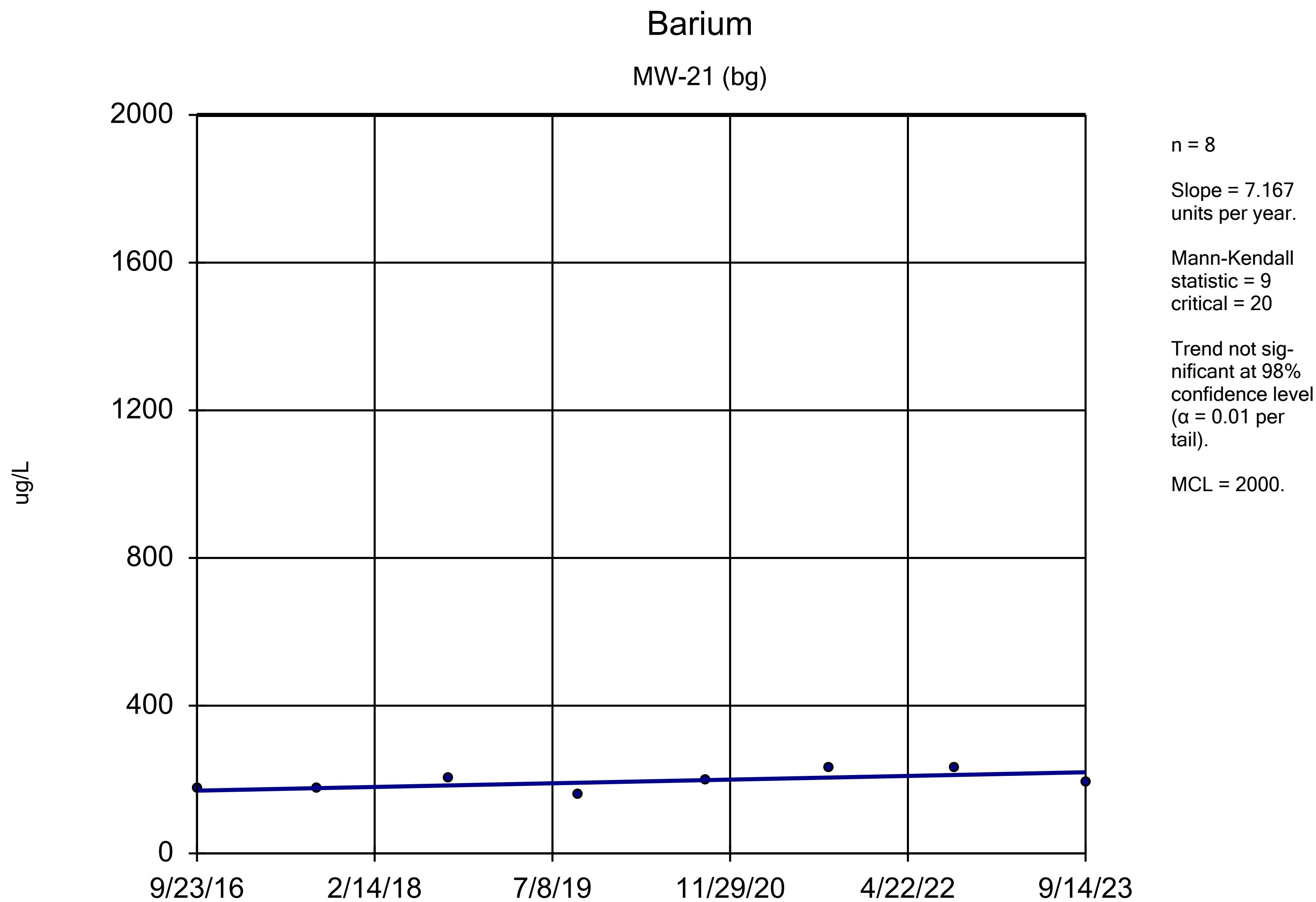
Sen's Slope Estimator

Constituent: Barium (ug/L)   Analysis Run 10/26/2023 3:44 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-5
9/23/2016	128
9/5/2017	131
9/17/2018	129
9/23/2019	150
9/22/2020	130
9/9/2021	130 (B)
9/7/2022	240
9/13/2023	130

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:41 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

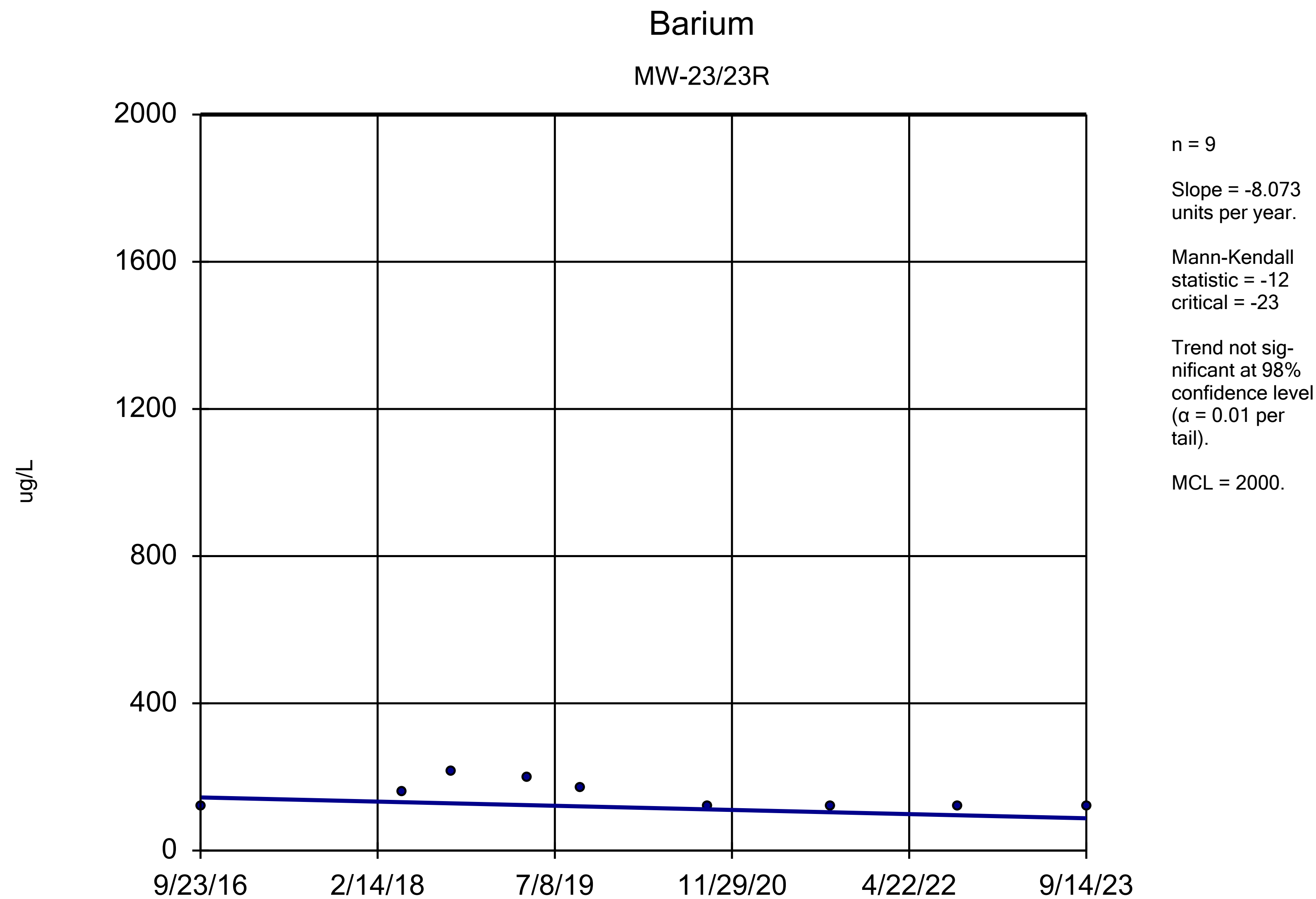
Sen's Slope Estimator

Constituent: Barium (ug/L)   Analysis Run 10/26/2023 3:44 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-21 (bg)
9/23/2016	178
9/5/2017	173
9/17/2018	203
9/23/2019	160
9/23/2020	200
9/10/2021	230 (B)
9/7/2022	230
9/14/2023	190

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:41 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

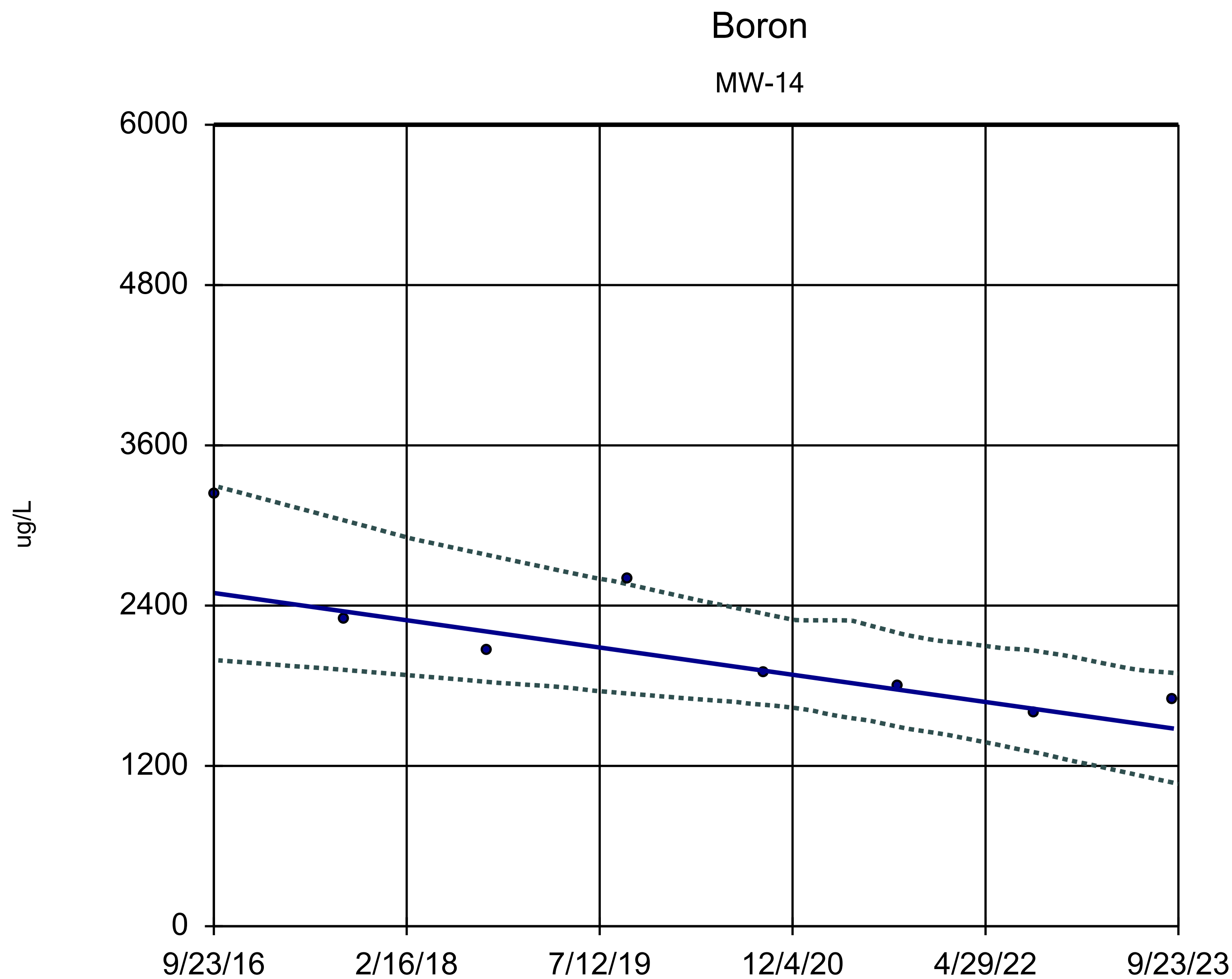
Sen's Slope Estimator

Constituent: Barium (ug/L) Analysis Run 10/26/2023 3:44 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-23/23R
9/23/2016	120
4/25/2018	159
9/17/2018	217
4/23/2019	200
9/23/2019	170
9/24/2020	120
9/9/2021	120 (B)
9/8/2022	120
9/14/2023	120

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



n = 8

Slope = -145.6 units per year.

Mann-Kendall statistic = -22 critical = -20

Decreasing trend significant at 98% confidence level (α = 0.01 per tail).

Confidence band is below IA Statewide (6000).

Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:41 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

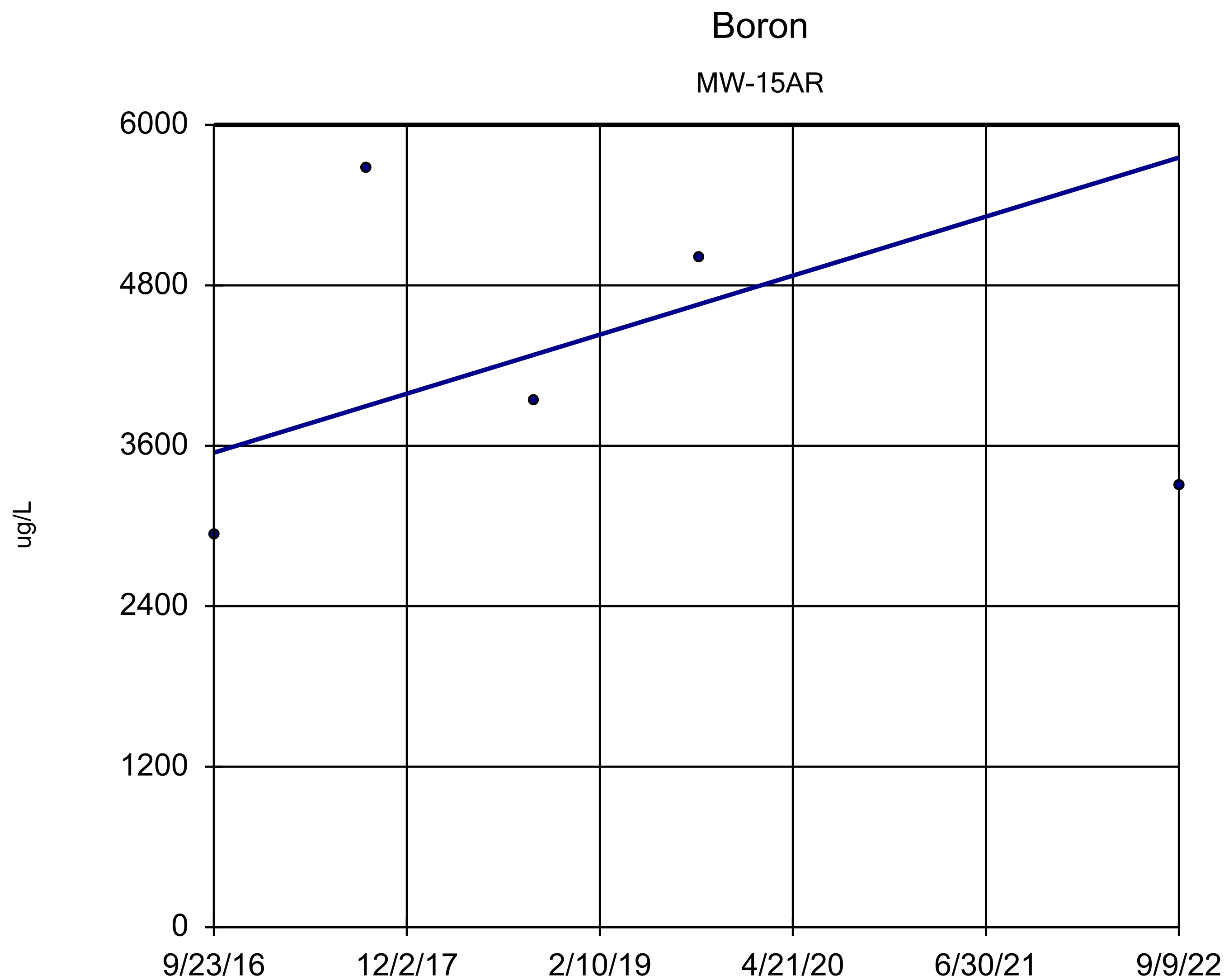
Sen's Slope Estimator

Constituent: Boron (ug/L)   Analysis Run 10/26/2023 3:44 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-14	LCL	UCL
9/23/2016	3240	1993	3298
9/5/2017	2290	1919	3037
9/17/2018	2070	1830	2780
9/23/2019	2600	1743	2561
9/22/2020	1900	1657	2338
9/8/2021	1800	1494	2197
9/6/2022	1600	1303	2064
9/11/2023	1700	1073	1896

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



n = 6

Slope = 369.9 units per year.

Mann-Kendall statistic = 3 critical = 13

Trend not significant at 98% confidence level (α = 0.01 per tail).

IA Statewide = 6000.

Sen's Slope Estimator Analysis Run 10/26/2023 3:41 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

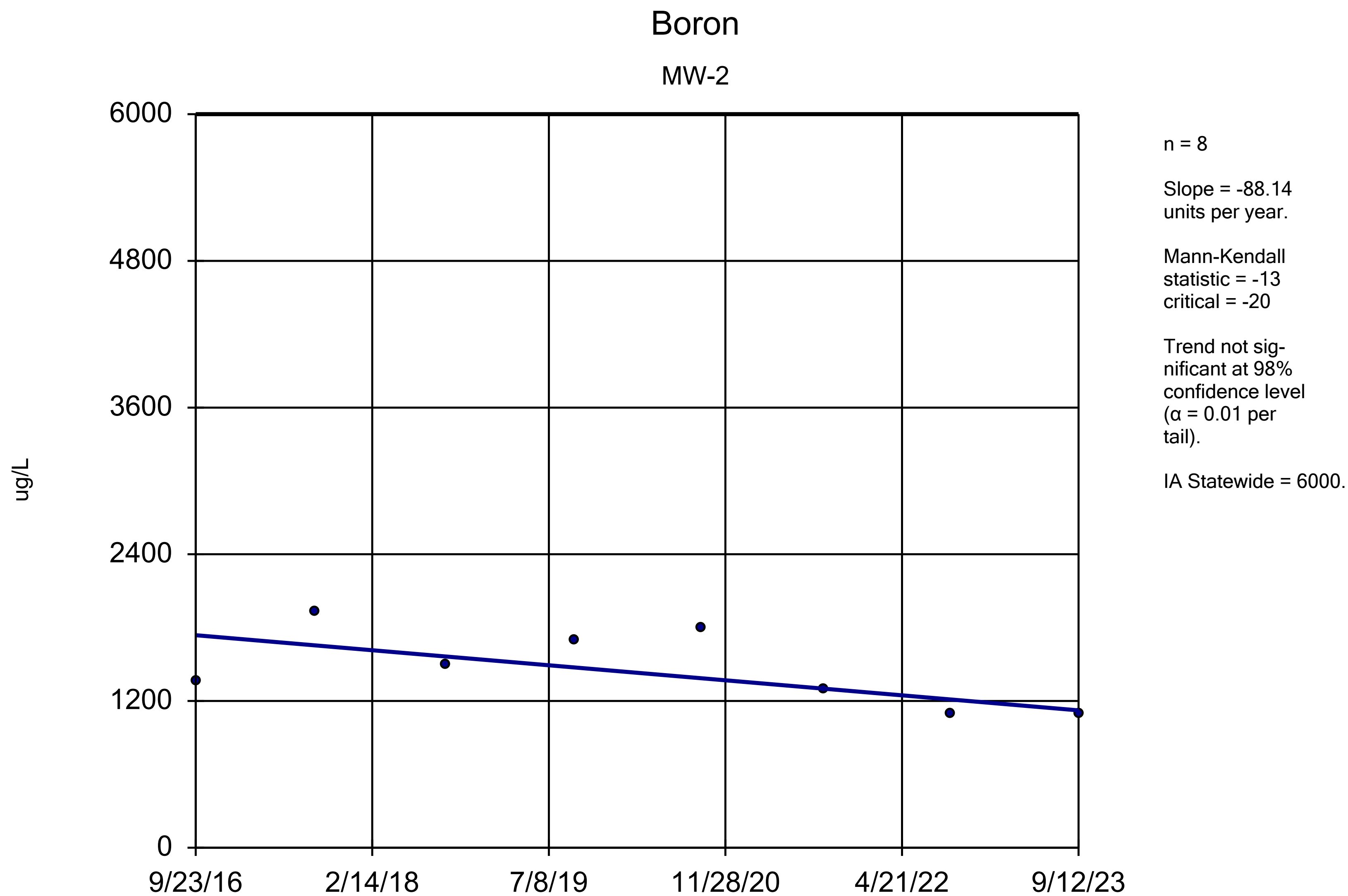
Sen's Slope Estimator

Constituent: Boron (ug/L)   Analysis Run 10/26/2023 3:44 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-15AR
9/23/2016	2930
9/5/2017	5670
9/17/2018	3940
9/23/2019	5000
9/24/2020	6800
9/9/2022	3300

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:41 PM   View: Shallow

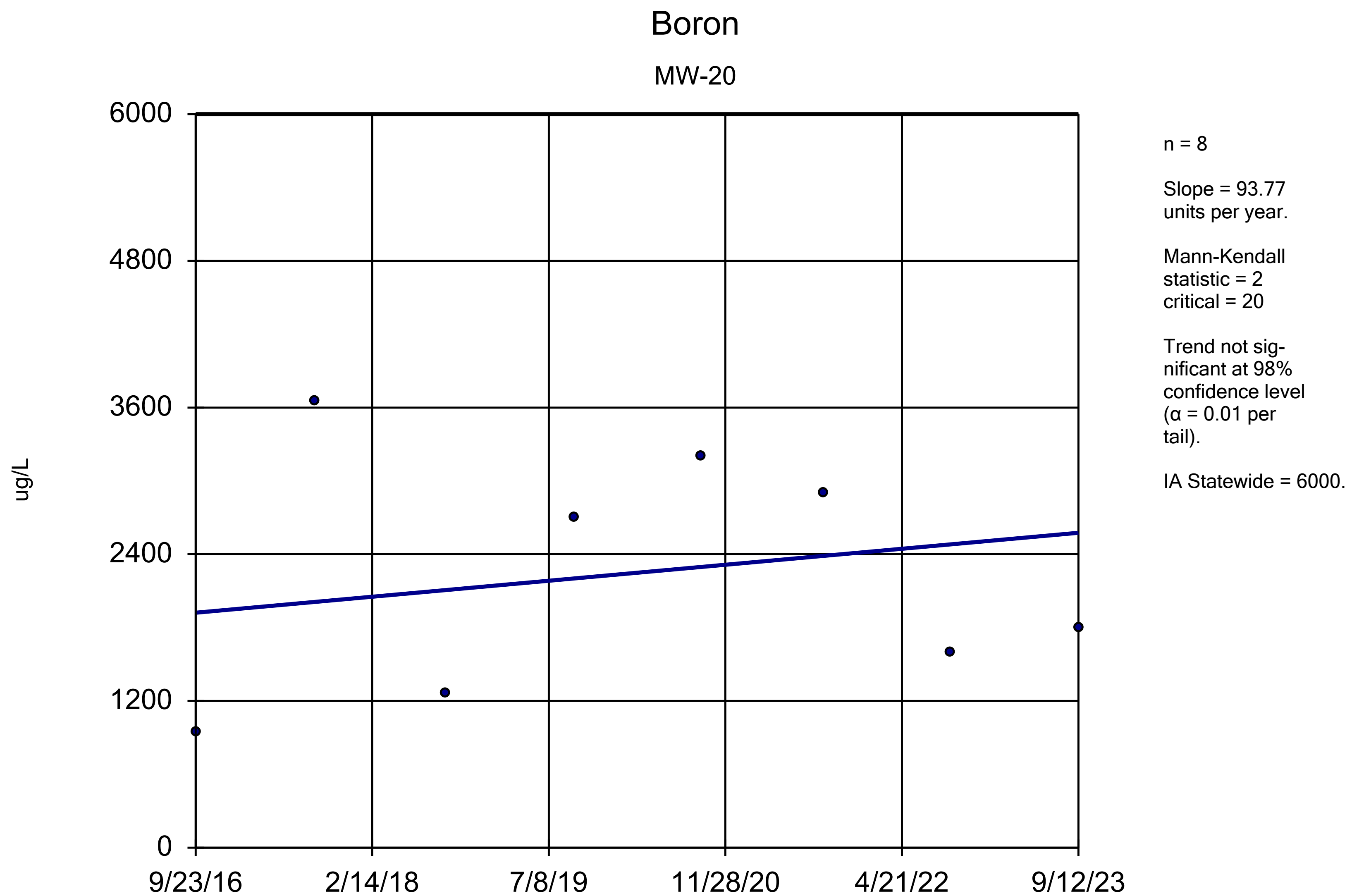
Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

Constituent: Boron (ug/L)   Analysis Run 10/26/2023 3:44 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-2
9/23/2016	1370
9/5/2017	1930
9/17/2018	1490
9/23/2019	1700
9/22/2020	1800
9/8/2021	1300
9/7/2022	1100
9/12/2023	1100



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:41 PM   View: Shallow

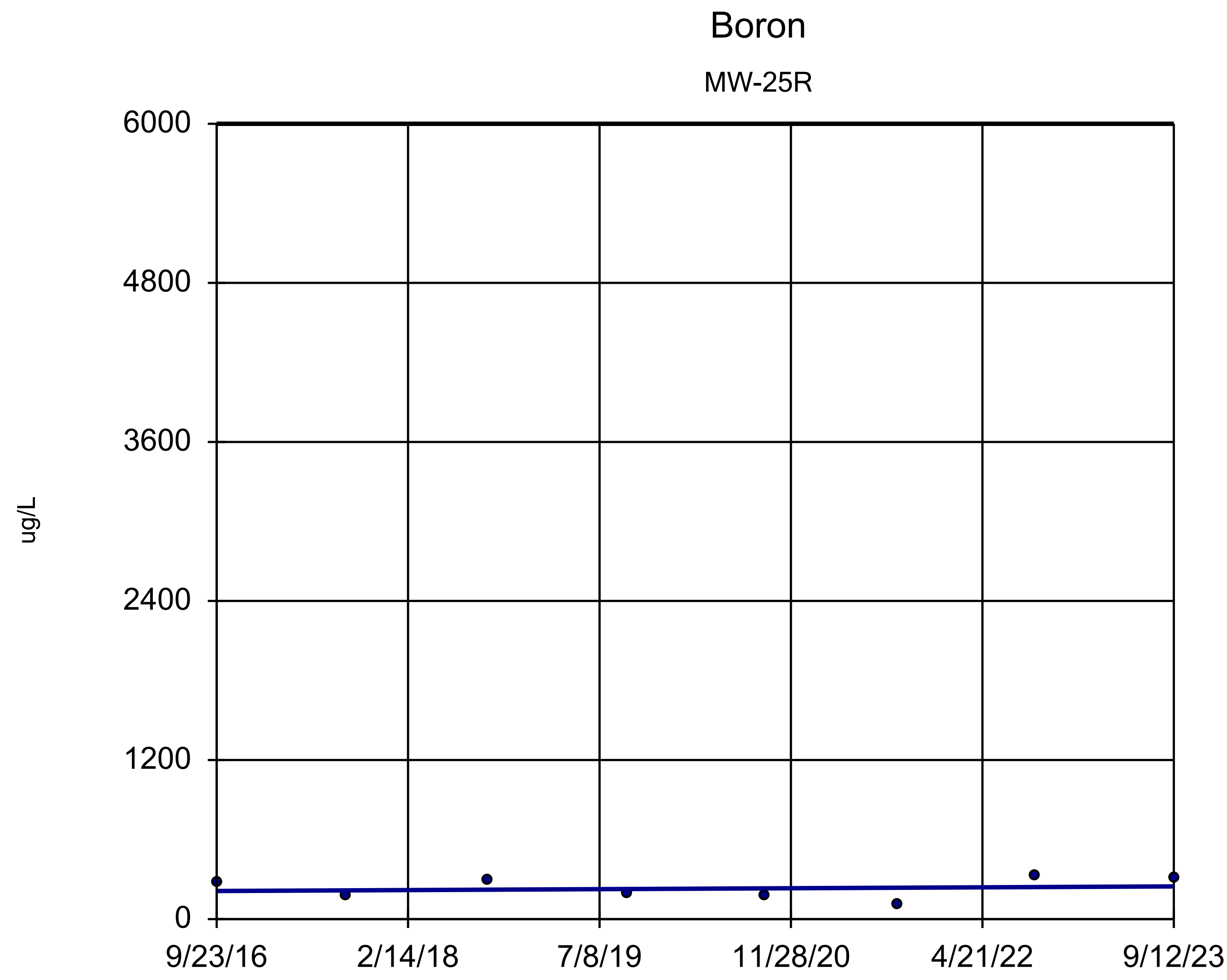
Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

Constituent: Boron (ug/L)   Analysis Run 10/26/2023 3:44 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-20
9/23/2016	939
9/5/2017	3660
9/17/2018	1260
9/23/2019	2700
9/21/2020	3200
9/8/2021	2900
9/6/2022	1600
9/12/2023	1800



n = 8

Slope = 4.932
units per year.

Mann-Kendall
statistic = 2
critical = 20

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

IA Statewide = 6000.

Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:41 PM   View: Shallow

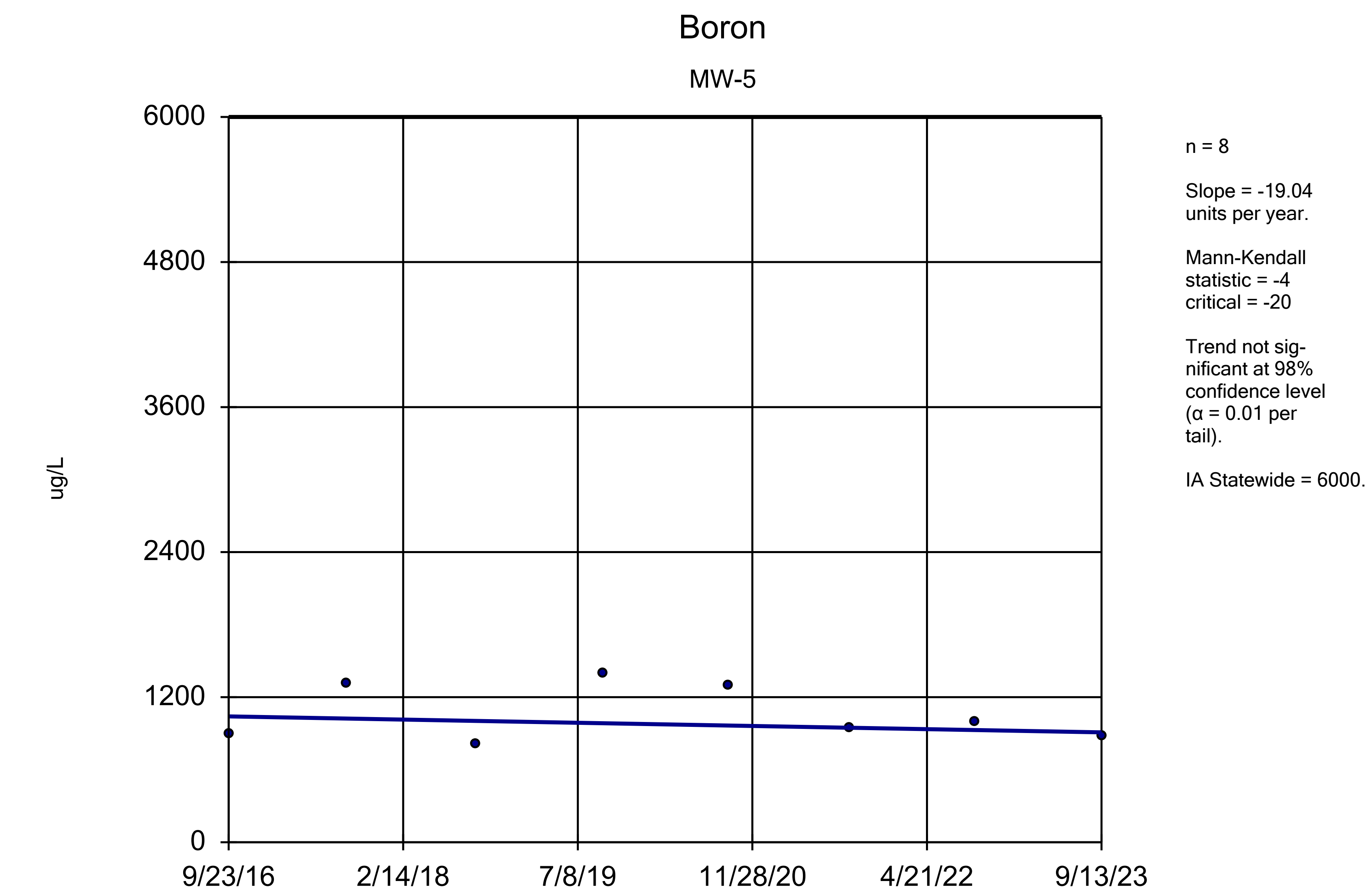
Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

Constituent: Boron (ug/L) Analysis Run 10/26/2023 3:44 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-25R
9/23/2016	269
9/5/2017	178
9/17/2018	290
9/23/2019	190 (J)
9/21/2020	170
9/7/2021	110
9/6/2022	320
9/12/2023	310



Sen's Slope and 95% Confidence Band Analysis Run 10/26/2023 3:41 PM View: Shallow

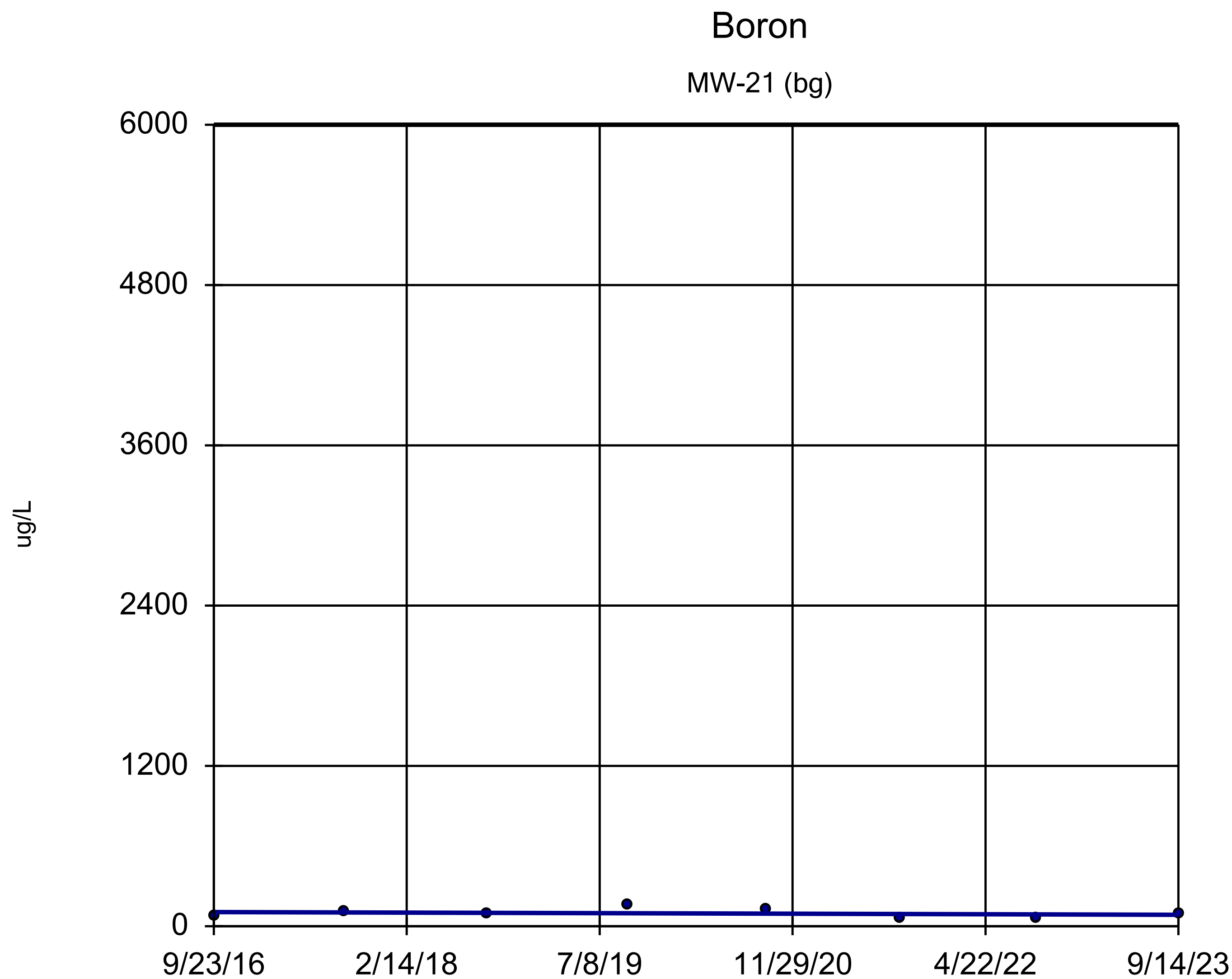
Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Sen's Slope Estimator

Constituent: Boron (ug/L)   Analysis Run 10/26/2023 3:44 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-5
9/23/2016	890
9/5/2017	1310
9/17/2018	809
9/23/2019	1400
9/22/2020	1300
9/9/2021	950
9/7/2022	1000
9/13/2023	880



n = 8

Slope = -2.838
units per year.

Mann-Kendall
statistic = -5
critical = -20

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

IA Statewide = 6000.

Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:41 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

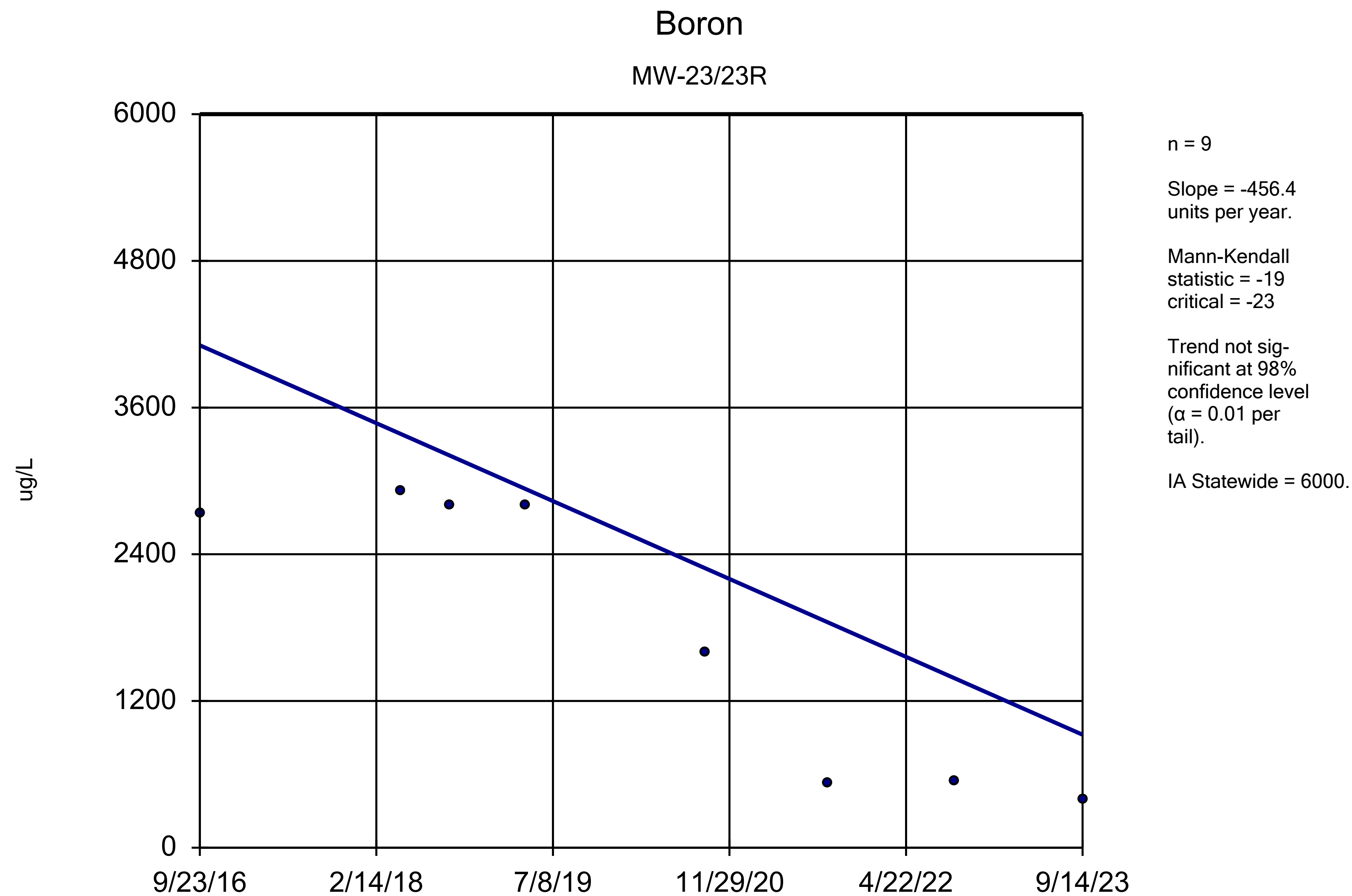
Sen's Slope Estimator

Constituent: Boron (ug/L) Analysis Run 10/26/2023 3:44 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-21 (bg)
9/23/2016	81 (J)
9/5/2017	110
9/17/2018	97.6 (J)
9/23/2019	160 (J,B)
9/23/2020	120
9/10/2021	63 (J)
9/7/2022	63 (J)
9/14/2023	94 (J)

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:41 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

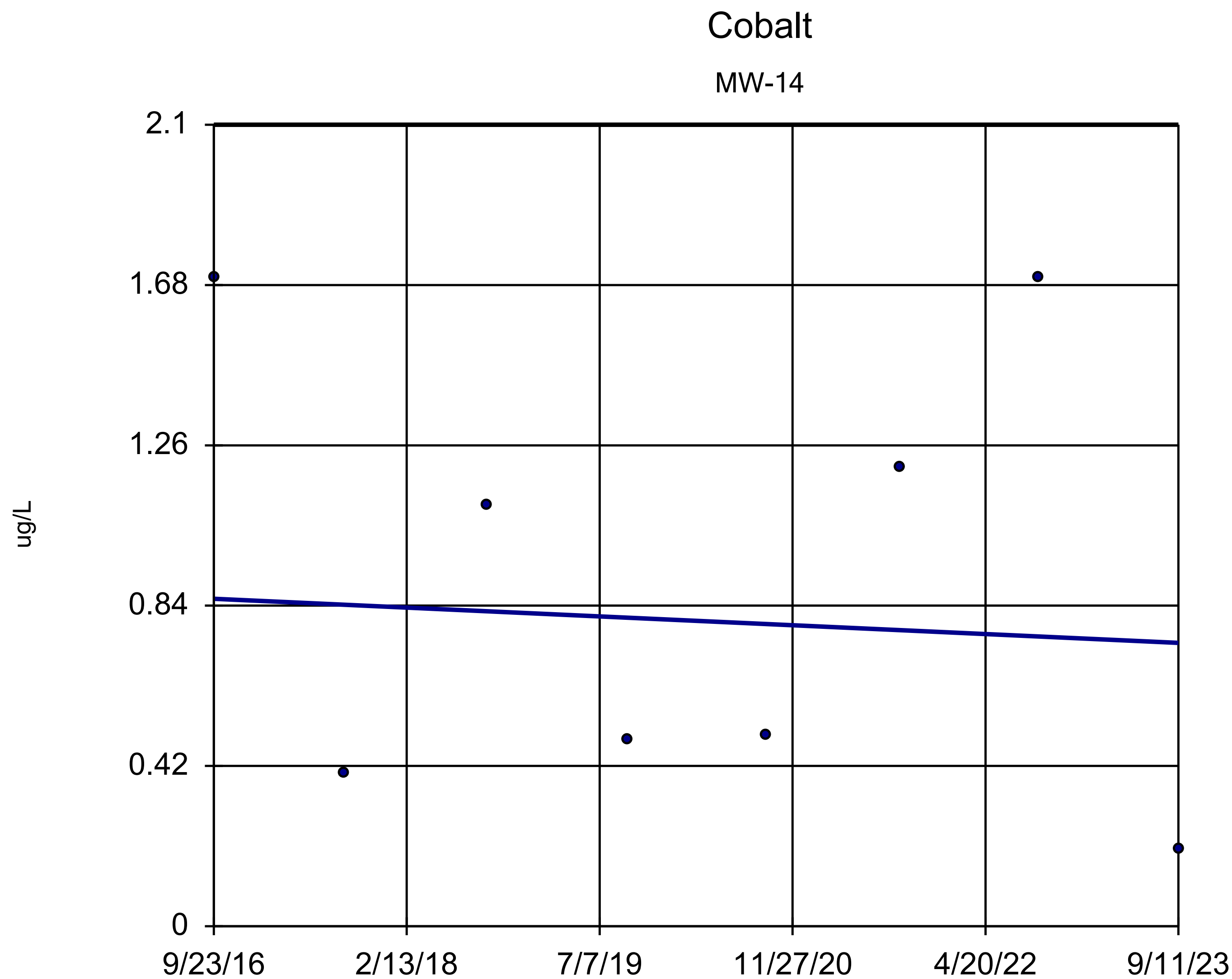
Sen's Slope Estimator

Constituent: Boron (ug/L)   Analysis Run 10/26/2023 3:44 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-23/23R
9/23/2016	2740
4/25/2018	2910
9/17/2018	2800
4/23/2019	2800
9/23/2019	22000 (B)
9/24/2020	1600
9/9/2021	520
9/8/2022	540
9/14/2023	400

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



n = 8

Slope = -0.01661 units per year.

Mann-Kendall statistic = -1 critical = -20

Trend not significant at 98% confidence level (α = 0.01 per tail).

IA Statewide = 2.1.

Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:41 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

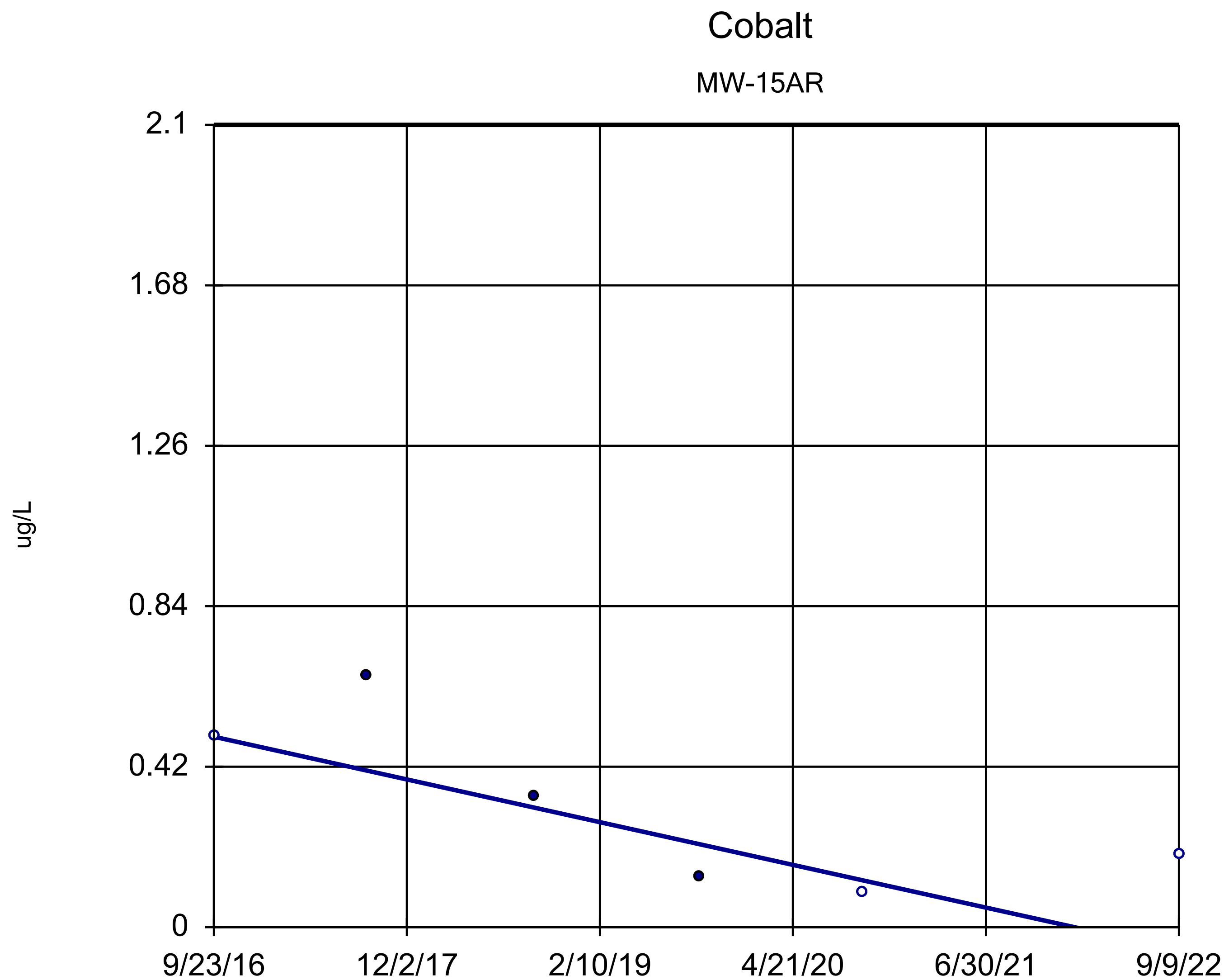
Sen's Slope Estimator

Constituent: Cobalt (ug/L)   Analysis Run 10/26/2023 3:44 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-14
9/23/2016	1.7
9/5/2017	0.4 (J)
9/17/2018	1.1
9/23/2019	0.49 (J)
9/22/2020	0.5
9/8/2021	1.2
9/6/2022	1.7
9/11/2023	0.2 (J)

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



n = 6

Slope = -0.09374 units per year.

Mann-Kendall statistic = -9
critical = -13

Trend not significant at 98% confidence level (α = 0.01 per tail).

IA Statewide = 2.1.

Sen's Slope Estimator   Analysis Run 10/26/2023 3:41 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

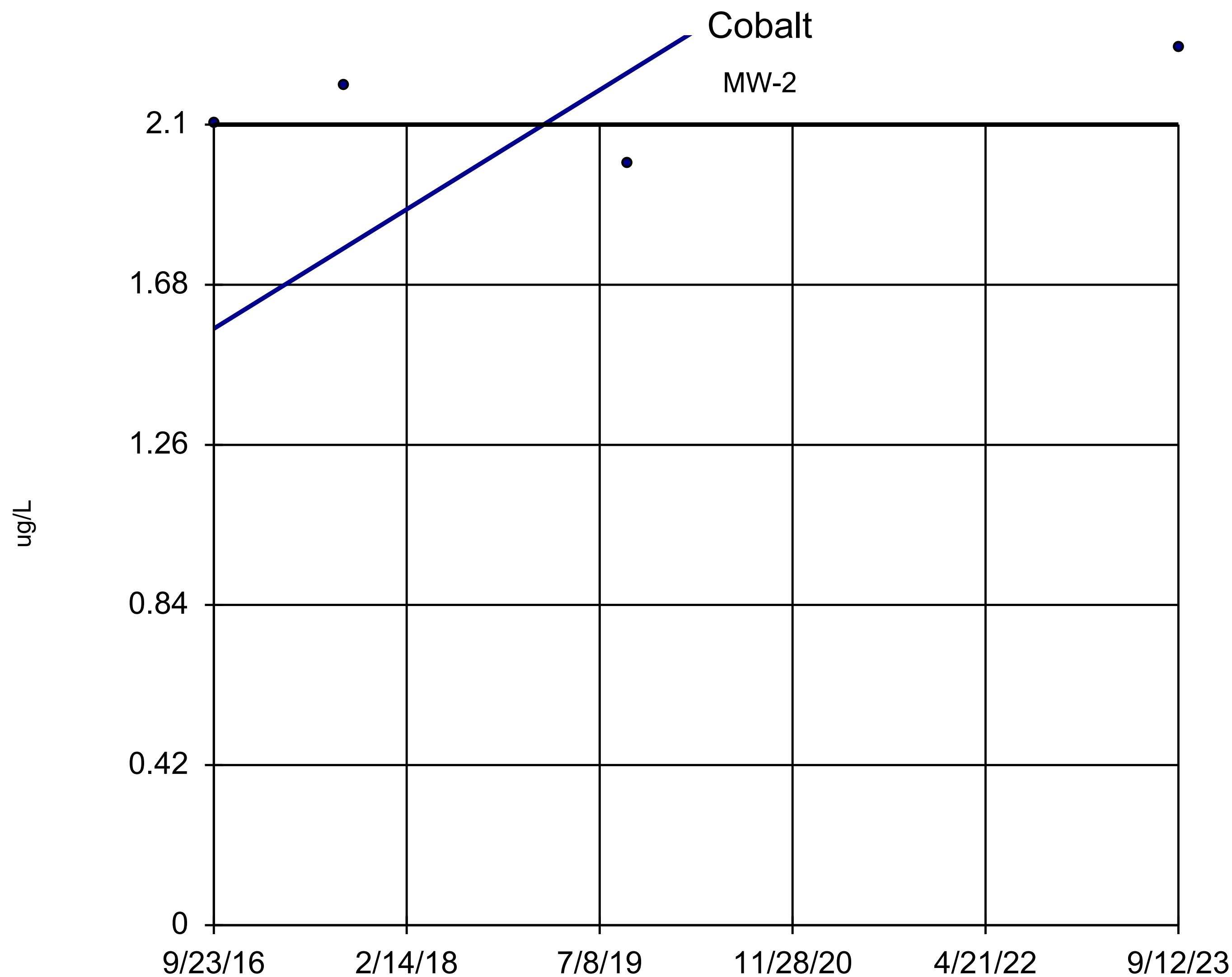
Sen's Slope Estimator

Constituent: Cobalt (ug/L) Analysis Run 10/26/2023 3:44 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-15AR
9/23/2016	<0.5
9/5/2017	0.66 (J)
9/17/2018	0.34 (J)
9/23/2019	0.13 (J)
9/24/2020	<0.091
9/9/2022	<0.19

ND substitution: RL or RL/2 if <15% NDs.



n = 8

Slope = 0.2244 units per year.

Mann-Kendall statistic = 12 critical = 20

Trend not significant at 98% confidence level (α = 0.01 per tail).

IA Statewide = 2.1.

Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:41 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

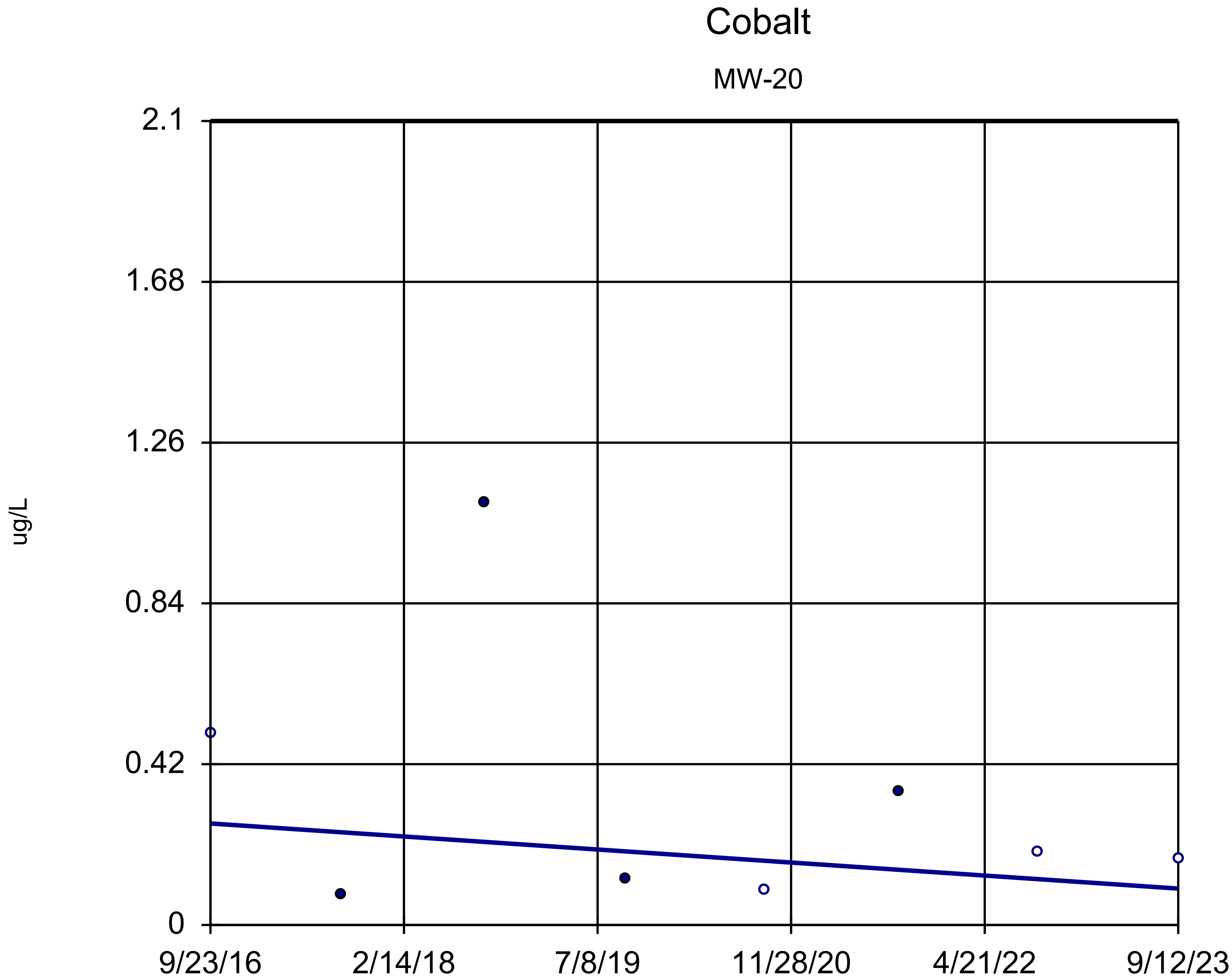
Sen's Slope Estimator

Constituent: Cobalt (ug/L)   Analysis Run 10/26/2023 3:44 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-2
9/23/2016	2.1
9/5/2017	2.2
9/17/2018	2.4
9/23/2019	2
9/22/2020	4
9/8/2021	5
9/7/2022	4.5 (D)
9/12/2023	2.3

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



n = 8

Slope = -0.02438 units per year.

Mann-Kendall statistic = -2 critical = -20

Trend not significant at 98% confidence level (α = 0.01 per tail).

IA Statewide = 2.1.

Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:41 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

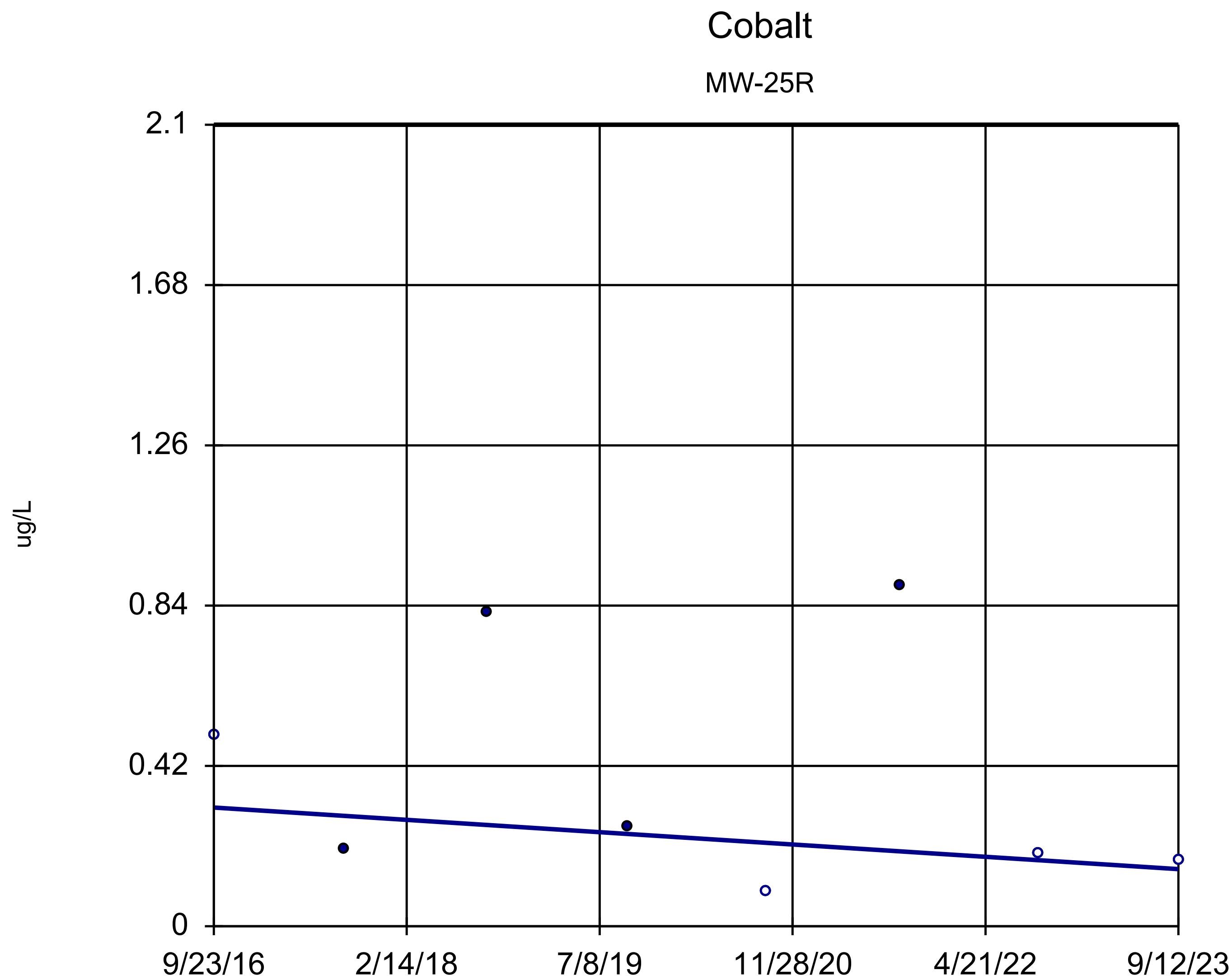
Constituent: Cobalt (ug/L) Analysis Run 10/26/2023 3:44 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-20
9/23/2016	<0.5
9/5/2017	0.078 (J)
9/17/2018	1.1
9/23/2019	0.12 (J)
9/21/2020	<0.091
9/8/2021	0.35 (J)
9/6/2022	<0.19
9/12/2023	<0.17 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



n = 8

Slope = -0.02317 units per year.

Mann-Kendall statistic = -8 critical = -20

Trend not significant at 98% confidence level (α = 0.01 per tail).

IA Statewide = 2.1.

Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:41 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

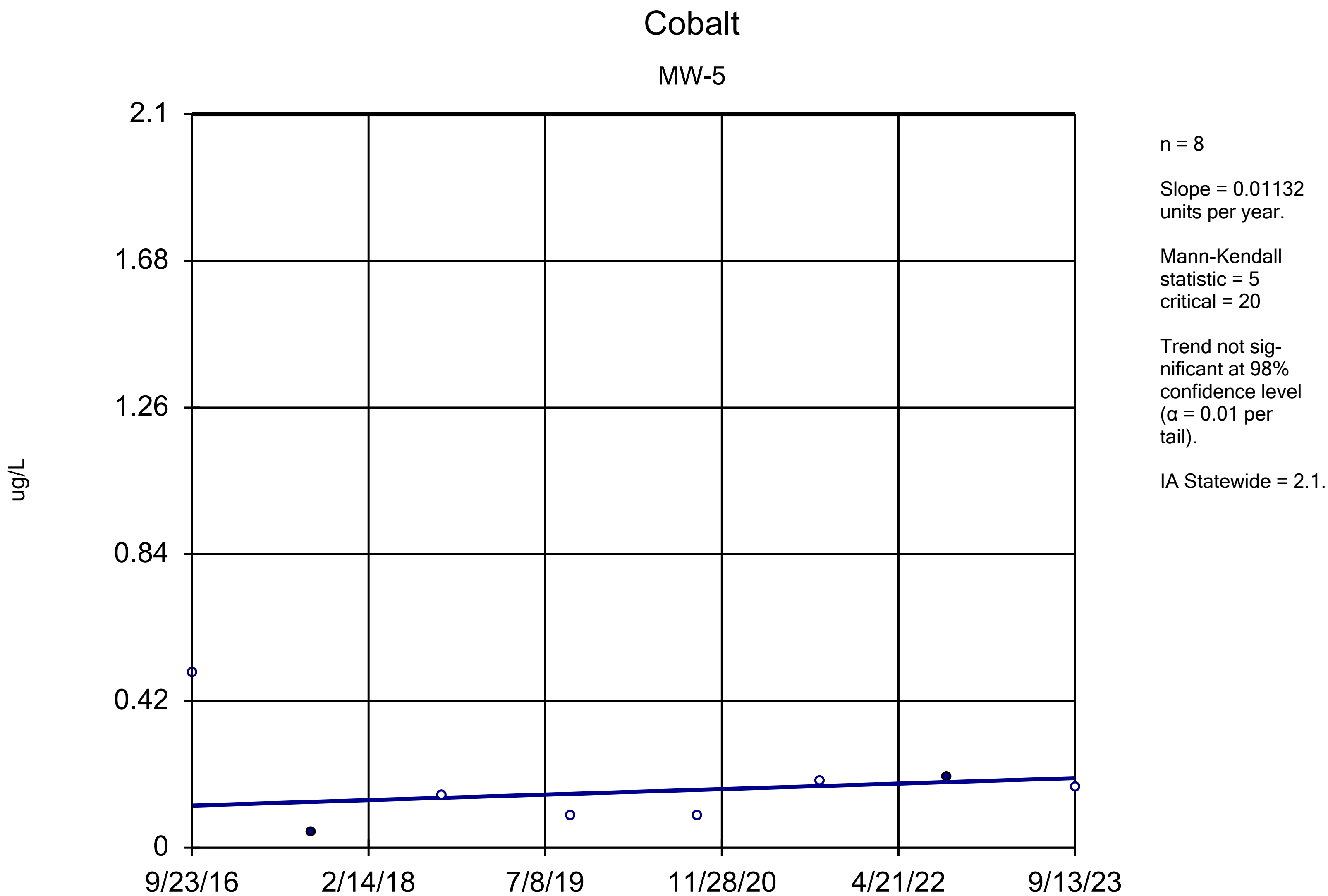
Constituent: Cobalt (ug/L) Analysis Run 10/26/2023 3:44 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-25R
9/23/2016	<0.5
9/5/2017	0.2 (J)
9/17/2018	0.82 (J)
9/23/2019	0.26 (J)
9/21/2020	<0.091
9/7/2021	0.89
9/6/2022	<0.19
9/12/2023	<0.17 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band Analysis Run 10/26/2023 3:41 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Sen's Slope Estimator

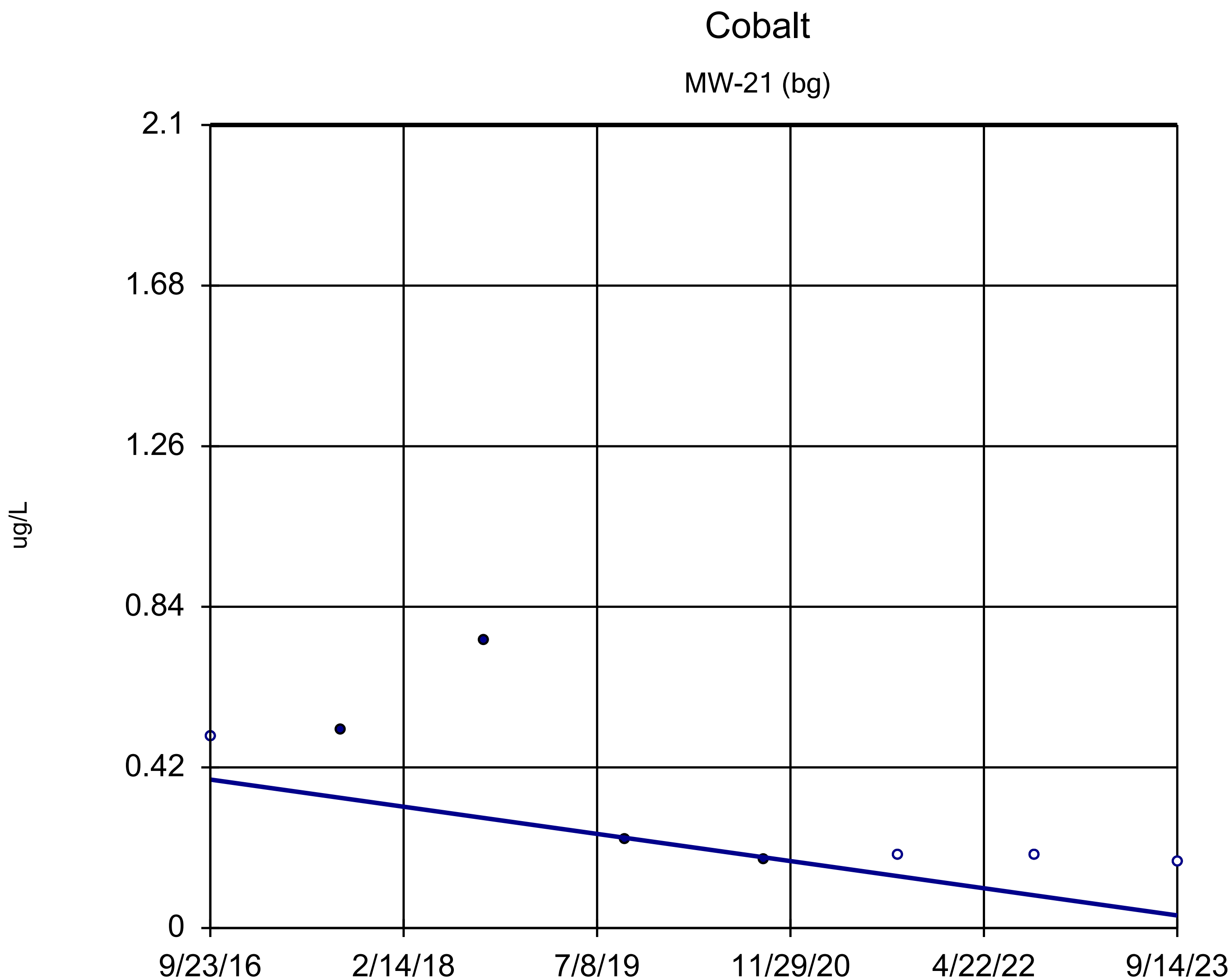
Constituent: Cobalt (ug/L)   Analysis Run 10/26/2023 3:44 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-5
9/23/2016	<0.5
9/5/2017	0.043 (J)
9/17/2018	<0.15
9/23/2019	<0.091
9/22/2020	<0.091
9/9/2021	<0.19
9/7/2022	0.2 (J)
9/13/2023	<0.17 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



n = 8

Slope = -0.05094 units per year.

Mann-Kendall statistic = -17 critical = -20

Trend not significant at 98% confidence level (α = 0.01 per tail).

IA Statewide = 2.1.

Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:41 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

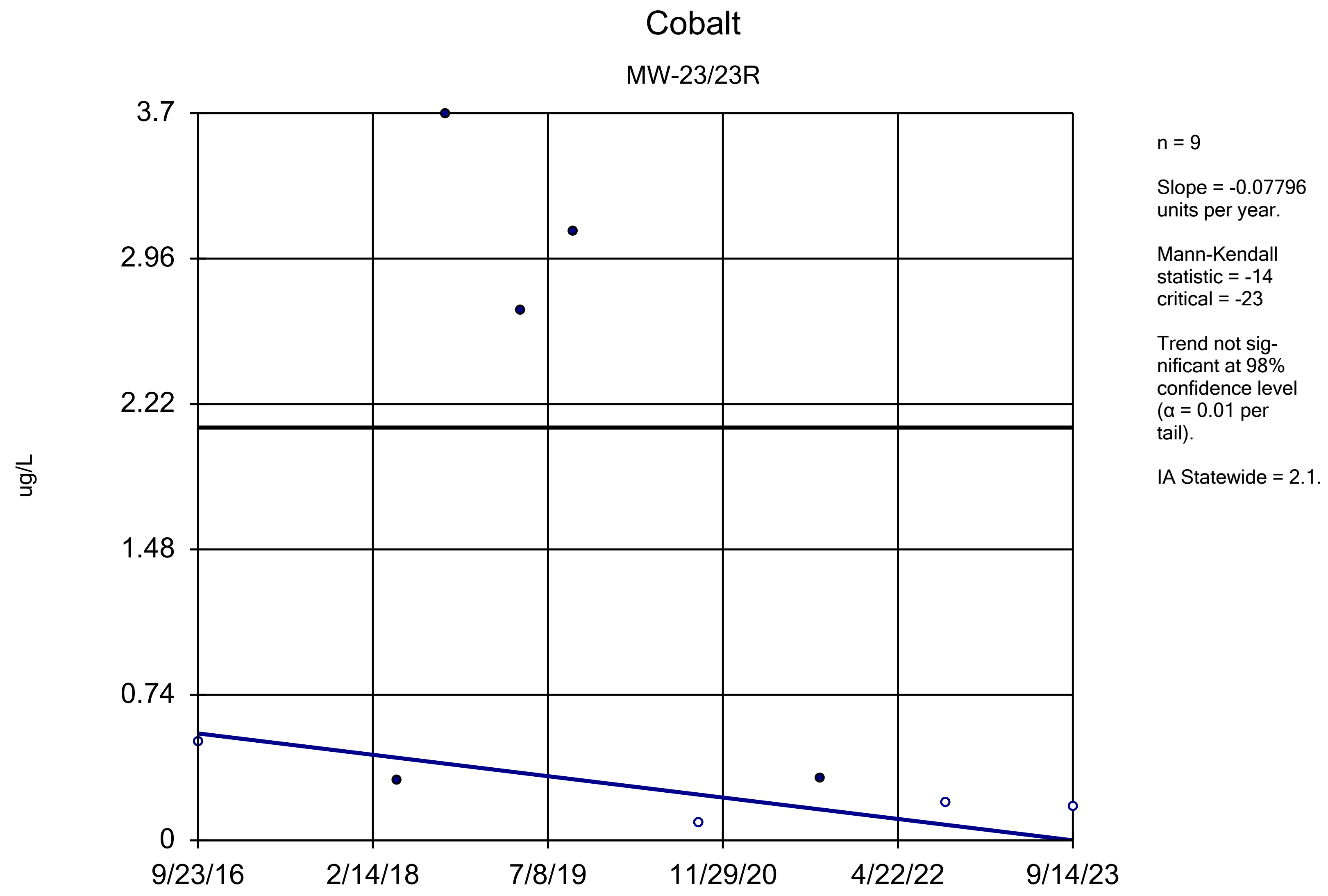
Sen's Slope Estimator

Constituent: Cobalt (ug/L) Analysis Run 10/26/2023 3:44 PM View: Shallow
Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-21 (bg)
9/23/2016	<0.5
9/5/2017	0.52 (J)
9/17/2018	0.75 (J)
9/23/2019	0.23 (J)
9/23/2020	0.18 (J)
9/10/2021	<0.19
9/7/2022	<0.19
9/14/2023	<0.17 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band Analysis Run 10/26/2023 3:41 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Sen's Slope Estimator

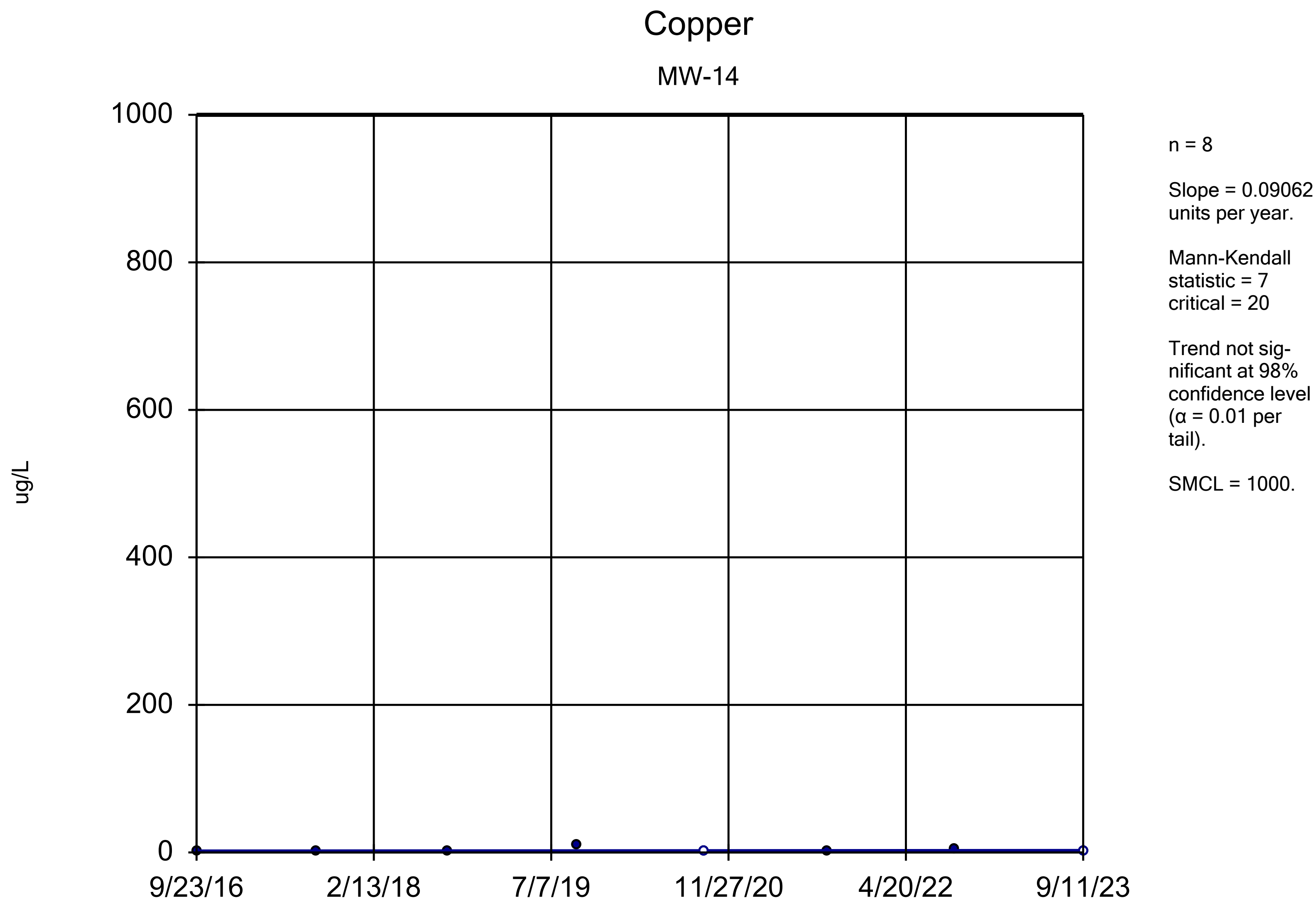
Constituent: Cobalt (ug/L)   Analysis Run 10/26/2023 3:44 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-23/23R
9/23/2016	<0.5
4/25/2018	0.3 (J)
9/17/2018	3.7
4/23/2019	2.7
9/23/2019	3.1
9/24/2020	<0.091
9/9/2021	0.31 (J)
9/8/2022	<0.19
9/14/2023	<0.17 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band Analysis Run 10/26/2023 3:41 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

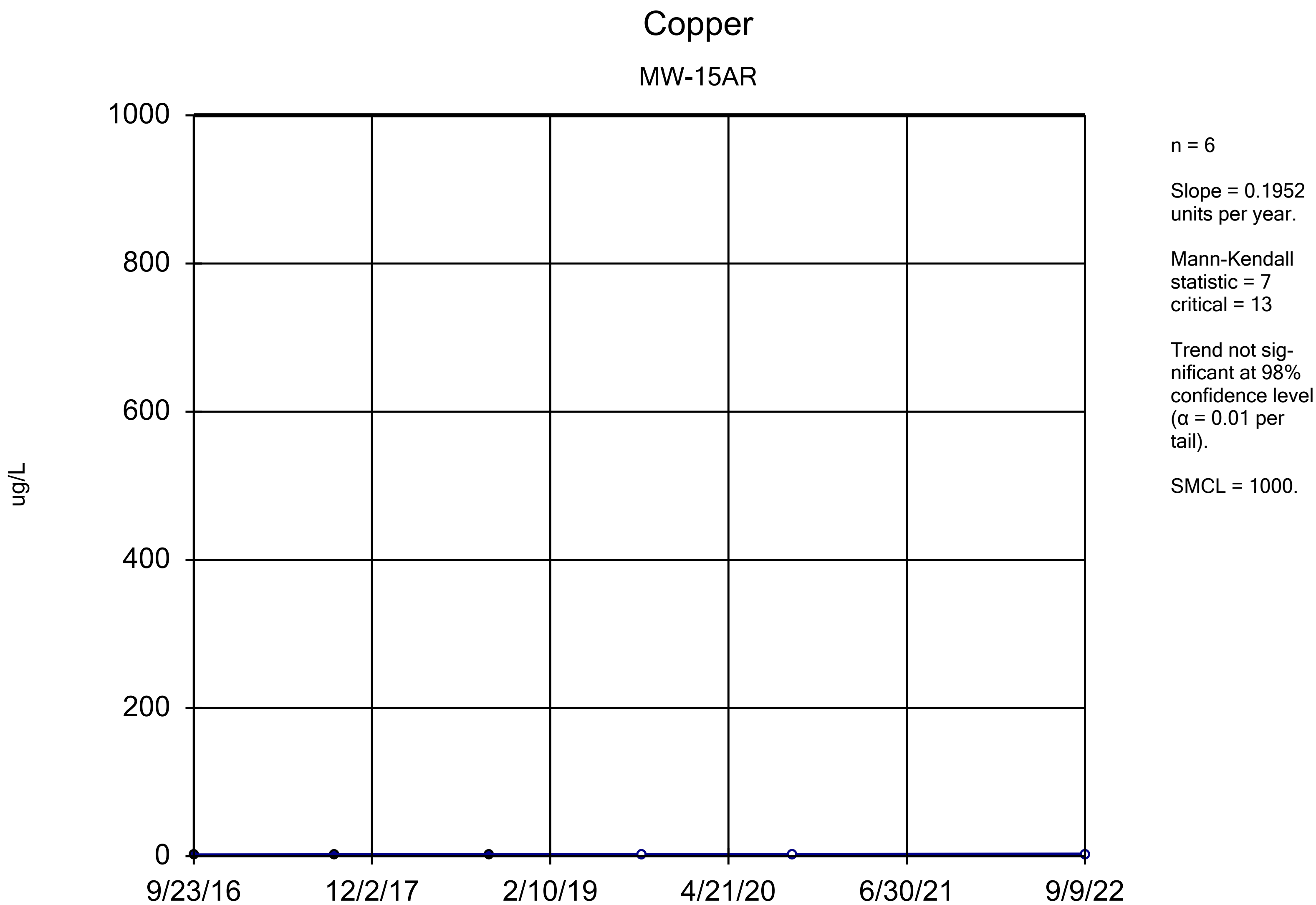
Sen's Slope Estimator

Constituent: Copper (ug/L) Analysis Run 10/26/2023 3:44 PM View: Shallow
Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-14
9/23/2016	1.9
9/5/2017	1
9/17/2018	1.4
9/23/2019	9.9
9/22/2020	<1.5
9/8/2021	1.5 (J)
9/6/2022	3.5 (J)
9/11/2023	<1.8 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope Estimator Analysis Run 10/26/2023 3:41 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Sen's Slope Estimator

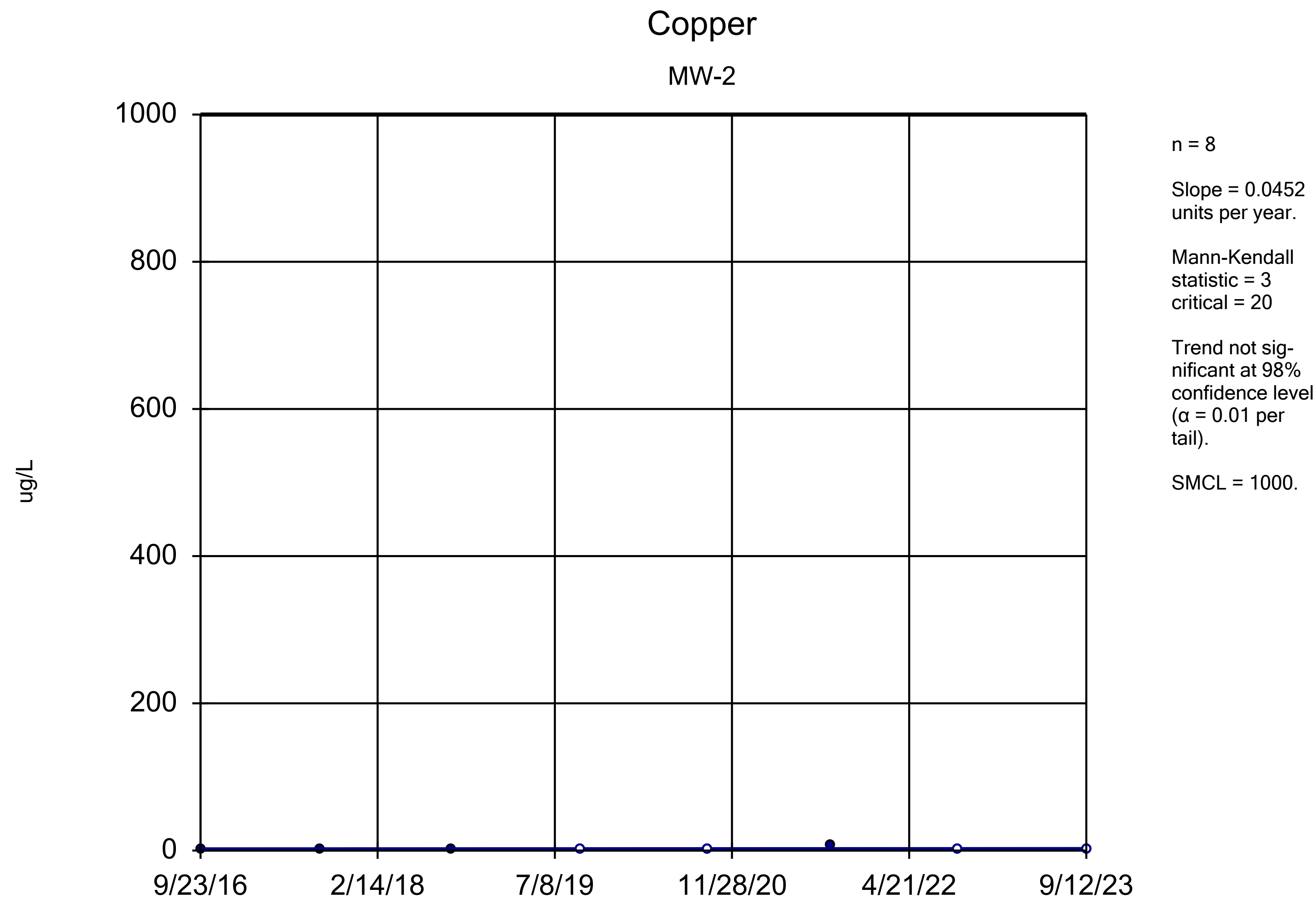
Constituent: Copper (ug/L)   Analysis Run 10/26/2023 3:44 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-15AR
9/23/2016	0.18 (J)
9/5/2017	1.6
9/17/2018	1.1
9/23/2019	<2
9/24/2020	<1.5
9/9/2022	<1.8

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:41 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

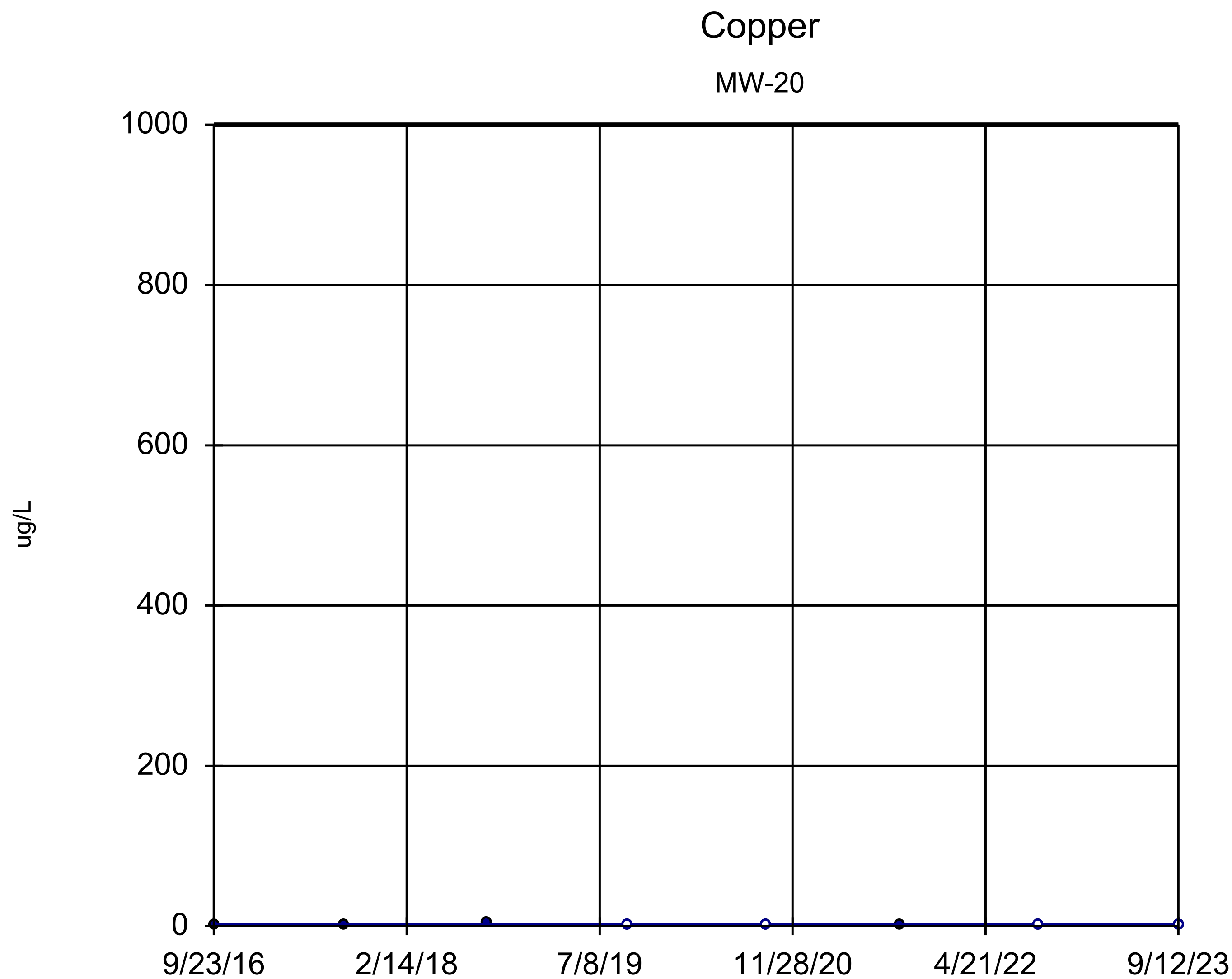
Constituent: Copper (ug/L)   Analysis Run 10/26/2023 3:44 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-2
9/23/2016	2.1
9/5/2017	0.8 (J)
9/17/2018	1.6
9/23/2019	<2
9/22/2020	<1.5
9/8/2021	7.5
9/7/2022	<1.8
9/12/2023	<1.8 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



n = 8

Slope = 0.01434 units per year.

Mann-Kendall statistic = 2 critical = 20

Trend not significant at 98% confidence level (α = 0.01 per tail).

SMCL = 1000.

Sen's Slope and 95% Confidence Band Analysis Run 10/26/2023 3:41 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Sen's Slope Estimator

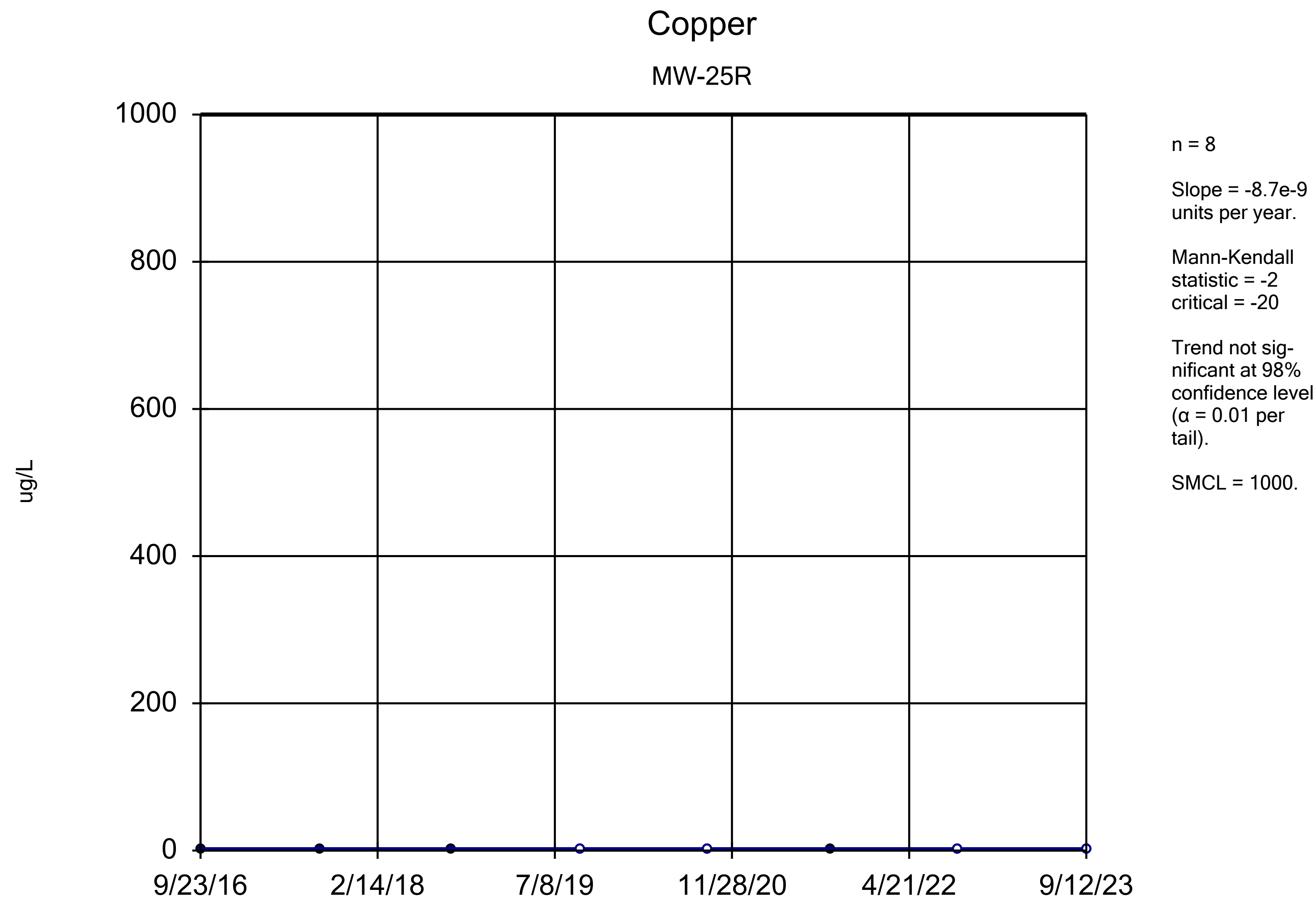
Constituent: Copper (ug/L) Analysis Run 10/26/2023 3:44 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-20
9/23/2016	1.6
9/5/2017	0.67 (J)
9/17/2018	3.2
9/23/2019	<2
9/21/2020	<1.5
9/8/2021	1.5 (J)
9/6/2022	<1.8
9/12/2023	<1.8 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:41 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

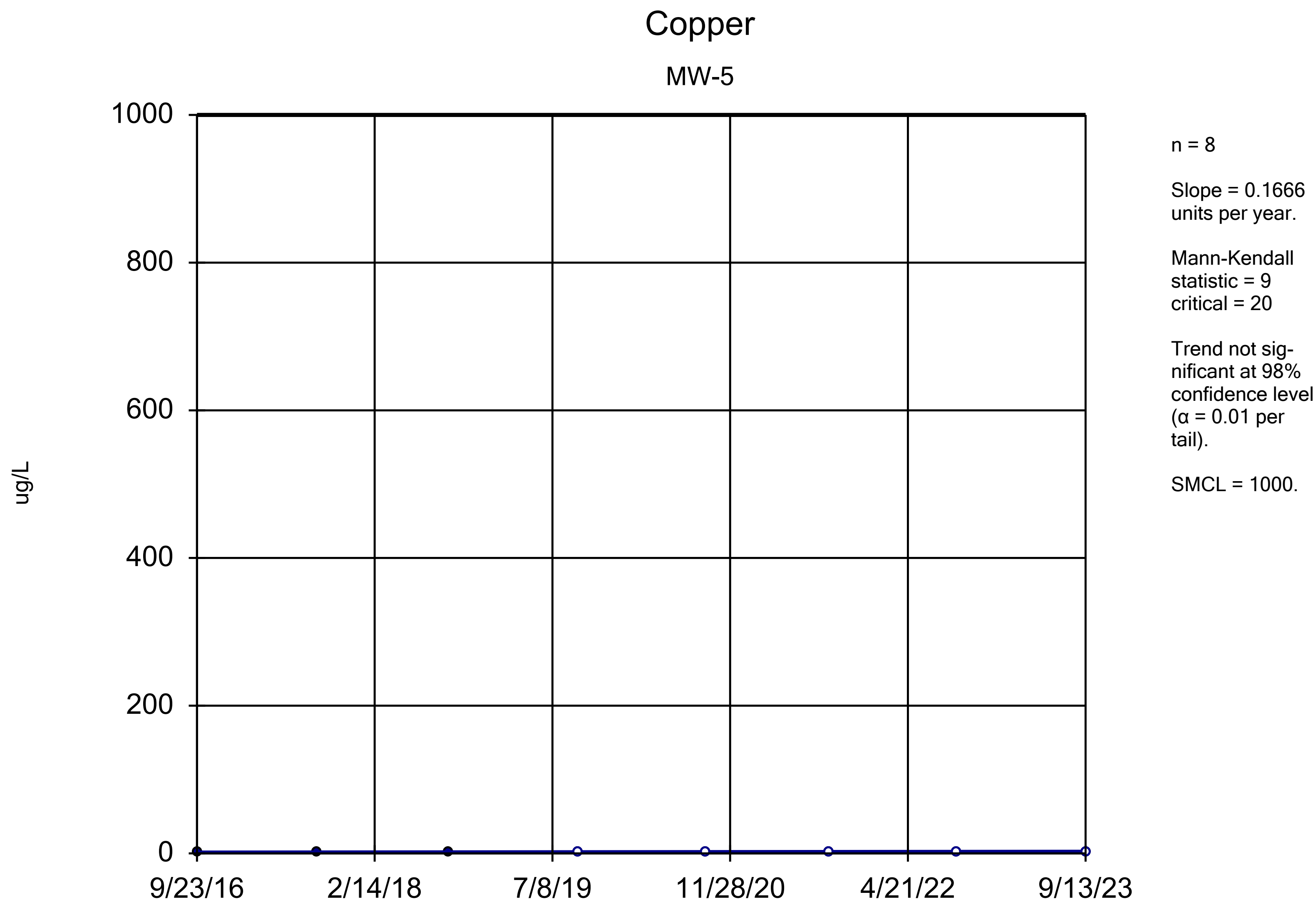
Constituent: Copper (ug/L) Analysis Run 10/26/2023 3:44 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-25R
9/23/2016	1.6
9/5/2017	1.8
9/17/2018	2.6
9/23/2019	<2
9/21/2020	<1.5
9/7/2021	1.5 (J)
9/6/2022	<1.8
9/12/2023	<1.8 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:41 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

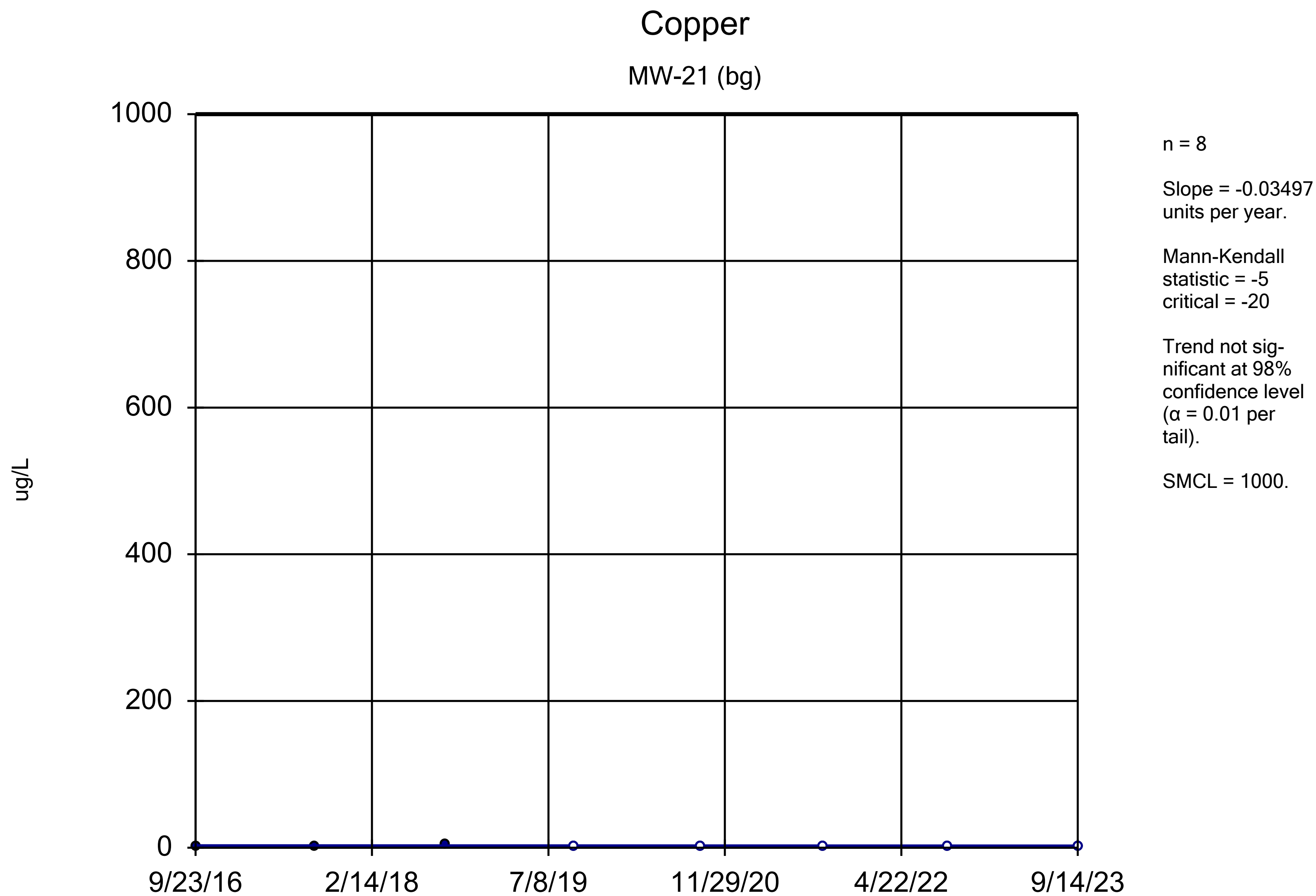
Constituent: Copper (ug/L) Analysis Run 10/26/2023 3:44 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-5
9/23/2016	0.6 (J)
9/5/2017	0.43 (J)
9/17/2018	1.8
9/23/2019	<2
9/22/2020	<1.5
9/9/2021	<1.4
9/7/2022	<1.8
9/13/2023	<1.8 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band Analysis Run 10/26/2023 3:42 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Sen's Slope Estimator

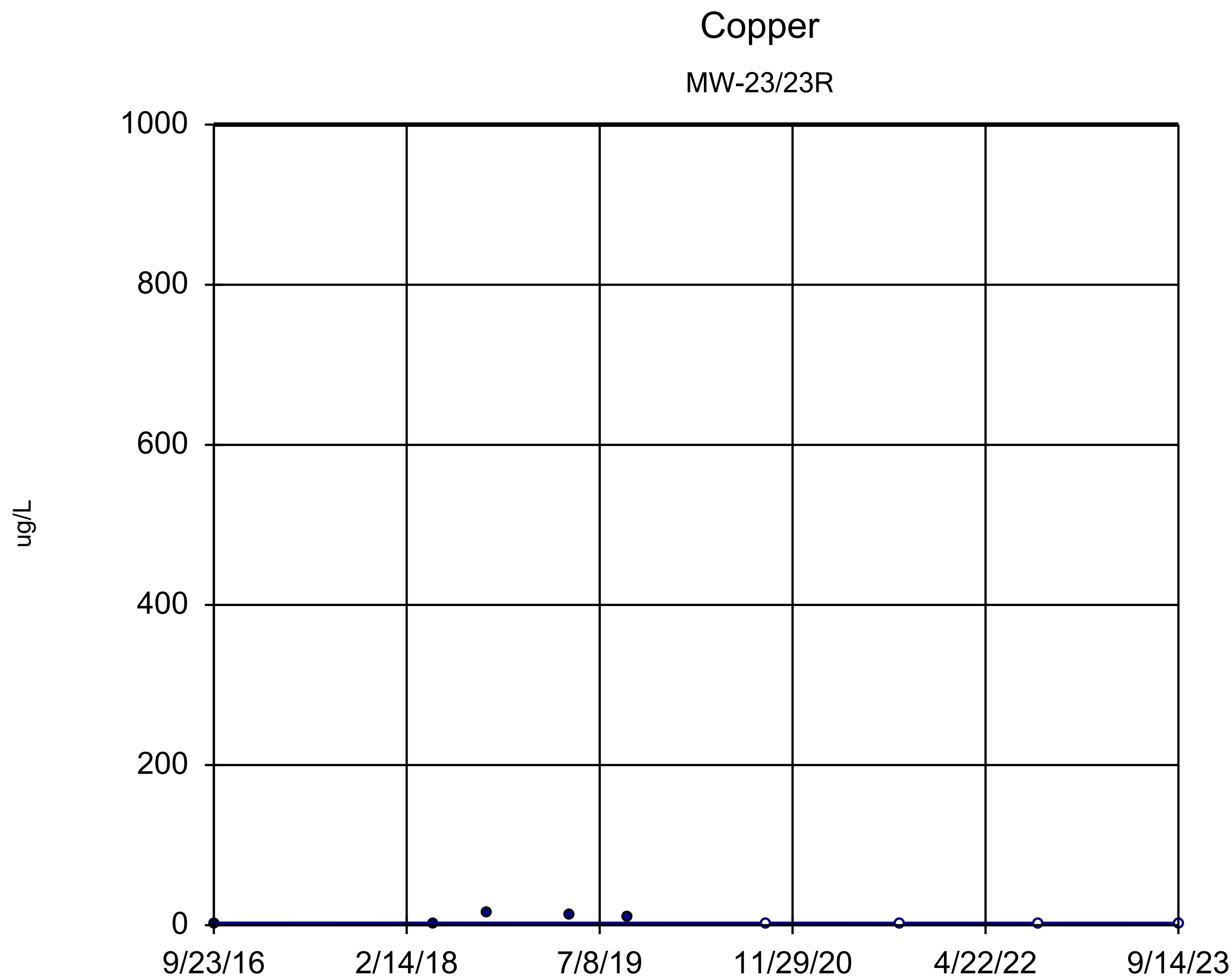
Constituent: Copper (ug/L) Analysis Run 10/26/2023 3:44 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-21 (bg)
9/23/2016	1.7
9/5/2017	1.9
9/17/2018	2.8
9/23/2019	<2
9/23/2020	<1.5
9/10/2021	<1.4
9/7/2022	<1.8
9/14/2023	<1.8 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



n = 9

Slope = -0.02067 units per year.

Mann-Kendall statistic = -1 critical = -23

Trend not significant at 98% confidence level (α = 0.01 per tail).

SMCL = 1000.

Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:42 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

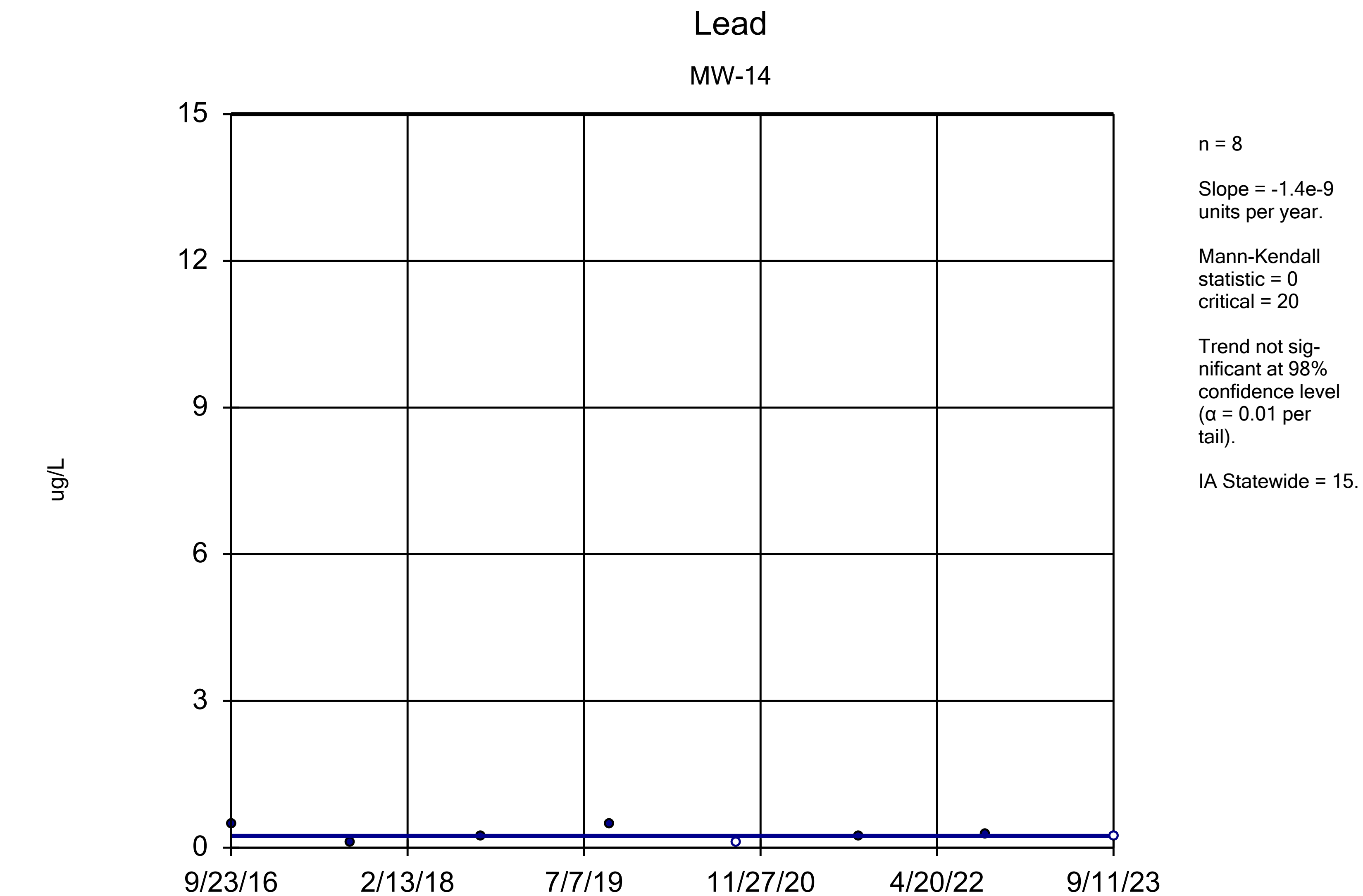
Constituent: Copper (ug/L) Analysis Run 10/26/2023 3:44 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-23/23R
9/23/2016	0.26 (J)
4/25/2018	1.6
9/17/2018	16.7
4/23/2019	13
9/23/2019	10
9/24/2020	<1.5
9/9/2021	<1.4
9/8/2022	<1.8
9/14/2023	<1.8 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:42 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

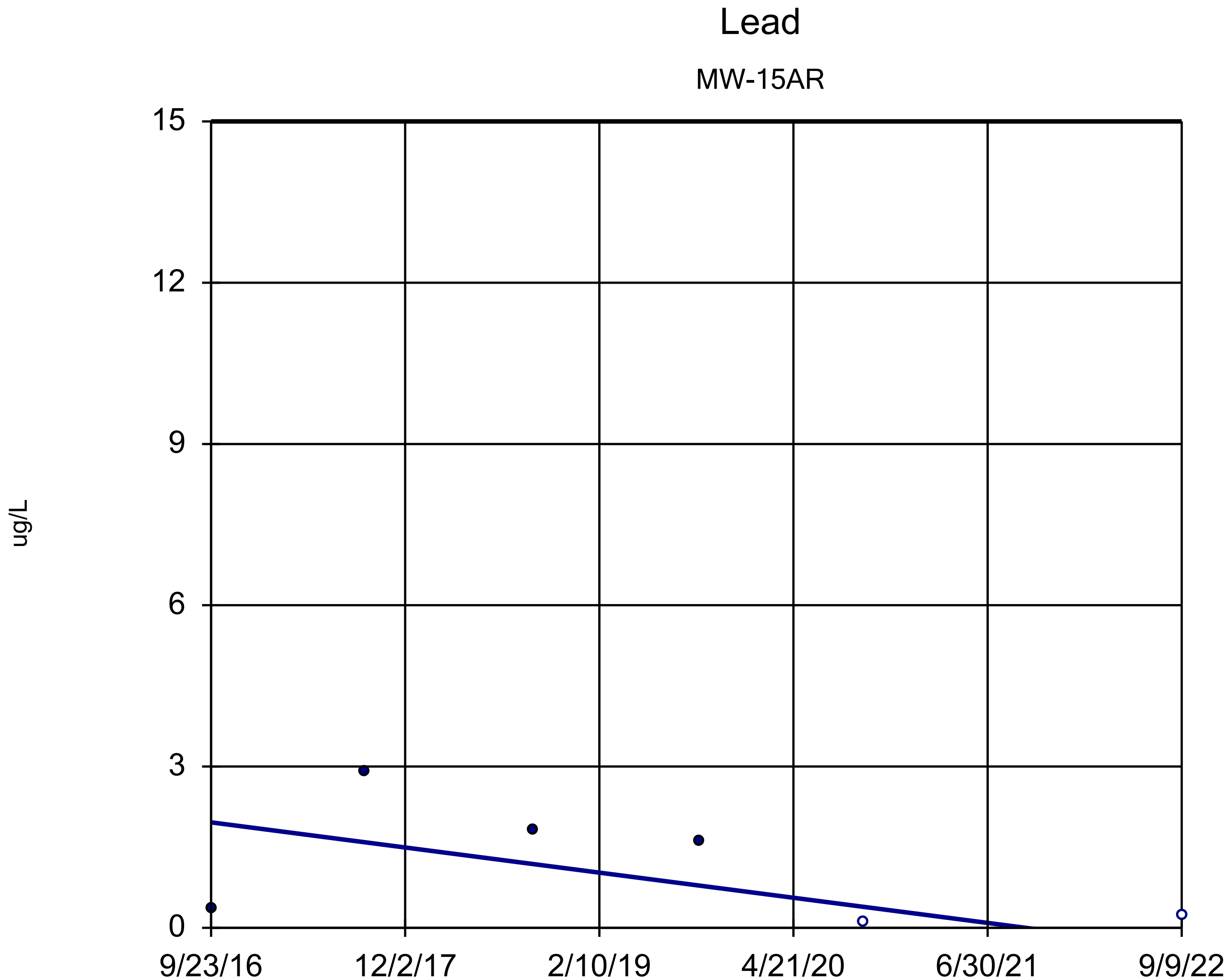
Constituent: Lead (ug/L) Analysis Run 10/26/2023 3:44 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-14
9/23/2016	0.48 (J)
9/5/2017	0.11 (J)
9/17/2018	0.21 (J)
9/23/2019	0.47 (J)
9/22/2020	<0.11
9/8/2021	0.24 (J)
9/6/2022	0.28 (J)
9/11/2023	<0.24 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



n = 6

Slope = -0.3919
units per year.

Mann-Kendall
statistic = -7
critical = -13

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

IA Statewide = 15.

Sen's Slope Estimator   Analysis Run 10/26/2023 3:42 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

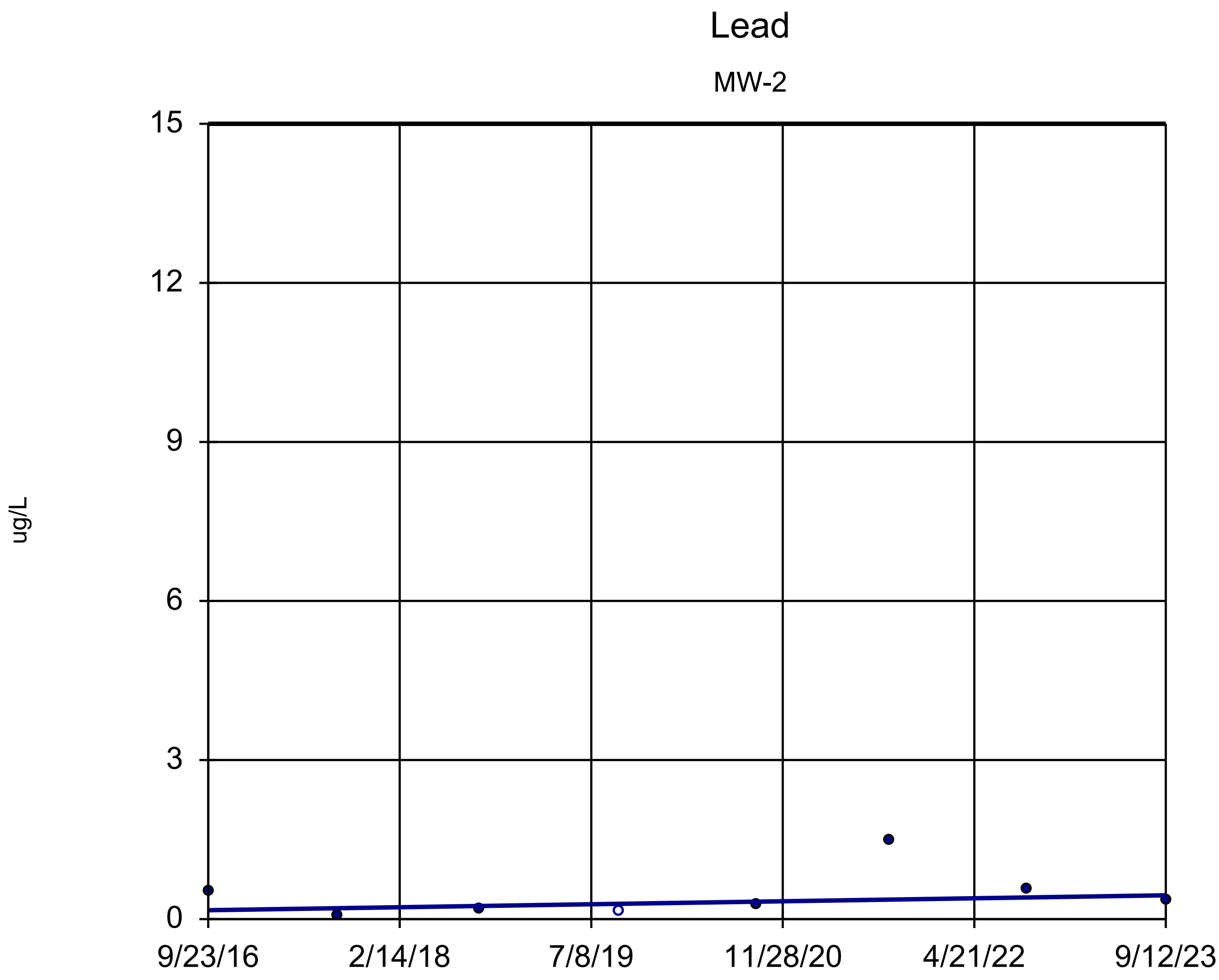
Constituent: Lead (ug/L)   Analysis Run 10/26/2023 3:44 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-15AR
9/23/2016	0.37 (J)
9/5/2017	2.9
9/17/2018	1.8
9/23/2019	1.6
9/24/2020	<0.11
9/9/2022	<0.24

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



n = 8

Slope = 0.04048
units per year.

Mann-Kendall
statistic = 10
critical = 20

Trend not significant at 98% confidence level (α = 0.01 per tail).

IA Statewide = 15.

Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:42 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

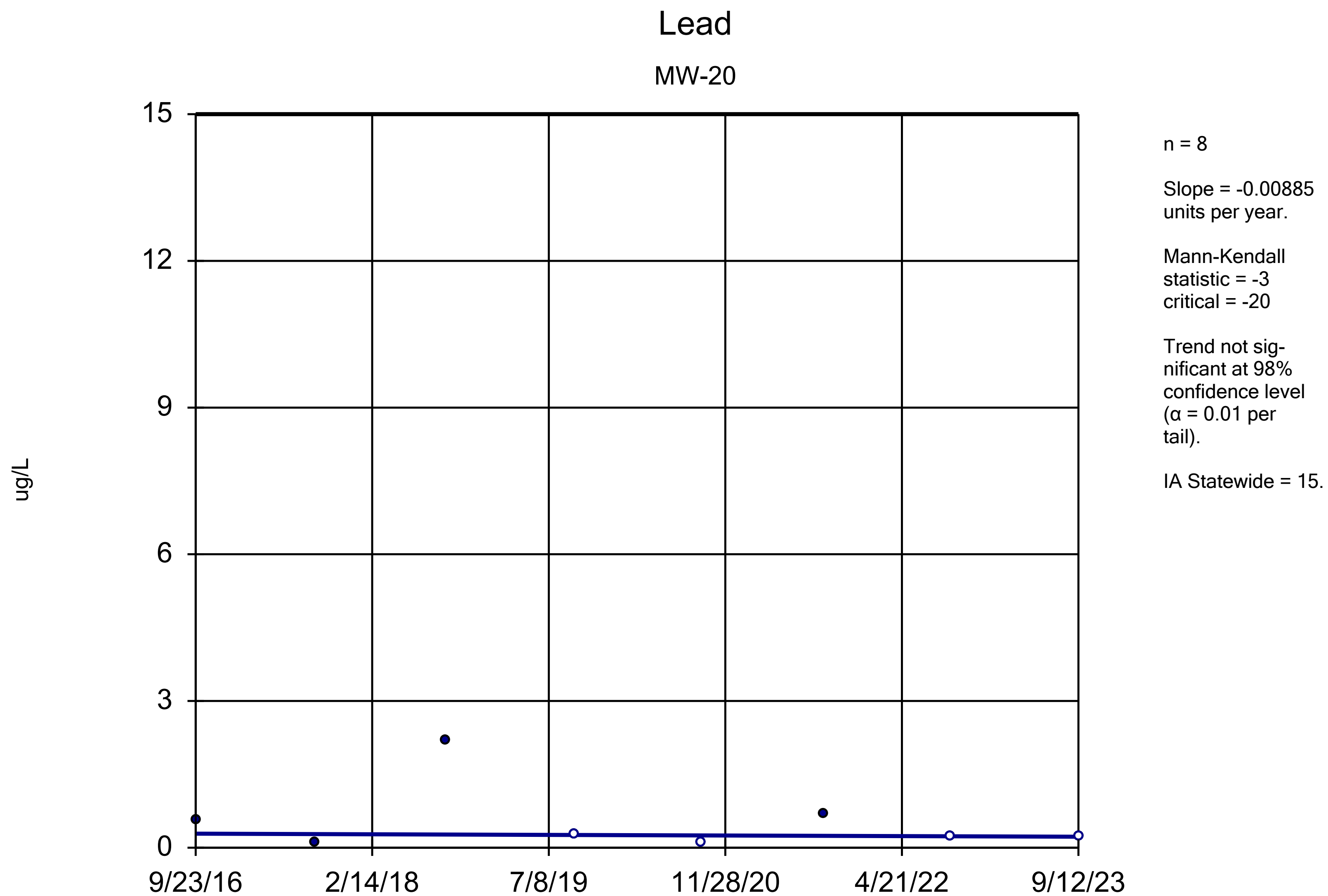
Constituent: Lead (ug/L) Analysis Run 10/26/2023 3:44 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-2
9/23/2016	0.52 (J)
9/5/2017	0.075 (J)
9/17/2018	0.2 (J)
9/23/2019	<0.27
9/22/2020	0.26 (J)
9/8/2021	1.5
9/7/2022	0.56
9/12/2023	0.36 (J)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:42 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

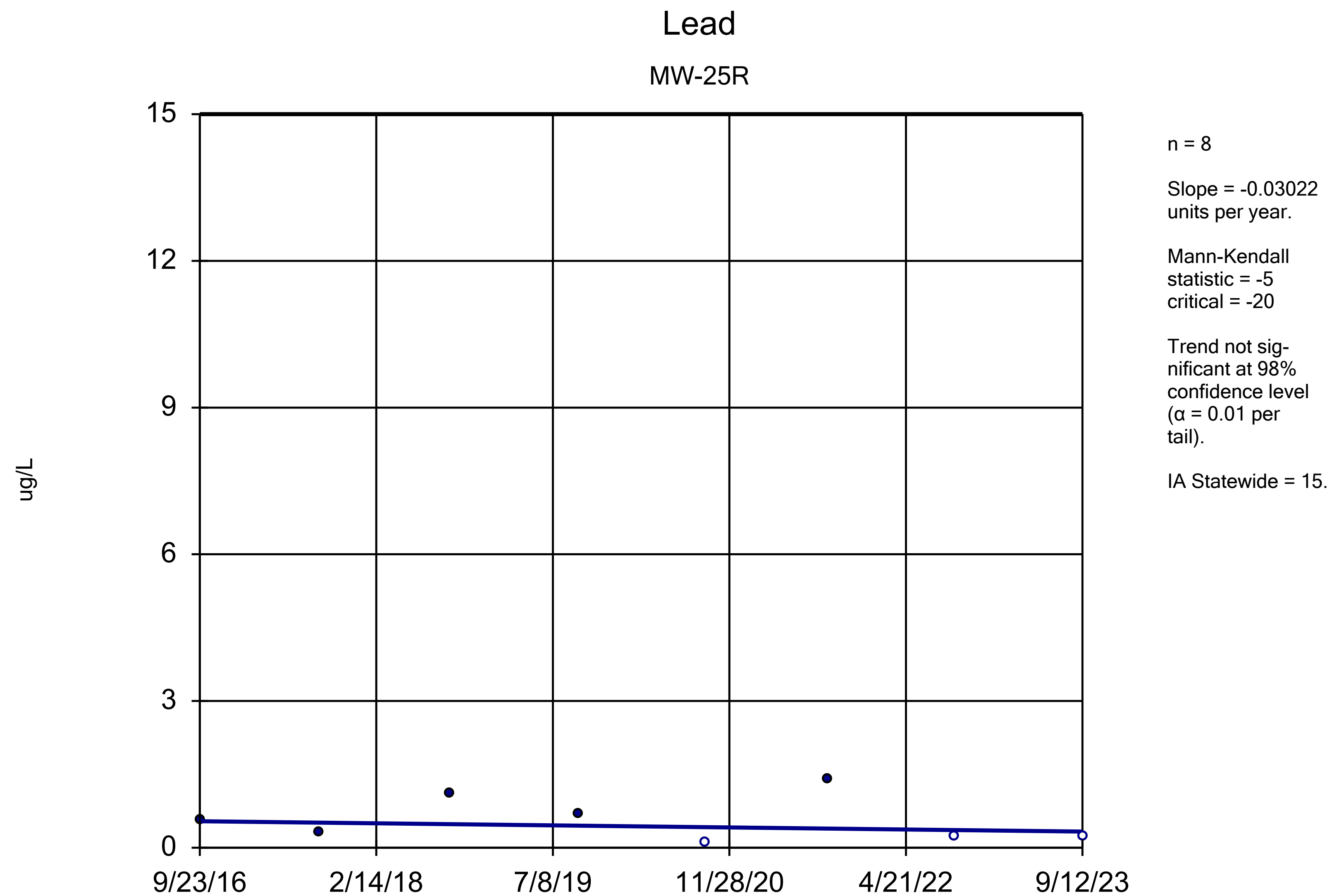
Constituent: Lead (ug/L)   Analysis Run 10/26/2023 3:44 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-20
9/23/2016	0.57 (J)
9/5/2017	0.099 (J)
9/17/2018	2.2
9/23/2019	<0.27
9/21/2020	<0.11
9/8/2021	0.68
9/6/2022	<0.24
9/12/2023	<0.24 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band Analysis Run 10/26/2023 3:42 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Sen's Slope Estimator

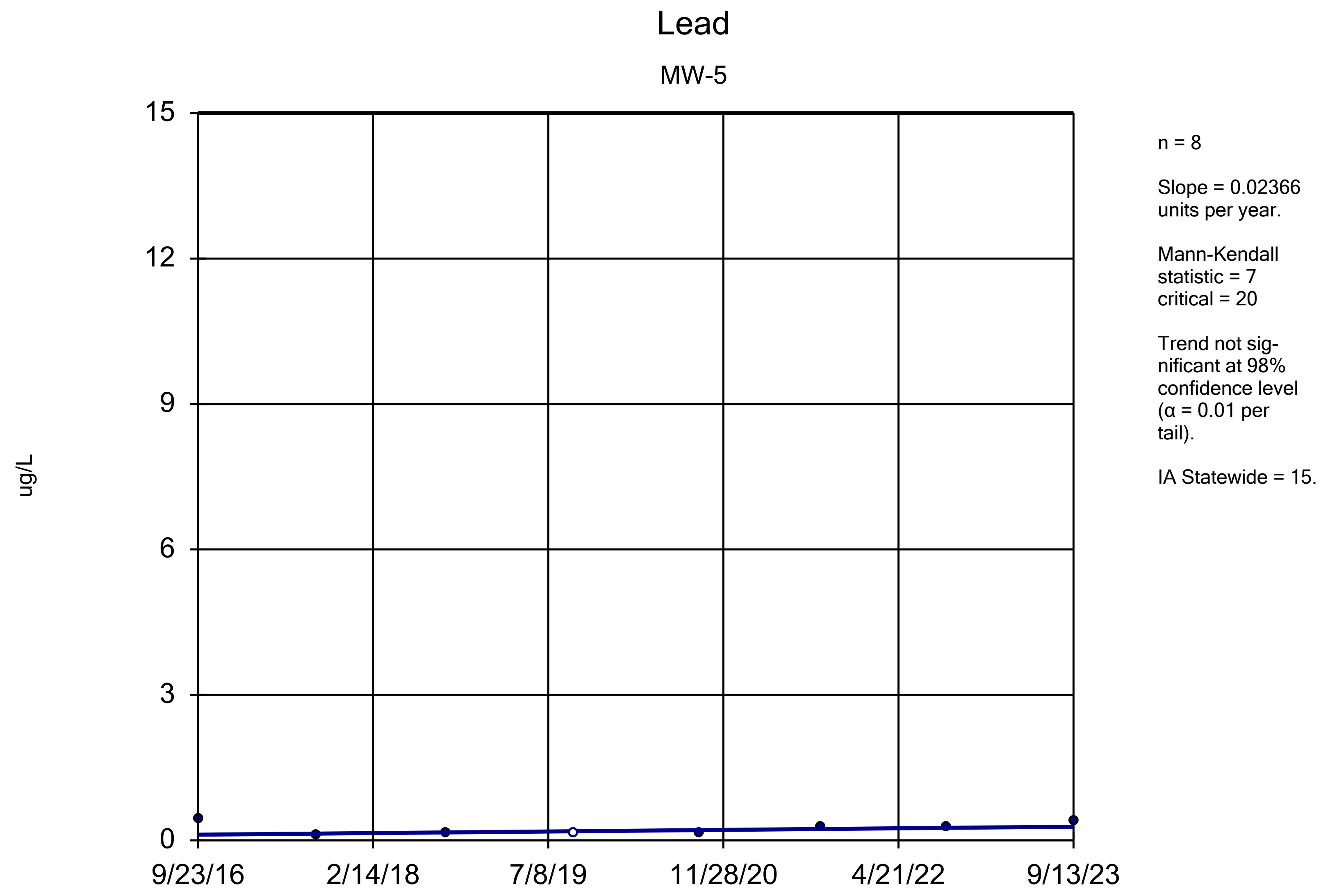
Constituent: Lead (ug/L) Analysis Run 10/26/2023 3:44 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-25R
9/23/2016	0.55 (J)
9/5/2017	0.32 (J)
9/17/2018	1.1
9/23/2019	0.68
9/21/2020	<0.11
9/7/2021	1.4
9/6/2022	<0.24
9/12/2023	<0.24 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:42 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

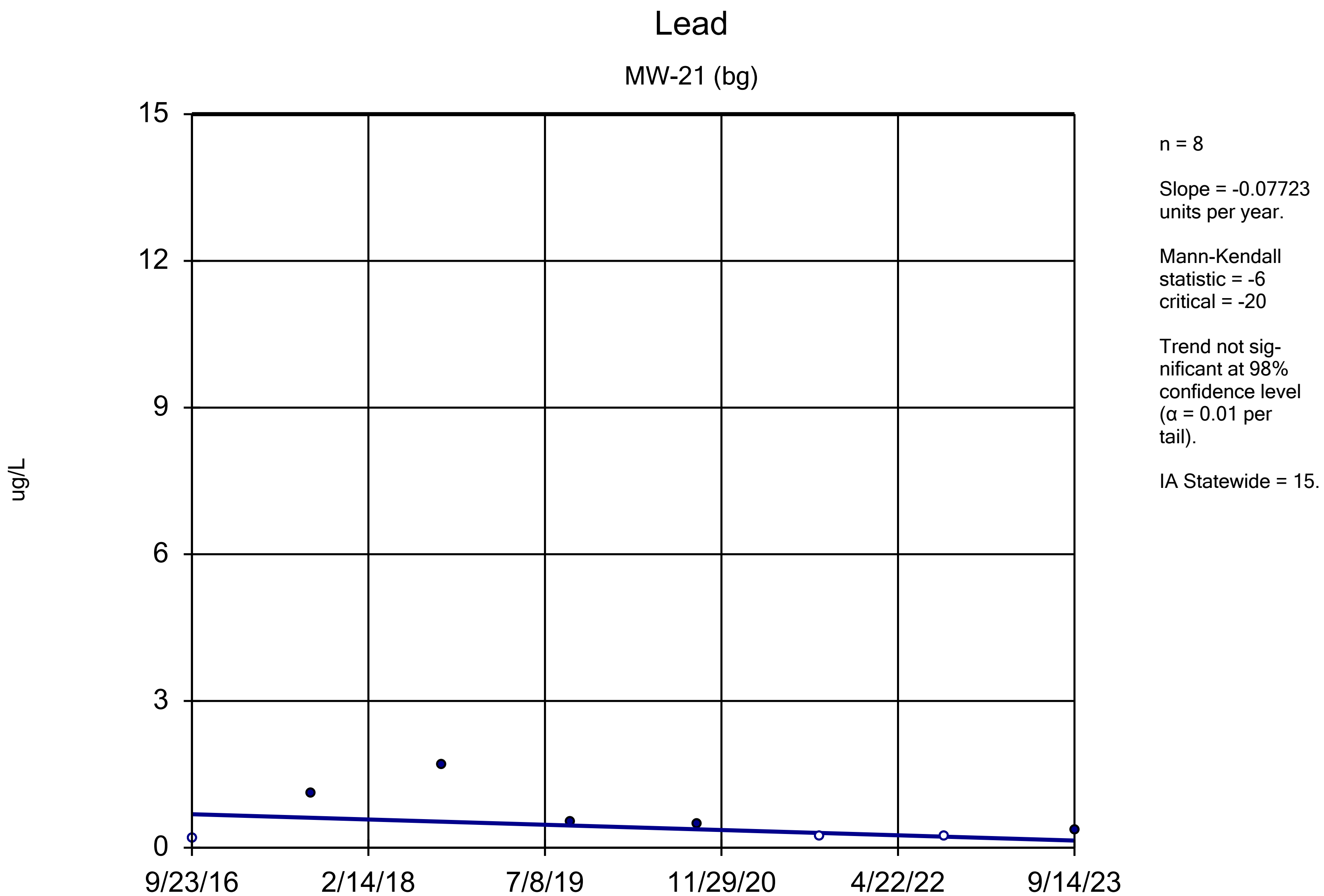
Constituent: Lead (ug/L)   Analysis Run 10/26/2023 3:44 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-5
9/23/2016	0.44 (J)
9/5/2017	0.12 (J)
9/17/2018	0.14 (J)
9/23/2019	<0.27
9/22/2020	0.13 (J)
9/9/2021	0.26 (J)
9/7/2022	0.26 (J)
9/13/2023	0.38 (J)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:42 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

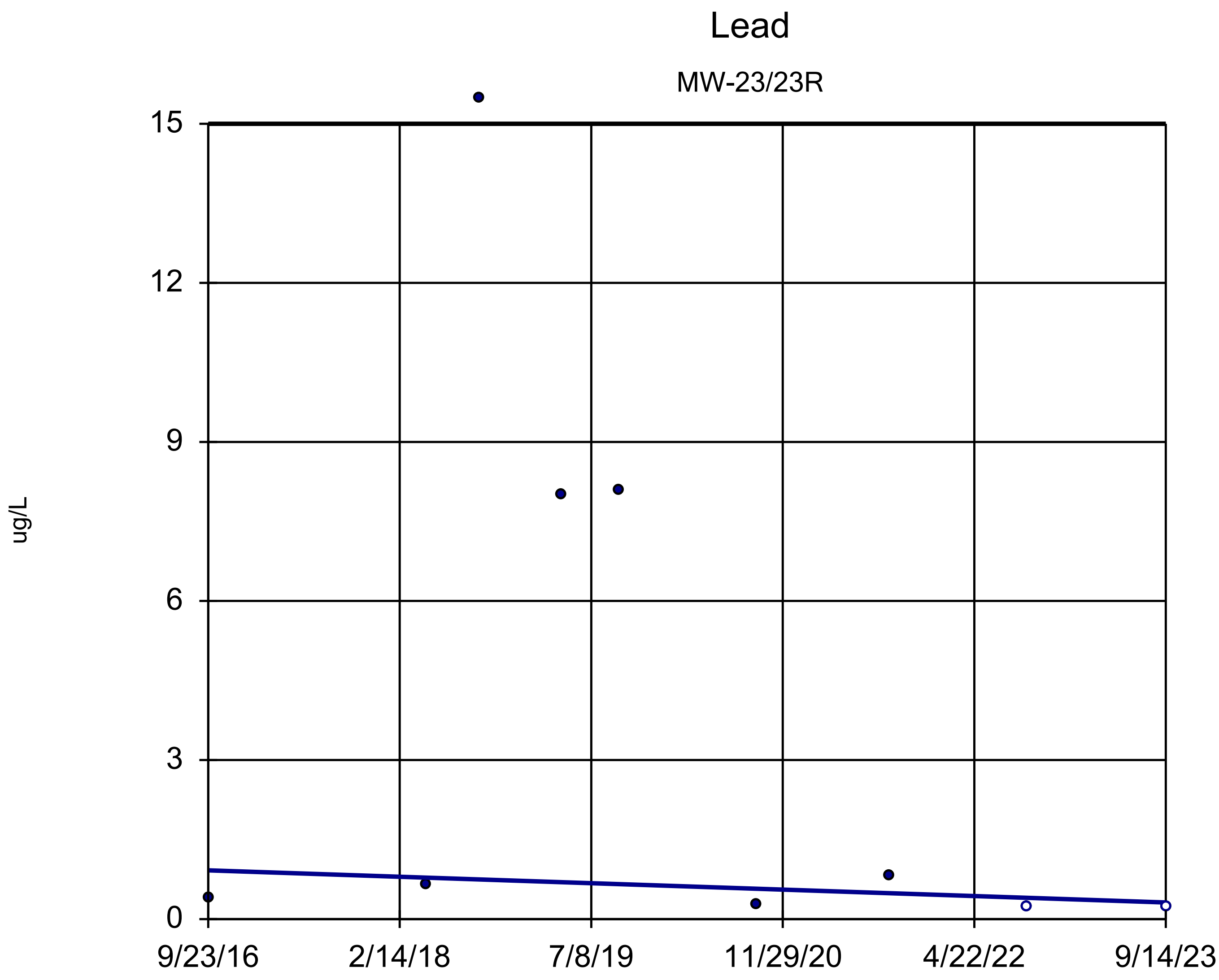
Constituent: Lead (ug/L)   Analysis Run 10/26/2023 3:44 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-21 (bg)
9/23/2016	<0.19
9/5/2017	1.1
9/17/2018	1.7
9/23/2019	0.52
9/23/2020	0.46 (J)
9/10/2021	<0.21
9/7/2022	<0.24
9/14/2023	0.37 (J)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



n = 9

Slope = -0.08694 units per year.

Mann-Kendall statistic = -13 critical = -23

Trend not significant at 98% confidence level (α = 0.01 per tail).

IA Statewide = 15.

Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:42 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

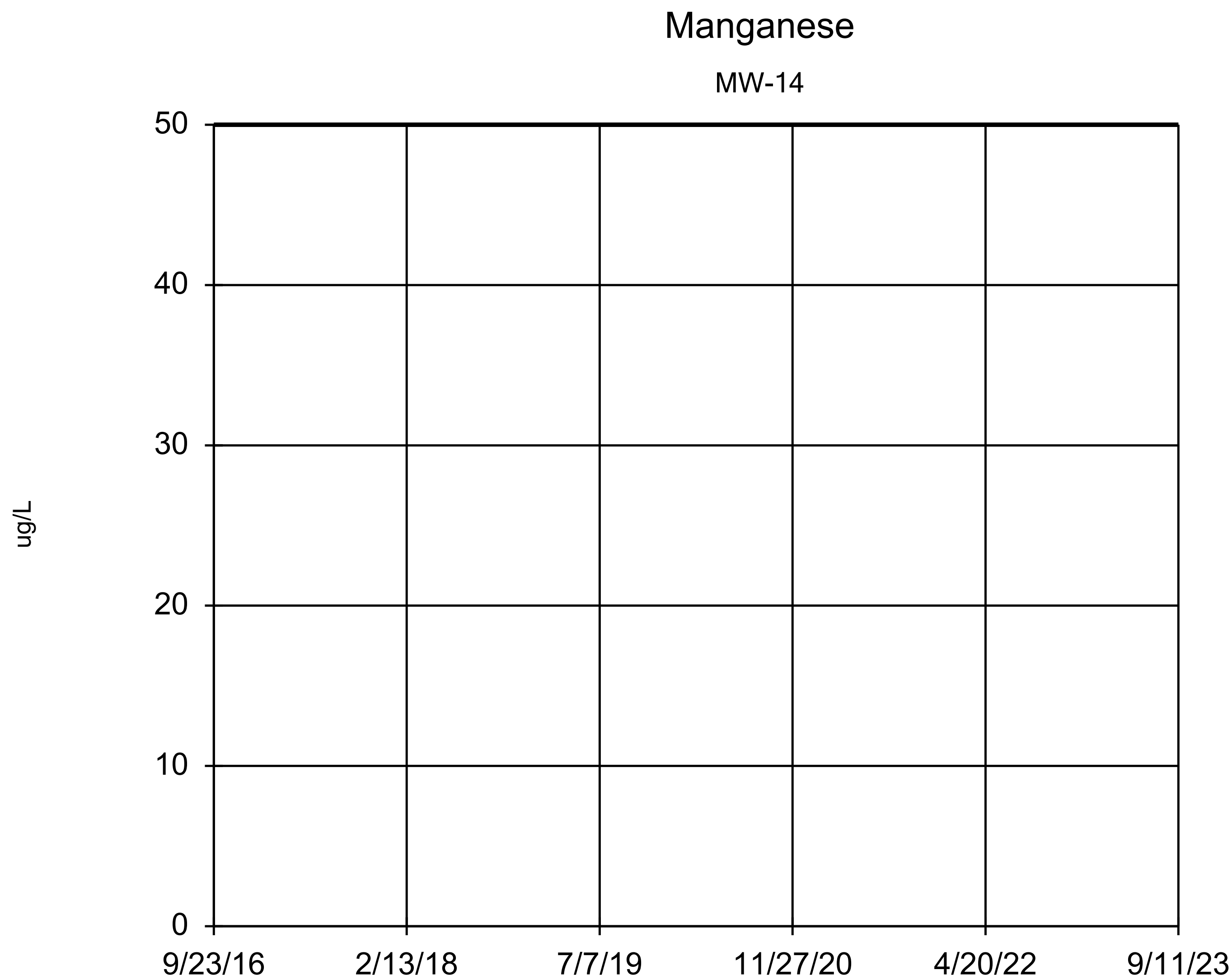
Constituent: Lead (ug/L) Analysis Run 10/26/2023 3:44 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-23/23R
9/23/2016	0.41 (J)
4/25/2018	0.66 (J)
9/17/2018	15.5
4/23/2019	8
9/23/2019	8.1
9/24/2020	0.29 (J)
9/9/2021	0.8
9/8/2022	<0.24
9/14/2023	<0.24 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



n = 8

Slope = -8.434 units per year.

Mann-Kendall statistic = -2 critical = -20

Trend not significant at 98% confidence level (α = 0.01 per tail).

SMCL = 50.

Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:42 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

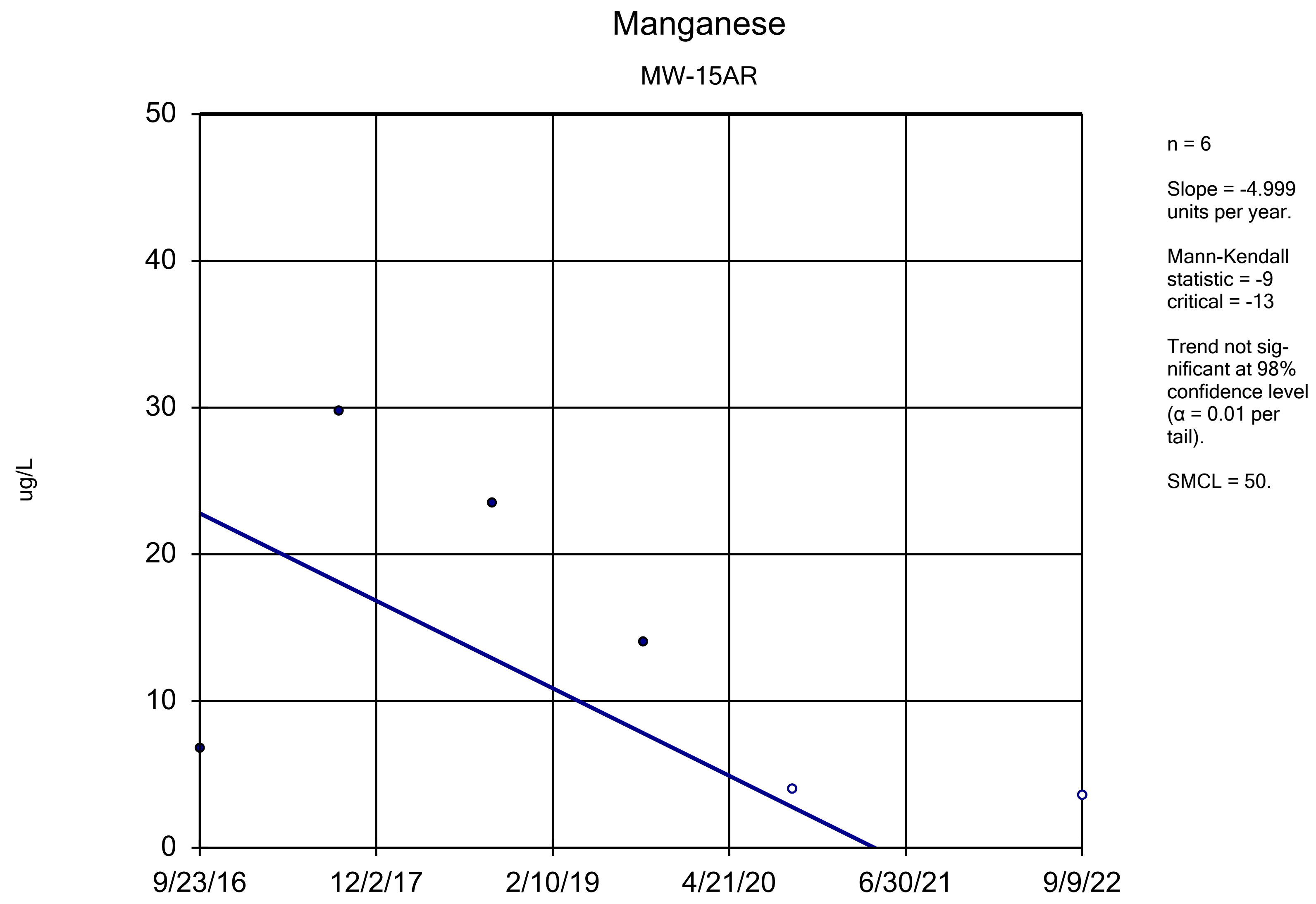
Sen's Slope Estimator

Constituent: Manganese (ug/L)   Analysis Run 10/26/2023 3:44 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-14
9/23/2016	360
9/5/2017	138
9/17/2018	186
9/23/2019	180
9/22/2020	190
9/8/2021	290
9/6/2022	255 (D)
9/11/2023	72

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope Estimator Analysis Run 10/26/2023 3:42 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Sen's Slope Estimator

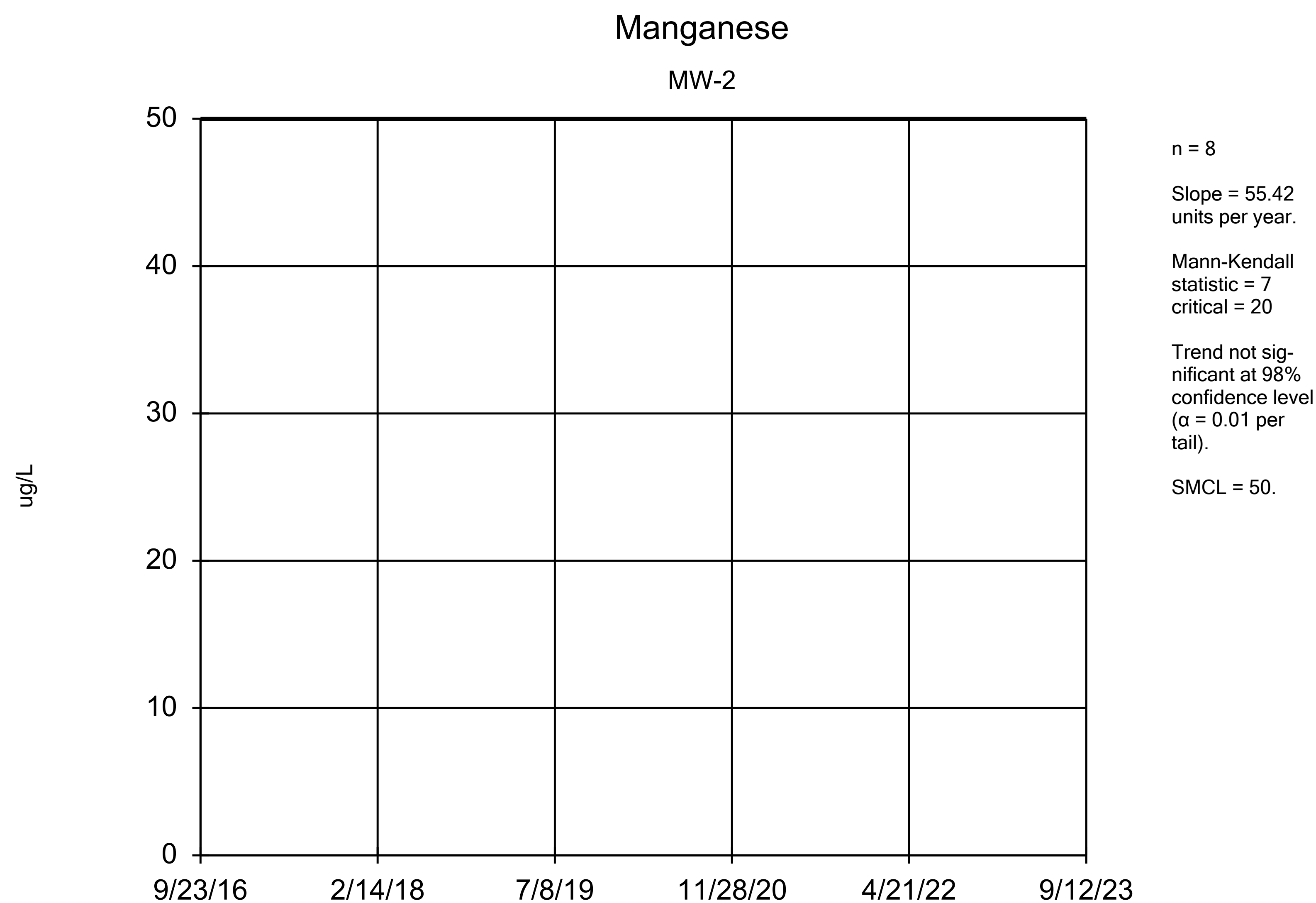
Constituent: Manganese (ug/L)   Analysis Run 10/26/2023 3:44 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-15AR
9/23/2016	6.7
9/5/2017	29.8
9/17/2018	23.5
9/23/2019	14
9/24/2020	<4
9/9/2022	<3.6

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:42 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

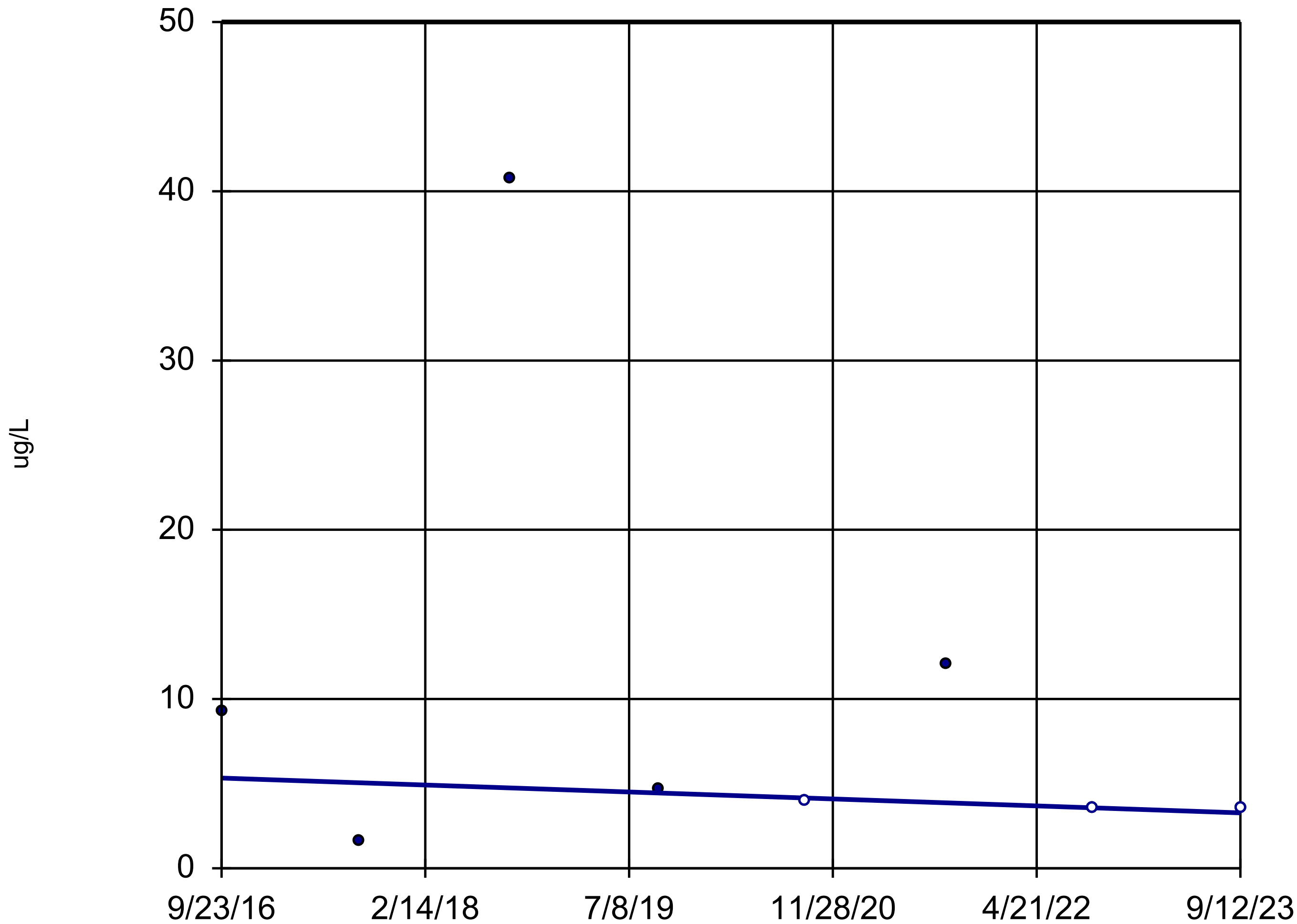
Sen's Slope Estimator

Constituent: Manganese (ug/L) Analysis Run 10/26/2023 3:44 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-2
9/23/2016	1360
9/5/2017	1480
9/17/2018	1480
9/23/2019	1200
9/22/2020	2000
9/8/2021	1900
9/7/2022	1950 (D)
9/12/2023	1400

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



n = 8

Slope = -0.295 units per year.

Mann-Kendall statistic = -7 critical = -20

Trend not significant at 98% confidence level (α = 0.01 per tail).

SMCL = 50.

Sen's Slope and 95% Confidence Band Analysis Run 10/26/2023 3:42 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Sen's Slope Estimator

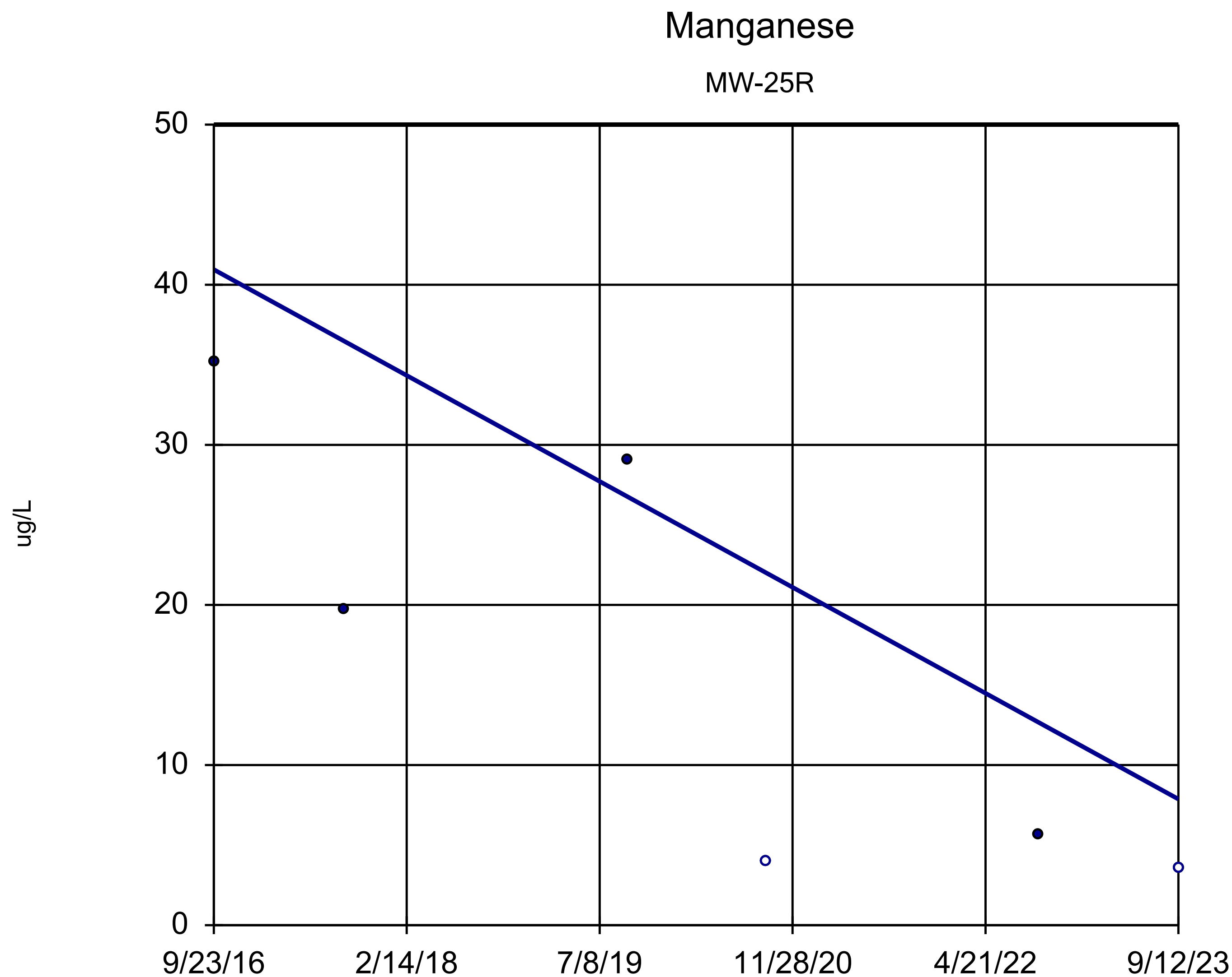
Constituent: Manganese (ug/L)   Analysis Run 10/26/2023 3:44 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-20
9/23/2016	9.2
9/5/2017	1.6
9/17/2018	40.8
9/23/2019	4.6 (J)
9/21/2020	<4
9/8/2021	12
9/6/2022	<3.6
9/12/2023	<3.6 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



n = 8

Slope = -4.742 units per year.

Mann-Kendall statistic = -12 critical = -20

Trend not significant at 98% confidence level (α = 0.01 per tail).

SMCL = 50.

Sen's Slope and 95% Confidence Band Analysis Run 10/26/2023 3:42 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Sen's Slope Estimator

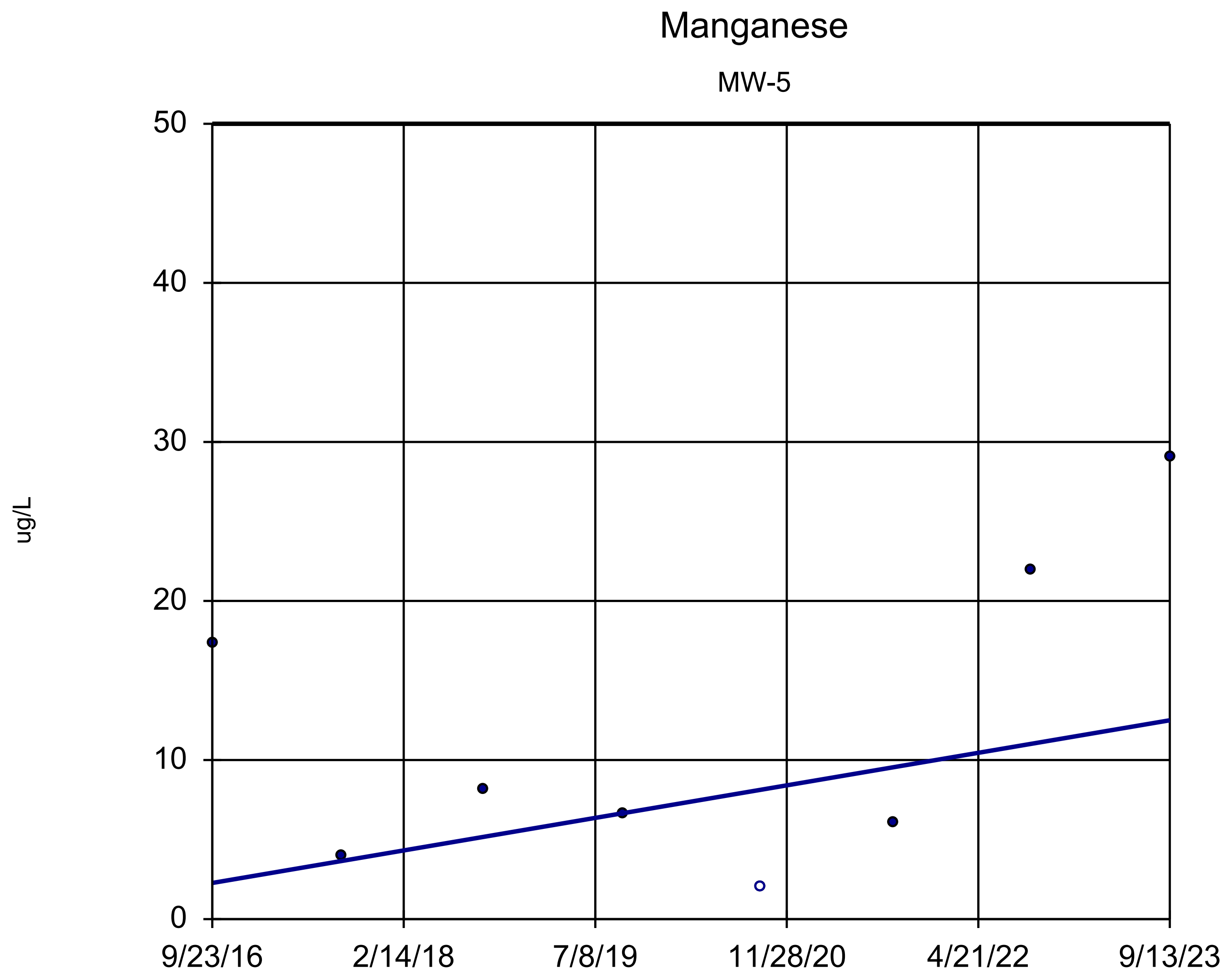
Constituent: Manganese (ug/L)   Analysis Run 10/26/2023 3:44 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-25R
9/23/2016	35.2
9/5/2017	19.7
9/17/2018	89.1
9/23/2019	29
9/21/2020	<4
9/7/2021	62
9/6/2022	5.7 (J)
9/12/2023	<3.6 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



n = 8

Slope = 1.466 units per year.

Mann-Kendall statistic = 6 critical = 20

Trend not significant at 98% confidence level (α = 0.01 per tail).

SMCL = 50.

Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:42 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

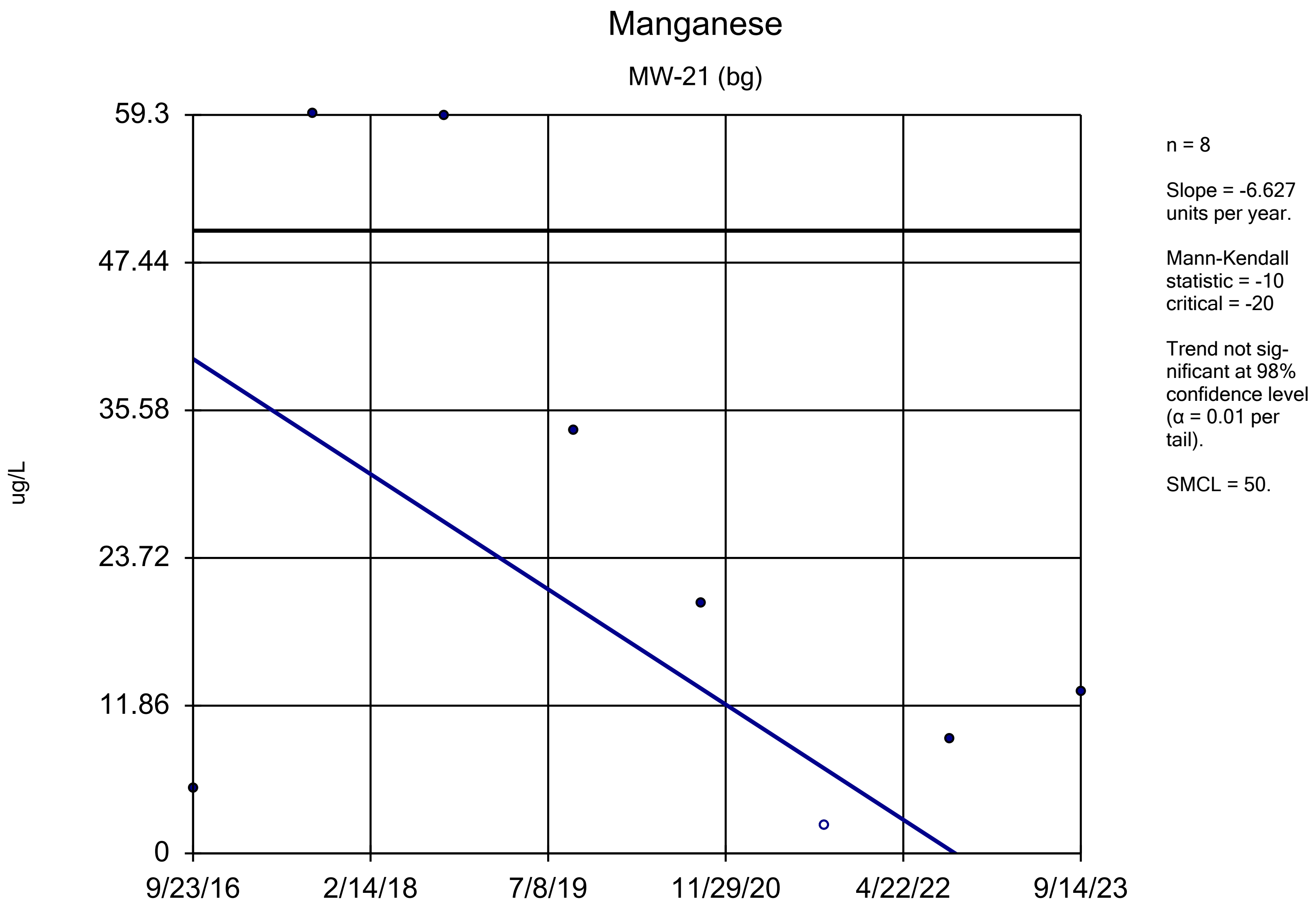
Constituent: Manganese (ug/L) Analysis Run 10/26/2023 3:44 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-5
9/23/2016	17.4
9/5/2017	4
9/17/2018	8.2
9/23/2019	6.6 (J)
9/22/2020	<4
9/9/2021	6 (J)
9/7/2022	22
9/13/2023	29

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:42 PM   View: Shallow
Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

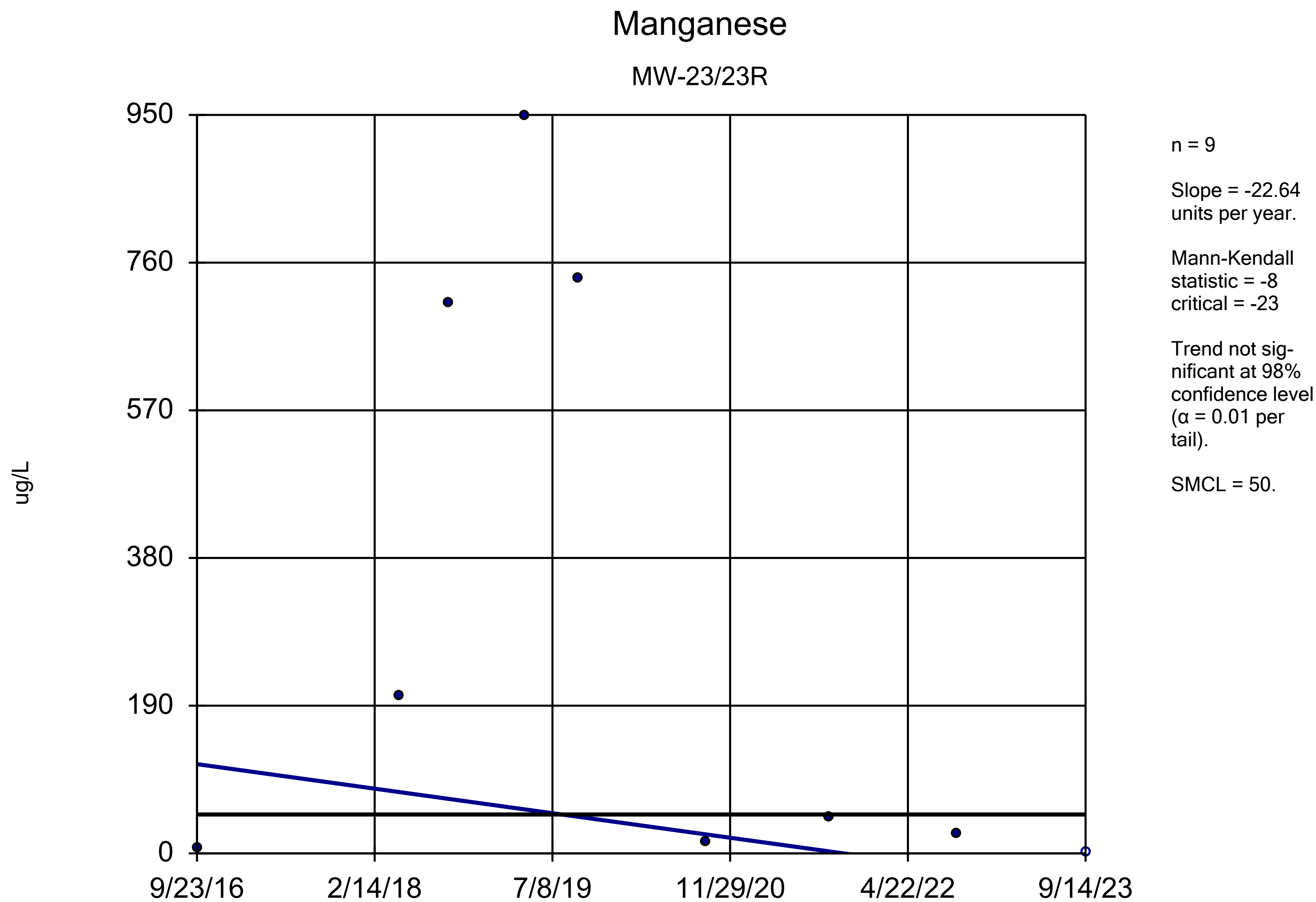
Constituent: Manganese (ug/L)   Analysis Run 10/26/2023 3:44 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-21 (bg)
9/23/2016	5.2
9/5/2017	59.3
9/17/2018	59.2
9/23/2019	34
9/23/2020	20
9/10/2021	<4.4
9/7/2022	9.1 (J)
9/14/2023	13

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:42 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

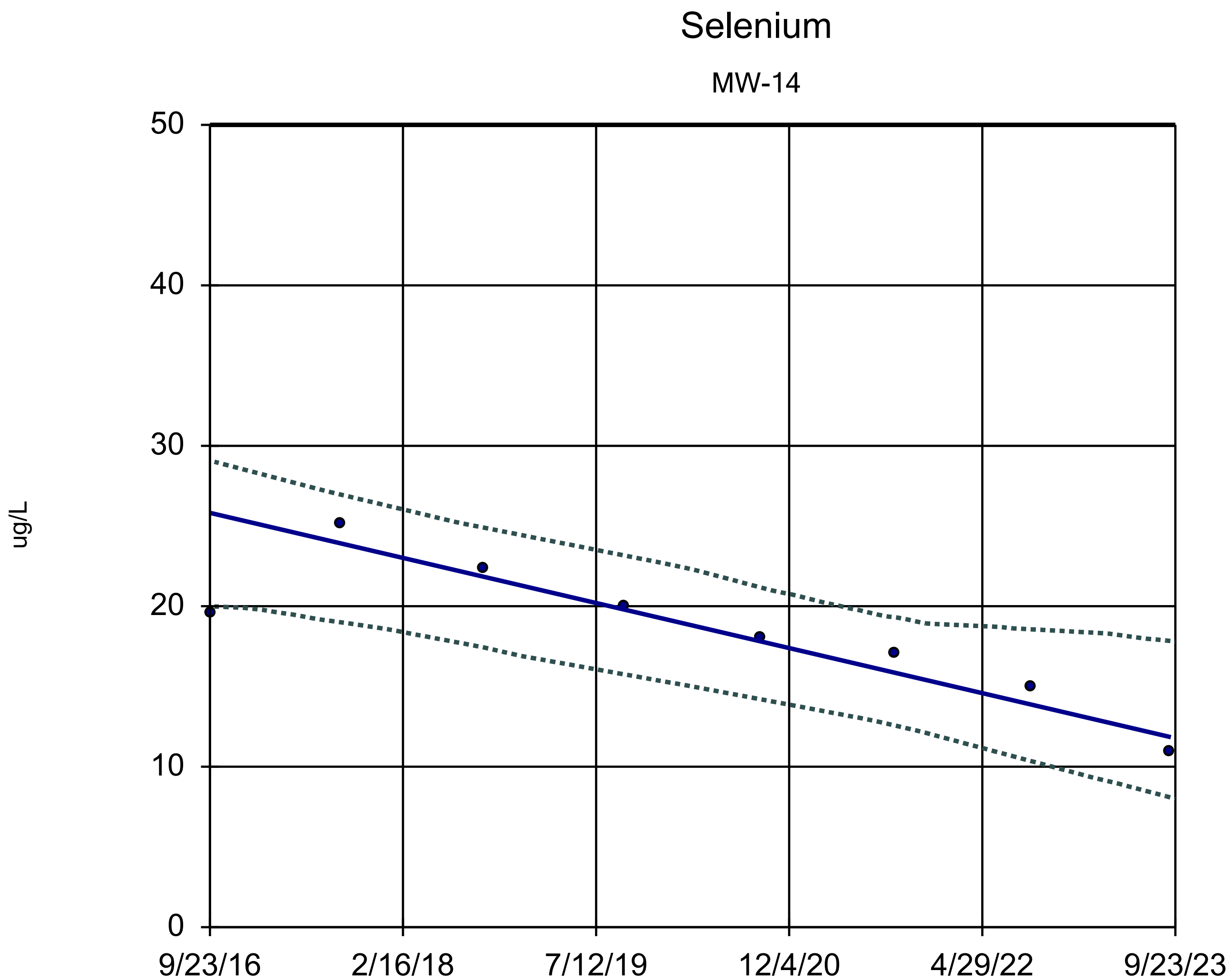
Constituent: Manganese (ug/L) Analysis Run 10/26/2023 3:44 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-23/23R
9/23/2016	7
4/25/2018	203
9/17/2018	708
4/23/2019	950
9/23/2019	740
9/24/2020	15
9/9/2021	47
9/8/2022	25
9/14/2023	<3.6 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



n = 8

Slope = -2.006 units per year.

Mann-Kendall statistic = -22 critical = -20

Decreasing trend significant at 98% confidence level (α = 0.01 per tail).

Confidence band is below MCL (50).

Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:42 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

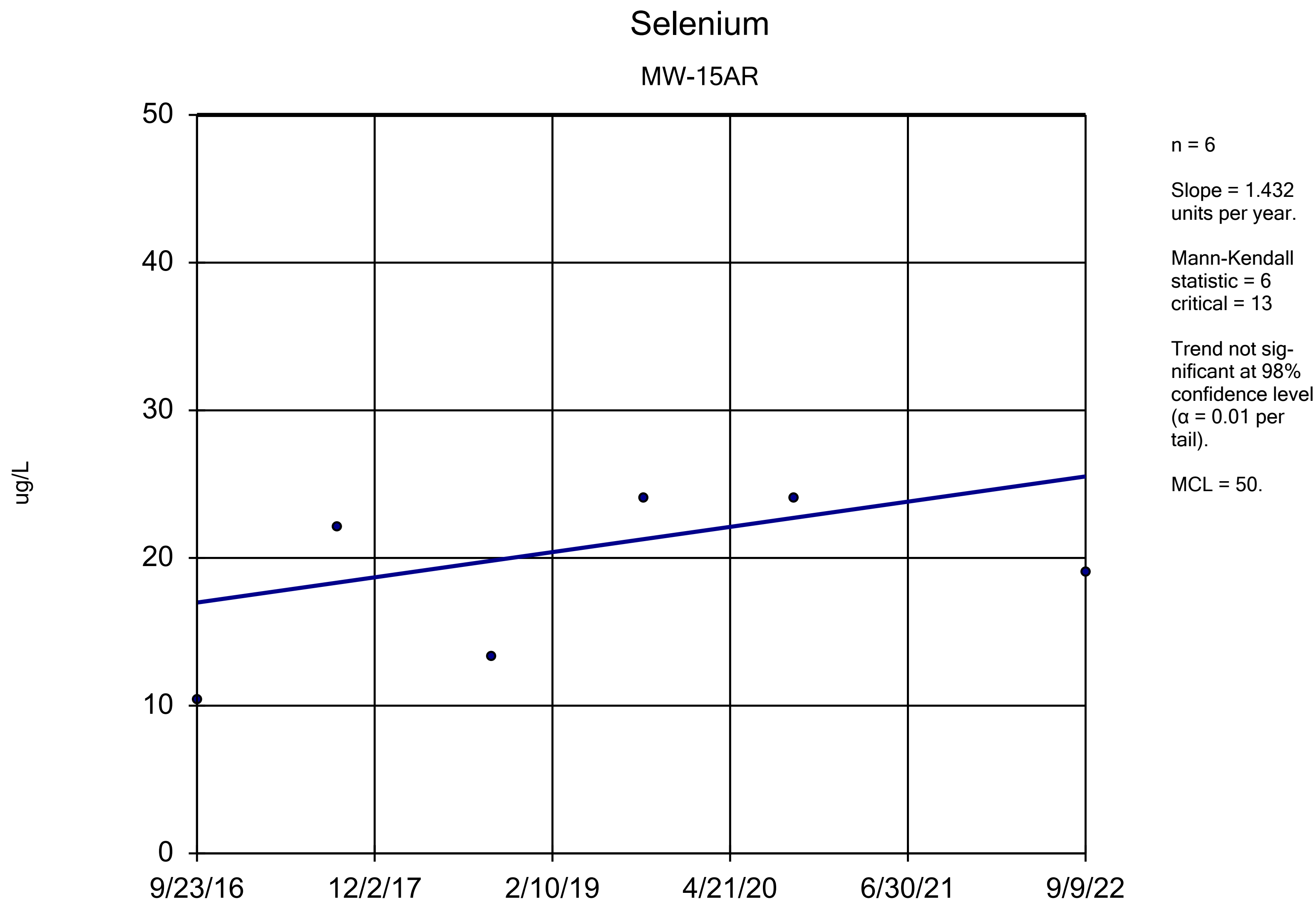
Sen's Slope Estimator

Constituent: Selenium (ug/L) Analysis Run 10/26/2023 3:44 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-14	LCL	UCL
9/23/2016	19.6	20.01	29.08
9/5/2017	25.1	18.99	26.95
9/17/2018	22.3	17.44	24.91
9/23/2019	20	15.76	23.17
9/22/2020	18	14.19	21.16
9/8/2021	17	12.58	19.31
9/6/2022	15	10.35	18.56
9/11/2023	11	8.078	17.83

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope Estimator Analysis Run 10/26/2023 3:42 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

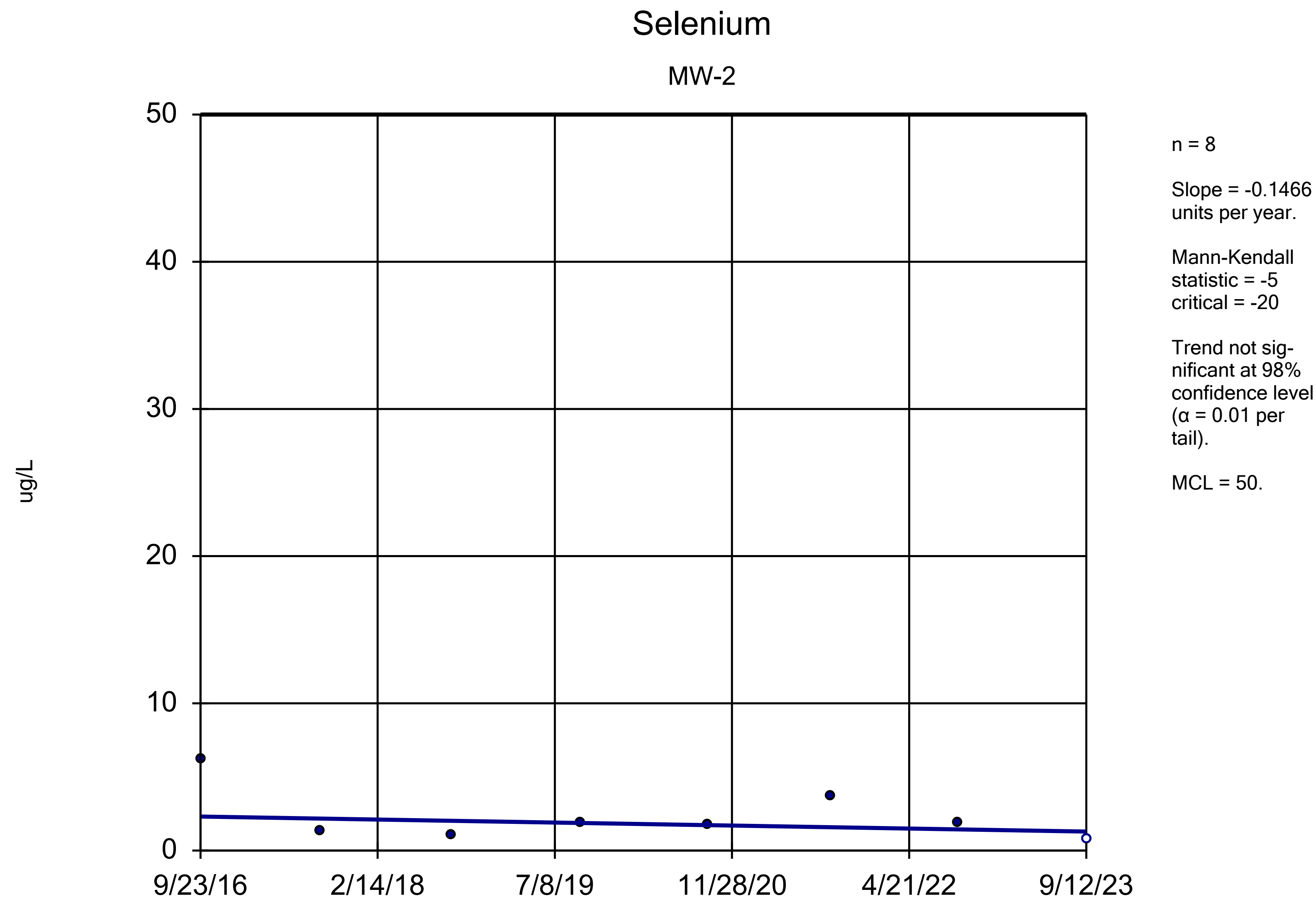
Sen's Slope Estimator

Constituent: Selenium (ug/L)   Analysis Run 10/26/2023 3:44 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-15AR
9/23/2016	10.4
9/5/2017	22.1
9/17/2018	13.3
9/23/2019	24
9/24/2020	24
9/9/2022	19

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:42 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

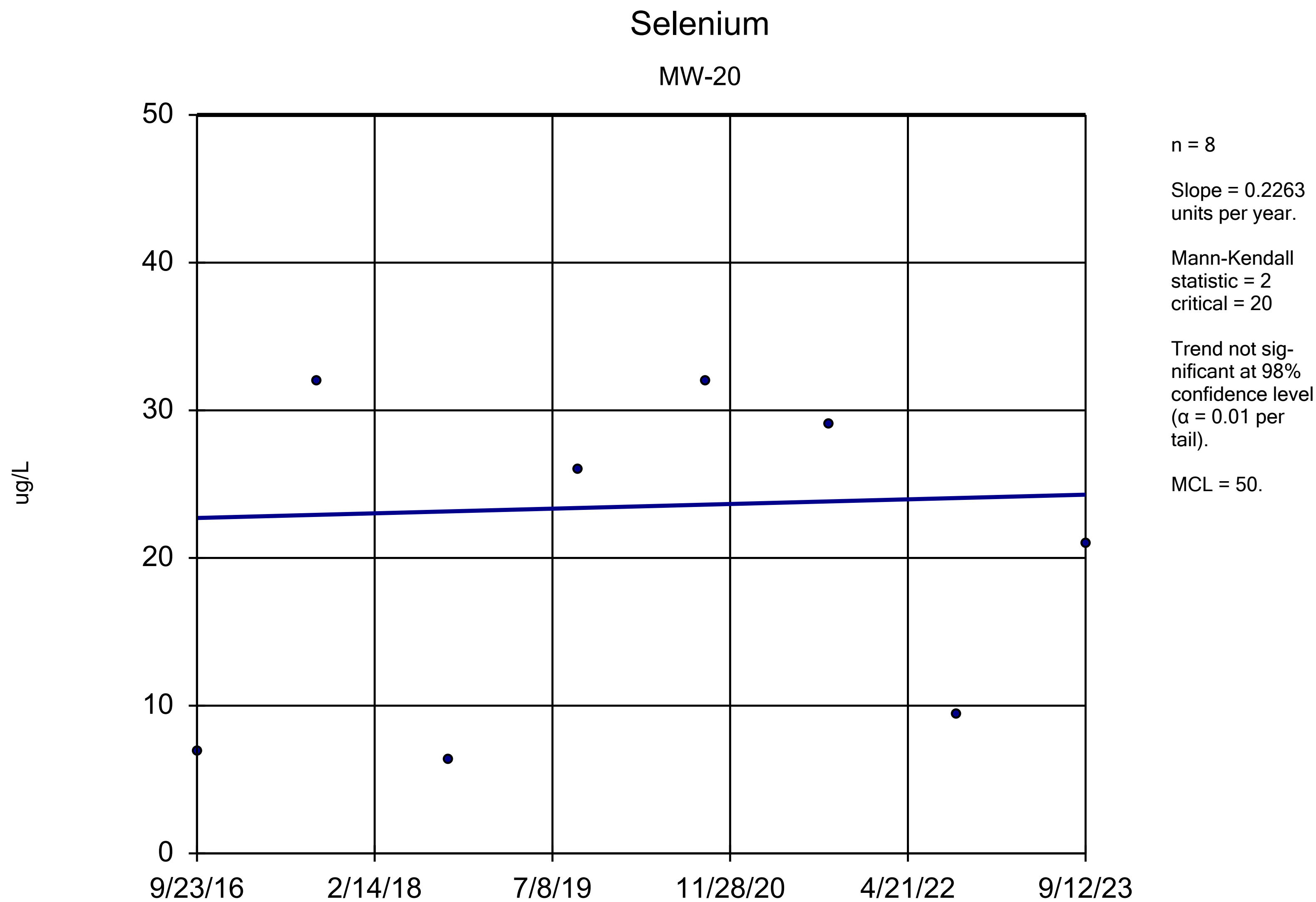
Constituent: Selenium (ug/L)   Analysis Run 10/26/2023 3:44 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-2
9/23/2016	6.2
9/5/2017	1.3
9/17/2018	1.1
9/23/2019	1.9 (J)
9/22/2020	1.7 (J)
9/8/2021	3.7 (J)
9/7/2022	1.9 (J)
9/12/2023	<1.4 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:42 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

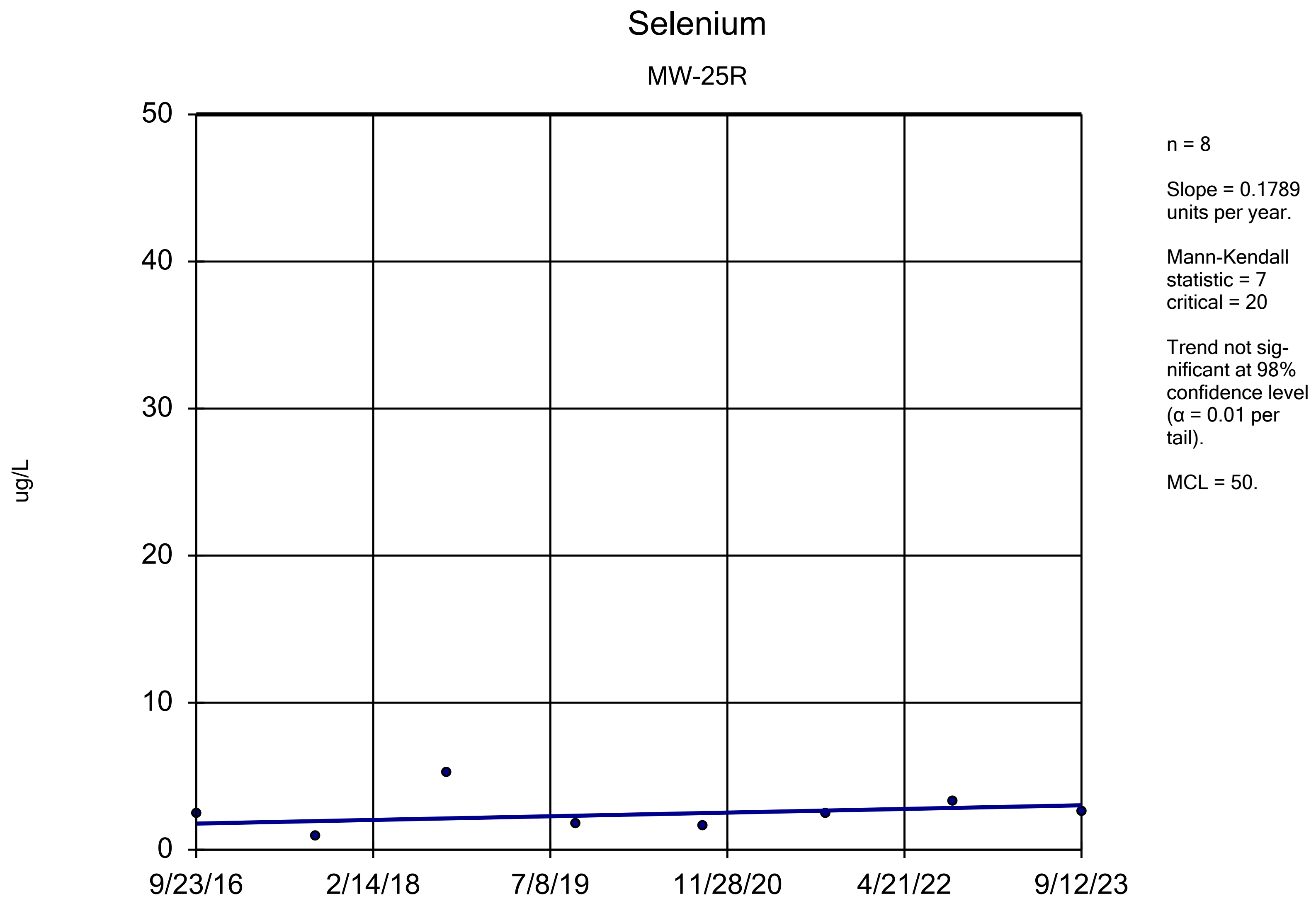
Sen's Slope Estimator

Constituent: Selenium (ug/L)   Analysis Run 10/26/2023 3:44 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-20
9/23/2016	6.9
9/5/2017	31.9
9/17/2018	6.3
9/23/2019	26
9/21/2020	32
9/8/2021	29
9/6/2022	9.4
9/12/2023	21

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:42 PM   View: Shallow

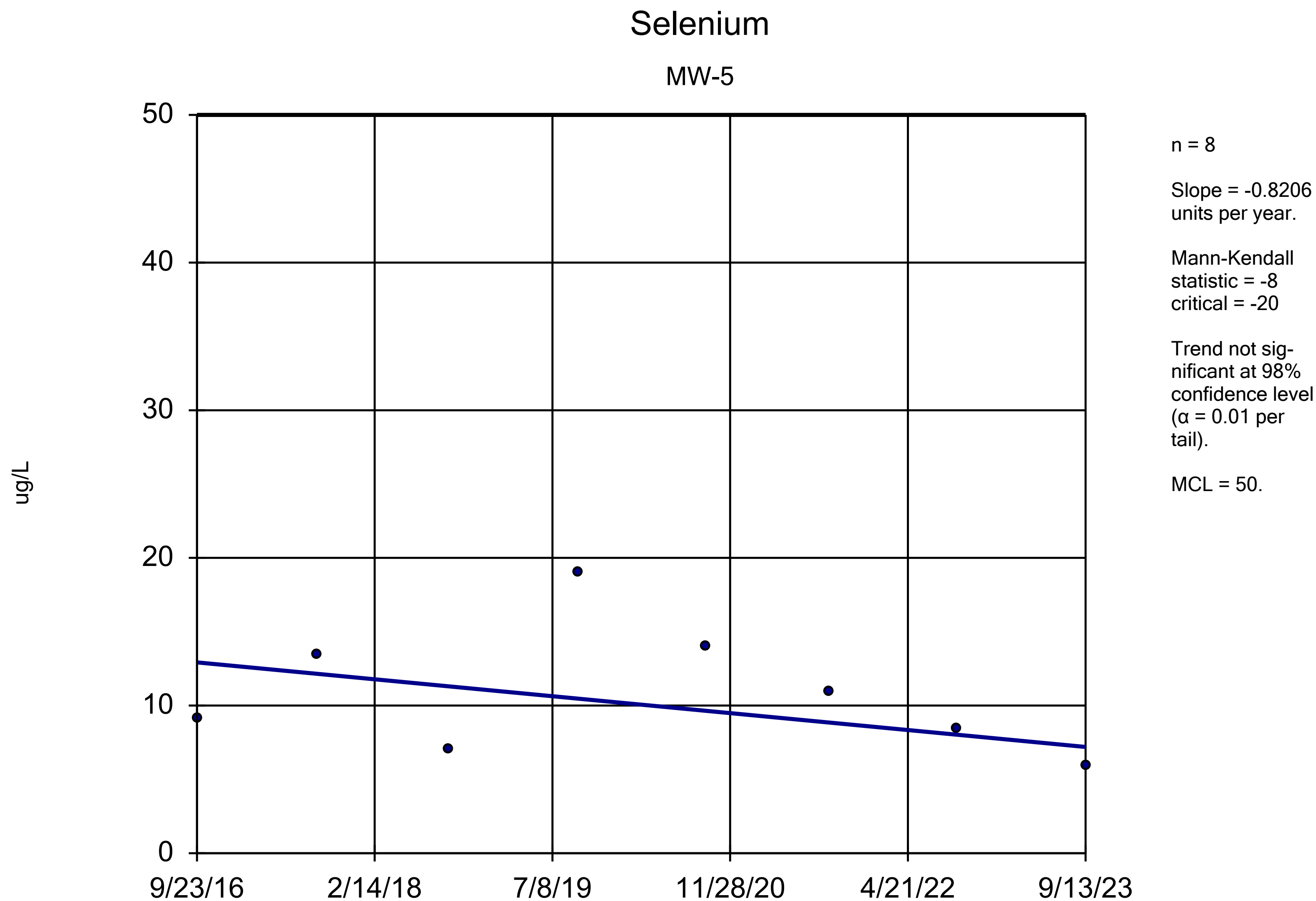
Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

Constituent: Selenium (ug/L) Analysis Run 10/26/2023 3:44 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-25R
9/23/2016	2.4
9/5/2017	0.97 (J)
9/17/2018	5.2
9/23/2019	1.7 (J)
9/21/2020	1.6 (J)
9/7/2021	2.4 (J)
9/6/2022	3.3 (J)
9/12/2023	2.6 (J)



Sen's Slope and 95% Confidence Band Analysis Run 10/26/2023 3:42 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

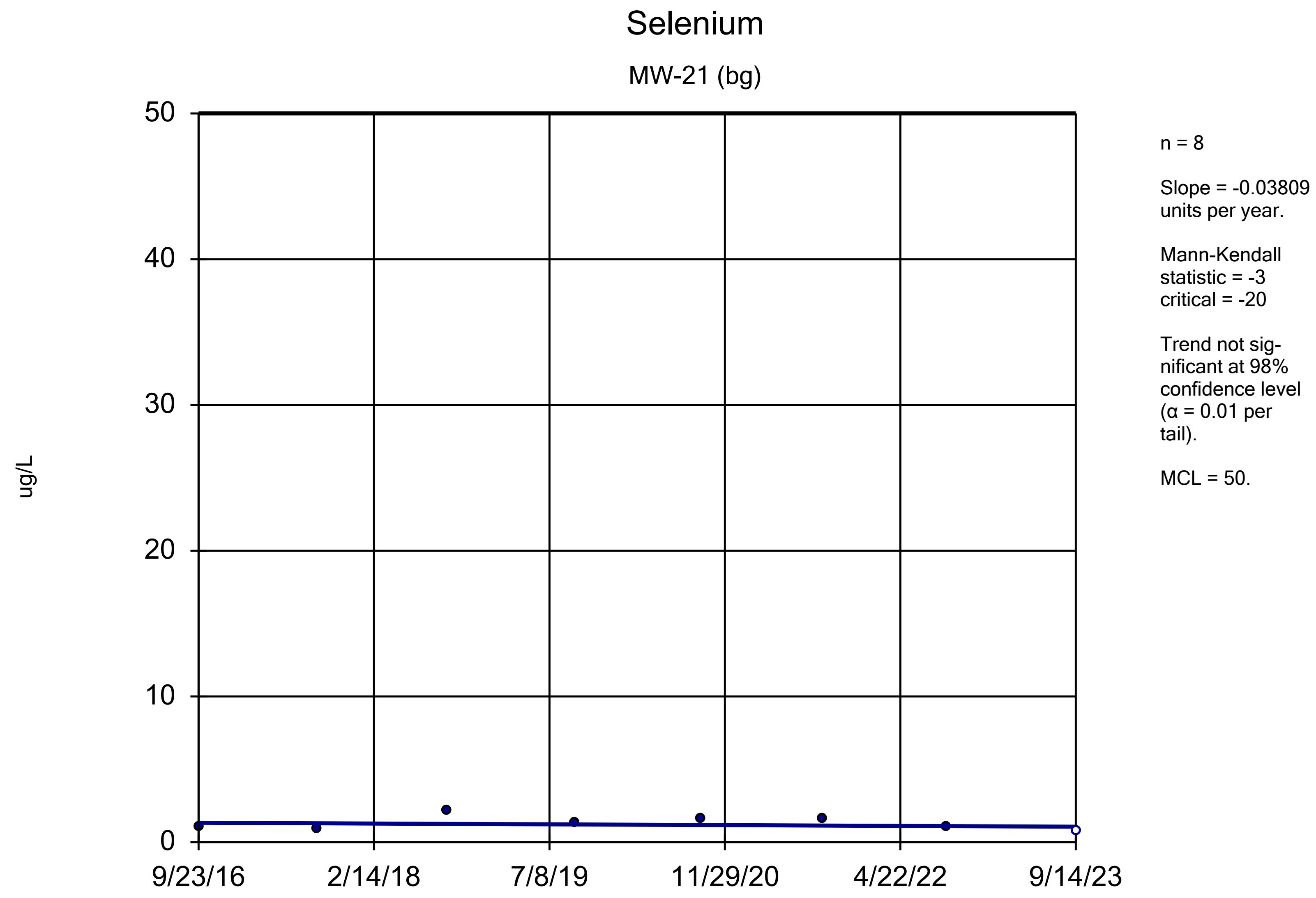
Sen's Slope Estimator

Constituent: Selenium (ug/L)   Analysis Run 10/26/2023 3:44 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-5
9/23/2016	9.1
9/5/2017	13.5
9/17/2018	7
9/23/2019	19
9/22/2020	14
9/9/2021	11
9/7/2022	8.4
9/13/2023	5.9

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band Analysis Run 10/26/2023 3:42 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Sen's Slope Estimator

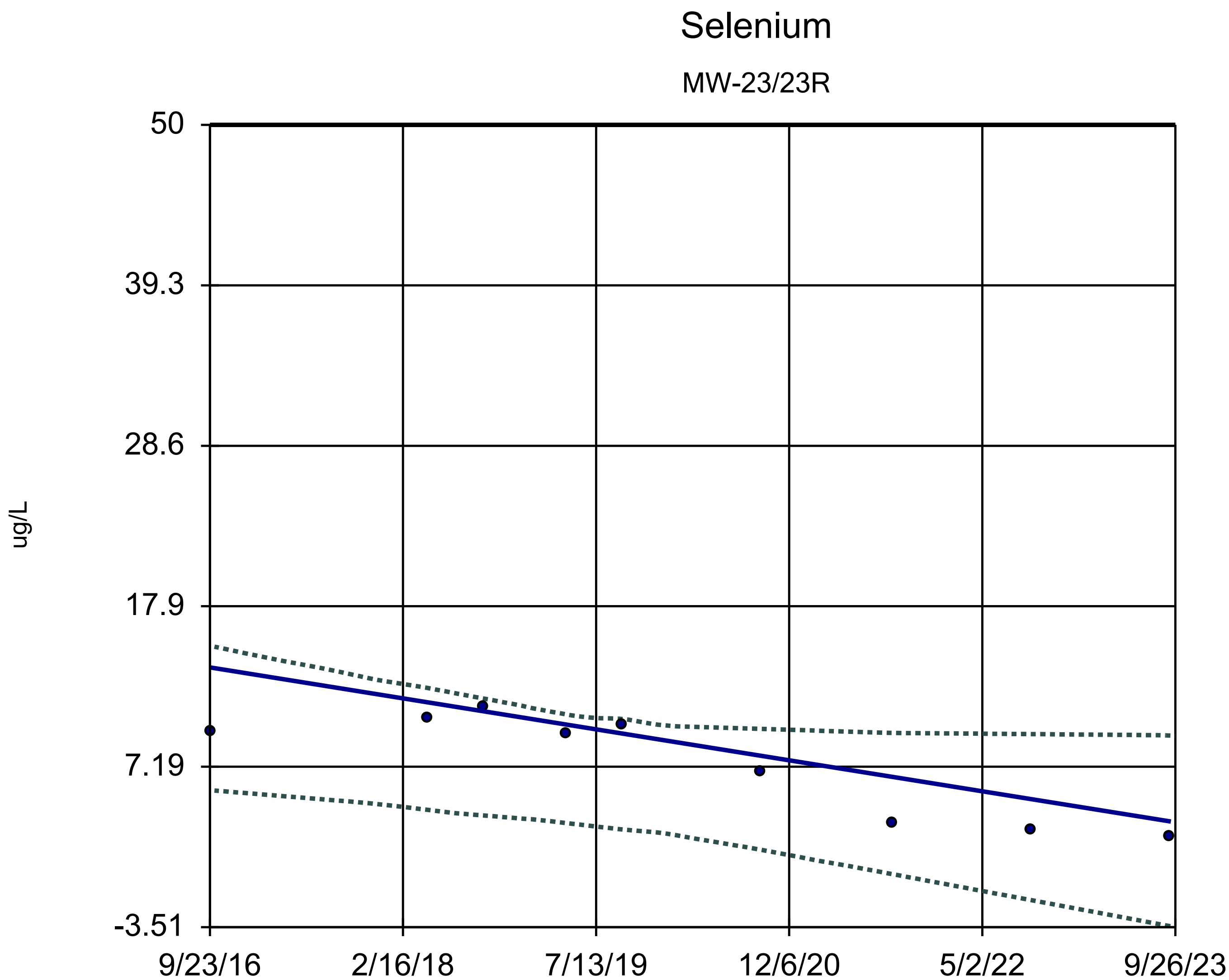
Constituent: Selenium (ug/L) Analysis Run 10/26/2023 3:44 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-21 (bg)
9/23/2016	1
9/5/2017	0.9 (J)
9/17/2018	2.1
9/23/2019	1.3 (J)
9/23/2020	1.6 (J)
9/10/2021	1.6 (J)
9/7/2022	1.1 (J)
9/14/2023	<1.4 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



n = 9

Slope = -1.473
units per year.

Mann-Kendall
statistic = -26
critical = -23

Decreasing trend
significant at 98%
confidence level
(α = 0.01 per
tail).

Confidence band is
below MCL (50).

Sen's Slope and 95% Confidence Band Analysis Run 10/26/2023 3:42 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

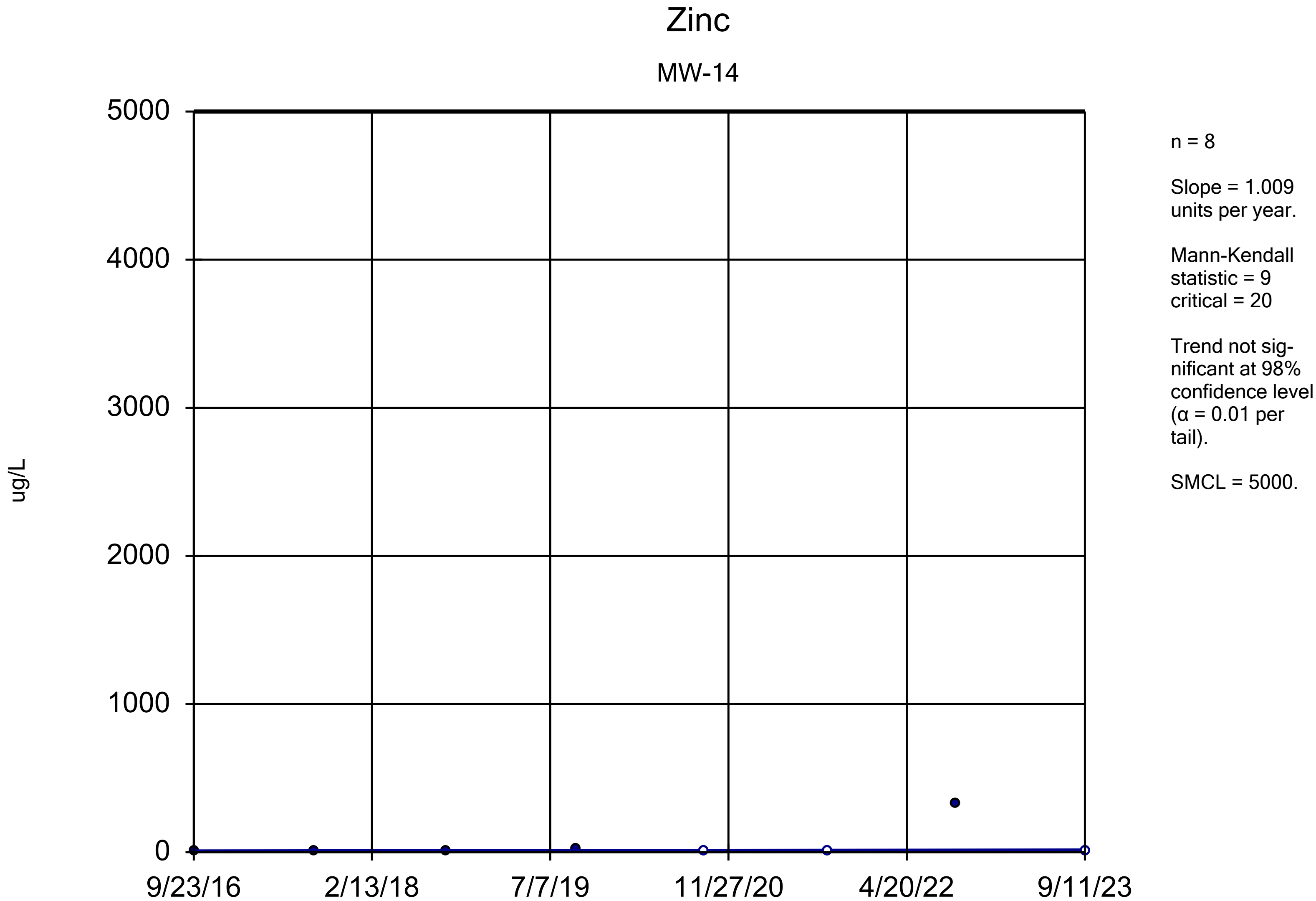
Sen's Slope Estimator

Constituent: Selenium (ug/L) Analysis Run 10/26/2023 3:45 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-23/23R	LCL	UCL
9/23/2016	9.6	5.63	15.26
4/25/2018	10.4	4.315	12.43
9/17/2018	11.1	3.947	11.75
4/23/2019	9.4	3.445	10.7
9/23/2019	10	3	10.4
9/24/2020	6.9	1.649	9.716
9/9/2021	3.4 (J)	0.01755	9.448
9/8/2022	3 (J)	-1.7	9.37
9/14/2023	2.5 (J)	-3.45	9.274

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:42 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

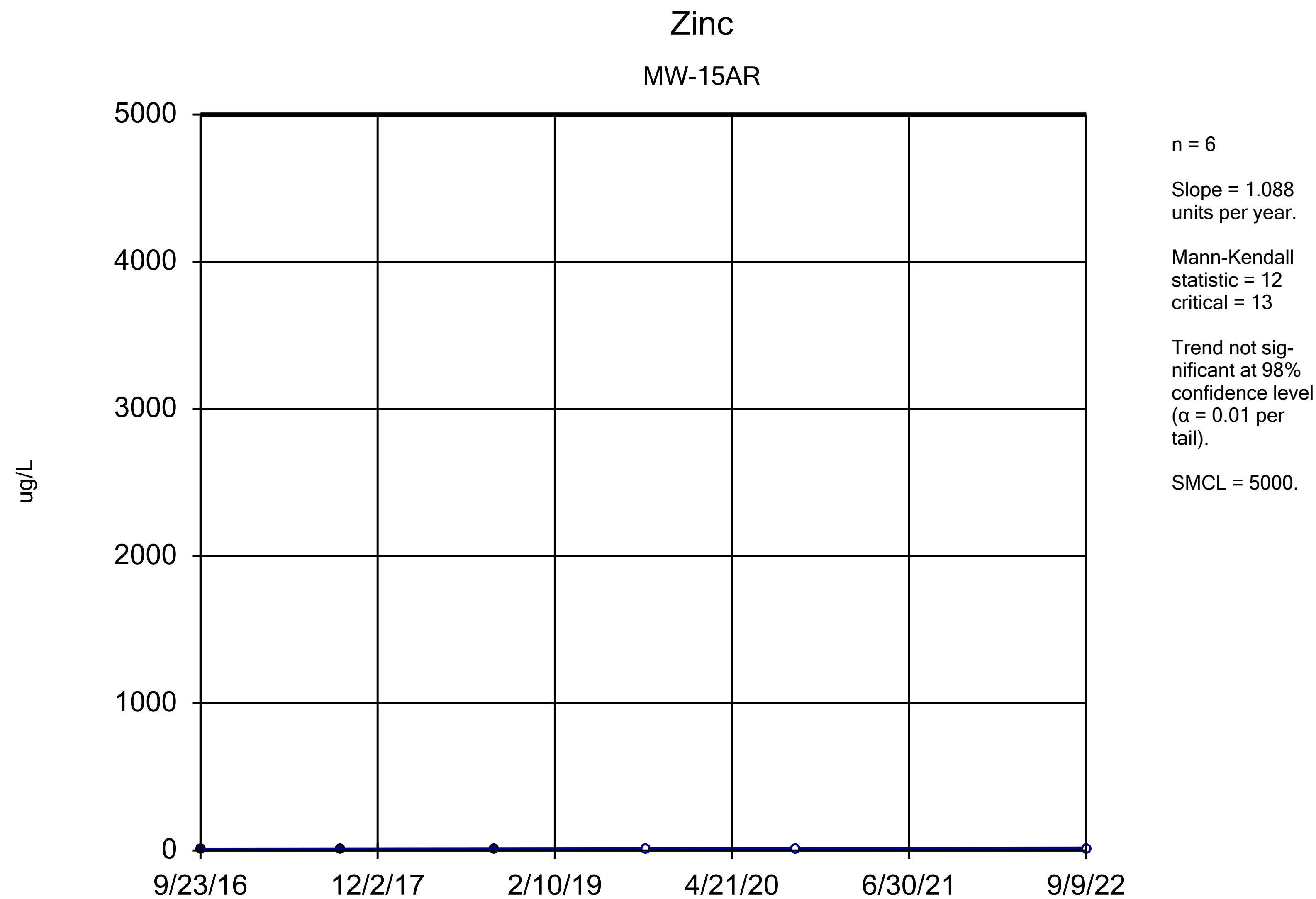
Constituent: Zinc (ug/L) Analysis Run 10/26/2023 3:45 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-14
9/23/2016	7.3 (J)
9/5/2017	3.4 (J)
9/17/2018	6 (J)
9/23/2019	15 (J)
9/22/2020	<10
9/8/2021	<10
9/6/2022	330
9/11/2023	<6.4 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope Estimator Analysis Run 10/26/2023 3:42 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Sen's Slope Estimator

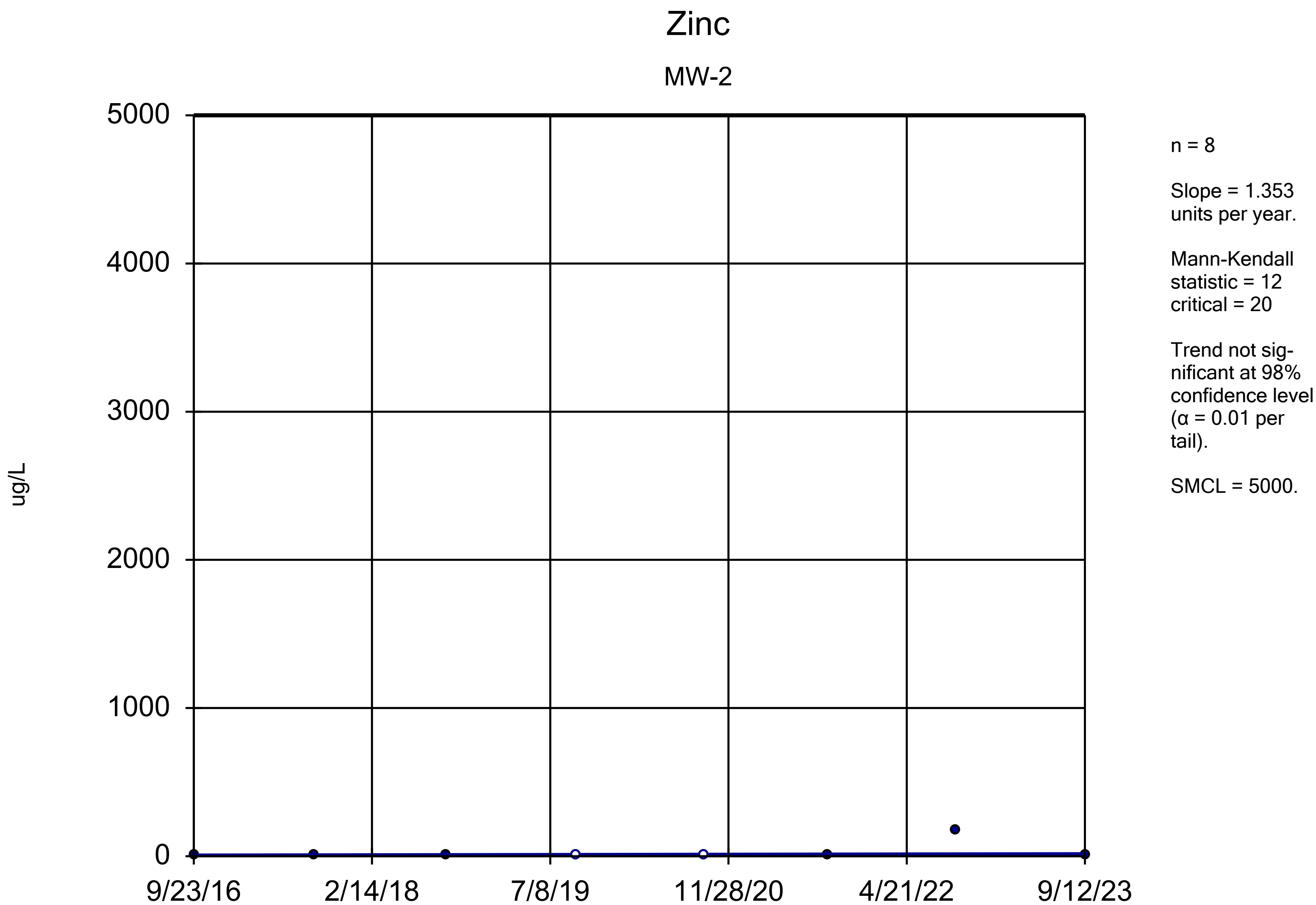
Constituent: Zinc (ug/L)   Analysis Run 10/26/2023 3:45 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-15AR
9/23/2016	2.4 (J)
9/5/2017	7 (J)
9/17/2018	7.8 (J)
9/23/2019	<10
9/24/2020	<10
9/9/2022	<10

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:42 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

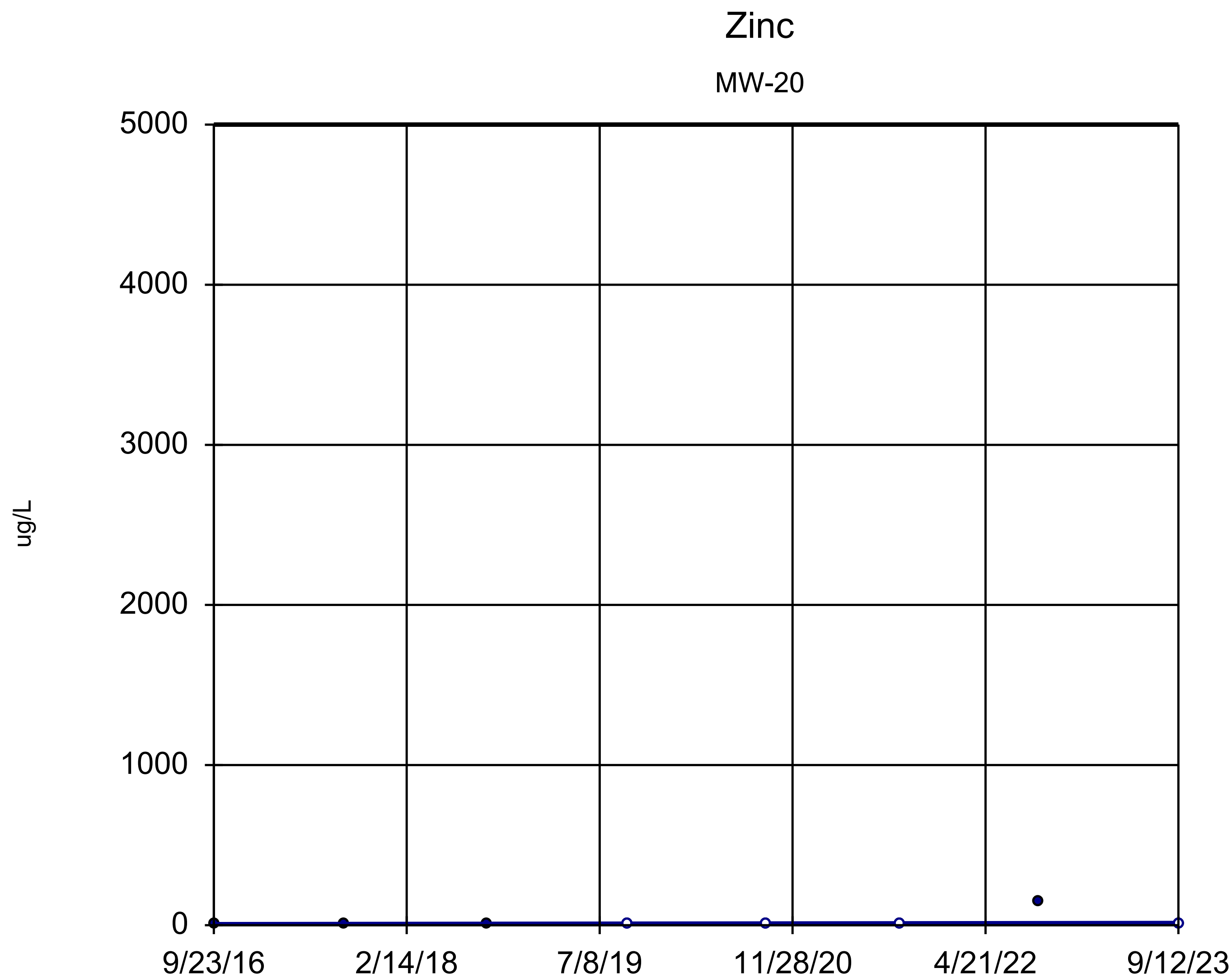
Constituent: Zinc (ug/L) Analysis Run 10/26/2023 3:45 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-2
9/23/2016	8.3 (J)
9/5/2017	2 (J)
9/17/2018	6.6 (J)
9/23/2019	<10
9/22/2020	<10
9/8/2021	12 (J)
9/7/2022	170
9/12/2023	6.6 (J)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



n = 8

Slope = 1.007
units per year.

Mann-Kendall
statistic = 7
critical = 20

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

SMCL = 5000.

Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:43 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

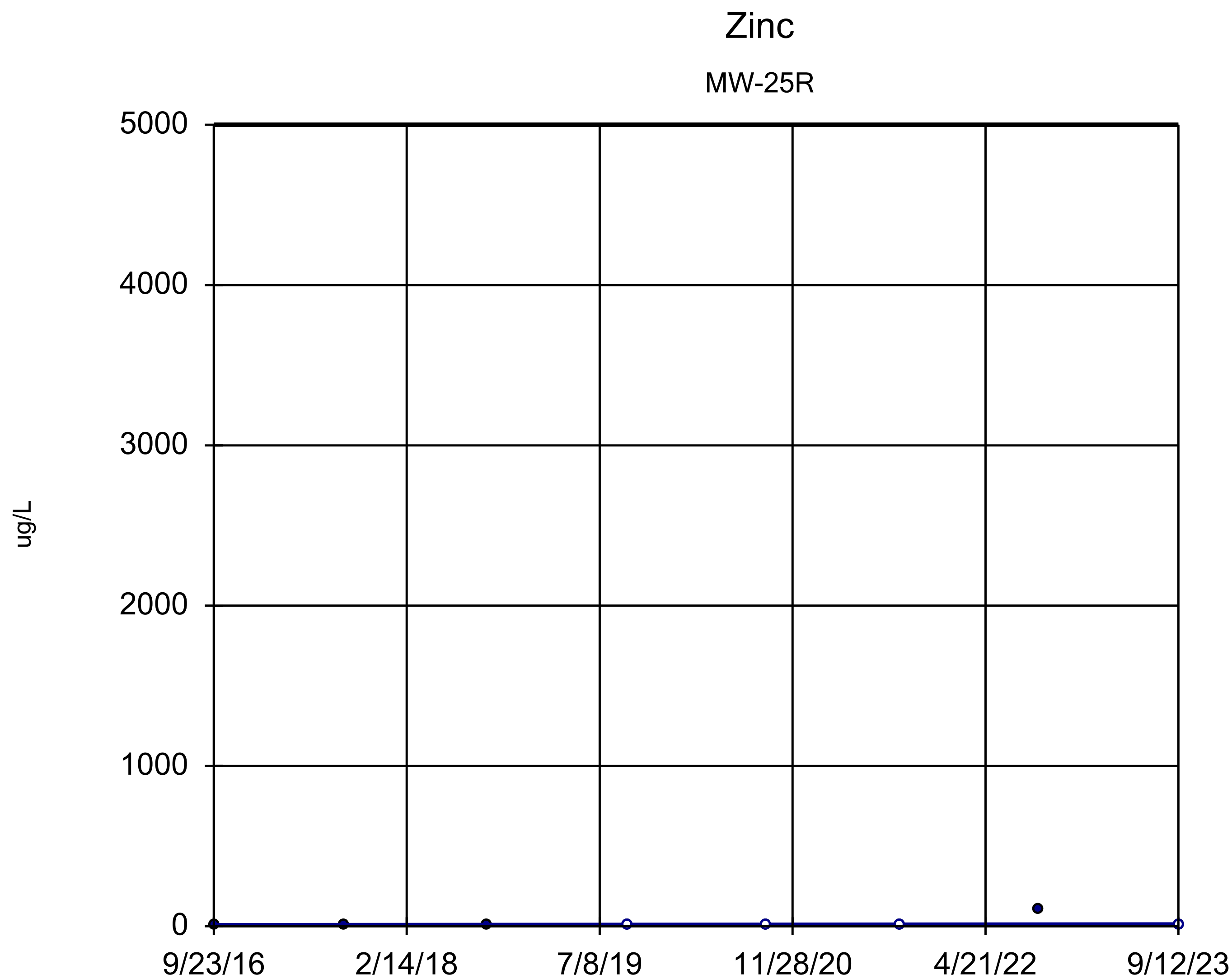
Constituent: Zinc (ug/L) Analysis Run 10/26/2023 3:45 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-20
9/23/2016	3.8 (J)
9/5/2017	1.8 (J)
9/17/2018	11.5
9/23/2019	<10
9/21/2020	<10
9/8/2021	<10
9/6/2022	150
9/12/2023	<6.4 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



n = 8

Slope = 0.6527 units per year.

Mann-Kendall statistic = 11 critical = 20

Trend not significant at 98% confidence level (α = 0.01 per tail).

SMCL = 5000.

Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:43 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

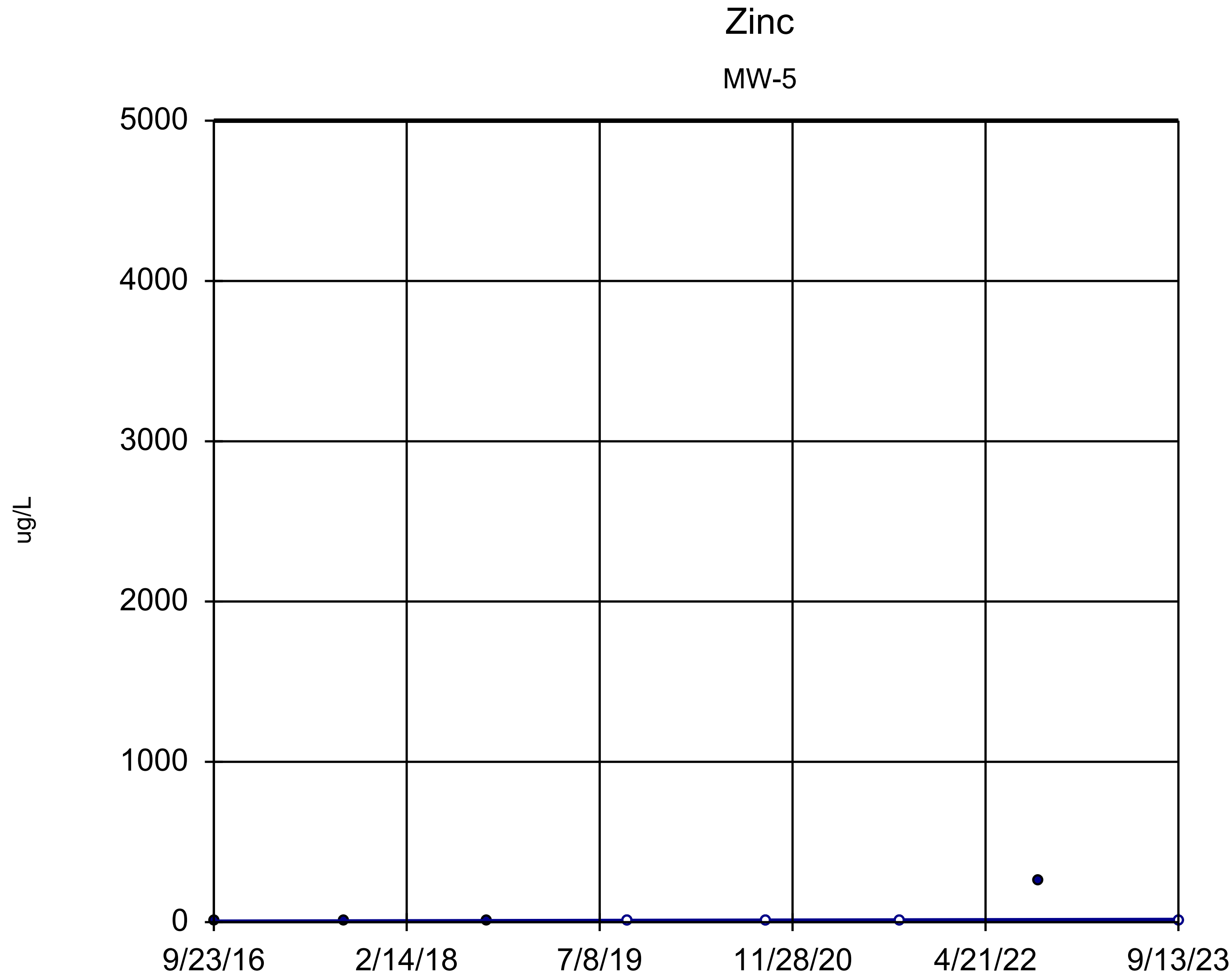
Constituent: Zinc (ug/L)   Analysis Run 10/26/2023 3:45 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-25R
9/23/2016	7.2 (J)
9/5/2017	4.7 (J)
9/17/2018	8.2 (J)
9/23/2019	<10
9/21/2020	<10
9/7/2021	<10
9/6/2022	100
9/12/2023	<6.4 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



n = 8

Slope = 1.605
units per year.

Mann-Kendall
statistic = 15
critical = 20

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

SMCL = 5000.

Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:43 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

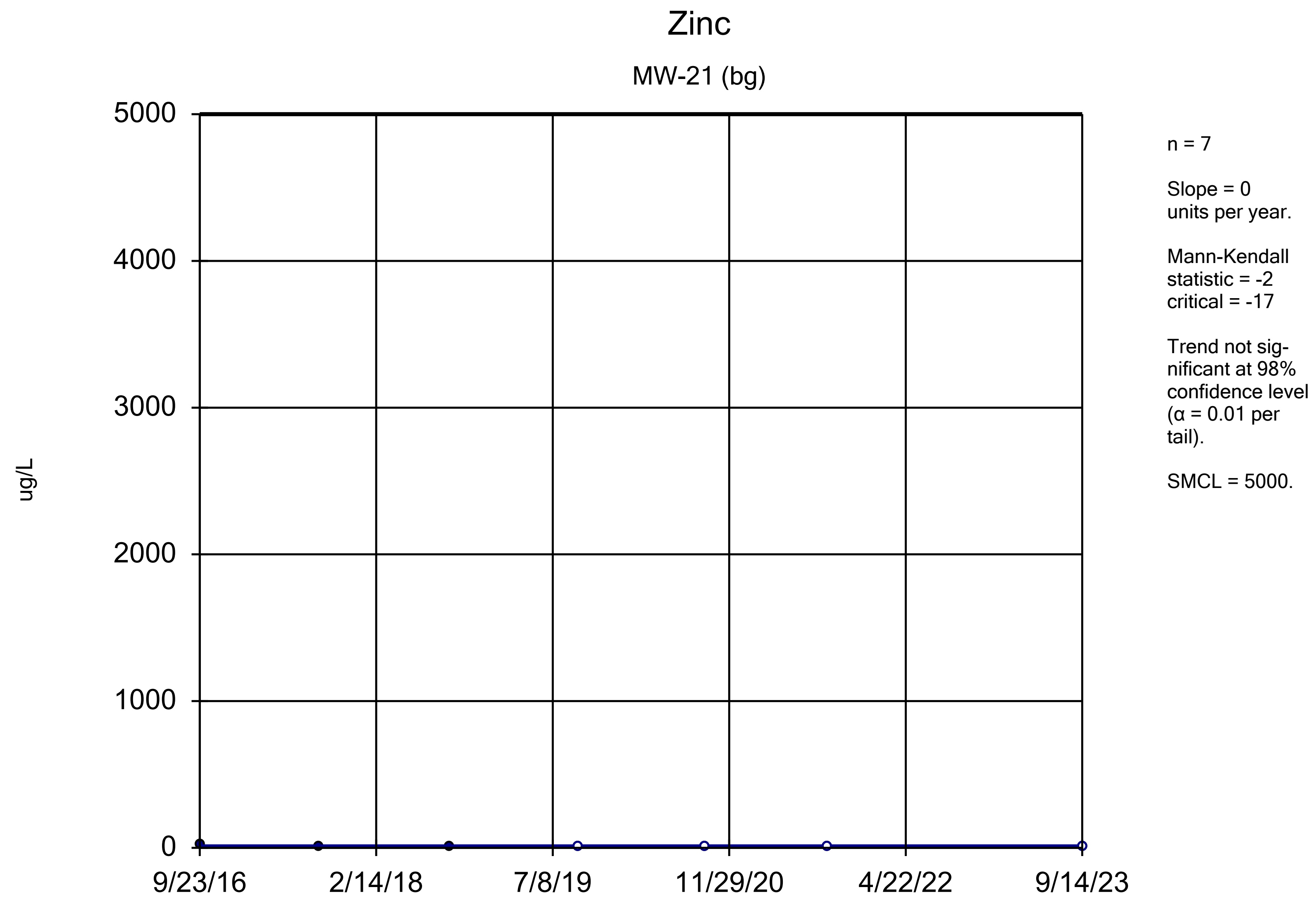
Constituent: Zinc (ug/L) Analysis Run 10/26/2023 3:45 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-5
9/23/2016	4 (J)
9/5/2017	2 (J)
9/17/2018	4.9 (J)
9/23/2019	<10
9/22/2020	<10
9/9/2021	<10
9/7/2022	260
9/13/2023	<6.4 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope Estimator   Analysis Run 10/26/2023 3:43 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

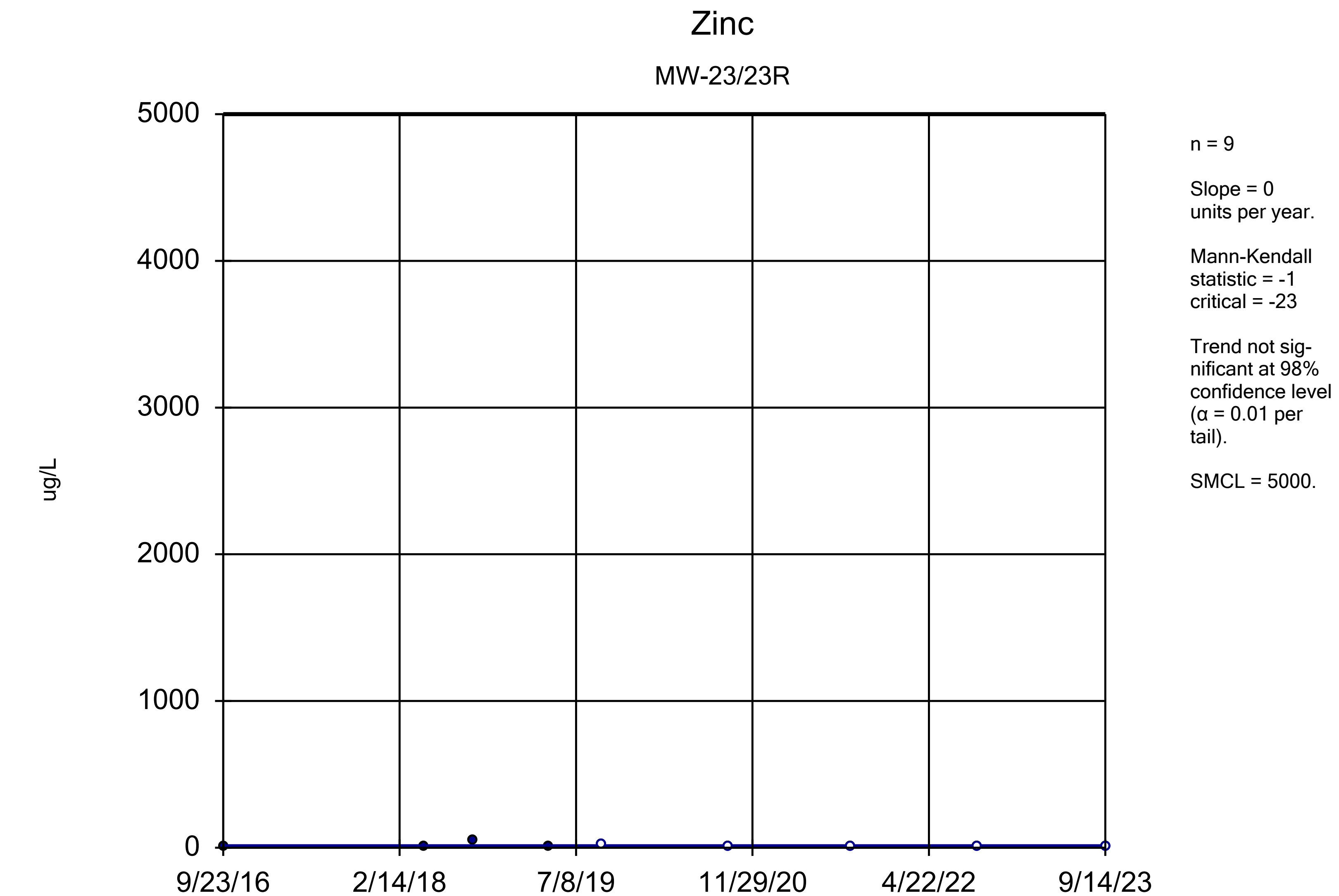
Constituent: Zinc (ug/L) Analysis Run 10/26/2023 3:45 PM View: Shallow

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-21 (bg)
9/23/2016	14.2
9/5/2017	4.7 (J)
9/17/2018	8 (J)
9/23/2019	<10
9/23/2020	<10
9/10/2021	<10
9/7/2022	130 (X)
9/14/2023	<6.4 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 3:43 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

Constituent: Zinc (ug/L)   Analysis Run 10/26/2023 3:45 PM   View: Shallow

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-23/23R
9/23/2016	3.7 (J)
4/25/2018	6.3 (J)
9/17/2018	44.8
4/23/2019	11 (J)
9/23/2019	<20
9/24/2020	<10
9/9/2021	<10
9/8/2022	<10
9/14/2023	<6.4 (U)

ND substitution: RL or RL/2 if <15% NDs.

Trend Test

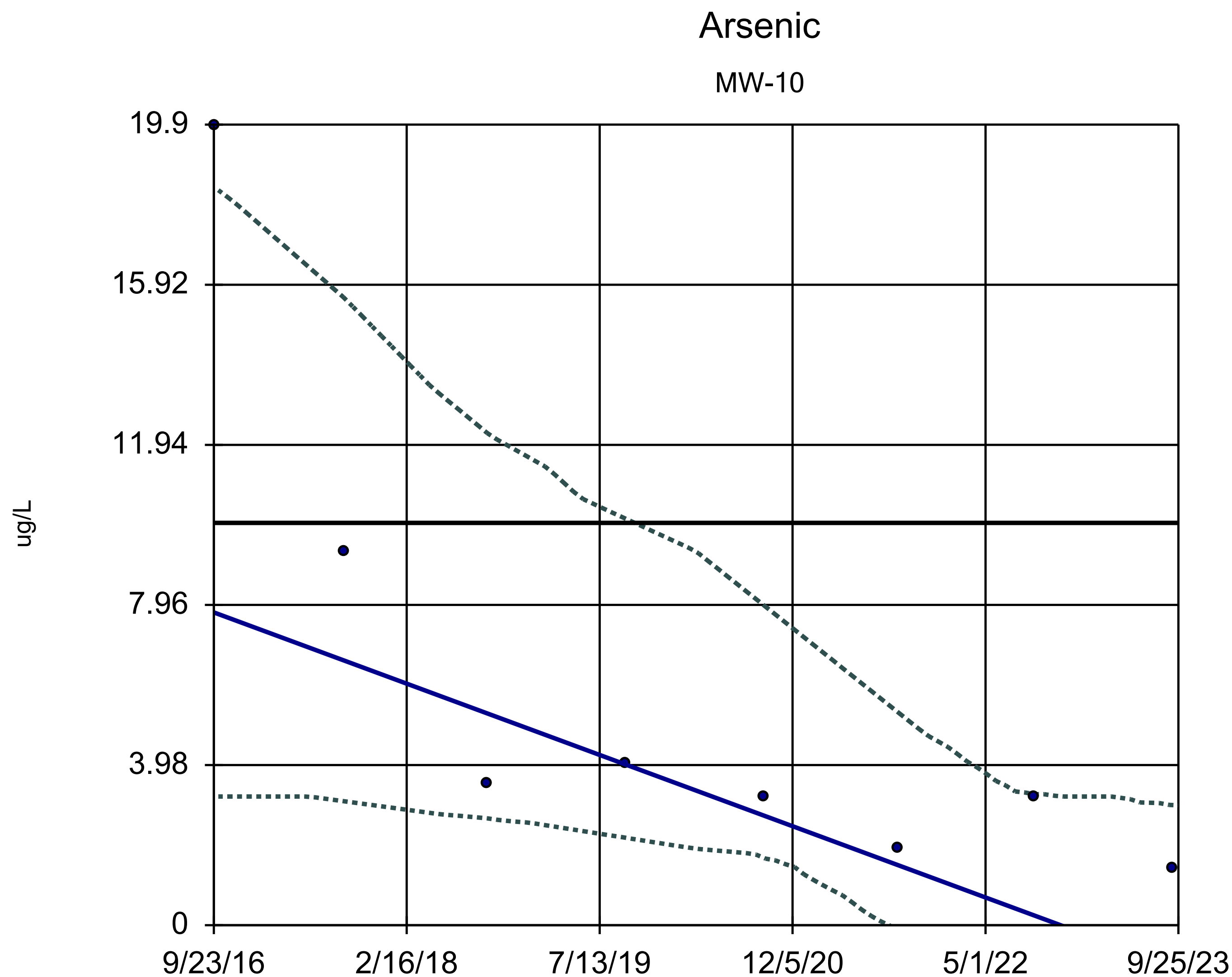
Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB   Printed 10/26/2023, 4:04 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Arsenic (ug/L)	**MW-10**	**-1.264**	**-23**	**-20**	**Yes**	**8**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Arsenic (ug/L)	MW-11	-0.1253	-8	-20	No	8	0	n/a	n/a	0.02	NP
Arsenic (ug/L)	MW-12 (bg)	0.05569	13	20	No	8	0	n/a	n/a	0.02	NP
Arsenic (ug/L)	MW-16	0.04066	9	20	No	8	50	n/a	n/a	0.02	NP
Arsenic (ug/L)	MW-6	0.04701	2	20	No	8	25	n/a	n/a	0.02	NP
Arsenic (ug/L)	MW-7	0.05367	13	20	No	8	50	n/a	n/a	0.02	NP
Arsenic (ug/L)	**MW-24/24R**	**-0.3244**	**-24**	**-23**	**Yes**	**9**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Barium (ug/L)	**MW-10**	**-9.454**	**-21**	**-20**	**Yes**	**8**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Barium (ug/L)	MW-11	-0.7556	-3	-20	No	8	0	n/a	n/a	0.02	NP
Barium (ug/L)	MW-12 (bg)	-1.634	-6	-20	No	8	0	n/a	n/a	0.02	NP
Barium (ug/L)	MW-16	0.215	2	20	No	8	0	n/a	n/a	0.02	NP
Barium (ug/L)	MW-6	-2.02	-9	-20	No	8	0	n/a	n/a	0.02	NP
Barium (ug/L)	MW-7	0.166	2	20	No	8	0	n/a	n/a	0.02	NP
Barium (ug/L)	MW-24/24R	-12.9	-22	-23	No	9	0	n/a	n/a	0.02	NP
Boron (ug/L)	MW-10	-19.61	-2	-20	No	8	0	n/a	n/a	0.02	NP
Boron (ug/L)	**MW-11**	**-42.82**	**-22**	**-20**	**Yes**	**8**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Boron (ug/L)	MW-12 (bg)	0.6716	1	20	No	8	75	n/a	n/a	0.02	NP
Boron (ug/L)	MW-16	149.7	12	20	No	8	0	n/a	n/a	0.02	NP
Boron (ug/L)	MW-6	-23.74	-11	-20	No	8	0	n/a	n/a	0.02	NP
Boron (ug/L)	MW-7	-21.18	-20	-20	No	8	0	n/a	n/a	0.02	NP
Boron (ug/L)	MW-24/24R	-22.33	-12	-23	No	9	55.56	n/a	n/a	0.02	NP
Cobalt (ug/L)	**MW-10**	**-0.02359**	**-21**	**-20**	**Yes**	**8**	**25**	**n/a**	**n/a**	**0.02**	**NP**
Cobalt (ug/L)	MW-11	0.02073	4	20	No	8	12.5	n/a	n/a	0.02	NP
Cobalt (ug/L)	MW-12 (bg)	-0.01882	-15	-20	No	8	0	n/a	n/a	0.02	NP
Cobalt (ug/L)	MW-16	0.005065	1	20	No	8	50	n/a	n/a	0.02	NP
Cobalt (ug/L)	MW-6	-0.01462	-2	-20	No	8	12.5	n/a	n/a	0.02	NP
Cobalt (ug/L)	MW-7	-0.00...	-1	-20	No	8	75	n/a	n/a	0.02	NP
Cobalt (ug/L)	**MW-24/24R**	**10.66**	**24**	**23**	**Yes**	**9**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Copper (ug/L)	MW-10	-0.08391	-5	-20	No	8	62.5	n/a	n/a	0.02	NP
Copper (ug/L)	MW-11	0.01434	1	20	No	8	62.5	n/a	n/a	0.02	NP
Copper (ug/L)	MW-12 (bg)	0.2194	13	20	No	8	75	n/a	n/a	0.02	NP
Copper (ug/L)	MW-16	0.1759	7	20	No	8	50	n/a	n/a	0.02	NP
Copper (ug/L)	MW-6	0.06945	6	20	No	8	37.5	n/a	n/a	0.02	NP
Copper (ug/L)	MW-7	0.1296	11	20	No	8	62.5	n/a	n/a	0.02	NP
Copper (ug/L)	MW-24/24R	-0.9682	-21	-23	No	9	55.56	n/a	n/a	0.02	NP
Lead (ug/L)	**MW-10**	**-0.3713**	**-22**	**-20**	**Yes**	**8**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Lead (ug/L)	MW-11	-0.00...	-10	-20	No	8	25	n/a	n/a	0.02	NP
Lead (ug/L)	MW-12 (bg)	0.02445	13	20	No	8	75	n/a	n/a	0.02	NP
Lead (ug/L)	MW-16	-0.00311	-5	-20	No	8	37.5	n/a	n/a	0.02	NP
Lead (ug/L)	MW-6	-0.00...	-1	-20	No	8	0	n/a	n/a	0.02	NP
Lead (ug/L)	MW-7	0.007459	1	20	No	8	37.5	n/a	n/a	0.02	NP
Lead (ug/L)	MW-24/24R	-0.5898	-21	-23	No	9	33.33	n/a	n/a	0.02	NP
Manganese (ug/L)	MW-10	-8.274	-14	-20	No	8	0	n/a	n/a	0.02	NP
Manganese (ug/L)	MW-11	-3.146	-6	-20	No	8	0	n/a	n/a	0.02	NP
Manganese (ug/L)	MW-12 (bg)	-2.672	-10	-20	No	8	0	n/a	n/a	0.02	NP
Manganese (ug/L)	MW-16	0.4447	4	20	No	8	25	n/a	n/a	0.02	NP
Manganese (ug/L)	MW-6	5.262	4	20	No	8	0	n/a	n/a	0.02	NP
Manganese (ug/L)	MW-7	-0.1277	-3	-20	No	8	50	n/a	n/a	0.02	NP
Manganese (ug/L)	MW-24/24R	-78.57	-22	-23	No	9	0	n/a	n/a	0.02	NP
Selenium (ug/L)	MW-10	-0.09594	-2	-20	No	8	12.5	n/a	n/a	0.02	NP

Trend Test

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB   Printed 10/26/2023, 4:04 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Selenium (ug/L)	MW-11	0.01691	2	20	No	8	12.5	n/a	n/a	0.02	NP
Selenium (ug/L)	MW-12 (bg)	0.1748	14	20	No	8	100	n/a	n/a	0.02	NP
Selenium (ug/L)	MW-16	0.389	12	20	No	8	50	n/a	n/a	0.02	NP
Selenium (ug/L)	MW-6	0.2045	4	20	No	8	0	n/a	n/a	0.02	NP
Selenium (ug/L)	MW-7	0.03642	5	20	No	8	0	n/a	n/a	0.02	NP
Selenium (ug/L)	MW-24/24R	-0.01855	-10	-23	No	9	66.67	n/a	n/a	0.02	NP
Zinc (ug/L)	MW-10	0	-2	-20	No	8	37.5	n/a	n/a	0.02	NP
Zinc (ug/L)	MW-11	-0.4531	-3	-20	No	8	50	n/a	n/a	0.02	NP
Zinc (ug/L)	MW-12 (bg)	1.908	15	20	No	8	62.5	n/a	n/a	0.02	NP
Zinc (ug/L)	MW-16	1.828	14	20	No	8	50	n/a	n/a	0.02	NP
Zinc (ug/L)	MW-6	0.3508	10	20	No	8	50	n/a	n/a	0.02	NP
Zinc (ug/L)	MW-7	0.5838	13	20	No	8	25	n/a	n/a	0.02	NP
Zinc (ug/L)	MW-24/24R	0	4	23	No	9	55.56	n/a	n/a	0.02	NP



n = 8

Slope = -1.264
units per year.

Mann-Kendall
statistic = -23
critical = -20

Decreasing trend
significant at 98%
confidence level
(α = 0.01 per
tail).

Confidence band intersects
MCL (10) on 10/30/19.

Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:02 PM   View: Deep

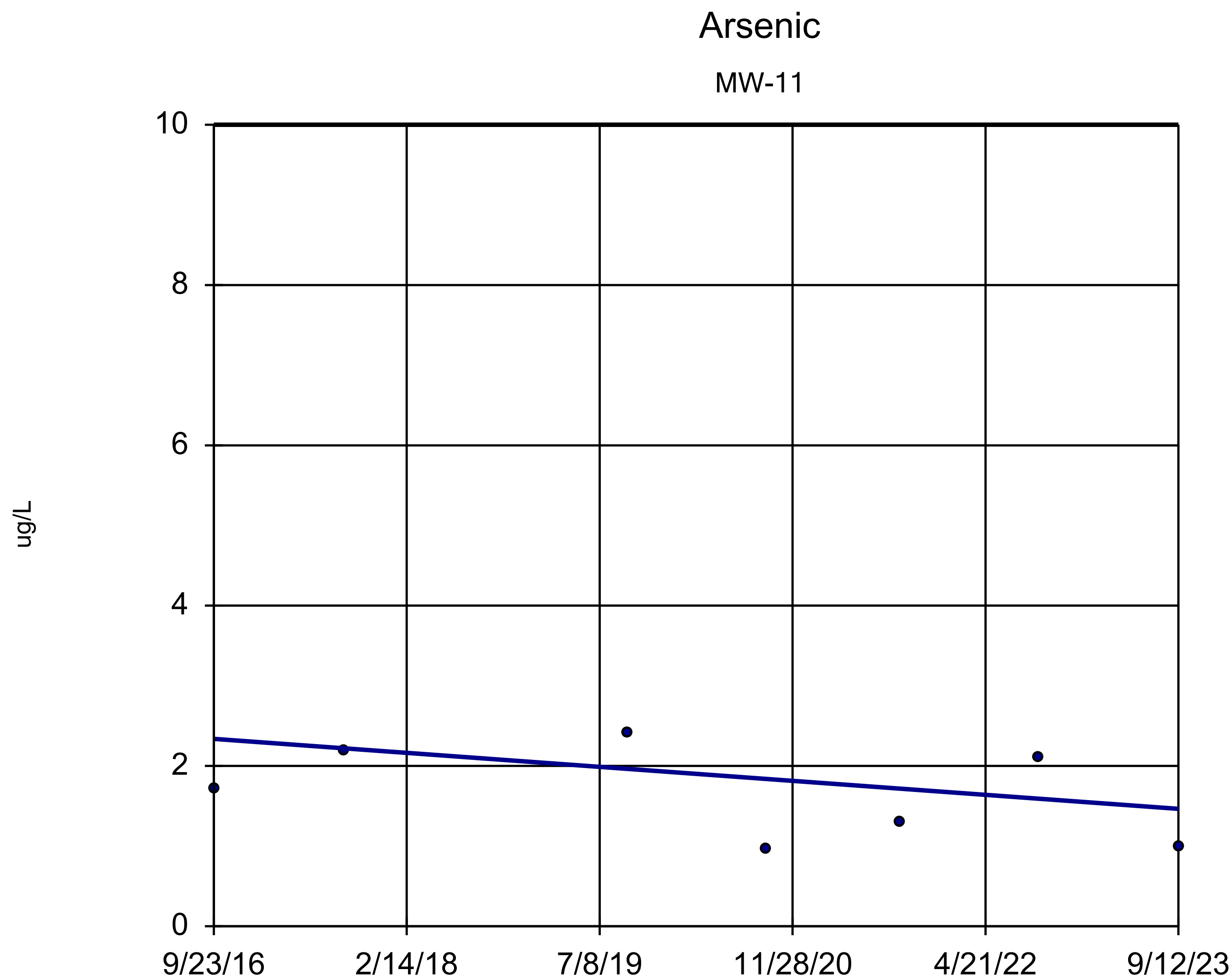
Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

Constituent: Arsenic (ug/L) Analysis Run 10/26/2023 4:04 PM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-10	LCL	UCL
9/23/2016	19.9	3.2	18.36
9/5/2017	9.3	3.078	15.58
9/17/2018	3.5	2.658	12.24
9/23/2019	4	2.169	10.09
9/24/2020	3.2	1.66	7.926
9/9/2021	1.9 (J)	-0.1302	5.312
9/9/2022	3.2	-3.039	3.257
9/13/2023	1.4 (J)	-5.864	2.985



n = 8

Slope = -0.1253 units per year.

Mann-Kendall statistic = -8 critical = -20

Trend not significant at 98% confidence level (α = 0.01 per tail).

MCL = 10.

Sen's Slope and 95% Confidence Band Analysis Run 10/26/2023 4:02 PM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

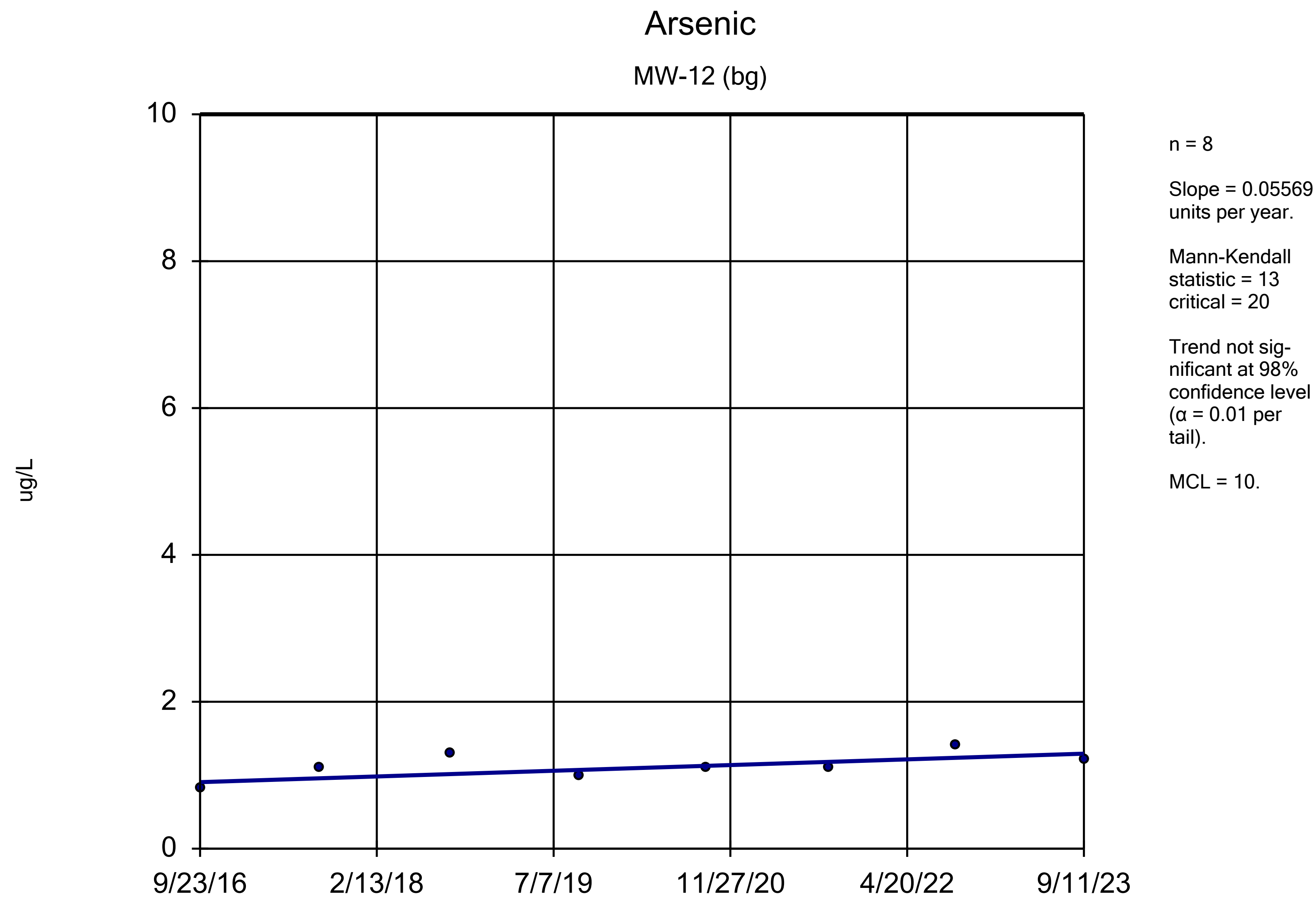
Sen's Slope Estimator

Constituent: Arsenic (ug/L)   Analysis Run 10/26/2023 4:04 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-11
9/23/2016	1.7
9/5/2017	2.2
9/17/2018	14.2
9/23/2019	2.4
9/22/2020	0.97 (J)
9/8/2021	1.3 (J)
9/6/2022	2.1
9/12/2023	1 (J)

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:02 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

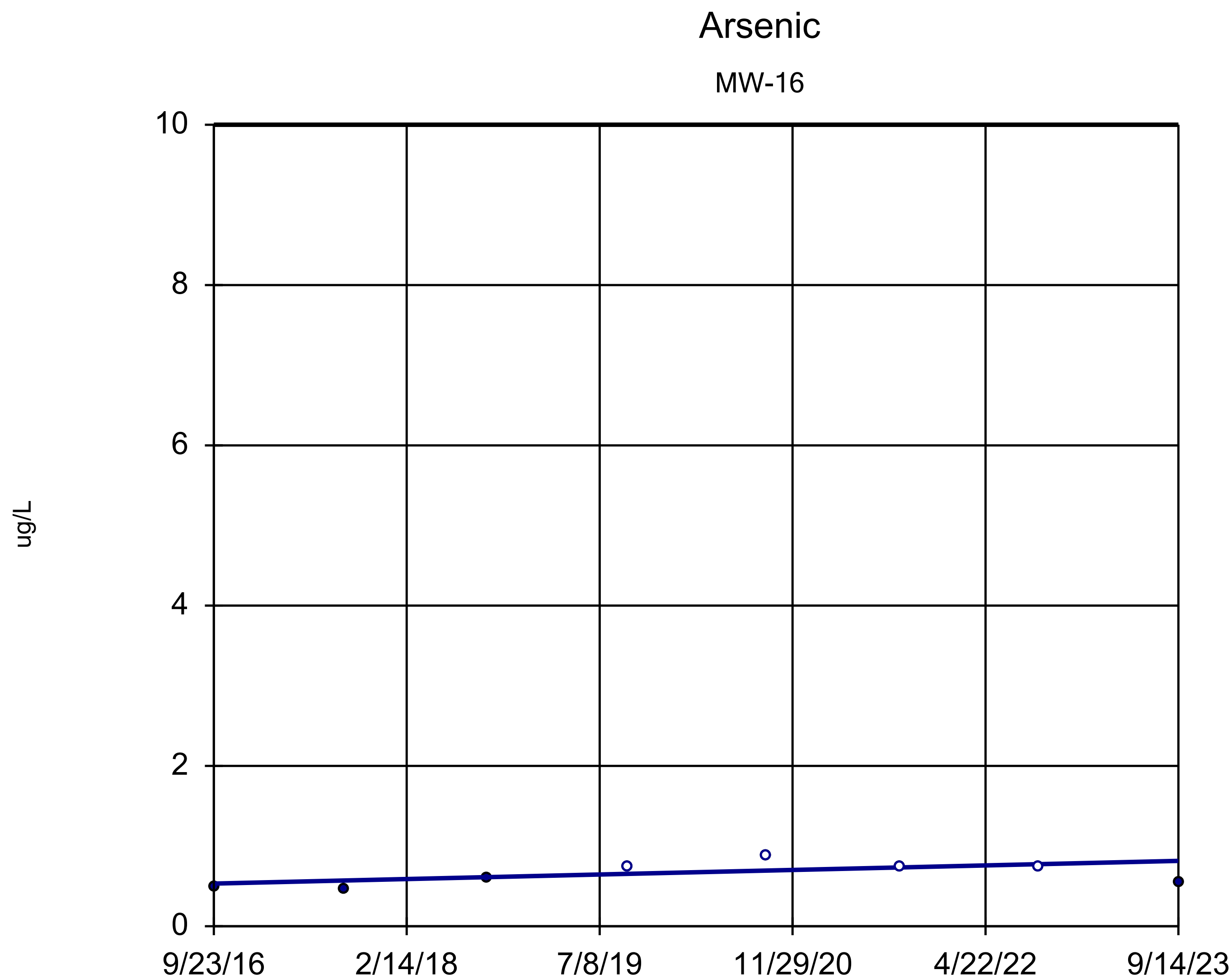
Sen's Slope Estimator

Constituent: Arsenic (ug/L)   Analysis Run 10/26/2023 4:04 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-12 (bg)
9/23/2016	0.81 (J)
9/5/2017	1.1
9/17/2018	1.3
9/23/2019	0.98 (J)
9/21/2020	1.1 (J)
9/8/2021	1.1 (J)
9/6/2022	1.4 (J)
9/11/2023	1.2 (J)

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



n = 8

Slope = 0.04066 units per year.

Mann-Kendall statistic = 9 critical = 20

Trend not significant at 98% confidence level (α = 0.01 per tail).

MCL = 10.

Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:02 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

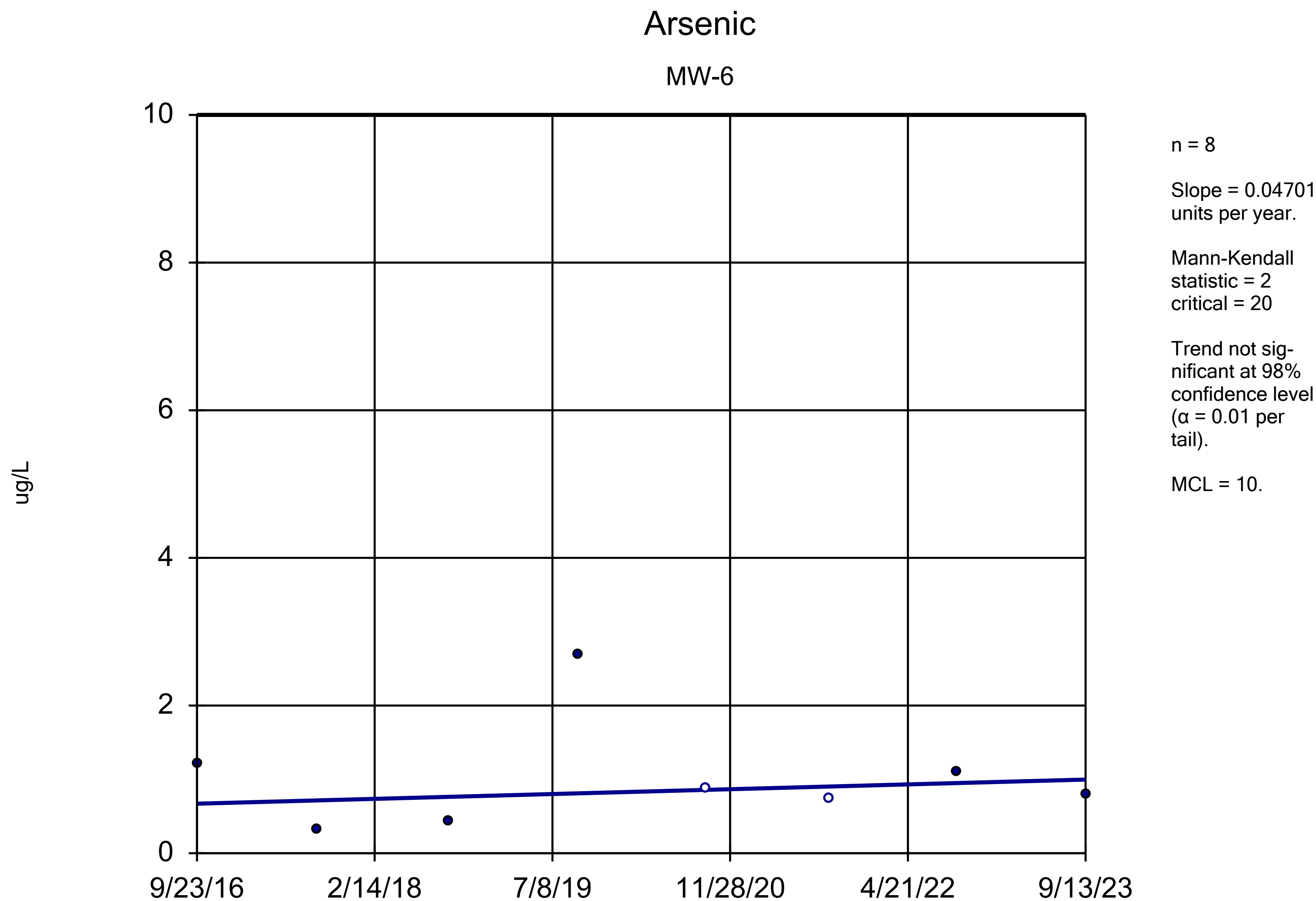
Constituent: Arsenic (ug/L) Analysis Run 10/26/2023 4:04 PM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-16
9/23/2016	0.49 (J)
9/5/2017	0.46 (J)
9/17/2018	0.6 (J)
9/23/2019	<0.75
9/23/2020	<0.88
9/9/2021	<0.75
9/8/2022	<0.75
9/14/2023	0.55 (J)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band Analysis Run 10/26/2023 4:02 PM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Sen's Slope Estimator

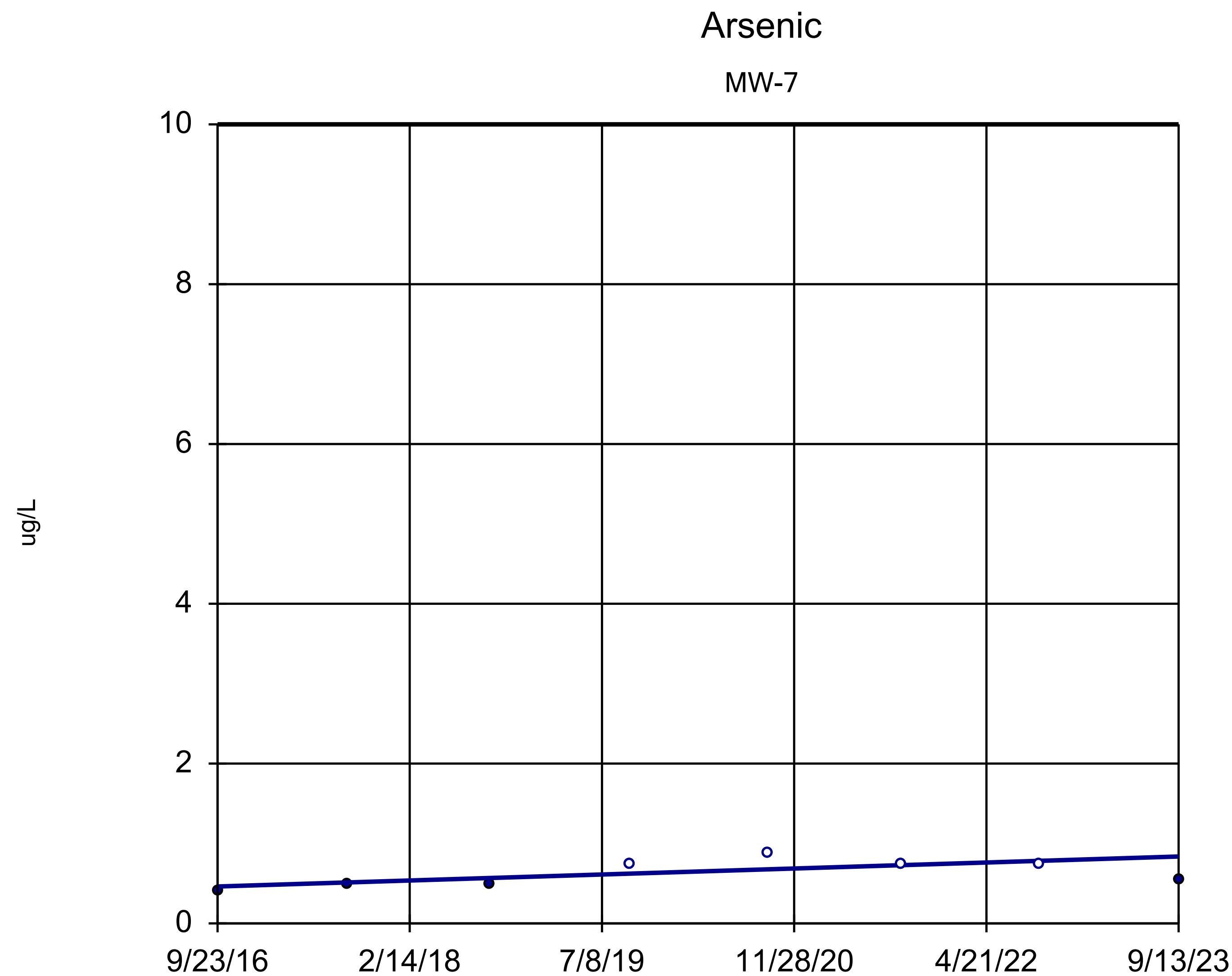
Constituent: Arsenic (ug/L)   Analysis Run 10/26/2023 4:04 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-6
9/23/2016	1.2
9/5/2017	0.32 (J)
9/17/2018	0.42 (J)
9/23/2019	2.7
9/22/2020	<0.88
9/9/2021	<0.75
9/7/2022	1.1 (J)
9/13/2023	0.79 (J)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



n = 8

Slope = 0.05367 units per year.

Mann-Kendall statistic = 13 critical = 20

Trend not significant at 98% confidence level (α = 0.01 per tail).

MCL = 10.

Sen's Slope and 95% Confidence Band Analysis Run 10/26/2023 4:02 PM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Sen's Slope Estimator

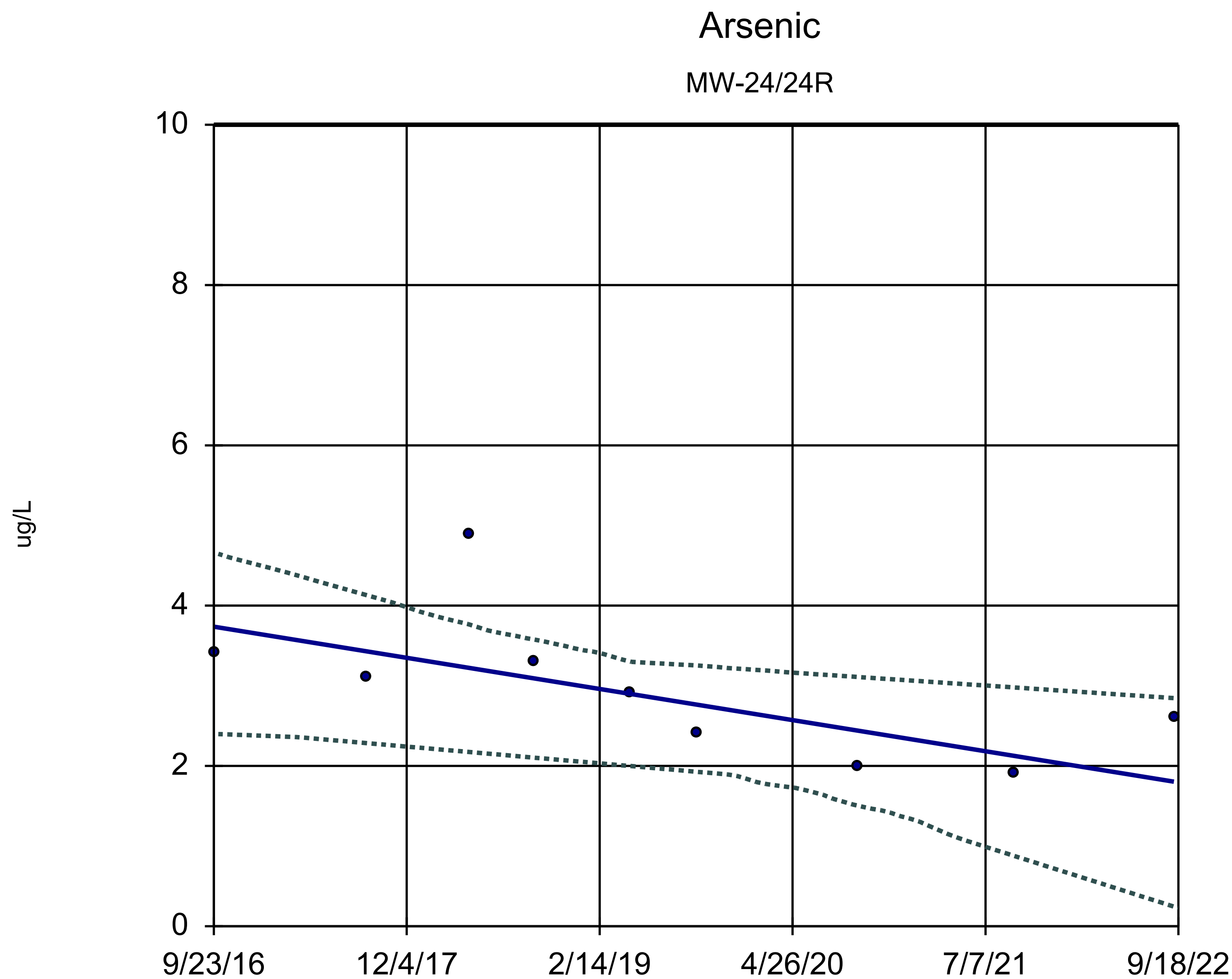
Constituent: Arsenic (ug/L)   Analysis Run 10/26/2023 4:04 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-7
9/23/2016	0.39 (J)
9/5/2017	0.49 (J)
9/17/2018	0.5 (J)
9/23/2019	<0.75
9/23/2020	<0.88
9/9/2021	<0.75
9/8/2022	<0.75
9/13/2023	0.55 (J)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



n = 9

Slope = -0.3244 units per year.

Mann-Kendall statistic = -24 critical = -23

Decreasing trend significant at 98% confidence level (α = 0.01 per tail).

Confidence band is below MCL (10).

Sen's Slope and 95% Confidence Band Analysis Run 10/26/2023 4:02 PM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

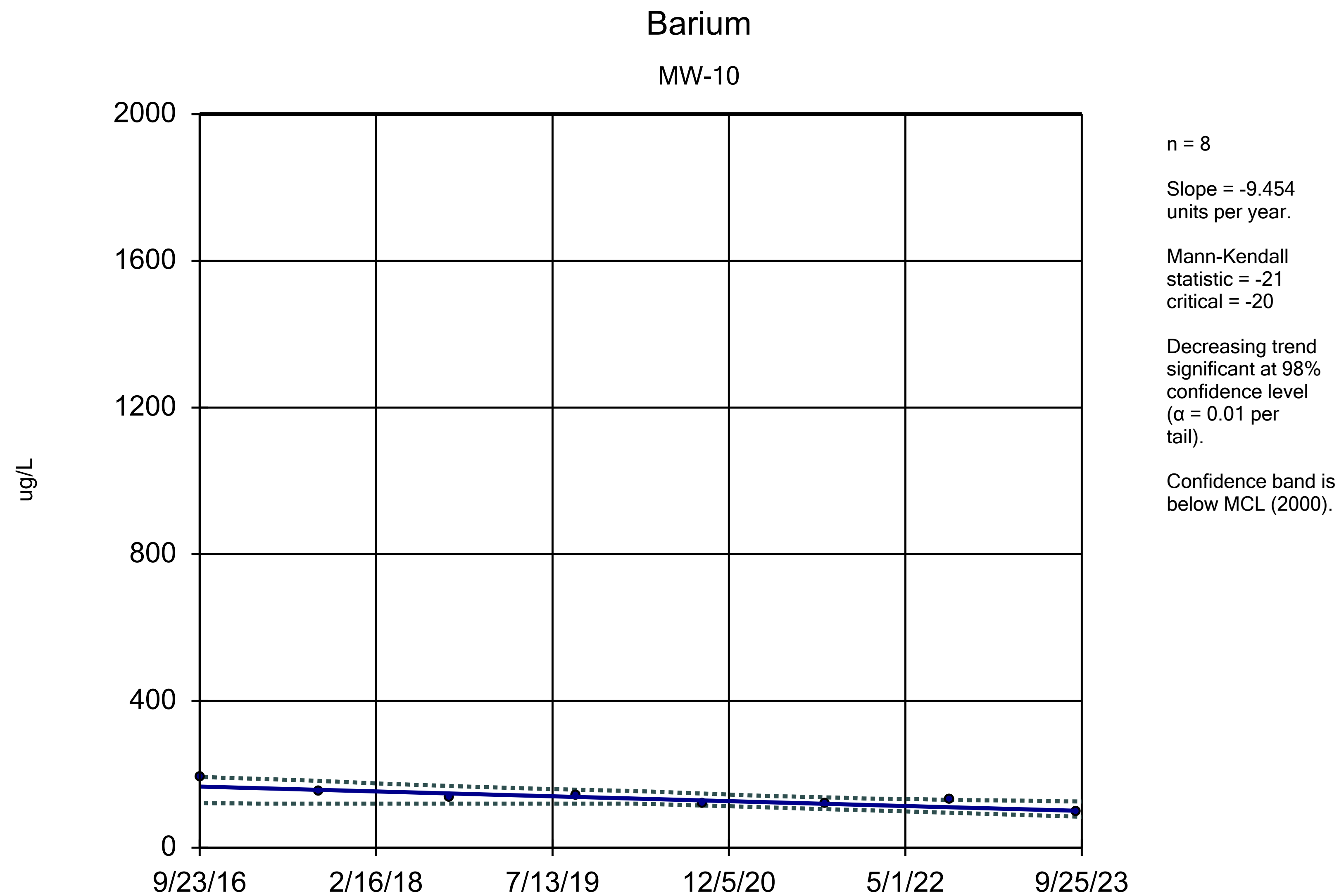
Sen's Slope Estimator

Constituent: Arsenic (ug/L)   Analysis Run 10/26/2023 4:04 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-24/24R	LCL	UCL
9/23/2016	3.4	2.4	4.664
9/5/2017	3.1	2.285	4.13
4/25/2018	4.9	2.174	3.766
9/17/2018	3.3	2.104	3.58
4/23/2019	2.9	2	3.3
9/23/2019	2.4	1.927	3.253
9/24/2020	2	1.501	3.109
9/10/2021	1.9 (J)	0.8791	2.98
9/8/2022	2.6	0.2453	2.846

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band Analysis Run 10/26/2023 4:02 PM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

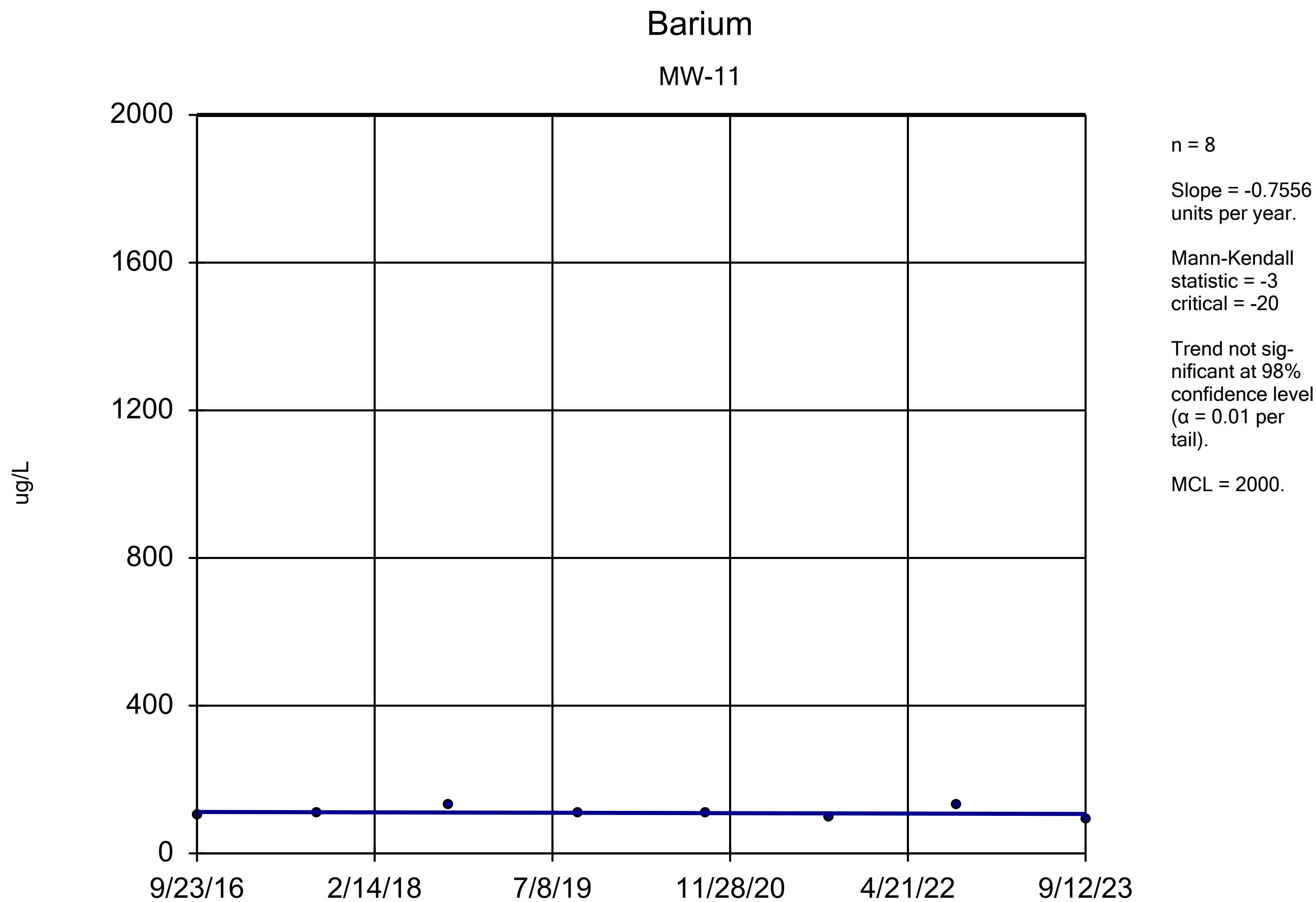
Sen's Slope Estimator

Constituent: Barium (ug/L)   Analysis Run 10/26/2023 4:04 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-10	LCL	UCL
9/23/2016	190	121.8	193
9/5/2017	154	120	182.2
9/17/2018	137	120	168.4
9/23/2019	140	120	158.2
9/24/2020	120	115	147.5
9/9/2021	120 (B)	105.4	137.4
9/9/2022	130	95.36	130.2
9/13/2023	100	84.73	126

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:02 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

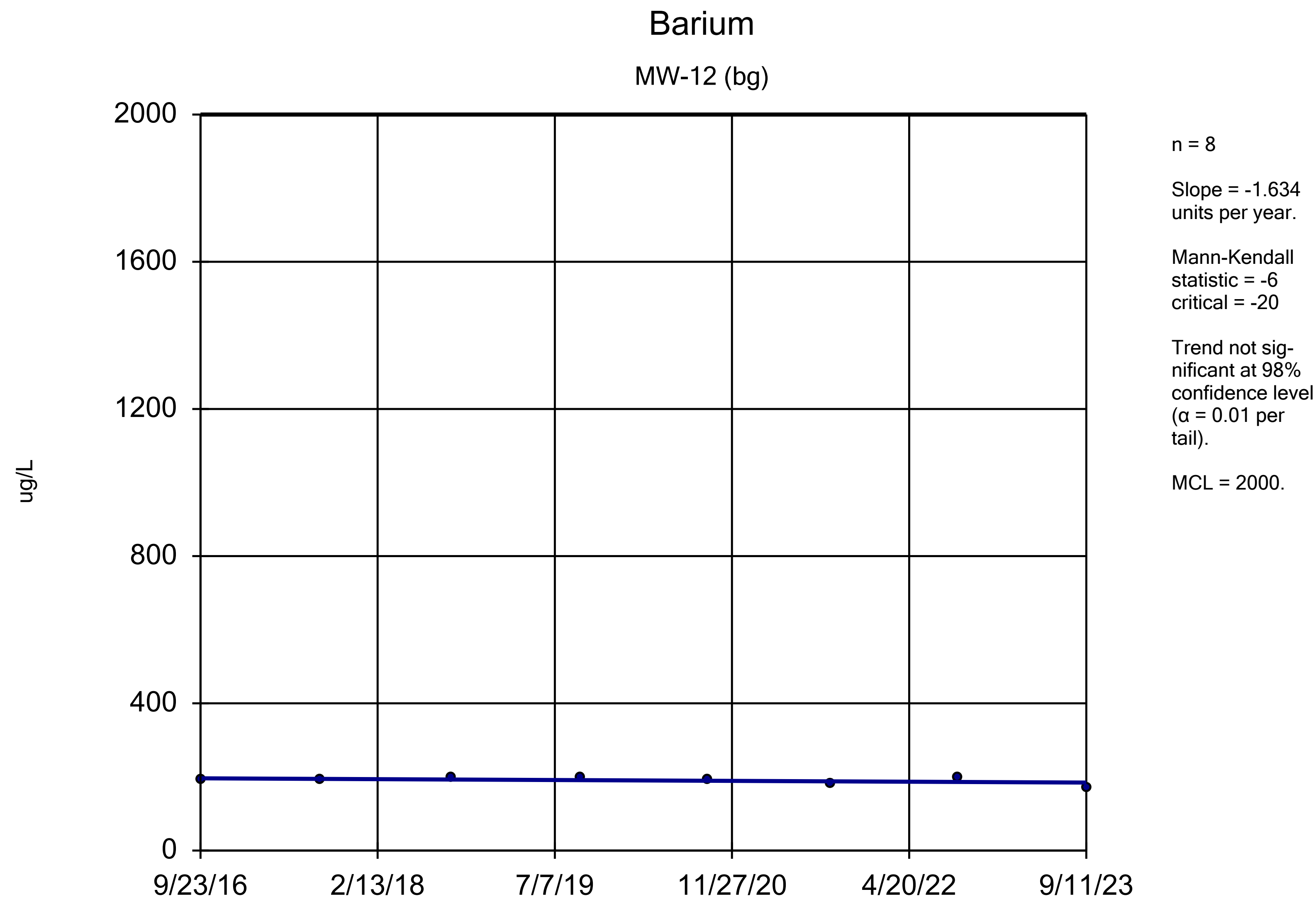
Sen's Slope Estimator

Constituent: Barium (ug/L)   Analysis Run 10/26/2023 4:04 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-11
9/23/2016	103
9/5/2017	109
9/17/2018	132
9/23/2019	110
9/22/2020	110
9/8/2021	98 (B)
9/6/2022	130
9/12/2023	90

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:02 PM   View: Deep

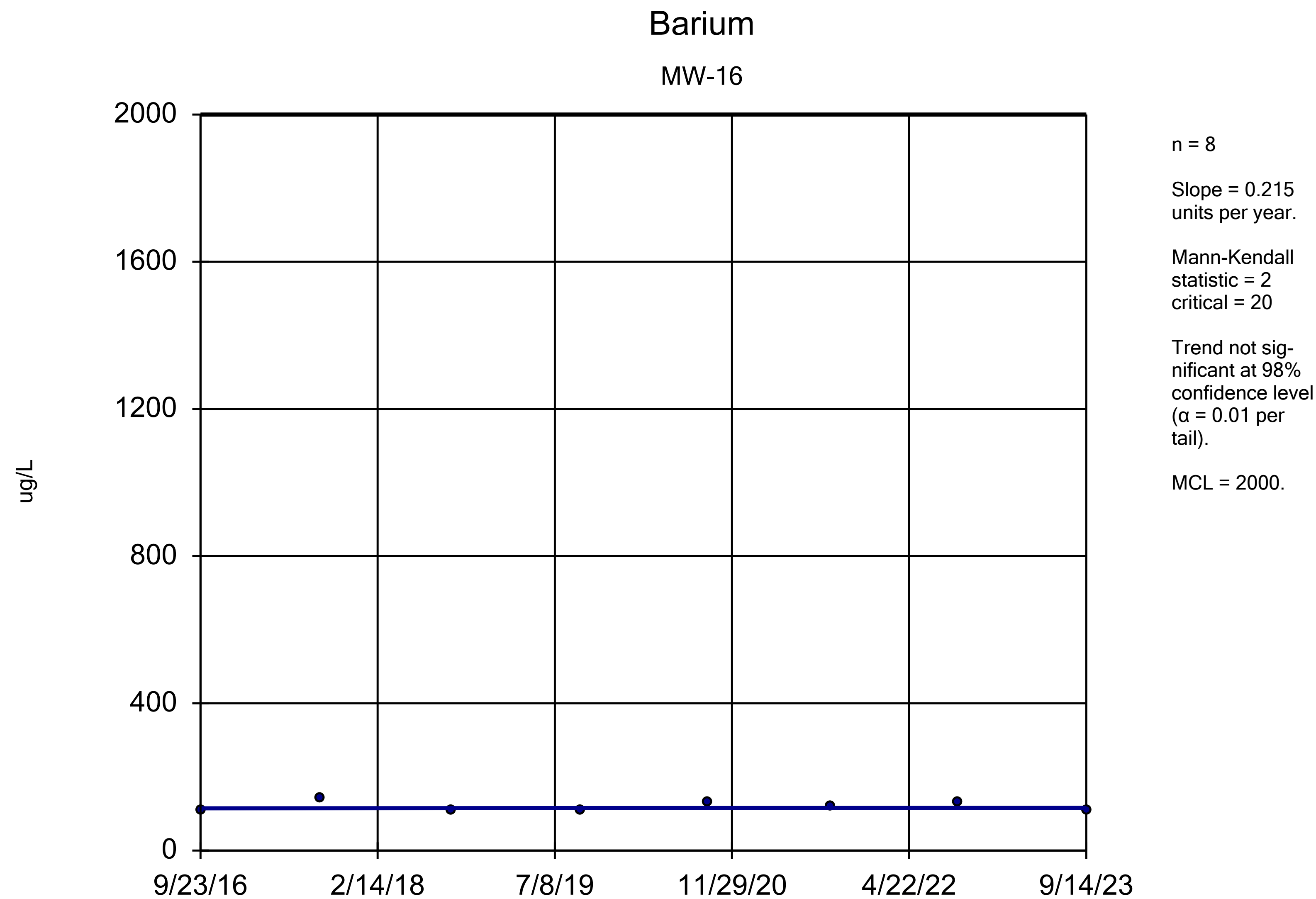
Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

Constituent: Barium (ug/L)   Analysis Run 10/26/2023 4:04 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-12 (bg)
9/23/2016	191
9/5/2017	190
9/17/2018	197
9/23/2019	200
9/21/2020	190
9/8/2021	180 (B)
9/6/2022	200
9/11/2023	170



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:02 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

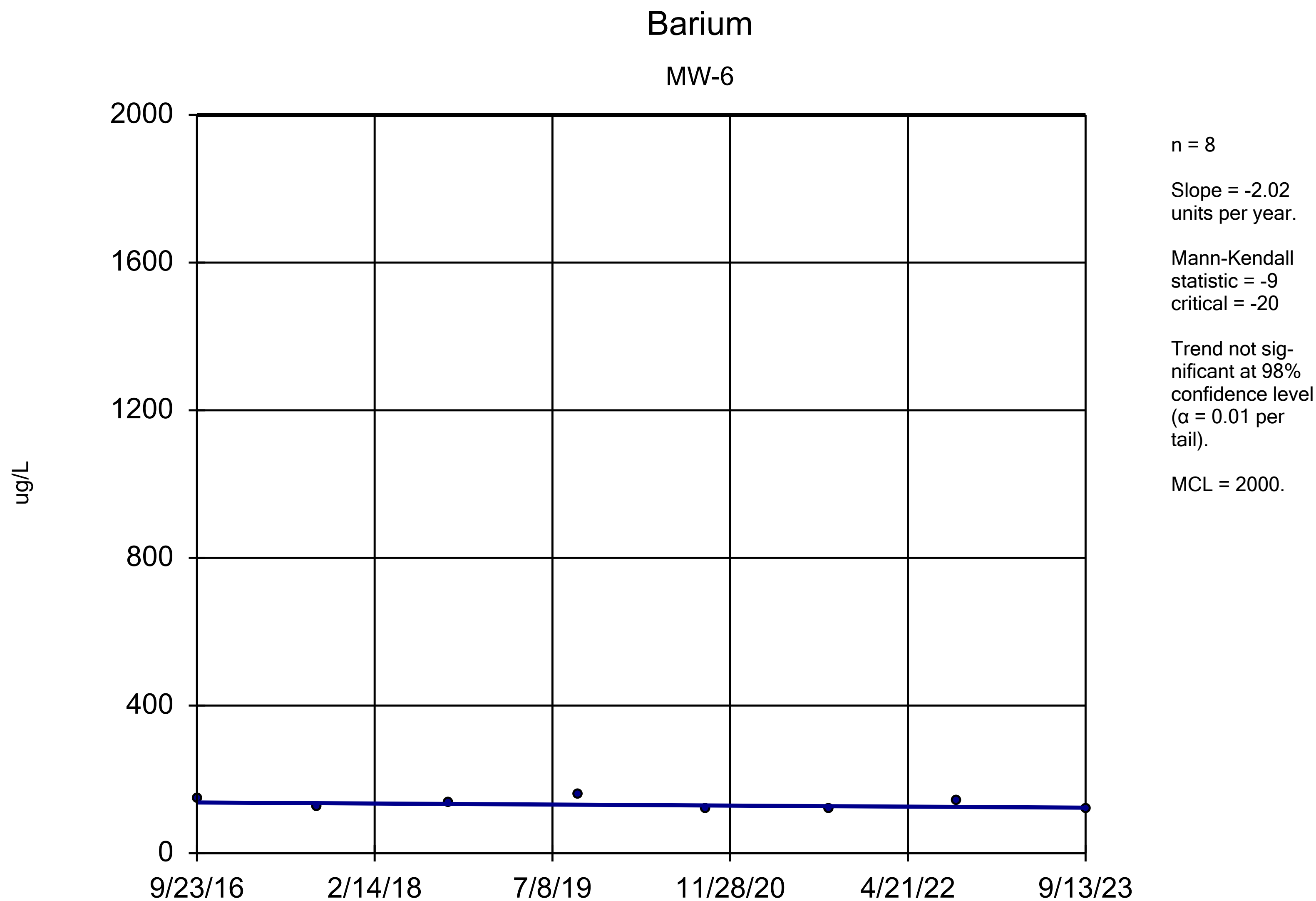
Sen's Slope Estimator

Constituent: Barium (ug/L)   Analysis Run 10/26/2023 4:04 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-16
9/23/2016	107
9/5/2017	141
9/17/2018	111
9/23/2019	110
9/23/2020	130
9/9/2021	120 (B)
9/8/2022	130
9/14/2023	110

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:02 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

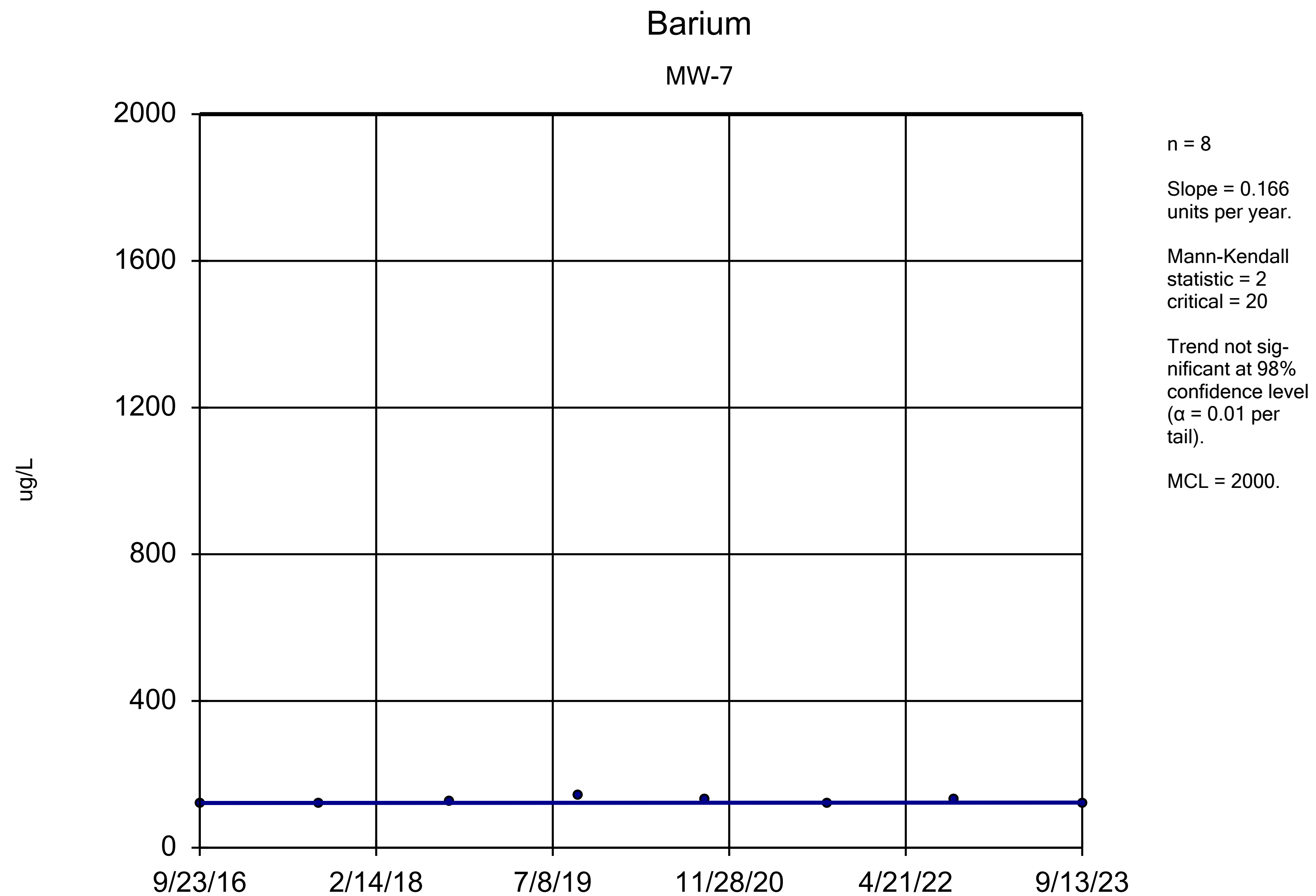
Sen's Slope Estimator

Constituent: Barium (ug/L)   Analysis Run 10/26/2023 4:04 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-6
9/23/2016	145
9/5/2017	127
9/17/2018	134
9/23/2019	160
9/22/2020	120
9/9/2021	120 (B)
9/7/2022	140
9/13/2023	120

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:02 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

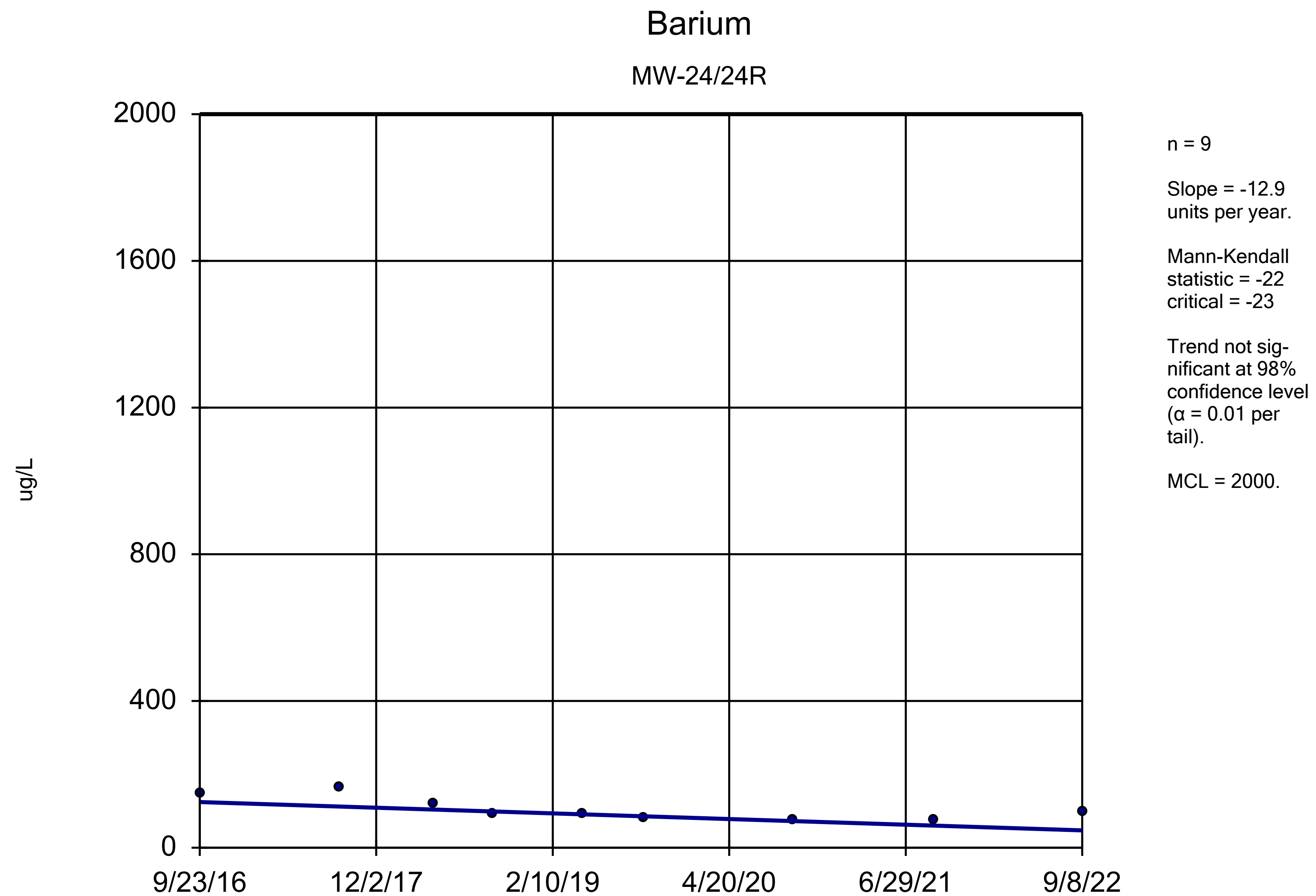
Sen's Slope Estimator

Constituent: Barium (ug/L)   Analysis Run 10/26/2023 4:04 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-7
9/23/2016	121
9/5/2017	118
9/17/2018	124
9/23/2019	140
9/23/2020	130
9/9/2021	120 (B)
9/8/2022	130
9/13/2023	120

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:02 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

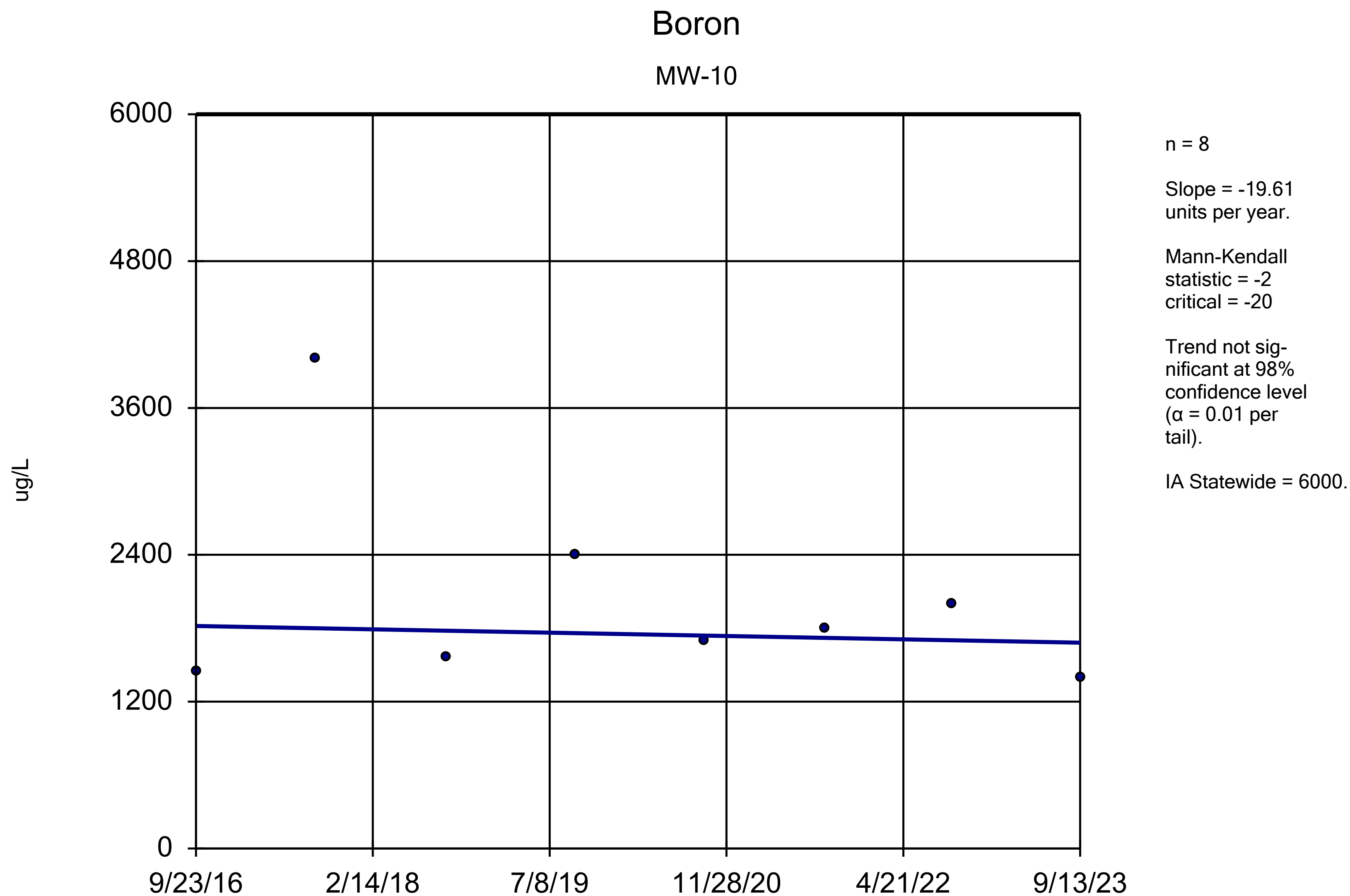
Sen's Slope Estimator

Constituent: Barium (ug/L)   Analysis Run 10/26/2023 4:04 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-24/24R
9/23/2016	150
9/5/2017	164
4/25/2018	118
9/17/2018	91.1
4/23/2019	91
9/23/2019	81
9/24/2020	73
9/10/2021	76 (B)
9/8/2022	98

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:02 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

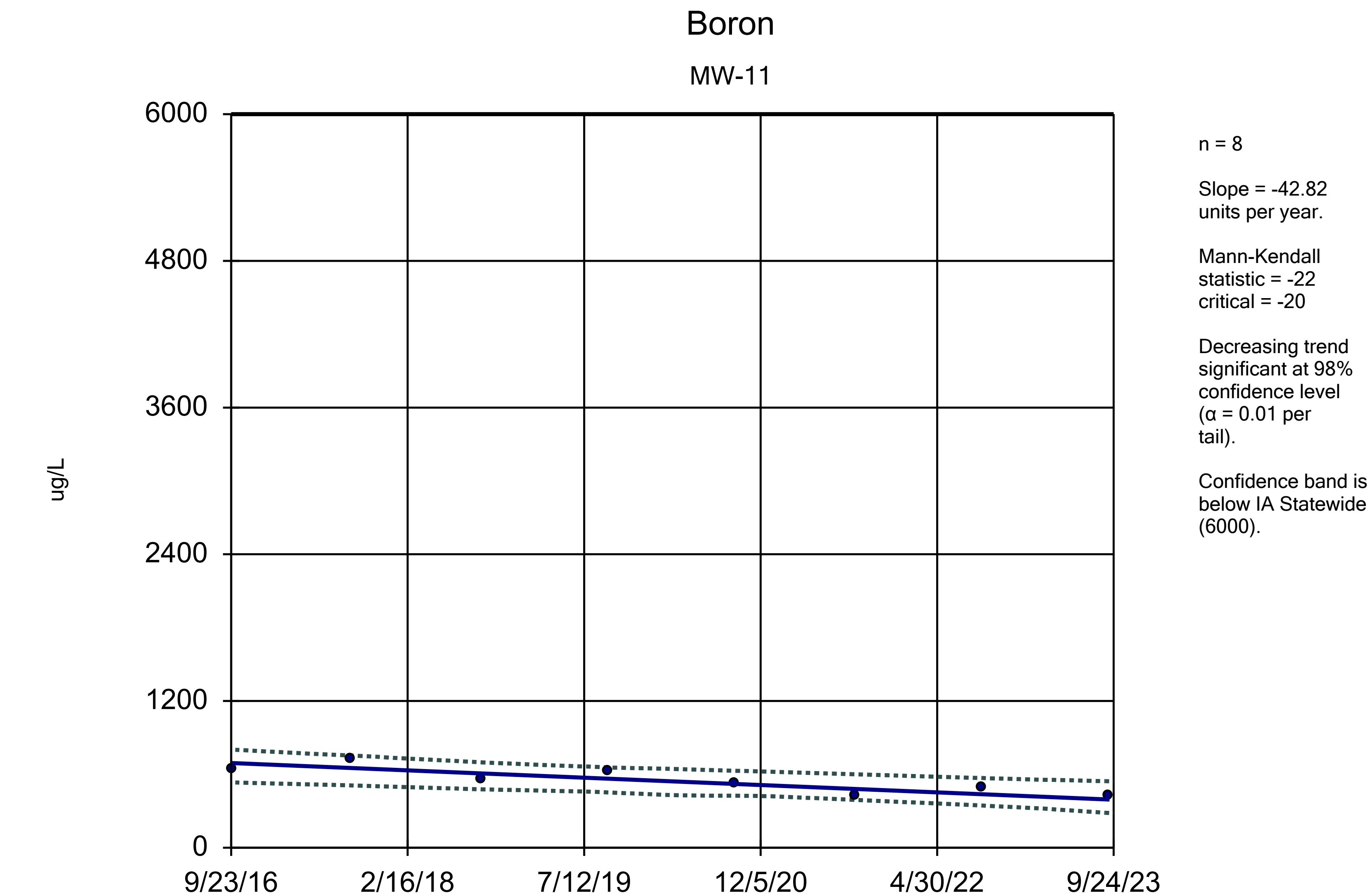
Sen's Slope Estimator

Constituent: Boron (ug/L) Analysis Run 10/26/2023 4:04 PM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-10
9/23/2016	1450
9/5/2017	4010
9/17/2018	1560
9/23/2019	2400
9/24/2020	1700
9/9/2021	1800
9/9/2022	2000
9/13/2023	1400

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band Analysis Run 10/26/2023 4:02 PM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

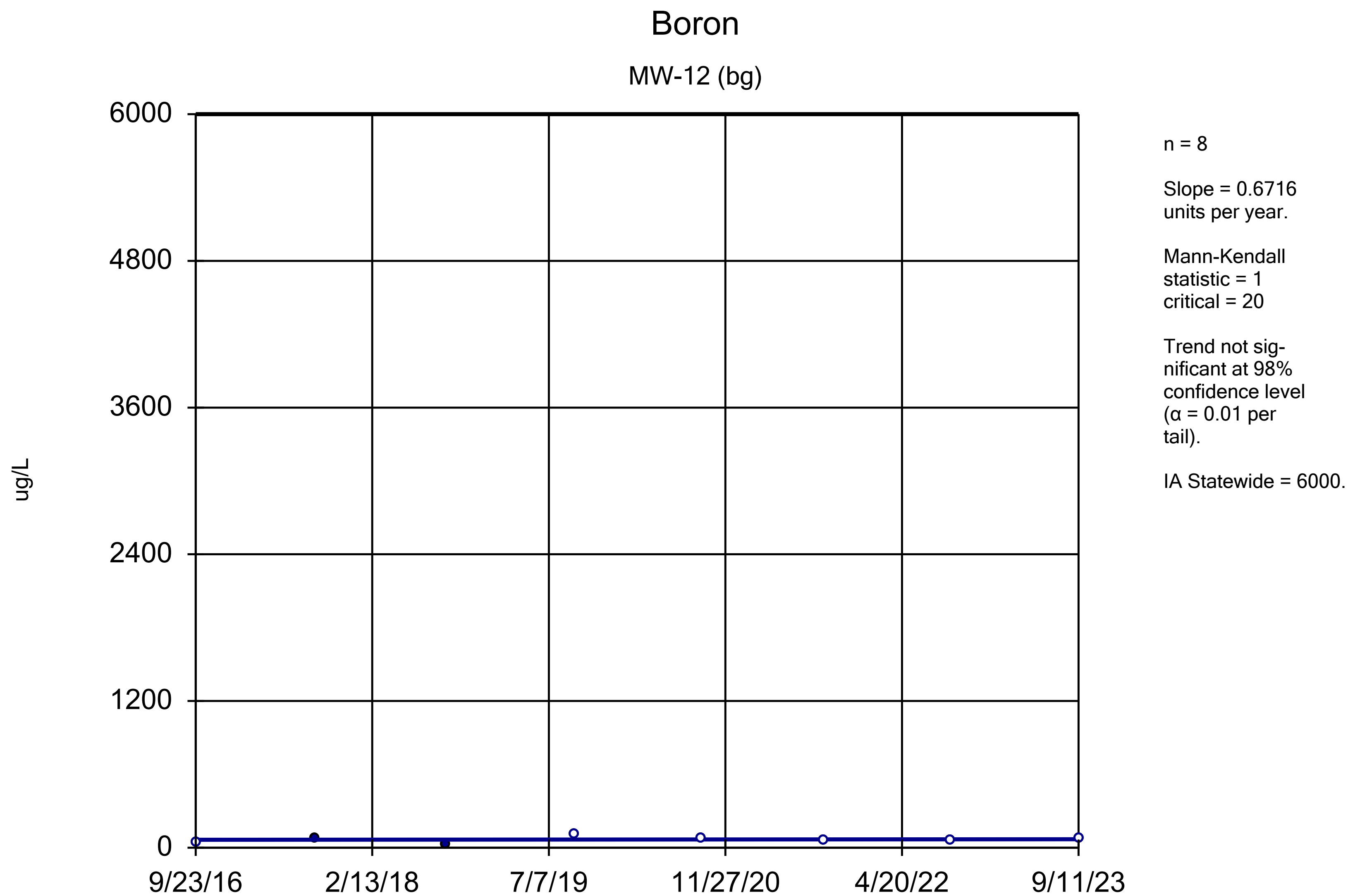
Sen's Slope Estimator

Constituent: Boron (ug/L)   Analysis Run 10/26/2023 4:04 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-11	LCL	UCL
9/23/2016	645	534.1	801.9
9/5/2017	733	509.9	753.8
9/17/2018	556	477.6	698.7
9/23/2019	620	452.1	656.4
9/22/2020	530	425	629.3
9/8/2021	430	391	600.4
9/6/2022	490	345.2	570
9/12/2023	420	284.1	543.5

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:02 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

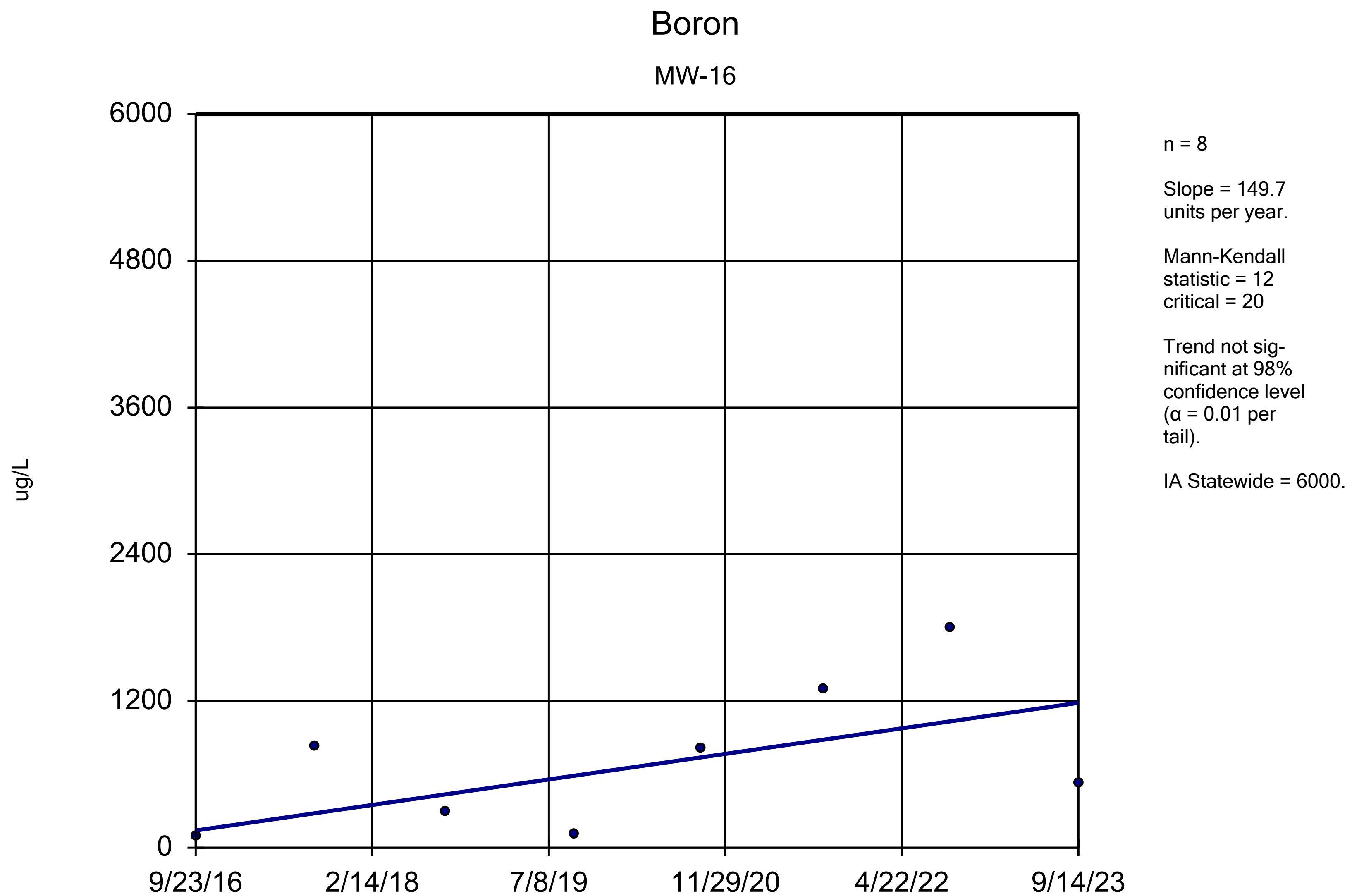
Constituent: Boron (ug/L) Analysis Run 10/26/2023 4:04 PM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-12 (bg)
9/23/2016	<50
9/5/2017	83.4 (J)
9/17/2018	30.4 (J)
9/23/2019	<110
9/21/2020	<80
9/8/2021	<58
9/6/2022	<58
9/11/2023	<76 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:02 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

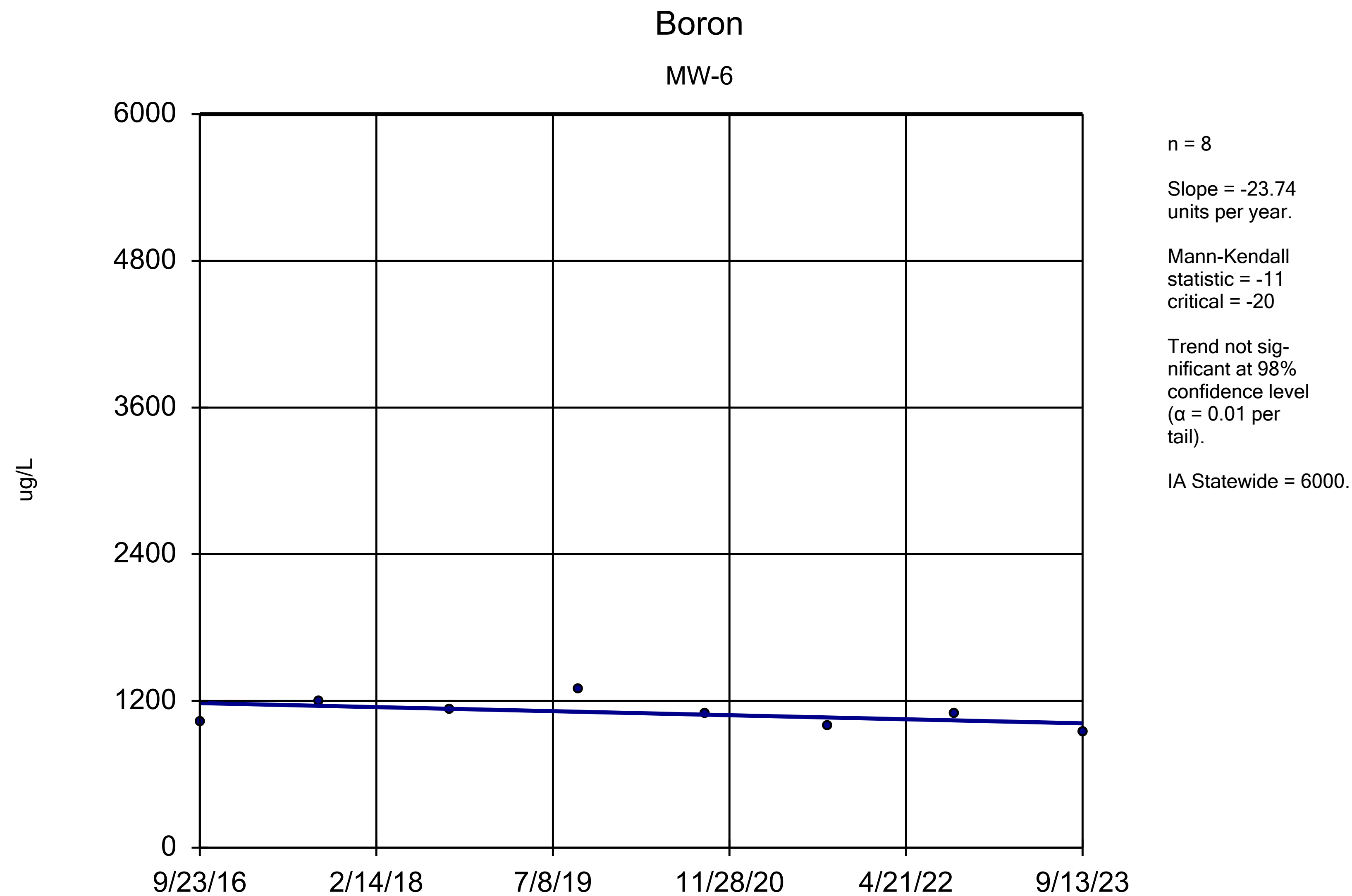
Sen's Slope Estimator

Constituent: Boron (ug/L)   Analysis Run 10/26/2023 4:04 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-16
9/23/2016	87.1 (J)
9/5/2017	823
9/17/2018	300
9/23/2019	110 (J)
9/23/2020	810
9/9/2021	1300
9/8/2022	1800
9/14/2023	520

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:02 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

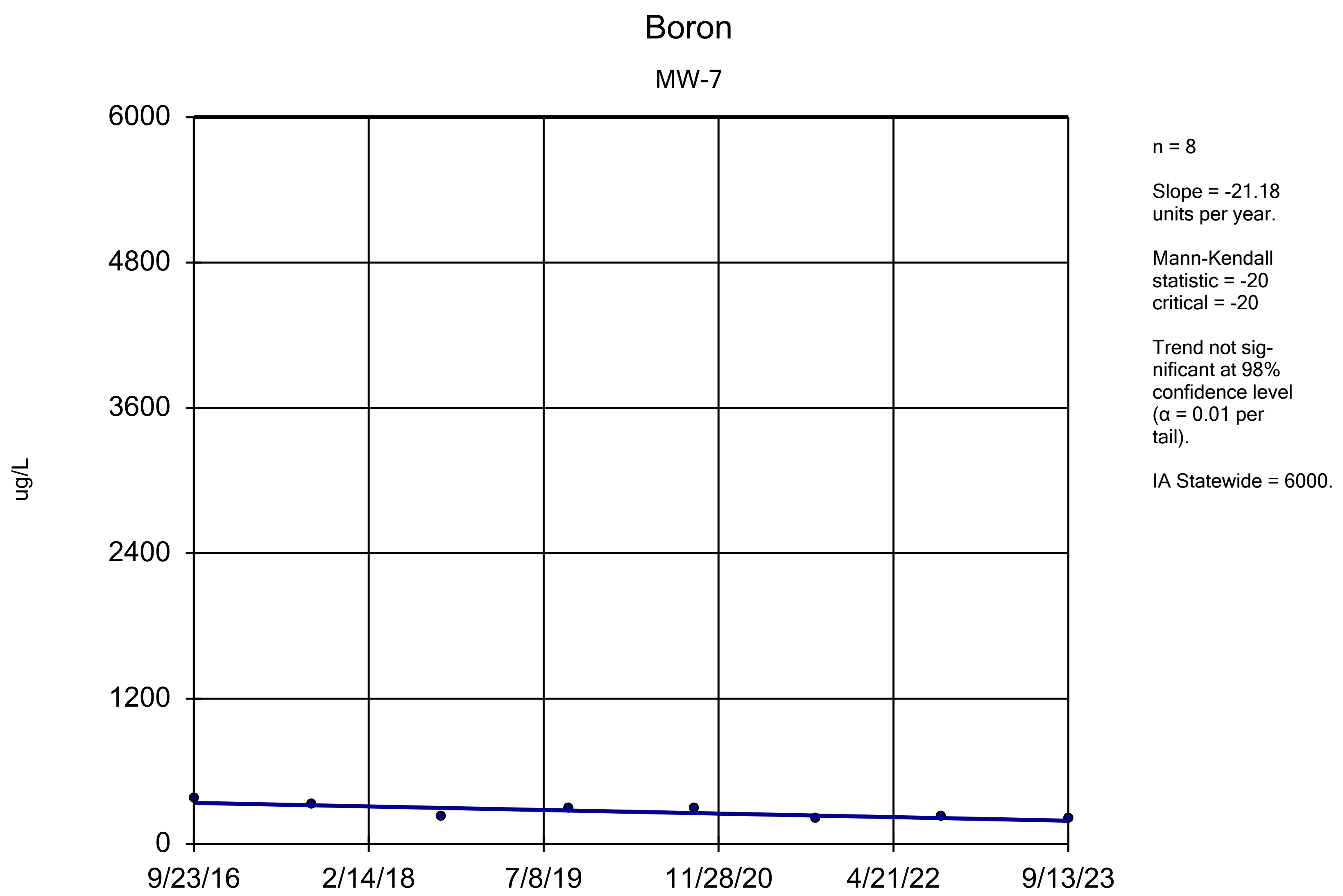
Sen's Slope Estimator

Constituent: Boron (ug/L)   Analysis Run 10/26/2023 4:04 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-6
9/23/2016	1020
9/5/2017	1190
9/17/2018	1120
9/23/2019	1300
9/22/2020	1100
9/9/2021	1000
9/7/2022	1100
9/13/2023	940

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:02 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

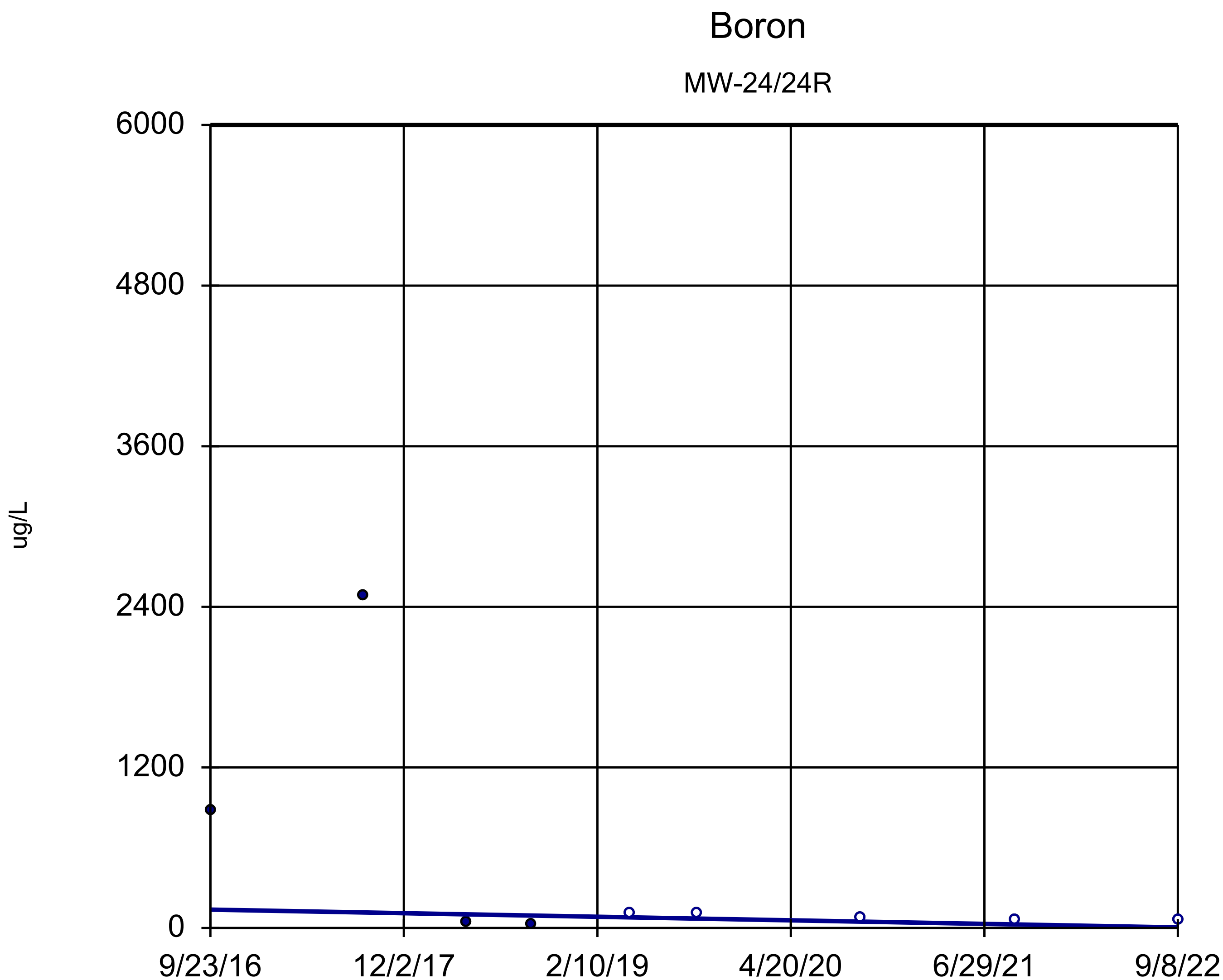
Sen's Slope Estimator

Constituent: Boron (ug/L)   Analysis Run 10/26/2023 4:04 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-7
9/23/2016	371
9/5/2017	325
9/17/2018	232
9/23/2019	300
9/23/2020	300
9/9/2021	210
9/8/2022	230
9/13/2023	210

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



n = 9

Slope = -22.33 units per year.

Mann-Kendall statistic = -12 critical = -23

Trend not significant at 98% confidence level (α = 0.01 per tail).

IA Statewide = 6000.

Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:02 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

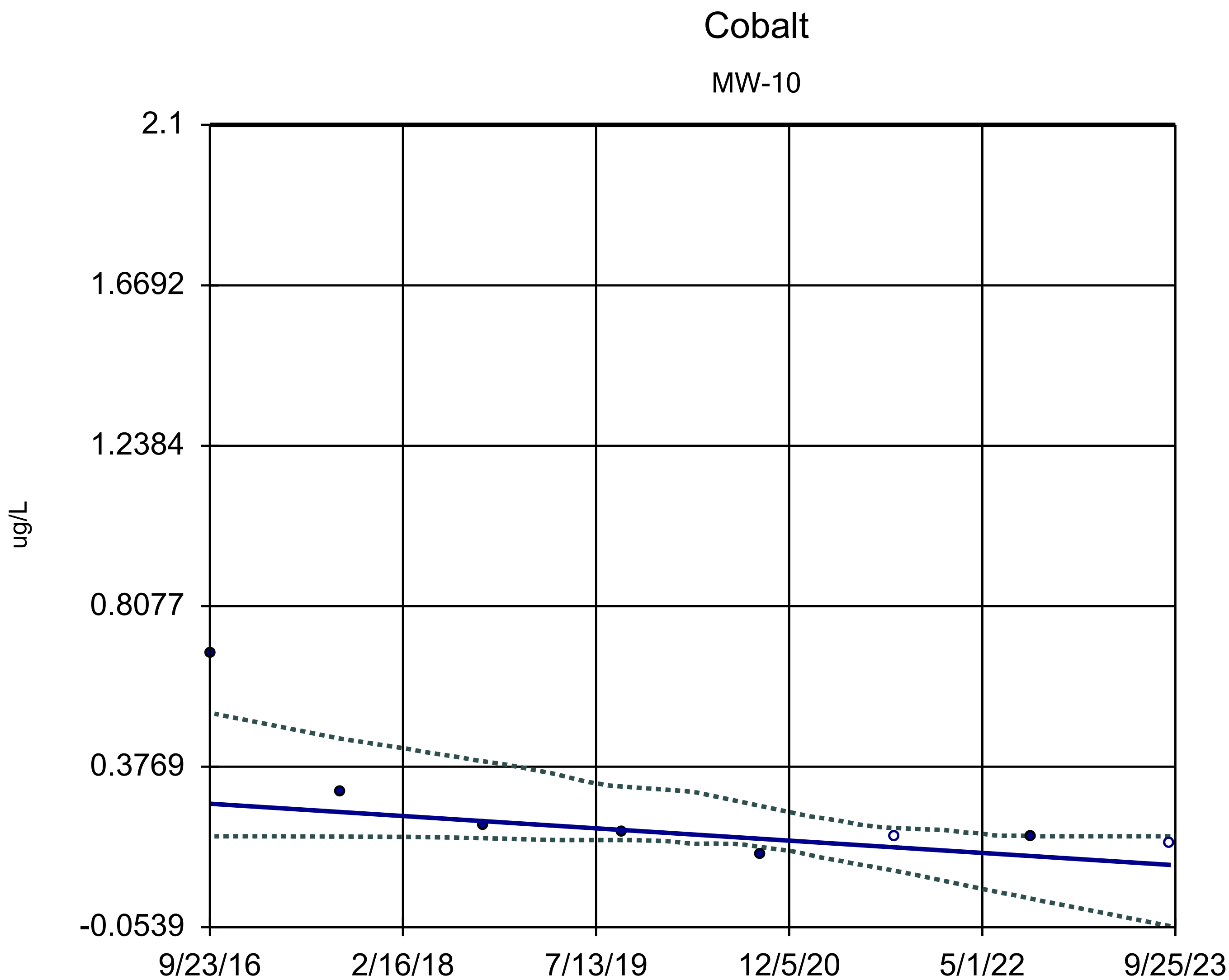
Constituent: Boron (ug/L)   Analysis Run 10/26/2023 4:04 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-24/24R
9/23/2016	879
9/5/2017	2480
4/25/2018	44.3 (J)
9/17/2018	18.3 (J)
4/23/2019	<110
9/23/2019	<110
9/24/2020	<80
9/10/2021	<58
9/8/2022	<58

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



n = 8

Slope = -0.02359
units per year.

Mann-Kendall
statistic = -21
critical = -20

Decreasing trend
significant at 98%
confidence level
(α = 0.01 per
tail).

Confidence band is
below IA Statewide
(2.1).

Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:02 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

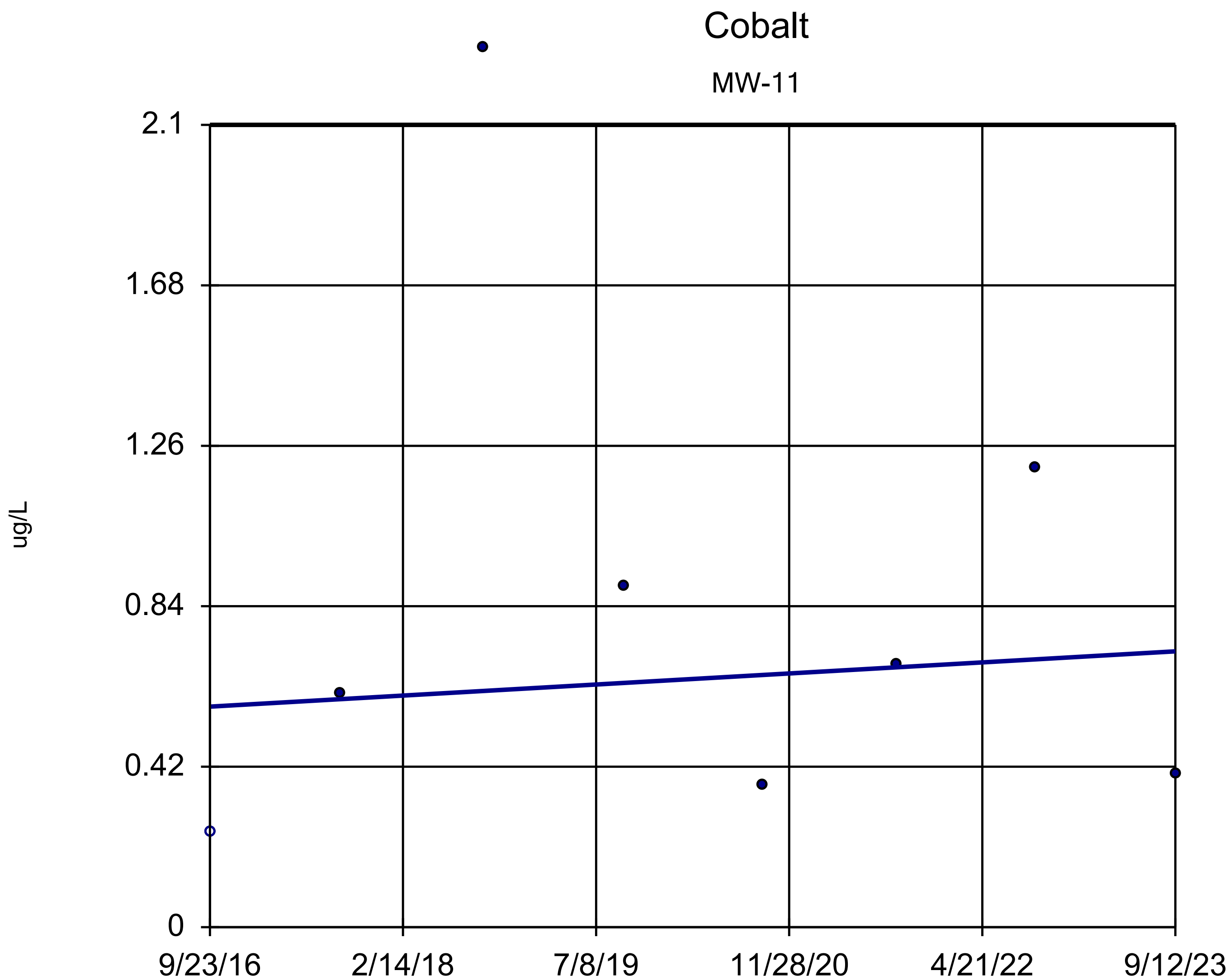
Constituent: Cobalt (ug/L)   Analysis Run 10/26/2023 4:04 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-10	LCL	UCL
9/23/2016	0.68 (J)	0.19	0.5215
9/5/2017	0.31 (J)	0.1893	0.4521
9/17/2018	0.22 (J)	0.1851	0.3915
9/23/2019	0.2 (J)	0.18	0.3235
9/24/2020	0.14 (J)	0.161	0.2709
9/9/2021	<0.19	0.09803	0.2125
9/9/2022	0.19 (J)	0.02246	0.1907
9/13/2023	<0.17 (U)	-0.0515	0.19

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



n = 8

Slope = 0.02073
units per year.

Mann-Kendall
statistic = 4
critical = 20

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

IA Statewide = 2.1.

Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:02 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

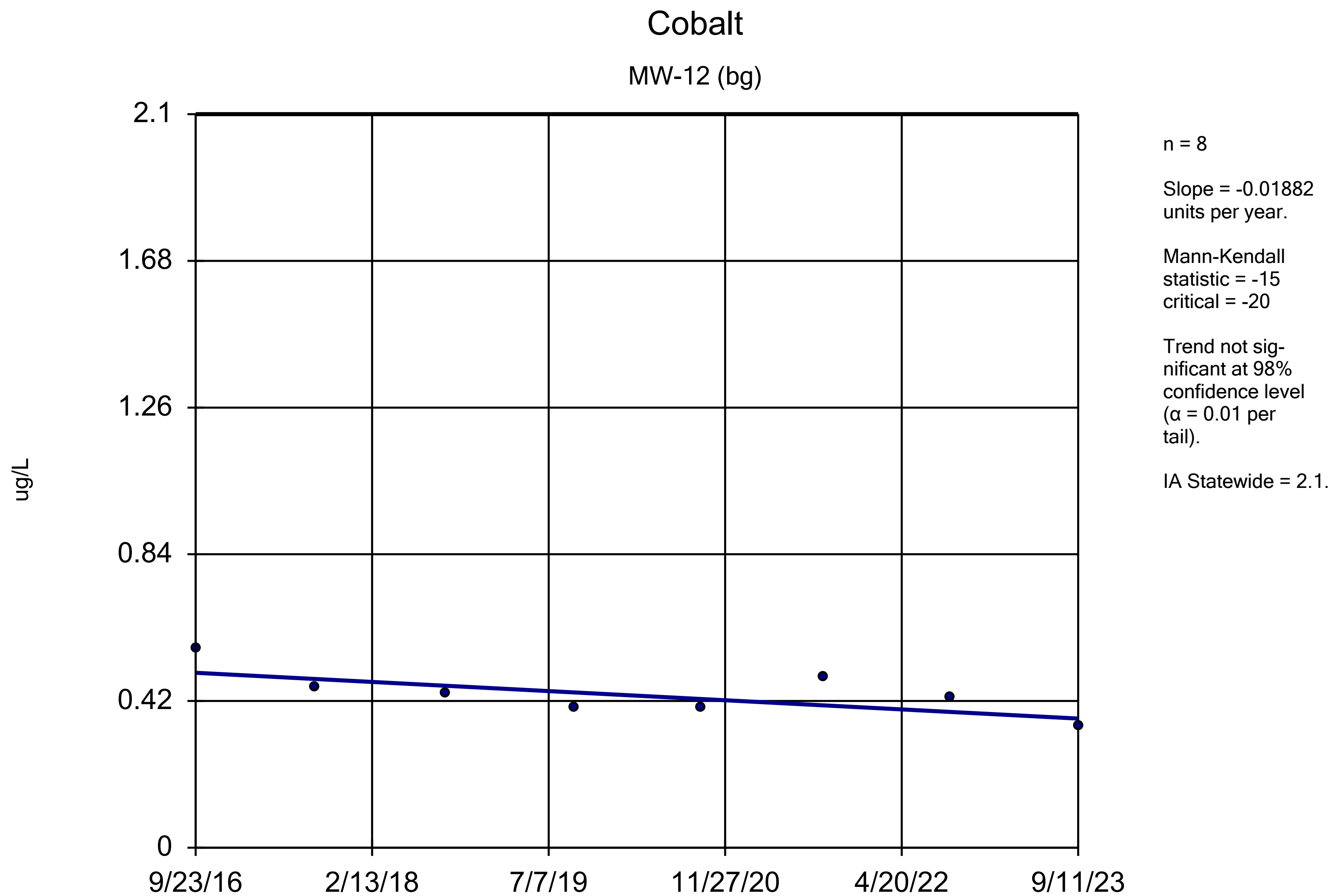
Constituent: Cobalt (ug/L)   Analysis Run 10/26/2023 4:04 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-11
9/23/2016	<0.5
9/5/2017	0.61 (J)
9/17/2018	2.3
9/23/2019	0.89
9/22/2020	0.37 (J)
9/8/2021	0.69
9/6/2022	1.2
9/12/2023	0.4 (J)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:02 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

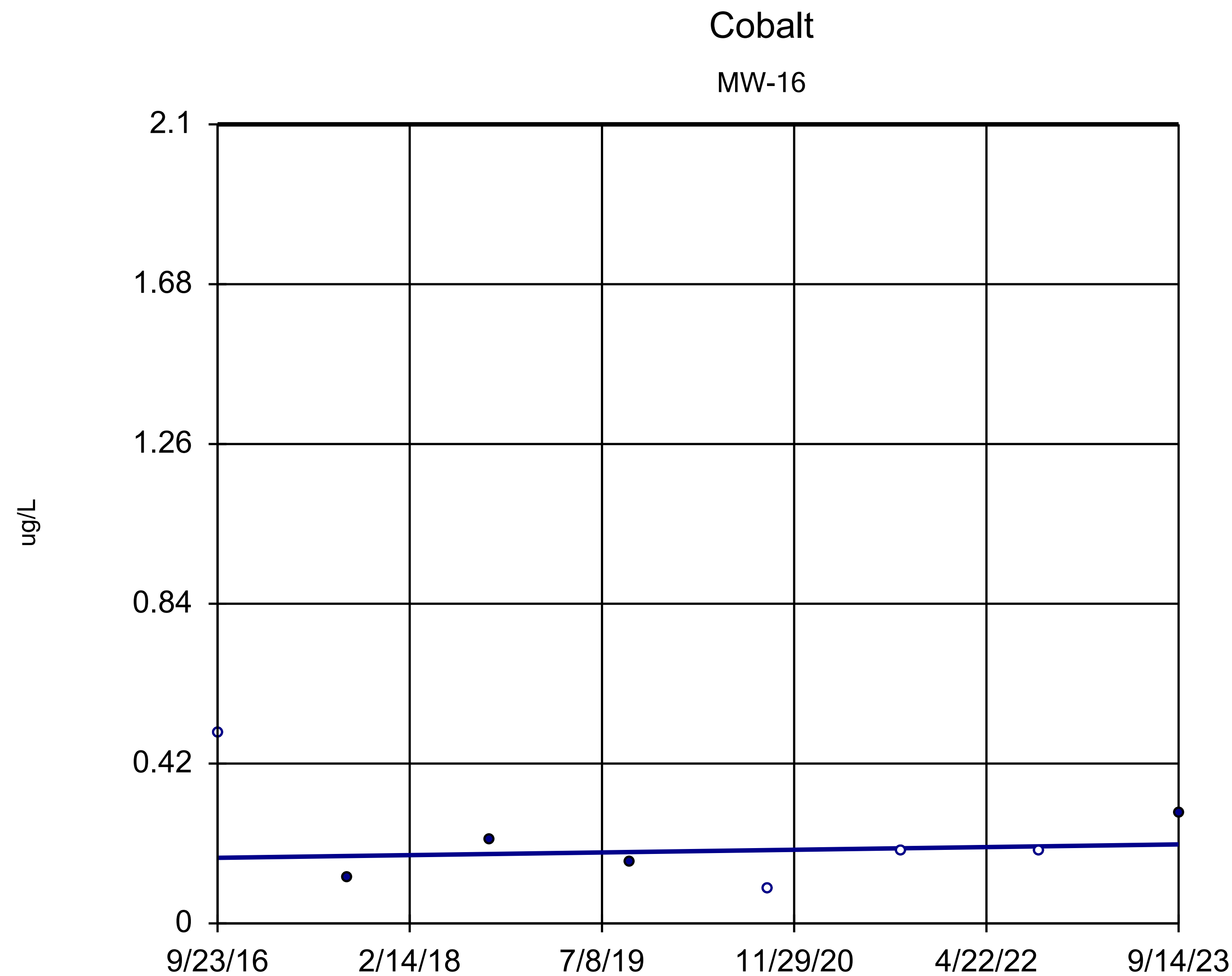
Sen's Slope Estimator

Constituent: Cobalt (ug/L)   Analysis Run 10/26/2023 4:04 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-12 (bg)
9/23/2016	0.57 (J)
9/5/2017	0.46 (J)
9/17/2018	0.44 (J)
9/23/2019	0.4 (J)
9/21/2020	0.4 (J)
9/8/2021	0.49 (J)
9/6/2022	0.43 (J)
9/11/2023	0.35 (J)

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



n = 8

Slope = 0.005065
units per year.

Mann-Kendall
statistic = 1
critical = 20

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

IA Statewide = 2.1.

Sen's Slope and 95% Confidence Band Analysis Run 10/26/2023 4:02 PM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Sen's Slope Estimator

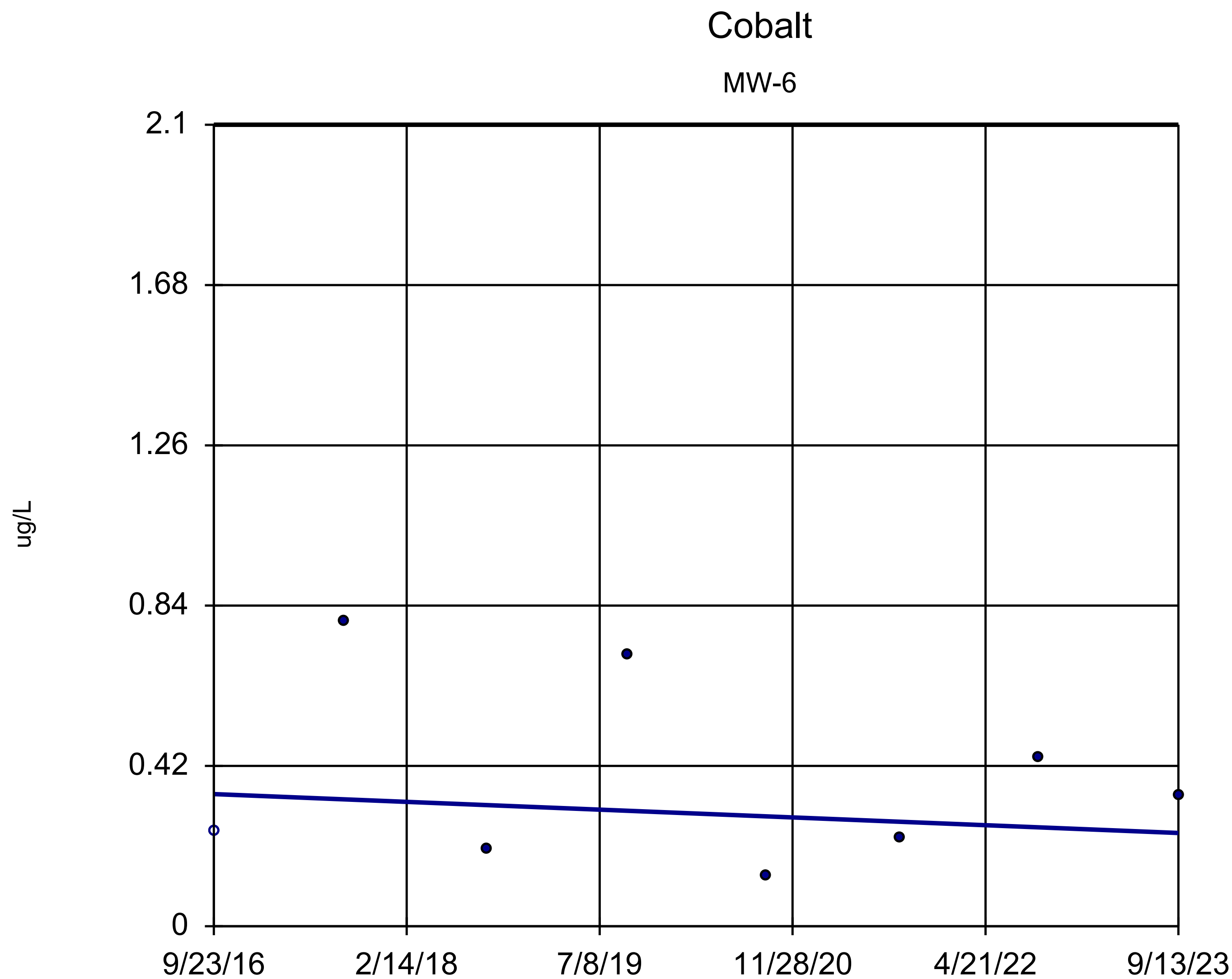
Constituent: Cobalt (ug/L) Analysis Run 10/26/2023 4:04 PM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-16
9/23/2016	<0.5
9/5/2017	0.12 (J)
9/17/2018	0.22 (J)
9/23/2019	0.16 (J)
9/23/2020	<0.091
9/9/2021	<0.19
9/8/2022	<0.19
9/14/2023	0.29 (J)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



n = 8

Slope = -0.01462 units per year.

Mann-Kendall statistic = -2 critical = -20

Trend not significant at 98% confidence level (α = 0.01 per tail).

IA Statewide = 2.1.

Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:02 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

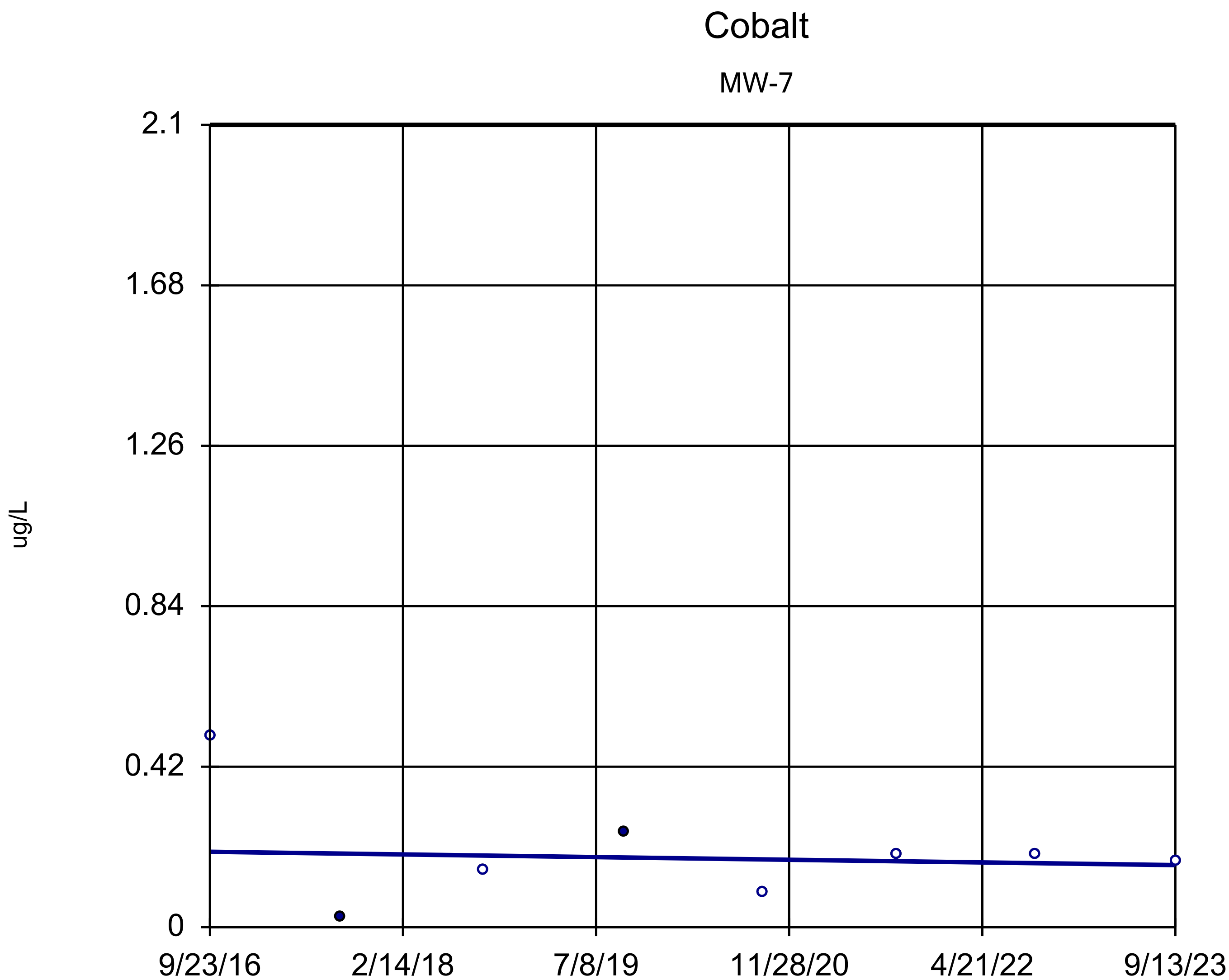
Constituent: Cobalt (ug/L) Analysis Run 10/26/2023 4:04 PM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-6
9/23/2016	<0.5
9/5/2017	0.8 (J)
9/17/2018	0.2 (J)
9/23/2019	0.71
9/22/2020	0.13 (J)
9/9/2021	0.23 (J)
9/7/2022	0.44 (J)
9/13/2023	0.34 (J)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



n = 8

Slope = -0.004973
units per year.

Mann-Kendall
statistic = -1
critical = -20

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

IA Statewide = 2.1.

Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:02 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

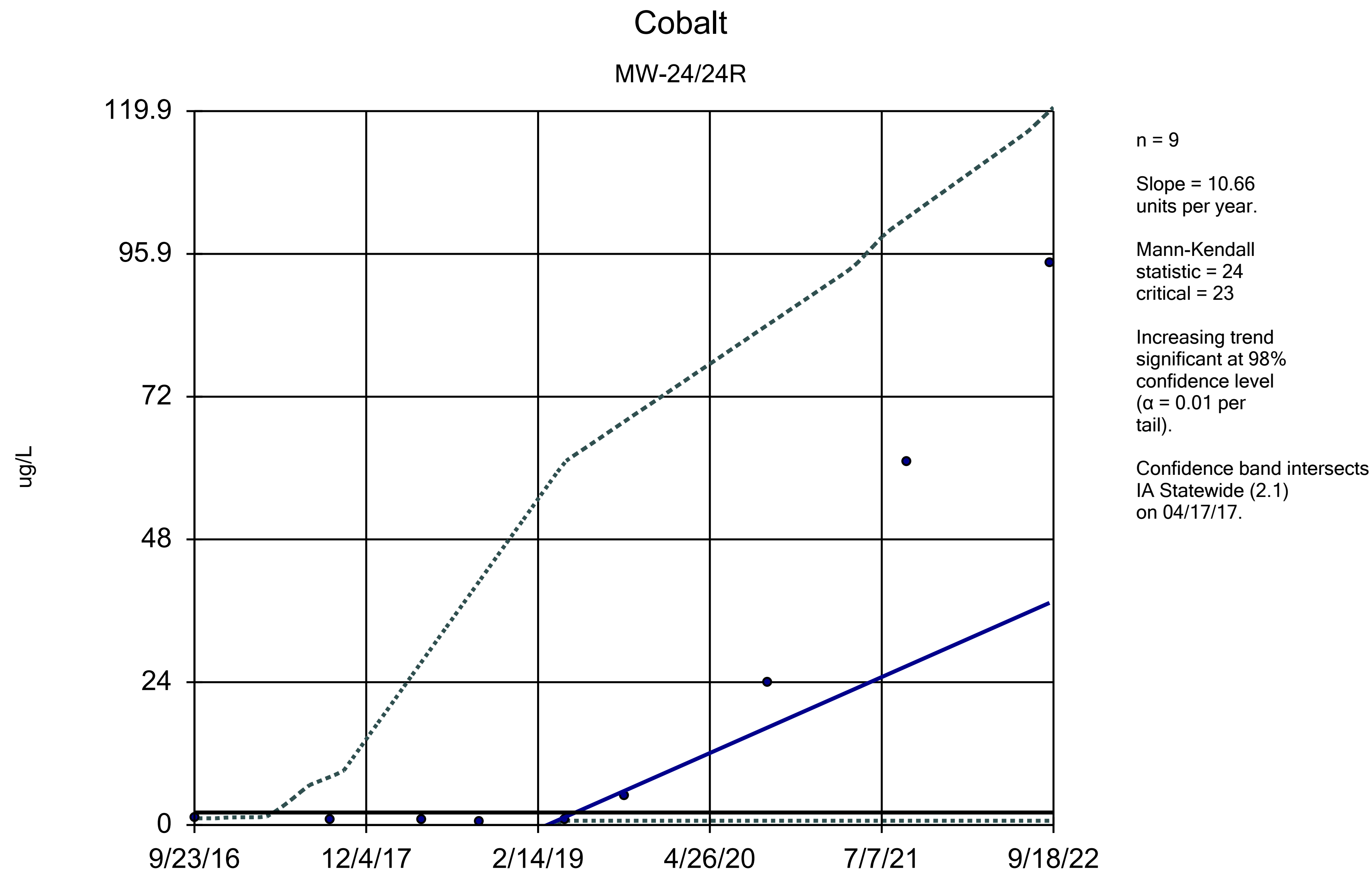
Constituent: Cobalt (ug/L)   Analysis Run 10/26/2023 4:04 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-7
9/23/2016	<0.5
9/5/2017	0.024 (J)
9/17/2018	<0.15
9/23/2019	0.25 (J)
9/23/2020	<0.091
9/9/2021	<0.19
9/8/2022	<0.19
9/13/2023	<0.17 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:02 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

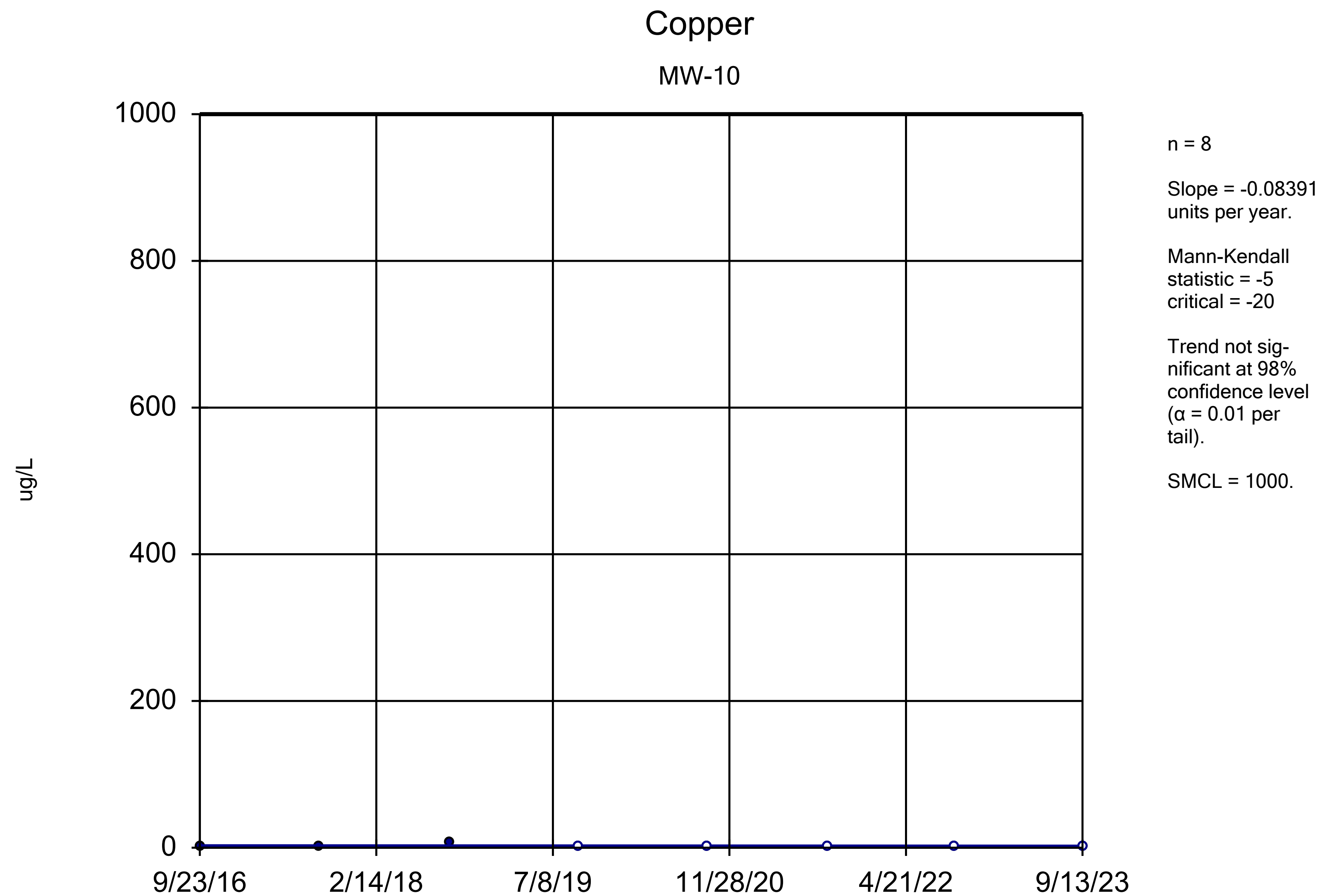
Sen's Slope Estimator

Constituent: Cobalt (ug/L)   Analysis Run 10/26/2023 4:04 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-24/24R	LCL	UCL
9/23/2016	1.3	-47.75	1.118
9/5/2017	0.67 (J)	-28.43	8.146
4/25/2018	0.72 (J)	-16.72	27.5
9/17/2018	0.37 (J)	-9.245	40.88
4/23/2019	0.9	0.67	61
9/23/2019	4.7	0.72	67.81
9/24/2020	24	0.72	84.16
9/10/2021	61	0.72	102
9/8/2022	94.5 (D)	0.72	119.9

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:02 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

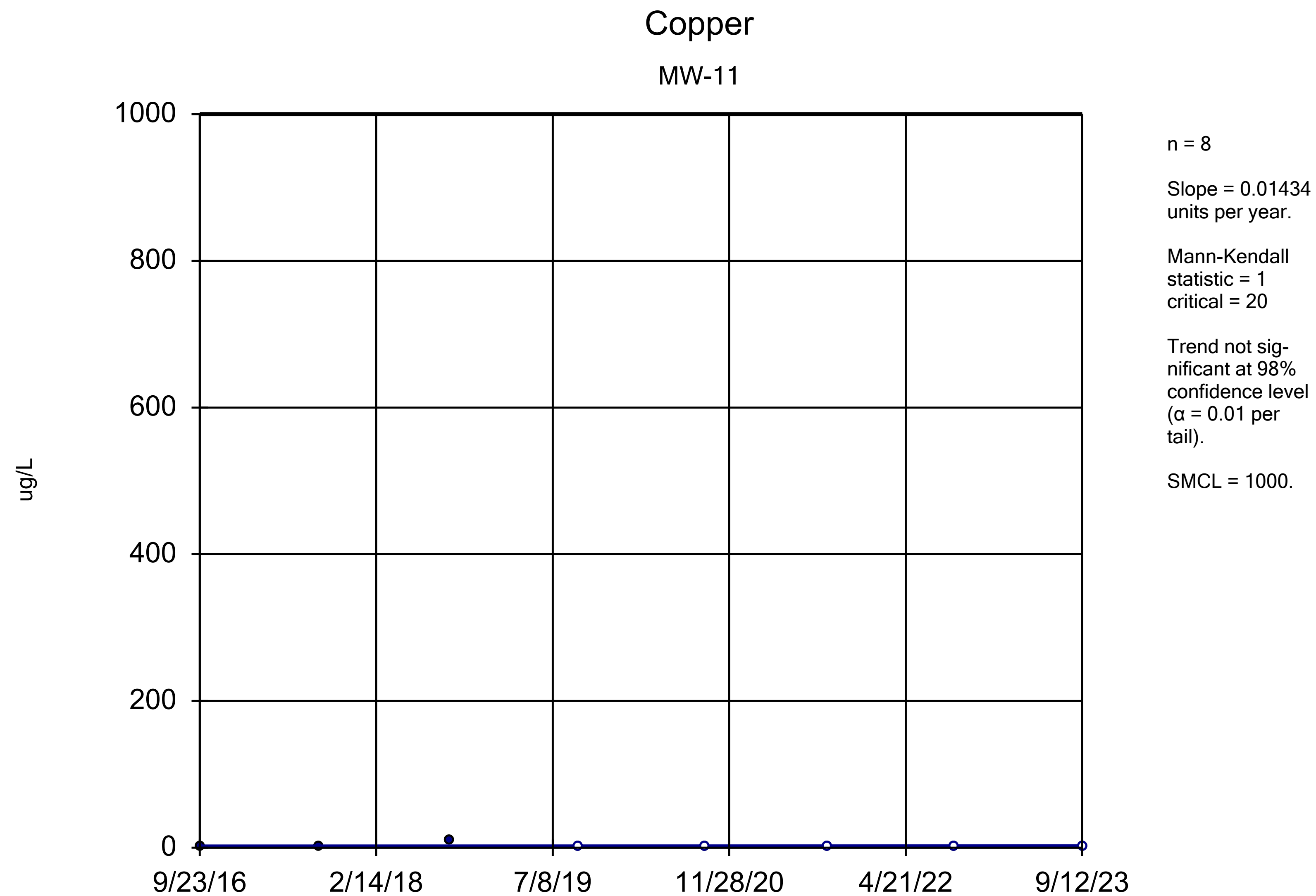
Constituent: Copper (ug/L) Analysis Run 10/26/2023 4:04 PM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-10
9/23/2016	2.5
9/5/2017	1
9/17/2018	5.7
9/23/2019	<2
9/24/2020	<1.5
9/9/2021	<1.4
9/9/2022	<1.8
9/13/2023	<1.8 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:03 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

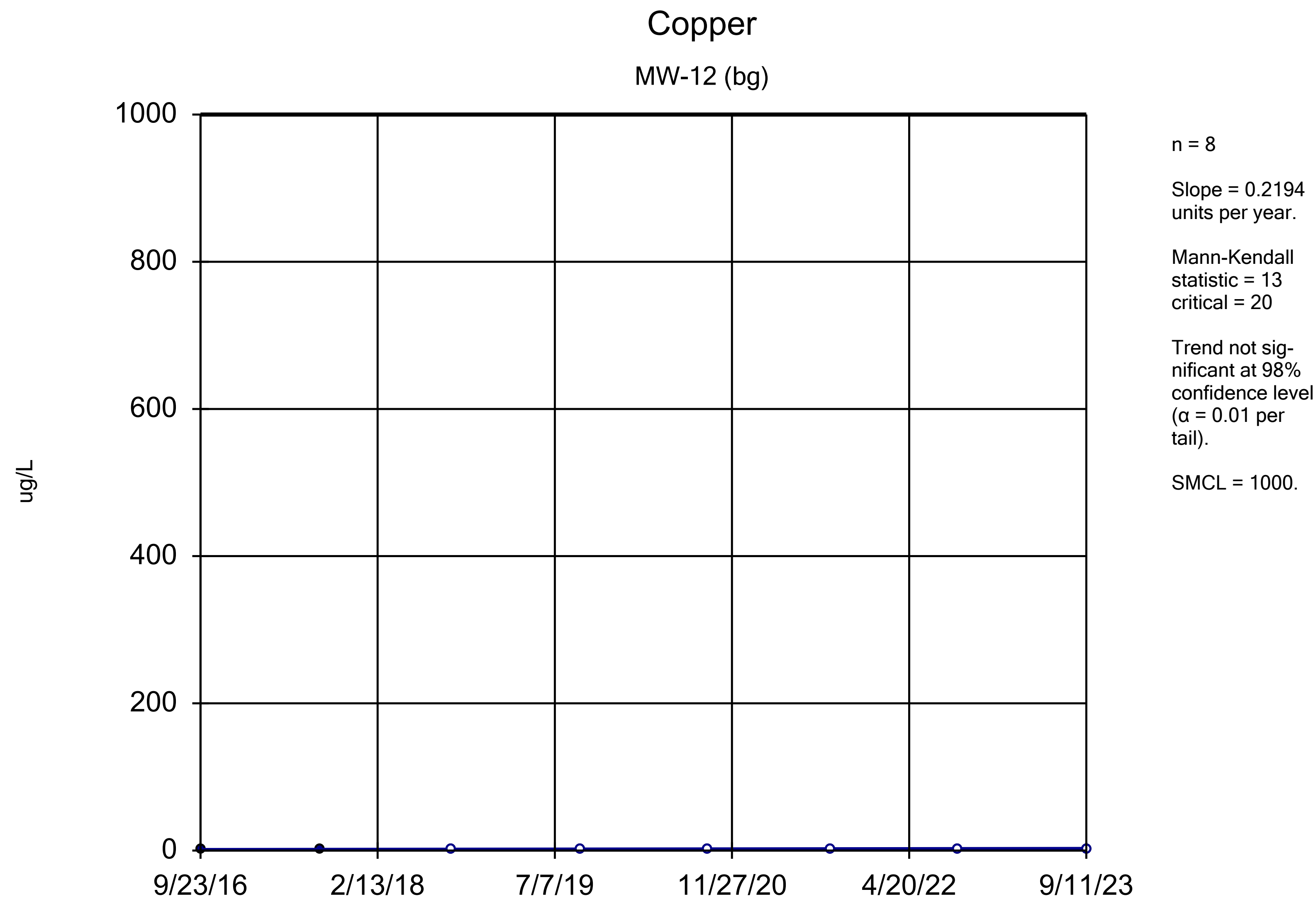
Constituent: Copper (ug/L) Analysis Run 10/26/2023 4:04 PM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-11
9/23/2016	1.6
9/5/2017	0.35 (J)
9/17/2018	9
9/23/2019	<2
9/22/2020	<1.5
9/8/2021	<1.4
9/6/2022	<1.8
9/12/2023	<1.8 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:03 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

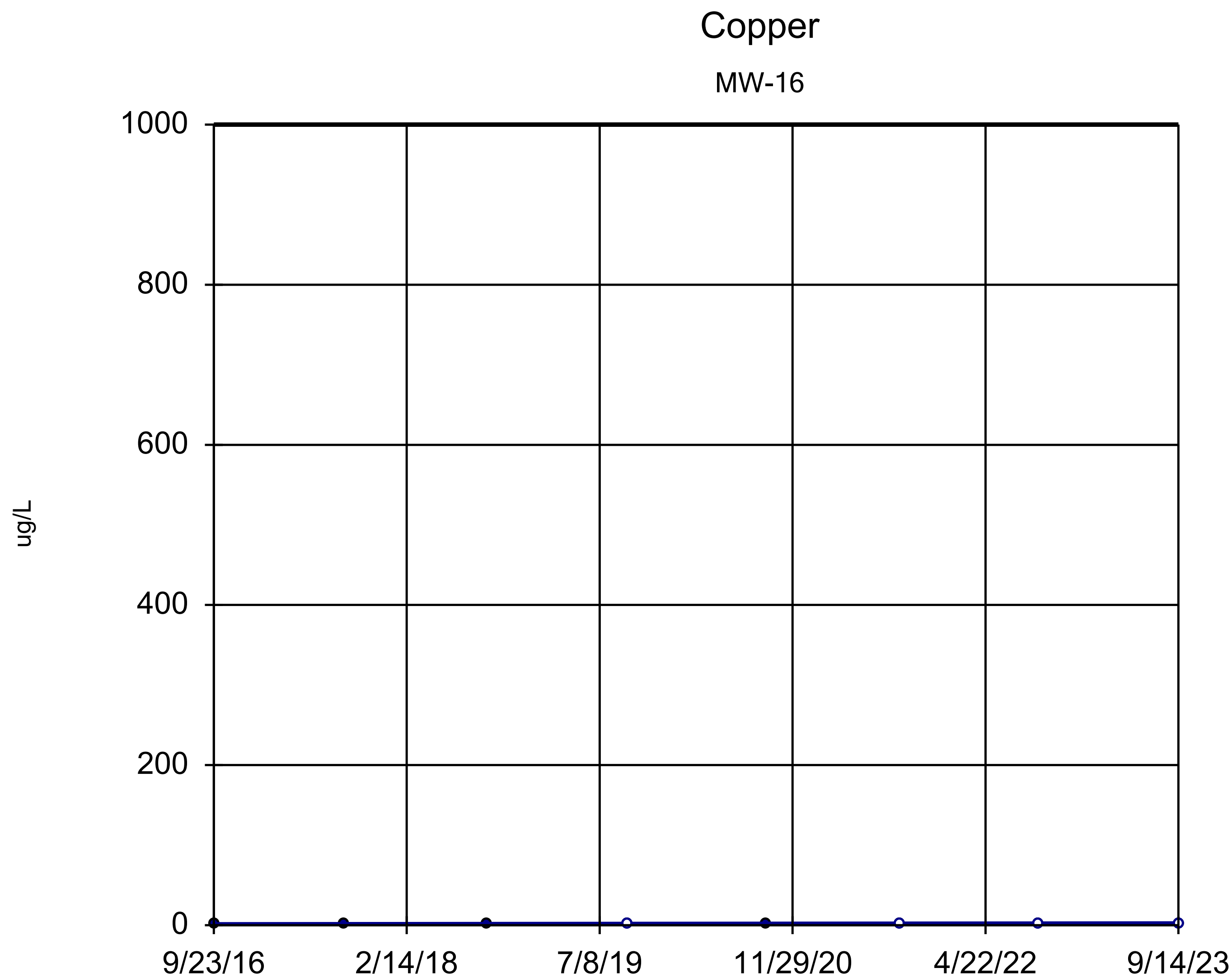
Constituent: Copper (ug/L) Analysis Run 10/26/2023 4:04 PM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-12 (bg)
9/23/2016	0.57 (J)
9/5/2017	0.24 (J)
9/17/2018	<0.48
9/23/2019	<2
9/21/2020	<1.5
9/8/2021	<1.4
9/6/2022	<1.8
9/11/2023	<1.8 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



n = 8

Slope = 0.1759
units per year.

Mann-Kendall
statistic = 7
critical = 20

Trend not significant at 98% confidence level (α = 0.01 per tail).

SMCL = 1000.

Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:03 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

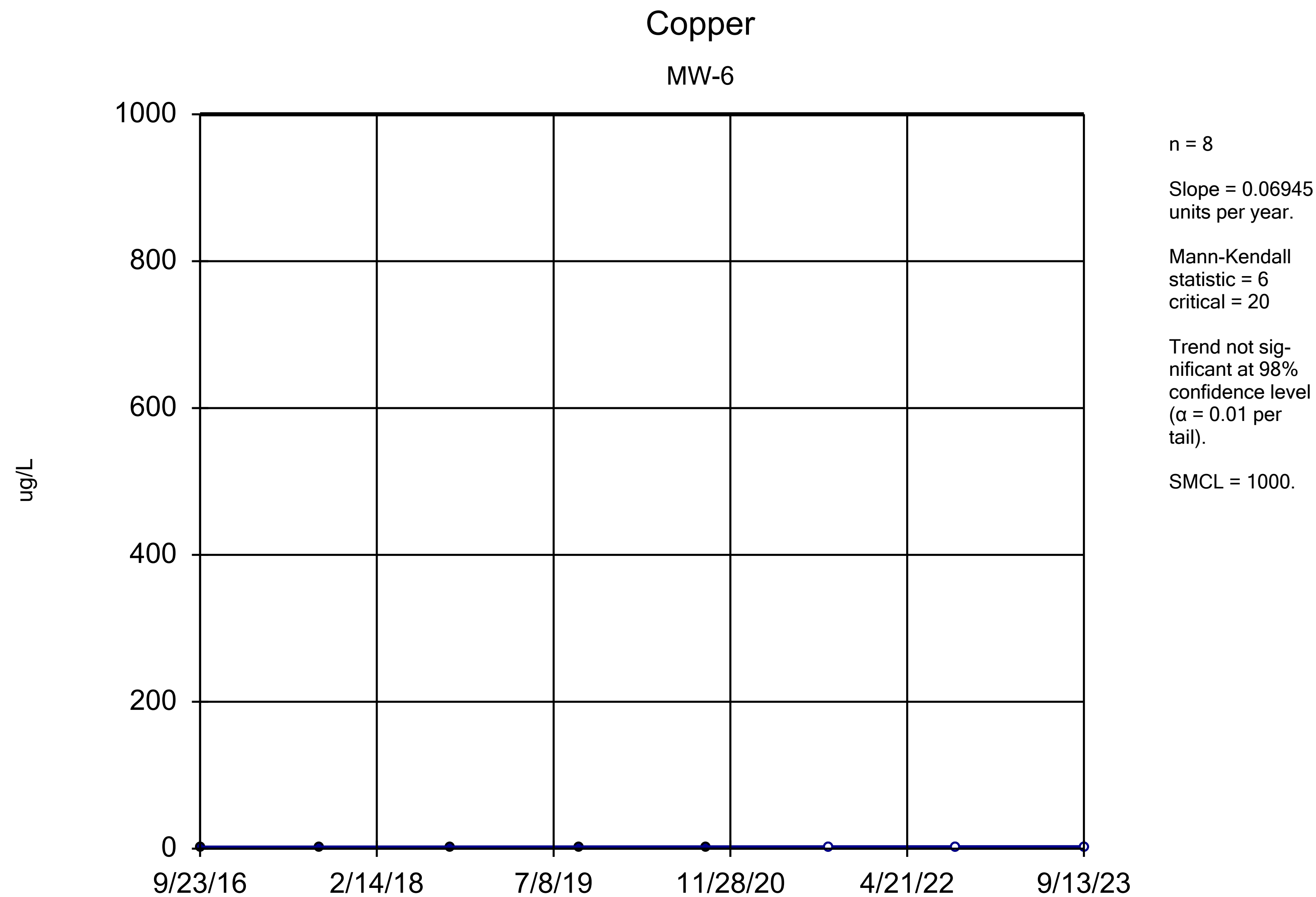
Constituent: Copper (ug/L)   Analysis Run 10/26/2023 4:04 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-16
9/23/2016	0.21 (J)
9/5/2017	0.31 (J)
9/17/2018	2.5
9/23/2019	<2
9/23/2020	1.5 (J)
9/9/2021	<1.4
9/8/2022	<1.8
9/14/2023	<1.8 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:03 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

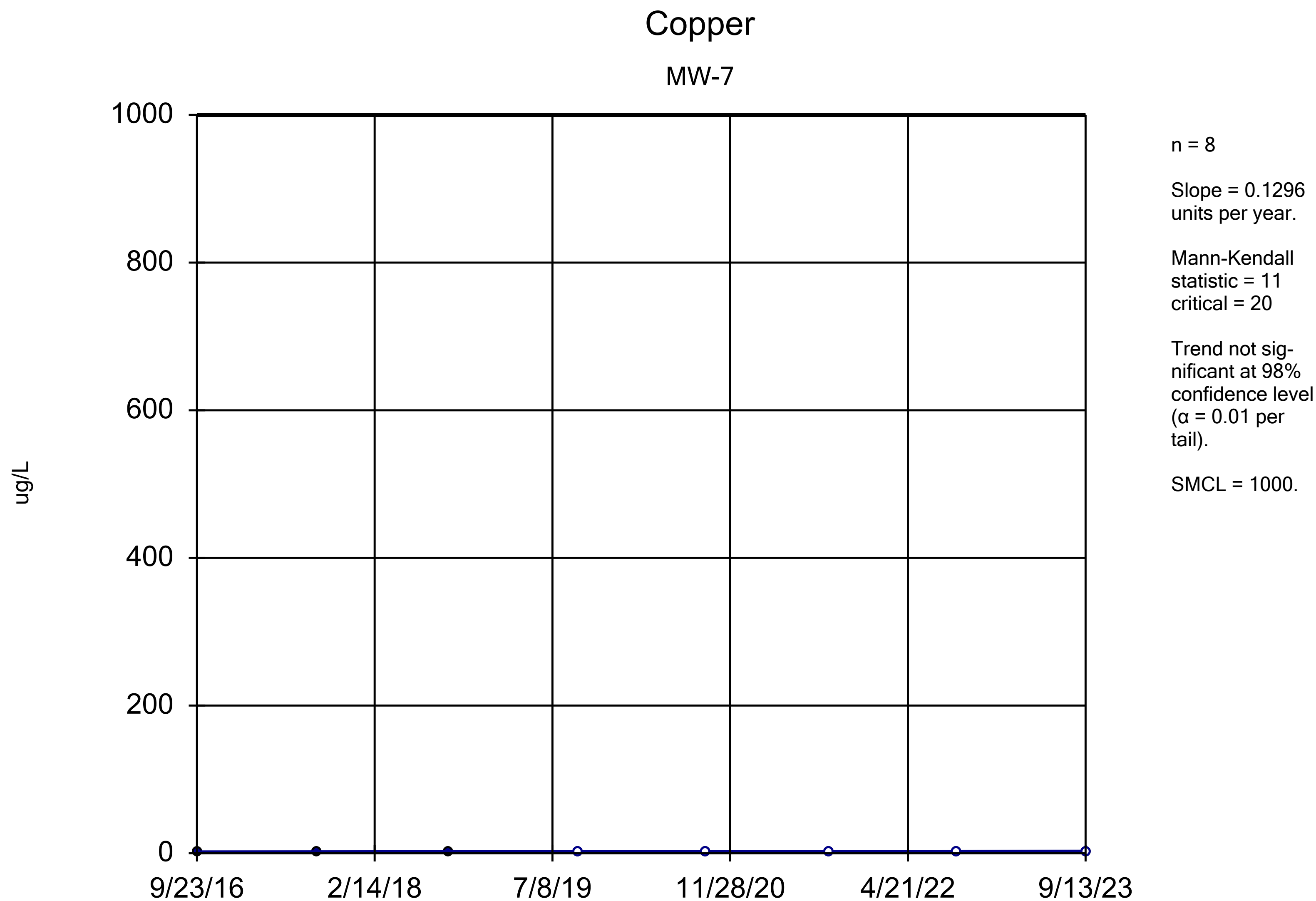
Constituent: Copper (ug/L)   Analysis Run 10/26/2023 4:04 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-6
9/23/2016	1.3
9/5/2017	0.2 (J)
9/17/2018	2.4
9/23/2019	2.4 (J)
9/22/2020	1.6 (J)
9/9/2021	<1.4
9/7/2022	<1.8
9/13/2023	<1.8 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:03 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

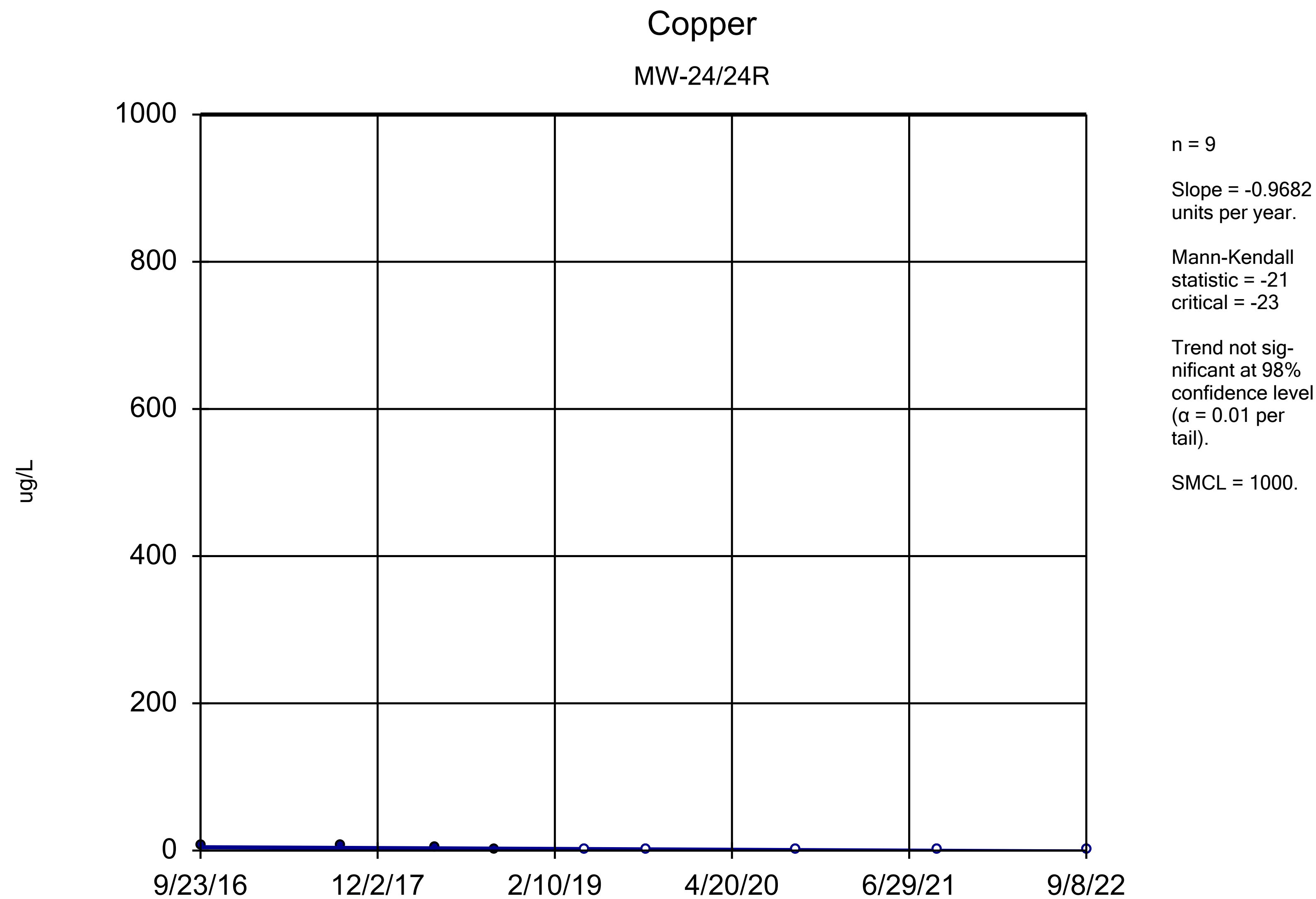
Constituent: Copper (ug/L) Analysis Run 10/26/2023 4:04 PM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-7
9/23/2016	0.95 (J)
9/5/2017	0.36 (J)
9/17/2018	1.7
9/23/2019	<2
9/23/2020	<1.5
9/9/2021	<1.4
9/8/2022	<1.8
9/13/2023	<1.8 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:03 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

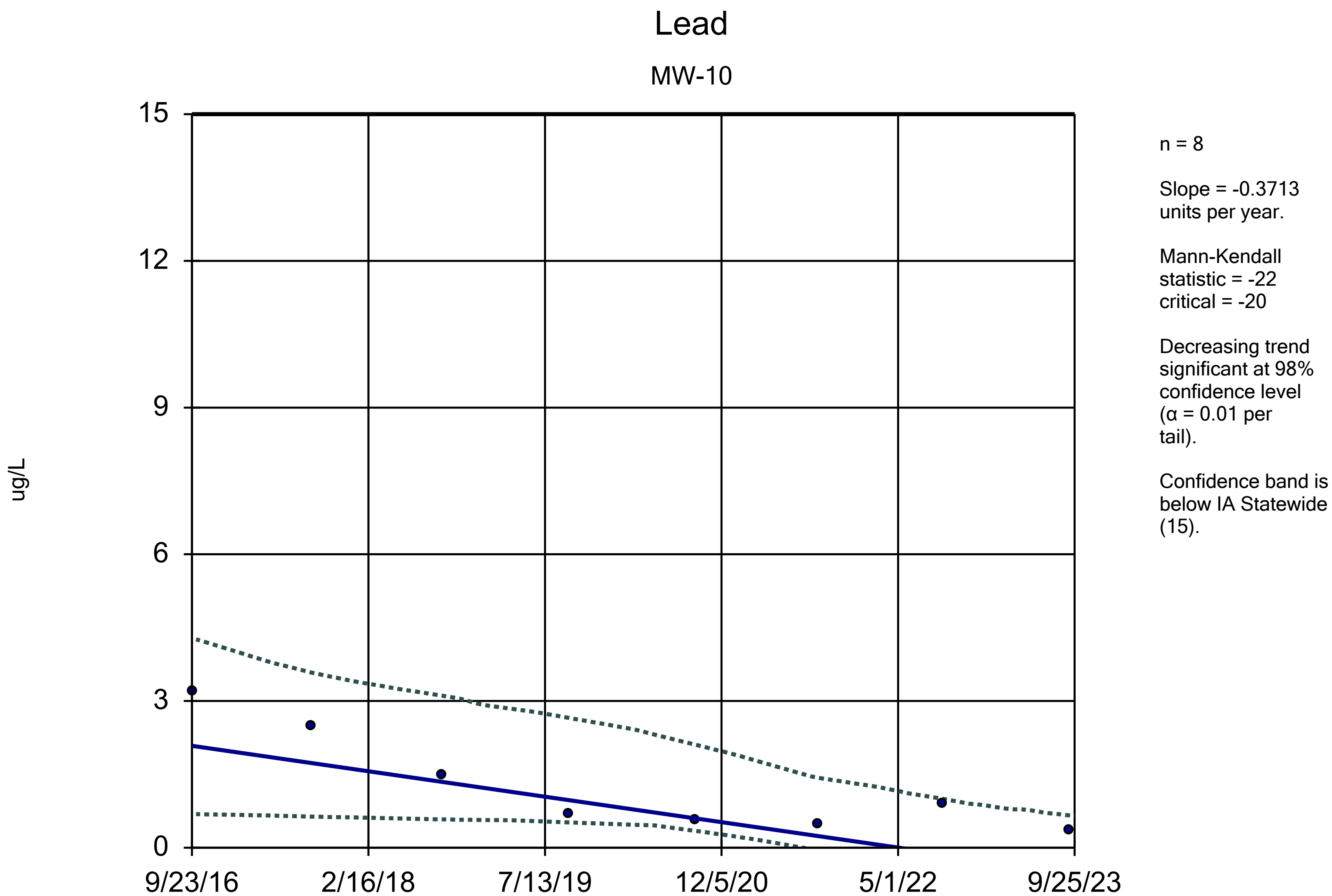
Constituent: Copper (ug/L)   Analysis Run 10/26/2023 4:04 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-24/24R
9/23/2016	7.7
9/5/2017	6.8
4/25/2018	4.6
9/17/2018	1.2
4/23/2019	<2
9/23/2019	<2
9/24/2020	<1.5
9/10/2021	<1.4
9/8/2022	<1.8

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:03 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

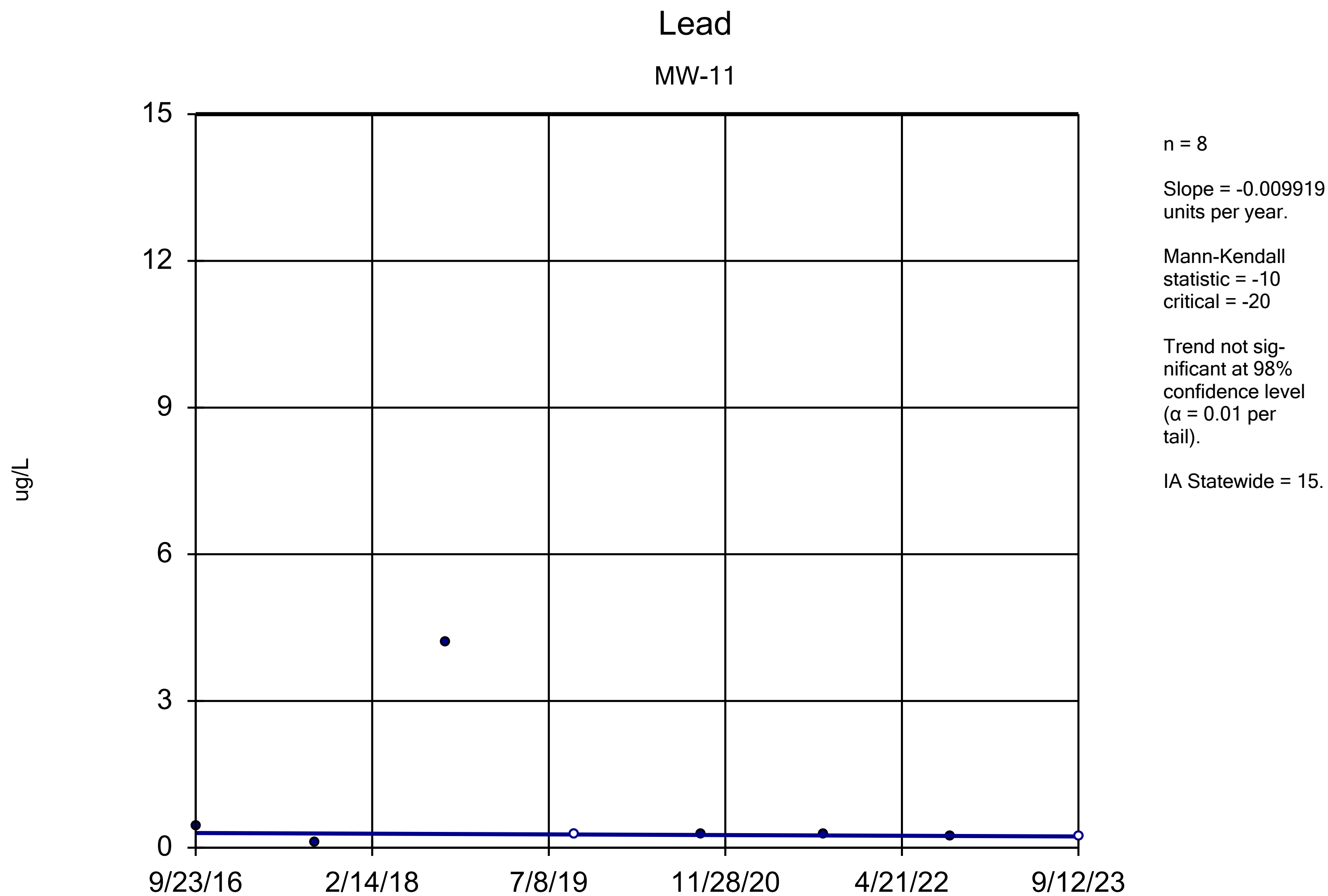
Sen's Slope Estimator

Constituent: Lead (ug/L) Analysis Run 10/26/2023 4:04 PM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-10	LCL	UCL
9/23/2016	3.2	0.6891	4.283
9/5/2017	2.5	0.6361	3.577
9/17/2018	1.5	0.5797	3.109
9/23/2019	0.69	0.5171	2.651
9/24/2020	0.56	0.3411	2.101
9/9/2021	0.47 (J)	-0.05516	1.431
9/9/2022	0.88	-0.5557	0.9981
9/13/2023	0.37 (J)	-1.158	0.6576

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:03 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

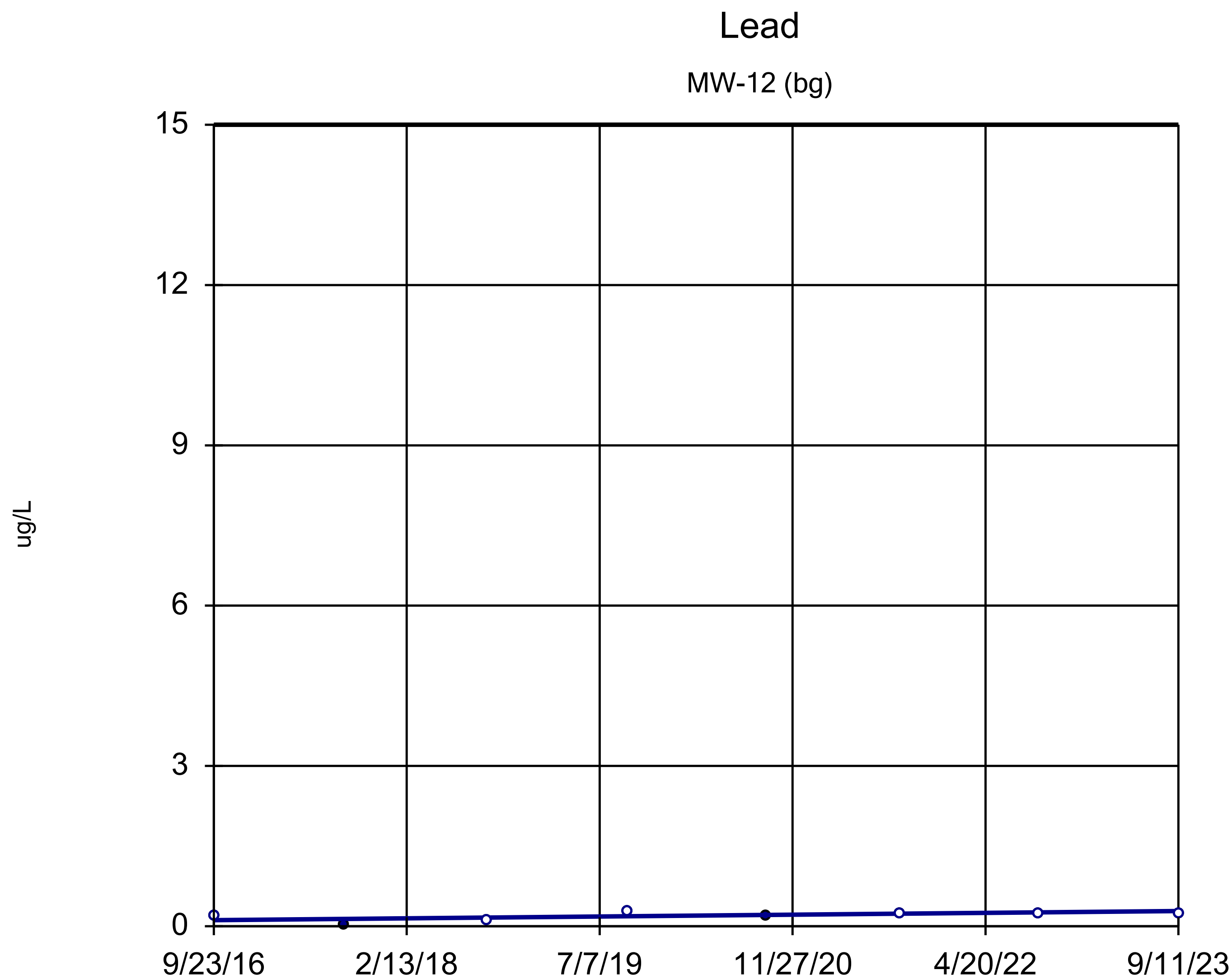
Constituent: Lead (ug/L) Analysis Run 10/26/2023 4:05 PM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-11
9/23/2016	0.43 (J)
9/5/2017	0.089 (J)
9/17/2018	4.2
9/23/2019	<0.27
9/22/2020	0.26 (J)
9/8/2021	0.29 (J)
9/6/2022	0.25 (J)
9/12/2023	<0.24 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



n = 8

Slope = 0.02445 units per year.

Mann-Kendall statistic = 13 critical = 20

Trend not significant at 98% confidence level (α = 0.01 per tail).

IA Statewide = 15.

Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:03 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

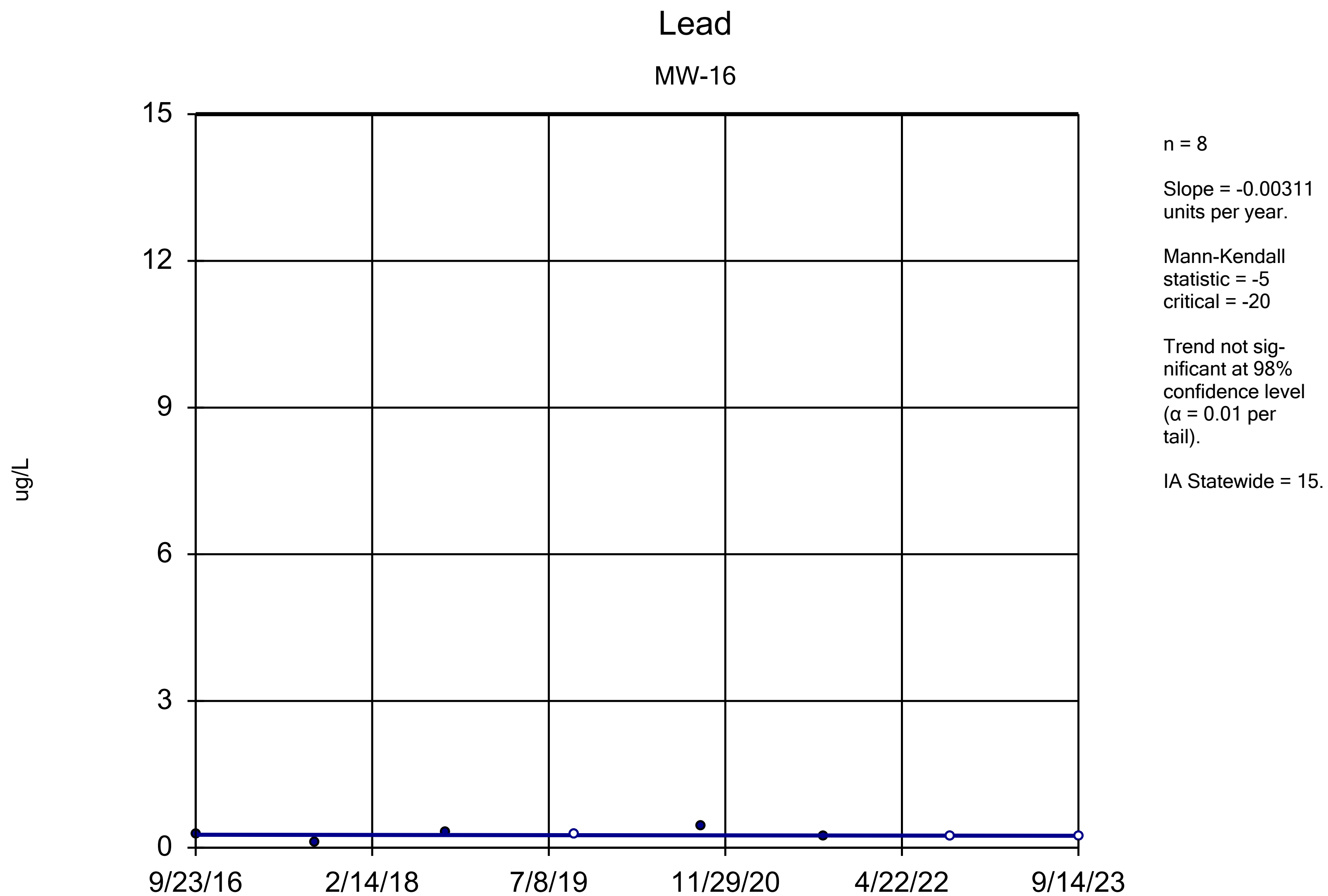
Constituent: Lead (ug/L) Analysis Run 10/26/2023 4:05 PM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-12 (bg)
9/23/2016	<0.19
9/5/2017	0.038 (J)
9/17/2018	<0.12
9/23/2019	<0.27
9/21/2020	0.17 (J)
9/8/2021	<0.21
9/6/2022	<0.24
9/11/2023	<0.24 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:03 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

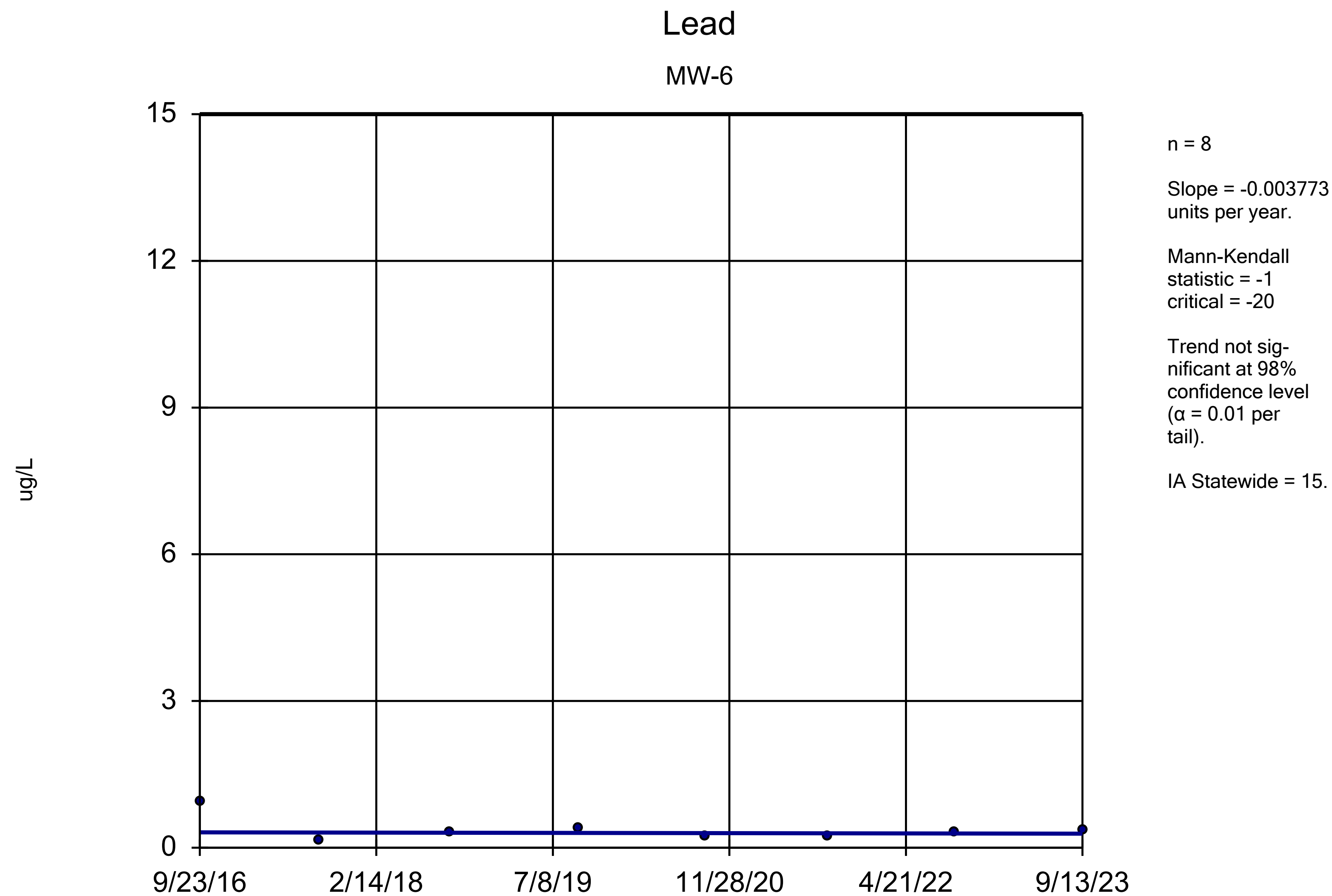
Constituent: Lead (ug/L)   Analysis Run 10/26/2023 4:05 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-16
9/23/2016	0.26 (J)
9/5/2017	0.1 (J)
9/17/2018	0.3 (J)
9/23/2019	<0.27
9/23/2020	0.42 (J)
9/9/2021	0.25 (J)
9/8/2022	<0.24
9/14/2023	<0.24 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:03 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

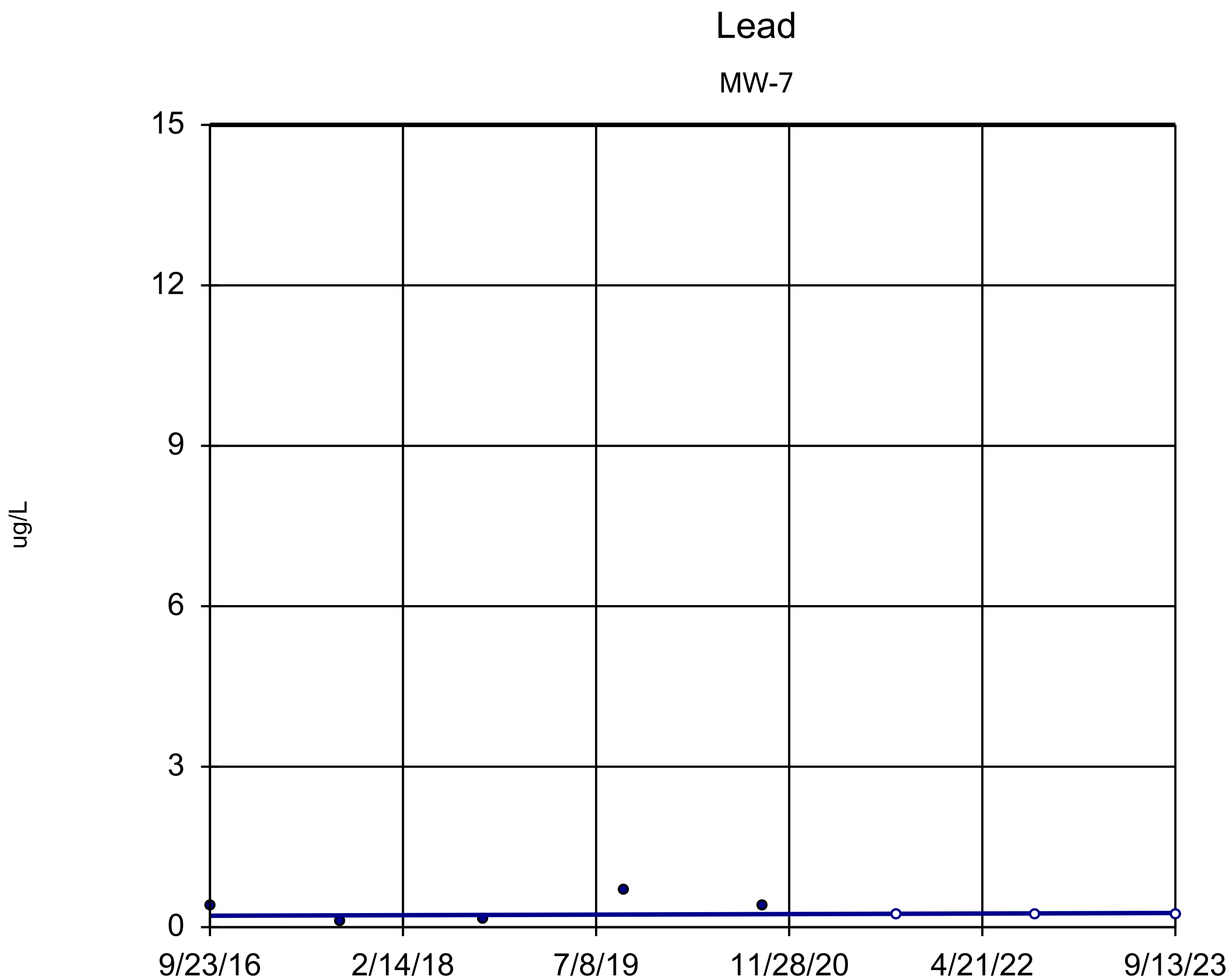
Sen's Slope Estimator

Constituent: Lead (ug/L)   Analysis Run 10/26/2023 4:05 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-6
9/23/2016	0.96 (J)
9/5/2017	0.13 (J)
9/17/2018	0.3 (J)
9/23/2019	0.4 (J)
9/22/2020	0.22 (J)
9/9/2021	0.21 (J)
9/7/2022	0.3 (J)
9/13/2023	0.37 (J)

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



n = 8

Slope = 0.007459 units per year.

Mann-Kendall statistic = 1 critical = 20

Trend not significant at 98% confidence level (α = 0.01 per tail).

IA Statewide = 15.

Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:03 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

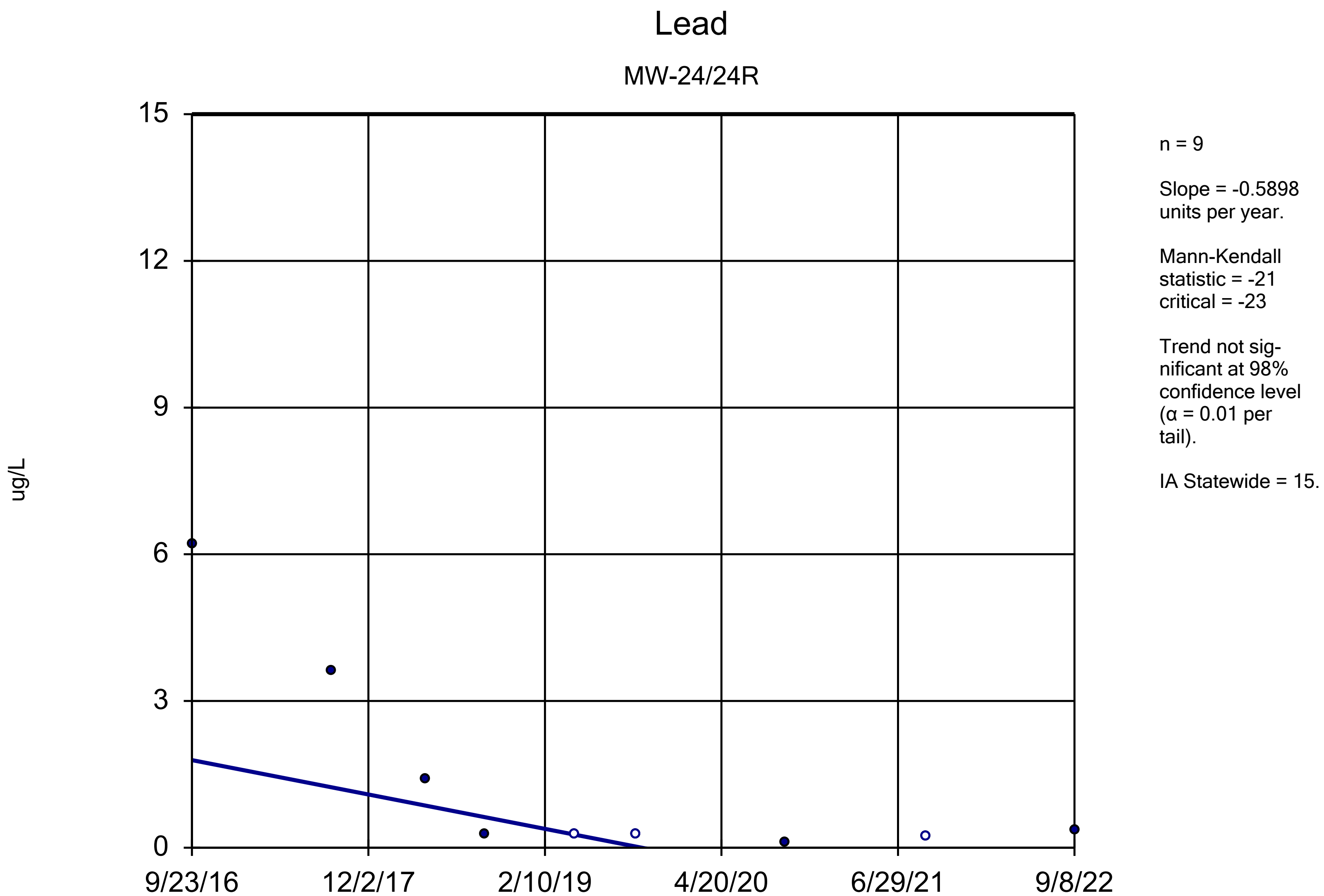
Constituent: Lead (ug/L) Analysis Run 10/26/2023 4:05 PM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-7
9/23/2016	0.41 (J)
9/5/2017	0.1 (J)
9/17/2018	0.15 (J)
9/23/2019	0.69
9/23/2020	0.39 (J)
9/9/2021	<0.21
9/8/2022	<0.24
9/13/2023	<0.24 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:03 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

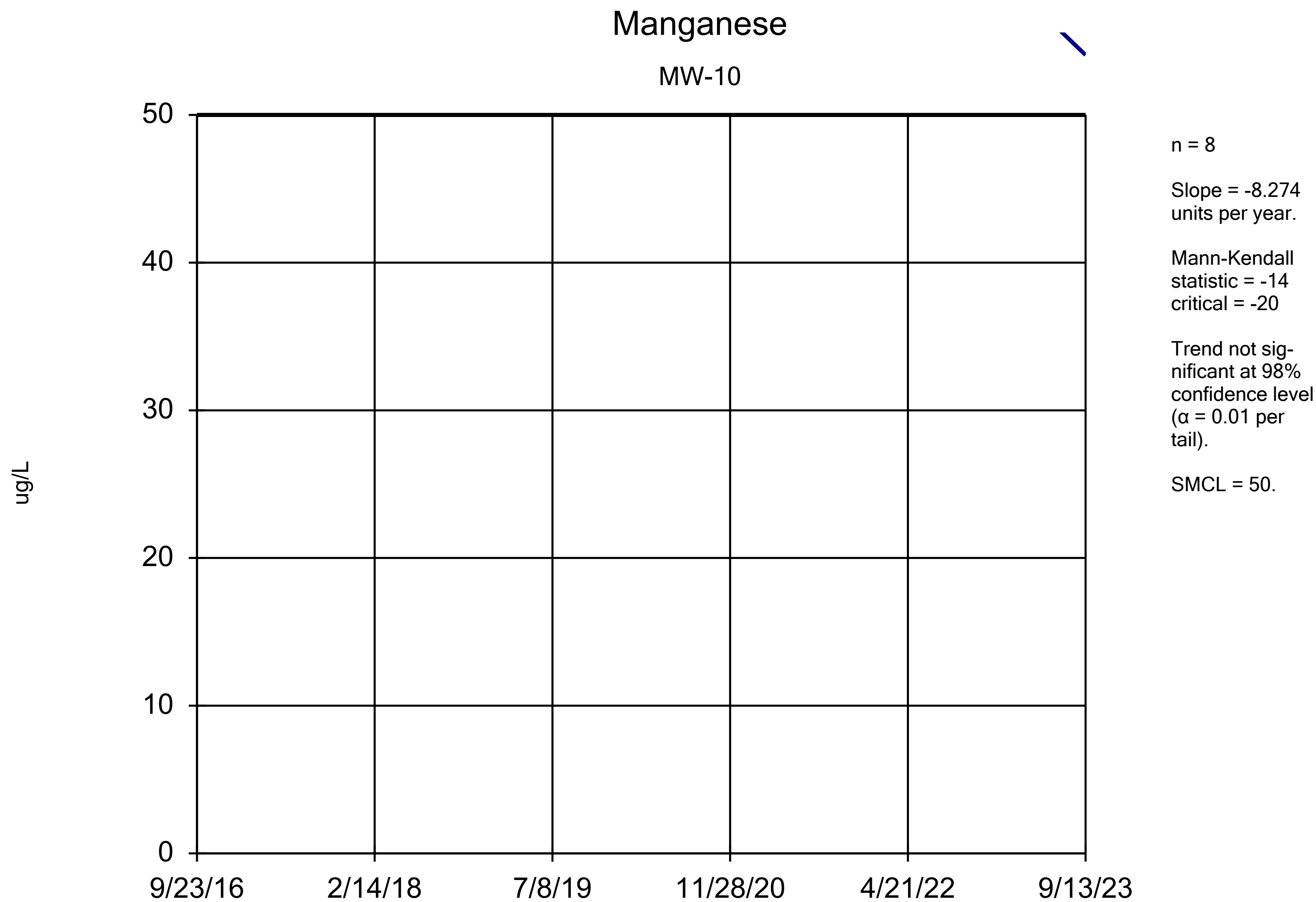
Sen's Slope Estimator

Constituent: Lead (ug/L)   Analysis Run 10/26/2023 4:05 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-24/24R
9/23/2016	6.2
9/5/2017	3.6
4/25/2018	1.4
9/17/2018	0.27 (J)
4/23/2019	<0.27
9/23/2019	<0.27
9/24/2020	0.12 (J)
9/10/2021	<0.21
9/8/2022	0.34 (J)

ND substitution: RL or RL/2 if <15% NDs.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:03 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

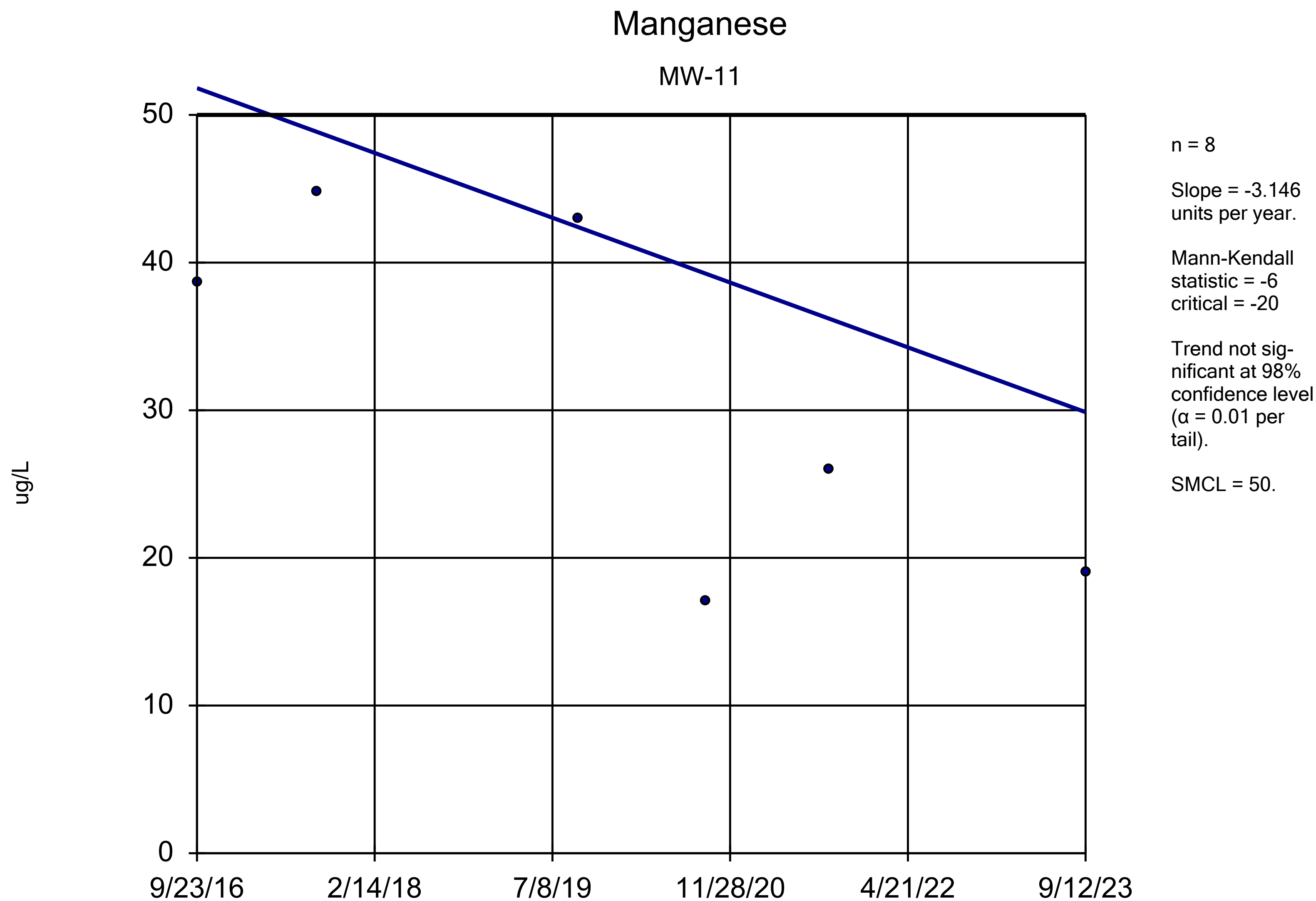
Sen's Slope Estimator

Constituent: Manganese (ug/L)   Analysis Run 10/26/2023 4:05 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-10
9/23/2016	266
9/5/2017	77.4
9/17/2018	88.2
9/23/2019	95
9/24/2020	96
9/9/2021	62
9/9/2022	72
9/13/2023	56

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band Analysis Run 10/26/2023 4:03 PM View: Deep

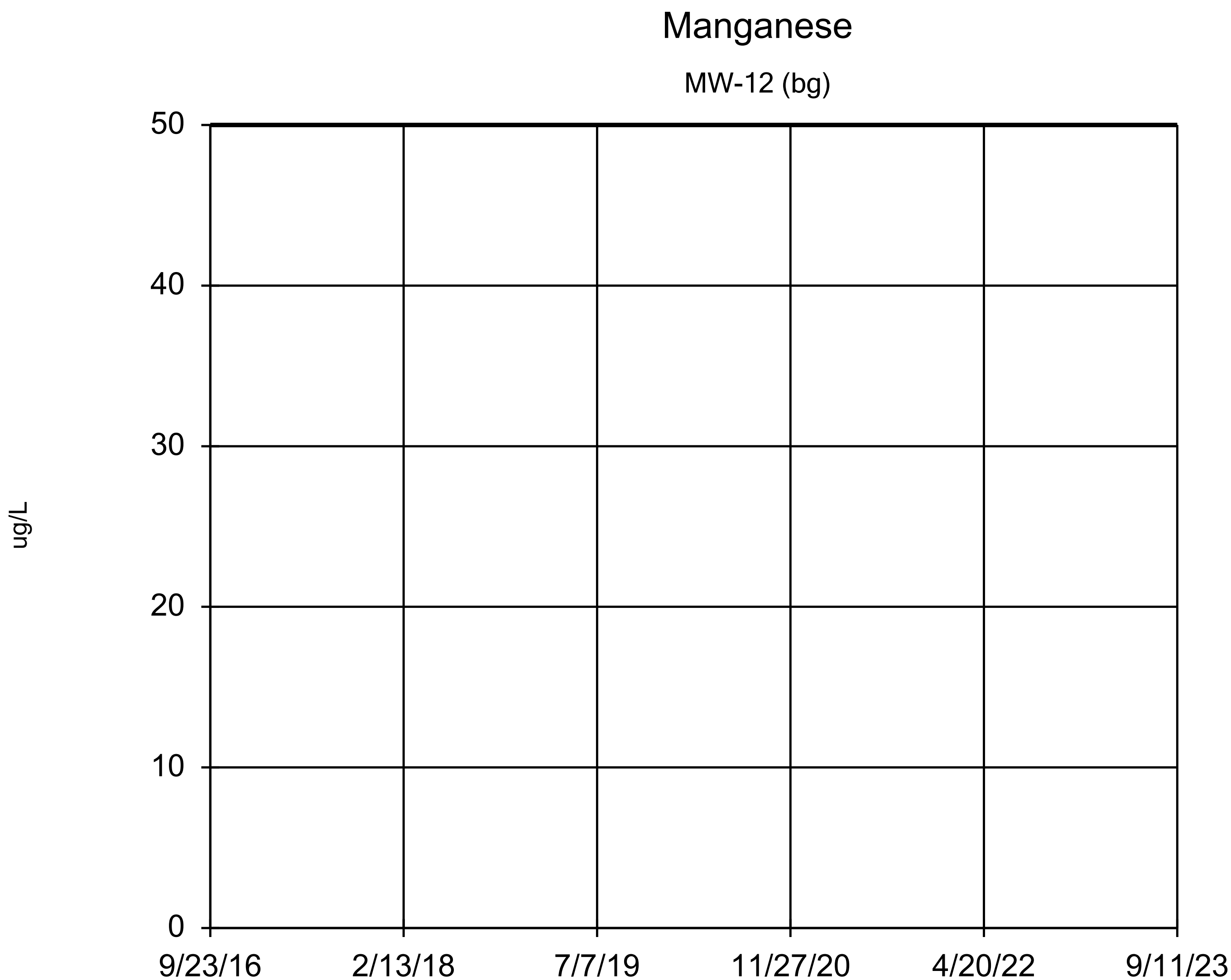
Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Sen's Slope Estimator

Constituent: Manganese (ug/L) Analysis Run 10/26/2023 4:05 PM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-11
9/23/2016	38.6
9/5/2017	44.8
9/17/2018	188
9/23/2019	43
9/22/2020	17
9/8/2021	26
9/6/2022	84
9/12/2023	19



n = 8

Slope = -2.672 units per year.

Mann-Kendall statistic = -10 critical = -20

Trend not significant at 98% confidence level (α = 0.01 per tail).

SMCL = 50.

Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:03 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

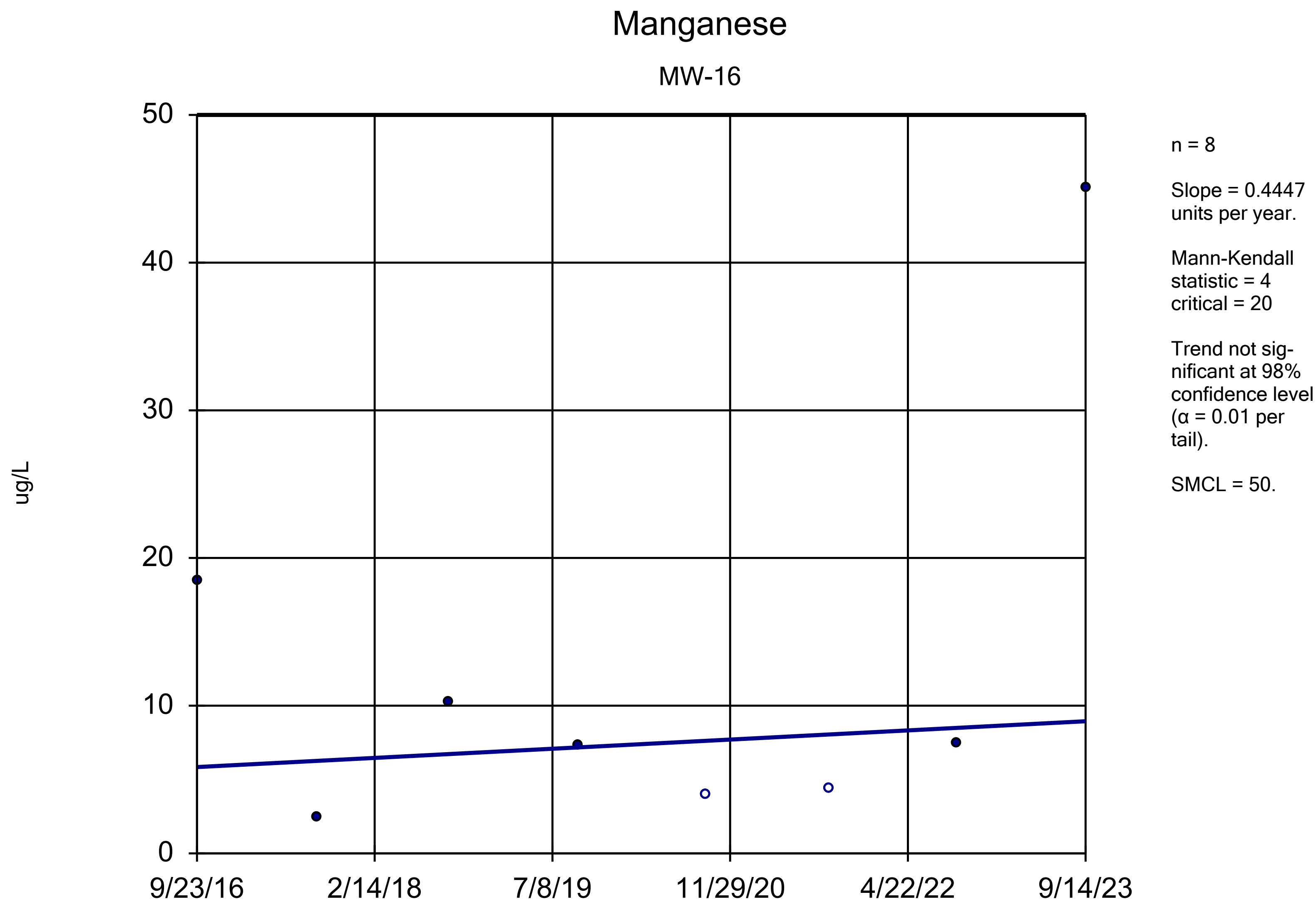
Sen's Slope Estimator

Constituent: Manganese (ug/L)   Analysis Run 10/26/2023 4:05 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-12 (bg)
9/23/2016	276
9/5/2017	266
9/17/2018	257
9/23/2019	280
9/21/2020	280
9/8/2021	260
9/6/2022	260
9/11/2023	250

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:03 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

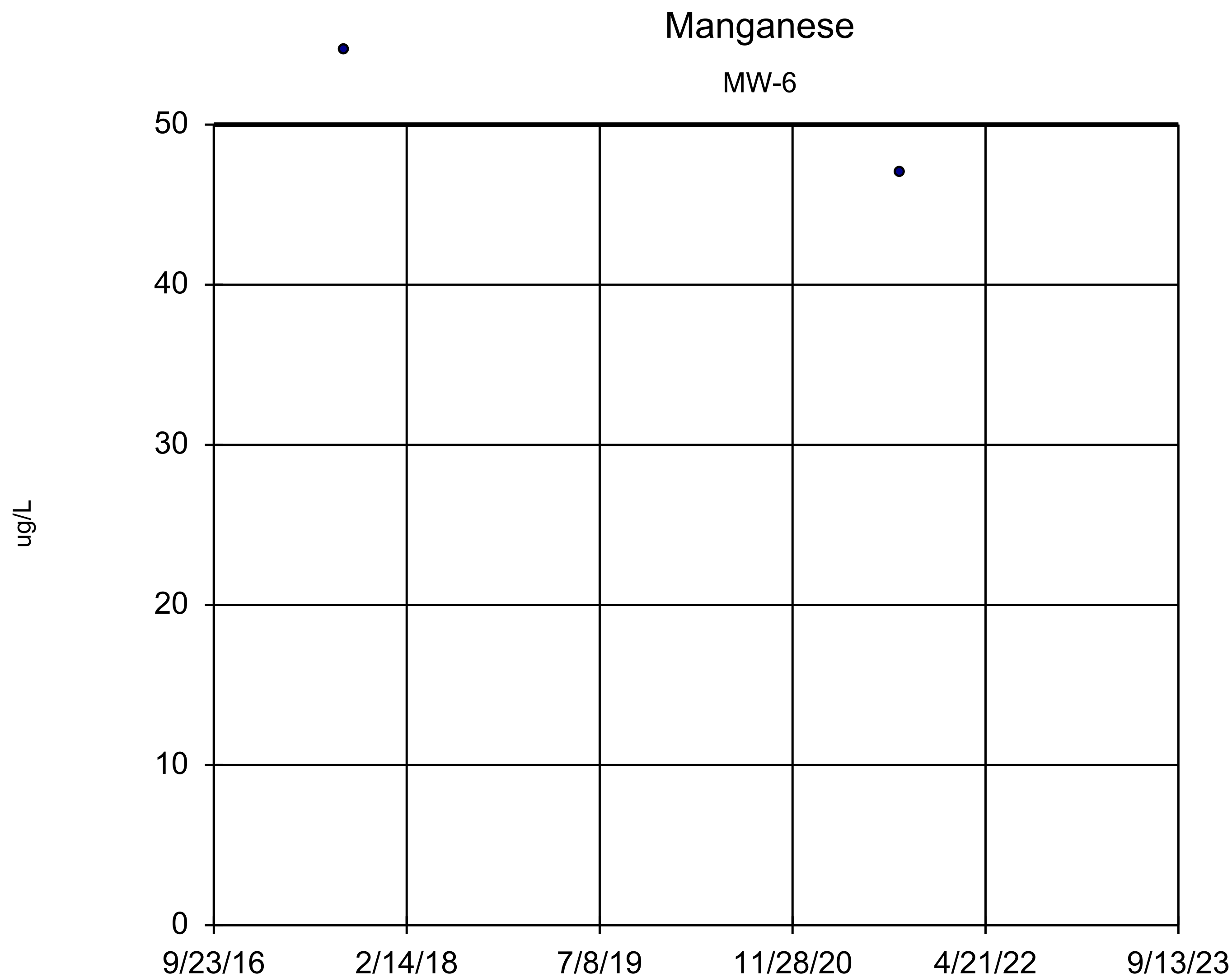
Constituent: Manganese (ug/L) Analysis Run 10/26/2023 4:05 PM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-16
9/23/2016	18.4
9/5/2017	2.5
9/17/2018	10.3
9/23/2019	7.3 (J)
9/23/2020	<4
9/9/2021	<4.4
9/8/2022	7.5 (J)
9/14/2023	45

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



n = 8

Slope = 5.262 units per year.

Mann-Kendall statistic = 4 critical = 20

Trend not significant at 98% confidence level (α = 0.01 per tail).

SMCL = 50.

Sen's Slope and 95% Confidence Band Analysis Run 10/26/2023 4:03 PM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

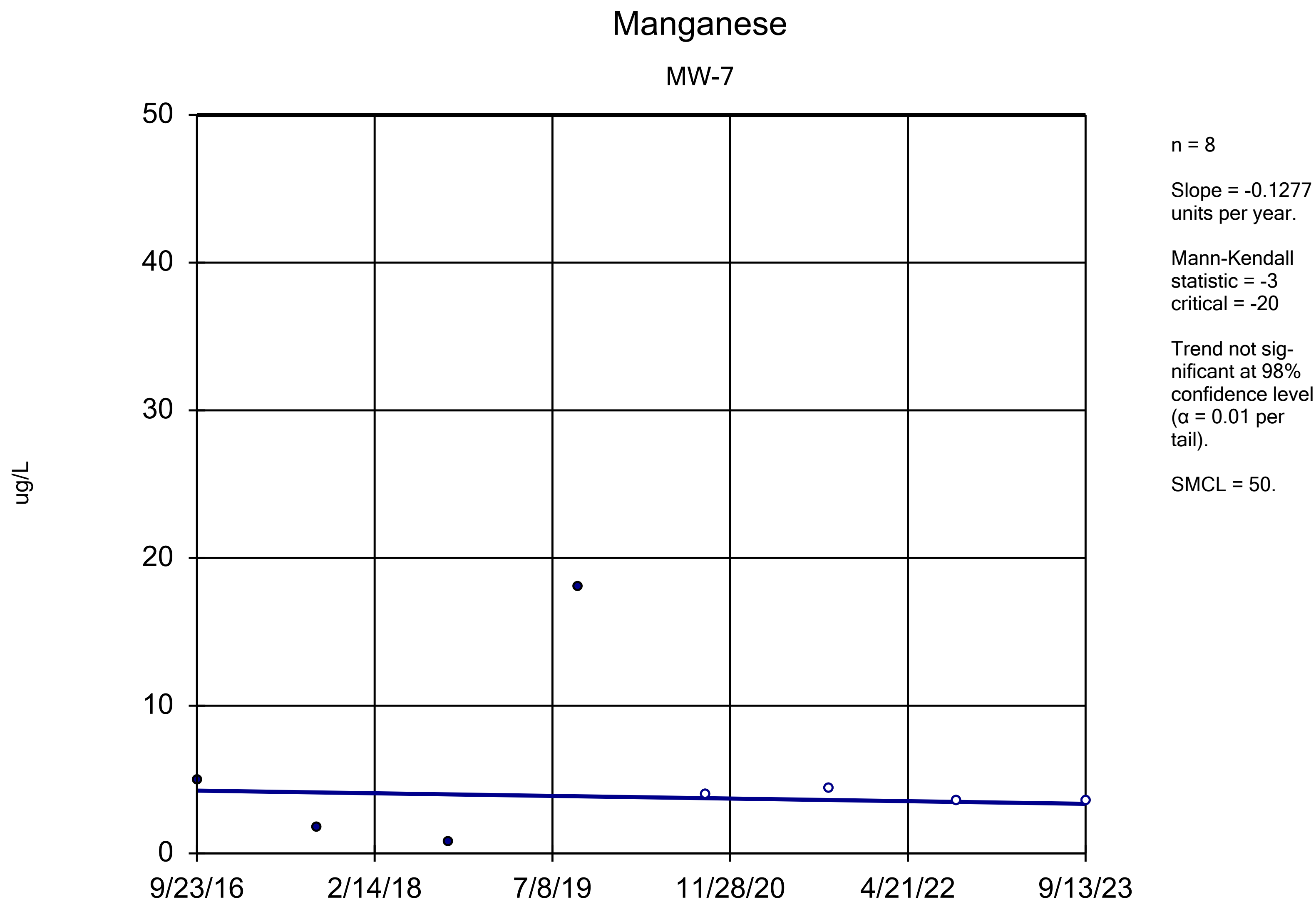
Sen's Slope Estimator

Constituent: Manganese (ug/L)   Analysis Run 10/26/2023 4:05 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-6
9/23/2016	180
9/5/2017	54.6
9/17/2018	78.7
9/23/2019	430
9/22/2020	63
9/9/2021	47
9/7/2022	200
9/13/2023	230

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:03 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

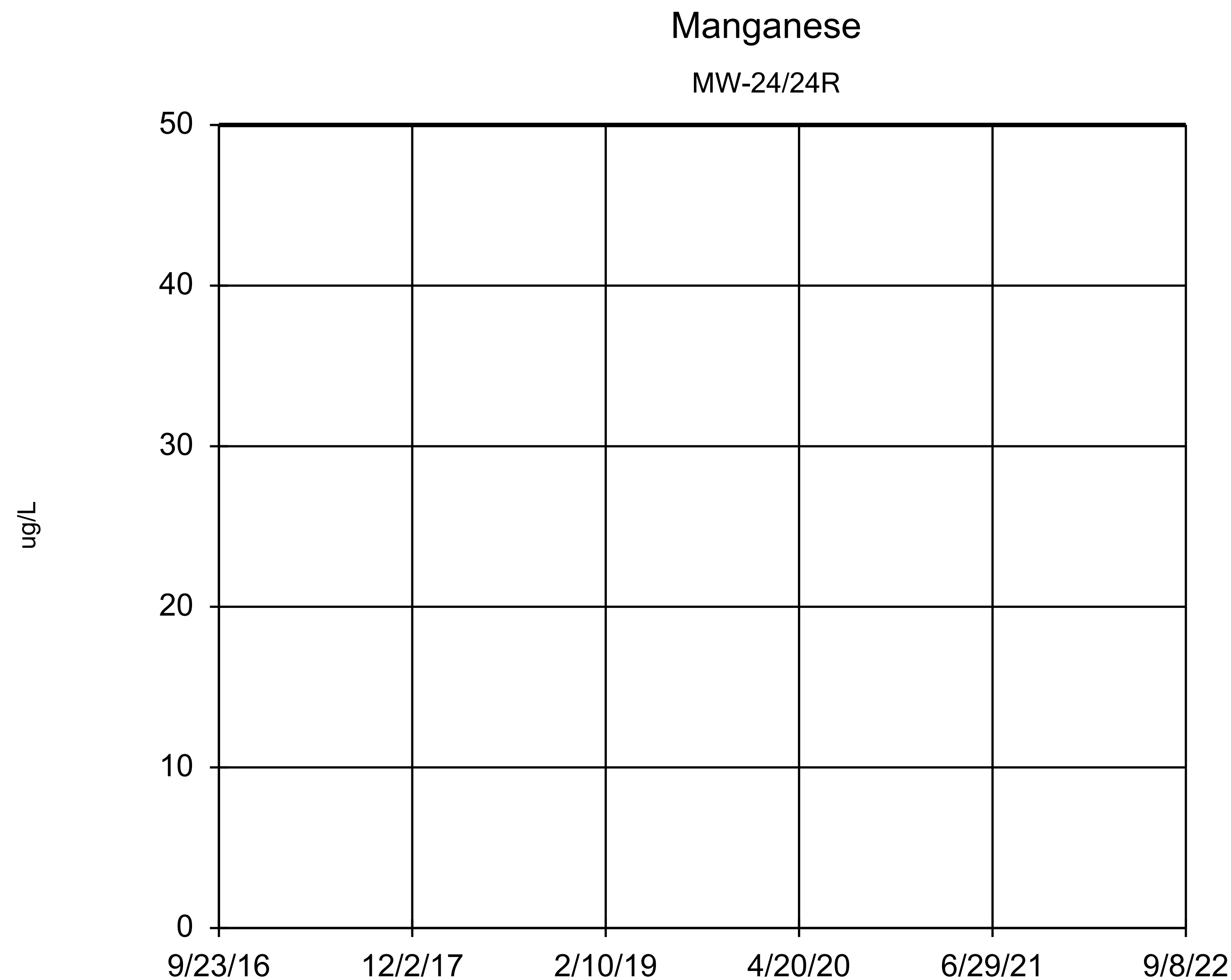
Constituent: Manganese (ug/L)   Analysis Run 10/26/2023 4:05 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-7
9/23/2016	5
9/5/2017	1.7
9/17/2018	0.81 (J)
9/23/2019	18
9/23/2020	<4
9/9/2021	<4.4
9/8/2022	<3.6
9/13/2023	<3.6 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



n = 9

Slope = -78.57 units per year.

Mann-Kendall statistic = -22 critical = -23

Trend not significant at 98% confidence level (α = 0.01 per tail).

SMCL = 50.

Sen's Slope and 95% Confidence Band Analysis Run 10/26/2023 4:03 PM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

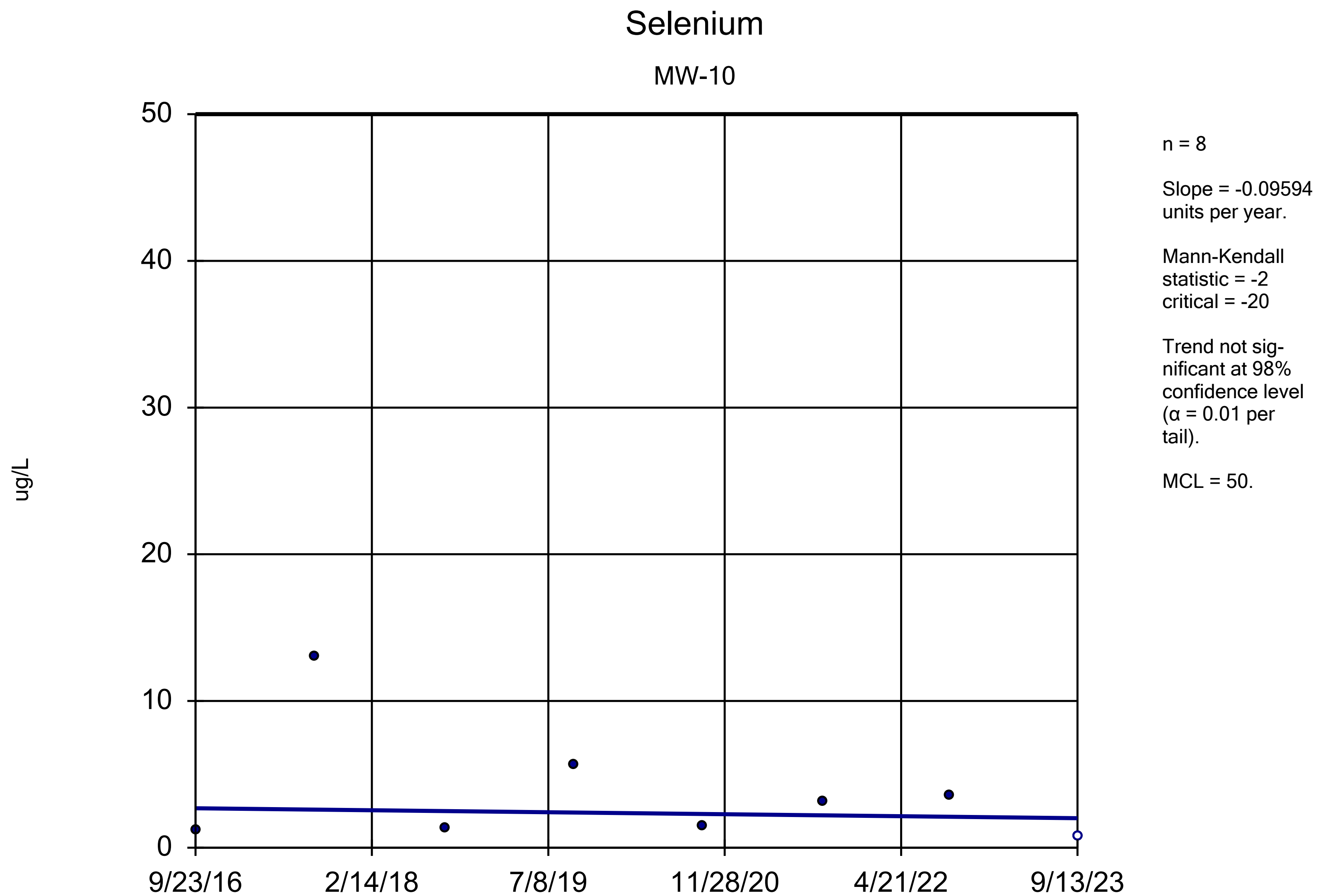
Sen's Slope Estimator

Constituent: Manganese (ug/L) Analysis Run 10/26/2023 4:05 PM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-24/24R
9/23/2016	460
9/5/2017	208
4/25/2018	623
9/17/2018	575
4/23/2019	370
9/23/2019	330
9/24/2020	220
9/10/2021	140
9/8/2022	120

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:03 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

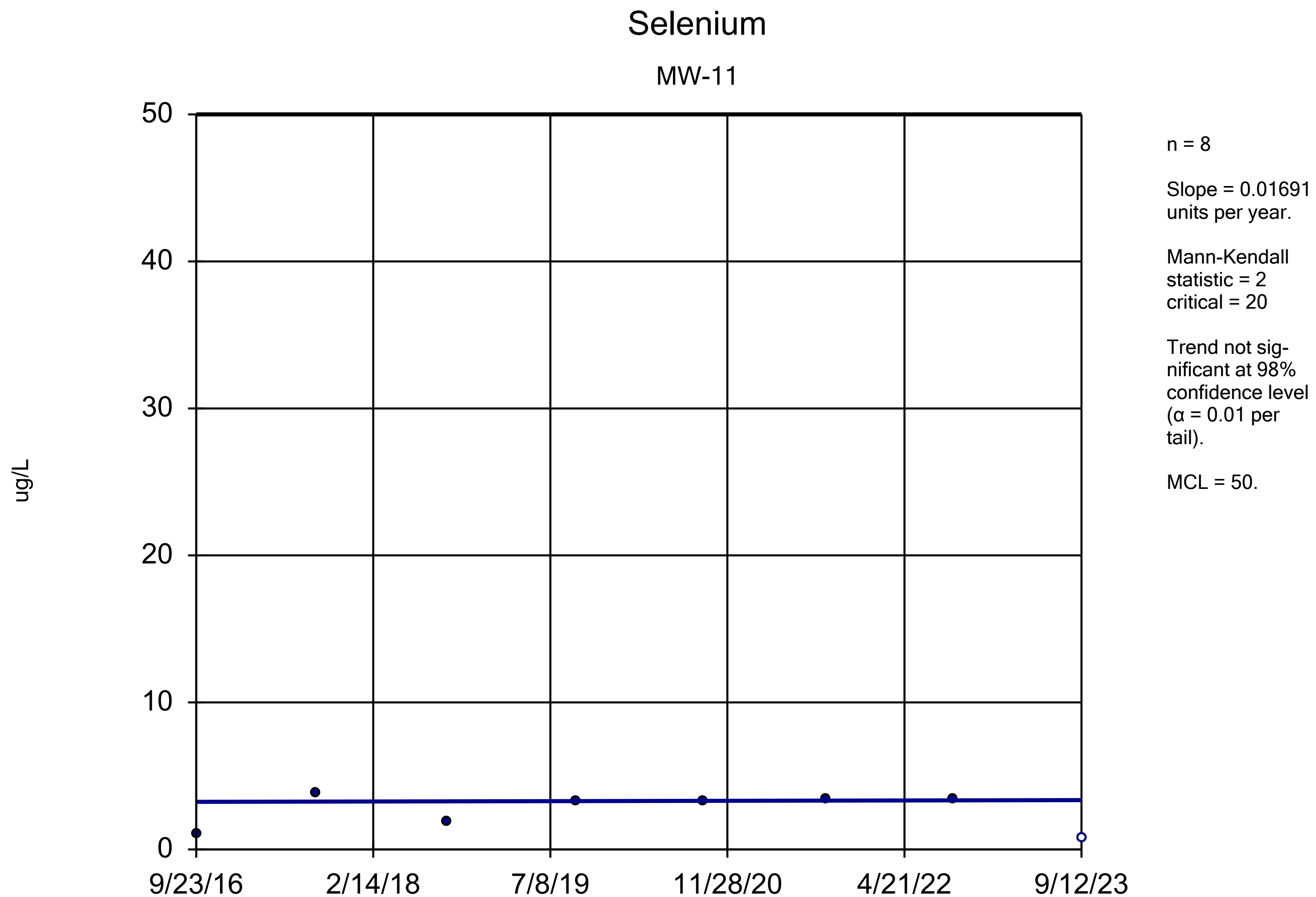
Constituent: Selenium (ug/L)   Analysis Run 10/26/2023 4:05 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-10
9/23/2016	1.2
9/5/2017	13
9/17/2018	1.3
9/23/2019	5.7
9/24/2020	1.5 (J)
9/9/2021	3.2 (J)
9/9/2022	3.5 (J,B)
9/13/2023	<1.4 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:03 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

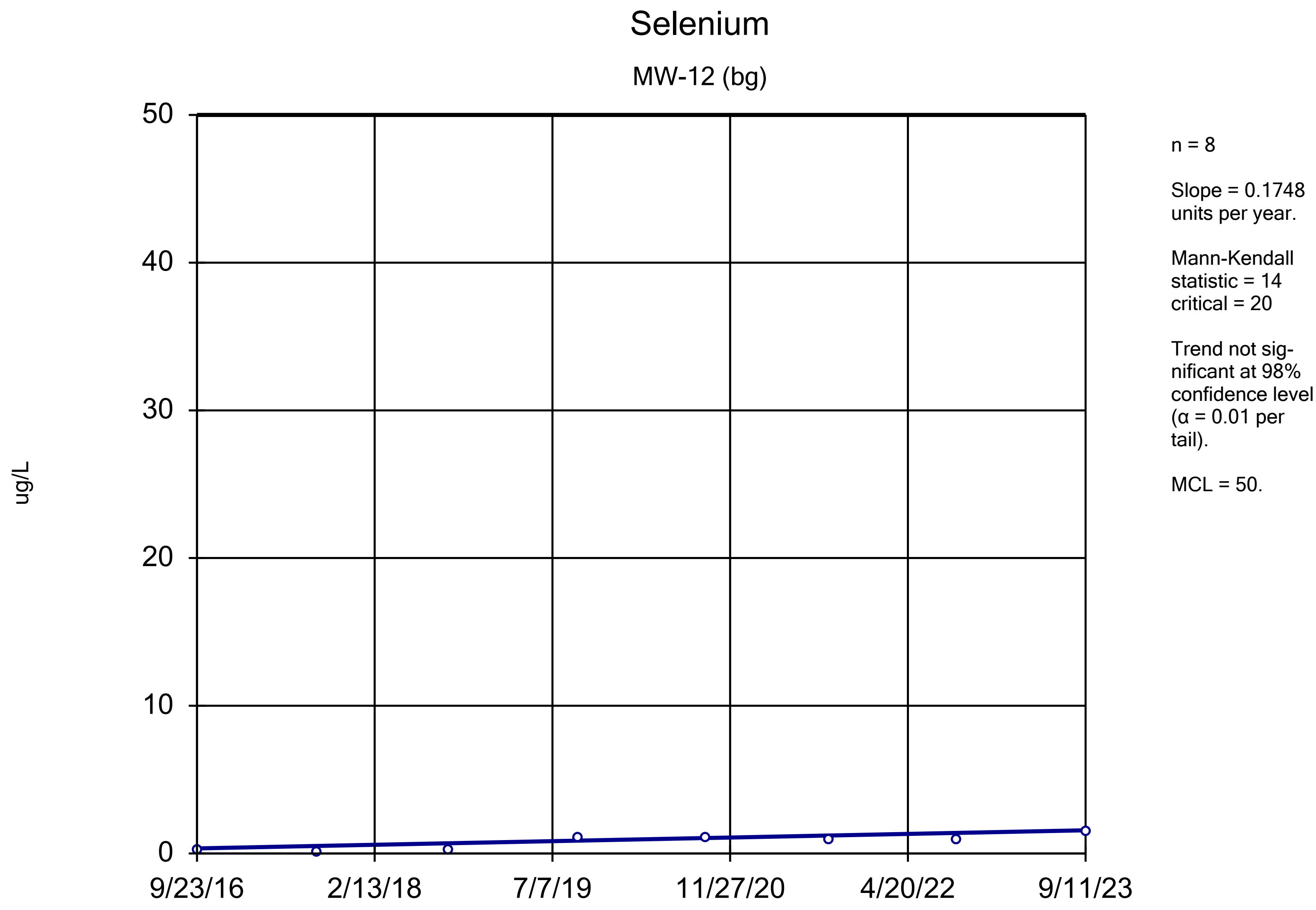
Constituent: Selenium (ug/L)   Analysis Run 10/26/2023 4:05 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-11
9/23/2016	1
9/5/2017	3.8
9/17/2018	1.9
9/23/2019	3.3 (J)
9/22/2020	3.3 (J)
9/8/2021	3.4 (J)
9/6/2022	3.4 (J,B)
9/12/2023	<1.4 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:03 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

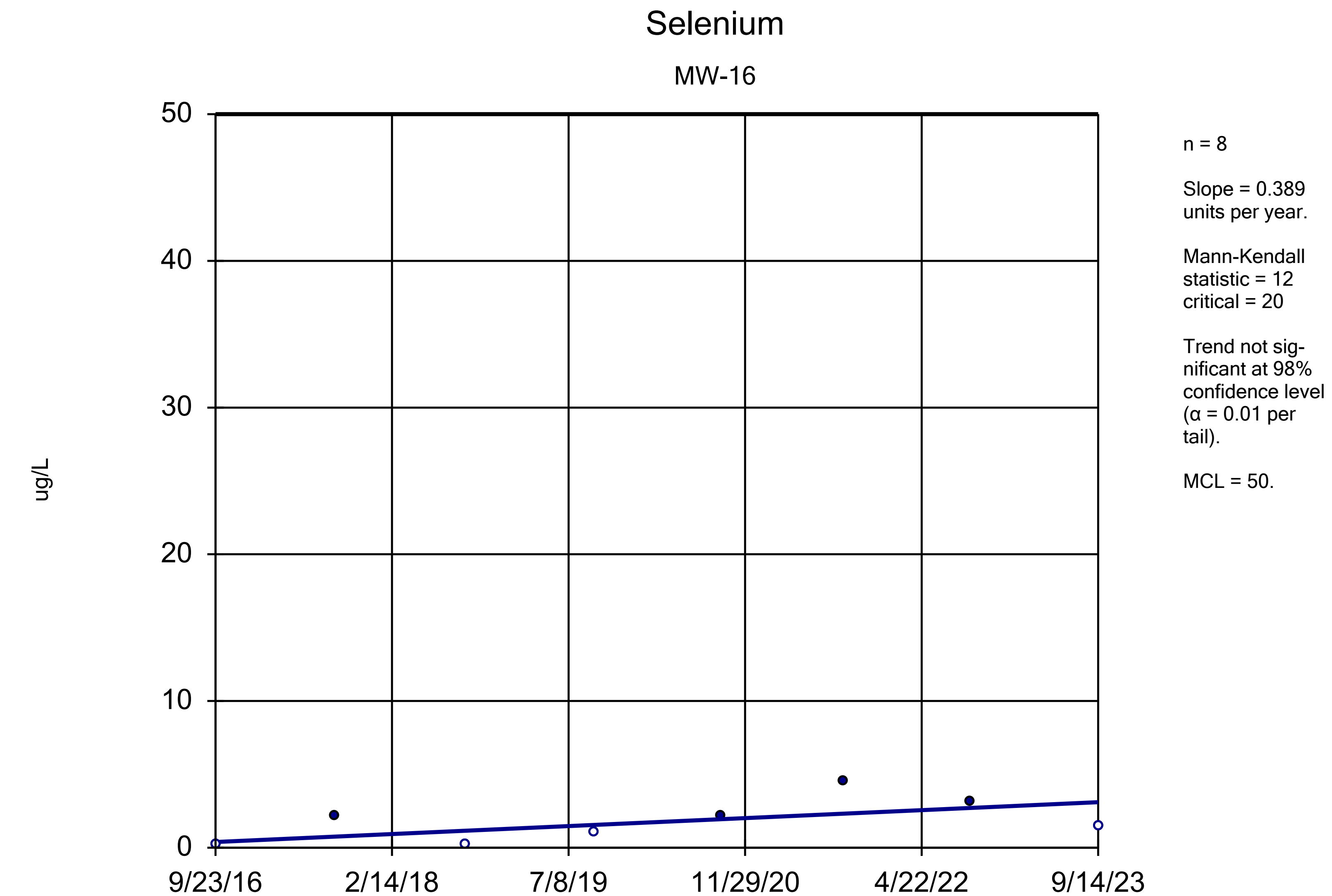
Constituent: Selenium (ug/L) Analysis Run 10/26/2023 4:05 PM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-12 (bg)
9/23/2016	<0.18
9/5/2017	<0.086
9/17/2018	<0.16
9/23/2019	<1
9/21/2020	<1
9/8/2021	<0.96
9/6/2022	<0.96
9/11/2023	<1.4 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:03 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

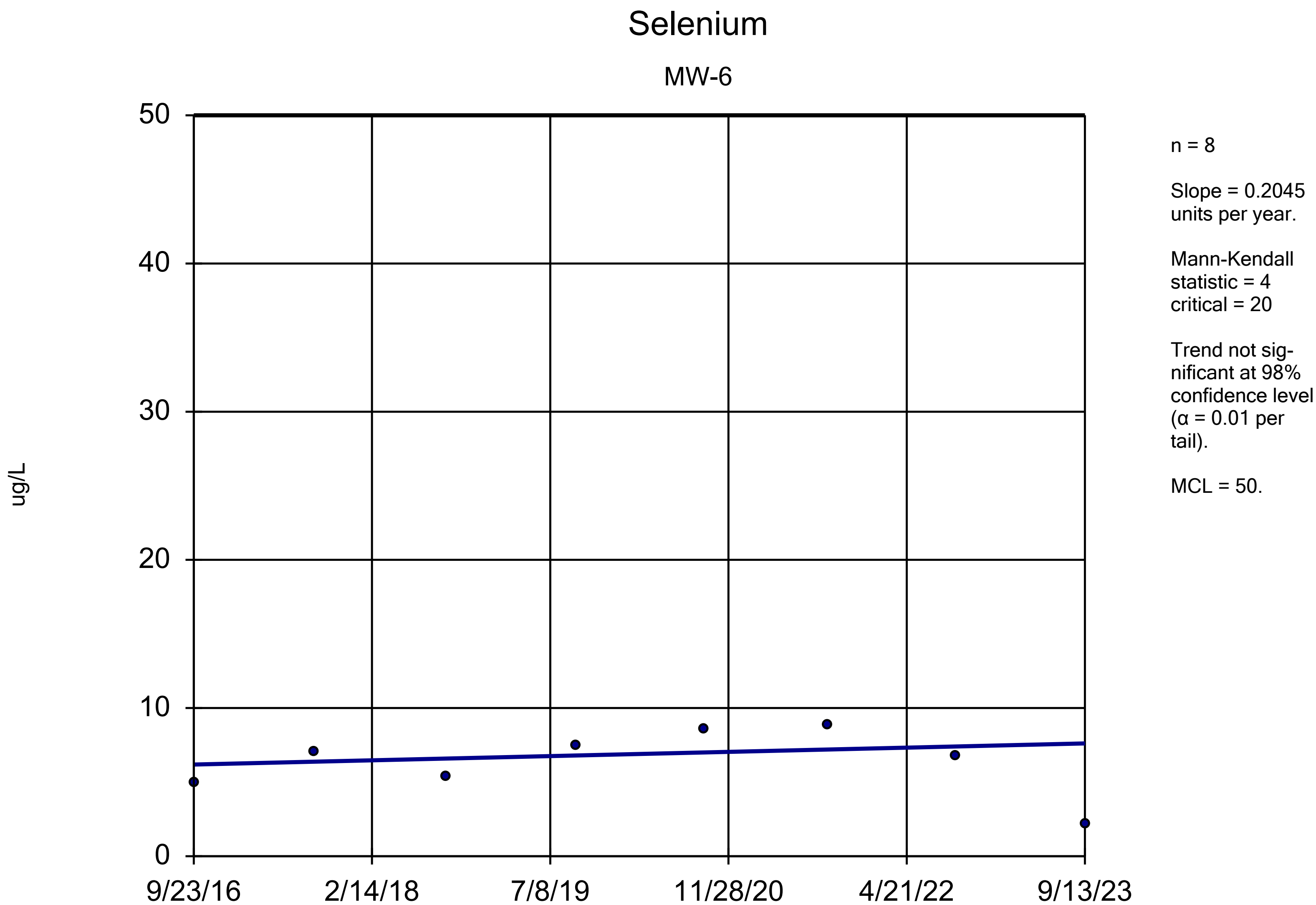
Constituent: Selenium (ug/L) Analysis Run 10/26/2023 4:05 PM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-16
9/23/2016	<0.18
9/5/2017	2.1
9/17/2018	<0.16
9/23/2019	<1
9/23/2020	2.2 (J)
9/9/2021	4.5 (J)
9/8/2022	3.2 (J)
9/14/2023	<1.4 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:03 PM   View: Deep

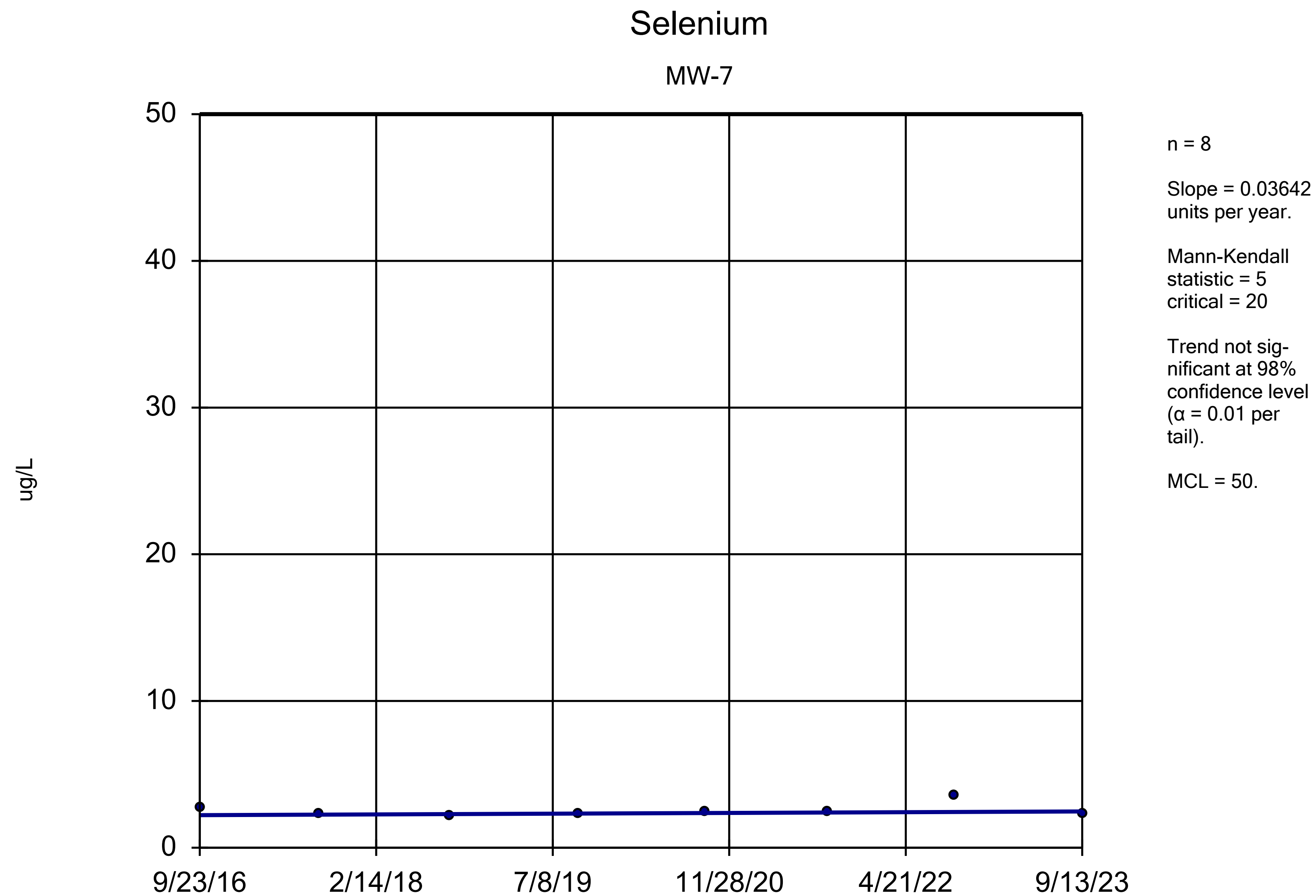
Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

Constituent: Selenium (ug/L)   Analysis Run 10/26/2023 4:05 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-6
9/23/2016	4.9
9/5/2017	7.1
9/17/2018	5.3
9/23/2019	7.4
9/22/2020	8.6
9/9/2021	8.8
9/7/2022	6.7
9/13/2023	2.1 (J)



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:03 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

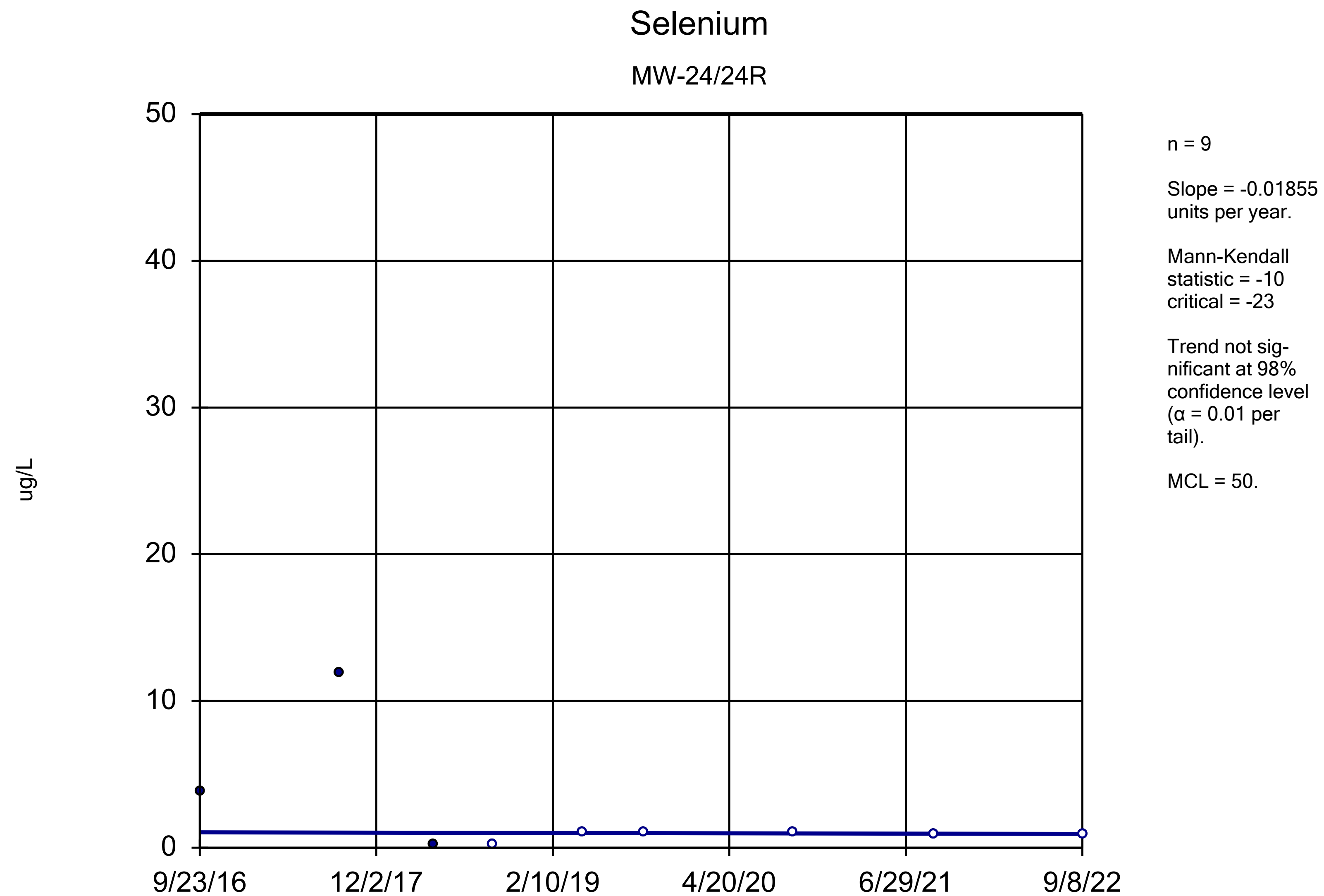
Sen's Slope Estimator

Constituent: Selenium (ug/L) Analysis Run 10/26/2023 4:05 PM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-7
9/23/2016	2.7
9/5/2017	2.3
9/17/2018	2.1
9/23/2019	2.3 (J)
9/23/2020	2.4 (J)
9/9/2021	2.5 (J)
9/8/2022	3.6 (J,B)
9/13/2023	2.3 (J)

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band Analysis Run 10/26/2023 4:03 PM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

Sen's Slope Estimator

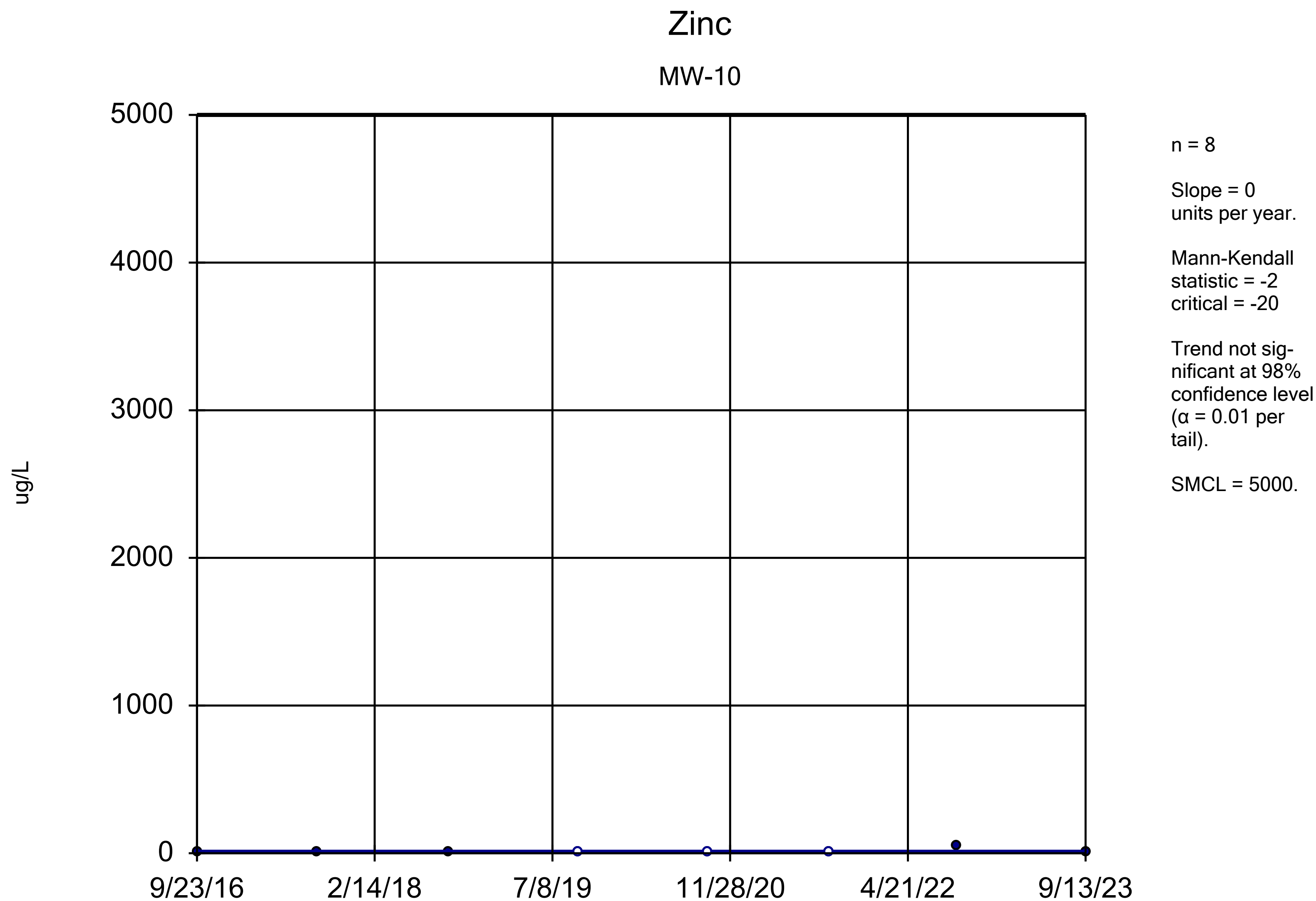
Constituent: Selenium (ug/L)   Analysis Run 10/26/2023 4:05 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-24/24R
9/23/2016	3.8
9/5/2017	11.9
4/25/2018	0.19 (J)
9/17/2018	<0.16
4/23/2019	<1
9/23/2019	<1
9/24/2020	<1
9/10/2021	<0.96
9/8/2022	<0.96

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:03 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

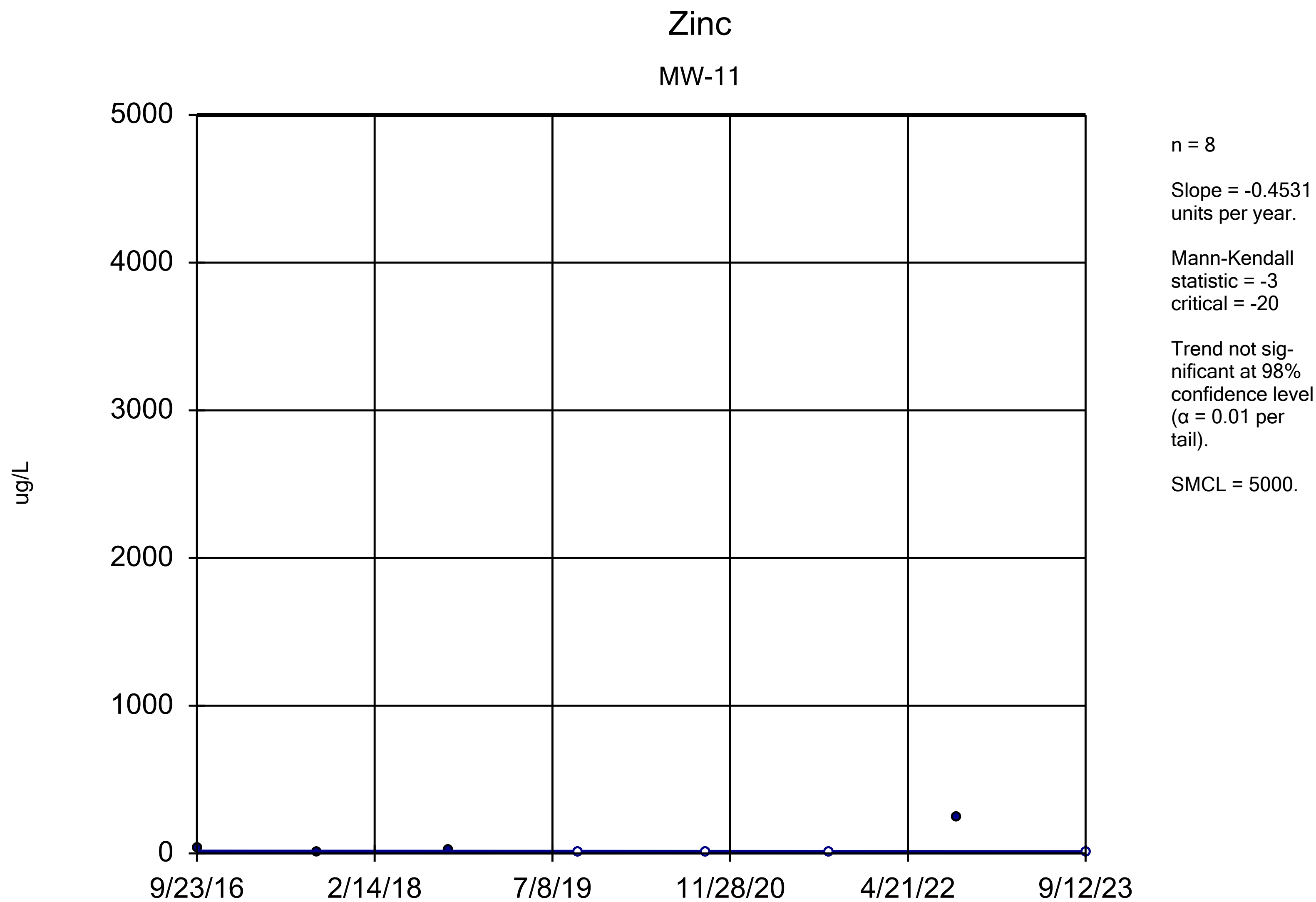
Constituent: Zinc (ug/L)   Analysis Run 10/26/2023 4:05 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-10
9/23/2016	12.7
9/5/2017	3.6 (J)
9/17/2018	12.7
9/23/2019	<10
9/24/2020	<10
9/9/2021	<10
9/9/2022	46
9/13/2023	8.1 (J)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:03 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

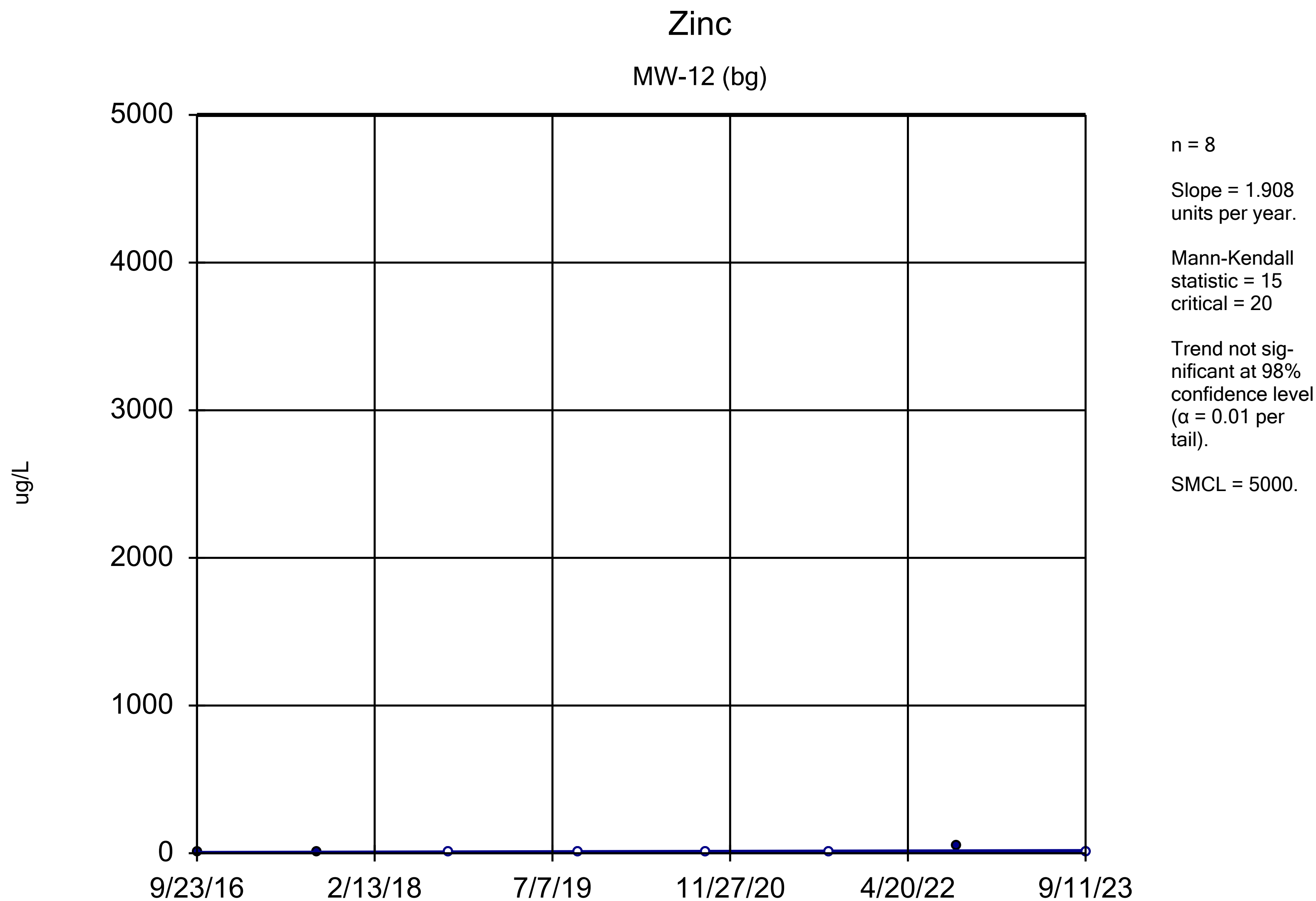
Constituent: Zinc (ug/L)   Analysis Run 10/26/2023 4:05 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-11
9/23/2016	28.3
9/5/2017	2.4 (J)
9/17/2018	20.3
9/23/2019	<10
9/22/2020	<10
9/8/2021	<10
9/6/2022	250
9/12/2023	<6.4 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:03 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

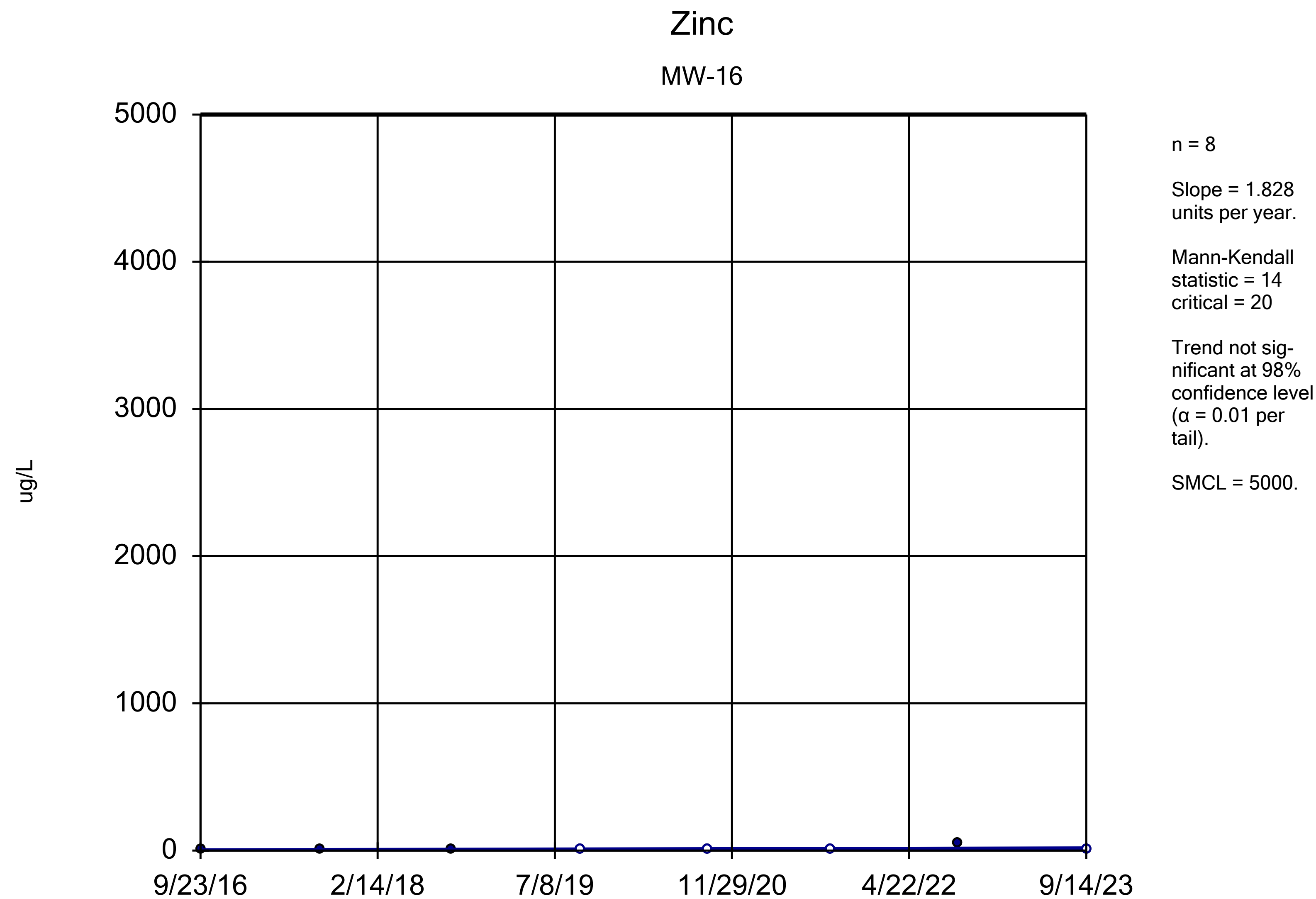
Constituent: Zinc (ug/L)   Analysis Run 10/26/2023 4:05 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-12 (bg)
9/23/2016	3.2 (J)
9/5/2017	1.4 (J)
9/17/2018	<3.7
9/23/2019	<10
9/21/2020	<10
9/8/2021	<10
9/6/2022	43
9/11/2023	<6.4 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:03 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

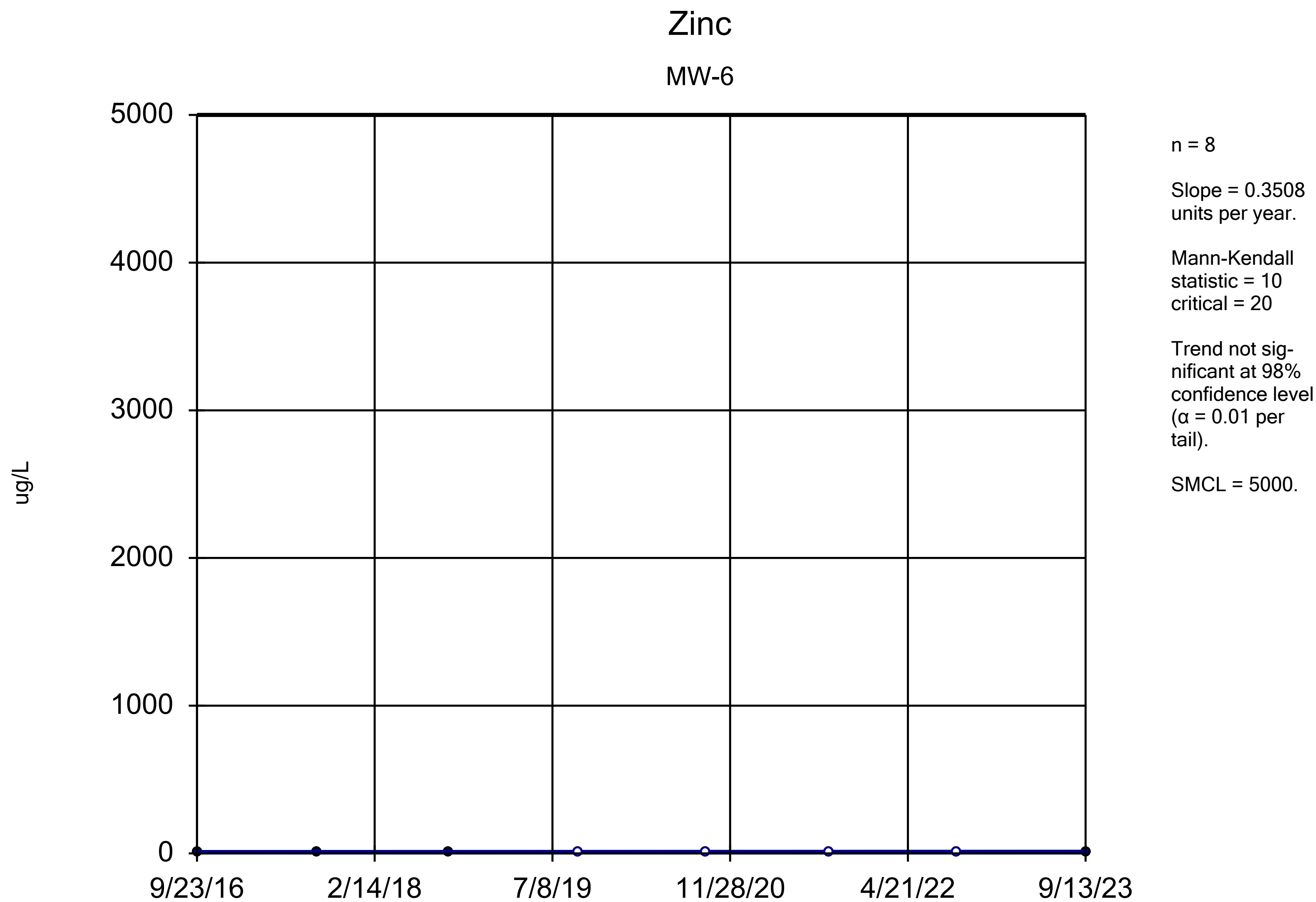
Constituent: Zinc (ug/L) Analysis Run 10/26/2023 4:05 PM View: Deep

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-16
9/23/2016	2.5 (J)
9/5/2017	2.2 (J)
9/17/2018	6.4 (J)
9/23/2019	<10
9/23/2020	<10
9/9/2021	<10
9/8/2022	51
9/14/2023	<6.4 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:04 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

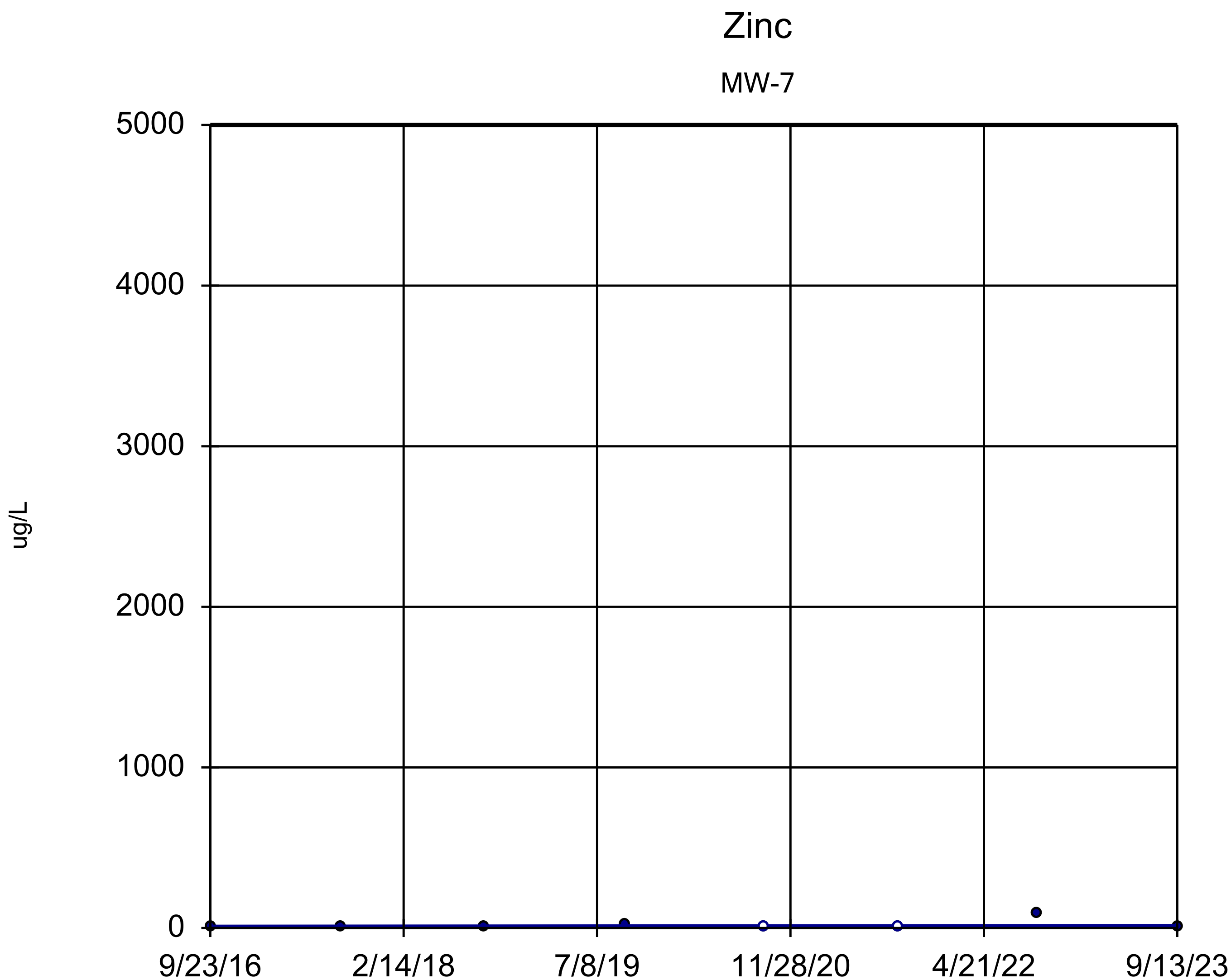
Constituent: Zinc (ug/L)   Analysis Run 10/26/2023 4:05 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-6
9/23/2016	8.1 (J)
9/5/2017	1.5 (J)
9/17/2018	6 (J)
9/23/2019	<10
9/22/2020	<10
9/9/2021	<10
9/7/2022	<10
9/13/2023	9.9 (J)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



n = 8

Slope = 0.5838 units per year.

Mann-Kendall statistic = 13 critical = 20

Trend not significant at 98% confidence level (α = 0.01 per tail).

SMCL = 5000.

Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:04 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

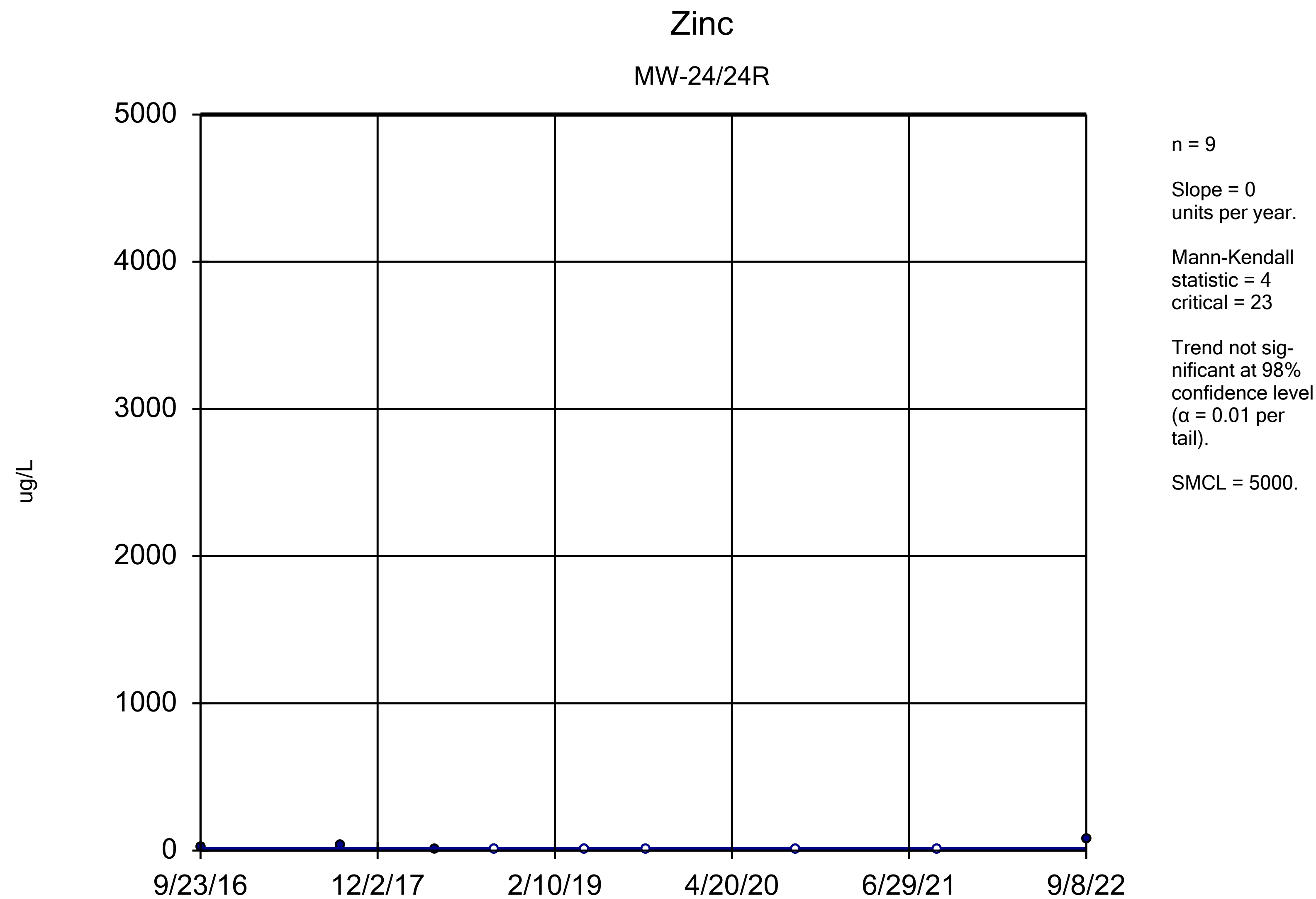
Constituent: Zinc (ug/L)   Analysis Run 10/26/2023 4:05 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-7
9/23/2016	8.1 (J)
9/5/2017	5.5 (J)
9/17/2018	8.4 (J)
9/23/2019	14 (J)
9/23/2020	<10
9/9/2021	<10
9/8/2022	96
9/13/2023	9.3 (J)

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 10/26/2023 4:04 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

Constituent: Zinc (ug/L)   Analysis Run 10/26/2023 4:05 PM   View: Deep

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

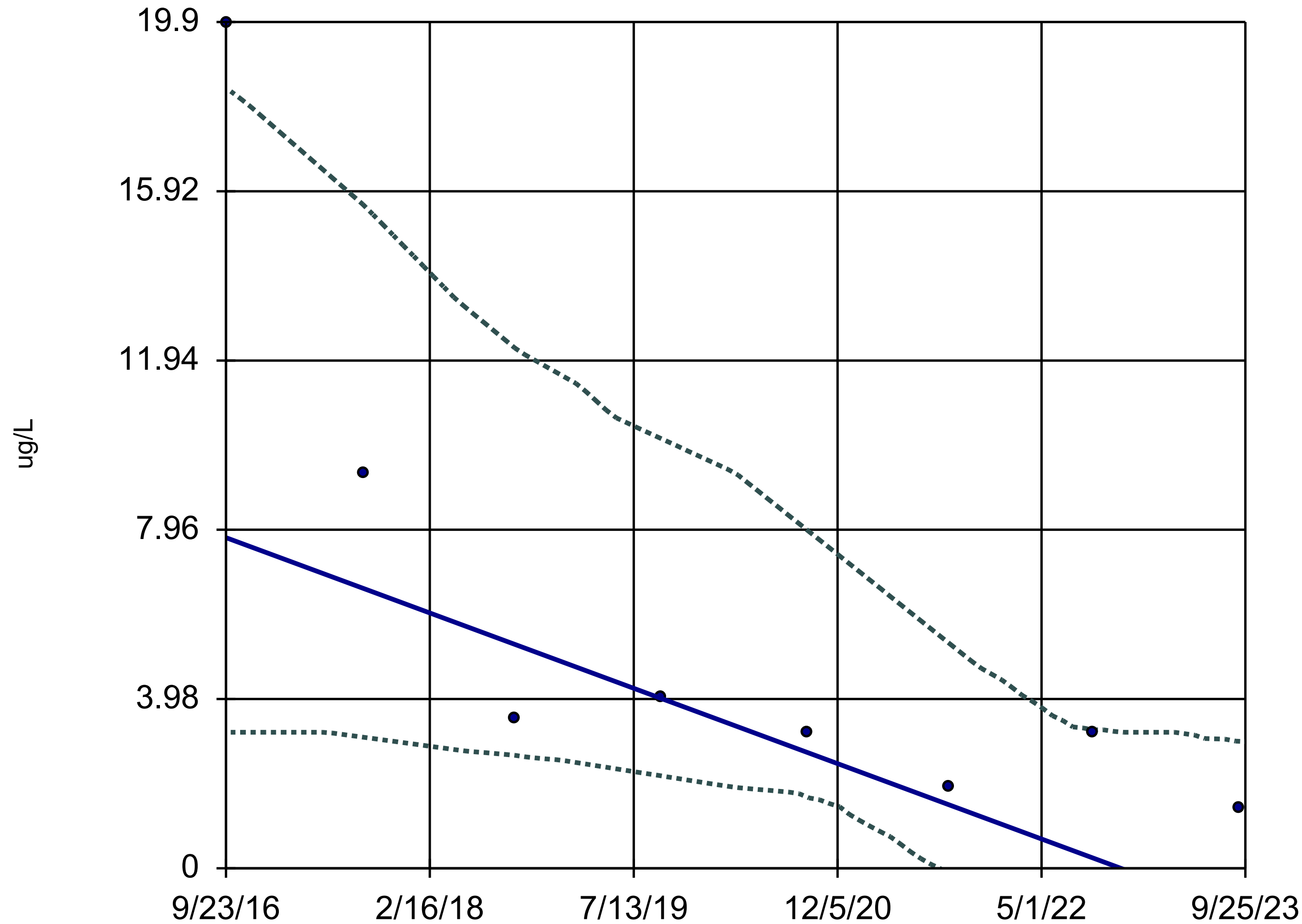
	MW-24/24R
9/23/2016	22
9/5/2017	36.4
4/25/2018	7.7 (J)
9/17/2018	<3.7
4/23/2019	<10
9/23/2019	<10
9/24/2020	<10
9/10/2021	<10
9/8/2022	71

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Arsenic

MW-10



n = 8

Slope = -1.264 units per year.

Mann-Kendall statistic = -23 critical = -20

Decreasing trend significant at 98% confidence level (α = 0.01 per tail).

Sen's Slope and 95% Confidence Band   Analysis Run 11/2/2023 9:21 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

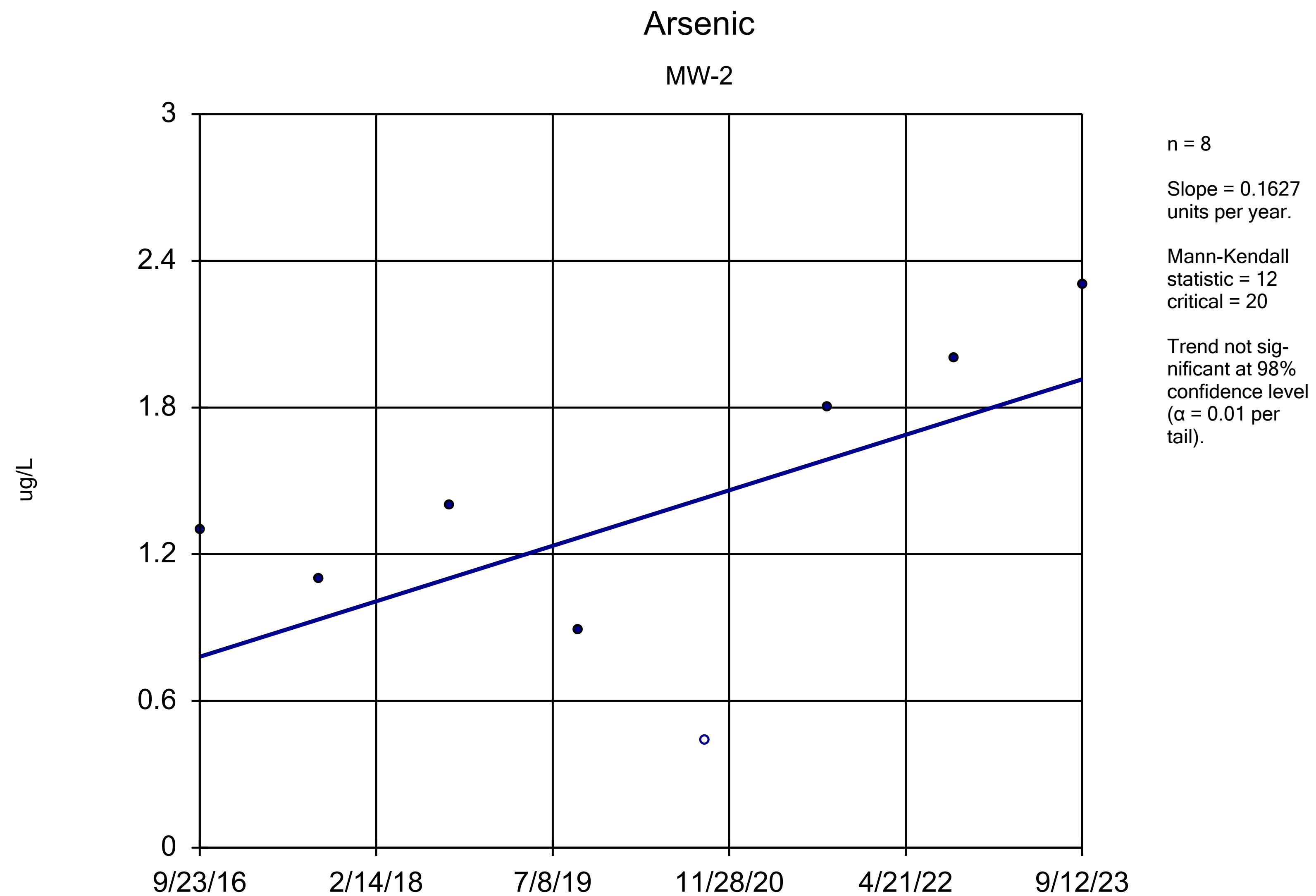
Sen's Slope Estimator

Constituent: Arsenic (ug/L)   Analysis Run 11/2/2023 9:28 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-10	LCL	UCL
9/23/2016	19.9	3.2	18.36
9/5/2017	9.3	3.078	15.58
9/17/2018	3.5	2.658	12.24
9/23/2019	4	2.169	10.09
9/24/2020	3.2	1.66	7.926
9/9/2021	1.9 (J)	-0.1302	5.312
9/9/2022	3.2	-3.039	3.257
9/13/2023	1.4 (J)	-5.864	2.985

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.



Sen's Slope and 95% Confidence Band   Analysis Run 11/2/2023 9:21 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

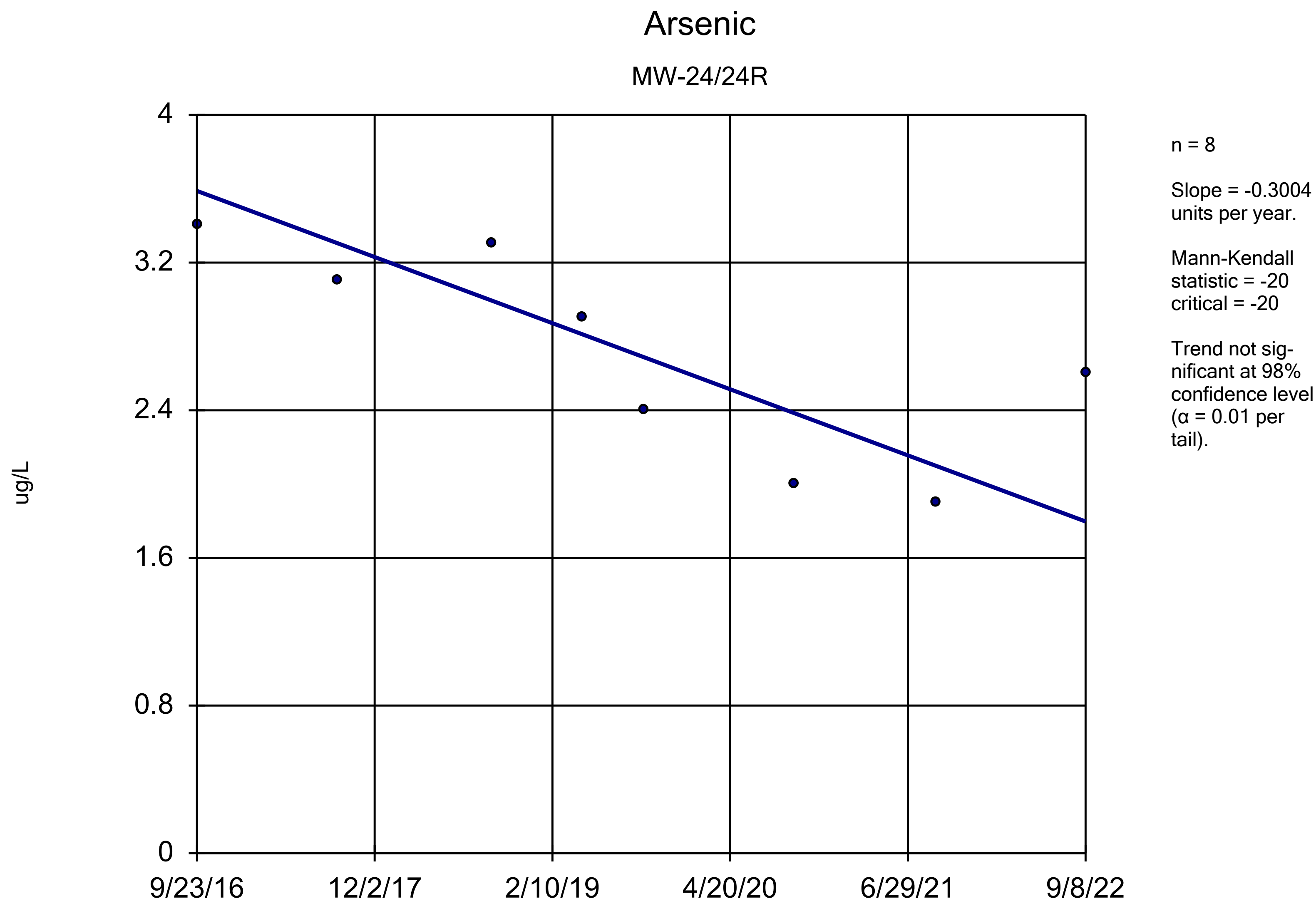
Constituent: Arsenic (ug/L) Analysis Run 11/2/2023 9:28 PM View: COL Secondary Pond

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-2
9/23/2016	1.3
9/5/2017	1.1
9/17/2018	1.4
9/23/2019	0.89 (J)
9/22/2020	<0.88
9/8/2021	1.8 (J)
9/7/2022	2
9/12/2023	2.3

ND substitution: RL or RL/2 if <15% NDs.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 11/2/2023 9:21 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

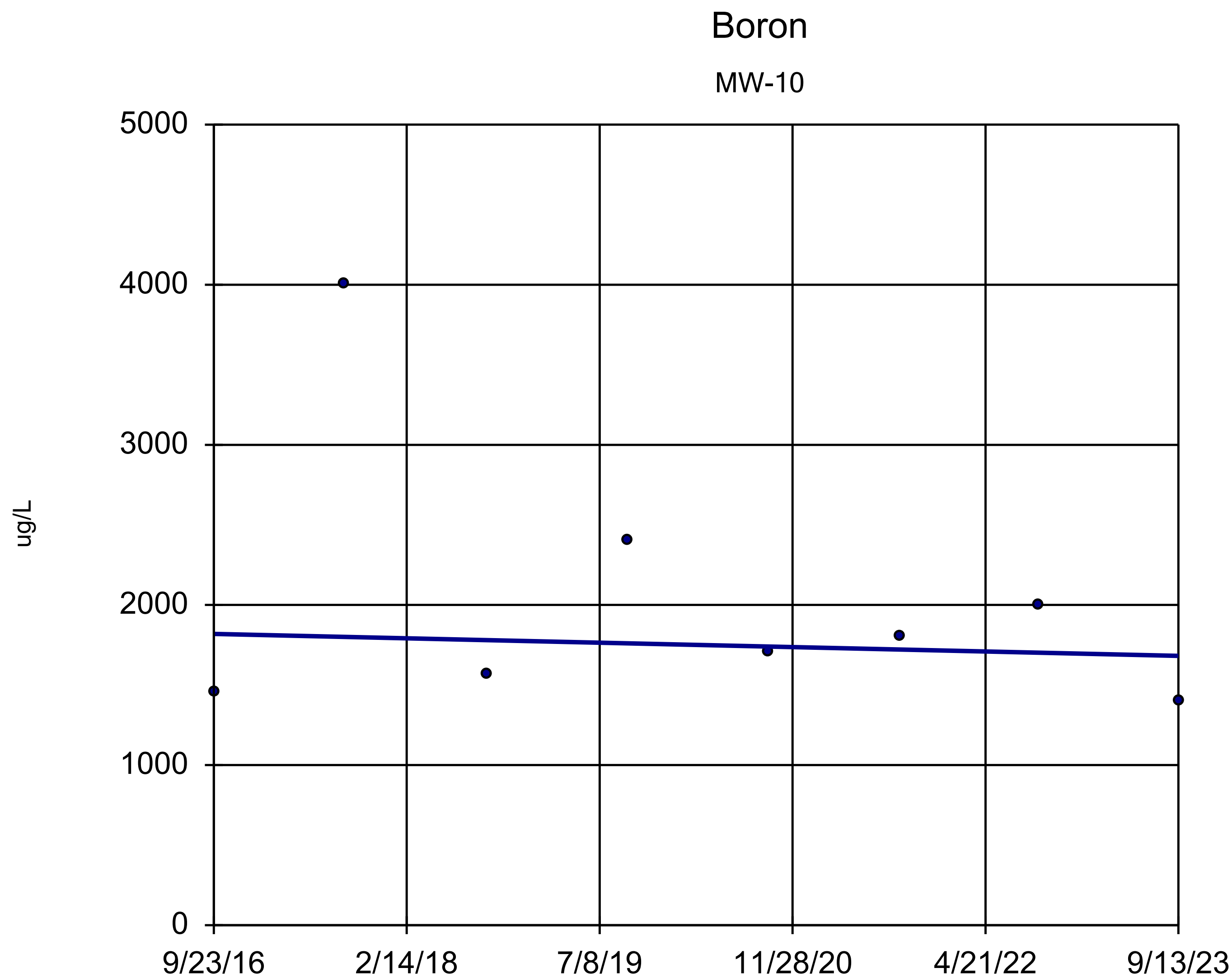
Sen's Slope Estimator

Constituent: Arsenic (ug/L)   Analysis Run 11/2/2023 9:28 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-24/24R
9/23/2016	3.4
9/5/2017	3.1
9/17/2018	3.3
4/23/2019	2.9
9/23/2019	2.4
9/24/2020	2
9/10/2021	1.9 (J)
9/8/2022	2.6

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



n = 8

Slope = -19.61 units per year.

Mann-Kendall statistic = -2 critical = -20

Trend not significant at 98% confidence level (α = 0.01 per tail).

Sen's Slope and 95% Confidence Band Analysis Run 11/2/2023 9:21 PM View: COL Secondary Pond

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

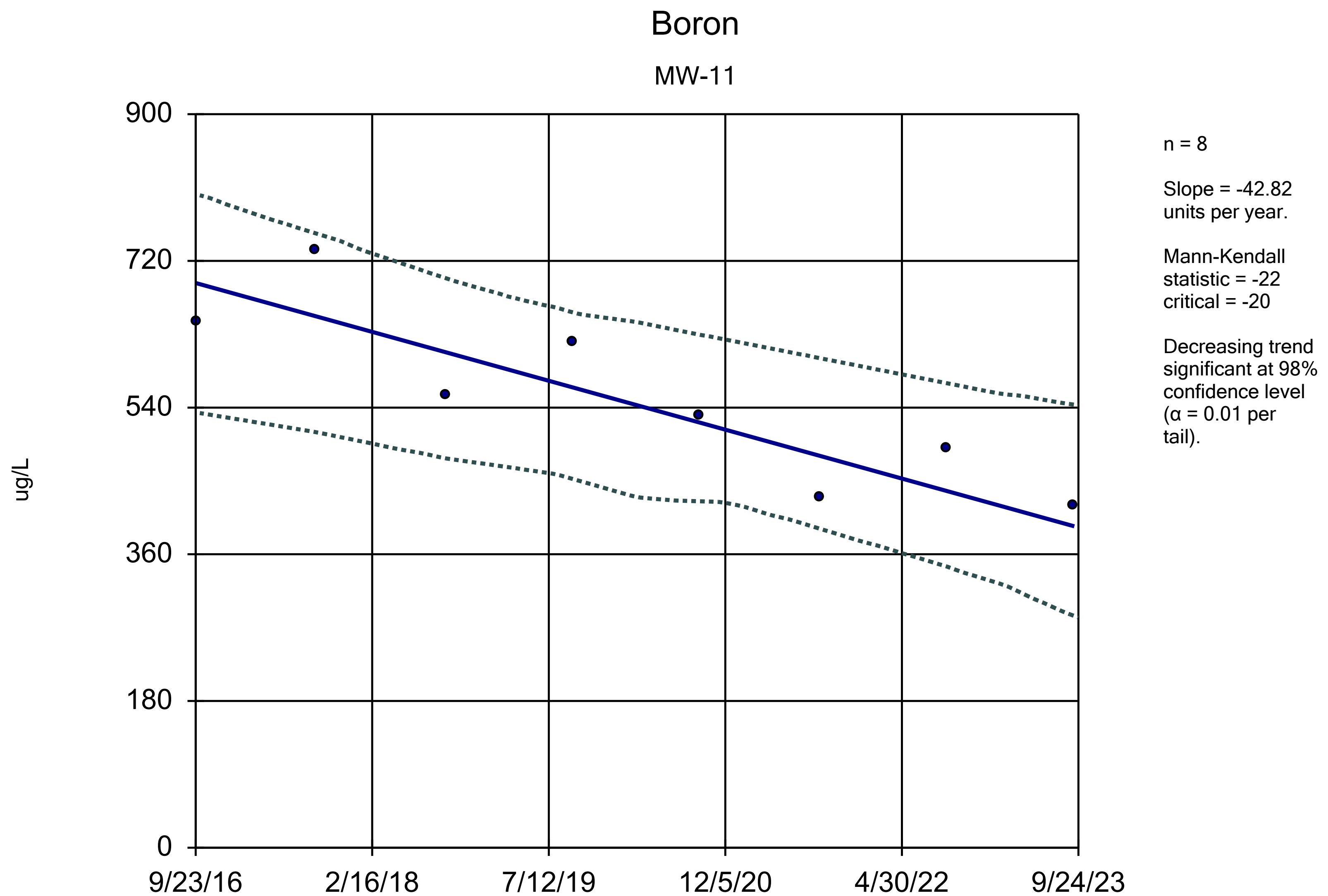
Sen's Slope Estimator

Constituent: Boron (ug/L) Analysis Run 11/2/2023 9:28 PM View: COL Secondary Pond

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-10
9/23/2016	1450
9/5/2017	4010
9/17/2018	1560
9/23/2019	2400
9/24/2020	1700
9/9/2021	1800
9/9/2022	2000
9/13/2023	1400

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 11/2/2023 9:21 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

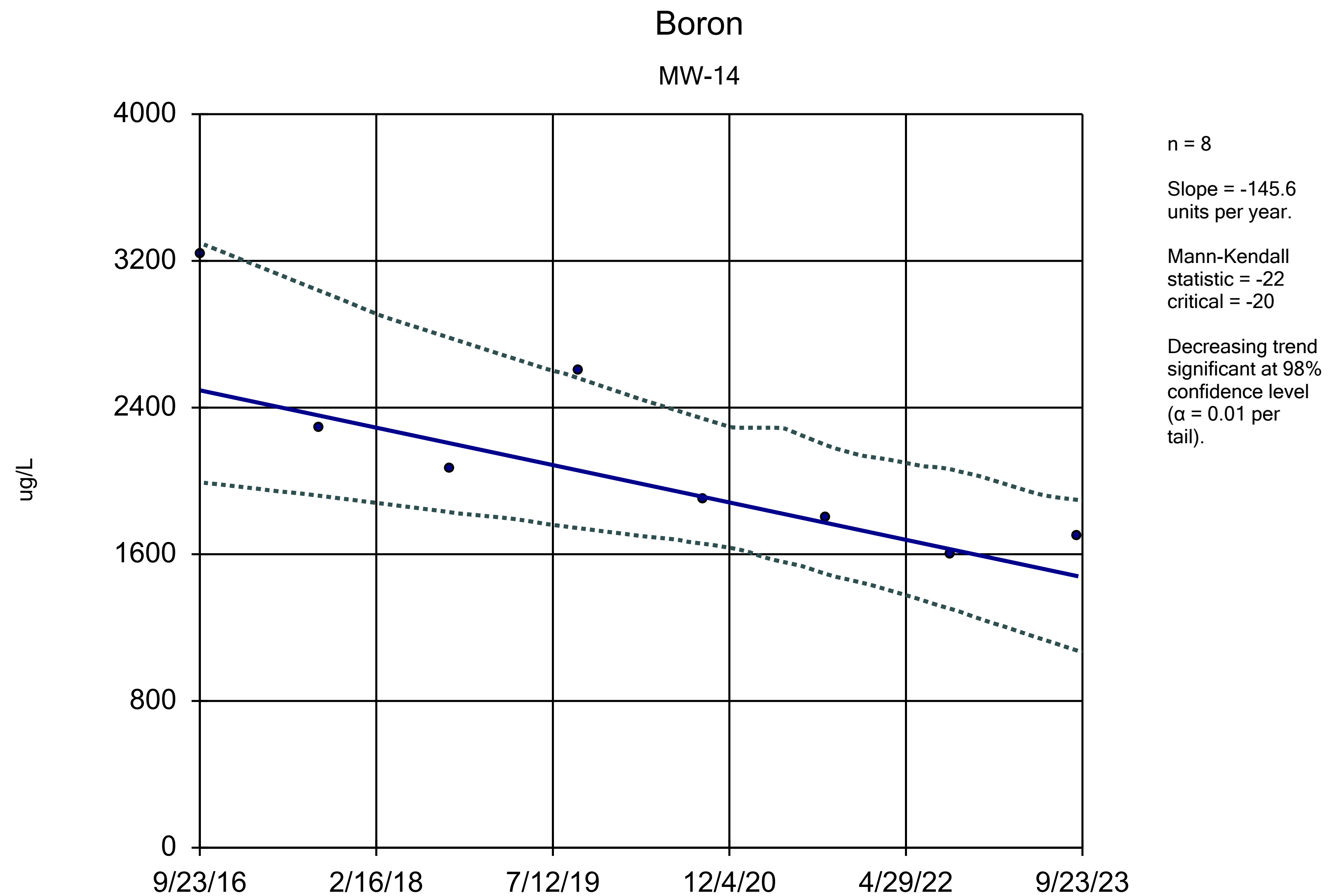
Sen's Slope Estimator

Constituent: Boron (ug/L)   Analysis Run 11/2/2023 9:28 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-11	LCL	UCL
9/23/2016	645	534.1	801.9
9/5/2017	733	509.9	753.8
9/17/2018	556	477.6	698.7
9/23/2019	620	452.1	656.4
9/22/2020	530	425	629.3
9/8/2021	430	391	600.4
9/6/2022	490	345.2	570
9/12/2023	420	284.1	543.5

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 11/2/2023 9:21 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

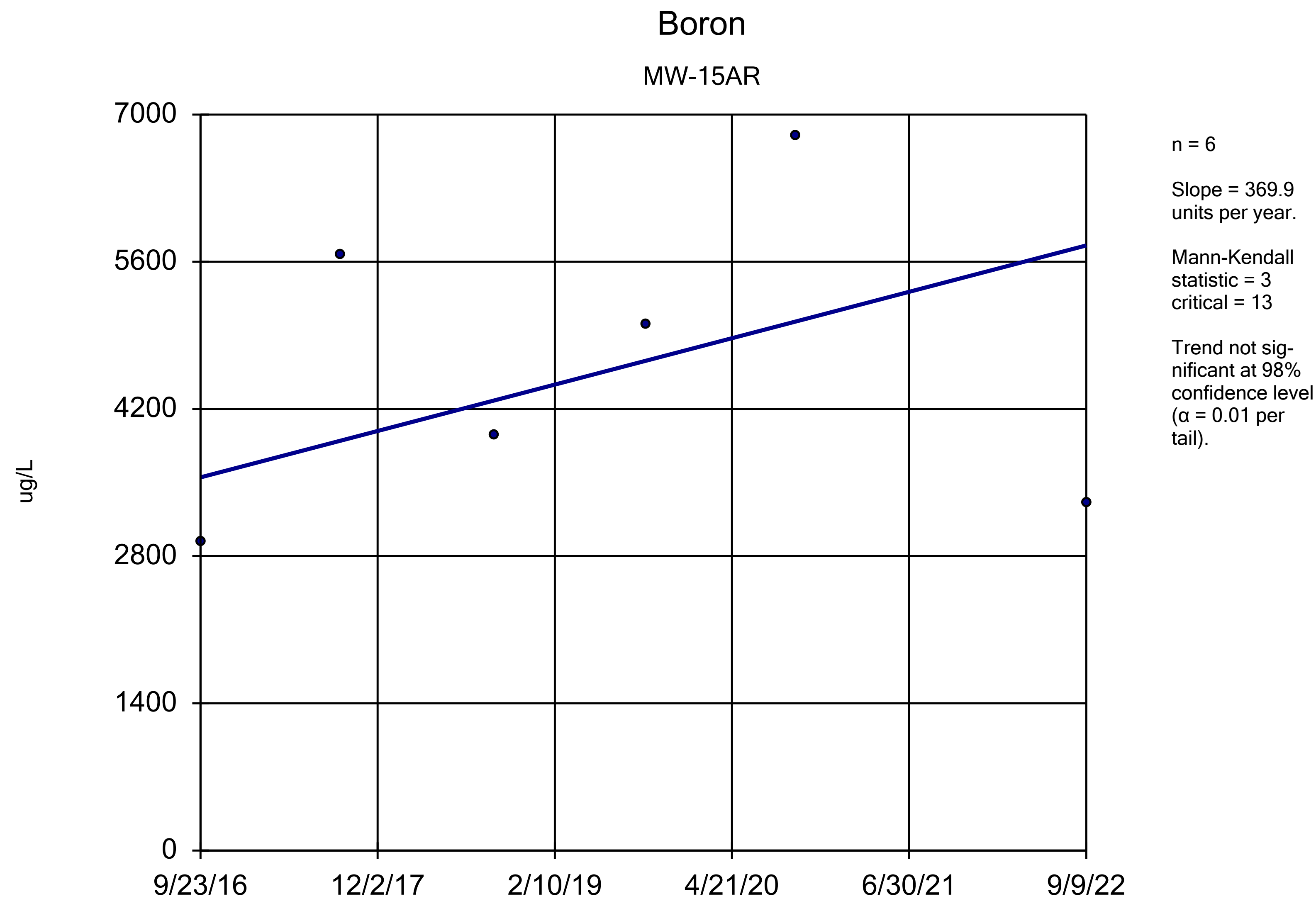
Sen's Slope Estimator

Constituent: Boron (ug/L)   Analysis Run 11/2/2023 9:28 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-14	LCL	UCL
9/23/2016	3240	1993	3298
9/5/2017	2290	1919	3037
9/17/2018	2070	1830	2780
9/23/2019	2600	1743	2561
9/22/2020	1900	1657	2338
9/8/2021	1800	1494	2197
9/6/2022	1600	1303	2064
9/11/2023	1700	1073	1896

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope Estimator   Analysis Run 11/2/2023 9:21 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

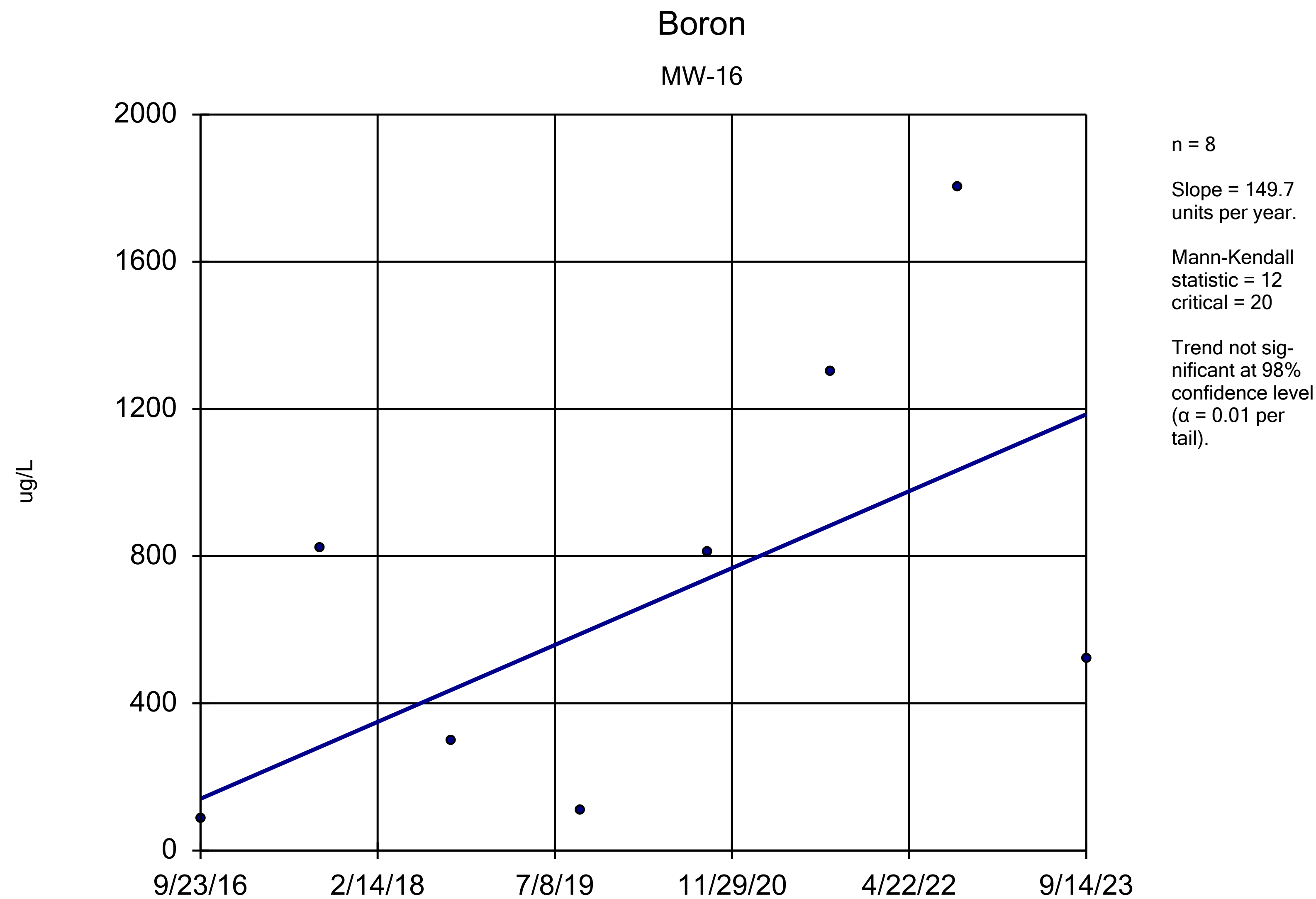
Sen's Slope Estimator

Constituent: Boron (ug/L)   Analysis Run 11/2/2023 9:28 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-15AR
9/23/2016	2930
9/5/2017	5670
9/17/2018	3940
9/23/2019	5000
9/24/2020	6800
9/9/2022	3300

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 11/2/2023 9:21 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

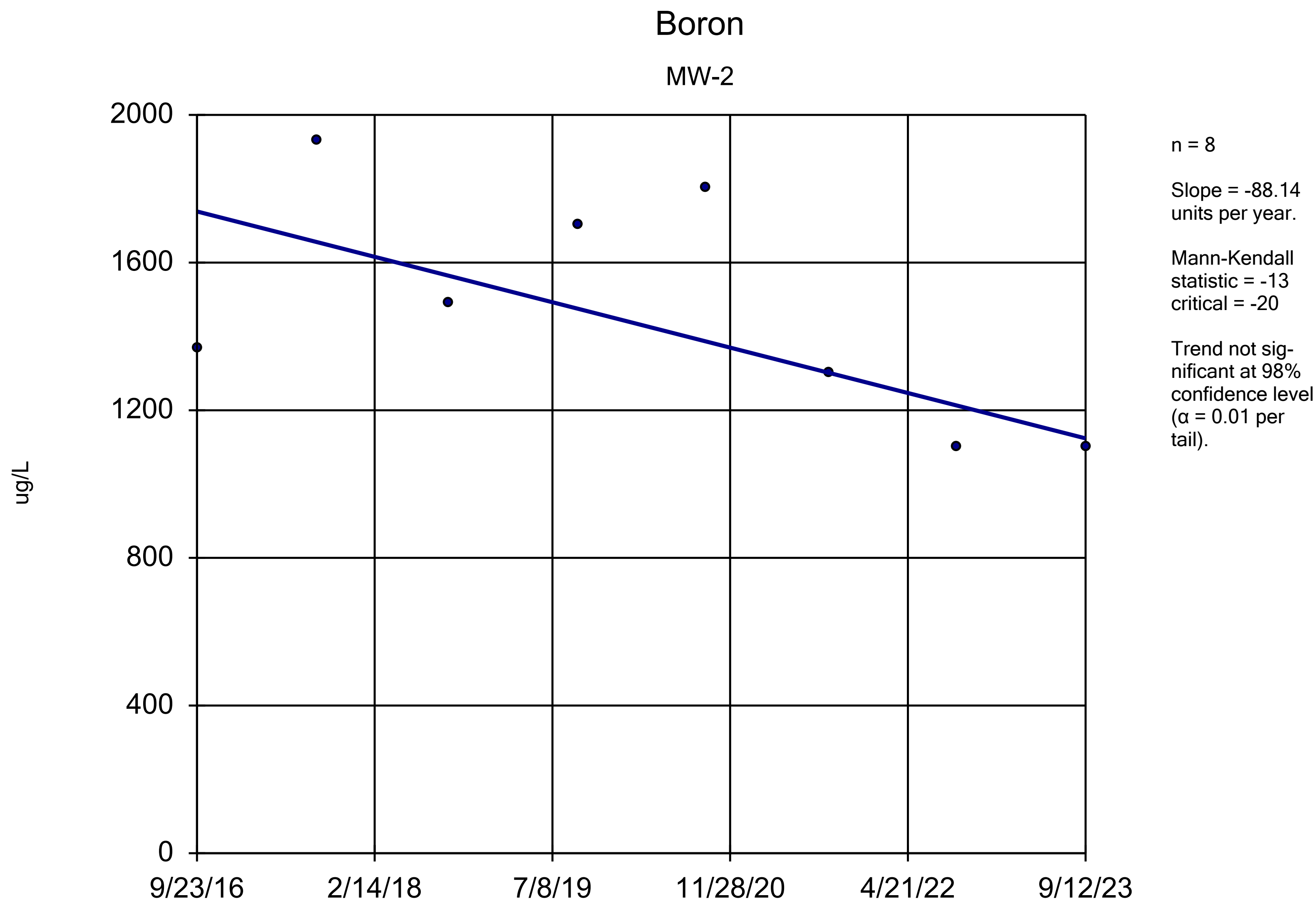
Sen's Slope Estimator

Constituent: Boron (ug/L) Analysis Run 11/2/2023 9:28 PM View: COL Secondary Pond

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-16
9/23/2016	87.1 (J)
9/5/2017	823
9/17/2018	300
9/23/2019	110 (J)
9/23/2020	810
9/9/2021	1300
9/8/2022	1800
9/14/2023	520

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band Analysis Run 11/2/2023 9:21 PM View: COL Secondary Pond

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

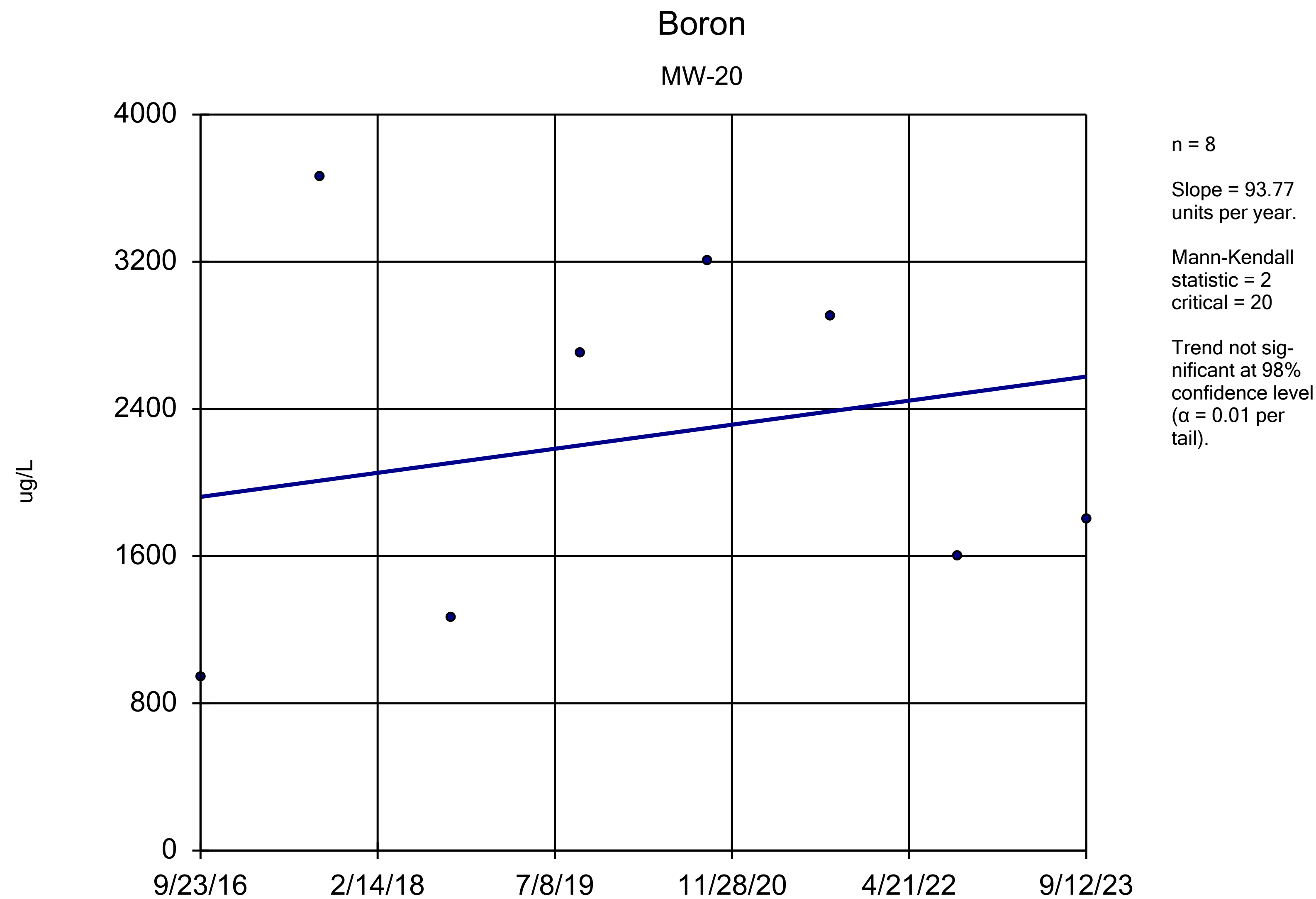
Sen's Slope Estimator

Constituent: Boron (ug/L)   Analysis Run 11/2/2023 9:28 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-2
9/23/2016	1370
9/5/2017	1930
9/17/2018	1490
9/23/2019	1700
9/22/2020	1800
9/8/2021	1300
9/7/2022	1100
9/12/2023	1100

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



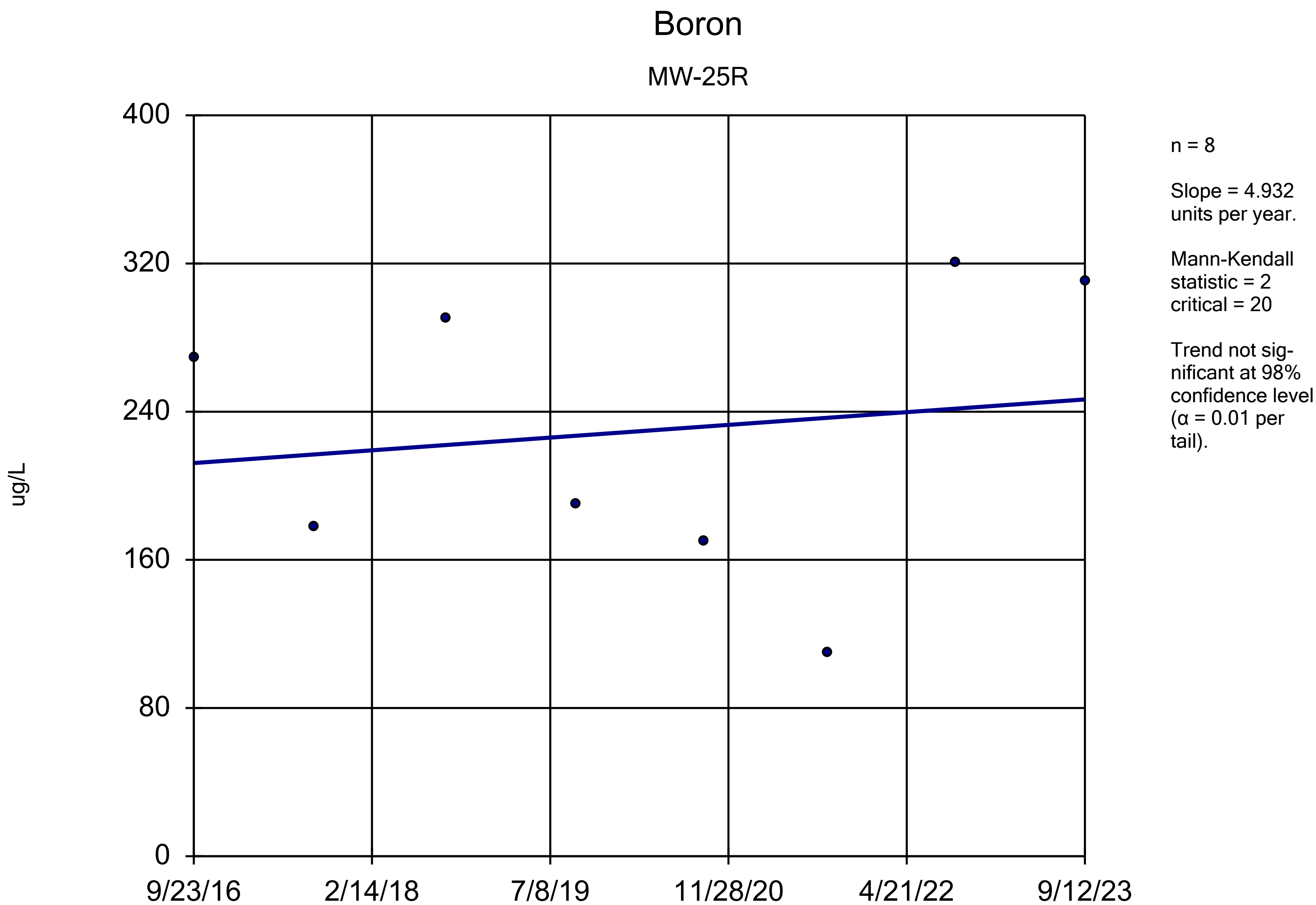
Sen's Slope and 95% Confidence Band   Analysis Run 11/2/2023 9:22 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

	MW-20
9/23/2016	939
9/5/2017	3660
9/17/2018	1260
9/23/2019	2700
9/21/2020	3200
9/8/2021	2900
9/6/2022	1600
9/12/2023	1800

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 11/2/2023 9:22 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

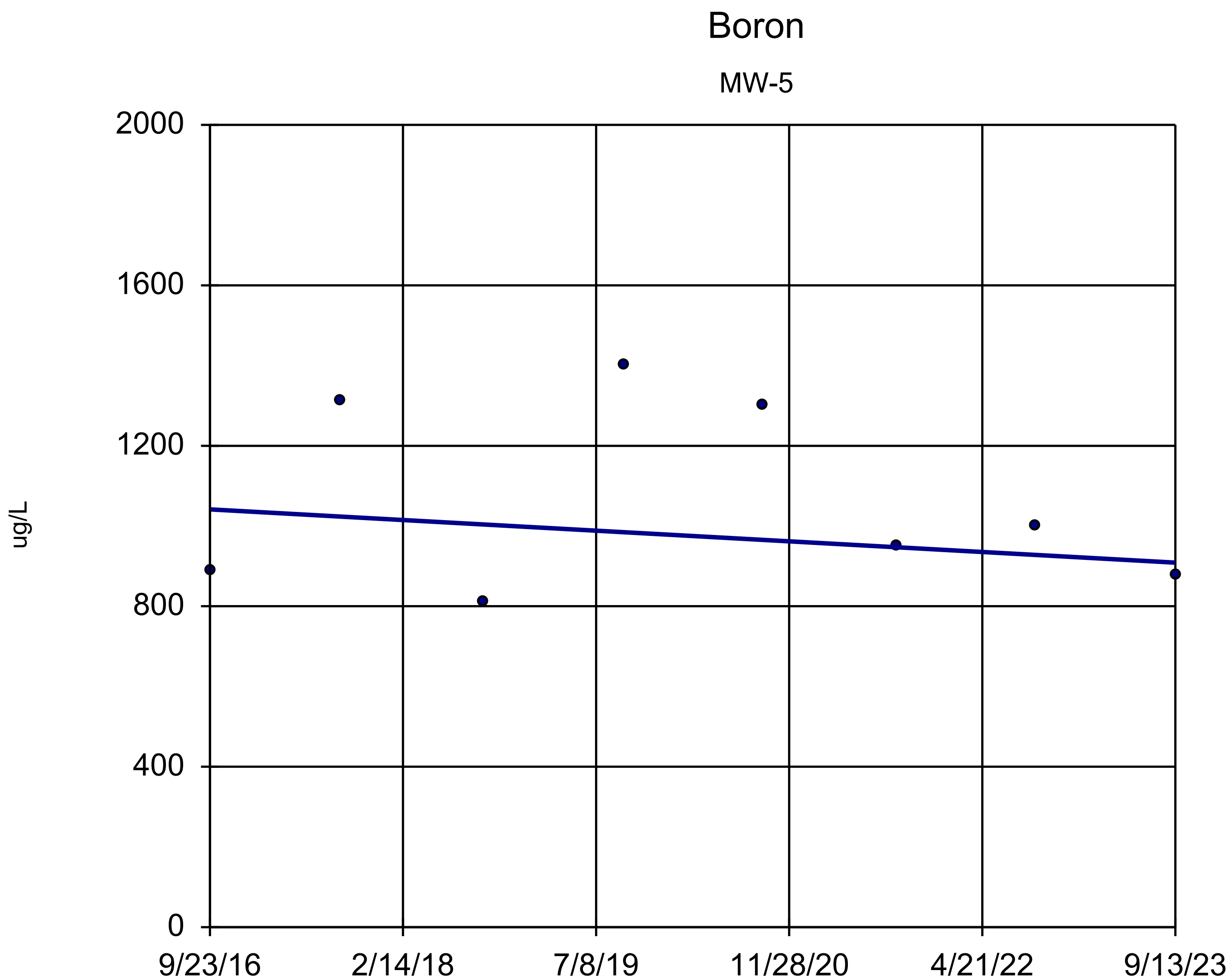
Sen's Slope Estimator

Constituent: Boron (ug/L) Analysis Run 11/2/2023 9:28 PM View: COL Secondary Pond

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-25R
9/23/2016	269
9/5/2017	178
9/17/2018	290
9/23/2019	190 (J)
9/21/2020	170
9/7/2021	110
9/6/2022	320
9/12/2023	310

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



n = 8

Slope = -19.04
units per year.

Mann-Kendall
statistic = -4
critical = -20

Trend not significant at 98% confidence level (α = 0.01 per tail).

Sen's Slope and 95% Confidence Band   Analysis Run 11/2/2023 9:22 PM   View: COL Secondary Pond

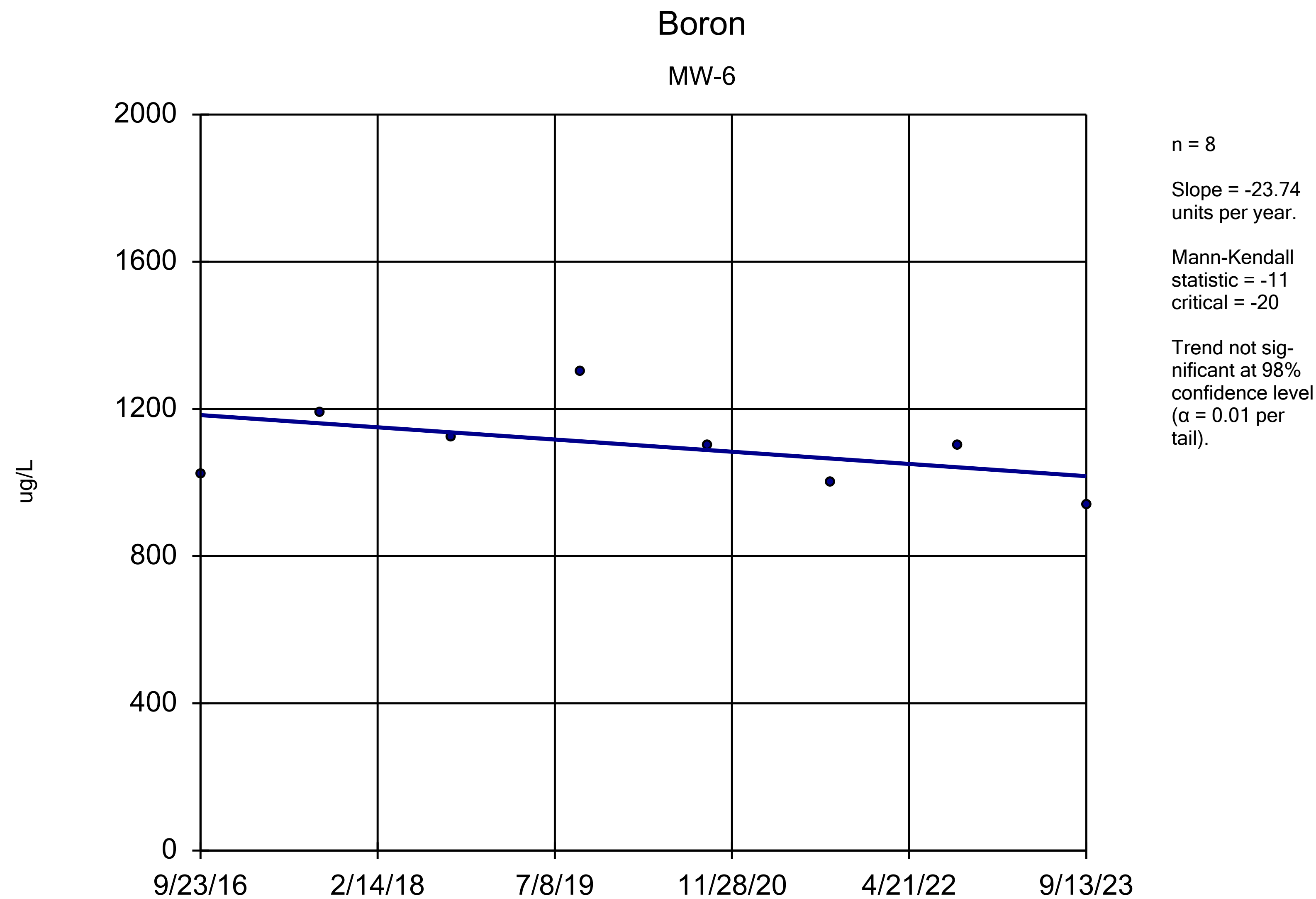
Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

Constituent: Boron (ug/L) Analysis Run 11/2/2023 9:28 PM View: COL Secondary Pond

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-5
9/23/2016	890
9/5/2017	1310
9/17/2018	809
9/23/2019	1400
9/22/2020	1300
9/9/2021	950
9/7/2022	1000
9/13/2023	880



Sen's Slope and 95% Confidence Band   Analysis Run 11/2/2023 9:22 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

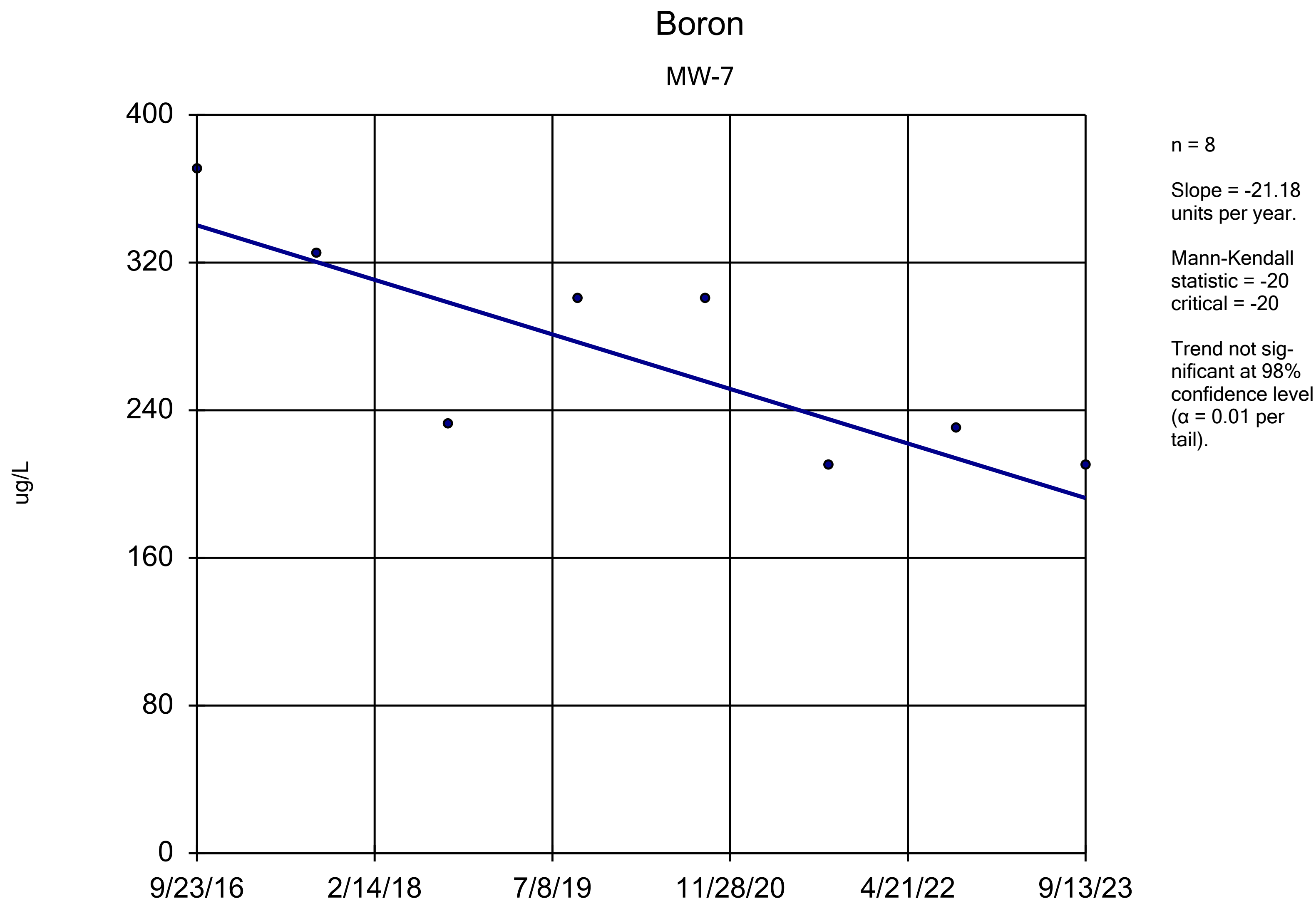
Sen's Slope Estimator

Constituent: Boron (ug/L) Analysis Run 11/2/2023 9:28 PM View: COL Secondary Pond

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-6
9/23/2016	1020
9/5/2017	1190
9/17/2018	1120
9/23/2019	1300
9/22/2020	1100
9/9/2021	1000
9/7/2022	1100
9/13/2023	940

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 11/2/2023 9:22 PM   View: COL Secondary Pond

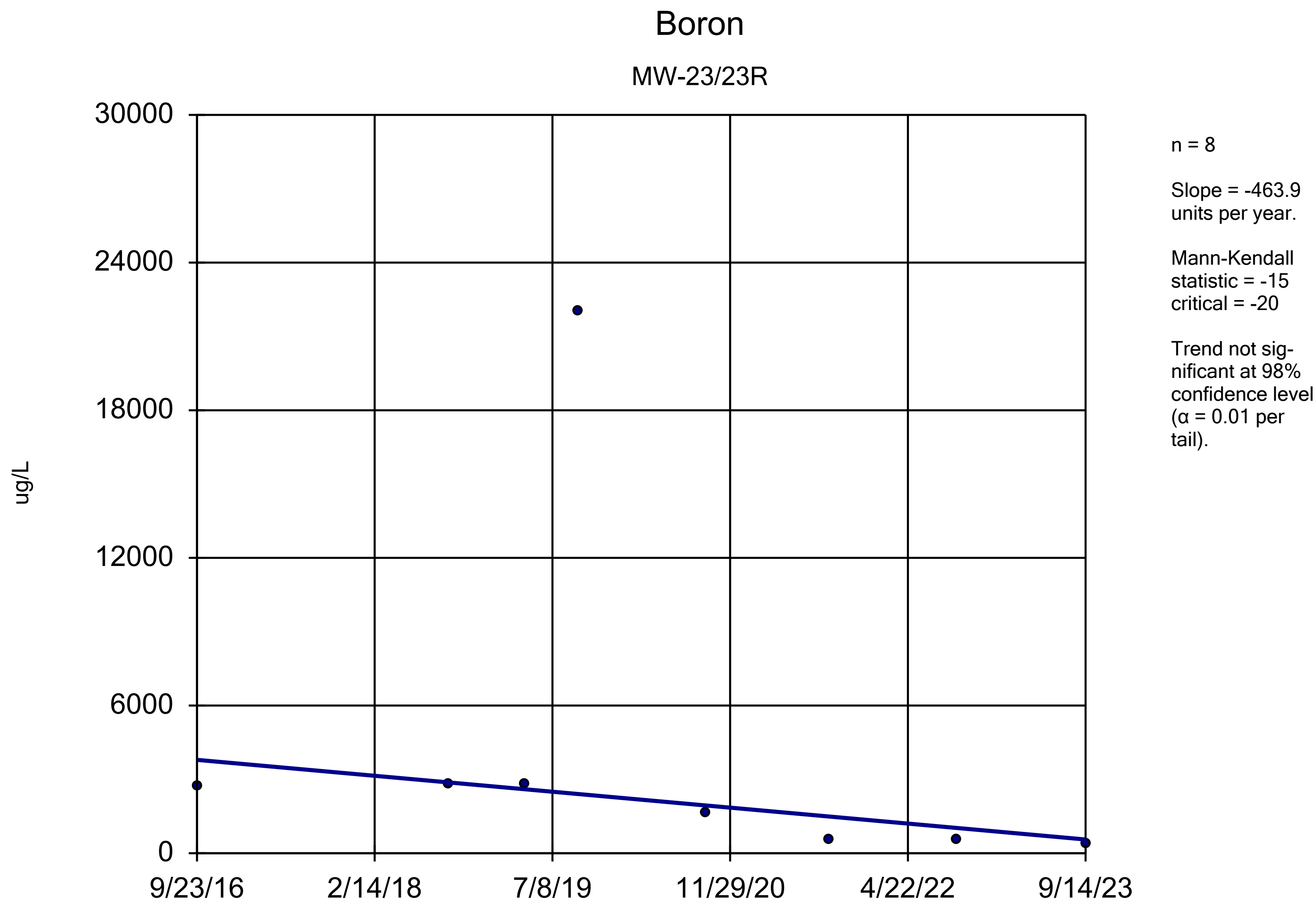
Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

Constituent: Boron (ug/L) Analysis Run 11/2/2023 9:28 PM View: COL Secondary Pond
Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-7
9/23/2016	371
9/5/2017	325
9/17/2018	232
9/23/2019	300
9/23/2020	300
9/9/2021	210
9/8/2022	230
9/13/2023	210

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 11/2/2023 9:22 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

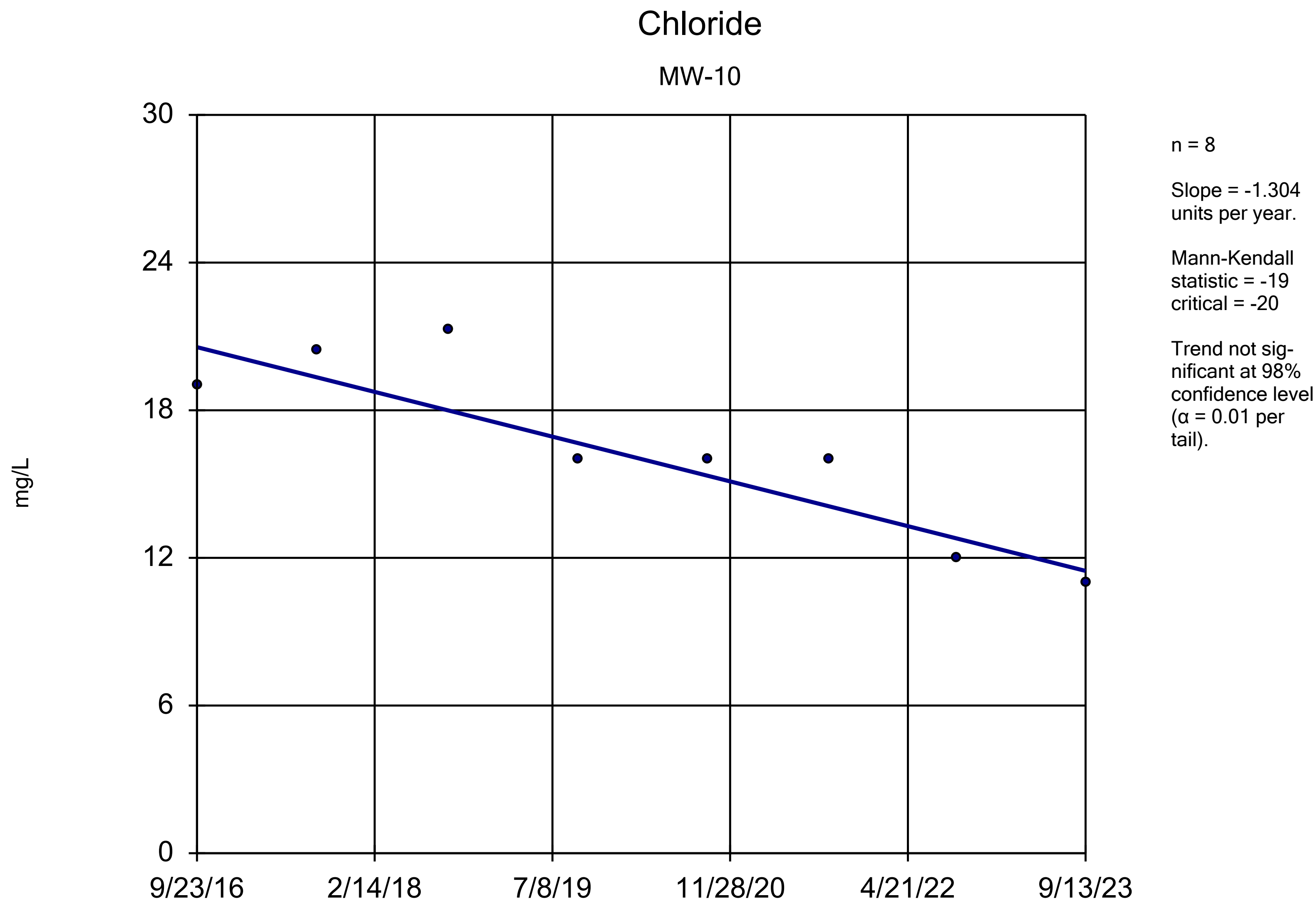
Sen's Slope Estimator

Constituent: Boron (ug/L)   Analysis Run 11/2/2023 9:28 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-23/23R
9/23/2016	2740
9/17/2018	2800
4/23/2019	2800
9/23/2019	22000 (B)
9/24/2020	1600
9/9/2021	520
9/8/2022	540
9/14/2023	400

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 11/2/2023 9:22 PM   View: COL Secondary Pond

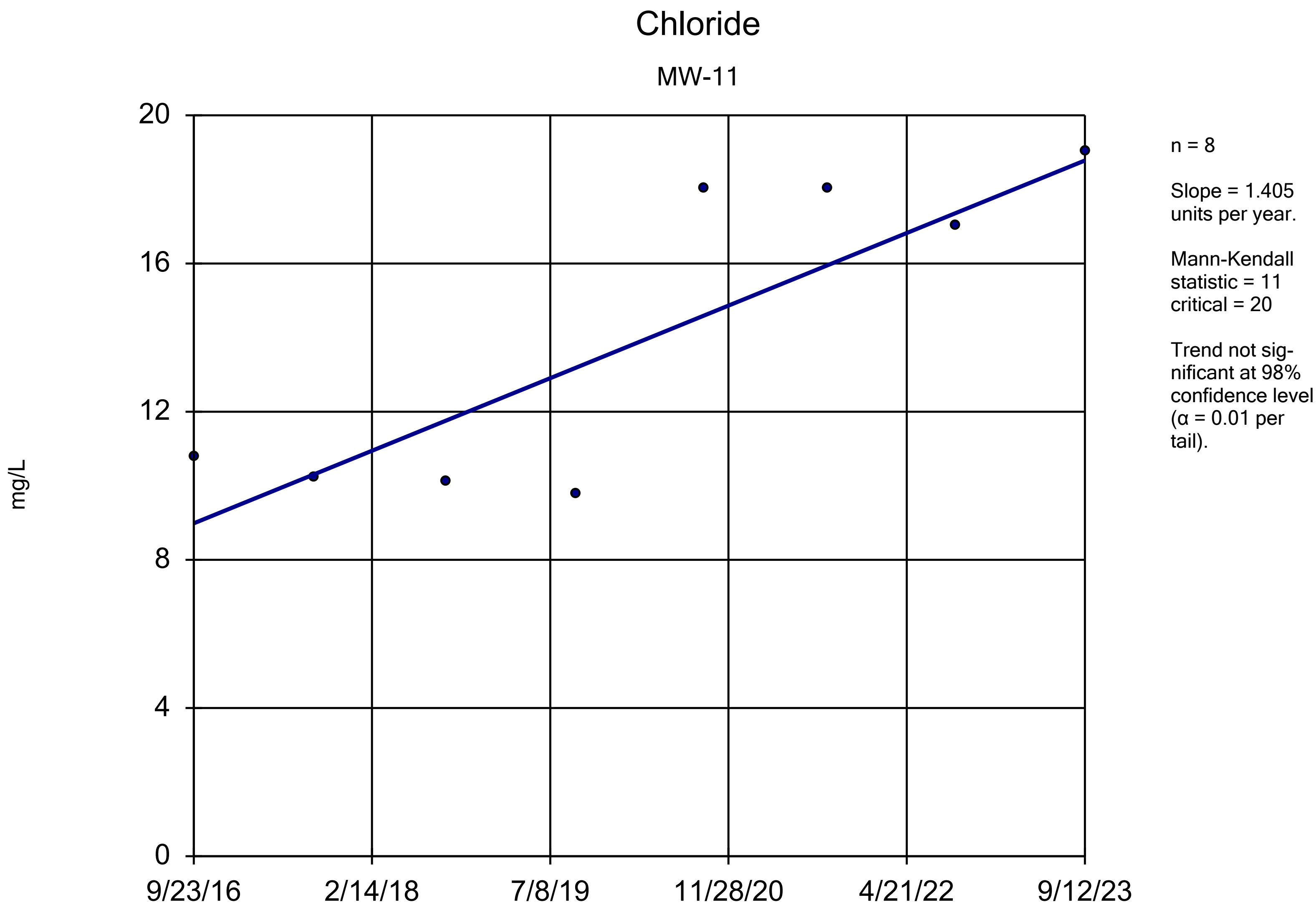
Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

Constituent: Chloride (mg/L) Analysis Run 11/2/2023 9:28 PM View: COL Secondary Pond

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-10
9/23/2016	19
9/5/2017	20.4
9/17/2018	21.3
9/23/2019	16
9/24/2020	16
9/9/2021	16
9/9/2022	12
9/13/2023	11



Sen's Slope and 95% Confidence Band   Analysis Run 11/2/2023 9:22 PM   View: COL Secondary Pond

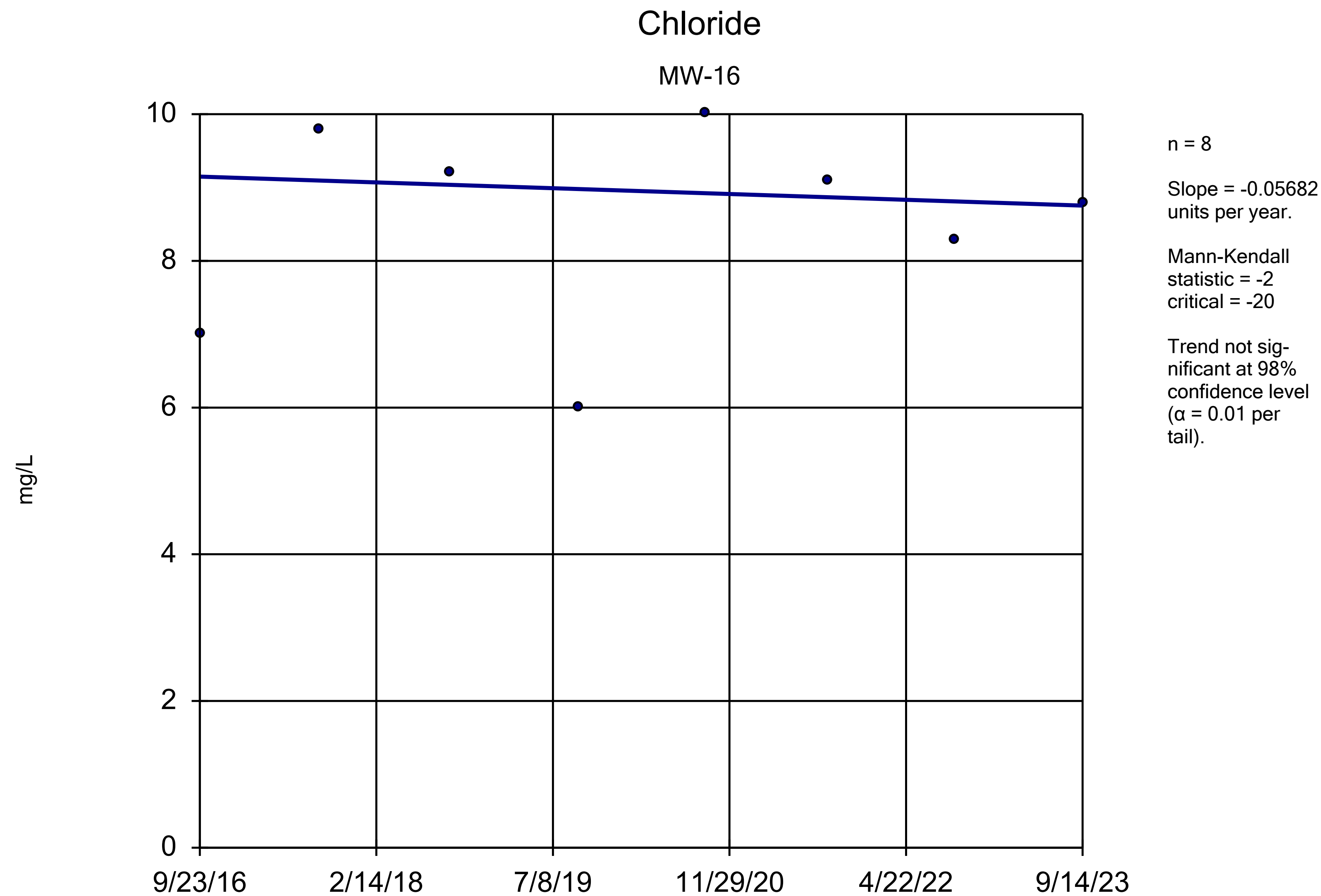
Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

Constituent: Chloride (mg/L)   Analysis Run 11/2/2023 9:28 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-11
9/23/2016	10.8
9/5/2017	10.2
9/17/2018	10.1
9/23/2019	9.8
9/22/2020	18
9/8/2021	18
9/6/2022	17
9/12/2023	19



Sen's Slope and 95% Confidence Band   Analysis Run 11/2/2023 9:22 PM   View: COL Secondary Pond

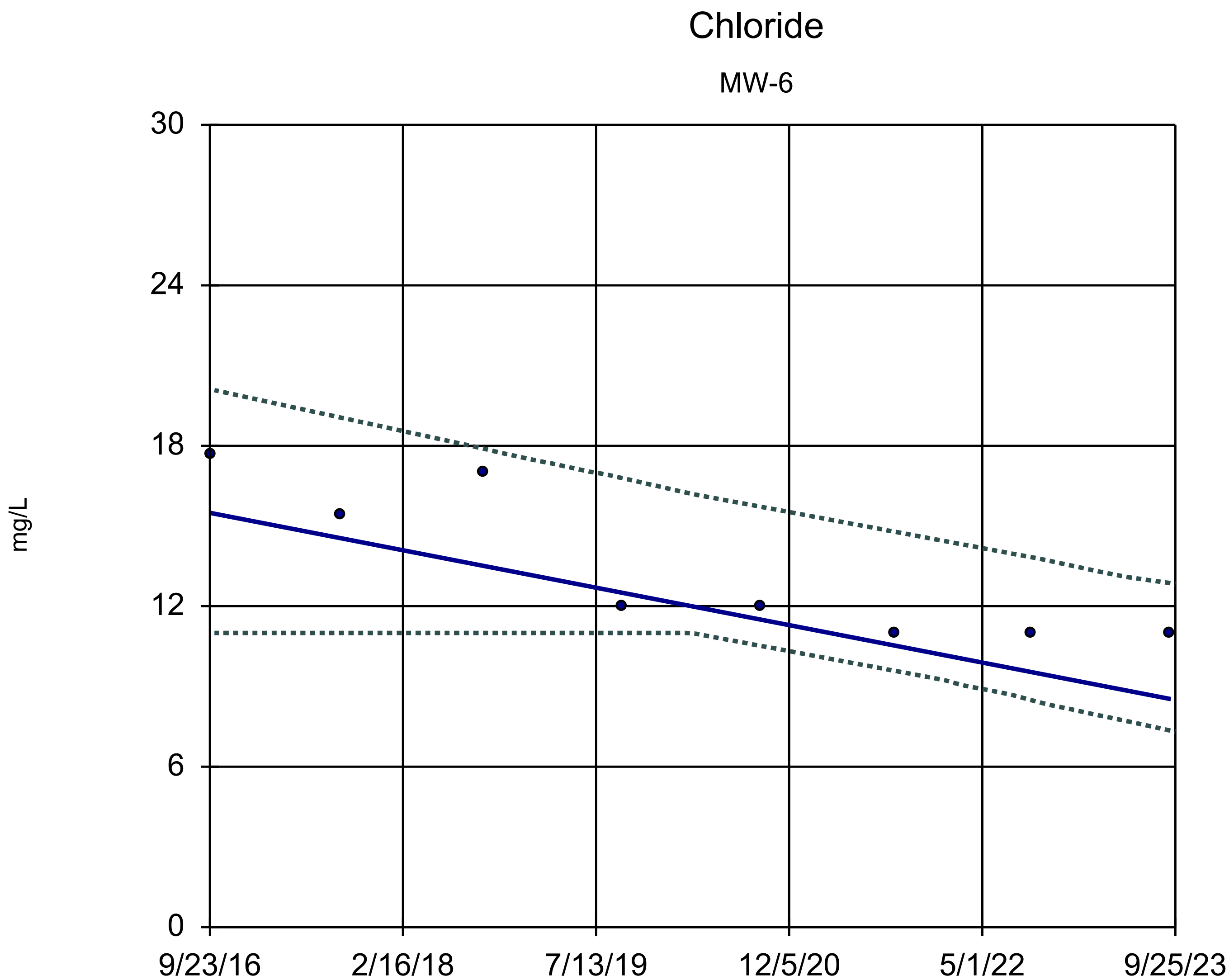
Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

Constituent: Chloride (mg/L) Analysis Run 11/2/2023 9:28 PM View: COL Secondary Pond

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-16
9/23/2016	7
9/5/2017	9.8
9/17/2018	9.2
9/23/2019	6
9/23/2020	10
9/9/2021	9.1
9/8/2022	8.3
9/14/2023	8.8



n = 8

Slope = -0.9987
units per year.

Mann-Kendall
statistic = -22
critical = -20

Decreasing trend
significant at 98%
confidence level
(α = 0.01 per
tail).

Sen's Slope and 95% Confidence Band   Analysis Run 11/2/2023 9:22 PM   View: COL Secondary Pond

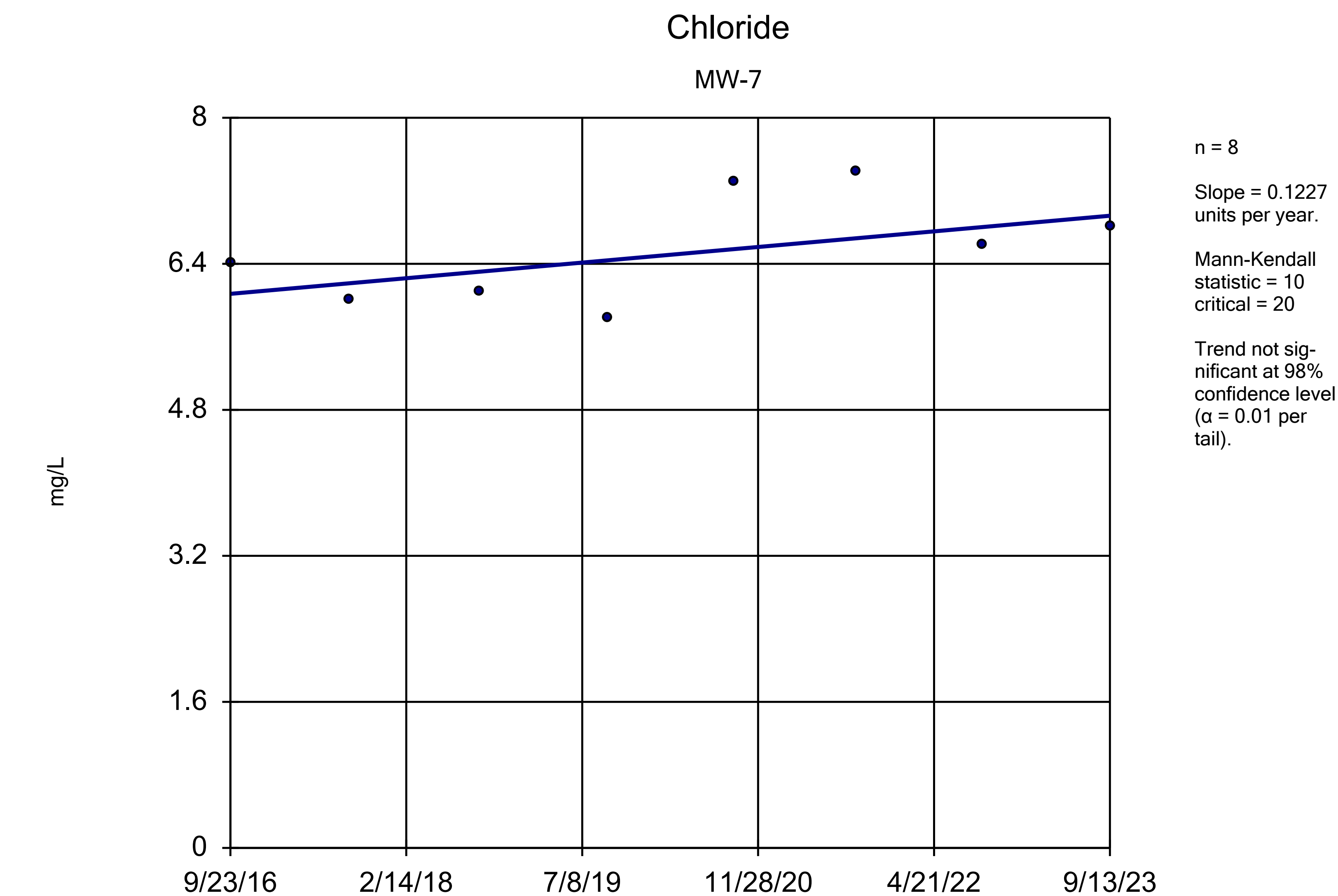
Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

Constituent: Chloride (mg/L)   Analysis Run 11/2/2023 9:28 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-6	LCL	UCL
9/23/2016	17.7	11	20.12
9/5/2017	15.4	11	19.05
9/17/2018	17	11	17.9
9/23/2019	12	11	16.78
9/22/2020	12	10.52	15.72
9/9/2021	11	9.592	14.79
9/7/2022	11	8.494	13.84
9/13/2023	11	7.348	12.86



Sen's Slope and 95% Confidence Band   Analysis Run 11/2/2023 9:22 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

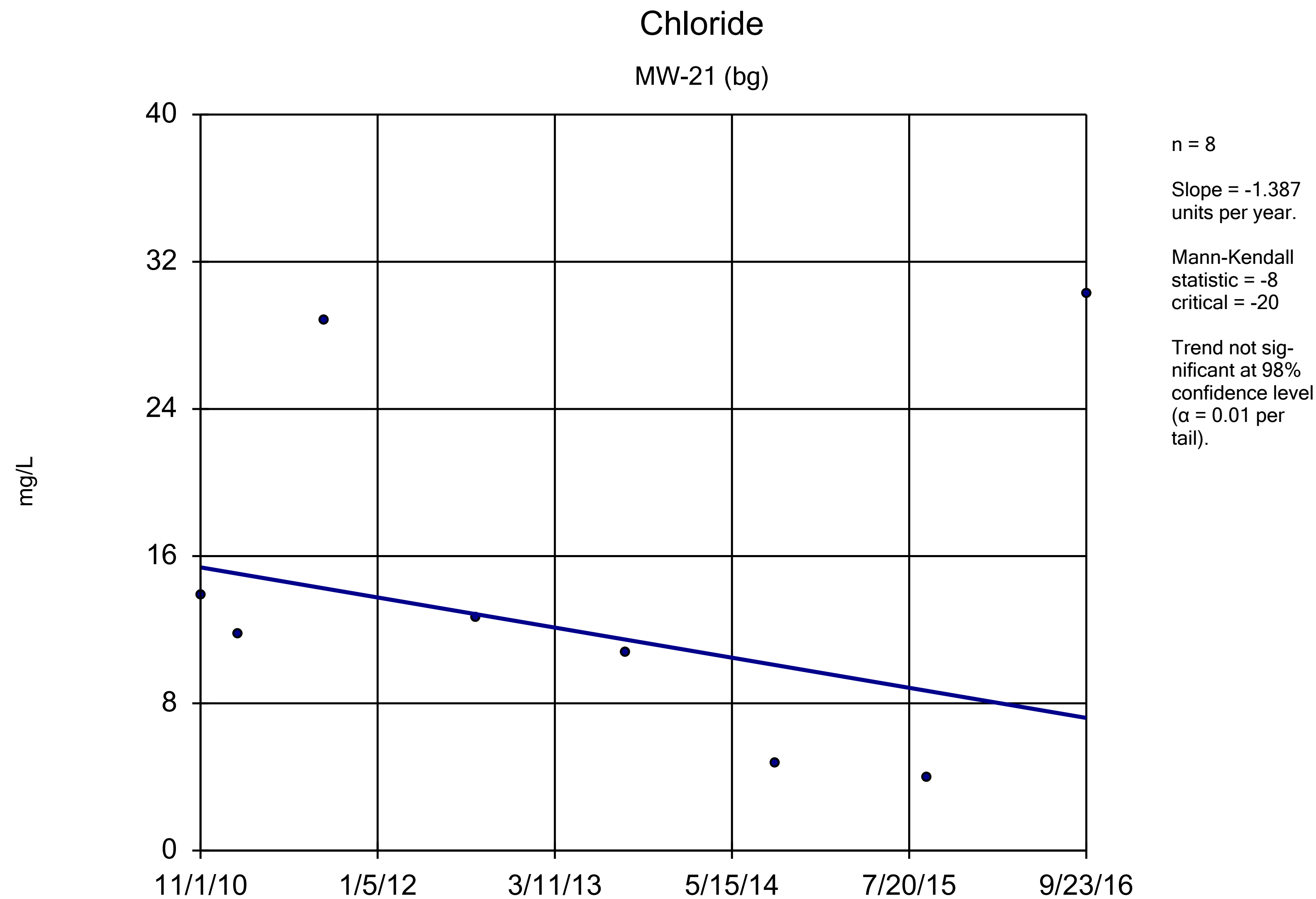
Sen's Slope Estimator

Constituent: Chloride (mg/L)   Analysis Run 11/2/2023 9:28 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-7
9/23/2016	6.4
9/5/2017	6
9/17/2018	6.1
9/23/2019	5.8
9/23/2020	7.3
9/9/2021	7.4
9/8/2022	6.6
9/13/2023	6.8

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 11/2/2023 9:22 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

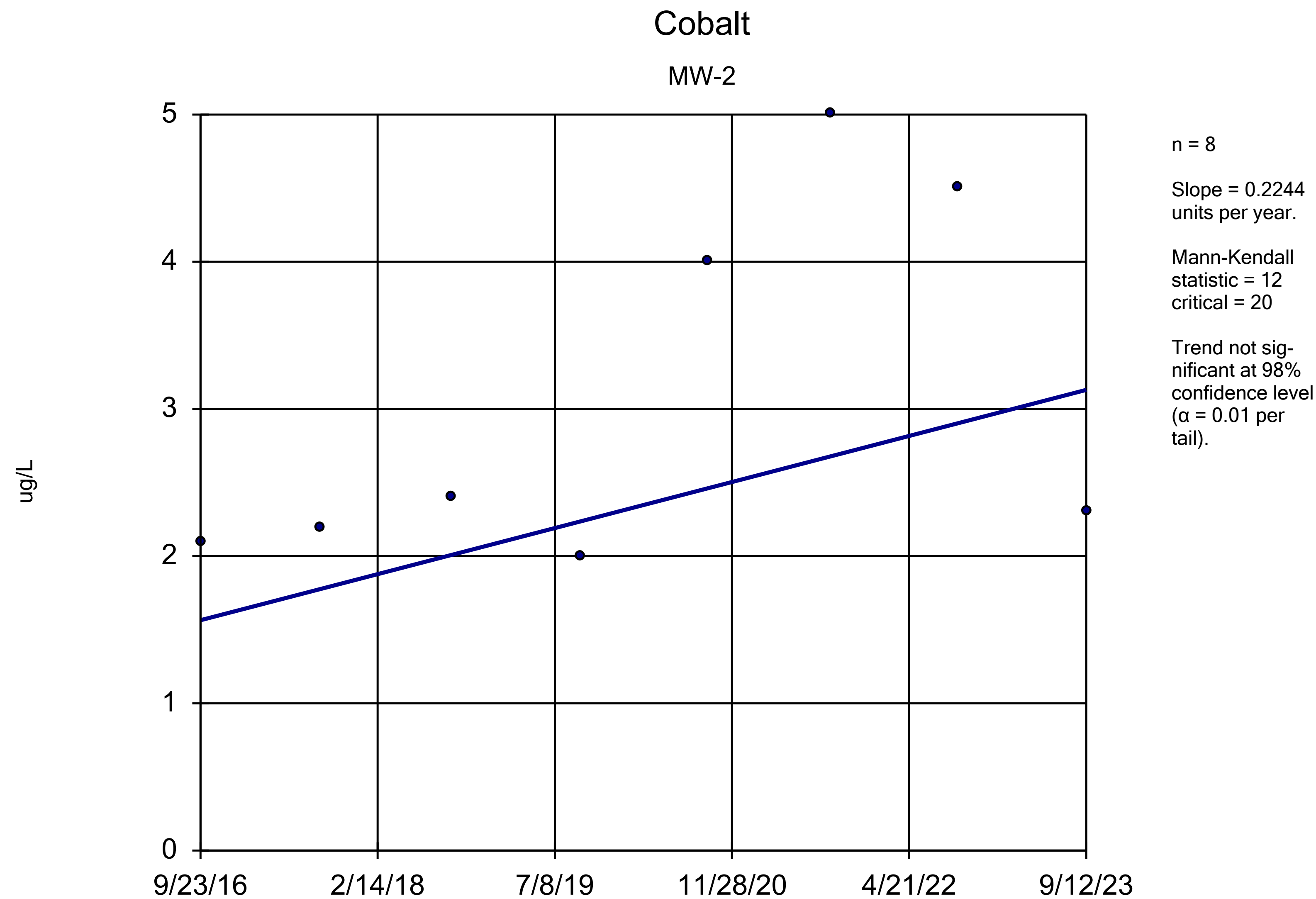
Sen's Slope Estimator

Constituent: Chloride (mg/L)   Analysis Run 11/2/2023 9:28 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-21 (bg)
11/1/2010	13.9
2/1/2011	11.7
9/1/2011	28.8
9/1/2012	12.6
9/1/2013	10.8
9/1/2014	4.7
9/1/2015	4
9/23/2016	30.3
9/5/2017	44.1 (X)
9/17/2018	85.2 (X)
9/23/2019	58 (X)
9/23/2020	110 (X)
9/10/2021	150 (X)
9/7/2022	140 (X)
9/14/2023	150 (X)

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 11/2/2023 9:22 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

Constituent: Cobalt (ug/L) Analysis Run 11/2/2023 9:28 PM View: COL Secondary Pond

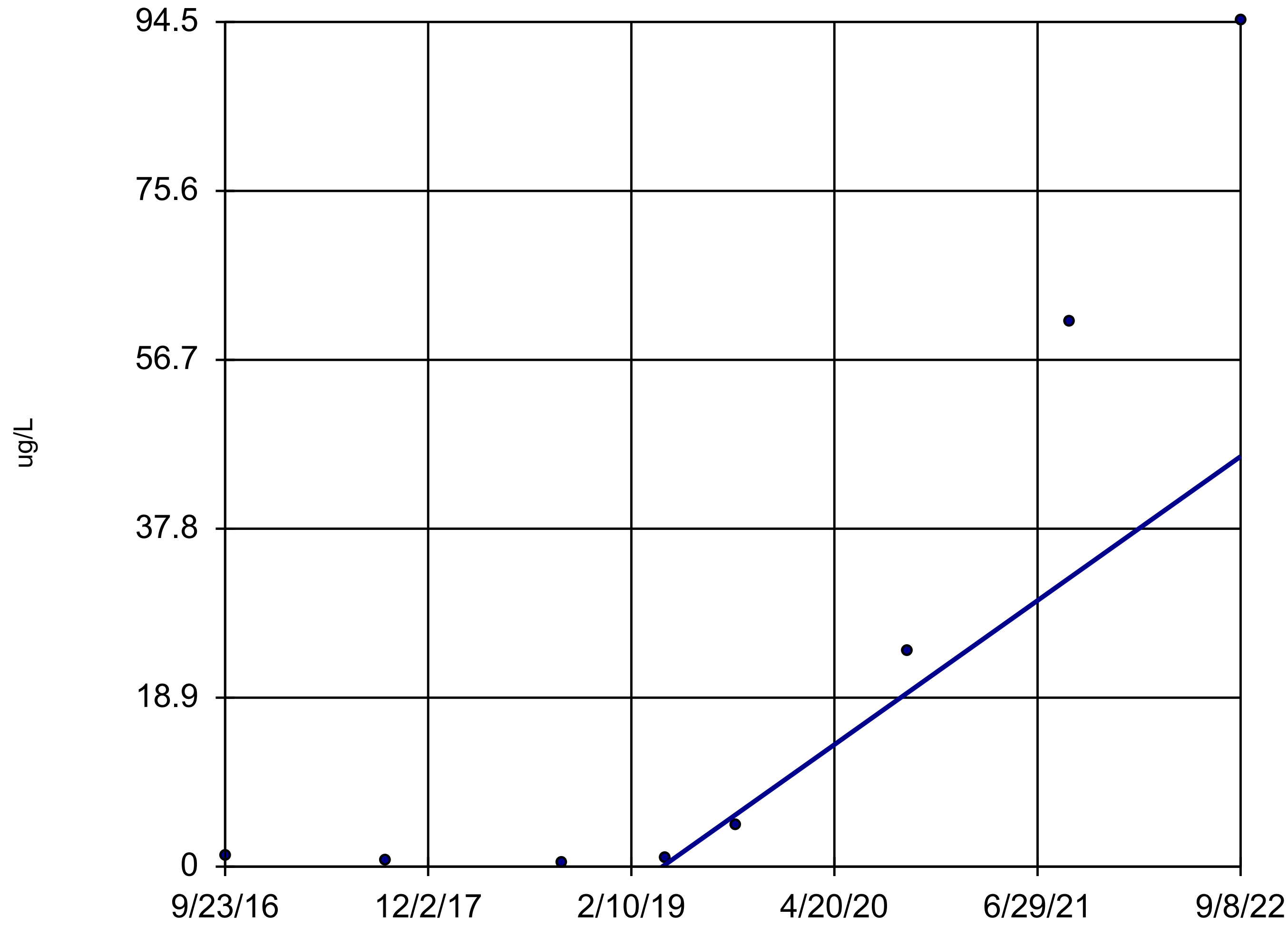
Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-2
9/23/2016	2.1
9/5/2017	2.2
9/17/2018	2.4
9/23/2019	2
9/22/2020	4
9/8/2021	5
9/7/2022	4.5 (D)
9/12/2023	2.3

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Cobalt

MW-24/24R



n = 8

Slope = 13.52 units per year.

Mann-Kendall statistic = 20 critical = 20

Trend not significant at 98% confidence level (α = 0.01 per tail).

Sen's Slope and 95% Confidence Band   Analysis Run 11/2/2023 9:22 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

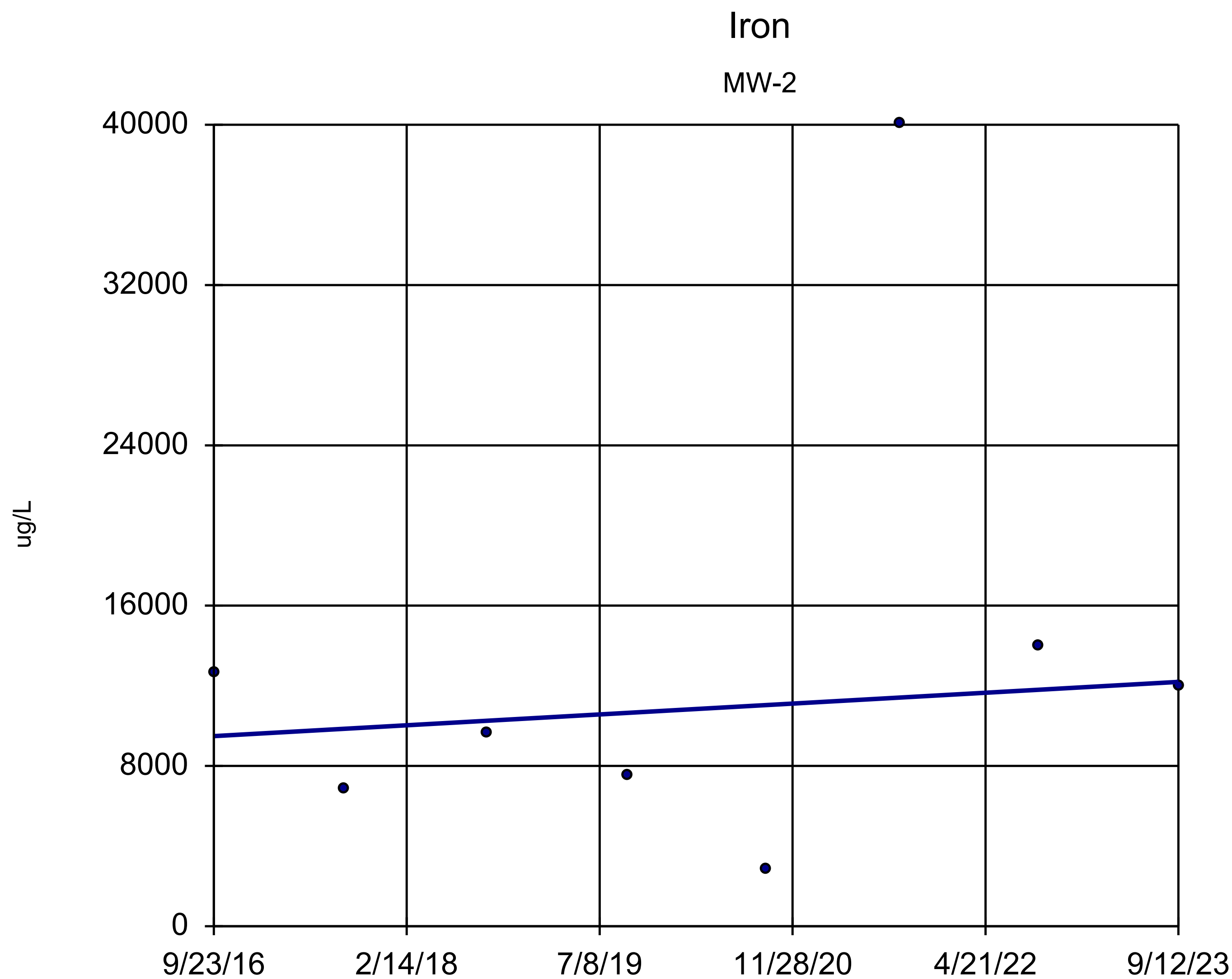
Sen's Slope Estimator

Constituent: Cobalt (ug/L) Analysis Run 11/2/2023 9:28 PM View: COL Secondary Pond

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

	MW-24/24R
9/23/2016	1.3
9/5/2017	0.67 (J)
9/17/2018	0.37 (J)
4/23/2019	0.9
9/23/2019	4.7
9/24/2020	24
9/10/2021	61
9/8/2022	94.5 (D)

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



n = 8

Slope = 387.7 units per year.

Mann-Kendall statistic = 4 critical = 20

Trend not significant at 98% confidence level (α = 0.01 per tail).

Sen's Slope and 95% Confidence Band   Analysis Run 11/2/2023 9:22 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

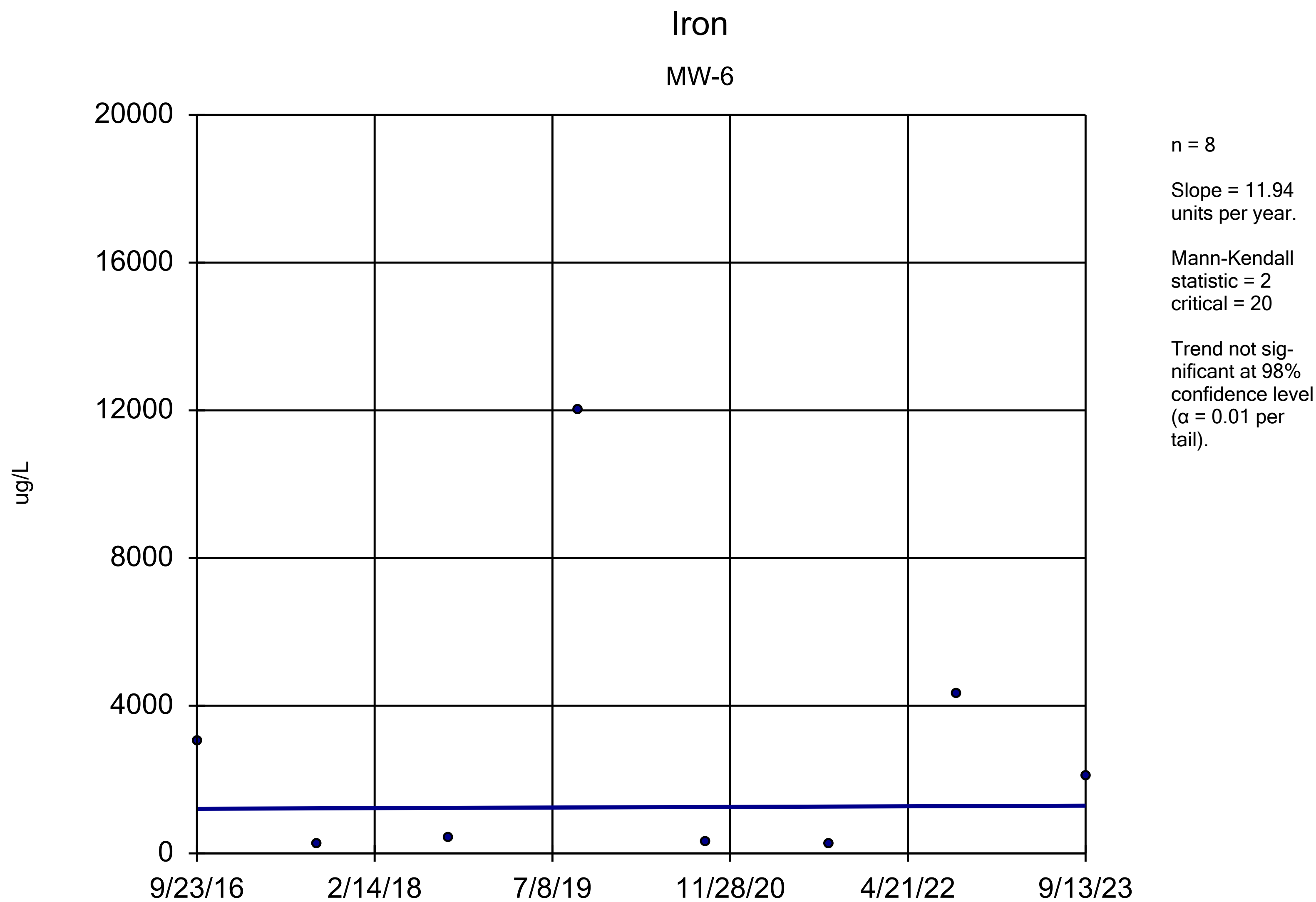
Sen's Slope Estimator

Constituent: Iron (ug/L)   Analysis Run 11/2/2023 9:28 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-2
9/23/2016	12600
9/5/2017	6860
9/17/2018	9690
9/23/2019	7500
9/22/2020	2800
9/8/2021	40000
9/7/2022	14000
9/12/2023	12000

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 11/2/2023 9:22 PM   View: COL Secondary Pond

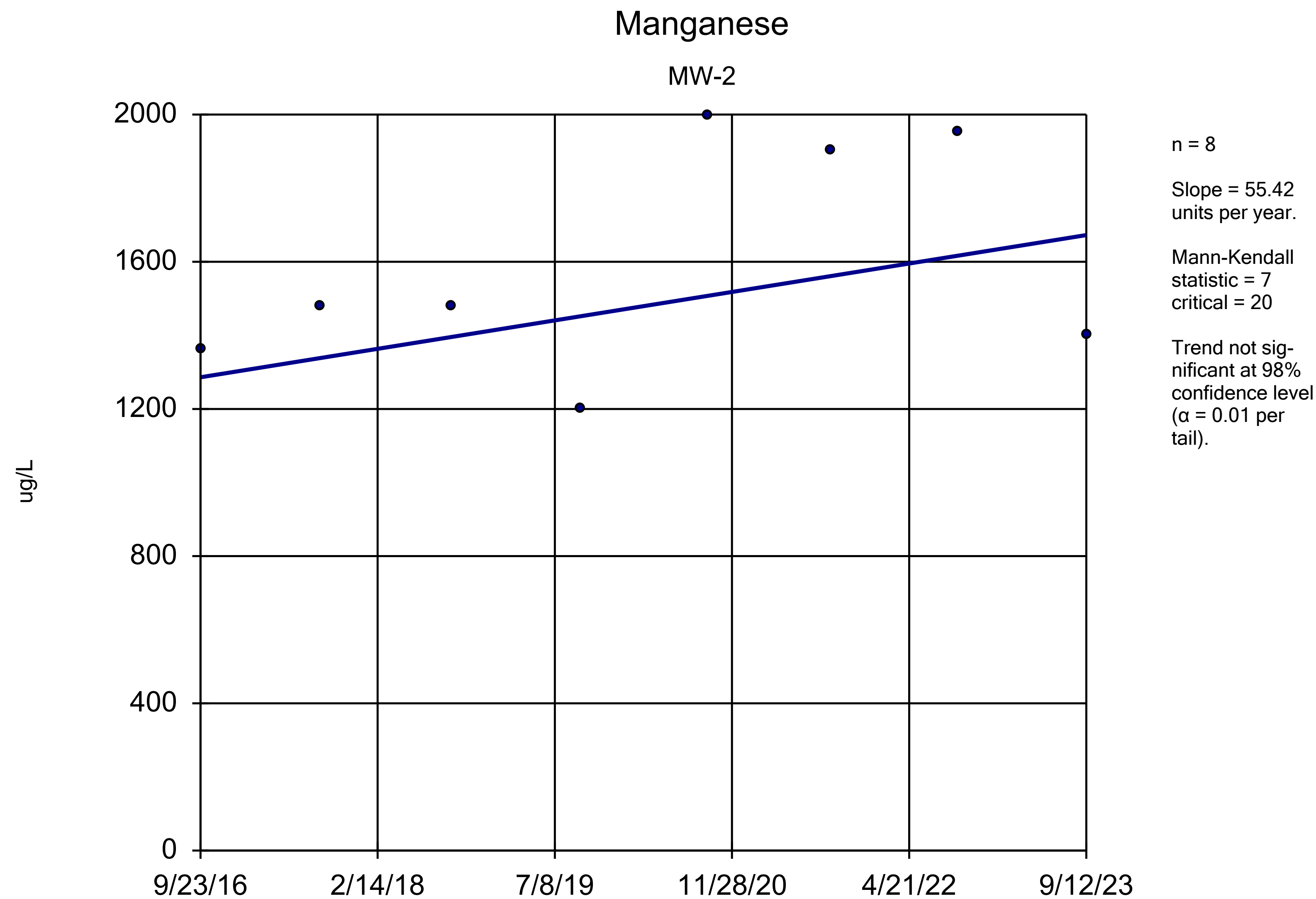
Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

Constituent: Iron (ug/L)   Analysis Run 11/2/2023 9:28 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-6
9/23/2016	3010
9/5/2017	240
9/17/2018	403
9/23/2019	12000
9/22/2020	290
9/9/2021	270
9/7/2022	4300
9/13/2023	2100



Sen's Slope and 95% Confidence Band   Analysis Run 11/2/2023 9:22 PM   View: COL Secondary Pond

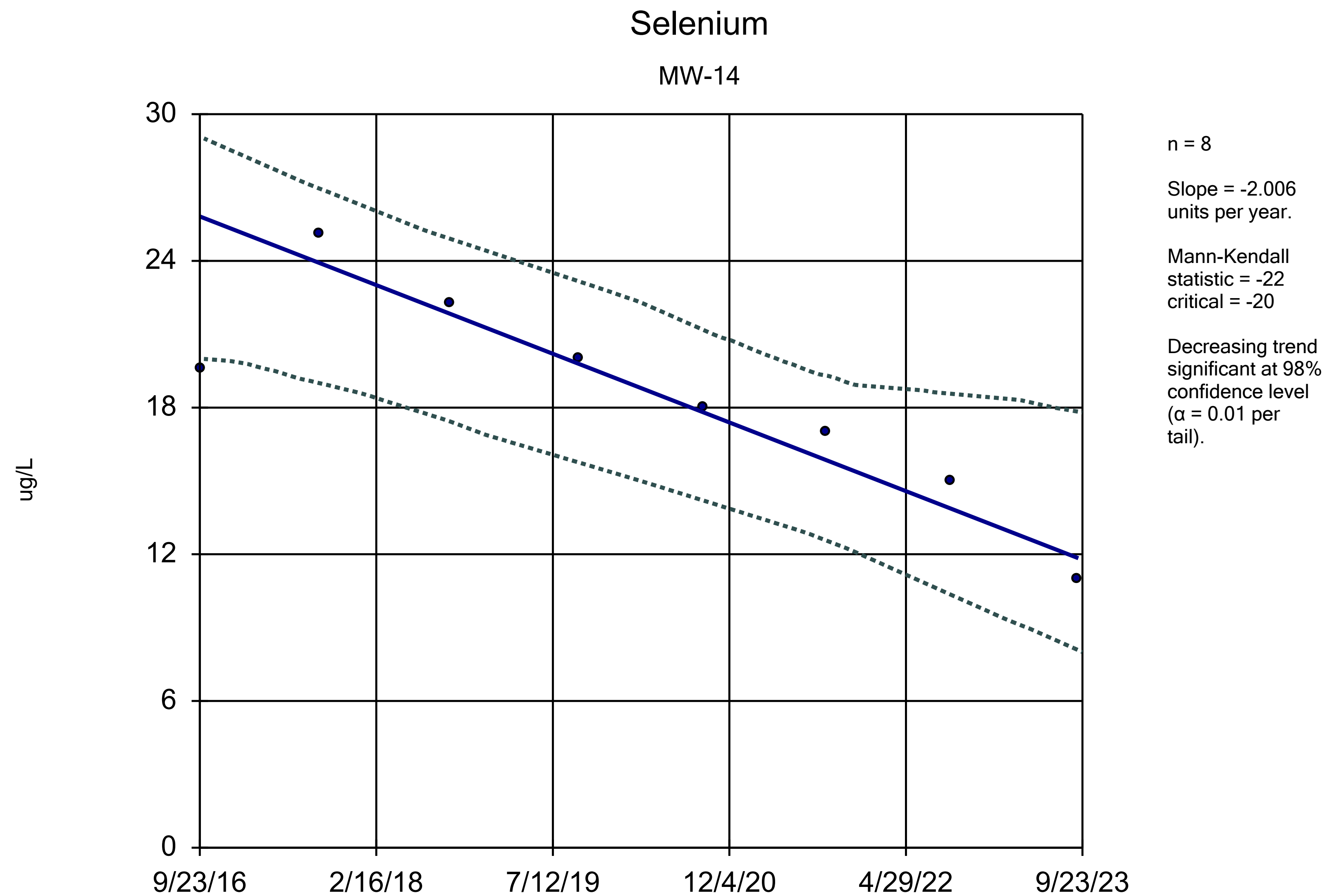
Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

Constituent: Manganese (ug/L)   Analysis Run 11/2/2023 9:28 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-2
9/23/2016	1360
9/5/2017	1480
9/17/2018	1480
9/23/2019	1200
9/22/2020	2000
9/8/2021	1900
9/7/2022	1950 (D)
9/12/2023	1400



Sen's Slope and 95% Confidence Band   Analysis Run 11/2/2023 9:22 PM   View: COL Secondary Pond

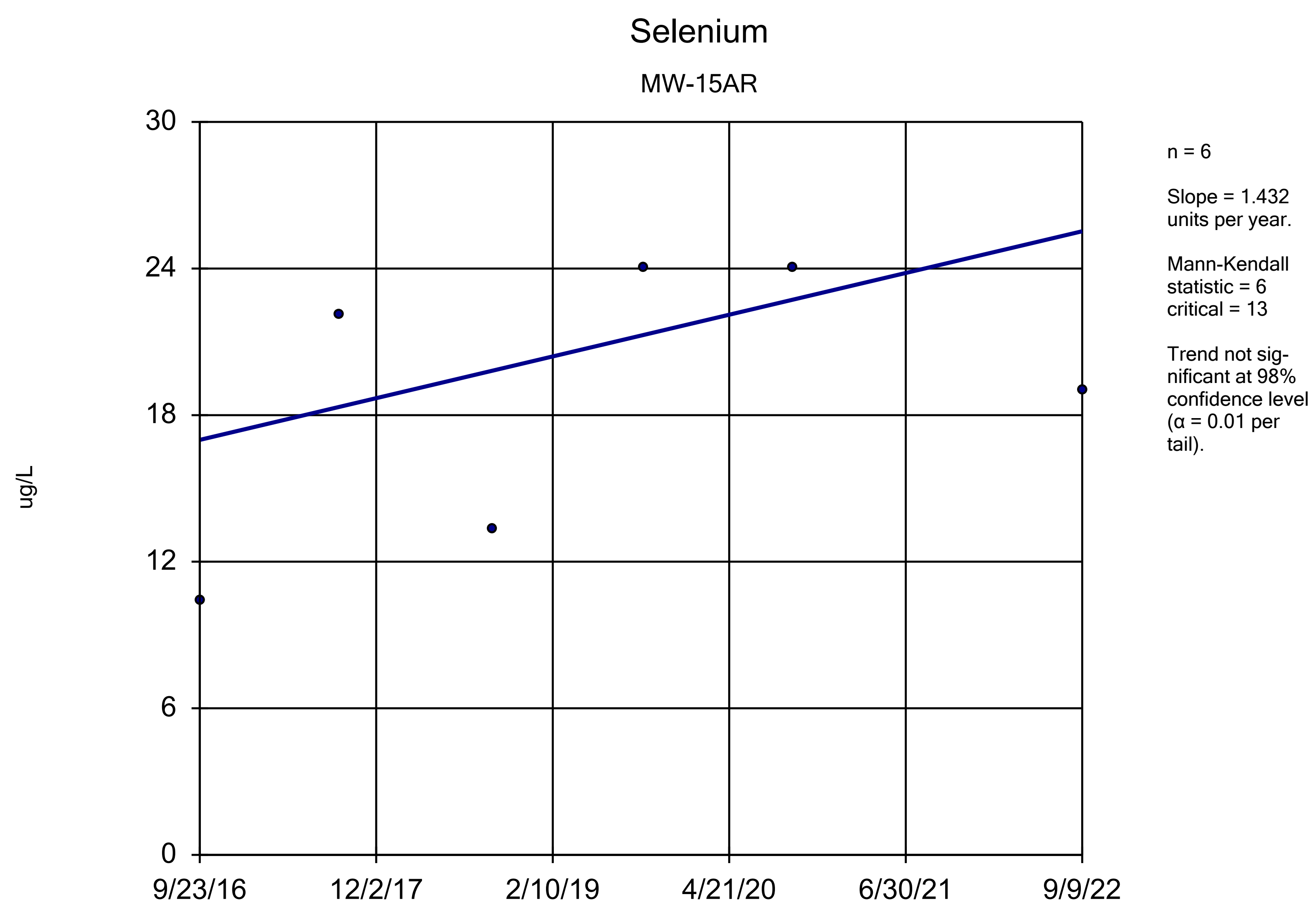
Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

Constituent: Selenium (ug/L)   Analysis Run 11/2/2023 9:28 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-14	LCL	UCL
9/23/2016	19.6	20.01	29.08
9/5/2017	25.1	18.99	26.95
9/17/2018	22.3	17.44	24.91
9/23/2019	20	15.76	23.17
9/22/2020	18	14.19	21.16
9/8/2021	17	12.58	19.31
9/6/2022	15	10.35	18.56
9/11/2023	11	8.078	17.83



Sen's Slope Estimator Analysis Run 11/2/2023 9:22 PM View: COL Secondary Pond

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

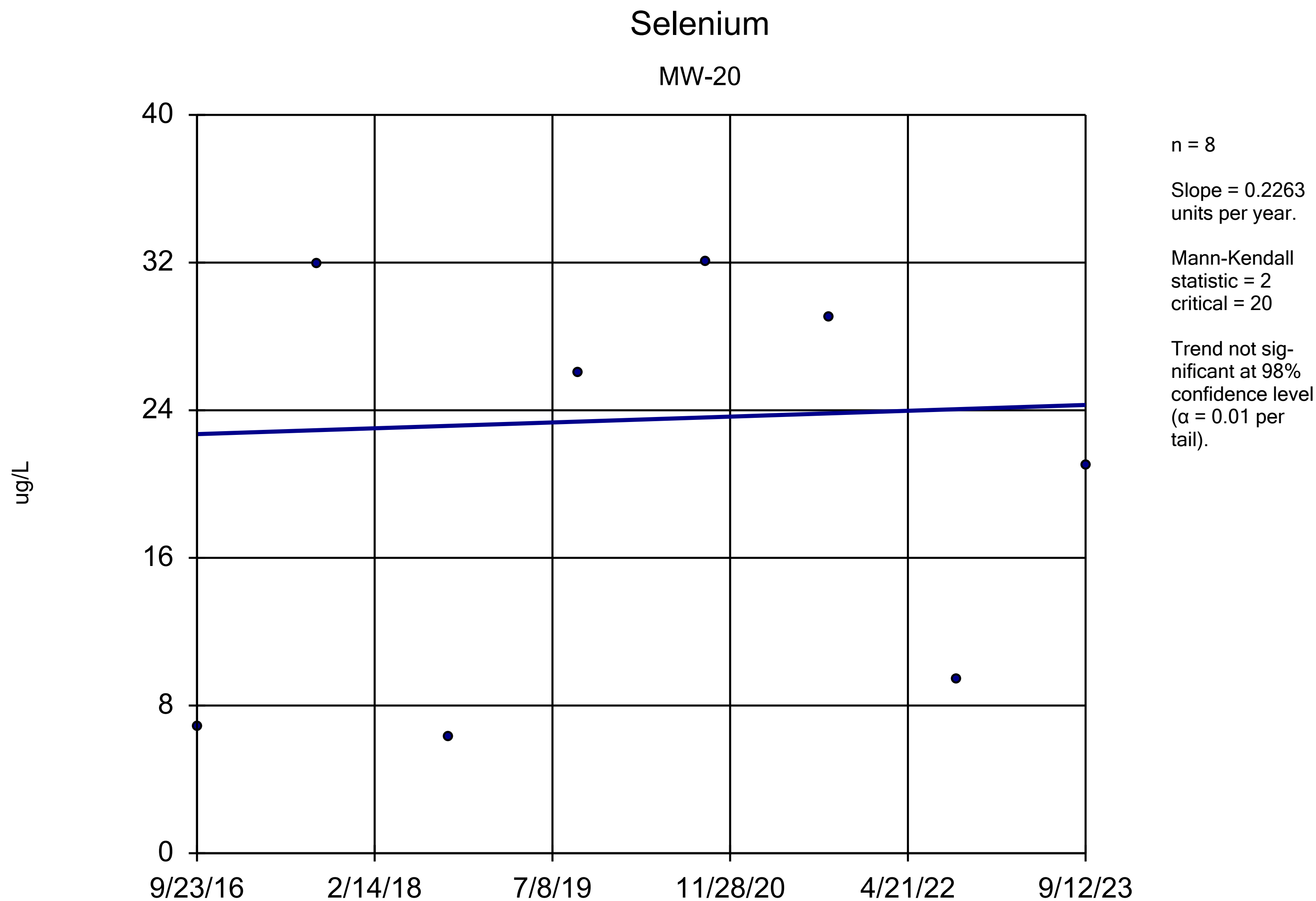
Sen's Slope Estimator

Constituent: Selenium (ug/L)   Analysis Run 11/2/2023 9:28 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-15AR
9/23/2016	10.4
9/5/2017	22.1
9/17/2018	13.3
9/23/2019	24
9/24/2020	24
9/9/2022	19

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 11/2/2023 9:22 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

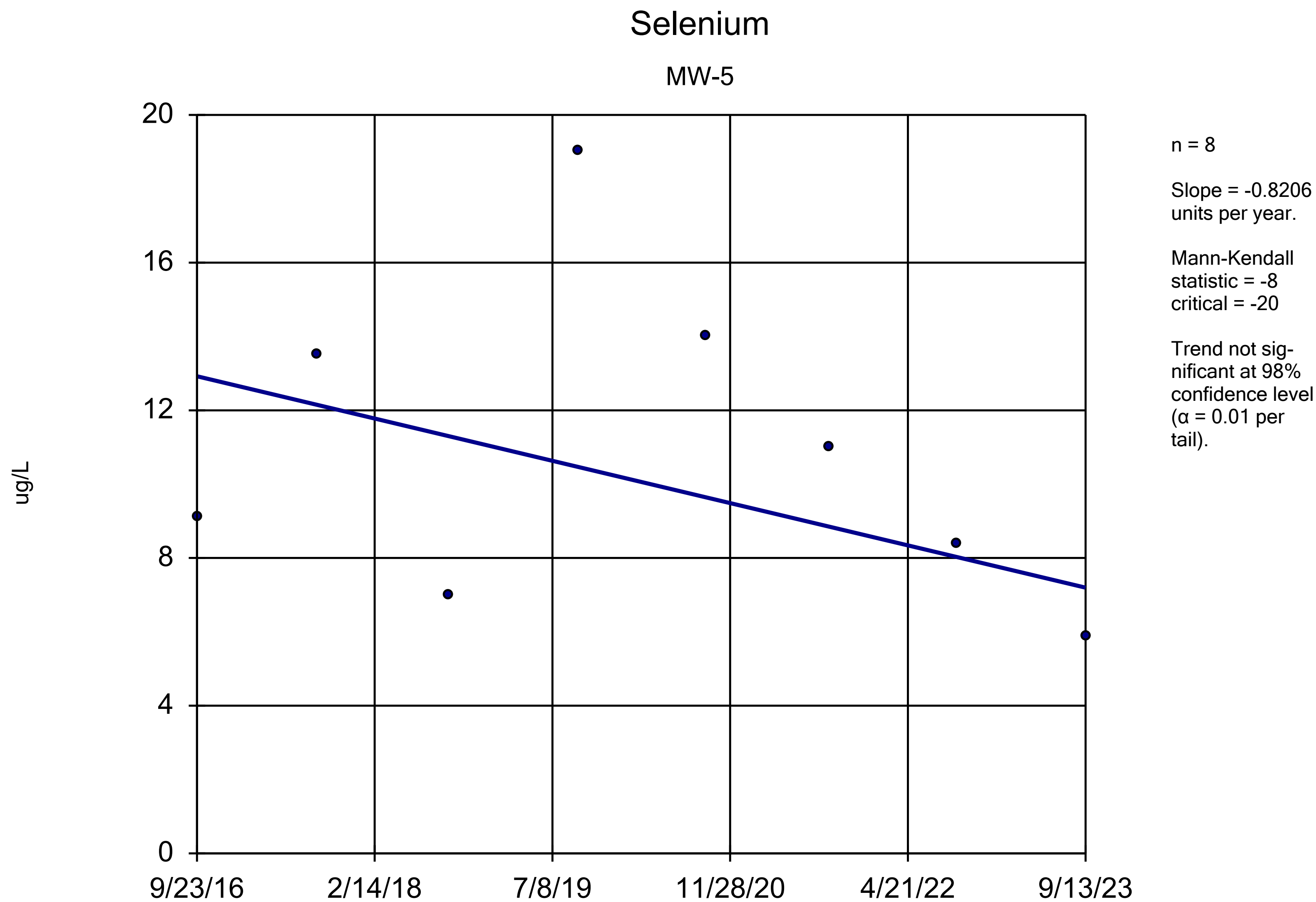
Sen's Slope Estimator

Constituent: Selenium (ug/L)   Analysis Run 11/2/2023 9:28 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-20
9/23/2016	6.9
9/5/2017	31.9
9/17/2018	6.3
9/23/2019	26
9/21/2020	32
9/8/2021	29
9/6/2022	9.4
9/12/2023	21

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band Analysis Run 11/2/2023 9:22 PM View: COL Secondary Pond

Big Bend Closed Landfill Client: SCS Engineers Data: Input_File_BB

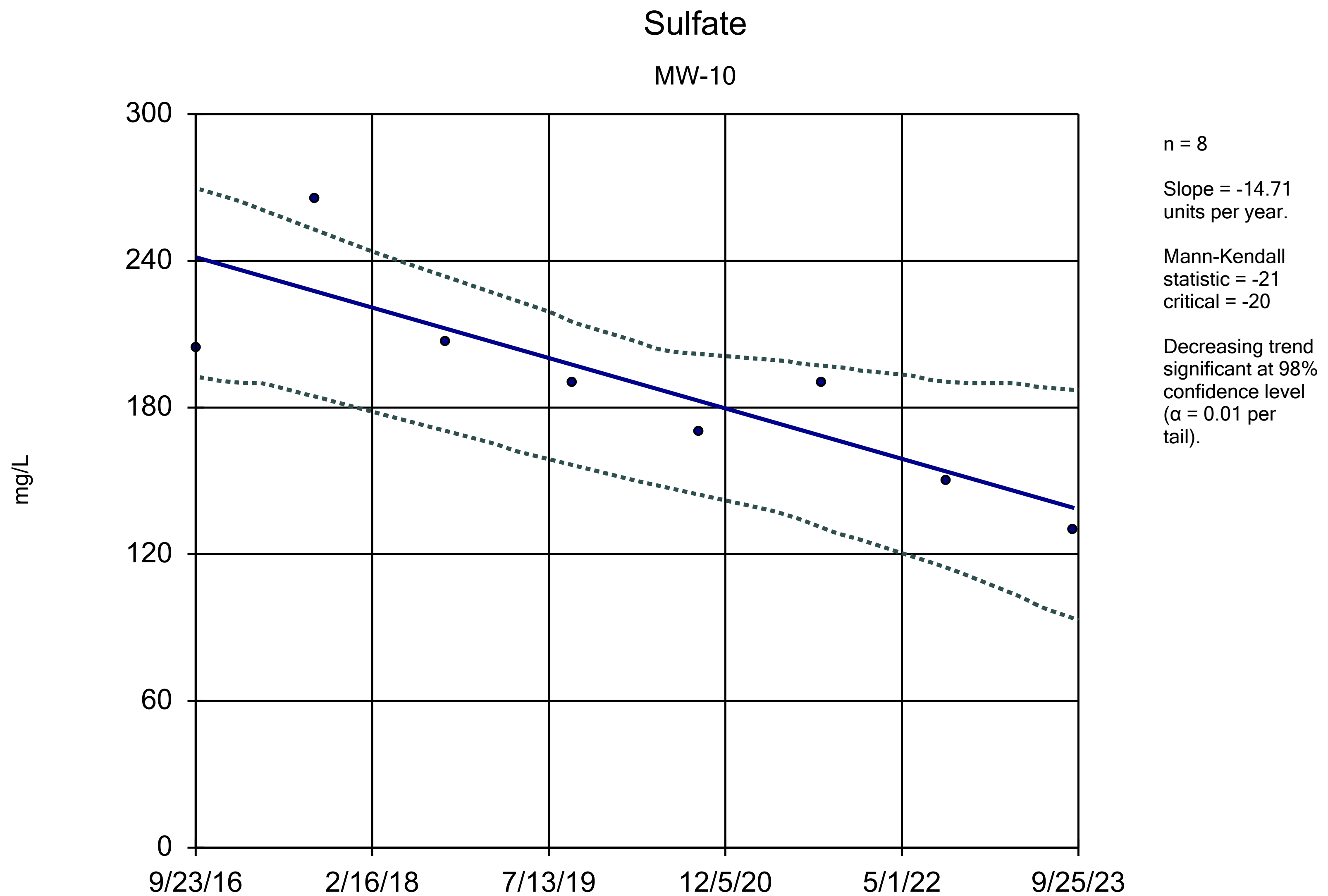
Sen's Slope Estimator

Constituent: Selenium (ug/L)   Analysis Run 11/2/2023 9:28 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-5
9/23/2016	9.1
9/5/2017	13.5
9/17/2018	7
9/23/2019	19
9/22/2020	14
9/9/2021	11
9/7/2022	8.4
9/13/2023	5.9

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 11/2/2023 9:22 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

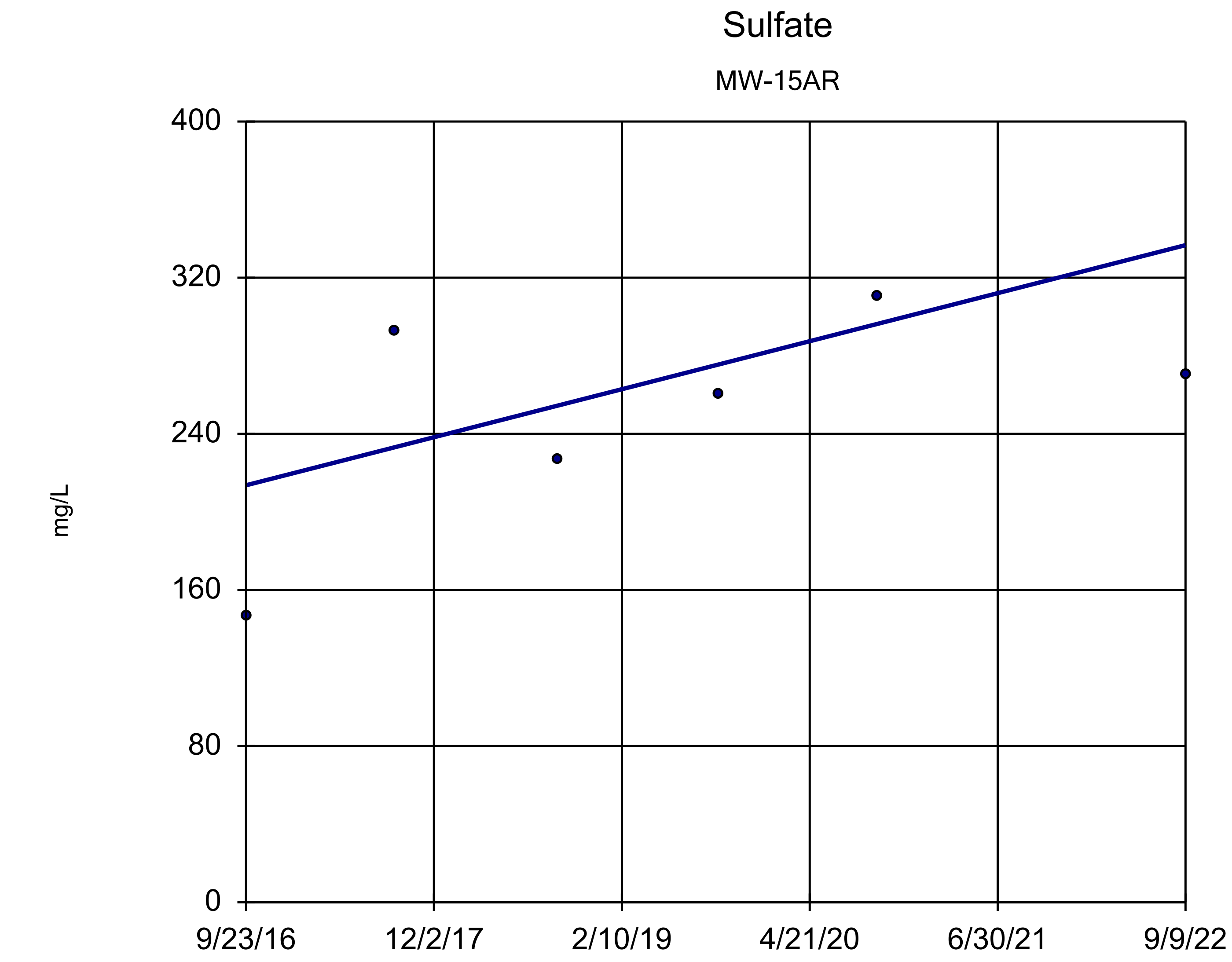
Sen's Slope Estimator

Constituent: Sulfate (mg/L)   Analysis Run 11/2/2023 9:28 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-10	LCL	UCL
9/23/2016	204	192.6	269.9
9/5/2017	265	184.5	252.6
9/17/2018	207	170.5	233.6
9/23/2019	190	156.4	214.8
9/24/2020	170	144.3	201.9
9/9/2021	190	131.1	197.2
9/9/2022	150	114.5	190.5
9/13/2023	130	93.67	187.2

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



n = 6

Slope = 20.62 units per year.

Mann-Kendall statistic = 7 critical = 13

Trend not significant at 98% confidence level (α = 0.01 per tail).

Sen's Slope Estimator   Analysis Run 11/2/2023 9:22 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

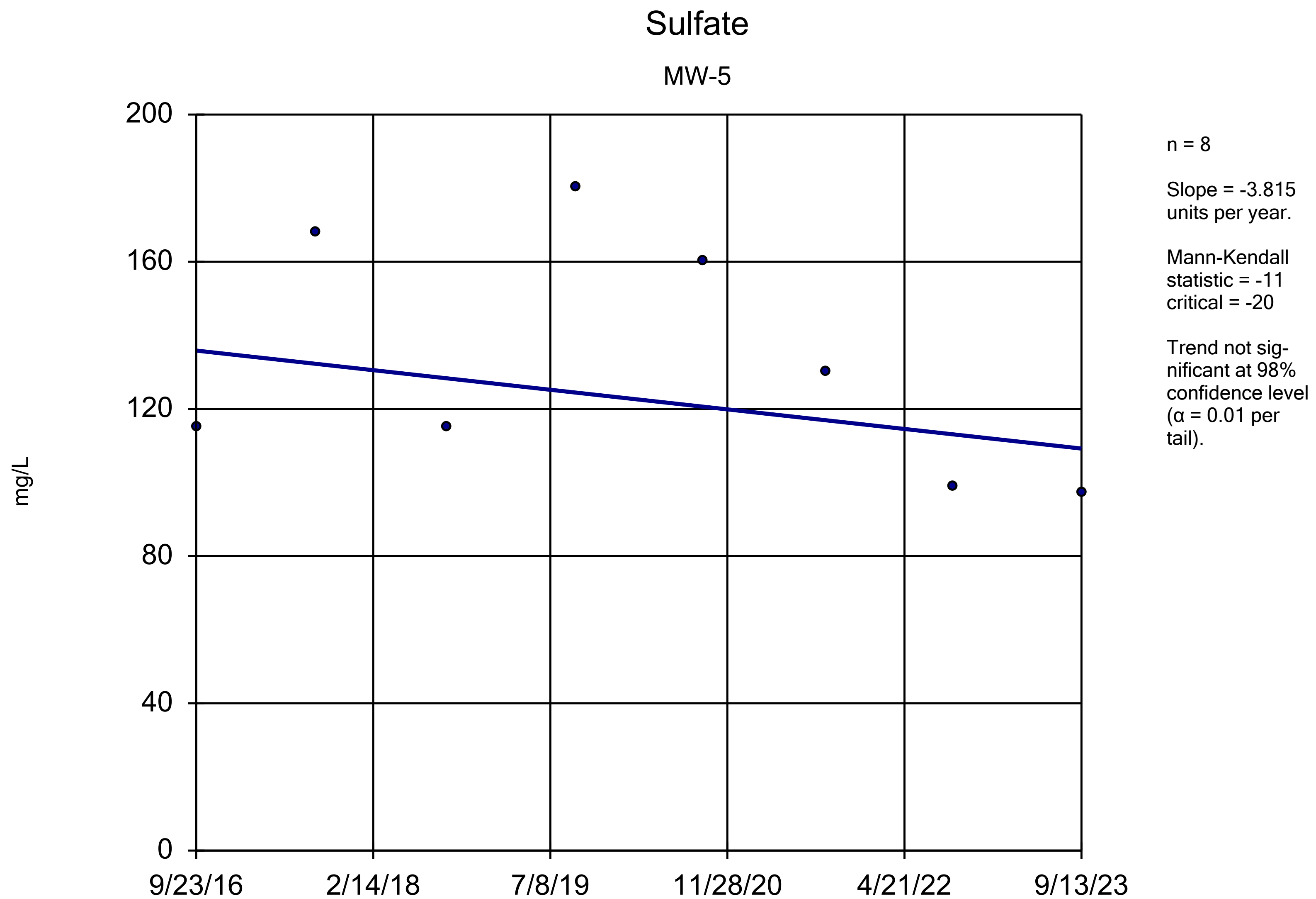
Sen's Slope Estimator

Constituent: Sulfate (mg/L)   Analysis Run 11/2/2023 9:28 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-15AR
9/23/2016	147
9/5/2017	293
9/17/2018	227
9/23/2019	260
9/24/2020	310
9/9/2022	270

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG



Sen's Slope and 95% Confidence Band   Analysis Run 11/2/2023 9:22 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

Sen's Slope Estimator

Constituent: Sulfate (mg/L)   Analysis Run 11/2/2023 9:28 PM   View: COL Secondary Pond

Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB

	MW-5
9/23/2016	115
9/5/2017	168
9/17/2018	115
9/23/2019	180
9/22/2020	160
9/9/2021	130
9/7/2022	99
9/13/2023	97

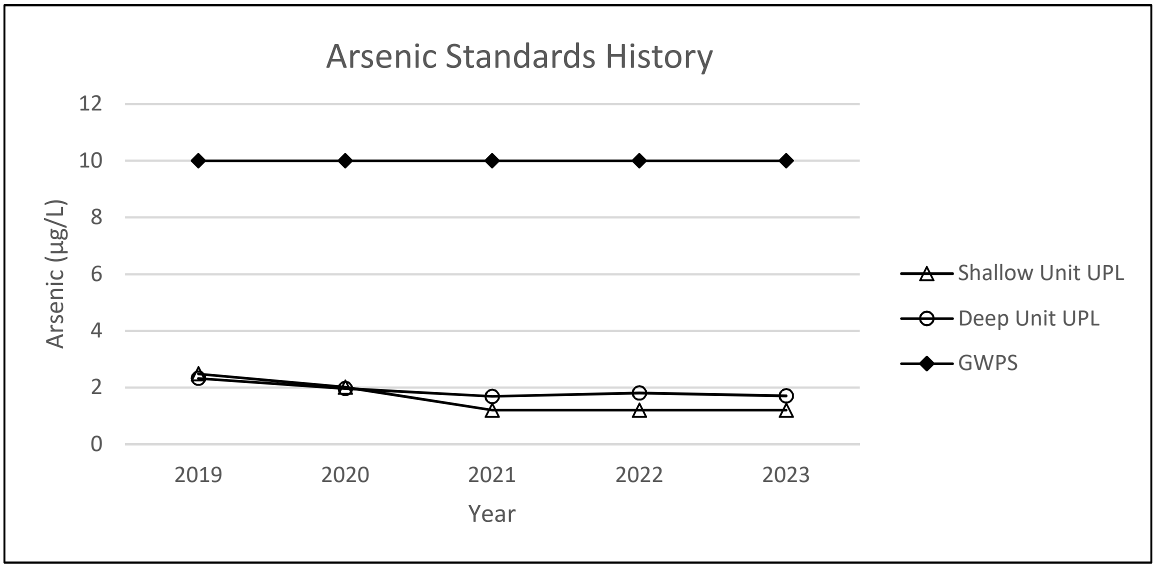
Trend Test

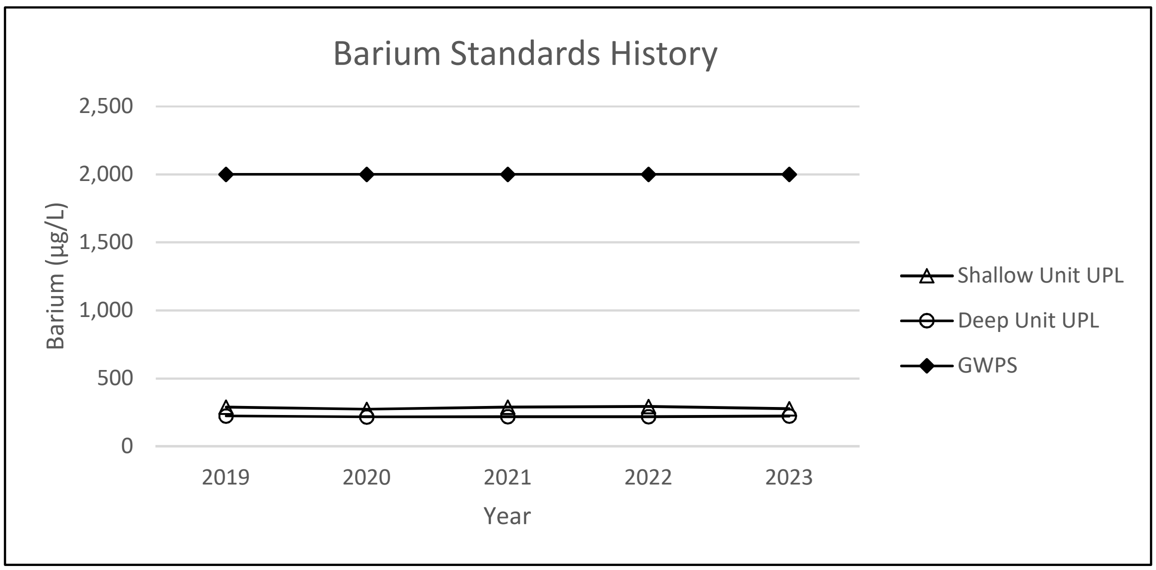
Big Bend Closed Landfill   Client: SCS Engineers   Data: Input_File_BB   Printed 11/2/2023, 9:28 PM

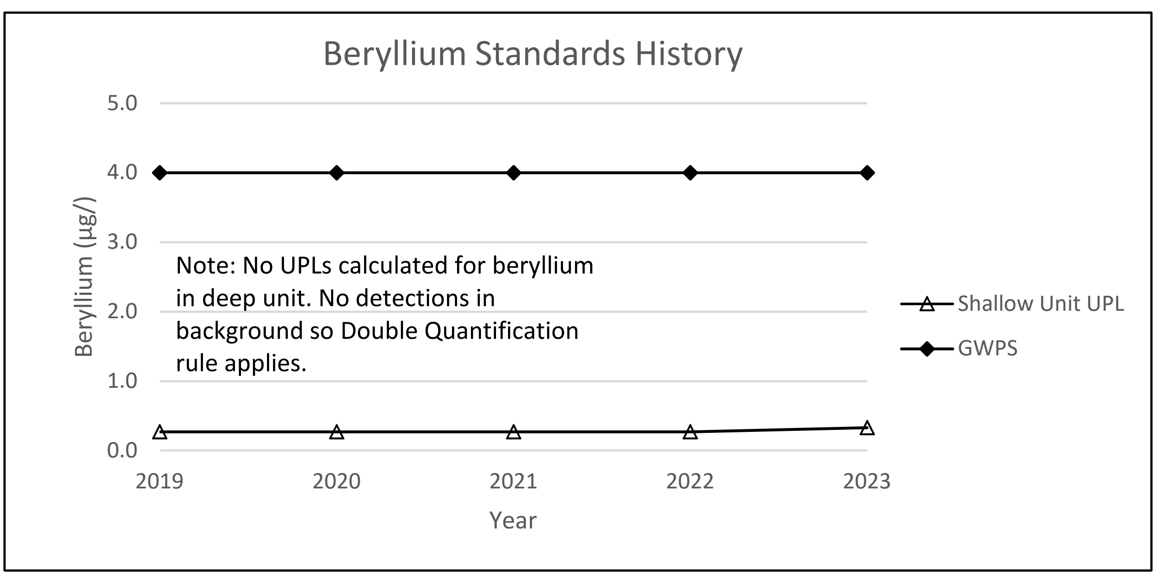
Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Arsenic (ug/L)	**MW-10**	**-1.264**	**-23**	**-20**	**Yes**	**8**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Arsenic (ug/L)	MW-2	0.1627	12	20	No	8	12.5	n/a	n/a	0.02	NP
Arsenic (ug/L)	MW-24/24R	-0.3004	-20	-20	No	8	0	n/a	n/a	0.02	NP
Boron (ug/L)	MW-10	-19.61	-2	-20	No	8	0	n/a	n/a	0.02	NP
Boron (ug/L)	**MW-11**	**-42.82**	**-22**	**-20**	**Yes**	**8**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Boron (ug/L)	**MW-14**	**-145.6**	**-22**	**-20**	**Yes**	**8**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Boron (ug/L)	MW-15AR	369.9	3	13	No	6	0	n/a	n/a	0.02	NP
Boron (ug/L)	MW-16	149.7	12	20	No	8	0	n/a	n/a	0.02	NP
Boron (ug/L)	MW-2	-88.14	-13	-20	No	8	0	n/a	n/a	0.02	NP
Boron (ug/L)	MW-20	93.77	2	20	No	8	0	n/a	n/a	0.02	NP
Boron (ug/L)	MW-25R	4.932	2	20	No	8	0	n/a	n/a	0.02	NP
Boron (ug/L)	MW-5	-19.04	-4	-20	No	8	0	n/a	n/a	0.02	NP
Boron (ug/L)	MW-6	-23.74	-11	-20	No	8	0	n/a	n/a	0.02	NP
Boron (ug/L)	MW-7	-21.18	-20	-20	No	8	0	n/a	n/a	0.02	NP
Boron (ug/L)	MW-23/23R	-463.9	-15	-20	No	8	0	n/a	n/a	0.02	NP
Chloride (mg/L)	MW-10	-1.304	-19	-20	No	8	0	n/a	n/a	0.02	NP
Chloride (mg/L)	MW-11	1.405	11	20	No	8	0	n/a	n/a	0.02	NP
Chloride (mg/L)	MW-16	-0.05682	-2	-20	No	8	0	n/a	n/a	0.02	NP
Chloride (mg/L)	**MW-6**	**-0.9987**	**-22**	**-20**	**Yes**	**8**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Chloride (mg/L)	MW-7	0.1227	10	20	No	8	0	n/a	n/a	0.02	NP
Chloride (mg/L)	MW-21 (bg)	-1.387	-8	-20	No	8	0	n/a	n/a	0.02	NP
Cobalt (ug/L)	MW-2	0.2244	12	20	No	8	0	n/a	n/a	0.02	NP
Cobalt (ug/L)	MW-24/24R	13.52	20	20	No	8	0	n/a	n/a	0.02	NP
Iron (ug/L)	MW-2	387.7	4	20	No	8	0	n/a	n/a	0.02	NP
Iron (ug/L)	MW-6	11.94	2	20	No	8	0	n/a	n/a	0.02	NP
Manganese (ug/L)	MW-2	55.42	7	20	No	8	0	n/a	n/a	0.02	NP
Selenium (ug/L)	**MW-14**	**-2.006**	**-22**	**-20**	**Yes**	**8**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Selenium (ug/L)	MW-15AR	1.432	6	13	No	6	0	n/a	n/a	0.02	NP
Selenium (ug/L)	MW-20	0.2263	2	20	No	8	0	n/a	n/a	0.02	NP
Selenium (ug/L)	MW-5	-0.8206	-8	-20	No	8	0	n/a	n/a	0.02	NP
Sulfate (mg/L)	**MW-10**	**-14.71**	**-21**	**-20**	**Yes**	**8**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Sulfate (mg/L)	MW-15AR	20.62	7	13	No	6	0	n/a	n/a	0.02	NP
Sulfate (mg/L)	MW-5	-3.815	-11	-20	No	8	0	n/a	n/a	0.02	NP

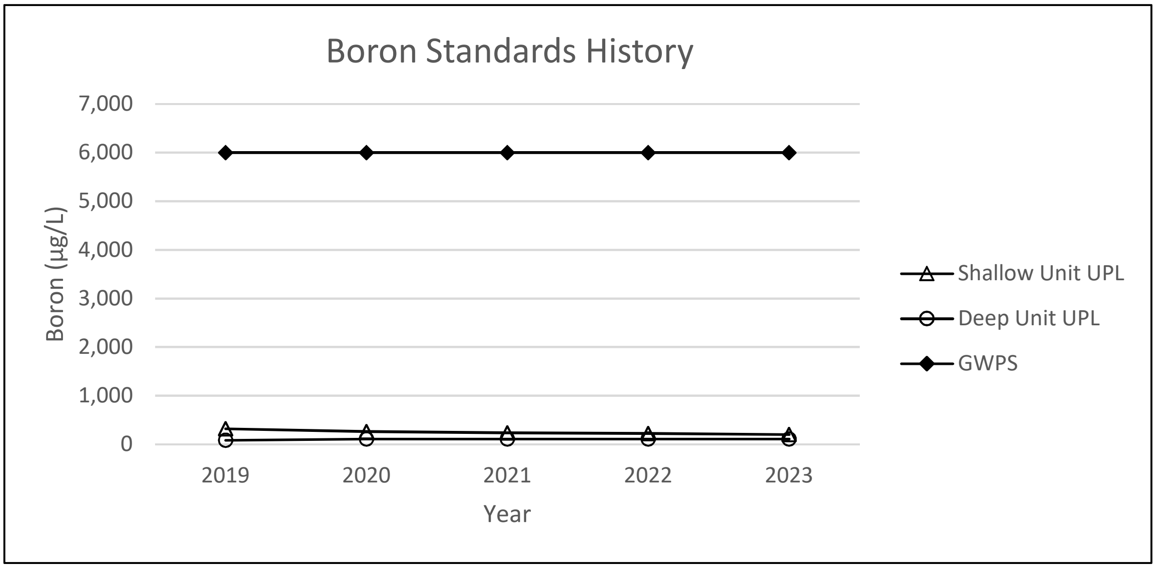
Appendix G

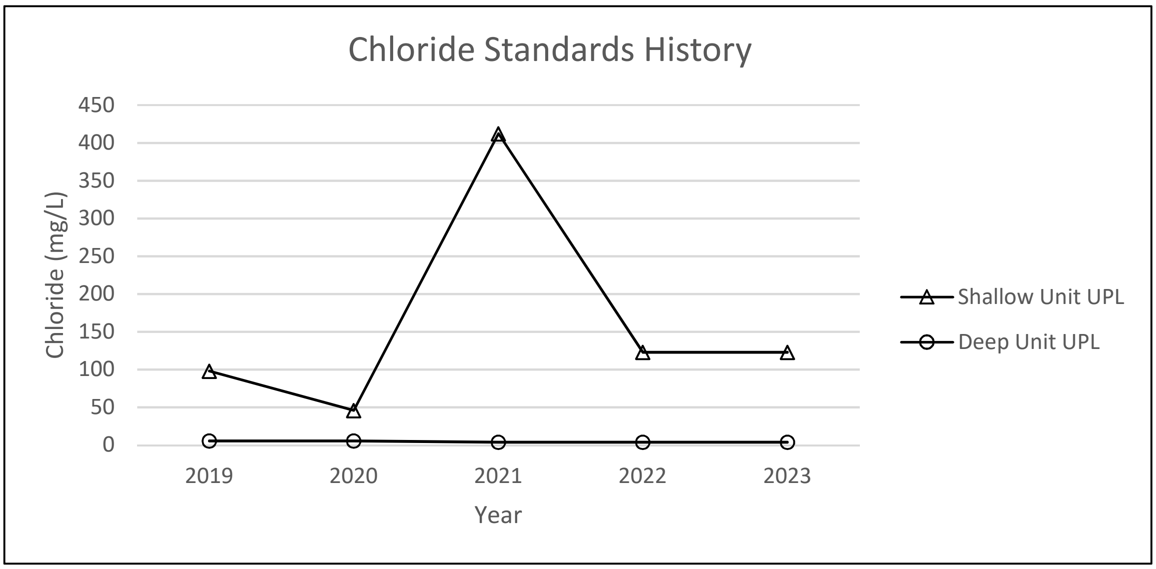
Standards History Graphs

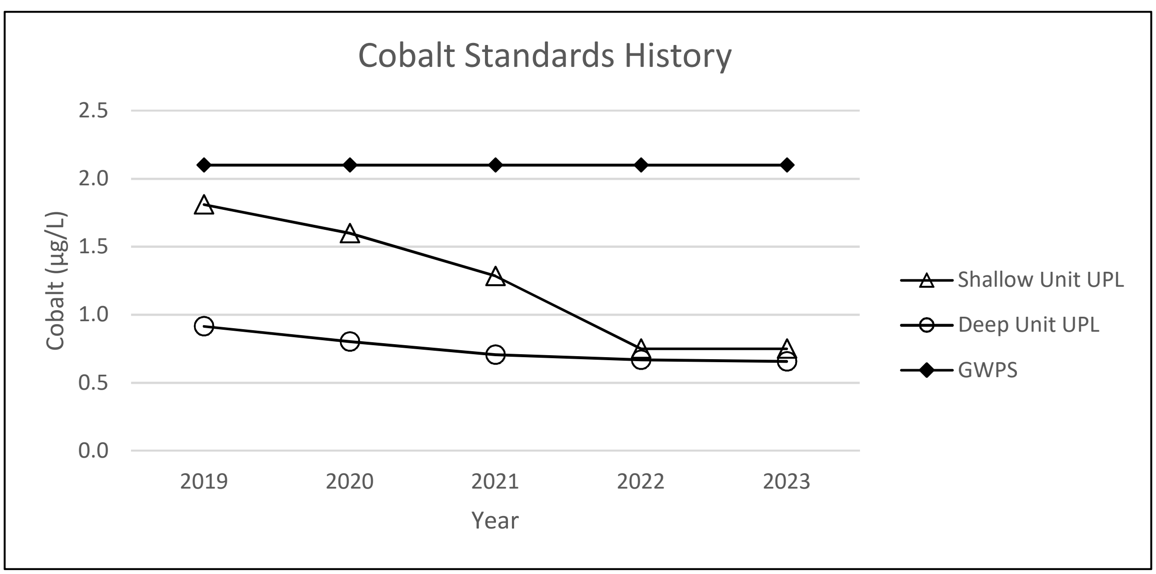

Arsenic Standards History
12
10
8
6
4
2
0
Arsenic (µg/L)
2019
2020
2021
2022
2023
Year
Shallow Unit UPL
Deep Unit UPL
GWPS

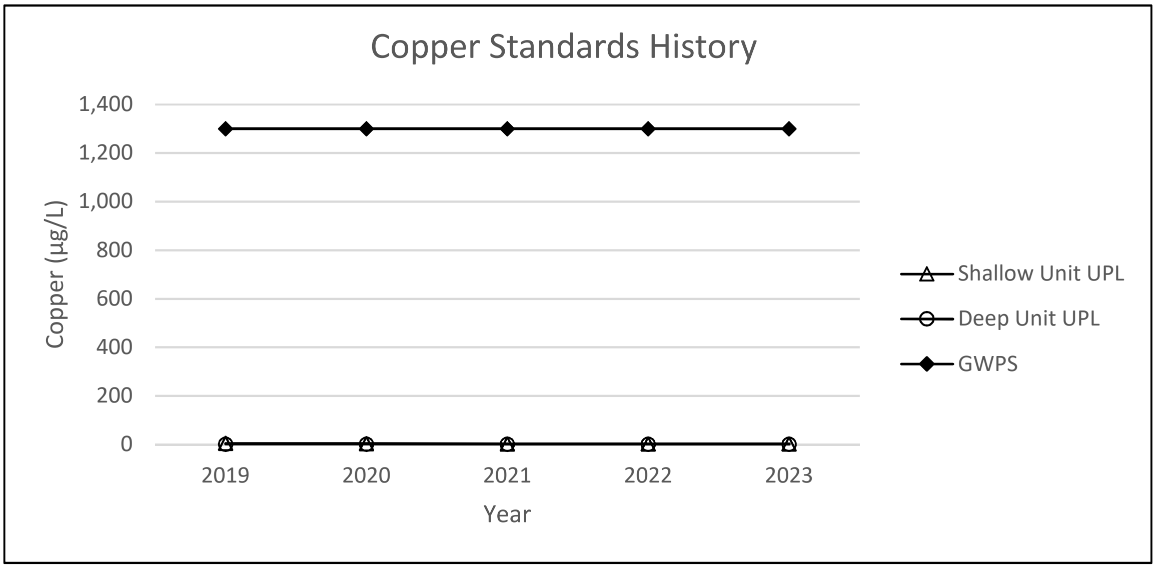

Barium Standards History
2,500
2,000
1,500
1,000
500
0
Barium (µg/L)
2019
2020
2021
2022
2023
Year
Shallow Unit UPL
Deep Unit UPL
GWPS

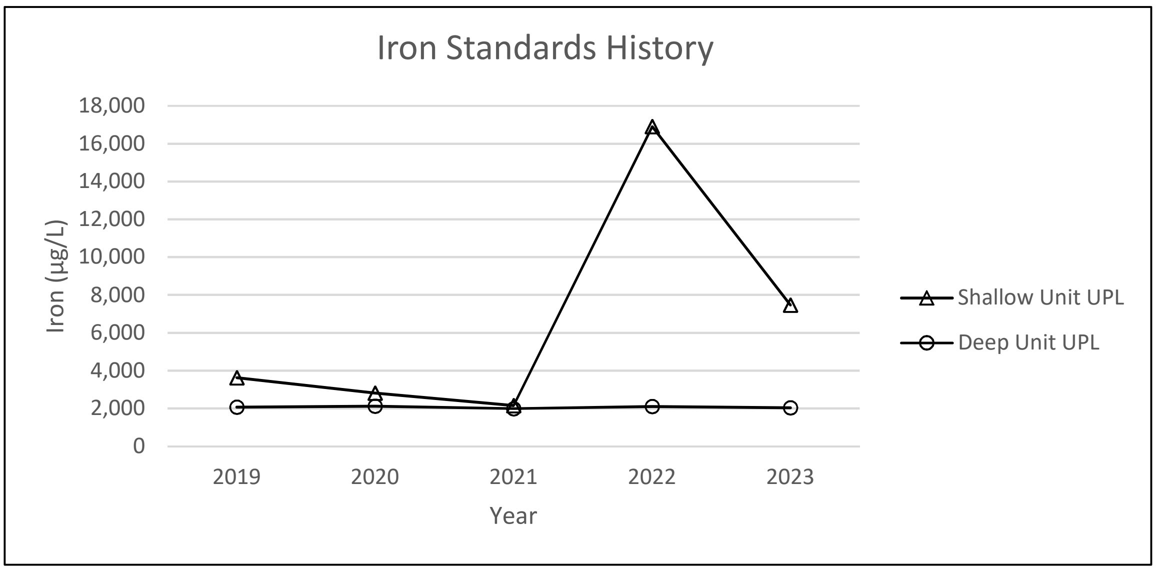

Beryllium Standards History
5.0
4.0
3.0
2.0
1.0
0.0
Beryllium (µg/)
Note: No UPLs calculated for beryllium in deep unit. No detections in background so Double Quantification rule applies.
2019
2020
2021
2022
2023
Year
Shallow Unit UPL
GWPS

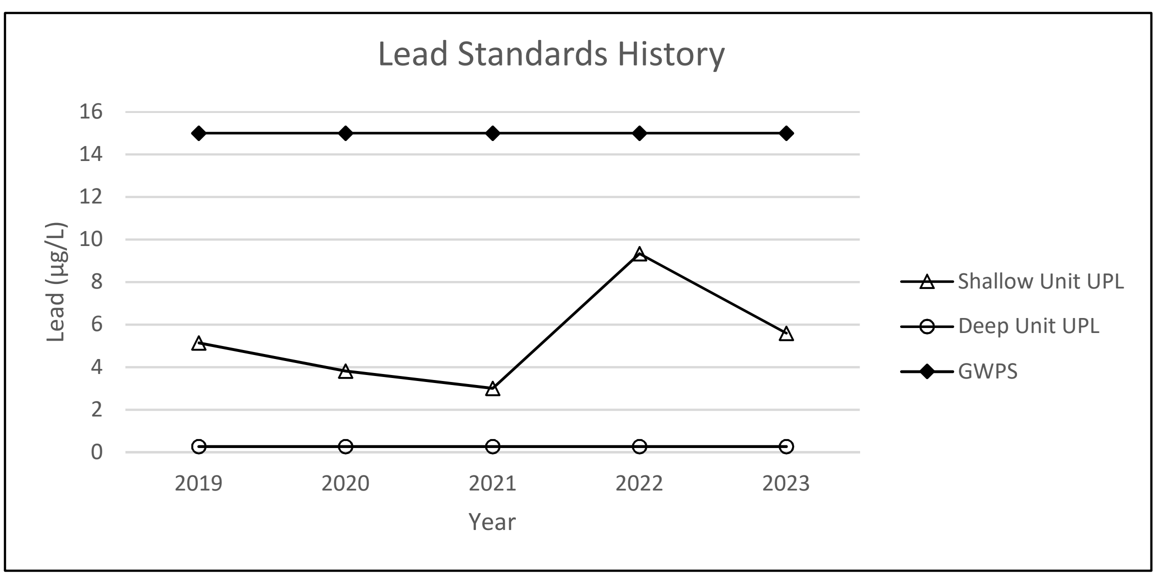

Boron Standards History
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Boron (µg/L)
2019
2020
2021
2022
2023
Year
Shallow Unit UPL
Deep Unit UPL
GWPS

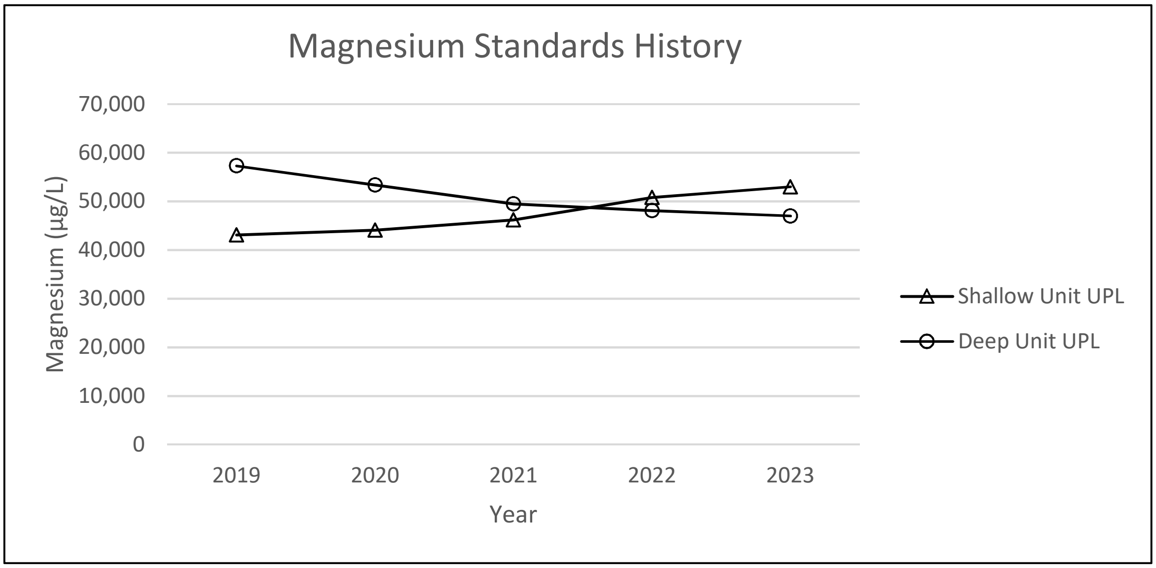

Chloride Standards History
450
400
350
300
250
200
150
100
50
0
Chloride (mg/L)
2019
2020
2021
2022
2023
Year
Shallow Unit UPL
Deep Unit UPL

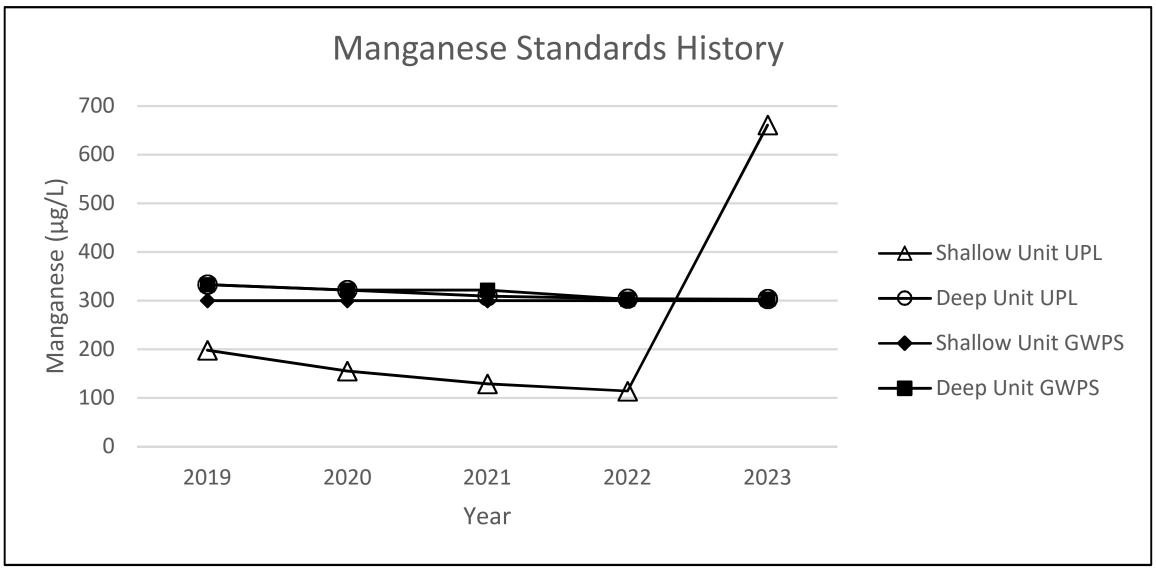

Cobalt Standards History
2.5
2.0
1.5
1.0
0.5
0.0
Cobalt (µg/L)
2019
2020
2021
2022
2023
Year
Shallow Unit UPL
Deep Unit UPL
GWPS

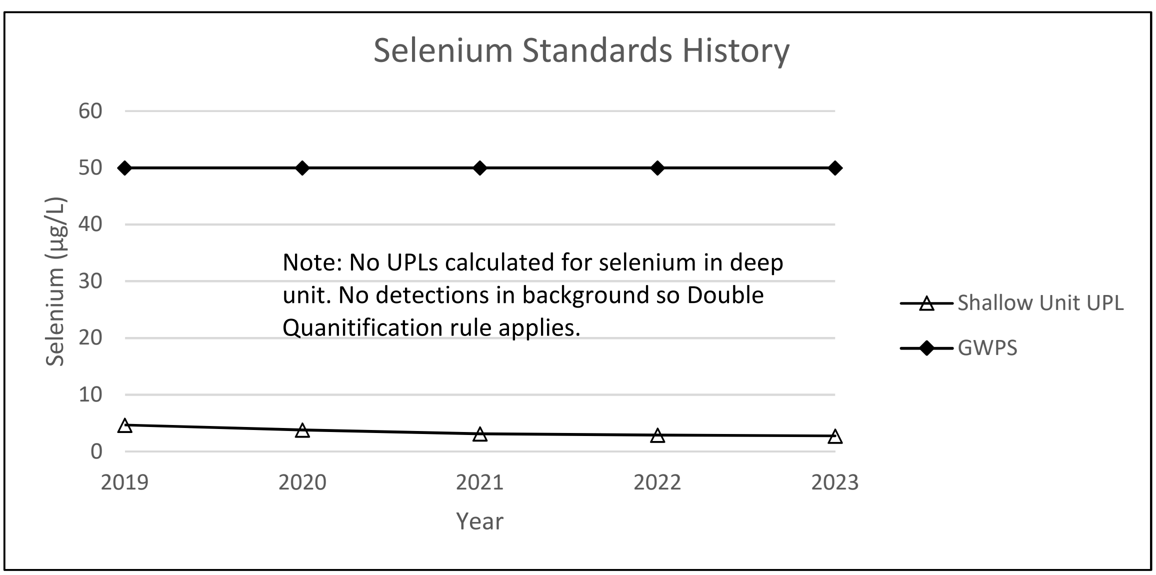

Copper Standards History
Copper (µg/L)
1,400
1,200
1,000
800
600
400
200
0
2019
2020
2021
2022
2023
Year
Shallow Unit UPL
Deep Unit UPL
GWPS

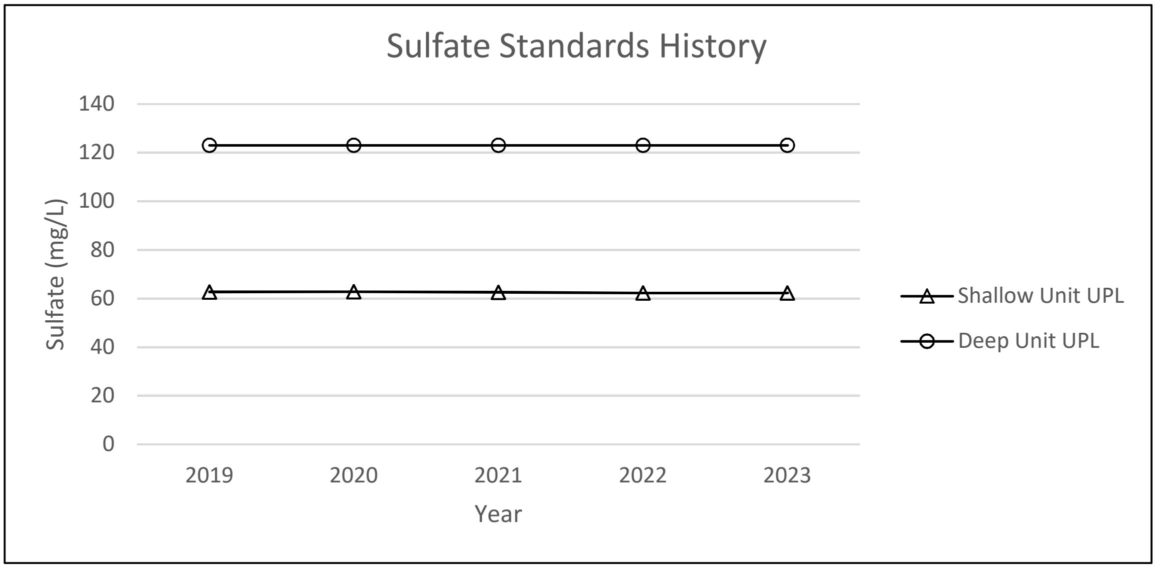

Iron Standards History
Iron (µg/L)
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
2019
2020
2021
2022
2023
Year
Shallow Unit UPL
Deep Unit UPL

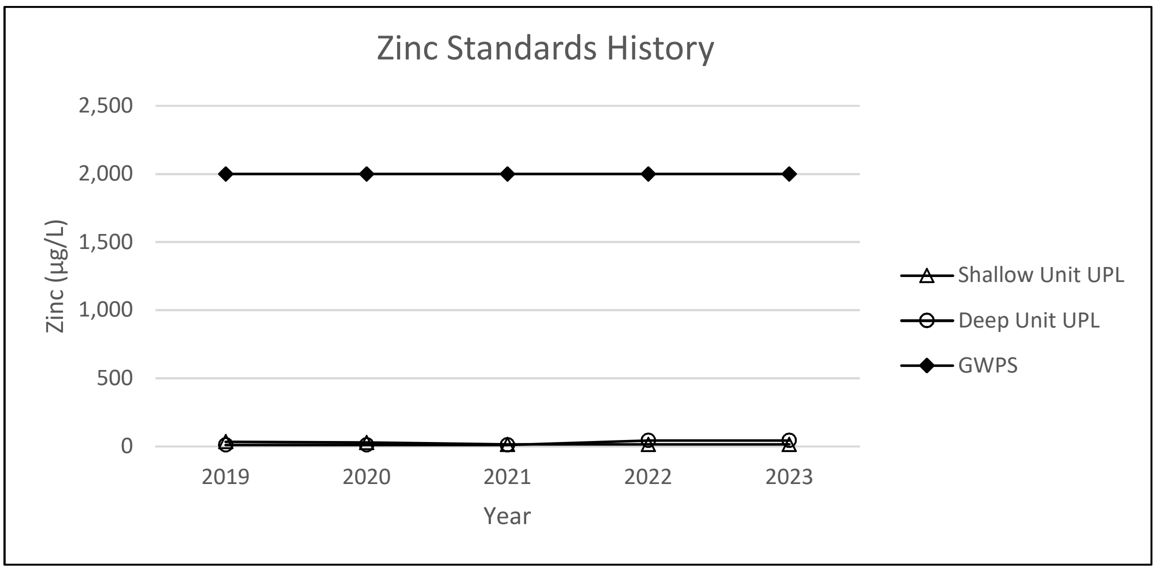

Lead Standards History
Lead (µg/L)
16
14
12
10
8
6
4
2
0
2019
2020
2021
2022
2023
Year
Shallow Unit UPL
Deep Unit UPL
GWPS


Magnesium Standards History
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
Magnesium (µg/L)
2019
2020
2021
2022
2023
Year
Shallow Unit UPL
Deep Unit UPL


Manganese Standards History
700
600
500
400
300
200
100
0
Manganese (µg/L)
2019
2020
2021
2022
2023
Year
Shallow Unit UPL
Deep Unit UPL
Shallow Unit GWPS
Deep Unit GWPS


Selenium Standards History
60
50
40
30
20
10
0
Selenium (µg/L)
Note: No UPLs calculated for selenium in deep unit. No detections in background so Double Quanitification rule applies.
2019
2020
2021
2022
2023
Year
Shallow Unit UPL
GWPS


Sulfate Standards History
Sulfate (mg/L)
140
120
100
80
60
40
20
0
2019
2020
2021
2022
2023
Year
Shallow Unit UPL
Deep Unit UPL


Zinc Standards History
Zinc (µg/L)
2,500
2,000
1,500
1,000
500
0
2019
2020
2021
2022
2023
Year
Shallow Unit UPL
Deep Unit UPL
GWPS