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November 27, 2024

Mr. Brian Rath
Land Quality Bureau
Iowa Department of Natural Resources
6200 Park Ave
Des Moines, IA 50321

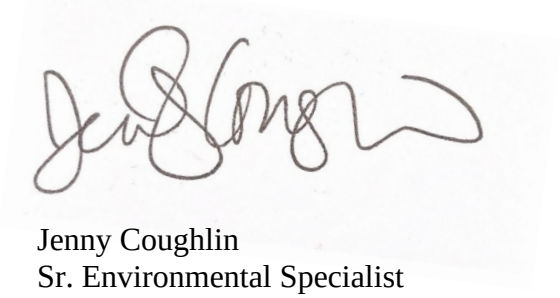
Subject: **2024 Annual Water Quality Report**
Interstate Power and Light Company – Lansing Landfill
Permit #03-SDP-05-01C

Dear Mr. Rath:

On behalf of Interstate Power and Light Company (IPL), Alliant Energy is providing the enclosed 2024 Annual Water Quality Report for the landfill at the Lansing Generating Station, as required by Permit #03-SDP-05-01C.

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, Thomas Karwoski – SCS Engineers

2024 Annual Water Quality Report

Interstate Power and Light Company Lansing Generating Station CCR Landfill Permit #03-SDP-05-01C

Alliant Energy
4902 North Biltmore Lane
Madison, Wisconsin 53718

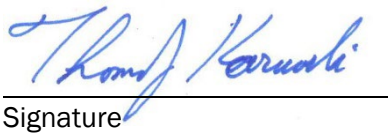
SCS ENGINEERS

25224070.00 | November, 27, 2024

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 IAC SS 113.10(1)d.



Signature

11/27/2024
Date

Pages or Sheets Covered by this Certification:

2024 Annual Water Quality Report and Additional Groundwater Assessment Report – November 2024, Interstate Power and Light Company, Lansing Generating Station CCR Landfill

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EXECUTIVE SUMMARY

Period of Report Coverage

The period of coverage for this report is 2024 and includes the April 2024 annual groundwater sampling event conducted at the Lansing Generating Station Coal Combustion Residual (CCR) Landfill (Site) located in Lansing, Iowa (**Figure 1**).

Report Priority

Most exceedances of the Groundwater Protection Standards (GWPSs) were consistent with previous results. There were no new GWPS exceedances.

Two new background Upper Prediction Limit (UPLs) exceedances were identified during the 2024 groundwater monitoring event:

- TW-18: Arsenic
- TW-18: Nickel

The total number of well/constituent pairs with UPL exceedances did not increase from 2023 to 2024. There were three exceedances in 2023 for which 2024 results did not exceed the 2024 UPL.

SCS Engineers recommends that the current monitoring program be continued during 2025. MW-13 and MW-15 were dry in 2023 and contained insufficient water for sample collection in 2024 following dewatering and closure construction activities at the adjacent impoundment. Recovery of water levels at these wells will be further evaluated in 2025. Replacement of MW-13 and MW-15 with deeper wells may be recommended if samples cannot be obtained during the 2025 monitoring event.

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 Site:

- **Landfill Status:** Closed. Permit # 03-SDP-05-01C. The landfill was closed in 2023. Closure documentation was submitted with the 2023 AWQR under separate cover, and IDNR issued a closure permit December 21, 2023, initiating post-closure monitoring activities.

- **Types of Wastes Accepted:** The Lansing landfill is a monofill that primarily accepted CCR generated from coal combustion at the Lansing Generating Station.

- **Applicable Iowa Administrative Code (IAC) Rules:** The monitoring was performed, and this report was prepared, in accordance with the requirements of IAC Chapter 567-103, and certain provisions of 567-115.26(6). IAC 567-115.21 was referenced for monitoring well maintenance and evaluation requirements, in place of the rescinded 567-110.9. The monitoring and reporting were also performed in accordance with the special provisions of the landfill closure permit, dated December 21, 2023.

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Tables

Figures

Appendices

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ACRONYMS/ABBREVIATIONS

AWQR = Annual Water Quality Report
CCR = Coal Combustion Residual
COC = Chain of Custody
DO = Dissolved Oxygen
GWPS = Groundwater Protection Standard
IAC = Iowa Administrative Code
IDNR = Iowa Department of Natural Resources
LCS = Laboratory Control Sample
LCSD = Laboratory Control Sample Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
ORP = Oxidation Reduction Potential
QA/QC = Quality Assurance/Quality Control
RCRA = Resource Conservation and Recovery Act
RL = Reporting Limits
SSI = Statistically Significant Increase over background
Site = Lansing Generating Station Coal Combustion Residual Landfill
UPL = Upper Prediction Limits
U.S. EPA = U.S. Environmental Protection Agency
Unified Guidance = U.S. Environmental Protection Agency Unified Guidance for Statistical Analysis of Groundwater Monitoring Data at Resource Conservation and Recovery Act Facilities

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1.0 SITE BACKGROUND

1.1 SITE HISTORY

The Lansing Generating Station Coal Combustion Residual (CCR) Landfill (Site) is located on Power Plant Drive, approximately 3 miles southeast of the City of Lansing, Iowa. The site of the current CCR landfill first received CCR between 1985 and 1987 and was temporarily closed in 1994. On September 11, 2003, a new disposal permit (03-SDP-05-01C) was issued for the Site and CCR placement resumed. The landfill permit was renewed by the Iowa Department of Natural Resources (IDNR) on October 10, 2013. An aerial photo of the Site is shown on **Figure 2**. CCR generated from the Lansing Generating Station was the primary material disposed in the landfill.

The landfill and adjacent settling pond were closed in 2023. The construction of the landfill final cover was substantially complete on September 15, 2023. Closure Construction Documentation was submitted to IDNR on November 27, 2023, and IDNR issued the closure permit on December 21, 2023. Post-closure activities were initiated in December 2023 and continued through 2024.

The landfill is also subject to the federal CCR Rule (40 CFR 257.50-107), including the federal groundwater monitoring requirements. Some wells shown on **Figure 2** were installed to meet the federal requirements but are not currently sampled as part of the state monitoring program. Additional information on the CCR Rule monitoring wells, including sampling results, can be found on the Alliant Energy CCR Rule Compliance Data and Information web site (http://ccr.alliantenergy.com).

1.2 SITE HYDROGEOLOGY

1.2.1 Geology

The landfill is bordered on the northeast by bedrock bluffs and on the southwest by an intermittent creek. Historically, the Site was used for farming.

Based upon the soil boring logs from MW-11 (abandoned), MW-11R, and MW-12P, located in the soil berm along the Site, the native soils below the berm include sand, silt, silty clay, organic silt, and silt with gravel. At MW-14, TW-15, TW-16, and TW-17, near the creek located to the southwest of the landfill, silty sand with gravel was encountered from the ground surface to the final boring depths.

On the northeast side of the CCR landfill, in the vicinity of former wells MW-4 and MW-5, the stratigraphy includes a fill layer of 0 to 1.5 feet, underlain by a talus material made up of sandy silt with dolomite or quartz gravel. This talus layer extends to a depth of 6 feet and is underlain by interbedded sandstone and siltstone, to the maximum boring depth of 78 feet. At MW-13, located at the base of the bluff to the east of the CCR settling pond, the talus layer extends to a depth of at least 22 feet; bedrock was not encountered during drilling at this location.

1.2.2 Hydrogeology/Groundwater Flow Conditions

Groundwater levels were measured during April 2024, prior to purging the wells for sampling. The groundwater elevation data, including calculated vertical gradients at monitoring well nests, are presented in **Table 4**. The 2024 water level data were used to create a groundwater flow map (**Figure 3**).

As described below in Section 3.0, a biennial evaluation of water level conditions was included in the 2023 Annual Water Quality Report (AWQR). The next biennial evaluation will be completed in 2025.

2.0 SAMPLING STATUS SUMMARY

The 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 depicts the monitoring network for the Site.

Field sheets from 2024 are included in Appendix A. Sampling completed in 2018 through 2024 and anticipated sampling for 2025 are summarized in Table 2. The laboratory analytical report from 2024 is included in Appendix B. Historical groundwater chemistry summary tables for sampling performed before 2019 are included in Appendix C. Summary tables of groundwater chemistry data for sampling performed since transitioning to unfiltered sampling in 2016 are included with the statistical analysis in Appendix D.

Monitoring wells MW-13 and MW-15 had an insufficient quantity of water to sample during the April 2024 sampling event. During the April 2023 sampling event, these wells were dry. Low water levels at these wells are attributed to past dewatering activities related to closure of the settling pond.

3.0 MONITORING WELL MAINTENANCE AND PERFORMANCE SUMMARY

Iowa Administrative Code (IAC) 67-115.21 was referenced for monitoring well maintenance and evaluation, in place of the rescinded 567-110.9. Table 3 provides the year in which each requirement was previously met and for which it is next scheduled.

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.*

An evaluation was included in the 2023 AWQR. The next biennial evaluation will be required in 2025.

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.*

An evaluation was included in the 2023 AWQR. The next biennial evaluation will be required in 2025.

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

Well depths measured during 2024 in all wells that do not contain dedicated pumps are summarized in Table 4. The difference between the as-installed total depths and the measured total depths for all wells without pumps were less than 1 foot, with the exception of MW-18, MW-19, MW-22P. The measured total depths at MW-18, MW-19, and MW-22P in 2024 are

deeper than the previously-recorded total depths and may represent a measurement error. These depths will be checked again during the next monitoring event.

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.*

The monitoring wells appear to be functioning as intended and are yielding representative samples. Monitoring wells will be repaired or replaced if they are damaged, become dry, or fill with sediment. In-situ permeability testing is not a requirement of IAC 567-103, and IDNR staff confirmed via email on January 25, 2021, that in-situ permeability testing is not required for wells at the Site.

3.1 WELL MAINTENANCE RECOMMENDATIONS

No well maintenance activities are recommended based on observations during the April 2024 sampling event. Water level recovery in monitoring wells MW-13 and MW-15 following dewatering and closure of the adjacent impoundment continues to be evaluated, as these wells were dry in 2023 and contained insufficient water for sample collection in 2024. Replacement of MW-13 and MW-15 with deeper wells may be recommended if samples cannot be obtained during the 2025 monitoring event.

4.0 2024 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 low-flow pumps. Samples are not field filtered. A water level measurement tape is the only down-hole equipment used in multiple wells and is decontaminated between wells. 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 were reviewed to confirm that information was complete.

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 groundwater samples to assess whether cross-contamination occurred during sample handling and transport.

The sample from MW-11R for magnesium analysis was diluted due to the nature of the sample matrix. An elevated reporting limit (RL) is provided for this parameter. The detected concentration of magnesium in MW-11R is within the range of historical magnesium concentrations at this well.

There were no detections in the April 2024 field blank samples or laboratory method blanks.

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), LCS duplicate (LCSD), matrix spike (MS), and MS duplicate (MSD). LCS/LCSD samples assess the accuracy of analytical procedures by checking the ability to recover constituents added to clean aqueous matrices. MS/MSD samples check the ability to recover constituents added to the sample matrix. Because the QC samples are run by the laboratory on a per-batch basis, MS/MSD samples are not reported for every sample set and are not included in the 2024 analytical report for the Site. LCS results reported in the April 2024 analytical laboratory report were within control limits. No flags indicating QA/QC issues were attached to the results.

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 laboratory samples were rejected as unusable due to QC failures.

5.0 COMPARISON TO STANDARDS

5.1 STATISTICAL ANALYSIS

Historically, statistical analysis was completed for the Site on an annual basis. Following the eight sampling rounds conducted in 2023, the schedule for conducting statistical analysis shifted from annual updates to every 2-3 years. The 2023 Annual Statistical Summary Report is included in Appendix D, including a summary table of data used for the statistical analysis for each parameter. Table 5 provides the background and Groundwater Protection Standard (GWPS) summary for the Site.

Groundwater samples collected in 2024 were unfiltered, in accordance with the variance to 567 103.1(2)f, and Amendment #3 to the Sanitary Disposal Permit, granted on December 14, 2015. The 2024 sampling event was the ninth round of unfiltered samples collected at the site, and 2024 was the sixth reporting period during which the statistical approach described below was applied at the Site.

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, with monitoring well MW-6 used as the background well. Monitoring results from the downgradient wells were compared to the upper prediction limits (UPLs) to evaluate whether a statistically significant increase (SSI) over background

has occurred. UPL calculations were last updated in 2023 to incorporate the April 2023 sample results at MW-6.

Detection of an SSI at a compliance well indicates that the groundwater quality is different from 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 standards consistent with previous AWQRs.

5.2 2024 RESULTS

Table 6 is a summary of monitoring points/detected constituents from the 2024 sampling events that did not exceed a UPL. Table 7 provides a summary of ongoing and newly identified SSIs and compares these concentrations to regulatory standards.

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 SSI exceedances prior to 2019, as that was the first year UPLs were calculated.

The April 2024 sampling event was the ninth round of samples collected since the site transitioned to unfiltered sampling. Trend analyses were performed for parameters with regulatory exceedances. Trend analyses for well/constituent pairs with GWPS exceedances are summarized in Table 10. No significant trends were identified for these well/constituent pairs. Trend test results and associated graphs are included in Appendix E.

5.3 STANDARDS HISTORY

The standards history for 2019 to 2024 is summarized in Table 9. Graphs of standards history are included in Appendix F. There were no changes to the GWPSs in 2024. The UPLs were not updated in 2024; UPLs calculated based on the eight rounds of data available in 2023 were applied to 2024 sampling results.

6.0 ANNUAL ENGINEERING REPORT

An Annual Engineering Report is included as Appendix G to this report. The Annual Engineering Report addresses the requirements in Special Provisions X.4 through X.6 of the December 21, 2023 Closure Permit and is based on observations made during the monthly post-closure inspections of the CCR landfill required in Special Provision X.3.

7.0 SUMMARY OF FINDINGS

Exceedances of the GWPSs were consistent with previous results. There were no new GWPS exceedances.

Two new background UPLs exceedance was identified during the 2024 groundwater monitoring event:

- TW-18: Arsenic
- TW-18: Nickel

The total number of well/constituent pairs with UPL exceedances did not increase from 2023 to 2024. There were three exceedances in 2023 for which 2024 results did not exceed the 2024 UPL.

GWPS exceedances identified in **Table 8** are consistent with data from previous years. Wells with GWPS exceedances in 2024 were MW-11R, MW-12, and TW-18. Standards exceedances identified at MW-11R and MW-12 (arsenic, manganese, and/or cobalt) appear to reflect impacts from both the CCR landfill and reducing conditions related to organic soils. An evaluation of reducing conditions was presented in the 2014 AWQR, and subsequent field dissolved oxygen (DO) and oxidation reduction potential (ORP) measurements show that reducing conditions persist at MW-11R and MW-12.

8.0 RECOMMENDATIONS

SCS Engineers recommends that the current monitoring program be continued during 2025. SCS further recommends evaluating water levels at MW-13 and MW-15 for recovery following dewatering and closure construction activities at the adjacent impoundment since the wells were dry in 2023 and contained insufficient water to sample in 2024.

Tables

Table 1 - Monitoring Program Summary
2024 Annual Water Quality Report
IPL - Lansing Generating Station - SCS Engineers Project No. 25224070.00
Permit No. 03-SDP-05-01P

Monitoring Well	Formation	Current Monitoring Program	Change for Next Sampling Event	Constituent(s) with SSI	Constituent(s) with GWPS Exceedance	Total # of Samples in Each Monitoring Program Since January 1, 2018
						Routine
Sampled Monitoring Wells						
MW-6	Bedrock	Routine	NC	None	None	7
MW-11R	Unconsolidated	Routine	NC	Alkalinity, arsenic, barium, boron, calcium, chloride, cobalt, iron, magnesium, manganese, nickel, potassium, sodium, strontium	Arsenic, cobalt, manganese	7
MW-12	Unconsolidated	Routine	NC	Alkalinity, arsenic, barium, boron, cobalt, iron, manganese, nickel, potassium, sodium, sulfate	Arsenic, manganese	7
MW-12P	Unconsolidated	Routine	NC	Alkalinity, barium, boron, calcium, chloride, potassium, sodium, strontium, sulfate	None	7
MW-13[(2)]	Unconsolidated	Routine	NC	--	--	5
MW-14	Unconsolidated	Routine	NC	None	None	7
MW-15[(2)]	Unconsolidated	Routine	NC	--	--	5
TW-18	Unconsolidated	Routine	NC	Arsenic, barium, boron, calcium, chloride, cobalt, iron, manganese, nickel, sodium, strontium	Cobalt, manganese	7

Table 1 - Monitoring Program Summary
2024 Annual Water Quality Report
IPL - Lansing Generating Station - SCS Engineers Project No. 25224070.00
Permit No. 03-SDP-05-01P

Monitoring Well	Formation	Current Monitoring Program	Change for Next Sampling Event	Constituent(s) with SSI	Constituent(s) with GWPS Exceedance	Total # of Samples in Each Monitoring Program Since January 1, 2018
						Routine
Water Level Only Monitoring Wells						
MW-1	Bedrock	Routine[1]	NC	None	None	7
MW-2	Bedrock	Routine[1]	NC	None	None	7
MW-3	Bedrock	Routine[1]	NC	None	None	7
MW-18	Bedrock	Routine	NC	None	None	7
MW-19	Bedrock	Routine	NC	None	None	7
MW-22	Bedrock	Routine	NC	None	None	7
MW-22P	Bedrock	Routine	NC	None	None	7
TW-17	Unconsolidated	Routine	NC	None	None	7
TW-19	Unconsolidated	Routine	NC	None	None	7

Notes and Abbreviations:
SSI = Statistically Significant Increase GWPS = Groundwater Protection Standard NC = No Change

1: MW-1, MW-2, and MW-3 are not sampled but are used voluntarily as groundwater elevation measurement points, in accordance with the October 10, 2013 Permit Renewal.
2: MW-13 and MW-15 were dry during the April 2024 sampling event.

Updated by: BAS, 8/30/2024
Checked by: BRK, 10/24/2024

Table 2 - Monitoring Program Implementation Schedule
2024 Annual Water Quality Report
IPL - Lansing Generating Station - SCS Engineers Project No. 25224070.00
Permit No. 03-SDP-05-01P

Monitoring Well	Recent Sampling Dates and Constituents							Upcoming Sampling Dates and Constituents
	April 17-16, 2018	April 15-16, 2019	May 20-22, 2020*	April 7-9, 2021	April 4-7, 2022, June 2, 2022**	April 10-11, 2023	April 1-2, 2024	April 2025
MW-6	List A	List A	List A	List A	List A	List A	List A	List A
MW-11R								
MW-12								
MW-12P								
MW-13								
MW-14								
MW-15								
TW-18								
MW-1	Water Level	Water Level	Water Level	Water Level	Water Level	Water Level	Water Level	Water Level
MW-2								
MW-3								
MW-18								
MW-19								
MW-22								
MW-22P								
TW-17								
TW-19								

Comments:

*: April 2020 sampling was delayed to May 2020 due to the COVID-19 pandemic. IDNR approval for the delay was granted by email on April 10, 2020.

**: Alkalinity was inadvertently left off the analysis list by the laboratory in April 2022 for all samples except MW-6. The affected wells were resampled in June 2022 for alkalinity and field parameters.

List A: Alkalinity, chloride, sulfate, arsenic, barium, boron, calcium, cobalt, copper, iron, magnesium, manganese, nickel, potassium, selenium, sodium, strontium, field parameters (dissolved oxygen, redox, pH, temperature, specific conductance)

Updated by: BAS, 08/01/2024
Checked by: BRK, 10/24/2024

Table 3 - Monitoring Well Maintenance and Performance Reevaluation Schedule
2024 Annual Water Quality Report
IPL - Lansing Generating Station - SCS Engineers Project No. 25224070.00
Permit No. 03-SDP-05-01P

Code Reference:	Monitoring Calendar Year					
	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)	(1)	(1)	(1)	(1)	(1)	(1)
567 IAC 115.21(2)d. in-situ permeability tests (every 5 years)	(2)	(2)	(2)	(2)	(2)	(2)

Comments:
(1) 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. Depths are checked when pumps are pulled for maintenance or replacement.

(2) In-situ permeability testing is not a requirement of IAC 567-103, and IDNR staff confirmed via email on January 25, 2021 that in-situ permeability testing is not required for wells at the Site. Therefore, in situ permeability tests are not performed every five years. Each monitoring well is inspected annually to evaluate if the monitoring well appears to be functioning as intended. Monitoring wells will be repaired or replaced if they become dry or if they fill with sediment.

Updated by: BAS, 08/1/2024
Checked by: BRK, 10/24/2024

Table 4 - Monitoring Well Maintenance and Performance Summary
2024 Annual Water Quality Report
IPL - Lansing Generating Station - SCS Engineers Project No. 25224070.00
Permit No. 03-SDP-05-01P

Well	Top of Casing (ft amsl)	Top of Screen (ft amsl)	Total Depth (ft)		Date of Measurement April 1-2, 2024	Depth Discrepancy (ft)	Vertical Gradient
MW-1	636.67	626.50	30.17	Groundwater Level (ft)	11.45	-0.23	--
				Groundwater Elevation (Ft MSL)	625.22		
				Measured Well Depth (ft)	30.40***		
				Submerged screen	N		
MW-2	657.36	620.50	46.86	Groundwater Level (ft)	36.8	0.26	0.055 ft/ft Upward
				Groundwater Elevation (Ft MSL)	620.56		
				Measured Well Depth (ft)	46.60***		
				Submerged screen	Y		
MW-3	656.78	600.00	63.4^	Groundwater Level (ft)	35.1	-0.50	
				Groundwater Elevation (Ft MSL)	621.68		
				Measured Well Depth (ft)	63.90***		
				Submerged screen	Y		
MW-6	741.33	656.00	95.3	Groundwater Level (ft)	78.17	0.00	--
				Groundwater Elevation (Ft MSL)	663.16		
				Measured Well Depth (ft)*	95.30		
				Submerged screen	Y		
MW-11R	686.42	646.94	49.48	Groundwater Level (ft)	42.08	0.00	--
				Groundwater Elevation (Ft MSL)	644.34		
				Measured Well Depth (ft)*	49.48		
				Submerged screen	N		

Table 4 - Monitoring Well Maintenance and Performance Summary
2024 Annual Water Quality Report
IPL - Lansing Generating Station - SCS Engineers Project No. 25224070.00
Permit No. 03-SDP-05-01P

Well	Top of Casing (ft amsl)	Top of Screen (ft amsl)	Total Depth (ft)		Date of Measurement April 1-2, 2024	Depth Discrepancy (ft)	Vertical Gradient
MW-12	691.40	657.70	48.70	Groundwater Level (ft)	41.89	0.00	-0.014 ft/ft Downward
				Groundwater Elevation (Ft MSL)	649.51		
				Measured Well Depth (ft)*	48.70		
				Submerged screen	N		
MW-12P	691.58	627.98	68.60	Groundwater Level (ft)	42.36	0.00	
				Groundwater Elevation (Ft MSL)	649.22		
				Measured Well Depth (ft)*	68.60		
				Submerged screen	Y		
MW-13	658.38	649.48	23.90	Groundwater Level (ft)	21.27	0.30	--
				Groundwater Elevation (Ft MSL)	637.11		
				Measured Well Depth (ft)*	23.60***		
				Submerged screen	N		
MW-14	646.06	636.96	24.10	Groundwater Level (ft)	4.21	0.00	--
				Groundwater Elevation (Ft MSL)	641.85		
				Measured Well Depth (ft)*	24.10		
				Submerged screen	Y		
MW-15	656.82	640.82	31.40	Groundwater Level (ft)	27.94	0.20	--
				Groundwater Elevation (Ft MSL)	628.88		
				Measured Well Depth (ft)*	31.20***		
				Submerged screen	N		

Table 4 - Monitoring Well Maintenance and Performance Summary
2024 Annual Water Quality Report
IPL - Lansing Generating Station - SCS Engineers Project No. 25224070.00
Permit No. 03-SDP-05-01P

Well	Top of Casing (ft amsl)	Top of Screen (ft amsl)	Total Depth (ft)		Date of Measurement April 1-2, 2024	Depth Discrepancy (ft)	Vertical Gradient
MW-16	700.26	662.18	53.08	Groundwater Level (ft)	45.00	0.48	--
				Groundwater Elevation (Ft MSL)	655.26		
				Measured Well Depth (ft)	52.6***		
				Submerged screen	N		
MW-18	771.09	669.23	116.86	Groundwater Level (ft)	106.92	-1.14	--
				Groundwater Elevation (Ft MSL)	664.17		
				Measured Well Depth (ft)	118.00**		
				Submerged screen	N		
MW-19	716.07	651.69	79.38	Groundwater Level (ft)	72.13	-2.42	--
				Groundwater Elevation (Ft MSL)	643.94		
				Measured Well Depth (ft)	81.8***		
				Submerged screen	N		
MW-22	702.55	665.27	52.28	Groundwater Level (ft)	41.00	-0.12	-0.016 ft/ft Downward
				Groundwater Elevation (Ft MSL)	661.55		
				Measured Well Depth (ft)	52.40***		
				Submerged screen	N		
MW-22P	702.17	625.14	82.03	Groundwater Level (ft)	41.15	-1.17	
				Groundwater Elevation (Ft MSL)	661.02		
				Measured Well Depth (ft)	83.20***		
				Submerged screen	Y		

Table 4 - Monitoring Well Maintenance and Performance Summary
2024 Annual Water Quality Report
IPL - Lansing Generating Station - SCS Engineers Project No. 25224070.00
Permit No. 03-SDP-05-01P

Well	Top of Casing (ft amsl)	Top of Screen (ft amsl)	Total Depth (ft)		Date of Measurement April 1-2, 2024	Depth Discrepancy (ft)	Vertical Gradient
TW-17	659.59	649.39	25.20	Groundwater Level (ft)	11.74	-0.10	--
				Groundwater Elevation (Ft MSL)	647.85		
				Measured Well Depth (ft)	25.30***		
				Submerged screen	N		
TW-18	659.15	650.55	23.60	Groundwater Level (ft)	10.82	0.00	--
				Groundwater Elevation (Ft MSL)	648.33		
				Measured Well Depth (ft)*	23.60		
				Submerged screen	N		
TW-19	659.05	648.95	25.10	Groundwater Level (ft)	11.5	-0.10	--
				Groundwater Elevation (Ft MSL)	647.55		
				Measured Well Depth (ft)	25.2***		
				Submerged screen	N		

Comments:
*: Well depths measured prior to installation of dedicated pumps. To minimize turbidity and risk of cross-contamination, pumps are not pulled during regular sampling events.
**: Total well depths at select wells measured on October 11, 2023.
***: Total well depths at select wells measured on April 1,2024
^: Updated following the April 2021 sampling event. A hard bottom without appreciable sediment was identified at this depth.

Updated by: BAS, 09/03/2024
Checked by: BRK, 10/24/2024

Table 5 - Background and GWPS Summary
2024 Annual Water Quality Report
IPL - Lansing Generating Station - SCS Engineers Project No. 25224070.00
Permit No. 03-SDP-05-01P

Interwell Background Limit (MW-6)

Constituent	Units	Samples[(1)]	Detections[(1)]	UPL	Statistical Test	GWPS	Source	Other Standards
Alkalinity	mg/L	13	13	386	PL(P)	none	--	--
Arsenic	µg/L	9	3	0.880	PL(NP)	10	MCL	--
Barium	µg/L	9	9	53.4	PL(P)	2,000	MCL	--
Boron	µg/L	9	2	110	PL(NP)	6,000	SWS	--
Calcium	mg/L	9	9	86.6	PL(P)	none	--	--
Chloride	mg/L	23	23	9.29	PL(P)	none	--	SMCL 250
Cobalt	µg/L	9	2	0.500	PL(NP)	2.1	SWS	--
Copper	µg/L	9	3	3.20	PL(NP)	1,300	SWS	SMCL 1,000
Iron	µg/L	9	1	66.0	PL(NP)	none	--	SMCL 300
Magnesium	µg/L	9	9	44,800	PL(P)	none	--	--
Manganese	µg/L	9	3	4.40	PL(NP)	300	SWS	SMCL 50
Nickel	µg/L	9	2	1.90	PL(NP)	100	SWS	--
Potassium	µg/L	9	9	1,400	PL(P)	none	--	--
Selenium	µg/L	9	3	1.40	PL(NP)	50	MCL	--
Sodium	µg/L	9	9	5,570	PL(P)	none	--	DWA 20
Strontium	µg/L	9	9	74.1	PL(P)	4,000	SWS	--
Sulfate	mg/L	26	26	34.5	PL(P)	none	--	SMCL 250

PL(NP) - Prediction Limit (Non-Parametric)
PL(P) - Prediction Limit (Parametric)
UPL - Upper Prediction Limit
MCL - Maximum Contaminant Level
SWS - Statewide Standard
GWPS - Groundwater Protection Standard
SMCL - Secondary Maximum Contaminant Level
DWA - Drinking Water Advisory

Comments:
1. Number of samples and detections for metals are based on sampling events since the sampling program was changed from filtered to unfiltered sample collection in 2016. Additional background data are included for chloride, sulfate, and alkalinity.
2. No changes to the previous statistical methods were made in this reporting period.
3. Upper Prediction Limits (UPLs) are calculated based on data collected from 2016 to 2023.

Updated by: BAS, 08/1/2024
Checked by: BRK, 10/24/2024

Table 6 - Summary of Well/Detected Constituent Pairs With No Immediately Preceding UPL Exceedances
2024 Annual Water Quality Report
IPL - Lansing Generating Station - SCS Engineers Project No. 25224070.00
Permit No. 03-SDP-05-01P

Well	Constituent	Units	Most Recent Result	Background Level (UPL)
MW-6	Alkalinity	mg/L	300	N/A
MW-6	Barium	µg/L	46	N/A
MW-6	Calcium	mg/L	75	N/A
MW-6	Chloride	mg/L	5.8	N/A
MW-6	Magnesium	µg/L	40000	N/A
MW-6	Potassium	µg/L	1100	N/A
MW-6	Sodium	µg/L	6200	N/A
MW-6	Strontium	µg/L	65	N/A
MW-6	Sulfate	mg/L	22	N/A
MW-11R	Boron	µg/L	340 J	110
MW-11R	Copper	µg/L	2.5 J	3.2
MW-12	Calcium	mg/L	71	86.6
MW-12	Chloride	mg/L	6.2	9.29
MW-12	Magnesium	µg/L	34000	44800
MW-12	Nickel	µg/L	3.2 J	1.9
MW-12	Strontium	µg/L	72	74.1
MW-12P	Magnesium	µg/L	39000	44800
MW-14	Alkalinity	mg/L	160	386
MW-14	Barium	µg/L	37	53.4
MW-14	Calcium	mg/L	66	86.6
MW-14	Chloride	mg/L	6.6	9.29
MW-14	Magnesium	µg/L	35000	44800
MW-14	Potassium	µg/L	910	1400
MW-14	Sodium	µg/L	3400	5570
MW-14	Strontium	µg/L	59	74.1
MW-14	Sulfate	mg/L	18	34.5
TW-18	Alkalinity	mg/L	320	386
TW-18	Magnesium	µg/L	38000	44800
TW-18	Potassium	µg/L	1100	1400
TW-18	Sulfate	mg/L	25	34.5

Comments:
1. This table provides a summary of detected constituents from the 2024 sampling event that did not exceed the UPL in 2024. The background levels listed are interwell prediction limits calculated using MW-6 data from 2016 through 2023.
2. Results below the limit of quantitation (J flags) are estimated values and are not compared to the UPL or GPS. They are included in this table regardless of whether the estimated value is higher or lower than the UPL.
3. MW-6 is a background well, so UPLs do not apply.

Updated by: BAS, 07/29/2024
Checked by: BRK, 10/24/2024

Table 7 - Summary of Ongoing and Newly Identified SSIs
2024 Annual Water Quality Report
IPL - Lansing Generating Station - SCS Engineers Project No. 25224070.00
Permit No. 03-SDP-05-01P

Well	Constituent	Units	Most Recent Result	Background Standard (UPL)	Action Level or Statewide Standard
MW-11R	Alkalinity	mg/L	840	386	none
	Arsenic	µg/L	44	0.880	10
	Barium	µg/L	560	53.4	2,000
	Calcium	mg/L	190	86.6	none
	Chloride	mg/L	16	9.3	none
	Cobalt	µg/L	13	0.5	2
	Iron	µg/L	71000	66.0	none
	Magnesium	µg/L	100000	44800	none
	Manganese	µg/L	2400	4.4	300
	Nickel	µg/L	11	1.9	100
	Potassium	µg/L	11000	1400	none
	Sodium	µg/L	26000	5570	none
	Strontium	µg/L	590	74.1	4,000
MW-12	Alkalinity	mg/L	450	386.0	none
	Arsenic	µg/L	23	0.880	10
	Barium	µg/L	200	53.4	2,000
	Boron	µg/L	1400	110	6,000
	Cobalt	µg/L	1.2	0.5	2
	Iron	µg/L	7500	66.0	none
	Manganese	µg/L	1100	4.4	300
	Potassium	µg/L	2000	1400	none
	Sodium	µg/L	120000	5570	none
	Sulfate	mg/L	190	34.5	none
MW-12P	Alkalinity	mg/L	390	386	none
	Barium	µg/L	76	53.4	2,000
	Boron	µg/L	1100	110	6,000
	Calcium	mg/L	96	86.6	none
	Chloride	mg/L	45	9.3	none
	Potassium	µg/L	3800	1400	none
	Sodium	µg/L	32000	5570	none
	Strontium	µg/L	120	74.1	4,000
	Sulfate	mg/L	55	34.5	none

Table 7 - Summary of Ongoing and Newly Identified SSIs
2024 Annual Water Quality Report
IPL - Lansing Generating Station - SCS Engineers Project No. 25224070.00
Permit No. 03-SDP-05-01P

Well	Constituent	Units	Most Recent Result	Background Standard (UPL)	Action Level or Statewide Standard
TW-18	Arsenic	µg/L	2.2	0.9	10
	Barium	µg/L	190	53.4	2,000
	Boron	µg/L	240	110	6,000
	Calcium	mg/L	100	86.6	none
	Chloride	mg/L	57	9.3	none
	Cobalt	µg/L	2.2	0.5	2
	Iron	µg/L	6900	66.0	none
	Manganese	µg/L	4500	4.4	300
	Nickel	µg/L	12	1.9	100
	Sodium	µg/L	34000	5570	none
	Strontium	µg/L	160	74.1	4,000

Comments:
1. This table includes results for wells/constituents that exceeded the UPL in 2024.
2. Results below the limit of quantitation (J flags) are estimated values and are not compared to the UPL or GWPS.

Updated by: BAS, 07/30/2024
QC check by: BRK, 10/24/2024

Table 8 - Historic SSIs & Groundwater Protection Standard Exceedances
2024 Annual Water Quality Report
IPL - Lansing Generating Station - SCS Engineers Project No. 25224070.00
Permit No. 03-SDP-05-01P

Key: gray = SSI[1]; black = >GWPS		2016	2017	2018	2019	2020	2021	2022	2023	2024
Well	**Constituent**									
MW-11R	Alkalinity									
	Arsenic									
	Barium									
	Boron									
	Calcium									
	Chloride									
	Cobalt									
	Iron									
	Magnesium									
	Manganese									
	Nickel									
	Potassium									
	Sodium									
	Strontium									
MW-12	Alkalinity									
	Arsenic									
	Barium									
	Boron									
	Cobalt									
	Iron									
	Manganese									
	Nickel									
	Potassium									
	Sodium									
	Strontium									
	Sulfate									
MW-12P	Alkalinity									
	Barium									
	Boron									
	Calcium									
	Chloride									
	Iron									
	Magnesium									
	Manganese									
	Potassium									
	Sodium									
	Strontium									
	Sulfate									
MW-13	Boron								Well Dry	Not Enough Water to Sample
	Calcium									
	Chloride									
	Cobalt									
	Iron									
	Manganese									
	Potassium									
	Selenium									
	Sodium									
	Strontium									
	Sulfate									
MW-14	Chloride									
	Iron									
	Manganese									
	Sodium									
	Strontium									
	Sulfate									

Table 8 - Historic SSIs & Groundwater Protection Standard Exceedances
2024 Annual Water Quality Report
IPL - Lansing Generating Station - SCS Engineers Project No. 25224070.00
Permit No. 03-SDP-05-01P

Key: gray = SSI[(1)]; black = >GWPS		2016	2017	2018	2019	2020	2021	2022	2023	2024
Well	**Constituent**									
MW-15	Barium								Well Dry	Not Enough Water to Sample
	Boron									
	Chloride									
	Manganese									
	Potassium									
	Sodium									
	Strontium									
	Sulfate									
TW-18	Alkalinity	Not sampled								
	Arsenic									
	Barium									
	Boron									
	Calcium									
	Chloride									
	Cobalt									
	Iron									
	Manganese									
	Nickel									
	Potassium									
	Sodium									
	Strontium									
	Sulfate									

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 through 2023 results in this table.

Updated by: BAS 8/30/2024
Checked by: BRK 10/24/2024

Table 9 - Historic Prediction Limits and Groundwater Protection Standards
2024 Annual Water Quality Report
IPL - Lansing Generating Station - SCS Engineers Project No. 25224070.00
Permit No. 03-SDP-05-01P

		UPL						GWPS					
Constituent	**Units**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
Alkalinity	mg/L	398	390	382	379	386	386	none	none	none	none	none	none
Arsenic	µg/L	0.72	1.99	0.88	0.88	0.88	0.88	10	10	10	10	10	10
Barium	µg/L	56.0	55.2	54.0	53.2	53.4	53.4	2,000	2,000	2,000	2,000	2,000	2,000
Boron	µg/L	55	110	55.0	55.0	110.0	110.0	6,000	6,000	6,000	6,000	6,000	6,000
Calcium	mg/L	75.7	82.2	79.1	84.6	86.6	86.6	none	none	none	none	none	none
Chloride	mg/L	9.42	9.54	9.44	9.38	9.29	9.29	none	none	none	none	none	none
Cobalt	µg/L	0.25	0.50	0.50	0.50	0.50	0.50	2.1	2.1	2.1	2.1	2.1	2.1
Copper	µg/L	2.73	7.69	3.20	3.20	3.20	3.20	1,300	1,300	1,300	1,300	1,300	1,300
Iron	µg/L	33.0	66.0	66.0	66.0	66.0	66.0	none	none	none	none	none	none
Magnesium	µg/L	47,000	49,300	45,600	43,500	44,800	44,800	none	none	none	none	none	none
Manganese	µg/L	5.06	4.55	2.20	2.20	4.40	4.40	300	300	300	300	300	300
Nickel	µg/L	0.85	1.90	1.90	1.90	1.90	1.90	100	100	100	100	100	100
Potassium	µg/L	1,400	1,530	1,380	1,410	1,400	1,400	none	none	none	none	none	none
Selenium	µg/L	1.11	2.28	1.00	1.00	1.40	1.40	50	50	50	50	50	50
Sodium	µg/L	5,570	5,880	5,620	5,680	5,570	5,570	none	none	none	none	none	none
Strontium	µg/L	74.8	84.3	78.9	76.2	74.1	74.1	4,000	4,000	4,000	4,000	4,000	4,000
Sulfate	mg/L	35.4	35.2	34.9	34.6	34.5	34.5	none	none	none	none	none	none

Updated by: BAS, 08/1/2024
Checked by BRK, 10/24/2024

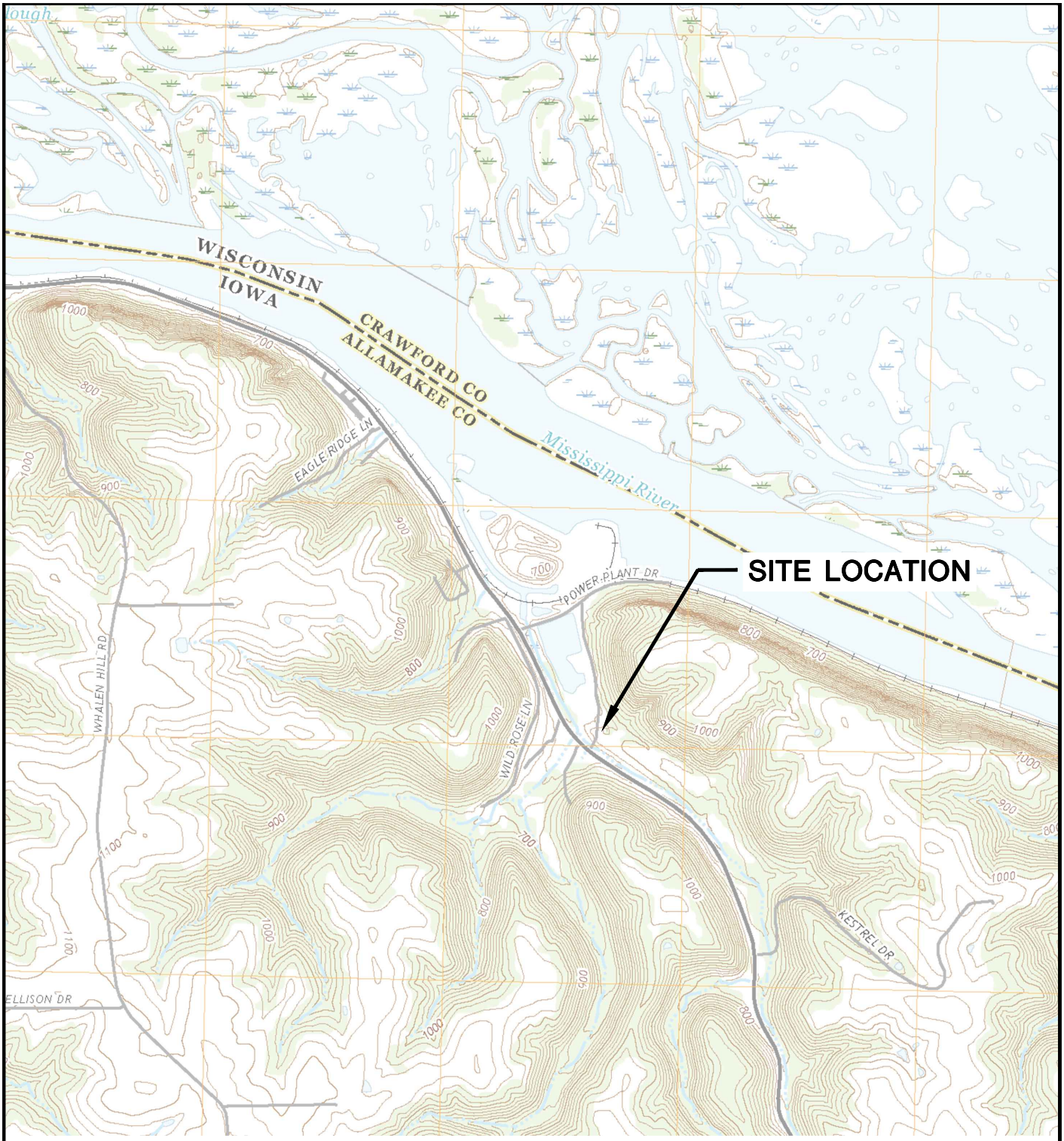
Table 10 - Groundwater Quality Trend Summary
2024 Annual Water Quality Report
IPL - Lansing Generating Station - SCS Engineers Project No. 25224070.00
Permit No. 03-SDP-05-01P

Well	Current GWPS Exceedances	Trend
MW-11R	Arsenic	No significant trend
	Cobalt	No significant trend
	Manganese	No significant trend
MW-12	Arsenic	No significant trend
	Manganese	No significant trend
TW-18	Cobalt	No significant trend
	Manganese	No significant trend

Comments:
Only well/constituent pairs with GWPS exceedances are included in this summary.

Updated by: RM 10/28/2024
Checked by: BAS 10/31/2024

Figures



N

LANSING QUADRANGLE
IOWA–ALLAMAKEE CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
2018
SCALE: 1" = 2,000'

CLIENT	INTERSTATE POWER AND LIGHT 2320 POWER PLANT DRIVE LANSING, IA 52151-9733	SITE	ALLIANT ENERGY LANSING GENERATING STATION LANSING, IOWA

SITE LOCATION MAP

PROJECT NO.	25219070.00	DRAWN BY:	BSS
DRAWN:	11/27/2019	CHECKED BY:	MDB
REVISED:	03/12/2020	APPROVED BY:	JR, 8/9/2022

ENGINEER

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

FIGURE
1

I:\25220070.00\Drawings\Site Location Map.dwg, 3/12/2020 10:20:28 AM

N NORTH GRID

LEGEND

	APPROVED LIMITS OF WASTE
	LIMITS OF PHASE 1 FINAL COVER
	LIMITS OF PHASE 2 FINAL COVER
	CCR LIMITS
	SLURRY WALL
	EXISTING STREAM
SW-1	EXISTING STAFF GAUGE
MW17	EXISTING MONITORING WELL
MW12P	EXISTING PIEZOMETER
MW4	ABANDONED MONITORING WELL
MW5	ABANDONED PIEZOMETER
MW301	CCR DELINEATION MONITORING WELL
MW301	CCR COMPLIANCE MONITORING WELL
MW6	CCR BACKGROUND MONITORING WELL
MW308	WATER LEVEL WELL (NOT PART OF CCR RULE MONITORING SYSTEM)

NOTES:

1. MONITORING WELL LOCATIONS AND CCR UNIT LIMITS ARE APPROXIMATE.
2. MONITORING WELL MW20 WAS ABANDONED ON MAY 5, 2022.
3. BACKGROUND AERIAL IMAGE IS A COMPOSITE OF A PHOTOGRAPH FROM DRONEVIEW MAPPING DATED NOVEMBER 25, 2023 AND 2011 AERIAL IMAGERY.

400 0 400

SCALE: 1" = 400'

PROJECT NO.	25220082.00	DRAWN BY:	KP/SB
DRAWN:	05/26/2021	CHECKED BY:	RM
REVISED:	08/01/2024	APPROVED BY:	EJN 08/01/2024

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

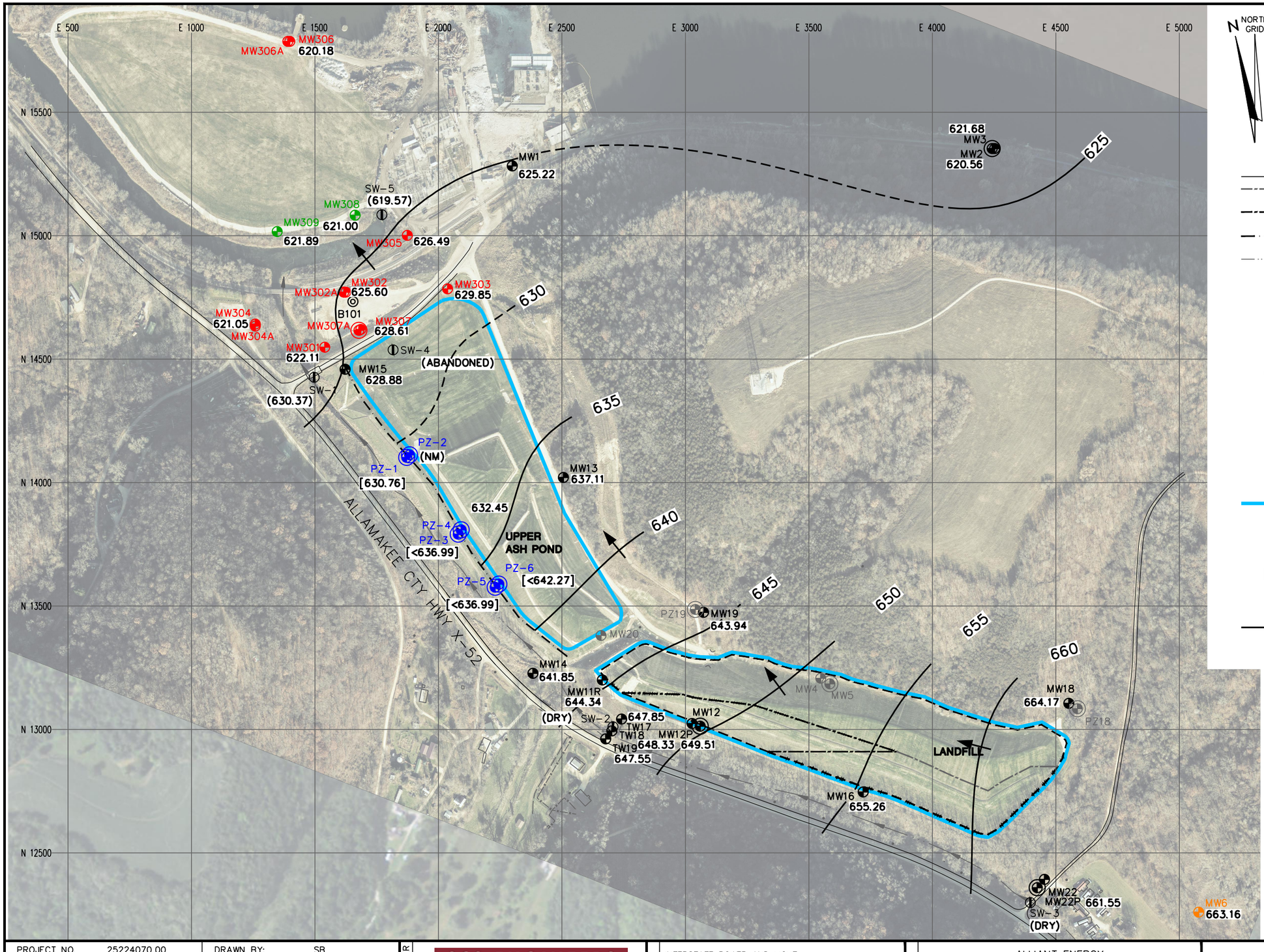
CLIENT: INTERSTATE POWER AND LIGHT
2320 POWER PLANT DRIVE
LANSING, IA 52151-9733

SITE: ALLIANT ENERGY
LANSING POWER STATION
LANSING, IOWA

SITE PLAN AND
MONITORING WELL LOCATIONS

FIGURE
2

I:\25220082.00\Drawings\SitePlan_CCR.dwg, 8/1/2024 1:27:50 PM



N NORTH GRID

LEGEND

- LIMITS OF PHASE 1 FINAL COVER
- LIMITS OF PHASE 2 FINAL COVER
- SLURRY WALL
- EXISTING STREAM
- SW-1 EXISTING STAFF GAUGE
- B101 EXISTING BORING
- MW17 EXISTING MONITORING WELL
- MW4 ABANDONED MONITORING WELL
- MW5 ABANDONED PIEZOMETER
- MW301 CCR MONITORING WELL
- MW6 CCR BACKGROUND MONITORING WELL
- MW308 WATER LEVEL WELL (NOT PART OF CCR RULE MONITORING SYSTEM)
- PZ-4 PIEZOMETER
- CCR UNITS
- (NM) NOT MEASURED
- 666.58 WATER TABLE ELEVATION
- [630.76] GROUNDWATER ELEVATION NOT USED FOR CONTOUR DEVELOPMENT
- (630.61) SURFACE WATER ELEVATION
- WATER TABLE CONTOUR (CONTOUR INTERVAL = 5 FT) (DASHED WHERE INFERRED)
- APPROXIMATE GROUNDWATER FLOW DIRECTION

NOTES:

1. MONITORING WELL LOCATIONS AND CCR UNIT LIMITS ARE APPROXIMATE.

400 0 400

SCALE: 1" = 400'

PROJECT NO.	25224070.00	DRAWN BY:	SB
DRAWN:	04/17/2024	CHECKED BY:	BRK/NB
REVISED:	08/16/2024	APPROVED BY:	BRK 08/16/2024

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

CLIENT: INTERSTATE POWER AND LIGHT
2320 POWER PLANT DRIVE
LANSING, IA 52151-9733

SITE: ALLIANT ENERGY
LANSING POWER STATION
LANSING, IOWA

WATER TABLE MAP
APRIL 2, 2024

FIGURE 3

\\Mad-fs01\data\Projects\25224070.00\Drawings\April 2024 Wtbl.dwg, 8/16/2024 2:36:58 PM

Appendix A

Groundwater Sampling Field Sheets

SCS ENGINEERS Environmental Consultants & Contractors

Groundwater Sampling Log

Project No.	25224070	**Site**	Lansing
Well No.	MW-6	**Date**	4/1/2024
Sampling Personnel	~~TH~~ Bri Salome		
Total Well Depth		**pH/temp/cond/DO/ORP meter model & unit ID #**	#2
Depth to Water	78.17	**Date/time pH Calibration Last Checked:**	4/1/2024 1200
Well Volume*		**Turbidity meter model & unit ID #**	#2
Sampling Device:	(Bladder Pump) Peristaltic Pump Other:	**Pumping Rate:**	300 mL/min
Water Color/Odor	none / none	**Pump Start/Stop Time**	1215 / 1328
Temperature: 42	**Wind Direction:** N (E) S W	**Precip:** None (Light) Heavy	**Sky:** (Cloudy) Sunny Partly

Time	Depth to Water (ft)	Temp. (deg. C)	pH (standard units)	DO (mg/L)	Cond. (µs/cm)	ORP (mV)	Turbidity (NTU)	Notes
Stability Requirements – last 3 consecutive readings must be within:		+/- 3%	+/- 0.1 unit	+/- 10% or 3 readings <0.5 mg/L	+/- 3%	+/- 10mV	+/- 10% or 3 readings <5 NTU	
1225	78.17	9.4	7.11	6.62	525.5	150.0	0.00	
1230	78.17	9.3	7.10	6.26	525.0	129.5	0.00	
1235	" "	9.4	7.11	6.19	523.9	111.9	0.00	
1240	" "	9.5	7.13	6.13	525.6	100.1	0.00	
1245	" "	9.6	7.12	6.22	525.2	94.5	" "	
1250	" "	9.6	7.12	6.49	525.2	85.5	0.00	
1255	" "	9.6	7.12	6.53	526.8	80.7	0.00	
1300	" "	9.6	7.12	6.61	528.2	76.5	" "	
1305								sample

Sample Bottles Collected: CCR and state

Sample Date /Time: 4/1/2024 1305 (State) 1307 (CCR)

Additional Notes: 1327 all bottles filled

*: Volume in a 2-inch well = 617 ml/ft

2830 Dairy Drive, Madison, WI 53718-6751 | 608-224-2830 | eFax 608-224-2839

SCS ENGINEERS Environmental Consultants & Contractors

Groundwater Sampling Log

Project No.	25221070	**Site**	Lansing
Well No.	MW 112	**Date**	4/2/24
Sampling Personnel	Ethan Smoker		
Total Well Depth		**pH/temp/cond/DO/ORP meter model & unit ID #**	#3
Depth to Water	42.08	**Date/time pH Calibration Last Checked:**	4/2 AM
Well Volume*		**Turbidity meter model & unit ID #**	#2
Sampling Device:	(Bladder Pump) Peristaltic Pump Other:	**Pumping Rate:**	350 mL/min
Water Color/Odor	Clear / None	**Pump Start/Stop Time**	940 / 1014
Temperature:	34 **Wind Direction:** (N) (E) S W	**Precip:** None (Light) Heavy	**Sky:** (Cloudy) Sunny Partly

Time	Depth to Water (ft)	Temp. (deg. C)	pH (standard units)	DO (mg/L)	Cond. (µs/cm)	ORP (mV)	Turbidity (NTU)	Notes
Stability Requirements – last 3 consecutive readings must be within:		+/- 3%	+/- 0.1 unit	+/- 10% or 3 readings <0.5 mg/L	+/- 3%	+/- 10mV	+/- 10% or 3 readings <5 NTU	
955	43.37	10.5	6.92	0.256	1543	-183.5	4.71	
1000	" "	10.5	6.93	0.44	1556	-187.4	3.87	
1005	" "	10.5	6.94	0.40	1566	-188.3	4.73	Sampled

Sample Bottles Collected:

Sample Date /Time: 4/2 1005

Additional Notes: 6 Field Blank taken here @

*: Volume in a 2-inch well = 617 ml/ft

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Groundwater Sampling Log

Project No.	25224070	**Site**	Lansing
Well No.	MW12	**Date**	4/1/24
Sampling Personnel	Dylan Schroeder		
Total Well Depth		**pH/temp/cond/DO/ORP meter model & unit ID #**	#2
Depth to Water	41.89	**Date/time pH Calibration Last Checked:**	2/1/24 Am
Well Volume*		**Turbidity meter model & unit ID #**	#2
Sampling Device:	(Bladder Pump) Peristaltic Pump Other:	**Pumping Rate:**	300 mL/min
Water Color/Odor	Clear / None	**Pump Start/Stop Time**	1417 / ~~1435~~ 1507
Temperature:	42 **Wind Direction:** (N) E S W	**Precip:** None (Light) Heavy	**Sky:** (Cloudy) Sunny Partly

Time	Depth to Water (ft)	Temp. (deg. C)	pH (standard units)	DO (mg/L)	Cond. (µs/cm)	ORP (mV)	Turbidity (NTU)	Notes
Stability Requirements – last 3 consecutive readings must be within:		+/- 3%	+/- 0.1 unit	+/- 10% or 3 readings <0.5 mg/L	+/- 3%	+/- 10mV	+/- 10% or 3 readings <5 NTU	
1435	Below	10.4	7.12	3.76	929	-111.6	0.00	
1440	Pump	10.3	7.11	3.14	927	-115.4	2.08	
1445	"	10.2	7.12	2.01	926	-117.6	2.89	
1450	"	10.2	7.11	22.9	926*	-118.7	0.00	*926
1455	"	10.0	7.11	22.4	926	-119.4	0.00	
1500	"	10.0	7.10	21.2*	926	-120.8	0.00	*2.22

Sample Bottles Collected:

Sample Date /Time: 4/1 1500

Additional Notes: Was looking at wrong DO reading & Reading did Stabilize

*: Volume in a 2-inch well = 617 ml/ft

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Groundwater Sampling Log

Project No.	25224070	**Site**	Lansing
Well No.	MW-12P	**Date**	4/1/24
Sampling Personnel	Ethan Schroeder		
Total Well Depth		**pH/temp/cond/DO/ORP meter model & unit ID #**	DO Plus #2
Depth to Water	42.36	**Date/time pH Calibration Last Checked:**	4/1 AM
Well Volume*		**Turbidity meter model & unit ID #**	#2
Sampling Device:	(Bladder Pump) Peristaltic Pump Other:	**Pumping Rate:**	350 mL/min
Water Color/Odor	Clear / None	**Pump Start/Stop Time**	1512 / 1550
Temperature:	41 **Wind Direction:** (N) E S W	**Precip:** None (Light) Heavy	**Sky:** (Cloudy) Sunny Partly

Time	Depth to Water (ft)	Temp. (deg. C)	pH (standard units)	DO (mg/L)	Cond. (µs/cm)	ORP (mV)	Turbidity (NTU)	Notes
Stability Requirements – last 3 consecutive readings must be within:		+/- 3%	+/- 0.1 unit	+/- 10% or 3 readings <0.5 mg/L	+/- 3%	+/- 10mV	+/- 10% or 3 readings <5 NTU	
1530	42.45	10.3	6.93	4.51	794	4.10	0.00	
1535	"	10.0	6.93	4.46	793	11.2	0.00	
1540	"	10.3	6.94	4.44	794	15.4	0.00	
1545	"	"	6.94	4.60	791	19.7	0.00	Sampled

Sample Bottles Collected:

Sample Date /Time: 4/1 1545

Additional Notes:

*: Volume in a 2-inch well = 617 ml/ft

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Groundwater Sampling Log

Project No.	25224070	**Site**	Lansing
Well No.	MW-14	**Date**	4/2/24
Sampling Personnel	Ethan Schaefer		
Total Well Depth		**pH/temp/cond/DO/ORP meter model & unit ID #**	Pro Plus #2
Depth to Water	4.21	**Date/time pH Calibration Last Checked:**	4/2 AM
Well Volume*		**Turbidity meter model & unit ID #**	#2
Sampling Device:	(Bladder Pump) Peristaltic Pump Other:	**Pumping Rate:**	500 mL/min
Water Color/Odor	Clear / None	**Pump Start/Stop Time**	812 / 907
Temperature:	34 **Wind Direction:** (N) E S W	**Precip:** None (Light) Heavy	**Sky:** (Cloudy) Sunny Partly

Time	Depth to Water (ft)	Temp. (deg. C)	pH (standard units)	DO (mg/L)	Cond. (µs/cm)	ORP (mV)	Turbidity (NTU)	Notes
Stability Requirements – last 3 consecutive readings must be within:		+/- 3%	+/- 0.1 unit	+/- 10% or 3 readings <0.5 mg/L	+/- 3%	+/- 10mV	+/- 10% or 3 readings <5 NTU	
845	4.21	9.4	7.48	5.96	510.7	108.0	0.00	
850	" "	9.3	7.48	6.12	510.4	84.4	0.00	
855	" "	9.2	7.48	6.10	510.6	73.2	0.00	
900	" "	9.4	7.48	6.07	510.1	67.2	0.10	
905	" "	9.4	7.48	6.07	510.7	64.3	0.00	Sampled

Sample Bottles Collected:

Sample Date /Time: 4/2 905

Additional Notes:

*: Volume in a 2-inch well = 617 ml/ft

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Groundwater Sampling Log

Project No.	7522114070	**Site**	Lansing
Well No.	TW-18	**Date**	4/1/24
Sampling Personnel	Ethan Schaefer		
Total Well Depth		**pH/temp/cond/DO/ORP meter model & unit ID #**	#1
Depth to Water	10.82	**Date/time pH Calibration Last Checked:**	4/1 AM
Well Volume*		**Turbidity meter model & unit ID #**	#2
Sampling Device:	(Bladder Pump) Peristaltic Pump Other:	**Pumping Rate:**	400 mL/min
Water Color/Odor	Brown / None	**Pump Start/Stop Time**	1605 / 1655
Temperature:	34 **Wind Direction:** (N) E S W	**Precip:** None Light (Heavy)	**Sky:** (Cloudy) Sunny Partly

Time	Depth to Water (ft)	Temp. (deg. C)	pH (standard units)	DO (mg/L)	Cond. (µs/cm)	ORP (mV)	Turbidity (NTU)	Notes
Stability Requirements – last 3 consecutive readings must be within:		+/- 3%	+/- 0.1 unit	+/- 10% or 3 readings <0.5 mg/L	+/- 3%	+/- 10mV	+/- 10% or 3 readings <5 NTU	
1620	11.45	6.7	6.67	0.29	843	-24.7	54.80	
1625	11.45	6.7	6.72	1.9	838	-32.9	31.10	
1635	" "	6.7	6.71	2.28	825	-38.6	21.79	took 10 min to
1645	" "	6.7	6.74	0.16	818	-43.7	20.39	let turb. drop
1650	" "	6.8	6.74	0.18	816	-44.6	21.53	Sampled
					814 ^			

Sample Bottles Collected:

Sample Date /Time: 4/1 1650

Additional Notes:

*: Volume in a 2-inch well = 617 ml/ft

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Groundwater Sampling Log

Project No.	25224070	**Site**	Lansing
Well No.		**Date**	4/1/24 - 4/2/24
Sampling Personnel	Ethan Schaefer		
Total Well Depth		**pH/temp/cond/DO/ORP meter model & unit ID #**	
Depth to Water		**Date/time pH Calibration Last Checked:**	
Well Volume*		**Turbidity meter model & unit ID #**	
Sampling Device:	Bladder Pump / Peristaltic Pump / Other:	**Pumping Rate:**	
Water Color/Odor	/	**Pump Start/Stop Time**	/
Temperature:	**Wind Direction:** N E S W	**Precip:** None Light Heavy	**Sky:** Cloudy Sunny Partly

Time	Depth to Water (ft)	Temp. (deg. C)	pH (standard units)	DO (mg/L)	Cond. (µs/cm)	ORP (mV)	Turbidity (NTU)	Notes
Stability Requirements – last 3 consecutive readings must be within:		+/- 3%	+/- 0.1 unit	+/- 10% or 3 readings <0.5 mg/L	+/- 3%	+/- 10mV	+/- 10% or 3 readings <5 NTU	
Well	DTW	TD		Well	DTW	TD		
MW22	41.00	52.4		3.86	16.89	22.5		
MW22D	41.15	83.2		3.09	16.38	24.1		
SW3	DRY	—		MW2	36.80	46.6		
TW17	11.74	25.3		MW3	35.10	63.9		
TW19	11.50	25.2		MW13	21.27	23.6	→ Water below pump (18.55) on 4/1	
SW2	DRY	—		MW19	72.13	81.8		
SW1	24.00	—		MW16	4500	52.6		
MW15	27.94	31.2	→	Water below pump (25.7) on 4/1				
MW30	26.42	18.5	→	water below pump (19.5') on 4/1				
MW1	11.45	30.4	→	Casing extended 1.3' from top of protector				
SW5	14.65			MW18	106.92	1180		

Sample Bottles Collected:

Sample Date /Time:

Additional Notes:

*: Volume in a 2-inch well = 617 ml/ft

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* need to measure pond pictos

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Groundwater Sampling Log

Project No.	25224070	**Site**	Lan
Well No.		**Date**	4/2/24
Sampling Personnel	E. Schaefer		
Total Well Depth		**pH/temp/cond/DO/ORP meter model & unit ID #**	
Depth to Water		**Date/time pH Calibration Last Checked:**	
Well Volume*		**Turbidity meter model & unit ID #**	
Sampling Device:	Bladder Pump / Peristaltic Pump / Other:	**Pumping Rate:**	
Water Color/Odor	/	**Pump Start/Stop Time**	/
Temperature:	**Wind Direction:** N E S W	**Precip:** None Light Heavy	**Sky:** Cloudy Sunny Partly

Time	Depth to Water (ft)	Temp. (deg. C)	pH (standard units)	DO (mg/L)	Cond. (µs/cm)	ORP (mV)	Turbidity (NTU)	Notes
Stability Requirements – last 3 consecutive readings must be within:		+/- 3%	+/- 0.1 unit	+/- 10% or 3 readings <0.5 mg/L	+/- 3%	+/- 10mV	+/- 10% or 3 readings <5 NTU	
PZ-1	25.51	27.4						
PZ-2	DRYe	4.6						
PZ-3	DRYe	24.7						
PZ-4	24.81	25.9						
PZ-5	DRYe	23.7						
PZ-6	DRYe	18.0						
	DTW	TD	(unless DRY)					

Sample Bottles Collected:

Sample Date /Time:

Additional Notes:

*: Volume in a 2-inch well = 617 ml/ft

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Groundwater Sampling Field Sheet

Disposal Site Name: IPL - Lansing Generating Station Permit No.: 03-SDP-05-01P

Well/Piezometer: MW-6 Weather: 42 / E / Light Precipitation / Cloudy

Date: 4/1/2024 Sampler Name: Bri Salome

Monitoring Well Details

Construction Data

Borehole Diameter (in): 8.25" Depth to Tope of Screen (ft): 85.33

Casing Diameter (in): 2.01 Casing Material: PVC

Top of Casing Elevation (ft. MSL): 741.33 Ground Surface Elevation (ft. MSL):

Field Observations

Locked: ☒ Yes ☐ No

	Before Purging	After Purging	Before Sampling
Depth to Water Level (ft.):	78.17	78.17	78.17
Water Elevation (ft. MSL):	663.16	663.16	663.16

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

	Start	End
Purge Date/Time	4/1/2024 1215	4/1/2024 1328

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	4/1 1230	1235	1240	1245	1250	1255	4/1 1300
Depth to Water (ft)	78.17	78.17	78.17	78.17	78.17	78.17	78.17
Volume Purged (L)	4.5	6	7.5	9	10.5	12	13.5
Temp (°C)	9.3	9.4	9.5	9.6	9.6	9.6	9.6
Sp. Cond (umhos/cm)	525.0	523.9	525.6	525.2	525.2	526.8	528.2
pH	7.10	7.11	7.13	7.12	7.12	7.12	7.12
DO (mg/l)	6.26	6.19	6.13	6.22	6.49	6.53	6.61
ORP (mV)	129.5	111.9	100.1	94.5	85.5	80.7	76.5
Turbidity (NTU)	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Equipment Depth: 5' off bottom Flow Rate: .3L/min Volume Removed: 21.9 Volume Sampled: 1L

Odor? ☐ Yes ☒ No Color? ☐ Yes ☒ No

Comments: --

Groundwater Sampling Field Sheet

Disposal Site Name: IPL - Lansing Generating Station Permit No.: 03-SDP-05-01P

Well/Piezometer: MW-11R Weather: 34 / N / Light Precipitation / Cloudy

Date: 4/2/2024 Sampler Name: Ethan Schaefer

Monitoring Well Details

Construction Data

Borehole Diameter (in): 8.25" Depth to Tope of Screen (ft): 39.48

Casing Diameter (in): 2.01 Casing Material: PVC

Top of Casing Elevation (ft. MSL): 686.42 Ground Surface Elevation (ft. MSL):

Field Observations

Locked: ☒ Yes ☐ No

	Before Purging	After Purging	Before Sampling
Depth to Water Level (ft.):	42.08	43.37	43.37
Water Elevation (ft. MSL):	644.34	643.05	643.05

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

	Start	End
Purge Date/Time	4/2/2024 940	4/2/2024 1014

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					4/2 955	4/2 1000	4/2 1005
Depth to Water (ft)					43.37	43.37	43.37
Volume Purged (L)					3.5	5.25	7.0
Temp (°C)					10.5	10.5	10.5
Sp. Cond (umhos/cm)					1543	1556	1566
pH					6.92	6.93	6.94
DO (mg/l)					0.28	0.44	0.40
ORP (mV)					-183.5	-187.4	-188.3
Turbidity (NTU)					4.71	3.87	4.73

Equipment Depth: 5' off bottom Flow Rate: .35L/min Volume Removed: 8.75 Volume Sampled: 1L

Odor? ☐ Yes ☒ No Color? ☐ Yes ☒ No

Comments: --

Groundwater Sampling Field Sheet

Disposal Site Name: IPL - Lansing Generating Station Permit No.: 03-SDP-05-01P

Well/Piezometer: MW 12 Weather: 42 / N / Light Precipitation / Cloudy

Date: 4/1/2024 Sampler Name: Ethan Schaefer

Monitoring Well Details

Construction Data

Borehole Diameter (in): 8.25" Depth to Tope of Screen (ft): 33.70

Casing Diameter (in): 2.01 Casing Material: PVC

Top of Casing Elevation (ft. MSL): 691.40 Ground Surface Elevation (ft. MSL):

Field Observations

Locked: ☒ Yes ☐ No

	Before Purging	After Purging	Before Sampling
Depth to Water Level (ft.):	41.89	Below Pump	Below Pump
Water Elevation (ft. MSL):	649.51	--	--

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

	Start	End
Purge Date/Time	4/1/2024 1417	4/1/2024 1507

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		4/2 1435	1440	1445	1450	1455	4/2 1500
Depth to Water (ft)		Below Pump	Below Pump	Below Pump	Below Pump	Below Pump	Below Pump
Volume Purged (L)		3	4.5	6	7.5	9	10.5
Temp (°C)		10.4	10.3	10.2	10.2	10.0	10.0
Sp. Cond (umhos/cm)		929	927	926	926	926	926
pH		7.12	7.11	7.12	7.11	7.11	7.10
DO (mg/l)		37.6	3.14	2.61	22.9	22.4	21.2
ORP (mV)		-111.6	-115.4	-117.5	-118.6	-119.4	-120.8
Turbidity (NTU)		0.00	2.08	2.89	0.00	0.00	0.00

Equipment Depth: 5' off bottom Flow Rate: .3 L/min Volume Removed: 12 Volume Sampled: 1L

Odor? ☐ Yes ☐ No Color? ☐ Yes ☐ No

Comments: For DO, sampler recorded %DO instead of mg/L DO. Did confirm with sampler that DO did stabilize

Groundwater Sampling Field Sheet

Disposal Site Name: IPL - Lansing Generating Station Permit No.: 03-SDP-05-01P

Well/Piezometer: MW-12P Weather: 41 / N / Light Precipitation / Cloudy

Date: 4/1/2024 Sampler Name: Ethan Schaefer

Monitoring Well Details

Construction Data

Borehole Diameter (in): 8.25" Depth to Tope of Screen (ft): 63.6

Casing Diameter (in): 2.01 Casing Material: PVC

Top of Casing Elevation (ft. MSL): 691.58 Ground Surface Elevation (ft. MSL):

Field Observations

Locked: ☒ Yes ☐ No

	Before Purging	After Purging	Before Sampling
Depth to Water Level (ft.):	42.36	42.45	42.45
Water Elevation (ft. MSL):	649.22	649.13	649.13

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

	Start	End
Purge Date/Time	4/1/2024 1512	4/1/2024 1550

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				4/1 1530	1535	1540	4/1 1545
Depth to Water (ft)				42.45	42.45	42.45	42.45
Volume Purged (L)				3.5	5.25	7	8.75
Temp (°C)				10.3	10.6	10.3	10.3
Sp. Cond (umhos/cm)				794	793	794	791
pH				6.93	6.93	6.94	6.94
DO (mg/l)				4.51	4.46	4.44	4.60
ORP (mV)				4.0	11.2	15.4	19.7
Turbidity (NTU)				0.00	0.00	0.00	0.00

Equipment Depth: 2.5' off btm Flow Rate: .35 L/min Volume Removed: 10.5 Volume Sampled: 1L

Odor? ☐ Yes ☒ No Color? ☐ Yes ☒ No

Comments: --

Groundwater Sampling Field Sheet

Disposal Site Name: IPL - Lansing Generating Station Permit No.: 03-SDP-05-01P

Well/Piezometer: MW-14 Weather: 34 / N / Light Precipitation / Cloudy

Date: 4/2/2024 Sampler Name: Ethan Schaefer

Monitoring Well Details

Construction Data

Borehole Diameter (in): 8.25" Depth to Tope of Screen (ft): 9.10

Casing Diameter (in): 2.01 Casing Material: PVC

Top of Casing Elevation (ft. MSL): 646.06 Ground Surface Elevation (ft. MSL):

Field Observations

Locked: ☒ Yes ☐ No

	Before Purging	After Purging	Before Sampling
Depth to Water Level (ft.):	4.21	4.21	4.21
Water Elevation (ft. MSL):	641.85	641.85	641.85

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

	Start	End
Purge Date/Time	4/2/2024 812	4/2/2024 907

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			4/2 845	850	855	900	4/2 905
Depth to Water (ft)			4.21	4.21	4.21	4.21	4.21
Volume Purged (L)			8	12	16	20	24
Temp (°C)			9.4	9.3	9.2	9.4	9.4
Sp. Cond (umhos/cm)			510.7	510.4	510.6	510.1	510.7
pH			7.48	7.48	7.48	7.48	7.48
DO (mg/l)			5.96	6.12	6.10	6.07	6.07
ORP (mV)			108.0	84.4	73.2	67.2	64.3
Turbidity (NTU)			0.00	0.00	0.00	0.10	0.00

Equipment Depth: 5' off bottom Flow Rate: .8 L/min Volume Removed: 28 Volume Sampled: 1L

Odor? ☐ Yes ☒ No Color? ☐ Yes ☒ No

Comments: --

Groundwater Sampling Field Sheet

Disposal Site Name: IPL - Lansing Generating Station Permit No.: 03-SDP-05-01P

Well/Piezometer: TW-18 Weather: 39 / N / Heavy Precipitation / Cloudy

Date: 4/1/2024 Sampler Name: Ethan Schaefer

Monitoring Well Details

Construction Data

Borehole Diameter (in): 8.25" Depth to Tope of Screen (ft): 8.60

Casing Diameter (in): 2.01 Casing Material: PVC

Top of Casing Elevation (ft. MSL): 659.15 Ground Surface Elevation (ft. MSL):

Field Observations

Locked: ☒ Yes ☐ No

	Before Purging	After Purging	Before Sampling
Depth to Water Level (ft.):	10.82	11.45	11.45
Water Elevation (ft. MSL):	648.33	647.7	647.7

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

	Start	End
Purge Date/Time	4/1 1605	4/1 1655

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			4/1 1620	1625	1635	1645	4/1 1650
Depth to Water (ft)			11.45	11.45	11.45	11.45	11.45
Volume Purged (L)			4	6	8	10	12
Temp (°C)			6.7	6.7	6.7	6.7	6.8
Sp. Cond (umhos/cm)			843	838	825	818	814
pH			6.67	6.72	6.71	6.74	6.74
DO (mg/l)			0.29	1.9	2.28	0.16	0.18
ORP (mV)			-24.7	-32.9	-38.6	-43.7	-44.6
Turbidity (NTU)			54.80	31.50	21.79	20.39	21.53

Equipment Depth: 5' off bottom Flow Rate: .4 L/min Volume Removed: 14 Volume Sampled: 1L

Odor? ☐ Yes ☒ No Color? ☒ Yes ☐ No

Comments: Brown

Appendix B

Laboratory Analytical Report

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

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

Generated 4/16/2024 3:01:02 PM Revision 1

JOB DESCRIPTION

Lansing Generating Station 25224070

JOB NUMBER

310-278158-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

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
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Revision 1

Authorized for release by
Sandie Fredrick, Senior Project Manager
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(920)261-1660

Table of Contents

Job ID: 310-278158-1 Eurofins Cedar Falls

Job Narrative
310-278158-1

Revision
The report being provided is a revision of the original report sent on 04/15/24. The report (revision 1) is being revised due to: Adding copper to 6020B results.

Receipt
The samples were received on 4/4/2024 9:45 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.6º C.

HPLC/IC
Methods 300.0, 9056A: The following sample was diluted due to the nature of the sample matrix: MW-11R (310-278158-2). 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 3005A: The reference method requires samples to be preserved to a pH of <2. The following sample was received with insufficient preservation at a pH of >2: MW-11R (310-278158-2). The sample(s) was preserved to the appropriate pH in the laboratory.

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
Job ID: 310-278158-1
Project/Site: Lansing Generating Station 25224070

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-278158-1	MW-6	Water	04/01/24 13:05	04/04/24 09:45
310-278158-2	MW-11R	Water	04/02/24 10:05	04/04/24 09:45
310-278158-3	MW-12	Water	04/01/24 15:00	04/04/24 09:45
310-278158-4	MW-12P	Water	04/01/24 15:45	04/04/24 09:45
310-278158-5	MW-14	Water	04/02/24 09:05	04/04/24 09:45
310-278158-6	TW-18	Water	04/01/24 16:50	04/04/24 09:45
310-278158-7	Field Blank	Water	04/02/24 10:20	04/04/24 09:45

Detection Summary

Client: SCS Engineers
Job ID: 310-278158-1
Project/Site: Lansing Generating Station 25224070

Client Sample ID: MW-6 — Lab Sample ID: 310-278158-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.8		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	22		5.0	2.1	mg/L	5		9056A	Total/NA
Barium	46		2.0	0.64	ug/L	1		6020B	Total/NA
Calcium	75		0.50	0.19	mg/L	1		6020B	Total/NA
Magnesium	40000		500	150	ug/L	1		6020B	Total/NA
Potassium	1100		500	150	ug/L	1		6020B	Total/NA
Sodium	6200		1000	460	ug/L	1		6020B	Total/NA
Strontium	65		1.0	0.53	ug/L	1		6020B	Total/NA
Bicarbonate Alkalinity as CaCO3	300		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	300		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Groundwater Elevation	663.16				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	76.5				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	6.61				mg/L	1		Field Sampling	Total/NA
Field pH	7.12				SU	1		Field Sampling	Total/NA
Field Conductivity	528.2				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	9.6				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	0.00				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-11R — Lab Sample ID: 310-278158-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	16		5.0	2.3	mg/L	5		9056A	Total/NA
Arsenic	44		2.0	0.53	ug/L	1		6020B	Total/NA
Barium	560		2.0	0.64	ug/L	1		6020B	Total/NA
Boron	340	J	400	300	ug/L	4		6020B	Total/NA
Calcium	190		0.50	0.19	mg/L	1		6020B	Total/NA
Cobalt	13		0.50	0.17	ug/L	1		6020B	Total/NA
Copper	2.5	J	5.0	1.8	ug/L	1		6020B	Total/NA
Iron	71000		100	36	ug/L	1		6020B	Total/NA
Magnesium	100000		2000	600	ug/L	4		6020B	Total/NA
Manganese	2400		10	3.6	ug/L	1		6020B	Total/NA
Nickel	11		5.0	1.9	ug/L	1		6020B	Total/NA
Potassium	11000		500	150	ug/L	1		6020B	Total/NA
Sodium	26000		1000	460	ug/L	1		6020B	Total/NA
Strontium	590		1.0	0.53	ug/L	1		6020B	Total/NA
Bicarbonate Alkalinity as CaCO3	840		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	840		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Groundwater Elevation	644.34				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-188.3				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	0.40				mg/L	1		Field Sampling	Total/NA
Field pH	6.94				SU	1		Field Sampling	Total/NA
Field Conductivity	1566				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	10.5				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	4.73				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-12 — Lab Sample ID: 310-278158-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	6.2		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	190		5.0	2.1	mg/L	5		9056A	Total/NA
Arsenic	23		2.0	0.53	ug/L	1		6020B	Total/NA
Barium	200		2.0	0.64	ug/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Detection Summary

Client: SCS Engineers
Job ID: 310-278158-1
Project/Site: Lansing Generating Station 25224070

Client Sample ID: MW-12 (Continued) — Lab Sample ID: 310-278158-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1400		100	76	ug/L	1		6020B	Total/NA
Calcium	71		0.50	0.19	mg/L	1		6020B	Total/NA
Cobalt	1.2		0.50	0.17	ug/L	1		6020B	Total/NA
Iron	7500		100	36	ug/L	1		6020B	Total/NA
Magnesium	34000		500	150	ug/L	1		6020B	Total/NA
Manganese	1100		10	3.6	ug/L	1		6020B	Total/NA
Nickel	3.2	J	5.0	1.9	ug/L	1		6020B	Total/NA
Potassium	2000		500	150	ug/L	1		6020B	Total/NA
Sodium	120000		1000	460	ug/L	1		6020B	Total/NA
Strontium	72		1.0	0.53	ug/L	1		6020B	Total/NA
Bicarbonate Alkalinity as CaCO3	450		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	450		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Groundwater Elevation	649.51				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-120.8				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	2.22				mg/L	1		Field Sampling	Total/NA
Field pH	7.10				SU	1		Field Sampling	Total/NA
Field Conductivity	926				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	10.0				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	0.00				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-12P — Lab Sample ID: 310-278158-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	45		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	55		5.0	2.1	mg/L	5		9056A	Total/NA
Barium	76		2.0	0.64	ug/L	1		6020B	Total/NA
Boron	1100		100	76	ug/L	1		6020B	Total/NA
Calcium	96		0.50	0.19	mg/L	1		6020B	Total/NA
Magnesium	39000		500	150	ug/L	1		6020B	Total/NA
Potassium	3800		500	150	ug/L	1		6020B	Total/NA
Sodium	32000		1000	460	ug/L	1		6020B	Total/NA
Strontium	120		1.0	0.53	ug/L	1		6020B	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
Groundwater Elevation	649.22				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	19.7				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	4.60				mg/L	1		Field Sampling	Total/NA
Field pH	6.94				SU	1		Field Sampling	Total/NA
Field Conductivity	791				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	10.3				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	0.00				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-14 — Lab Sample ID: 310-278158-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	6.6		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	18		5.0	2.1	mg/L	5		9056A	Total/NA
Barium	37		2.0	0.64	ug/L	1		6020B	Total/NA
Calcium	66		0.50	0.19	mg/L	1		6020B	Total/NA
Magnesium	35000		500	150	ug/L	1		6020B	Total/NA
Potassium	910		500	150	ug/L	1		6020B	Total/NA
Sodium	3400		1000	460	ug/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-14 (Continued) — Lab Sample ID: 310-278158-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Strontium	59		1.0	0.53	ug/L	1		6020B	Total/NA
Bicarbonate Alkalinity as CaCO3	160		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	160		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Groundwater Elevation	641.85				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	64.3				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	6.07				mg/L	1		Field Sampling	Total/NA
Field pH	7.48				SU	1		Field Sampling	Total/NA
Field Conductivity	510.7				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	9.4				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	0.00				NTU	1		Field Sampling	Total/NA

Client Sample ID: TW-18 — Lab Sample ID: 310-278158-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	57		5.0	2.3	mg/L	5		9056A	Total/NA
Sulfate	25		5.0	2.1	mg/L	5		9056A	Total/NA
Arsenic	2.2		2.0	0.53	ug/L	1		6020B	Total/NA
Barium	190		2.0	0.64	ug/L	1		6020B	Total/NA
Boron	240		100	76	ug/L	1		6020B	Total/NA
Calcium	100		0.50	0.19	mg/L	1		6020B	Total/NA
Cobalt	2.2		0.50	0.17	ug/L	1		6020B	Total/NA
Iron	6900		100	36	ug/L	1		6020B	Total/NA
Magnesium	38000		500	150	ug/L	1		6020B	Total/NA
Manganese	4500		10	3.6	ug/L	1		6020B	Total/NA
Nickel	12		5.0	1.9	ug/L	1		6020B	Total/NA
Potassium	1100		500	150	ug/L	1		6020B	Total/NA
Sodium	34000		1000	460	ug/L	1		6020B	Total/NA
Strontium	160		1.0	0.53	ug/L	1		6020B	Total/NA
Bicarbonate Alkalinity as CaCO3	320		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	320		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Groundwater Elevation	648.33				ft	1		Field Sampling	Total/NA
Oxidation Reduction Potential	-44.6				mV	1		Field Sampling	Total/NA
Oxygen, Dissolved	0.18				mg/L	1		Field Sampling	Total/NA
Field pH	6.74				SU	1		Field Sampling	Total/NA
Field Conductivity	814				umhos/cm	1		Field Sampling	Total/NA
Field Temperature	6.8				Degrees C	1		Field Sampling	Total/NA
Field Turbidity	21.53				NTU	1		Field Sampling	Total/NA

Client Sample ID: Field Blank — Lab Sample ID: 310-278158-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Bicarbonate Alkalinity as CaCO3	54		5.0	2.5	mg/L	1		SM 2320B	Total/NA
Total Alkalinity as CaCO3	54		5.0	2.5	mg/L	1		SM 2320B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: SCS Engineers
Job ID: 310-278158-1
Project/Site: Lansing Generating Station 25224070

Client Sample ID: MW-6
Date Collected: 04/01/24 13:05
Date Received: 04/04/24 09:45

Lab Sample ID: 310-278158-1
Matrix: Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**5.8**		5.0	2.3	mg/L			04/05/24 11:57	5
Sulfate	**22**		5.0	2.1	mg/L			04/05/24 11:57	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		04/05/24 09:00	04/10/24 20:05	1
Barium	**46**		2.0	0.64	ug/L		04/05/24 09:00	04/10/24 20:05	1
Boron	<76		100	76	ug/L		04/05/24 09:00	04/10/24 20:05	1
Calcium	**75**		0.50	0.19	mg/L		04/05/24 09:00	04/10/24 20:05	1
Cobalt	<0.17		0.50	0.17	ug/L		04/05/24 09:00	04/10/24 20:05	1
Copper	<1.8		5.0	1.8	ug/L		04/05/24 09:00	04/10/24 20:05	1
Iron	<36		100	36	ug/L		04/05/24 09:00	04/10/24 20:05	1
Magnesium	**40000**		500	150	ug/L		04/05/24 09:00	04/10/24 20:05	1
Manganese	<3.6		10	3.6	ug/L		04/05/24 09:00	04/10/24 20:05	1
Nickel	<1.9		5.0	1.9	ug/L		04/05/24 09:00	04/10/24 20:05	1
Potassium	**1100**		500	150	ug/L		04/05/24 09:00	04/10/24 20:05	1
Selenium	<1.4		5.0	1.4	ug/L		04/05/24 09:00	04/10/24 20:05	1
Sodium	**6200**		1000	460	ug/L		04/05/24 09:00	04/10/24 20:05	1
Strontium	**65**		1.0	0.53	ug/L		04/05/24 09:00	04/10/24 20:05	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**300**		5.0	2.5	mg/L			04/08/24 13:51	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<2.5		5.0	2.5	mg/L			04/08/24 13:51	1
Total Alkalinity as CaCO3 (SM 2320B)	**300**		5.0	2.5	mg/L			04/08/24 13:51	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	**663.16**				ft			04/01/24 13:05	1
Oxidation Reduction Potential	**76.5**				mV			04/01/24 13:05	1
Oxygen, Dissolved	**6.61**				mg/L			04/01/24 13:05	1
Field pH	**7.12**				SU			04/01/24 13:05	1
Field Conductivity	**528.2**				umhos/cm			04/01/24 13:05	1
Field Temperature	**9.6**				Degrees C			04/01/24 13:05	1
Field Turbidity	**0.00**				NTU			04/01/24 13:05	1

Client: SCS Engineers
Job ID: 310-278158-1
Project/Site: Lansing Generating Station 25224070

Client Sample ID: MW-11R
Lab Sample ID: 310-278158-2
Date Collected: 04/02/24 10:05
Matrix: Water
Date Received: 04/04/24 09:45

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	16		5.0	2.3	mg/L			04/05/24 12:35	5
Sulfate	<2.1		5.0	2.1	mg/L			04/05/24 12:35	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	44		2.0	0.53	ug/L		04/05/24 09:00	04/10/24 20:07	1
Barium	560		2.0	0.64	ug/L		04/05/24 09:00	04/10/24 20:07	1
Boron	340	J	400	300	ug/L		04/05/24 09:00	04/11/24 14:14	4
Calcium	190		0.50	0.19	mg/L		04/05/24 09:00	04/10/24 20:07	1
Cobalt	13		0.50	0.17	ug/L		04/05/24 09:00	04/10/24 20:07	1
Copper	2.5	J	5.0	1.8	ug/L		04/05/24 09:00	04/10/24 20:07	1
Iron	71000		100	36	ug/L		04/05/24 09:00	04/10/24 20:07	1
Magnesium	100000		2000	600	ug/L		04/05/24 09:00	04/11/24 14:14	4
Manganese	2400		10	3.6	ug/L		04/05/24 09:00	04/10/24 20:07	1
Nickel	11		5.0	1.9	ug/L		04/05/24 09:00	04/10/24 20:07	1
Potassium	11000		500	150	ug/L		04/05/24 09:00	04/10/24 20:07	1
Selenium	<1.4		5.0	1.4	ug/L		04/05/24 09:00	04/10/24 20:07	1
Sodium	26000		1000	460	ug/L		04/05/24 09:00	04/10/24 20:07	1
Strontium	590		1.0	0.53	ug/L		04/05/24 09:00	04/10/24 20:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	840		5.0	2.5	mg/L			04/08/24 13:59	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<2.5		5.0	2.5	mg/L			04/08/24 13:59	1
Total Alkalinity as CaCO3 (SM 2320B)	840		5.0	2.5	mg/L			04/08/24 13:59	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	644.34				ft			04/02/24 10:05	1
Oxidation Reduction Potential	-188.3				mV			04/02/24 10:05	1
Oxygen, Dissolved	0.40				mg/L			04/02/24 10:05	1
Field pH	6.94				SU			04/02/24 10:05	1
Field Conductivity	1566				umhos/cm			04/02/24 10:05	1
Field Temperature	10.5				Degrees C			04/02/24 10:05	1
Field Turbidity	4.73				NTU			04/02/24 10:05	1

Client: SCS Engineers
Project/Site: Lansing Generating Station 25224070

Job ID: 310-278158-1

Client Sample ID: MW-12
Date Collected: 04/01/24 15:00
Date Received: 04/04/24 09:45

Lab Sample ID: 310-278158-3
Matrix: Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	6.2		5.0	2.3	mg/L			04/05/24 12:47	5
Sulfate	190		5.0	2.1	mg/L			04/05/24 12:47	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	23		2.0	0.53	ug/L		04/05/24 09:00	04/10/24 20:09	1
Barium	200		2.0	0.64	ug/L		04/05/24 09:00	04/10/24 20:09	1
Boron	1400		100	76	ug/L		04/05/24 09:00	04/10/24 20:09	1
Calcium	71		0.50	0.19	mg/L		04/05/24 09:00	04/10/24 20:09	1
Cobalt	1.2		0.50	0.17	ug/L		04/05/24 09:00	04/10/24 20:09	1
Copper	<1.8		5.0	1.8	ug/L		04/05/24 09:00	04/10/24 20:09	1
Iron	7500		100	36	ug/L		04/05/24 09:00	04/10/24 20:09	1
Magnesium	34000		500	150	ug/L		04/05/24 09:00	04/10/24 20:09	1
Manganese	1100		10	3.6	ug/L		04/05/24 09:00	04/10/24 20:09	1
Nickel	3.2	J	5.0	1.9	ug/L		04/05/24 09:00	04/10/24 20:09	1
Potassium	2000		500	150	ug/L		04/05/24 09:00	04/10/24 20:09	1
Selenium	<1.4		5.0	1.4	ug/L		04/05/24 09:00	04/10/24 20:09	1
Sodium	120000		1000	460	ug/L		04/05/24 09:00	04/10/24 20:09	1
Strontium	72		1.0	0.53	ug/L		04/05/24 09:00	04/10/24 20:09	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	450		5.0	2.5	mg/L			04/08/24 14:12	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<2.5		5.0	2.5	mg/L			04/08/24 14:12	1
Total Alkalinity as CaCO3 (SM 2320B)	450		5.0	2.5	mg/L			04/08/24 14:12	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	649.51				ft			04/01/24 15:00	1
Oxidation Reduction Potential	-120.8				mV			04/01/24 15:00	1
Oxygen, Dissolved	2.22				mg/L			04/01/24 15:00	1
Field pH	7.10				SU			04/01/24 15:00	1
Field Conductivity	926				umhos/cm			04/01/24 15:00	1
Field Temperature	10.0				Degrees C			04/01/24 15:00	1
Field Turbidity	0.00				NTU			04/01/24 15:00	1

Client: SCS Engineers
Project/Site: Lansing Generating Station 25224070

Job ID: 310-278158-1

Client Sample ID: MW-12P

Date Collected: 04/01/24 15:45
Date Received: 04/04/24 09:45

Lab Sample ID: 310-278158-4

Matrix: Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**45**		5.0	2.3	mg/L			04/05/24 13:00	5
Sulfate	**55**		5.0	2.1	mg/L			04/05/24 13:00	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		04/05/24 09:00	04/10/24 20:21	1
Barium	**76**		2.0	0.64	ug/L		04/05/24 09:00	04/10/24 20:21	1
Boron	**1100**		100	76	ug/L		04/05/24 09:00	04/10/24 20:21	1
Calcium	**96**		0.50	0.19	mg/L		04/05/24 09:00	04/10/24 20:21	1
Cobalt	<0.17		0.50	0.17	ug/L		04/05/24 09:00	04/10/24 20:21	1
Copper	<1.8		5.0	1.8	ug/L		04/05/24 09:00	04/10/24 20:21	1
Iron	<36		100	36	ug/L		04/05/24 09:00	04/10/24 20:21	1
Magnesium	**39000**		500	150	ug/L		04/05/24 09:00	04/10/24 20:21	1
Manganese	<3.6		10	3.6	ug/L		04/05/24 09:00	04/10/24 20:21	1
Nickel	<1.9		5.0	1.9	ug/L		04/05/24 09:00	04/10/24 20:21	1
Potassium	**3800**		500	150	ug/L		04/05/24 09:00	04/10/24 20:21	1
Selenium	<1.4		5.0	1.4	ug/L		04/05/24 09:00	04/10/24 20:21	1
Sodium	**32000**		1000	460	ug/L		04/05/24 09:00	04/10/24 20:21	1
Strontium	**120**		1.0	0.53	ug/L		04/05/24 09:00	04/10/24 20:21	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**390**		5.0	2.5	mg/L			04/08/24 14:22	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<2.5		5.0	2.5	mg/L			04/08/24 14:22	1
Total Alkalinity as CaCO3 (SM 2320B)	**390**		5.0	2.5	mg/L			04/08/24 14:22	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	**649.22**				ft			04/01/24 15:45	1
Oxidation Reduction Potential	**19.7**				mV			04/01/24 15:45	1
Oxygen, Dissolved	**4.60**				mg/L			04/01/24 15:45	1
Field pH	**6.94**				SU			04/01/24 15:45	1
Field Conductivity	**791**				umhos/cm			04/01/24 15:45	1
Field Temperature	**10.3**				Degrees C			04/01/24 15:45	1
Field Turbidity	**0.00**				NTU			04/01/24 15:45	1

Client: SCS Engineers
Project/Site: Lansing Generating Station 25224070

Job ID: 310-278158-1

Client Sample ID: MW-14

Date Collected: 04/02/24 09:05
Date Received: 04/04/24 09:45

Lab Sample ID: 310-278158-5

Matrix: Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**6.6**		5.0	2.3	mg/L			04/05/24 13:12	5
Sulfate	**18**		5.0	2.1	mg/L			04/05/24 13:12	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		04/05/24 09:00	04/10/24 20:23	1
Barium	**37**		2.0	0.64	ug/L		04/05/24 09:00	04/10/24 20:23	1
Boron	<76		100	76	ug/L		04/05/24 09:00	04/10/24 20:23	1
Calcium	**66**		0.50	0.19	mg/L		04/05/24 09:00	04/10/24 20:23	1
Cobalt	<0.17		0.50	0.17	ug/L		04/05/24 09:00	04/10/24 20:23	1
Copper	<1.8		5.0	1.8	ug/L		04/05/24 09:00	04/10/24 20:23	1
Iron	<36		100	36	ug/L		04/05/24 09:00	04/10/24 20:23	1
Magnesium	**35000**		500	150	ug/L		04/05/24 09:00	04/10/24 20:23	1
Manganese	<3.6		10	3.6	ug/L		04/05/24 09:00	04/10/24 20:23	1
Nickel	<1.9		5.0	1.9	ug/L		04/05/24 09:00	04/10/24 20:23	1
Potassium	**910**		500	150	ug/L		04/05/24 09:00	04/10/24 20:23	1
Selenium	<1.4		5.0	1.4	ug/L		04/05/24 09:00	04/10/24 20:23	1
Sodium	**3400**		1000	460	ug/L		04/05/24 09:00	04/10/24 20:23	1
Strontium	**59**		1.0	0.53	ug/L		04/05/24 09:00	04/10/24 20:23	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**160**		5.0	2.5	mg/L			04/08/24 14:32	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<2.5		5.0	2.5	mg/L			04/08/24 14:32	1
Total Alkalinity as CaCO3 (SM 2320B)	**160**		5.0	2.5	mg/L			04/08/24 14:32	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	**641.85**				ft			04/02/24 09:05	1
Oxidation Reduction Potential	**64.3**				mV			04/02/24 09:05	1
Oxygen, Dissolved	**6.07**				mg/L			04/02/24 09:05	1
Field pH	**7.48**				SU			04/02/24 09:05	1
Field Conductivity	**510.7**				umhos/cm			04/02/24 09:05	1
Field Temperature	**9.4**				Degrees C			04/02/24 09:05	1
Field Turbidity	**0.00**				NTU			04/02/24 09:05	1

Client: SCS Engineers
Project/Site: Lansing Generating Station 25224070

Job ID: 310-278158-1

Client Sample ID: TW-18

Date Collected: 04/01/24 16:50
Date Received: 04/04/24 09:45

Lab Sample ID: 310-278158-6

Matrix: Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	57		5.0	2.3	mg/L			04/05/24 13:25	5
Sulfate	25		5.0	2.1	mg/L			04/05/24 13:25	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.2		2.0	0.53	ug/L		04/05/24 09:00	04/10/24 20:25	1
Barium	190		2.0	0.64	ug/L		04/05/24 09:00	04/10/24 20:25	1
Boron	240		100	76	ug/L		04/05/24 09:00	04/10/24 20:25	1
Calcium	100		0.50	0.19	mg/L		04/05/24 09:00	04/10/24 20:25	1
Cobalt	2.2		0.50	0.17	ug/L		04/05/24 09:00	04/10/24 20:25	1
Copper	<1.8		5.0	1.8	ug/L		04/05/24 09:00	04/10/24 20:25	1
Iron	6900		100	36	ug/L		04/05/24 09:00	04/10/24 20:25	1
Magnesium	38000		500	150	ug/L		04/05/24 09:00	04/10/24 20:25	1
Manganese	4500		10	3.6	ug/L		04/05/24 09:00	04/10/24 20:25	1
Nickel	12		5.0	1.9	ug/L		04/05/24 09:00	04/10/24 20:25	1
Potassium	1100		500	150	ug/L		04/05/24 09:00	04/10/24 20:25	1
Selenium	<1.4		5.0	1.4	ug/L		04/05/24 09:00	04/10/24 20:25	1
Sodium	34000		1000	460	ug/L		04/05/24 09:00	04/10/24 20:25	1
Strontium	160		1.0	0.53	ug/L		04/05/24 09:00	04/10/24 20:25	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	320		5.0	2.5	mg/L			04/08/24 14:40	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<2.5		5.0	2.5	mg/L			04/08/24 14:40	1
Total Alkalinity as CaCO3 (SM 2320B)	320		5.0	2.5	mg/L			04/08/24 14:40	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Groundwater Elevation	648.33				ft			04/01/24 16:50	1
Oxidation Reduction Potential	-44.6				mV			04/01/24 16:50	1
Oxygen, Dissolved	0.18				mg/L			04/01/24 16:50	1
Field pH	6.74				SU			04/01/24 16:50	1
Field Conductivity	814				umhos/cm			04/01/24 16:50	1
Field Temperature	6.8				Degrees C			04/01/24 16:50	1
Field Turbidity	21.53				NTU			04/01/24 16:50	1

Client: SCS Engineers
Job ID: 310-278158-1
Project/Site: Lansing Generating Station 25224070

Client Sample ID: Field Blank
Lab Sample ID: 310-278158-7
Date Collected: 04/02/24 10:20
Matrix: Water
Date Received: 04/04/24 09:45

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			04/05/24 14:03	1
Sulfate	<0.42		1.0	0.42	mg/L			04/05/24 14:03	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		04/05/24 09:00	04/10/24 20:28	1
Barium	<0.64		2.0	0.64	ug/L		04/05/24 09:00	04/10/24 20:28	1
Boron	<76		100	76	ug/L		04/05/24 09:00	04/10/24 20:28	1
Calcium	<0.19		0.50	0.19	mg/L		04/05/24 09:00	04/10/24 20:28	1
Cobalt	<0.17		0.50	0.17	ug/L		04/05/24 09:00	04/10/24 20:28	1
Copper	<1.8		5.0	1.8	ug/L		04/05/24 09:00	04/10/24 20:28	1
Iron	<36		100	36	ug/L		04/05/24 09:00	04/10/24 20:28	1
Magnesium	<150		500	150	ug/L		04/05/24 09:00	04/10/24 20:28	1
Manganese	<3.6		10	3.6	ug/L		04/05/24 09:00	04/10/24 20:28	1
Nickel	<1.9		5.0	1.9	ug/L		04/05/24 09:00	04/10/24 20:28	1
Potassium	<150		500	150	ug/L		04/05/24 09:00	04/10/24 20:28	1
Selenium	<1.4		5.0	1.4	ug/L		04/05/24 09:00	04/10/24 20:28	1
Sodium	<460		1000	460	ug/L		04/05/24 09:00	04/10/24 20:28	1
Strontium	<0.53		1.0	0.53	ug/L		04/05/24 09:00	04/10/24 20:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**54**		5.0	2.5	mg/L			04/08/24 14:49	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<2.5		5.0	2.5	mg/L			04/08/24 14:49	1
Total Alkalinity as CaCO3 (SM 2320B)	**54**		5.0	2.5	mg/L			04/08/24 14:49	1

Definitions/Glossary

Client: SCS Engineers
Job ID: 310-278158-1
Project/Site: Lansing Generating Station 25224070

Qualifiers

Metals

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 310-418130/3
Matrix: Water
Analysis Batch: 418130

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			04/05/24 11:32	1
Sulfate	<0.42		1.0	0.42	mg/L			04/05/24 11:32	1

Lab Sample ID: LCS 310-418130/4
Matrix: Water
Analysis Batch: 418130

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	10.0		mg/L		100	90 - 110
Sulfate	10.0	10.5		mg/L		105	90 - 110

Lab Sample ID: 310-278158-1 MS
Matrix: Water
Analysis Batch: 418130

Client Sample ID: MW-6
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	5.8		25.0	30.2		mg/L		97	80 - 120
Sulfate	22		25.0	47.9		mg/L		102	80 - 120

Lab Sample ID: 310-278158-1 MSD
Matrix: Water
Analysis Batch: 418130

Client Sample ID: MW-6
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	5.8		25.0	30.5		mg/L		99	80 - 120	1	15
Sulfate	22		25.0	48.9		mg/L		106	80 - 120	2	15

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-417898/1-A
Matrix: Water
Analysis Batch: 418441

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 417898

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.53		2.0	0.53	ug/L		04/05/24 09:00	04/10/24 19:16	1
Barium	<0.64		2.0	0.64	ug/L		04/05/24 09:00	04/10/24 19:16	1
Calcium	<0.19		0.50	0.19	mg/L		04/05/24 09:00	04/10/24 19:16	1
Cobalt	<0.17		0.50	0.17	ug/L		04/05/24 09:00	04/10/24 19:16	1
Copper	<1.8		5.0	1.8	ug/L		04/05/24 09:00	04/10/24 19:16	1
Iron	<36		100	36	ug/L		04/05/24 09:00	04/10/24 19:16	1
Magnesium	<150		500	150	ug/L		04/05/24 09:00	04/10/24 19:16	1
Manganese	<3.6		10	3.6	ug/L		04/05/24 09:00	04/10/24 19:16	1
Nickel	<1.9		5.0	1.9	ug/L		04/05/24 09:00	04/10/24 19:16	1
Potassium	<150		500	150	ug/L		04/05/24 09:00	04/10/24 19:16	1
Selenium	<1.4		5.0	1.4	ug/L		04/05/24 09:00	04/10/24 19:16	1
Sodium	<460		1000	460	ug/L		04/05/24 09:00	04/10/24 19:16	1
Strontium	<0.53		1.0	0.53	ug/L		04/05/24 09:00	04/10/24 19:16	1

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

Lab Sample ID: MB 310-417898/1-A
Matrix: Water
Analysis Batch: 418555

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 417898

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<76		100	76	ug/L		04/05/24 09:00	04/11/24 13:42	1

Lab Sample ID: LCS 310-417898/2-A
Matrix: Water
Analysis Batch: 418441

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 417898

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	200	218		ug/L		109	80 - 120
Barium	100	109		ug/L		109	80 - 120
Calcium	2.00	1.68		mg/L		84	80 - 120
Cobalt	100	111		ug/L		111	80 - 120
Copper	200	223		ug/L		111	80 - 120
Iron	200	202		ug/L		101	80 - 120
Magnesium	2000	1980		ug/L		99	80 - 120
Manganese	100	101		ug/L		101	80 - 120
Nickel	200	225		ug/L		112	80 - 120
Potassium	2000	1910		ug/L		95	80 - 120
Selenium	400	410		ug/L		103	80 - 120
Sodium	2000	1890		ug/L		94	80 - 120
Strontium	200	207		ug/L		104	80 - 120

Lab Sample ID: LCS 310-417898/2-A
Matrix: Water
Analysis Batch: 418555

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 417898

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	200	207		ug/L		104	80 - 120

Method: SM 2320B - Alkalinity

Lab Sample ID: LCS 310-418207/2
Matrix: Water
Analysis Batch: 418207

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	938		mg/L		94	90 - 110

HPLC/IC

Analysis Batch: 418130

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-278158-1	MW-6	Total/NA	Water	9056A	
310-278158-2	MW-11R	Total/NA	Water	9056A	
310-278158-3	MW-12	Total/NA	Water	9056A	
310-278158-4	MW-12P	Total/NA	Water	9056A	
310-278158-5	MW-14	Total/NA	Water	9056A	
310-278158-6	TW-18	Total/NA	Water	9056A	
310-278158-7	Field Blank	Total/NA	Water	9056A	
MB 310-418130/3	Method Blank	Total/NA	Water	9056A	
LCS 310-418130/4	Lab Control Sample	Total/NA	Water	9056A	
310-278158-1 MS	MW-6	Total/NA	Water	9056A	
310-278158-1 MSD	MW-6	Total/NA	Water	9056A	

Metals

Prep Batch: 417898

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-278158-1	MW-6	Total/NA	Water	3005A	
310-278158-2	MW-11R	Total/NA	Water	3005A	
310-278158-3	MW-12	Total/NA	Water	3005A	
310-278158-4	MW-12P	Total/NA	Water	3005A	
310-278158-5	MW-14	Total/NA	Water	3005A	
310-278158-6	TW-18	Total/NA	Water	3005A	
310-278158-7	Field Blank	Total/NA	Water	3005A	
MB 310-417898/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-417898/2-A	Lab Control Sample	Total/NA	Water	3005A	

Analysis Batch: 418441

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-278158-1	MW-6	Total/NA	Water	6020B	417898
310-278158-2	MW-11R	Total/NA	Water	6020B	417898
310-278158-3	MW-12	Total/NA	Water	6020B	417898
310-278158-4	MW-12P	Total/NA	Water	6020B	417898
310-278158-5	MW-14	Total/NA	Water	6020B	417898
310-278158-6	TW-18	Total/NA	Water	6020B	417898
310-278158-7	Field Blank	Total/NA	Water	6020B	417898
MB 310-417898/1-A	Method Blank	Total/NA	Water	6020B	417898
LCS 310-417898/2-A	Lab Control Sample	Total/NA	Water	6020B	417898

Analysis Batch: 418555

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-278158-2	MW-11R	Total/NA	Water	6020B	417898
MB 310-417898/1-A	Method Blank	Total/NA	Water	6020B	417898
LCS 310-417898/2-A	Lab Control Sample	Total/NA	Water	6020B	417898

General Chemistry

Analysis Batch: 418207

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-278158-1	MW-6	Total/NA	Water	SM 2320B	
310-278158-2	MW-11R	Total/NA	Water	SM 2320B	
310-278158-3	MW-12	Total/NA	Water	SM 2320B	
310-278158-4	MW-12P	Total/NA	Water	SM 2320B	

General Chemistry (Continued)

Analysis Batch: 418207 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-278158-5	MW-14	Total/NA	Water	SM 2320B	
310-278158-6	TW-18	Total/NA	Water	SM 2320B	
310-278158-7	Field Blank	Total/NA	Water	SM 2320B	
LCS 310-418207/2	Lab Control Sample	Total/NA	Water	SM 2320B	

Field Service / Mobile Lab

Analysis Batch: 418094

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-278158-1	MW-6	Total/NA	Water	Field Sampling	
310-278158-2	MW-11R	Total/NA	Water	Field Sampling	
310-278158-3	MW-12	Total/NA	Water	Field Sampling	
310-278158-4	MW-12P	Total/NA	Water	Field Sampling	
310-278158-5	MW-14	Total/NA	Water	Field Sampling	
310-278158-6	TW-18	Total/NA	Water	Field Sampling	

Lab Chronicle

Client: SCS Engineers
Project/Site: Lansing Generating Station 25224070

Job ID: 310-278158-1

Client Sample ID: MW-6
Date Collected: 04/01/24 13:05
Date Received: 04/04/24 09:45

Lab Sample ID: 310-278158-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	418130	QTZ5	EET CF	04/05/24 11:57
Total/NA	Prep	3005A			417898	KM3E	EET CF	04/05/24 09:00
Total/NA	Analysis	6020B		1	418441	NFT2	EET CF	04/10/24 20:05
Total/NA	Analysis	SM 2320B		1	418207	MAQ3	EET CF	04/08/24 13:51
Total/NA	Analysis	Field Sampling		1	418094	BJ0R	EET CF	04/01/24 13:05

Client Sample ID: MW-11R
Date Collected: 04/02/24 10:05
Date Received: 04/04/24 09:45

Lab Sample ID: 310-278158-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	418130	QTZ5	EET CF	04/05/24 12:35
Total/NA	Prep	3005A			417898	KM3E	EET CF	04/05/24 09:00
Total/NA	Analysis	6020B		1	418441	NFT2	EET CF	04/10/24 20:07
Total/NA	Prep	3005A			417898	KM3E	EET CF	04/05/24 09:00
Total/NA	Analysis	6020B		4	418555	NFT2	EET CF	04/11/24 14:14
Total/NA	Analysis	SM 2320B		1	418207	MAQ3	EET CF	04/08/24 13:59
Total/NA	Analysis	Field Sampling		1	418094	BJ0R	EET CF	04/02/24 10:05

Client Sample ID: MW-12
Date Collected: 04/01/24 15:00
Date Received: 04/04/24 09:45

Lab Sample ID: 310-278158-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	418130	QTZ5	EET CF	04/05/24 12:47
Total/NA	Prep	3005A			417898	KM3E	EET CF	04/05/24 09:00
Total/NA	Analysis	6020B		1	418441	NFT2	EET CF	04/10/24 20:09
Total/NA	Analysis	SM 2320B		1	418207	MAQ3	EET CF	04/08/24 14:12
Total/NA	Analysis	Field Sampling		1	418094	BJ0R	EET CF	04/01/24 15:00

Client Sample ID: MW-12P
Date Collected: 04/01/24 15:45
Date Received: 04/04/24 09:45

Lab Sample ID: 310-278158-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	418130	QTZ5	EET CF	04/05/24 13:00
Total/NA	Prep	3005A			417898	KM3E	EET CF	04/05/24 09:00
Total/NA	Analysis	6020B		1	418441	NFT2	EET CF	04/10/24 20:21
Total/NA	Analysis	SM 2320B		1	418207	MAQ3	EET CF	04/08/24 14:22
Total/NA	Analysis	Field Sampling		1	418094	BJ0R	EET CF	04/01/24 15:45

Lab Chronicle

Client: SCS Engineers
Job ID: 310-278158-1
Project/Site: Lansing Generating Station 25224070

Client Sample ID: MW-14
Lab Sample ID: 310-278158-5
Date Collected: 04/02/24 09:05
Matrix: Water
Date Received: 04/04/24 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	418130	QTZ5	EET CF	04/05/24 13:12
Total/NA	Prep	3005A			417898	KM3E	EET CF	04/05/24 09:00
Total/NA	Analysis	6020B		1	418441	NFT2	EET CF	04/10/24 20:23
Total/NA	Analysis	SM 2320B		1	418207	MAQ3	EET CF	04/08/24 14:32
Total/NA	Analysis	Field Sampling		1	418094	BJ0R	EET CF	04/02/24 09:05

Client Sample ID: TW-18
Lab Sample ID: 310-278158-6
Date Collected: 04/01/24 16:50
Matrix: Water
Date Received: 04/04/24 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	418130	QTZ5	EET CF	04/05/24 13:25
Total/NA	Prep	3005A			417898	KM3E	EET CF	04/05/24 09:00
Total/NA	Analysis	6020B		1	418441	NFT2	EET CF	04/10/24 20:25
Total/NA	Analysis	SM 2320B		1	418207	MAQ3	EET CF	04/08/24 14:40
Total/NA	Analysis	Field Sampling		1	418094	BJ0R	EET CF	04/01/24 16:50

Client Sample ID: Field Blank
Lab Sample ID: 310-278158-7
Date Collected: 04/02/24 10:20
Matrix: Water
Date Received: 04/04/24 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		1	418130	QTZ5	EET CF	04/05/24 14:03
Total/NA	Prep	3005A			417898	KM3E	EET CF	04/05/24 09:00
Total/NA	Analysis	6020B		1	418441	NFT2	EET CF	04/10/24 20:28
Total/NA	Analysis	SM 2320B		1	418207	MAQ3	EET CF	04/08/24 14:49

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: 310-278158-1
Project/Site: Lansing Generating Station 25224070

Laboratory: Eurofins Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-25

Method Summary

Client: SCS Engineers
Job ID: 310-278158-1
Project/Site: Lansing Generating Station 25224070

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
SM 2320B	Alkalinity	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.

Laboratory References:

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

eurofins | Environment Testing America

310-278158 Chain of Custody

Cooler/Sample Receipt and Temperatur

Client Information

Client: SCS

City/State: CITY | STATE | Project:

Receipt Information

Date/Time Received: DATE 4.[illegible].24 | TIME 0945 | Received By: CC

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: X | 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): 2.6 | Corrected Temp (°C): 2.6

• **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

Eurofins TestAmerica, Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone (319) 277-2401 Phone (319) 277-2425

Chain of Custody Record

eurofins

Client Information	Sampler: Ethan Schaefer	Lab PM: Sandie Fredrick	Carrier Tracking No(s):	COC No
Client Contact: Meghan Blodgett	Phone: 608-693-0949	E-Mail: Sandra.Fredrick@et.eurofinsus.com	State of Origin:	Page: Page 1 of 1
Company: SCS Engineers	PWSID:	Analysis Requested		Job #:
Address: 2830 Dairy Drive	Due Date 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; Z - other (specify); Other:
City: Madison	TAT Requested (days):			
State, Zip: WI, 53718	Compliance Project: Δ Yes Δ No			
Phone: 608-224-2830	PO #: 25223070			
Email: mblodgett@scsengineers.com	WO #:			
Project Name: Lansing Generating Station 25223070	Project #: 25223070			
Site: Lansing, IA	SSOW#:			

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)	6020 Metals, total (As Ba B Ca Co, Cu, Fe Mg Mn Ni, K, Se Na Sr)	Bicarbonate & carbonate alkalinity	Chloride Sulfate	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	I	I		
MW-6	4/1	1305	G	W	N		X	X	X		
MW-11R	4/2	1005	G	W	N		X	X	X		
MW-12	4/1	1500	G	W	N		X	X	X		
MW-12P	4/1	1545	G	W	N		X	X	X		
~~MW-13~~			~~G~~	~~W~~	~~N~~		~~X~~	~~X~~	~~X~~		
MW-14	4/2	905	G	W	N		X	X	X		
~~MW-15~~			~~G~~	~~W~~	~~N~~		~~X~~	~~X~~	~~X~~		
TW-18	4/1	1650	G	W	N		X	X	X		
Field Blank	4/2	1020	G	W	N		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:	Date/Time:	Company	Received by:	Date/Time:	Company
	4/3/24 1030	SCS	MU	4-4-24 945	
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: 01/16/2019

Table 1. Sampling Points and Parameters - State Sampling Program
Groundwater Monitoring - Lansing Generating CCR Landfill
SCS Engineers Project #25224070

Parameter [2,3]	MW-1 [1]	MW-2 [1]	MW-3 [1]	MW-6	MW-11R	MW-12	MW-12P [5]	MW-13	MW-14	MW-15 [5]	MW-16	MW-18	MW-19	MW-22	MW-22P	TW-17 [5]	TW-18 [5]	TW-19 [5]	Field Blank	SW-1 Cut "X" in curb on S side of bridge at entrance road, at approx. center of bridge	SW-2 Cut "X" in downstream headwall of RCB culvert (near TW-17/18/19)	SW-3 Cut "X" in NW side of bridge deck to mobile home court, ~9' from W end of bridge	SW-4 Ash pond catwalk - cut "X" on top of kick rail at east edge of catwalk	SW-5 Outfall piling water level point, cut "X" in top of sheet pile wall	TOTAL
Arsenic, total (unfiltered)				x	x	x	x	x	x	x							x		x						9
Barium, total (unfiltered)				x	x	x	x	x	x	x							x		x						9
Boron, total (unfiltered)				x	x	x	x	x	x	x							x		x						9
Calcium [4], total (unfiltered)				x	x	x	x	x	x	x							x		x						9
Cobalt, total (unfiltered)				x	x	x	x	x	x	x							x		x						9
Copper, total (unfiltered)				x	x	x	x	x	x	x							x		x						9
Iron, total (unfiltered)				x	x	x	x	x	x	x							x		x						9
Magnesium, total (unfiltered)				x	x	x	x	x	x	x							x		x						9
Manganese, total (unfiltered)				x	x	x	x	x	x	x							x		x						9
Nickel [4], total (unfiltered)				x	x	x	x	x	x	x							x		x						9
Potassium [4], total (unfiltered)				x	x	x	x	x	x	x							x		x						9
Selenium, total (unfiltered)				x	x	x	x	x	x	x							x		x						9
Sodium [4], total (unfiltered)				x	x	x	x	x	x	x							x		x						9
Strontium [4], total (unfiltered)				x	x	x	x	x	x	x							x		x						9
Alkalinity (total) [4]				x	x	x	x	x	x	x							x		x						9
Chloride (total)				x	x	x	x	x	x	x							x		x						9
Sulfate (total)				x	x	x	x	x	x	x							x		x						9
Field Parameters																									
pH				x	x	x	x	x	x	x							x								8
Conductance				x	x	x	x	x	x	x							x								8
Temperature				x	x	x	x	x	x	x							x								8
Groundwater Elevation	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x							18
Well Depth (wells with no dedicated pump)	x	x	x								x	x	x	x	x	x		x							10
Turbidity, Field				x	x	x	x	x	x	x							x								8
Color, Field				x	x	x	x	x	x	x							x								8
Odor, Field				x	x	x	x	x	x	x							x								8
Dissolved Oxygen				x	x	x	x	x	x	x							x								8
Redox Potential				x	x	x	x	x	x	x							x								8
Surface Water Elevation																				x	x	x	x	x	5

Notes:
(1): Monitoring at MW-1, MW-2, and MW-3 is not required by IDNR, but they have historically been included for groundwater elevation measurements only

(2): Metals samples are to be UNFILTERED.

(3): Beryllium, Lead, and Zinc were removed from the annual sampling plan in Permit Amendment #1, dated 11/6/2014.

(4): Alkalinity, calcium, nickel, potassium, sodium, and strontium were added to the annual sampling plan in Permit Amendment #1, dated 11/6/2014. These parameters had not previously been inculded in regular annual sampling events, but had been included in the 2013-2014 Groundwater Assessment sampling.

(5): MW-12P, MW-15, TW-17, TW-18, and TW-19 were added to the annual sampling plan in Permit Amendment #1, dated 11/6/2014.

I:\25223070.00\Data and Calculations\Field Work Requests\[Lansing_Sampling_Points_and_Parameters_State.xls]Sheet1

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-278158-1

Login Number: 278158
List Number: 1
Creator: Costello, Mackenzie K

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.	True	
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	

Groundwater Monitoring Results - Field Parameters
Lansing Generating Station / SCS Engineers Project #25224070.00
April 2024

Sample	Sample Date/Time	Groundwater Elevation (ft AMSL)	Temperature (Deg. C)	pH (Std. Units)	Dissolved Oxygen (mg/L)	Specific Conductivity (µmhos/cm)	ORP (mV)	Turbidity (NTU)
MW-6	4/1/2024 1307	663.16	9.6	7.12	6.61	528.2	76.5	0.00
MW-301	4/1/2024 1620	622.11	9.2	7.84	0.54	586.8	11.7	0.00
MW-302	4/2/2024 935	625.60	7.4	7.06	0.14	1175	-175.9	0.00
MW-302A	4/2/2024 1045	622.53	10.6	7.37	5.67	607.2	22.9	0.00
MW-304	4/1/2024 1215	621.05	9.4	7.28	7.97	543.9	161.2	0.00
MW-304A	4/1/2024 1300	623.25	10.2	8.02	0.47	499.7	122.9	59.83
MW-305	4/2/2024 1225	626.49	6.8	7.23	1.18	656.8	-126.0	0.00
MW-306	4/2/2024 1150	620.18	11.9	6.97	0.13	2002	-167.8	1.51
MW-306A	4/2/2024 1240	620.56	12.3	7.36	1.31	619.1	-91.7	0.00
MW-307	4/1/2024 1415	628.61	8.8	8.62	0.48	421.4	-173.6	0.00
MW-307A	4/1/2024 1510	624.61	10.6	7.56	0.19	587.9	-74.0	0.00

Abbreviations:
ft amsl = feet above mean sea level
µmhos/cm = micromhos per centimeter
mg/L = milligrams per liter
mV = millivolts
ORP = Oxidation Reduction (REDOX)
NTU = Nephelometric Turbidity Units

Created by: EMS Date: 4/13/2023
Last revision by: EMS Date: 4/3/2024
Checked by: RM Date: 4/5/2024

C:\Users\hld0\AppData\Local\Microsoft\Windows\INetCache\Content.Outlook\USG3GGGC\[April 2024_Lansing_CCR_Field.xlsx]Data

Appendix C

Summary of Groundwater Chemistry – Pre-2019

Table 3. Historical Groundwater Analytical Results Summary
Alliant-Lansing CCR Landfill / SCS Engineers Project #25216070.18
(Results are in µg/L, unless otherwise noted)

Sample	Date	DO, Field (mg/L)	Redox, Field (mV)	pH, Field (SU)	Temp., Field (deg C)	Specific Conduc-tance, Field (µS/cm)	Alkalinity, Total As CaCO3 (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Arsenic (µg/L)	Barium (µg/L)	Boron (µg/L)	Calcium (mg/L)	Cobalt (µg/L)	Copper (µg/L)	Iron (µg/L)	Magnesium (mg/L)	Manganese (µg/L)	Nickel (µg/L)	Potassium (mg/L)	Selenium (µg/L)	Sodium (mg/L)	Strontium (µg/L)
MW3	5/11/2001	NA	NA	NA	NA	NA	NA	<5.0	75	<1.8	45	NA	NA	<3.6	<13	<33	39	9.4	NA	NA	<1.5	NA	NA
MW4	5/11/2001	NA	NA	NA	NA	NA	NA	<5.0	44	<1.8	32	NA	NA	<3.6	<13	<33	37	2.1	NA	NA	<1.5	NA	NA
	3/8/2002	NA	NA	NA	NA	NA	NA	<5.0	43	<0.88	39	NA	NA	<11	<9.1	<22	39	2.3	NA	NA	<0.73	NA	NA
	2/19/2004	NA	NA	NA	NA	NA	NA	<5.0 D	36	<3.5	33	NA	NA	**7.4**	19	<16	36	3.6	NA	NA	<4.3	NA	NA
	5/26/2004	NA	NA	NA	NA	NA	NA	5.7	51	3.3	27	NA	NA	<6.3	<18	<16	37	<0.96	NA	NA	<3.2	NA	NA
	8/23/2004	NA	NA	NA	NA	NA	NA	5.4	49	<0.79	37	NA	NA	<6.3	<18	<16	38	<0.96	NA	NA	<3.2	NA	NA
	11/18/2004	NA	NA	NA	NA	NA	NA	<5.0	43	<0.79	36	NA	NA	<6.3	<18	<16	36	<0.96	NA	NA	<3.2	NA	NA
	5/5/2005	NA	NA	NA	NA	NA	NA	<5.0	50	<0.79	40	NA	NA	<6.3	<18	<16	38	2.5 J	NA	NA	<3.2	NA	NA
	5/19/2006	NA	NA	NA	NA	NA	NA	<10	48	2.9	38	NA	NA	<6.3	<18	<16	36	<0.96	NA	NA	<3.2	NA	NA
	5/30/2007	NA	NA	NA	NA	NA	NA	4.6	130	<1	40	NA	NA	<6.3	<18	<16	37	2.0 J	NA	NA	<3.2	NA	NA
	4/16/2008	NA	NA	NA	NA	NA	NA	7.4	54	<0.43	44	NA	NA	<6.3	<18	<16	40	2.2 J	NA	NA	<1.44	NA	NA
	4/3/2009	NA	NA	NA	NA	NA	NA	4.9	44	0.27 J	44	NA	NA	0.17 J	2.0 B	160 J	39	0.98	NA	NA	1.1 B	NA	NA
	4/21/2010	NA	NA	7.47	13.9	647	NA	5.49	39.1	<1.0	39.3	<100	NA	**3.97** J	<20	<100	39.2	<10	NA	NA	<5.0	NA	NA
	5/4/2011	NA	NA	7.31	11.2	648	NA	6.98	44.8	<1.0	43.9	<100	NA	<1.55	<20	<100	42.7	<10	NA	NA	<5.0	NA	NA
	5/4/2011(Dup)	NA	NA	7.31	11.2	648	NA	6.40	45.7	<2.0 RL	43.2	<100	NA	<1.55	<20	<100	42.2	<10	NA	NA	<5.0	NA	NA
	4/25/2012	NA	NA	7.36	11.9	649	NA	5.12	40	<1.0	45.2	<100	NA	<1.55	<20	<100	42.6	<10	NA	NA	<5.0	NA	NA
	4/2/2013	NA	NA	7.74	11.6	583	287 H1	5.9	50.2	<1.0	48	<100	71.0	<5.0	<10	<50	41.5	6.9	<5.0	1.1	2.4	6.0	76
	7/2/2013	NA	NA	7.33	11.4	736	289	6.1	43.2	<1.0	45	140	71.7	<5.0	<10	<50	41.2	<5.0	<5.0	1.2	2.5	7.2	87
	4/29/2014	5.27	110	7.33	10.9	619	332	6.4	44.5	0.62 J	46	61 J	73.0	<0.79	3.5 J	<24	37.6	<2.5	<0.95	0.66	1.5	5.3	86
	5/29/2014	6.48	111	7.6	13.0	480	284	6.2	39.3	<0.18	44	<50	76.2	<0.79	<0.85	<24	40.3	<2.5	<0.95	1.2	0.57 J	5.1	78
	4/21/2015	NA	NA	7.39	10.6	566	331	6.3	40.9	<0.25	45	36 J	75.1	<0.10	1.3 J	<9.0	40.8	2.6 J	1.8 J	1.1	0.71 J	4.7	80
	4/28/2016	7.94	263.5	7.62	10.0	442.8	280	6.3	38.1	0.30 J	44.5	<50.0	73.7 M1	<0.50	0.37 JB	177	40.3	3.3	<0.27	1.04	0.76 J	4.5	71.9 N2
	4/20/2017	9.5	205	7.45	10.0	636	286	5.5	49.6	0.33 J	49.9	134	76.4 M1	0.15 JB	0.35 JB	161 B	43	8.3	0.40 JB	1.29	2.0	5.94	90.5 N2
MW5	3/8/2002	NA	NA	NA	NA	NA	NA	<5.0	45	<0.88	29	NA	NA	<11	<9.1	<22	39	2.5	NA	NA	<0.73	NA	NA
	2/19/2004	NA	NA	NA	NA	NA	NA	<5.0 D	34	<3.5	32	NA	NA	<6.3	18	<16	36	3.8	NA	NA	<4.3	NA	NA
	5/26/2004	NA	NA	NA	NA	NA	NA	<5.0 D	43	4.7	27	NA	NA	<6.3	<18	<16	36	<0.96	NA	NA	<3.2	NA	NA
	8/23/2004	NA	NA	NA	NA	NA	NA	5.4	45	0.92	36	NA	NA	<6.3	<18	<16	38	<0.96	NA	NA	<3.2	NA	NA
	11/18/2004	NA	NA	NA	NA	NA	NA	<5.0	40	<0.79	35	NA	NA	<6.3	<18	<16	36	<0.96	NA	NA	<3.2	NA	NA
	5/5/2005	NA	NA	NA	NA	NA	NA	5.7	49	<0.79	37	NA	NA	<6.3	<18	<16	38	1.5 J	NA	NA	<3.2	NA	NA
	5/19/2006	NA	NA	NA	NA	NA	NA	<10.0	40	<0.79	38	NA	NA	<6.3	<18	<16	36	<0.96	NA	NA	<3.2	NA	NA
	5/30/2007	NA	NA	NA	NA	NA	NA	4.3	110	<1	40	NA	NA	<6.3	<18	<16	37	2.3 J	NA	NA	<3.2	NA	NA
	4/16/2008	NA	NA	NA	NA	NA	NA	5.3	40	<0.43	42	NA	NA	<6.3	<18	<16	39	0.98 J	NA	NA	<1.44	NA	NA
	04/16/08 Dup	NA	NA	NA	NA	NA	NA	5.4	40	<0.43	43	NA	NA	<6.3	<18	<16	38	4.1	NA	NA	<1.44	NA	NA
	4/3/2009	NA	NA	NA	NA	NA	NA	5.3	41	0.22 J	44	NA	NA	0.15 J	0.5 B	150 J	38	0.65	NA	NA	0.64 B	NA	NA
	4/21/2010	NA	NA	7.43	13.7	636	NA	5.34	35.6	<1.0	38.5	<100	NA	<1.55 J	<20	<100	39.1	<10	NA	NA	<5.0	NA	NA
	4/21/2010 (Dup)	NA	NA	NA	NA	NA	NA	5.51	37.6	<1.0	38.7	<100	NA	2.09 J	<20	<100	39.4	<10.0	NA	NA	<5.0	NA	NA
	5/4/2011	NA	NA	7.31	10.9	635	NA	6.79	40.2	<1.0	43.1	<100	NA	<1.55	<20	<100	41.6	<10	NA	NA	<5.0	NA	NA
	4/25/2012	NA	NA	7.32	11.1	648	NA	<5.0 RL1	37.1	<1.0	45	<100	NA	**3.82** J	<20	<100	42.6	<10	NA	NA	<5.0	NA	NA

Table 3. Historical Groundwater Analytical Results Summary
Alliant-Lansing CCR Landfill / SCS Engineers Project #25216070.18
(Results are in µg/L, unless otherwise noted)

Sample	Date	DO, Field (mg/L)	Redox, Field (mV)	pH, Field (SU)	Temp., Field (deg C)	Specific Conduc-tance, Field (µS/cm)	Alkalinity, Total As CaCO3 (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Arsenic (µg/L)	Barium (µg/L)	Boron (µg/L)	Calcium (mg/L)	Cobalt (µg/L)	Copper (µg/L)	Iron (µg/L)	Magnesium (mg/L)	Manganese (µg/L)	Nickel (µg/L)	Potassium (mg/L)	Selenium (µg/L)	Sodium (mg/L)	Strontium (µg/L)
MW5	4/2/2013	NA	NA	7.58	11.8	576	276 H1	5.9	40.3	<1.0	47	<100	70.7	<5.0	<10	<50	40.8	5.2	<5.0	1.2	1.2	5.2	73
(continued)	7/2/2013	NA	NA	7.32	11.3	687	296	7.3	51.9	<1.0	47	140	75	<5.0	<10	<50	42.0	<5.0	<5.0	1.5	2.2	6.7	79
	4/29/2014	5.31	136	7.27	10.8	615	339	6.3	39.4	0.65 J	46	<50	73.3 M1	<0.79	3.5 J	<24	38.1	<2.5	<0.95	0.71	0.88 J	5.0	91
	5/29/2014	5.62	113	7.6	12.9	480	289	6.2	37.4	1.3	42	<50	74.1	<0.79	17	<24	39.4	<2.5	1.3 J	2.7	0.7 J	5.0	75
	4/21/2015	NA	NA	7.40	10.9	553	326	6.2	40.1	<0.25	44	34 J	74.9	<0.10	1.6 J	10 J	40.6	<2.4	0.86 J	1.1	0.73 J	5.7	75
	4/28/2016	8.13	282.2	7.59	10	620.7	286	6.4	37.5	0.26 J	44.5	<50.0	74	<0.50	0.32 JB	75.4	40.3	4.4	<0.27	1.03	0.69 J	4.46	68.4 N2
	4/20/2017	8.8	174	7.44	10	630	299	5.5	44.4	0.26 J	50.5	80.7 J	73.2	0.094 JB	0.40 JB	182	41.3	8.1	0.52 JB	1.11	1.2	5.52	79.1 N2
MW6	5/11/2001	NA	NA	NA	NA	NA	NA	<5.0	29	<1.8	33	NA	NA	<3.6	<13	<33	35	4.6	NA	NA	<1.5	NA	NA
	3/8/2002	NA	NA	NA	NA	NA	NA	<5.0	33	<0.88	38	NA	NA	<11	<9.1	<22	38	2.5	NA	NA	<0.73	NA	NA
	2/19/2004	NA	NA	NA	NA	NA	NA	<5.0 D	25	<3.5	33	NA	NA	Z	18	<16	35	3.6	NA	NA	<4.3	NA	NA
	5/26/2004	NA	NA	NA	NA	NA	NA	6.5	30	3.9	24	NA	NA	<6.3	<18	<16	34	<0.96	NA	NA	<3.4	NA	NA
	8/23/2004	NA	NA	NA	NA	NA	NA	7.0	31	<0.79	36	NA	NA	<6.3	<18	<16	36	<0.96	NA	NA	<3.2	NA	NA
	11/18/2004	NA	NA	NA	NA	NA	NA	5.1	27	<0.79	35	NA	NA	<6.3	<18	<16	35	<0.96	NA	NA	<3.2	NA	NA
	5/5/2005	NA	NA	NA	NA	NA	NA	9.0	38	<0.79	39	NA	NA	<6.3	<18	<16	37	1.6 J	NA	NA	<3.2	NA	NA
	5/19/2006	NA	NA	NA	NA	NA	NA	<10	28 J	0.93 J	37	NA	NA	<6.3	<18	<16	35	<0.96	NA	NA	<3.2	NA	NA
	5/30/2007	NA	NA	NA	NA	NA	NA	4.3	190	<1.0	41	NA	NA	<6.3	<18	<16	36	1.6 J	NA	NA	<3.2	NA	NA
	4/16/2008	NA	NA	NA	NA	NA	NA	6.0	20	<0.43	41	NA	NA	<6.3	<18	<16	36	<0.96	NA	NA	<1.44	NA	NA
	4/3/2009 Dup	NA	NA	NA	NA	NA	NA	5.9	24	0.29 J	46	NA	NA	<0.12	1.2 B	150 J	37	0.77	NA	NA	0.43	NA	NA
	4/3/2009	NA	NA	NA	NA	NA	NA	5.9	24	0.29 J	46	NA	NA	0.15 J	0.9 B	<150	37	0.83	NA	NA	0.45 B	NA	NA
	4/21/2010	NA	NA	7.49	12.3	605	NA	5.89	24.8	<1.0	39.4	<100	NA	2.67 J	<20	<100	36.6	<10	NA	NA	<5.0	NA	NA
	5/4/2011	NA	NA	7.42	10.3	640	NA	6.72	24.4	<1.0	43.9	<100	NA	<1.55	<20	<100	39.2	<10	NA	NA	<5.0	NA	NA
	4/25/2012	NA	NA	7.38	13.2	602	NA	5.35	21.1	<1.0	44	<100	NA	<1.55	<20	<100	40.5	<10	NA	NA	<5.0	NA	NA
	4/2/2013	NA	NA	7.05	11.8	579	314	8.2	23.4	<1.0	37	<100	66.7	<5.0	<10	<50	39.6	1.69	<5.0	1.2	<1.0	5.2	65
	7/2/2013	NA	NA	7.30	11.1	628	298	8.2	24.8	<1.0	43	<100	66.1	<5.0	<10	<50	38.1	1.24	<5.0	1.1	<1.0	4.5	61
	4/29/2014	5.61	-28	7.11	11.3	583	327	8.0	24.2	0.55 J	47	<50	67.4	<0.79	3.5 J	<24	35.6	<2.5	<0.95	0.64	0.6 J	4.8	83
	4/20/2015	NA	NA	7.22	11.0	544	311	6.6	23.8	<0.25	45 D9	23 J	70.6 D9	<0.10	2.2 J	12 J	38.4 D9	<2.4	2.7 J	1.1	0.40 J	4.5 D9	67 D9
	4/29/2016	7.7	243.7	7.64	9.7	596.2	377	7.6	24	0.26 J	44.2	<50.0	68.5	<0.50	0.17 JB	<12.8	37.6	1.5 B	<0.27	1.01	0.46 J	4.61	60.7 N2
	4/19/2017	7.1	321	7.48	10.3	589	293	6.3	25.4	0.27 J	45.7	32.0 JB	67.2	0.047 JB	0.21 JB	27.1 JB	37.9	1.88 B	0.50 JB	1.02	0.46 J	4.87	61.2 N2
	4/16/2018	10.7	290	7.4	9.2	617	311	6.7	26.4	0.19 J	44.9	23.8 J	67.5	<0.014	0.25 JB	<9.6	36.8	0.28 J	0.30 J	1.10	0.24 J	4.65	63.8 N2
	Avg prev 2 yrs	--	--	7.56	10.0	593	335	--	--	--	--	32.0	67.9	--	--	--	37.8	--	0.50	1.02	--	4.7	--
	Result > 2-yr avg?			N	N	Y	N					N	N				N		N	Y		N	
MW11	3/8/2002	NA	NA	NA	NA	NA	NA	15	**380**	**23**	470	NA	NA	<11	<9.1	**28,000**	62	**1,900**	NA	NA	0.87	NA	NA
	5/26/2004	NA	NA	NA	NA	NA	NA	17	160	**16**	180	NA	NA	**17**	<18	**11,000**	53	**9,500**	NA	NA	<3.2	NA	NA
	8/23/2004	NA	NA	NA	NA	NA	NA	16	190	3.8	130	NA	NA	**18**	<18	**410**	68	**10,000**	NA	NA	<3.2	NA	NA
MW11R	4/21/2010	NA	NA	6.84	12.4	1,565	NA	31.6	16.7	2.44	367	188	NA	**9.08** J	<20	**1,690**	88.2	**3,580**	NA	NA	<5.0	NA	NA
	5/4/2011	NA	NA	6.91	13.3	1,787	NA	16.1	<2.00 RL	**11.6**	410	210	NA	**5.24** J	23.6	**27,900**	109	**4,950**	NA	NA	<5.0	NA	NA
	4/25/2012	NA	NA	6.73	12.6	1,844	NA	12.3	<5.00	**13.6**	518	272	NA	**7.55** J	<20	**55,600**	119	**4,560**	NA	NA	<5.0	NA	NA
	4/25/2012 (Dup)	NA	NA	6.73	12.6	1,844	NA	12.6	<5.00	**15.7**	512	272	NA	**7.3** J	<20	**56,500**	120	**4,560**	NA	NA	<5.0	NA	NA

Table 3. Historical Groundwater Analytical Results Summary
Alliant-Lansing CCR Landfill / SCS Engineers Project #25216070.18
(Results are in µg/L, unless otherwise noted)

Sample	Date	DO, Field (mg/L)	Redox, Field (mV)	pH, Field (SU)	Temp., Field (deg C)	Specific Conduc-tance, Field (µS/cm)	Alkalinity, Total As CaCO3 (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Arsenic (µg/L)	Barium (µg/L)	Boron (µg/L)	Calcium (mg/L)	Cobalt (µg/L)	Copper (µg/L)	Iron (µg/L)	Magnesium (mg/L)	Manganese (µg/L)	Nickel (µg/L)	Potassium (mg/L)	Selenium (µg/L)	Sodium (mg/L)	Strontium (µg/L)
MW11R	4/2/2013	NA	NA	7.15	11.8	1,370	882	12.5	<1.0	**25**	490	220	180	**7.0**	<10	**52,800**	110	**4,200**	<5.0	7.6	<1.0	**24.6**	500
(continued)	7/2/2013	NA	NA	7.00	11.2	1,688	1,020	12.5	<1.0	**23**	490	230	181	**7.5**	<10	**55,200**	110	**3,700**	6.8	7.9	<1.0	**24.5**	480
	4/30/2014	0.45	-96	7.08	10.5	1,611	997	12.7	0.52 J	**27**	460	210	174	**7.1**	1.5 J	**57,100**	101	**3,200**	3.3 J	6.0	0.42 J	**26.1**	470
	5/29/2014	0.66	-103	7.6	12.1	890	893	12.6	0.48 J	**27**	470	190	184	**8.1**	1.4 J	**58,500**	107	**3,200**	5.4	7.3	0.35 J	**25.2**	490
	4/21/2015	NA	NA	7.09	10.2	1,303	1,040	12.3	0.38 J	**23**	430	210	179 M1	**5.3**	1.1 J	**56,000**	111	**3,200**	4.8 J	5.3	0.41 J	**27.4**	440
	4/28/2016	0.07	-146.9	7.15	10.3	1,766	910	13.4	0.38 J	**33.4**	503	231	182	**8.2**	0.94 JB	**59,000**	113	**3,040**	6.7	6.87	0.63 J	**23.1**	460 N2
	4/20/2017	0	-166	6.95	10.6	1,863	975	13.5	<1.0	**30.4**	562	296	186	**8.0**	5.8	**65,800**	117	**2,940**	7.7	7.72	0.59 J	**24.7**	492 N2
	4/17/2018	0.3	-153	6.96	10.3	1,769	1020	13.3	0.39 J	**28.5**	485	236	170 M1	**5.9**	3.4	**54,400**	103 M1	**2,630**	4.8	6.88	0.44 J	**25.9**	473 N2
	Avg prev 2 yrs	--	--	7.05	10.5	1815	943	--	--	--	--	264	184	--	--	--	115	--	7.2	7.30	--	23.9	--
	Result > 2-yr avg?			N	N	N	Y					N	N				N		N	N		Y	
MW12	4/2/2013	NA	NA	7.43	12.0	875	422	6.9	125	**16**	220	1,300	77.7	<5.0	<10	**2,200**	41.9	**1,700**	5.4	3.1	<1.0	**103**	100
	7/2/2013	NA	NA	7.24	11.3	937	440	6.9	132	**17**	230	1,200	77.7	<5.0	<10	**3,400**	41.6	**1,400**	7.9	2.9	<1.0	**99.1**	89
	4/30/2014	0.69	-85	7.22	11.0	1,002	485	5.8	160	**16**	260	1,300	77.6	1.9 J	3.1 J	**4,200**	38.3	**1,300**	4.2 J	2.2	<0.23	**108**	89
	5/29/2014	0.58	-85	7.4	13.1	730	421	6.0	145	**14**	280	1,300	86.1	2.1 J	1.3 J	**6,300**	41.3	**1900**	5.3	4.1	<0.23	**96.3**	120
	4/21/2015	NA	NA	7.22	11.3	889	452	4.9	159	**13**	260	1,200	81.6	1.8	1.4 J	**6,600**	39.2	**1,500**	4.6 J	3.1	<0.12	**97.2**	97
	4/28/2016	0.10	-130.3	7.47	10.7	1,054	409	5.3	155	**24.2**	251	1,270	77	1.6	0.97 JB	**8,320**	38.4	**1,080**	4.7	2.67	<0.18	**101**	83.9 N2
	4/20/2017	0.50	-152	7.18	11.2	976	414	5.9	146	**19.4**	259	1,420	79.5	2.2	1.7	**11,500**	41.6	**1,360**	5.1	3.28	0.13 J	**101**	94.2 N2
	4/17/2018	0.1	-148	7.2	10.9	1,052	407	4.8	170	**20.6**	251	1,300	73.7	1.9	5.7	**9,190**	36.6	**1,080**	5.4	3.06	<0.086	**103**	90.6 N2
	Avg prev 2 yrs	--	--	7.33	11.0	1015	412	--	--	--	--	1235	78	--	--	--	40.0	--	4.9	3.0	--	101	--
	Result > 2-yr avg?			N	N	Y	N					Y	N				N		Y	Y		Y	
MW12P	4/30/2014	0.56	79	7.28	10.9	947	467	29.3	126	1.0	94	1,400	120	1.6 J	2.5 J	<24	52.2	**590**	2.7 J	1.3	2.2	**23.5**	120
	5/29/2014	0.75	127	7.6	13.0	730	548	23.9	161	0.45 J	100	1,800	130	<0.79	<0.85	<24	55.1	**430**	3.7 J	1.9	2.4	**31.7**	120
	4/21/2015	NA	NA	7.05	10.5	928	478	36.2	145	0.34 J	96	1,600	141	0.37 J	1.6 J	12 J	61.1	41	1.2 J	1.7	2.5	**22.9**	130
	4/28/2016	4.82	290.1	7.25	10.6	1,025	391	49.7	84.1	0.44 J	82.2	1,240	123	0.7 J	0.58 JB	250	53.8	13.7	0.74 J	1.57	1.7	19.9	104 N2
	4/20/2017	2.9	183	7.19	10.8	1,028	354	11.5	214	0.88 J	102	2,750	129	1.3	2.3	**2,370**	56.5	**96.9**	2.6	2.36	4.1	**34.8**	107 N2
	4/17/2018	1.1	264	7.13	10.6	1,295	384	9.1	**378**	0.51 J	103	3,510	143	0.96 J	1.7	**1,270**	58.8	**84.8**	1.7	2.56	3.7	**54.5**	130 N2
	Avg prev 2 yrs	--	--	7.22	10.70	1027	373	--	--	--	--	1995	126	--	--	--	55.2	--	1.7	2.0	--	27.4	--
	Result > 2-yr avg?			N	N	Y	Y					Y	Y				Y		Y	Y		Y	
MW13	4/2/2013	NA	NA	7.87	11.1	363	95	22.1	60.2	1.1	46	1,200	46.0	<5.0	<10	<50	7.8	**21**	<5.0	3.7	2.6	16.6	800
	7/2/2013	NA	NA	7.33	11.2	853	273	12.1	79.1	<1.0	64	1,600	78.3	<5.0	<10	<50	29.6	6.5	<5.0	2.1	4.5	16.2	610
	7/2/2013 Dup	NA	NA	NA	NA	NA	268	12.7	78.1	<1.0	64	1,500	76.9	<5.0	<10	<50	29.4	7.3	<5.0	2.1	4.4	16.3	610
	4/30/2014	1.96	73	7.56	8.1	504	132	20.7	73.0	1.6	36	1,300	41.6	<0.79	2.5 J	52	7.5	**17**	<0.95	2.5	1.7	18.6	730
	5/29/2014	2.46	145	8.2	9.3	370	256	18.5	85.2	0.65 J	49	1,200	74.2	<0.79	<0.85	<24	15.8	3.3 J	<0.95	2.8	6.5	17.8	1,200
	4/20/2015	NA	NA	7.77	8.7	348	151	17.9	62.9	1.1	28	1,200	39.5	<0.10	1.3 J	<9.0	5.7	15	1.4 J	3.1	1.3	15.8	970
	4/28/2016	1.08	154.9	**9.05**	10.1	350.3	60.2	19	81.1	3.5	46.4	1,410	47	1.9	5.1	**3,760**	7.49	**70.4**	4.8	4.41	1.5	18.7	975 N2
	4/20/2017	6.1	320	7.23	9	758	355	5.7	71.5	1.5	83.8	1,160	106	**2.9**	6.6	**5,100**	47.6	**257**	6.4	2.04	3.6	16.7	268 N2
	4/17/2018	2.8	9	7.38	7.7	621	154	18.7	114	0.89 J	50.5	922	70.8	**1.7**	3.6	**2,010**	22.5	**160**	3.2	2.04	3.6	12.8	897 N2
	Avg prev 2 yrs	--	--	8.14	9.55	554	208	--	--	--	--	1285	77	--	--	--	27.5	--	5.6	3.2	--	17.7	--
	Result > 2-yr avg?			N	N	Y	N					N	N				N		N	N		N	

Table 3. Historical Groundwater Analytical Results Summary
Alliant-Lansing CCR Landfill / SCS Engineers Project #25216070.18
(Results are in µg/L, unless otherwise noted)

Sample	Date	DO, Field (mg/L)	Redox, Field (mV)	pH, Field (SU)	Temp., Field (deg C)	Specific Conduc-tance, Field (µS/cm)	Alkalinity, Total As CaCO3 (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Arsenic (µg/L)	Barium (µg/L)	Boron (µg/L)	Calcium (mg/L)	Cobalt (µg/L)	Copper (µg/L)	Iron (µg/L)	Magnesium (mg/L)	Manganese (µg/L)	Nickel (µg/L)	Potassium (mg/L)	Selenium (µg/L)	Sodium (mg/L)	Strontium (µg/L)
MW14	4/2/2013	NA	NA	7.65	10.6	536	312	9.0	23.5	<1.0	43	<100	65.7	<5.0	<10	<50	37.6	<5.0	<5.0	1.2	<1.0	4.1	67
	7/2/2013	NA	NA	7.56	10.8	593	283	8.2	22.1	<1.0	39	<100	63.8	<5.0	<10	<50	36.8	<5.0	<5.0	1.2	<1.0	3.9	60
	4/30/2014	4.65	141	7.59	9.0	550	336	6.9	20.8	0.54 J	41	<50	65.3	<0.79	2.3 J	**310**	33.0	17	<0.95	0.69	0.63 J	3.4	65
	5/29/2014	4.41	132	7.8	13.2	430	320	6.6	20.0	<0.18	38	<50	69.0	<0.79	<0.85	<24	35.6	<2.5	<0.95	1.2	<0.23	3.5	63
	4/20/2015	NA	NA	7.57	9.5	517	315	6.3	20.2	<0.25	37	17 J	65.5	<0.10	1.3 J	9.3 J	34.8	<2.4	1.4 J	1.0	0.44 J	3.3	61
	4/29/2016	5.35	227.9	7.73	9.9	563.1	261	6.1	21.5	0.16 J	38.2	<50.0	66.7	<0.50	0.42 JB	226	35.2	12.6	0.42 J	1.06	0.48 J	3.14	58.3 N2
	4/20/2017	8.1	307	7.58	9.9	586	284	8.0	25.7	0.68 J	49.8	57.3 J	75.8	1.4	2.3	**2,040**	41.3	**71.7**	2.6	1.52	0.54 J	5.22	63.8 N2
	4/17/2018	5.9	254	7.46	9.6	627	301	10.3	30.3	0.16 J	40.6	75.0 J	69.1	0.39 J	0.51 JB	285	36.6	25.8	0.67 J	1.21	0.34 J	6.34	61.6 N2
	Avg prev 2 yrs	--	--	7.66	9.90	575	273	--	--	--	--	53.7	71.3	--	--	--	38.3	--	1.5	1.3	--	4.18	--
	Result > 2-yr avg?			N	N	Y	Y					Y	N				N		N	N		Y	
MW15	4/30/2014	2.69	163	7.66	7.3	498	237	22.9	40.8	0.95 J	170	250	55.3	0.91 J	3.7 J	200	17.6	**130**	0.97 J	2.1	2.8	16.5	480
	5/29/2014	5.24	149	7.7	7.8	370	187	19.2	42.4	0.82 J	150	330	51.5	<0.79	<0.85	<24	16.5	**130**	0.98 J	2.4	5.2	16.4	440
	4/20/2015	NA	NA	7.83	8.2	416	198	19.9	32.6	0.79 J	160	250	55.6	<0.10	1.3 J	22 J	15.8	**71**	1.1 J	3.1	4.7	12.8	480
	4/29/2016	6.38	225.4	7.88	6.5	442.8	149	16.8	37.7	0.39 J	111	97.1 J	50.1	<0.50	0.96 JB	64.8	17.5	11.1	0.44 J	1.84	1.8	13.3	419 N2
	4/20/2017	6.8	319	7.65	6.2	492	197	13.9	39.8	0.42 J	139	116	61.6	0.16 JB	0.87 JB	94.5 B	20.2	**82.1**	0.62 JB	1.58	4.5	11	454 N2
	4/17/2018	5.7	207	7.54	5.3	491	190	22.9	34.6	0.14 J	110	86.5 J	53.8	0.066 JB	0.70 JB	13.4 J	20.4	9.1	0.46 J	1.50	1.1	13.4	364 N2
	Avg prev 2 yrs	--	--	7.77	6.35	467	173	--	--	--	--	107	56	--	--	--	18.9	--	0.5	1.7	--	12.2	--
	Result > 2-yr avg?			N	N	Y	Y					N	N				Y		N	N		Y	
TW17	4/30/2014	2.95	98	7.48	8.7	645	364	14.7	44.0	0.87 J	55	180	74.4	1 J	2.6 J	180	38.2	**150**	2.10 J	0.47 J	0.84 J	15.5	80
	5/29/2014	4.74	153	7.3	8.7	510	324	14.6	41.2	0.25 J	43	150	78.4	<0.79	<0.85	<24	40.1	3.5 J	<0.95	1.1	0.67 J	12.6	73
TW18	4/30/2014	1.49	23	7.30	6.3	848	382	78.9	24.6	1.40	130	220	99.2	2.6 J	2.3 J	68	40.6	**860**	2.9 J	1.7	0.61 J	**37.4**	160
	5/29/2014	4.08	143	7.4	8.5	540	335	27.5	29.0	<0.18	48	66 J	82.7	<0.79	<0.85	<24	42.5	10	<0.95	1.3	0.96 J	8.6	78
	4/20/2015	NA	NA	7.08	7.1	778	458	99.3	21.6	0.47 J	120	260	114	2.0	1.9 J	230	47.0	**920**	4.5 J	2.1	0.39 J	**48.0**	170
	4/20/2017	8.1	287	7.23	7.4	772	354	41.6	15.5	1.2	73.6	97.6 J	88.4	0.44 J	0.84 JB	**1,090**	41.5	**227**	1.1 B	1.43	0.76 J	**22.0**	101 N2
	4/17/2018	2.9	280	7.17	6.5	751	353	36.9	22.7	2.1	88.4	71.2 J	82.0	1.4	2.2	**3,980**	40.3	**897**	3.1	1.59	0.51 J	**18.4**	85.6 N2
	Avg prev 2 yrs	--	--	7.16	7.25	775	406	--	--	--	--	--	101	--	--	--	44.3	--	--	1.8	--	35.0	--
	Result > 2-yr avg?			Y	N	N	N						N				N			N		N	
TW19	4/30/2014	0.23	-63	7.12	6.8	1165	381	163	7.9	4.6	340	110	106	2.6 J	2.8 J	**5,500**	35.4	**1,600**	4.2 J	2.5	<0.23	**99.5**	200
	5/29/2014	2.32	120	7.5	8.8	500	305	23.2	19.5	0.59 J	95	<50	76.4	<0.79	<0.85	33 J	40.1	**660**	1.9 J	1.2	<0.23	6.4	75
Field Blank	4/2/2013	NA	NA	NA	NA	NA	<20.0	<1.0	<1.0	<1.0	<10	<100	<100	<5.0	<10	<50	<50	<5.0	<5.0	<0.50	<1.0	<0.50	<10
	7/2/2013	NA	NA	NA	NA	NA	<20.0	<1.0	<1.0	<1.0	<10	<100	<100	<5.0	<10	<50	<50	<5.0	<5.0	<0.50	<1.0	<0.50	<10
	4/30/2014	NA	NA	NA	NA	NA	<1.9	<0.50	<0.056	<0.18	<0.61	<50	<7.8	<0.79	1.2 J	<24	<0.017	<2.5	<0.95	<0.048	<0.23	<0.25	<5
	5/29/2014	NA	NA	NA	NA	NA	<1.9	<0.50	<0.056	<0.18	<0.61	<50	<7.8	<0.79	<0.85	<24	<0.017	<2.5	<0.95	0.068 J	<0.23	<0.25	<5
	4/21/2015	NA	NA	NA	NA	NA	<2.0	<0.50	<0.24	<0.25	<0.52	<3.1	0.03 J	<0.10	<0.83	<9.0	<0.013	<2.4	<0.56	<0.059	<0.12	<0.25	<0.28
	4/29/2016	NA	NA	NA	NA	NA	6.6 J	<0.50	<0.25	<0.10	<0.14	<50.0	0.01 J	<0.50	<0.11	<12.8	<0.0158	<0.19	<0.27	<0.129	<0.18	<0.0207	0.15 J, N2
	4/20/2017	NA	NA	NA	NA	NA	7.3 J	<1.0	<1.0	<1.0	0.69 JB	<100	0.05 J	<1.0	0.21 JB	18.4 JB	<0.050	0.25 JB	0.26 JB	<0.500	<1.0	0.335 JB	0.19 JB,N2
	4/17/2018	NA	NA	NA	NA	NA	<4.9	<0.46	<0.24	<0.052	0.42 JB	<12.5	<0.054	<0.014	0.20 JB	<9.6	<14.0	0.13 J	0.28 J	<0.0793	<0.086	<0.157	<0.071

Table 3. Historical Groundwater Analytical Results Summary
Alliant-Lansing CCR Landfill / SCS Engineers Project #25216070.18
(Results are in µg/L, unless otherwise noted)

Sample	Date	DO, Field (mg/L)	Redox, Field (mV)	pH, Field (SU)	Temp., Field (deg C)	Specific Conduc-tance, Field (µS/cm)	Alkalinity, Total As CaCO3 (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Arsenic (µg/L)	Barium (µg/L)	Boron (µg/L)	Calcium (mg/L)	Cobalt (µg/L)	Copper (µg/L)	Iron (µg/L)	Magnesium (mg/L)	Manganese (µg/L)	Nickel (µg/L)	Potassium (mg/L)	Selenium (µg/L)	Sodium (mg/L)	Strontium (µg/L)
USEPA MCL (Health)		NE	NE	NE	NE	NE	NE	NE	NE	10	2,000	NE	NE	NE	NE	NE	NE	NE	NE	NE	50	NE	NE
USEPA SMCL (Aesthetic)		NE	NE	6.5-8.5	NE	NE	NE	250	250	NE	NE	NE	NE	NE	1,000	300	NE	50	NE	NE	NE	NE	NE
USEPA Drinking Water Advisory (Health) [2]		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	20	NE
USEPA Health Advisory Level (Lifetime) [2]		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	6,000	NE	NE	NE	NE	NE	300	100	NE	50	NE	4,000
Iowa Statewide Standard for a Protected Groundwater Source [2]		NE	NE	NE	NE	NE	NE	NE	NE	10	2,000	6,000	NA	2.8	1,300	NA	NA	300	100	NA	50	NA	4,000
Upgradient mean + 2 std dev [1]		NC	NC	7.71	NA	653	375	9.5	106	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Upgradient mean - 2 std dev [1]		NA	NA	6.99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Abbreviations:
µg/L = micrograms per liter
mg/L = milligrams per liter
NC = Not Calculated due to limited background data
DUP = Duplicate sample
NA = Not Applicable
NE = No Standard Established
USEPA MCL = United States Environmental Protection Agency Maximum Contaminant Limit
USEPA SMCL = United States Environmental Protection Agency Secondary Maximum Contaminant Limit
mV = millivolts

Notes:
Historical results for Alkalinity(bicarbonate), aluminum, antimony, cadmium, chromium, lead, lithium, mercury, molybdenum, thallium, vanadium, and zinc are not included in this summary. These parameters are no longer monitored at the site. All historical data for these parameters were included in the 2017 Annual Water Quality Report.
(1) The calculated upgradient mean ±2 standard deviations is based on data reported at upgradient well MW-6. Where non-detects were included in the calculations, they were assigned a result equal to the detection limit. Duplicate results are not included in the calculations.
(2) Listed USEPA Drinking Water Advisory, USEPA Health Advisory Level, and Iowa Statewide Standard values are included as requested by IDNR in a letter dated November 14, 2013. Health Advisory Levels shown here are lifetime values for non-carcinogens.
(3) Average of last two years is calculated for parameters that do not have an MCL or HAL, if more than on value is available to calculate the average. Non-detect values were assumed equal to the detection limit for calculating the average.
Bold+underlined values meet or exceed USEPA MCL, USEPA SMCL, USEPA Drinking Water Advisory, USEPA Health Advisory Level, or DNR Statewide Standard.
Shaded values meet or exceed the upgradient mean ± 2 standard deviations.

Laboratory Notes/Qualifiers:
B = Analyte was detected in the associated Method Blank.
CL = The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased low.
D = Diluted for analysis.
D9 = Dissolved result is greater than the total. Data is within laboratory control limits.
H1 = Analysis conducted outside the EPA method holding time.
J = Estimated value. Analyte detected at a level less than the reporting limit and greater than or equal to the Method Detection Limit. The user of this data should be aware that this data is of unknown quality.
M1 = Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
N2 = The lab does not hold TNI accreditation for this parameter.
RL1 = Reporting limit raised due to sample matrix effects.

Created by: TLC Date: 8/20/2013
Last revision by: MDB Date: 10/4/2018
Checked by: AJR Date: 10/4/2018

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Appendix D

Statistical Evaluation of Groundwater Monitoring Results

November 30, 2023
File No. 25223070.00

TECHNICAL MEMORANDUM

SUBJECT: Statistical Evaluation of Groundwater Monitoring Results
Lansing Power Station CCR Landfill, April 2023

PREPARED BY: Ryan Matzuk

CHECKED BY: Charles Hostetler 9/26/2023

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. Monitoring well MW-6 is used as the background well. The statistical program used to calculate the interwell prediction interval is Sanitas™ (Version 9.6.37).

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 **Attachment D1**. For metals, the time series plots only show monitoring results since April 2016, when the monitoring program transitioned from dissolved metals to total metals analysis. For chloride, sulfate, and total alkalinity, which are not typically affected by filtering, older historical results for background well MW-6 are included in the time series plots and are used in the determination of background for the statistical evaluation.

OUTLIER ANALYSIS

An outlier analysis is performed for background monitoring results at upgradient well MW-6. 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 22, run Dixon's test for suspected outliers.
   b) If number of background samples is more than 22, 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.

In the review of the interwell background data collected from MW-6 through the April 2023 sampling event, the following background values from MW-6 were identified as potential outliers and handled as described:

- Chloride. Three non-detect results from May 2001 to February 2004 and one from May 2006 were removed based on visual inspection of the data. These results included the first three rounds of samples from MW-6 and were inconsistent with subsequent results. These four results were identified as outliers in the previous Annual Water Quality Report and were excluded from the dataset for the current outlier evaluation. No additional chloride outliers were identified.

- Sulfate. One high result from May 2007 was previously identified as an outlier and was removed based on visual inspection of the data. The outlier analysis was rerun with the May 2007 result removed, and one additional high result from May 2005 was flagged as a statistical outlier. This result was kept in the database 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.

Outlier analysis results are included in Attachment D2.

INTERWELL PREDICTION LIMITS

Interwell prediction limits are calculated using background data from MW-6 for each monitored constituent, with outliers removed as noted above. The prediction limit analysis performed in Sanitas™ includes the following steps:

1) If 100 percent of the background values are non-detect, the Double Quanitification rule applies and no prediction limit is calculated.

2) If 50 percent or more of results are non-detect, then a non-parametric prediction limit is calculated.

3) 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).

4) If normal or transformed normal, calculate parametric prediction limit.

5) If not normal or transformed normal, calculate non-parametric prediction limit.

Consistent with the Unified Guidance, parametric prediction limits are calculated based on a 1-of-2 retesting protocol and a 10 percent 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	April event
Constituents analyzed	17	Total of 17 constituents analyzed
Compliance wells	7	Total of 7 compliance wells analyzed

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 constituents with 100 percent non-detects in the background data, evaluation under the Double Quantification Rule can be used in place of a calculated Upper Prediction Limit (UPL), and means that a statistically significant increase (SSI) has not occurred for a compliance well unless two sample results from the well exceed the laboratory's reporting limit or quanitification limit. For the Lansing site, all of the required sampling parameters were detected at least once in the background well samples, so UPLs were calculated for all parameters; however, only results that exceed both the UPL and the quantification limit can be considered to be SSIs. 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.

Interwell prediction limit analysis results for 2023 are included in **Attachment D3**.

RM/lmh/CJH

Encl. Attachments D1 through D3

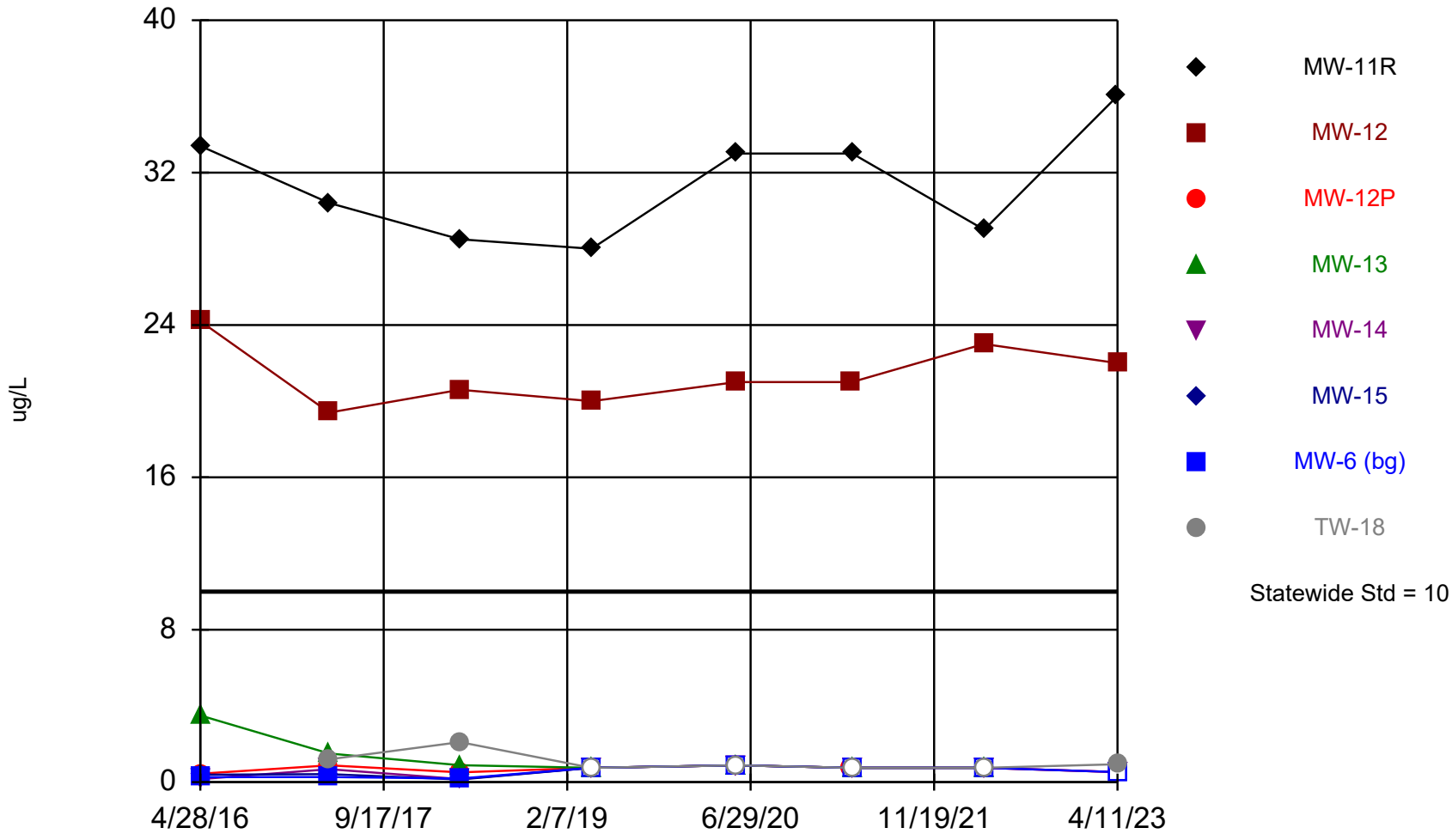
I:\25223070.00\Deliverables\2023 LAN AWQR\App D - Statistics\Appendix D_Memo_Draft.docx

Attachment D1

Times Series Graphs

Hollow symbols indicate censored values.

Arsenic



Time Series Analysis Run 7/13/2023 3:00 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Time Series

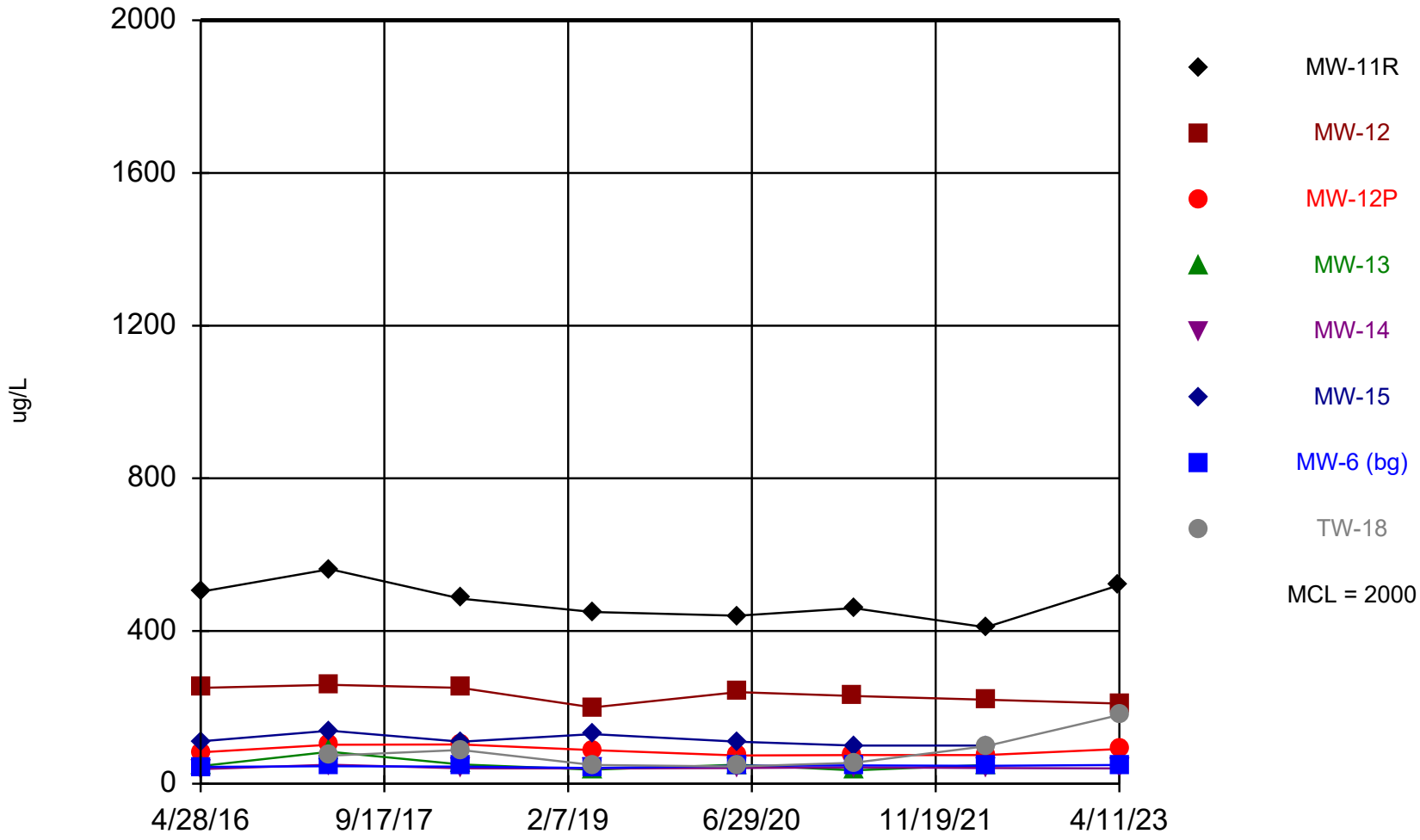
Constituent: Arsenic (ug/L) Analysis Run 7/13/2023 3:02 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-11R	MW-12	MW-12P	MW-13	MW-14	MW-15	MW-6 (bg)	TW-18
4/28/2016	33.4	24.2	0.44 (J)	3.5				
4/29/2016					0.16 (J)	0.39 (J)	0.26 (J)	
4/19/2017							0.27 (J)	
4/20/2017	30.4	19.4	0.88 (J)	1.5	0.68 (J)	0.42 (J)		1.2
4/16/2018							0.19 (J)	
4/17/2018	28.5	20.6	0.51 (J)	0.89 (J)	0.16 (J)	0.14 (J)		2.1
4/15/2019					<0.75		<0.75	
4/16/2019	28	20	<0.75	<0.75		<0.75		<0.75
5/20/2020							<0.88	
5/21/2020	33	21	<0.88	<0.88				
5/22/2020					<0.88	<0.88		<0.88
4/6/2021		21	<0.75					
4/7/2021	33			<0.75	<0.75	<0.75	<0.75	<0.75
4/6/2022		23	<0.75 (U)		<0.75 (U)		<0.75 (U)	<0.75 (U)
4/7/2022	29			<0.75 (U)		<0.75 (U)		
4/10/2023	36							
4/11/2023		22	<0.53 (U)		<0.53 (U)		<0.53 (U)	0.94 (J)

ND substitution: RL or RL/2 if <15% NDs.

Barium



Time Series Analysis Run 7/13/2023 3:00 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Time Series

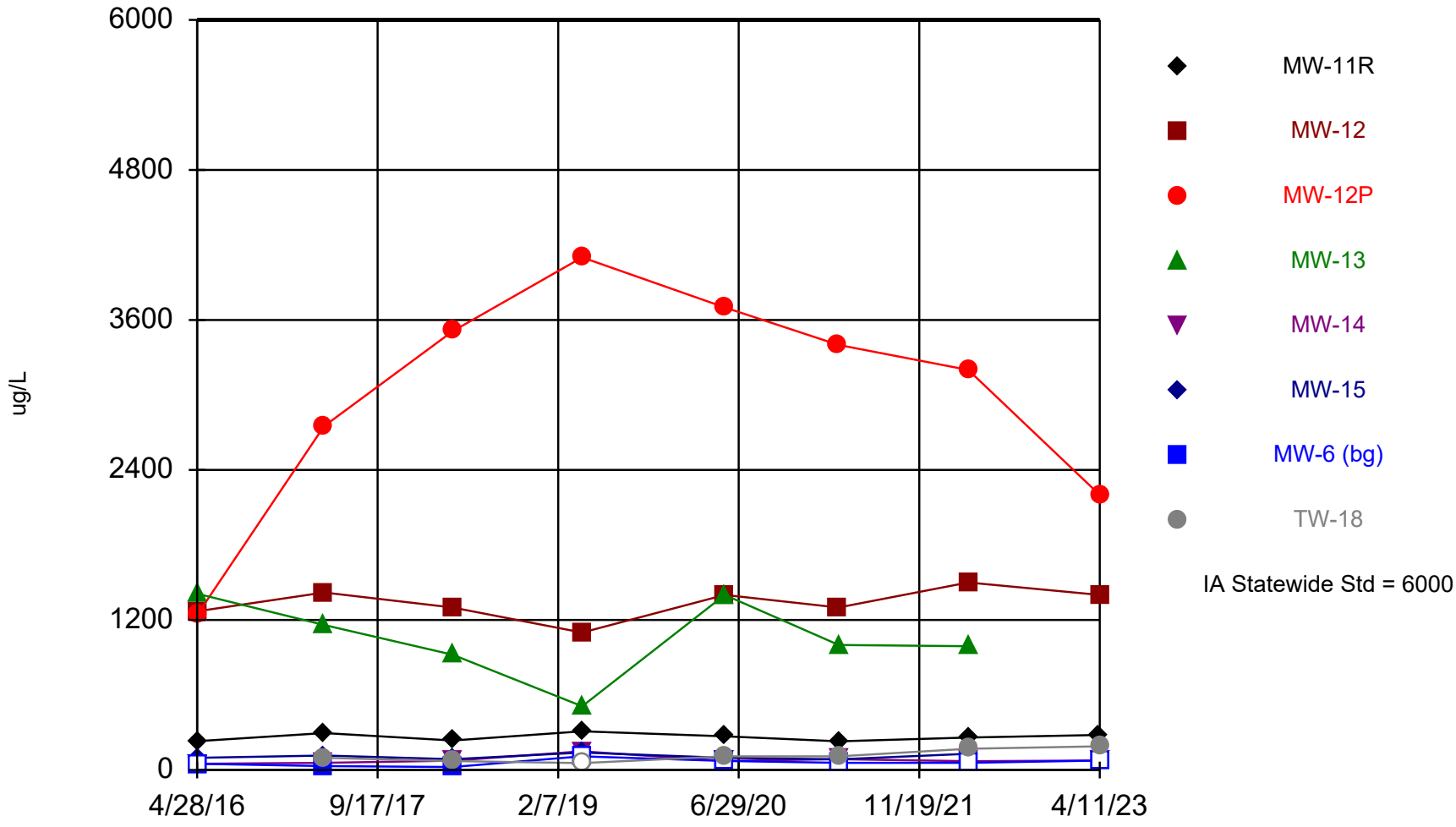
Constituent: Barium (ug/L) Analysis Run 7/13/2023 3:02 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-11R	MW-12	MW-12P	MW-13	MW-14	MW-15	MW-6 (bg)	TW-18
4/28/2016	503	251	82.2	46.4				
4/29/2016					38.2	111	44.2	
4/19/2017							45.7	
4/20/2017	562	259	102	83.8	49.8	139		73.6
4/16/2018							44.9	
4/17/2018	485	251	103	50.5	40.6	110		88.4
4/15/2019					40 (B)		41 (B)	
4/16/2019	450 (B)	200 (B)	88 (B)	37 (B)		130 (B)		49 (B)
5/20/2020							47	
5/21/2020	440	240	74	50				
5/22/2020					41	110		45
4/6/2021		230	75					
4/7/2021	460			35	43	100	48	55
4/6/2022		220	75		41		47	98
4/7/2022	410			49		100		
4/10/2023	520							
4/11/2023		210	91		40		49	180

Hollow symbols indicate censored values.

Boron



Time Series Analysis Run 7/13/2023 3:00 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Time Series

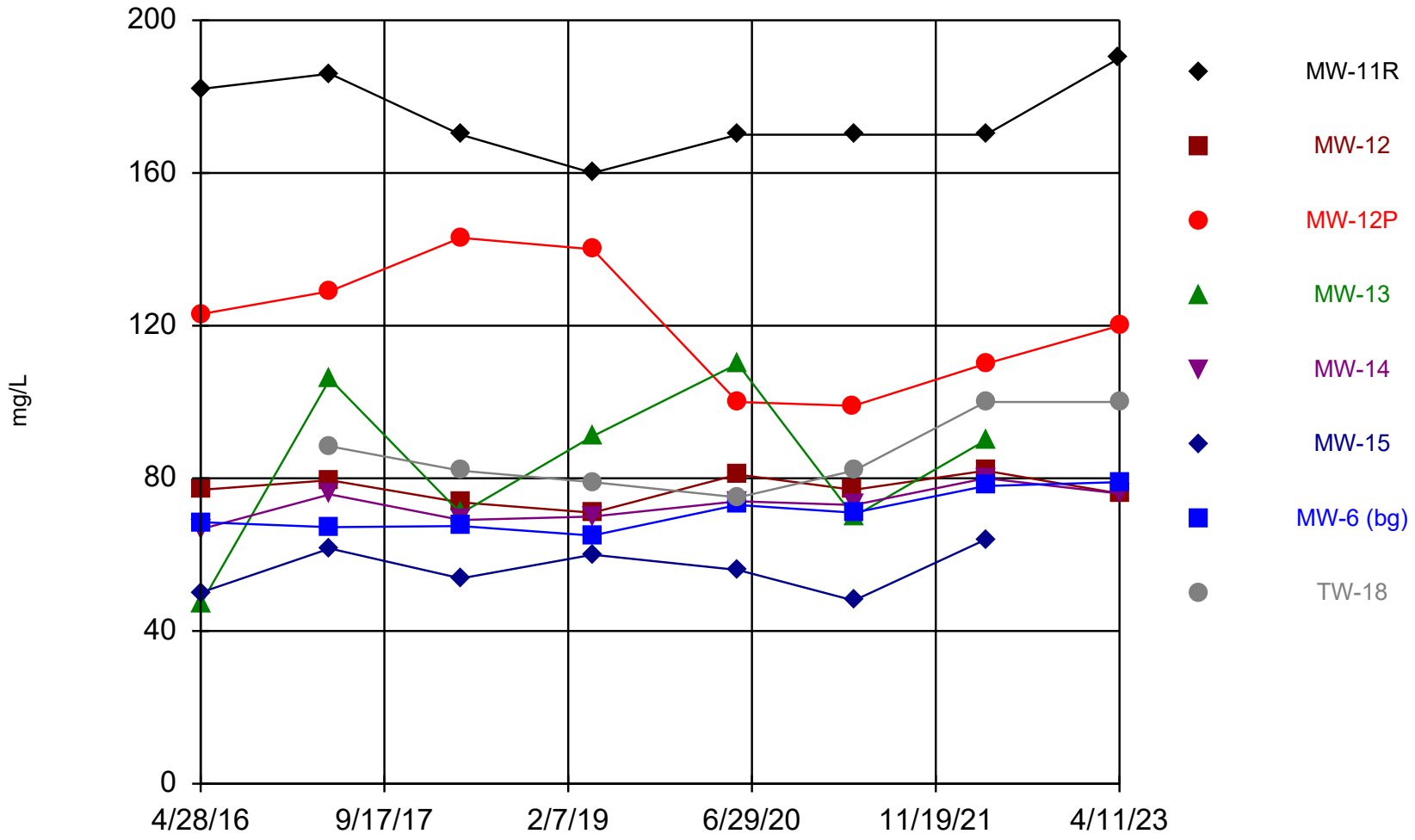
Constituent: Boron (ug/L) Analysis Run 7/13/2023 3:02 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-11R	MW-12	MW-12P	MW-13	MW-14	MW-15	MW-6 (bg)	TW-18
4/28/2016	231	1270	1240	1410				
4/29/2016					<50	97.1 (J)	<50	
4/19/2017							32 (J,B)	
4/20/2017	296	1420	2750	1160	57.3 (J)	116		97.6 (J)
4/16/2018							23.8 (J)	
4/17/2018	236	1300	3510	922	75 (J)	86.5 (J)		71.2 (J)
4/15/2019					150 (J)		<110	
4/16/2019	310	1100	4100	510		140 (J)		<110
5/20/2020							<73	
5/21/2020	270	1400	3700	1400				
5/22/2020					<73	98 (J)		110
4/6/2021		1300	3400					
4/7/2021	230			1000	87 (J)	86 (J)	<58	110
4/6/2022		1500	3200		70 (J)		<58 (U)	170
4/7/2022	260			990		130		
4/10/2023	280							
4/11/2023		1400	2200		<76 (U)		<76 (U)	190

ND substitution: RL or RL/2 if <15% NDs.

Calcium



Time Series Analysis Run 7/13/2023 3:00 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

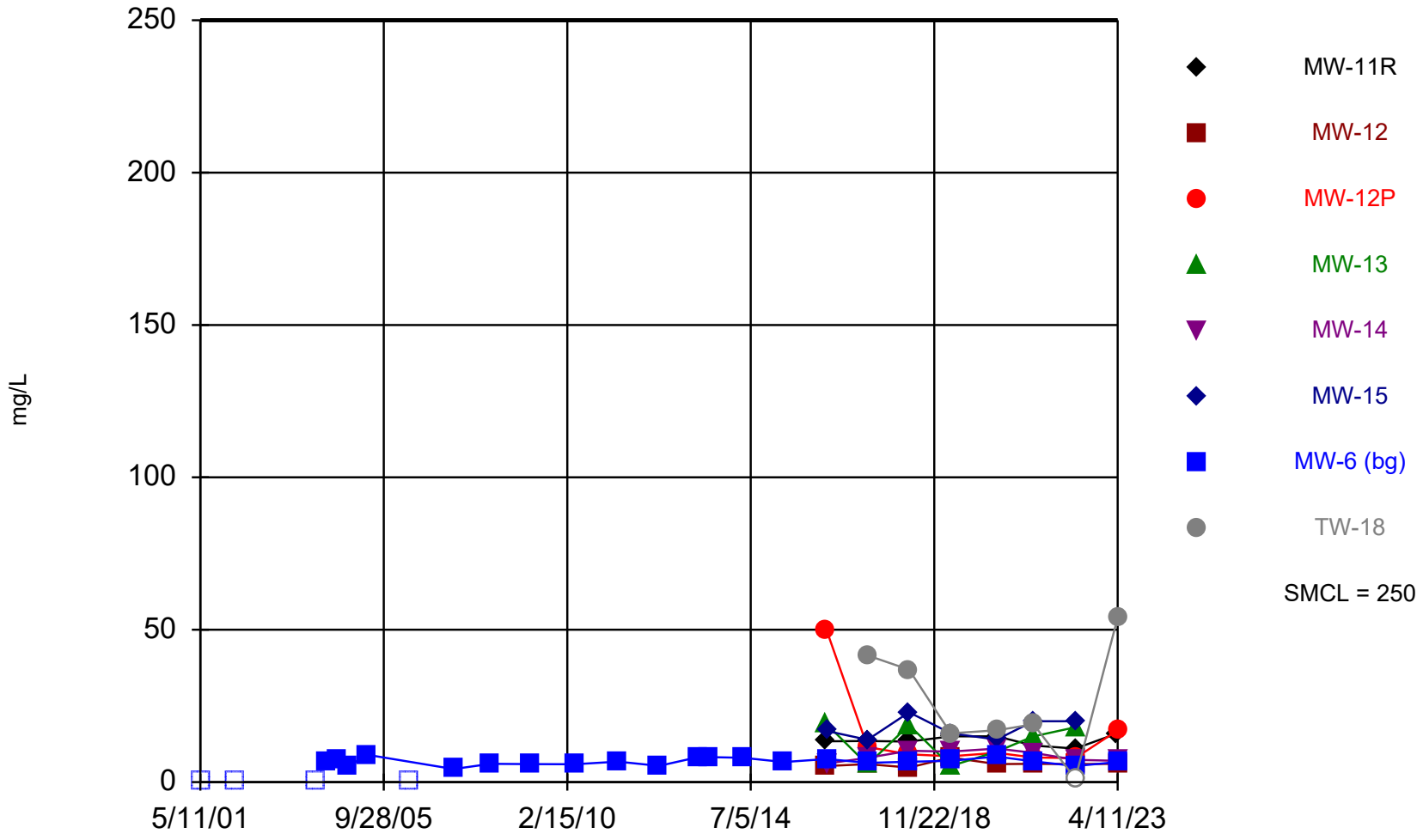
Time Series

Constituent: Calcium (mg/L) Analysis Run 7/13/2023 3:02 PM View: Lansing State Data
Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-11R	MW-12	MW-12P	MW-13	MW-14	MW-15	MW-6 (bg)	TW-18
4/28/2016	182	77	123	47				
4/29/2016					66.7	50.1	68.5	
4/19/2017							67.2	
4/20/2017	186	79.5	129	106	75.8	61.6		88.4
4/16/2018							67.5	
4/17/2018	170 (M1)	73.7	143	70.8	69.1	53.8		82
4/15/2019					70		65	
4/16/2019	160	71	140	91		60		79
5/20/2020							73	
5/21/2020	170	81	100	110				
5/22/2020					74	56		75
4/6/2021		77	99					
4/7/2021	170			70	73	48	71	82
4/6/2022		82	110		80		78	100
4/7/2022	170			90		64		
4/10/2023	190							
4/11/2023		76	120		76		79	100

Hollow symbols indicate censored values.

Chloride



Time Series Analysis Run 7/13/2023 3:01 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Time Series

Constituent: Chloride (mg/L) Analysis Run 7/13/2023 3:02 PM View: Lansing State Data

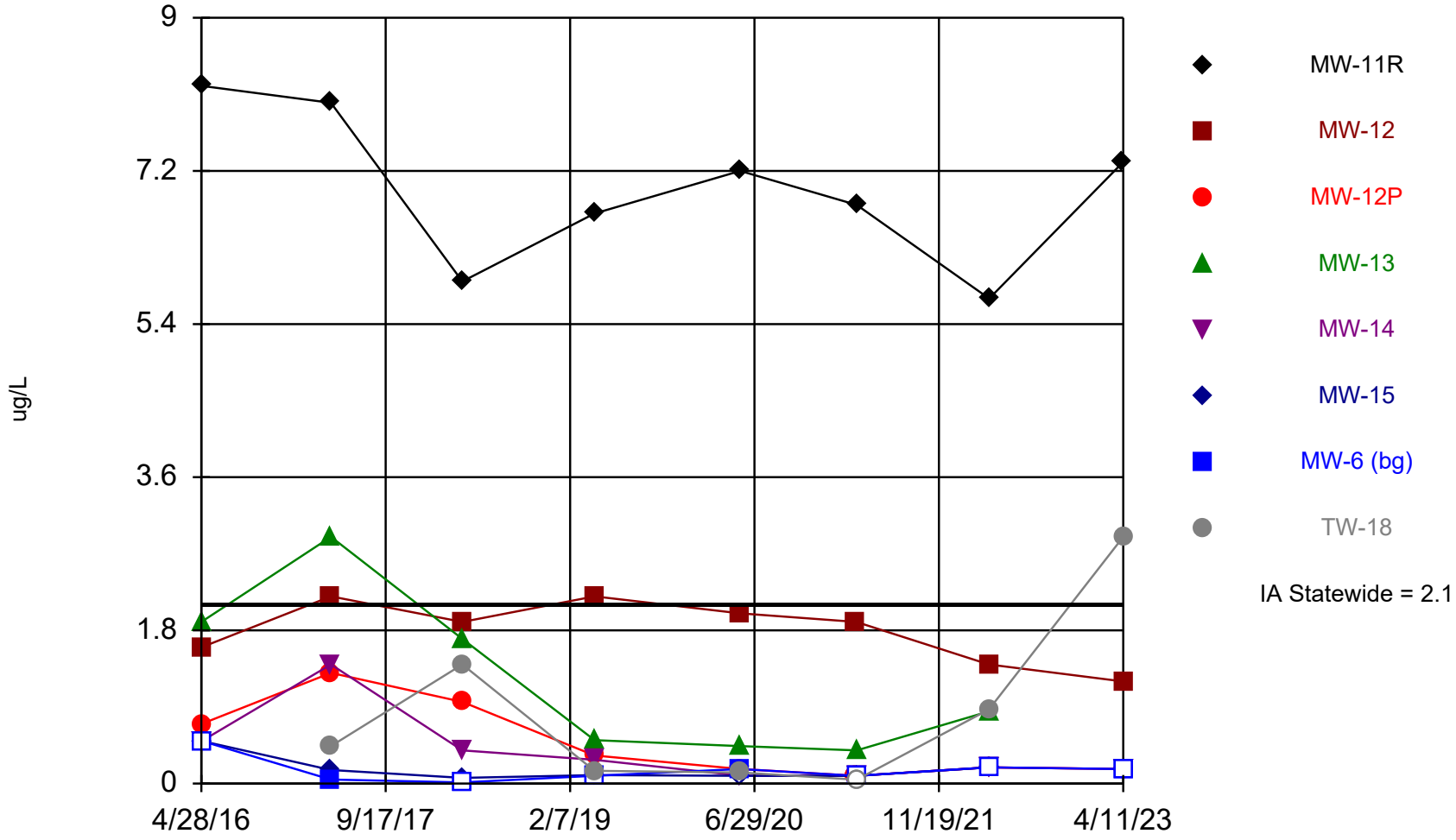
Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-11R	MW-12	MW-12P	MW-13	MW-14	MW-15	MW-6 (bg)	TW-18
5/11/2001							<0.5 (X)	
3/8/2002							<0.5 (X)	
2/19/2004							<0.5 (X)	
5/26/2004							6.5	
8/23/2004							7	
11/18/2004							5.1	
5/5/2005							9	
5/19/2006							<0.5 (X)	
5/30/2007							4.3	
4/16/2008							6	
4/3/2009							5.9	
4/21/2010							5.89	
5/4/2011							6.72	
4/25/2012							5.35	
4/2/2013							8.2	
7/2/2013							8.2	
4/29/2014							8	
4/20/2015							6.6	
4/28/2016	13.4	5.3	49.7	19				
4/29/2016					6.1	16.8	7.6	
4/19/2017							6.3	
4/20/2017	13.5	5.9	11.5	5.7	8	13.9		41.6
4/16/2018							6.7	
4/17/2018	13.3	4.8	9.1	18.7	10.3	22.9		36.9
4/15/2019					10		7	
4/16/2019	15	8.1	8.5	5.3		16		16
5/20/2020							8.4	
5/21/2020	15	5.9	9.6	10				
5/22/2020					11	14		17
4/6/2021		6	8.1					
4/7/2021	12			15	9.6	20	6.8	19
4/6/2022		5.9	7.9		7.3		5.3	<2.3 (U)
4/7/2022	11			18		20		
4/10/2023	16							
4/11/2023		6	17		7		6.6	54

ND substitution: RL or RL/2 if <15% NDs.

Hollow symbols indicate censored values.

Cobalt



Time Series Analysis Run 7/13/2023 3:01 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Time Series

Constituent: Cobalt (ug/L) Analysis Run 7/13/2023 3:02 PM View: Lansing State Data

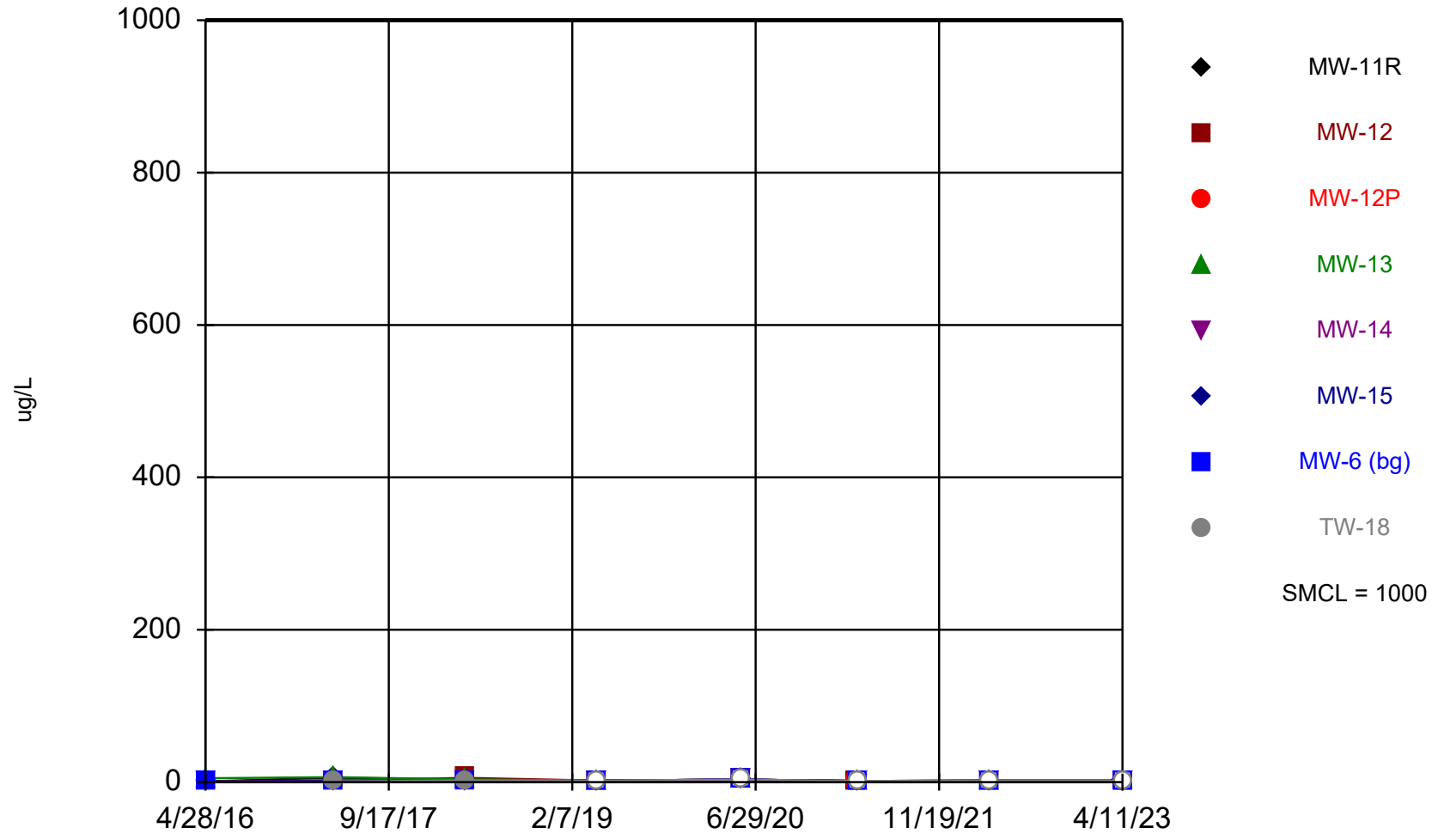
Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-11R	MW-12	MW-12P	MW-13	MW-14	MW-15	MW-6 (bg)	TW-18
4/28/2016	8.2	1.6	0.7 (J)	1.9				
4/29/2016					<0.5	<0.5	<0.5	
4/19/2017							0.047 (J,B)	
4/20/2017	8	2.2	1.3	2.9	1.4	0.16 (J,B)		0.44 (J)
4/16/2018							<0.014	
4/17/2018	5.9	1.9	0.96 (J)	1.7	0.39 (J)	0.066 (J)		1.4
4/15/2019					0.28 (J)		<0.091	
4/16/2019	6.7	2.2	0.33 (J)	0.51		0.1 (J)		0.15 (J)
5/20/2020							0.17 (J)	
5/21/2020	7.2	2	0.17 (J)	0.44 (J)				
5/22/2020					0.092 (J)	<0.091		0.13 (J)
4/6/2021		1.9	<0.091					
4/7/2021	6.8			0.39 (J)	<0.091	<0.091	<0.091	<0.091
4/6/2022		1.4	<0.19 (U)		<0.19 (U)		<0.19 (U)	0.87
4/7/2022	5.7			0.85		<0.19 (U)		
4/10/2023	7.3							
4/11/2023		1.2	<0.17 (U)		<0.17 (U)		<0.17 (U)	2.9

ND substitution: RL or RL/2 if <15% NDs.

Hollow symbols indicate censored values.

Copper



Time Series Analysis Run 7/13/2023 3:01 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Time Series

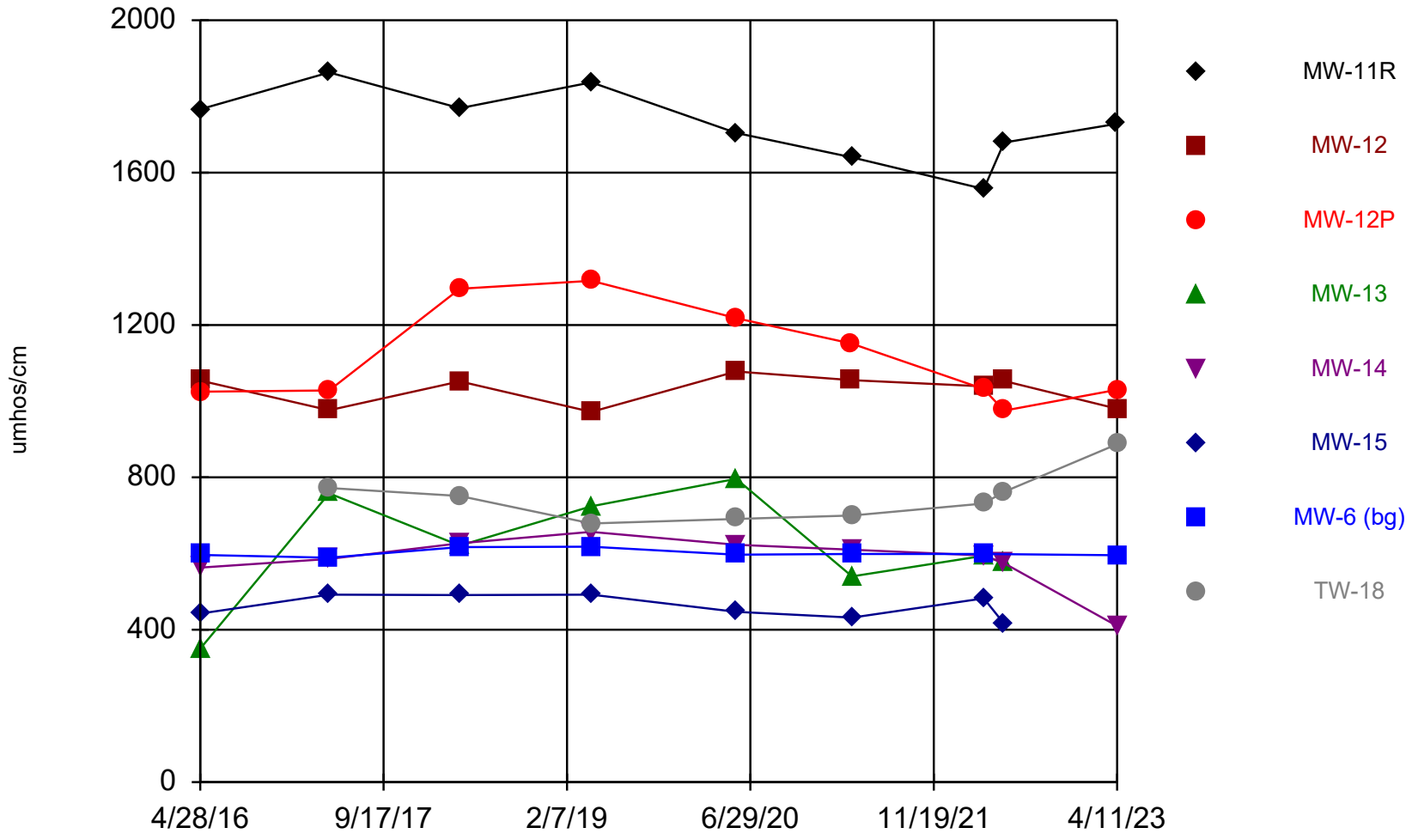
Constituent: Copper (ug/L) Analysis Run 7/13/2023 3:02 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-11R	MW-12	MW-12P	MW-13	MW-14	MW-15	MW-6 (bg)	TW-18
4/28/2016	0.94 (J,Y)	0.97 (J,Y)	0.58 (J,Y)	5.1				
4/29/2016					0.42 (J,Y)	0.96 (J,Y)	0.17 (J,Y)	
4/19/2017							0.21 (J,B)	
4/20/2017	5.8	1.7	2.3	6.6	2.3	0.87 (J,B)		0.84 (J,B)
4/16/2018							0.25 (J,B)	
4/17/2018	3.4	5.7	1.7	3.6	0.51 (J,B)	0.7 (J,B)		2.2
4/15/2019					<2		<2	
4/16/2019	<2	<2	<2	<2		<2		<2
5/20/2020							<3.2	
5/21/2020	<3.2	<3.2	<3.2	<3.2				
5/22/2020					<3.2	<3.2		<3.2
4/6/2021		<1.4	<1.4					
4/7/2021	<1.4			<1.4	<1.4	<1.4	<1.4	<1.4
4/6/2022		1.8 (J)	<1.8 (U)		<1.8 (U)		<1.8 (U)	<1.8 (U)
4/7/2022	<1.8 (U)			<1.8 (U)		<1.8 (U)		
4/10/2023	<1.8 (U)							
4/11/2023		<1.8 (U)	<1.8 (U)		<1.8 (U)		<1.8 (U)	<1.8 (U)

ND substitution: RL or RL/2 if <15% NDs.

Field Conductivity



Time Series Analysis Run 7/13/2023 3:01 PM View: Lansing State Data

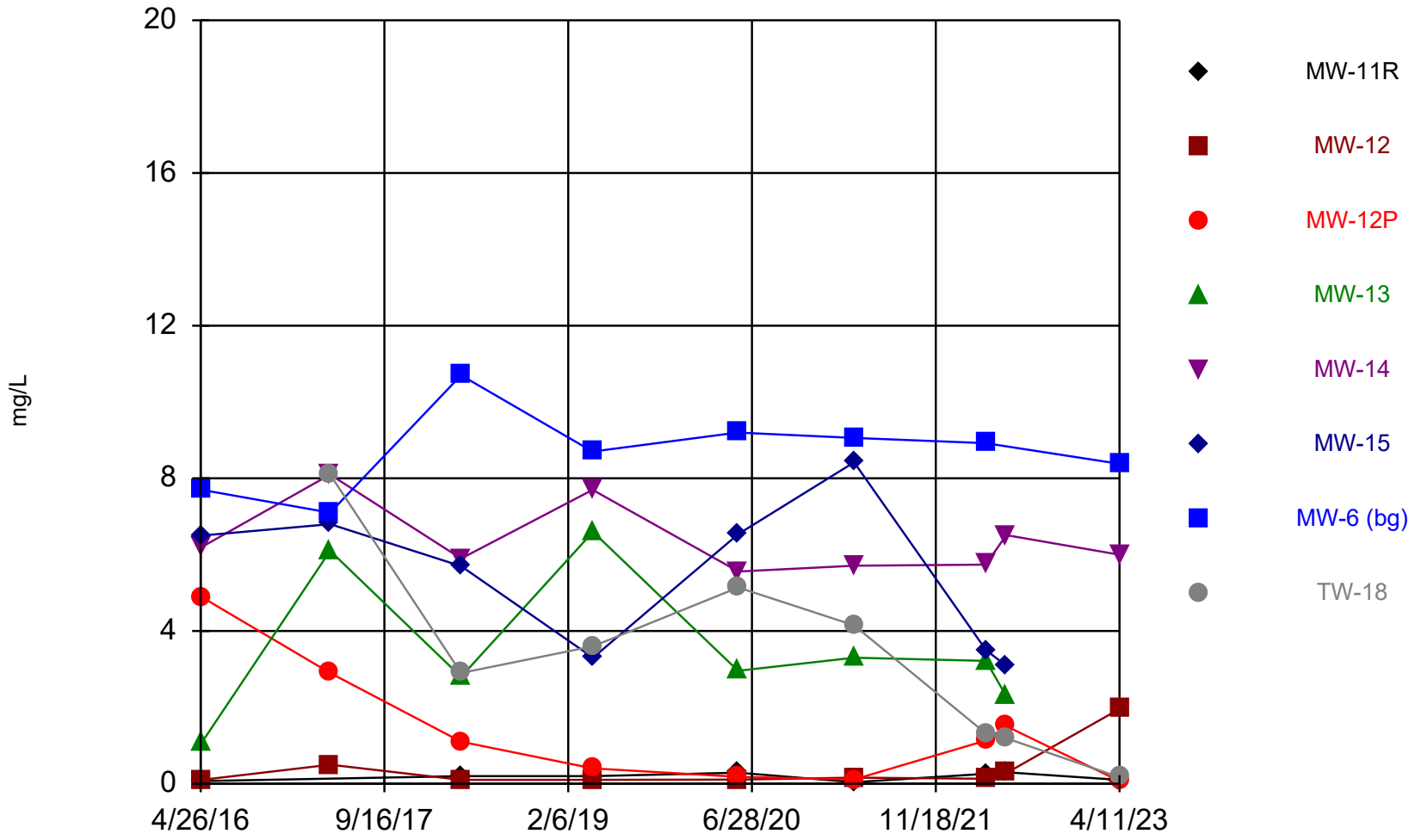
Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Time Series

Constituent: Field Conductivity (umhos/cm) Analysis Run 7/13/2023 3:02 PM View: Lansing State Data
Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-11R	MW-12	MW-12P	MW-13	MW-14	MW-15	MW-6 (bg)	TW-18
4/28/2016	1766	1054	1025	350.3				
4/29/2016					563.1	442.8	596.2	
4/19/2017							589	
4/20/2017	1863	976	1028	758	586	492		772
4/16/2018							617	
4/17/2018	1769	1052	1295	621	627	491		751
4/15/2019					657		618	
4/16/2019	1837	972	1316	724		492		679
5/20/2020							597	
5/21/2020	1704	1078	1218	796				
5/22/2020					623	447		691
4/6/2021		1055	1151					
4/7/2021	1640			540	610	432	599	700
4/6/2022		1039	1032		594.9		599	731.2
4/7/2022	1557			594		482.2		
6/2/2022	1679	1053	975	575	574.6	416.1		762
4/10/2023	1728							
4/11/2023		980	1030		409.8		595.6	887

Field Dissolved Oxygen



Time Series Analysis Run 7/13/2023 3:01 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

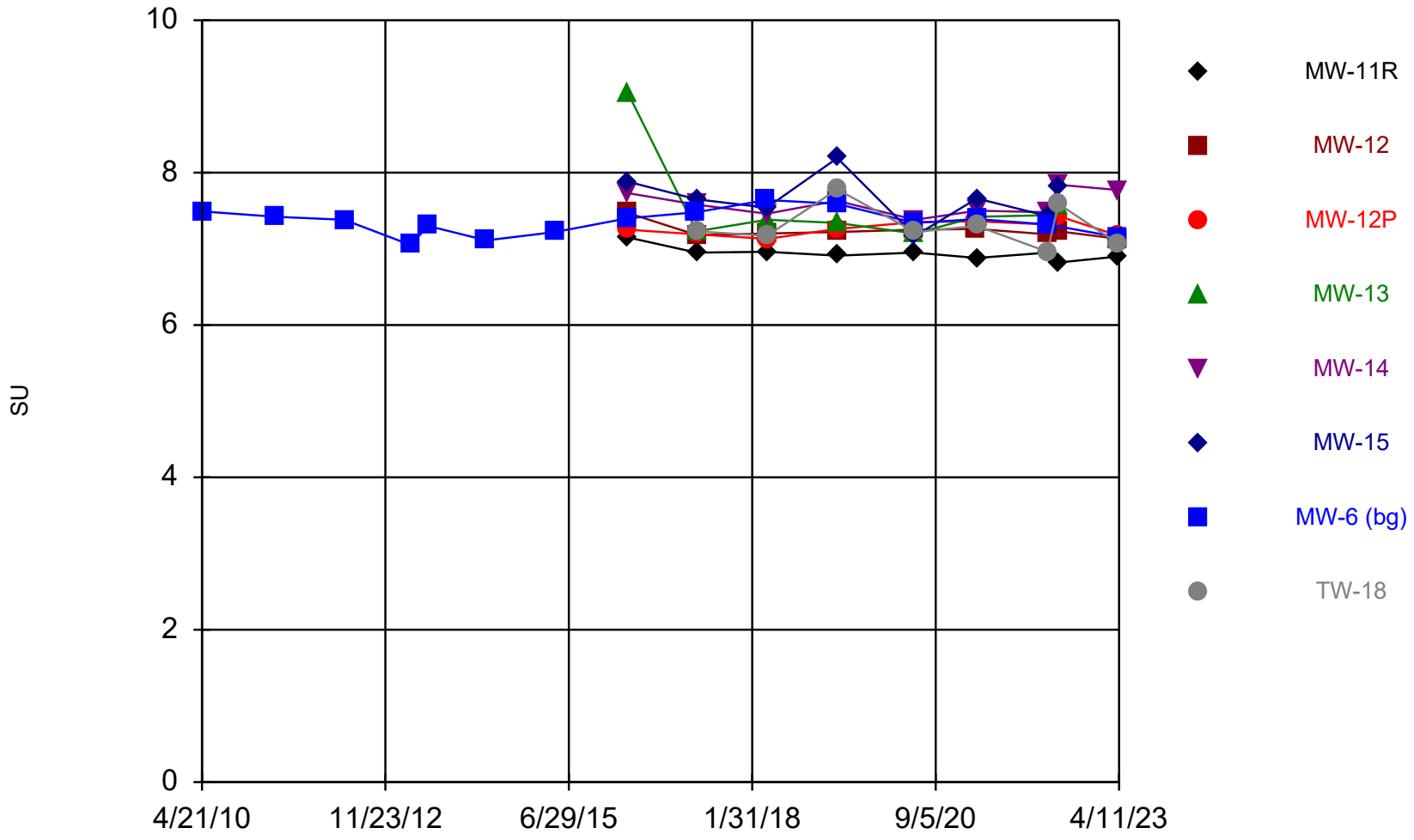
Time Series

Constituent: Field Dissolved Oxygen (mg/L) Analysis Run 7/13/2023 3:02 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-11R	MW-12	MW-12P	MW-13	MW-14	MW-15	MW-6 (bg)	TW-18
4/26/2016	0.07							
4/29/2016		0.1	4.89	1.08	6.2	6.5	7.7	
4/19/2017		0.5	2.9	6.1	8.1	6.8	7.1	8.1
4/16/2018	0.2	0.1	1.1	2.8	5.9	5.7	10.7	2.9
4/15/2019					7.7		8.7	
4/16/2019	0.2	0.1	0.4	6.6		3.3		3.6
5/20/2020							9.2	
5/21/2020	0.29	0.11	0.18	2.96				
5/22/2020					5.56	6.54		5.14
4/6/2021		0.16	0.11					
4/7/2021	0.04			3.3	5.71	8.42	9.06	4.15
4/6/2022		0.13	1.13		5.74		8.92	1.32
4/7/2022	0.26			3.22		3.5		
6/2/2022	0.3	0.28	1.51	2.29	6.51	3.09		1.19
4/10/2023	0.1							
4/11/2023		1.96	0.07		6		8.38	0.17

Field pH



Time Series Analysis Run 7/13/2023 3:01 PM View: Lansing State Data

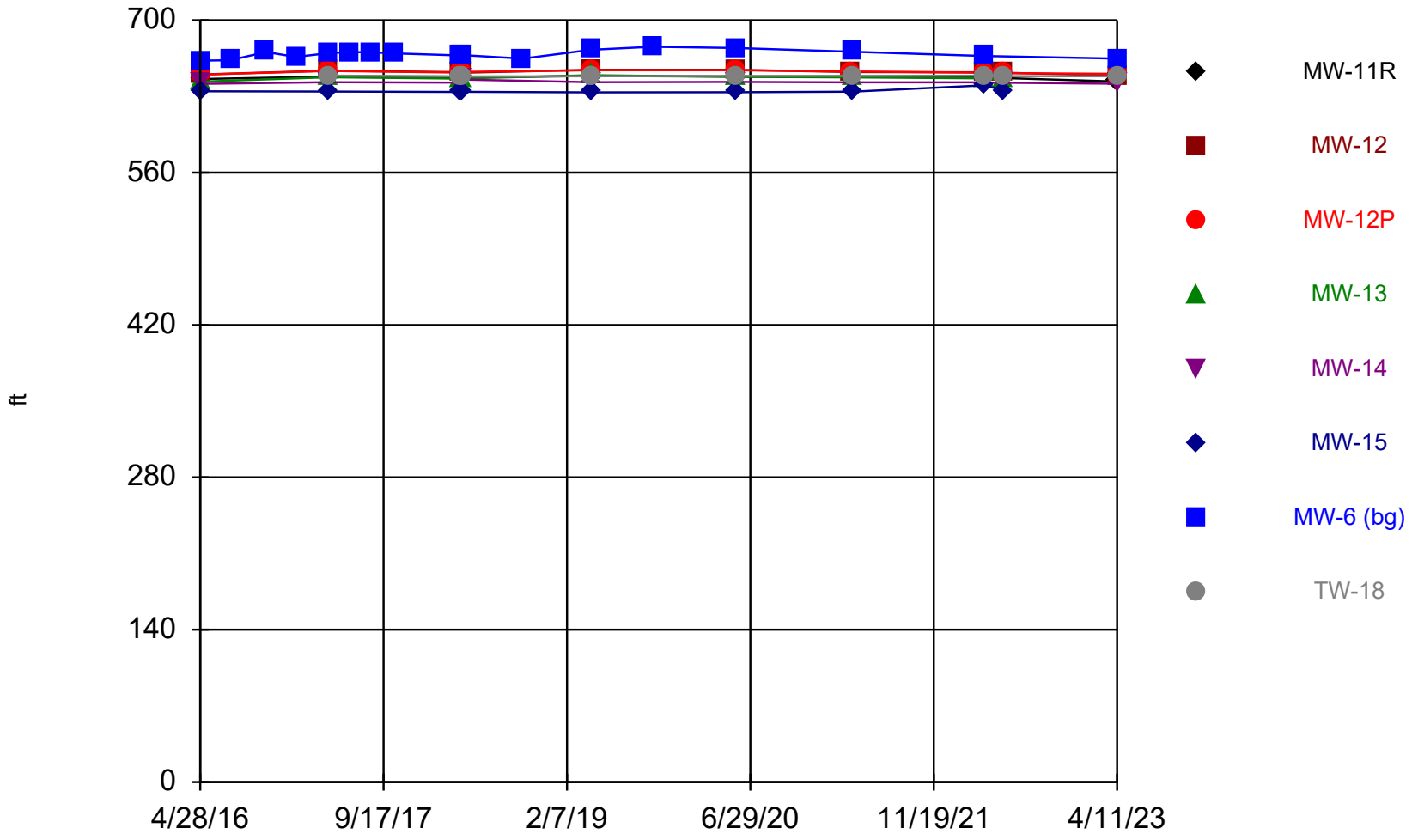
Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Time Series

Constituent: Field pH (SU) Analysis Run 7/13/2023 3:02 PM View: Lansing State Data
Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-11R	MW-12	MW-12P	MW-13	MW-14	MW-15	MW-6 (bg)	TW-18
4/21/2010							7.49	
5/4/2011							7.42	
4/25/2012							7.38	
4/2/2013							7.05	
7/2/2013							7.3	
4/29/2014							7.11	
4/20/2015							7.22	
4/28/2016	7.15	7.47	7.25	9.05				
4/29/2016					7.73	7.88	7.4	
4/19/2017							7.48	
4/20/2017	6.95	7.18	7.19	7.23	7.58	7.65		7.23
4/16/2018							7.64	
4/17/2018	6.96	7.2	7.13	7.38	7.46	7.54		7.17
4/15/2019					7.63		7.59	
4/16/2019	6.91	7.22	7.26	7.34		8.19		7.78
5/20/2020							7.34	
5/21/2020	6.95	7.25	7.35	7.2				
5/22/2020					7.38	7.17		7.22
4/6/2021		7.26	7.36					
4/7/2021	6.88			7.42	7.5	7.66	7.39	7.3
4/6/2022		7.19	7.32		7.48		7.32	6.96
4/7/2022	6.95			7.44		7.43		
6/2/2022	6.82	7.23	7.43	7.57	7.84	7.8		7.59
4/10/2023	6.9							
4/11/2023		7.13	7.17		7.77		7.15	7.06

Groundwater Elevation



Time Series Analysis Run 7/13/2023 3:01 PM View: Lansing State Data

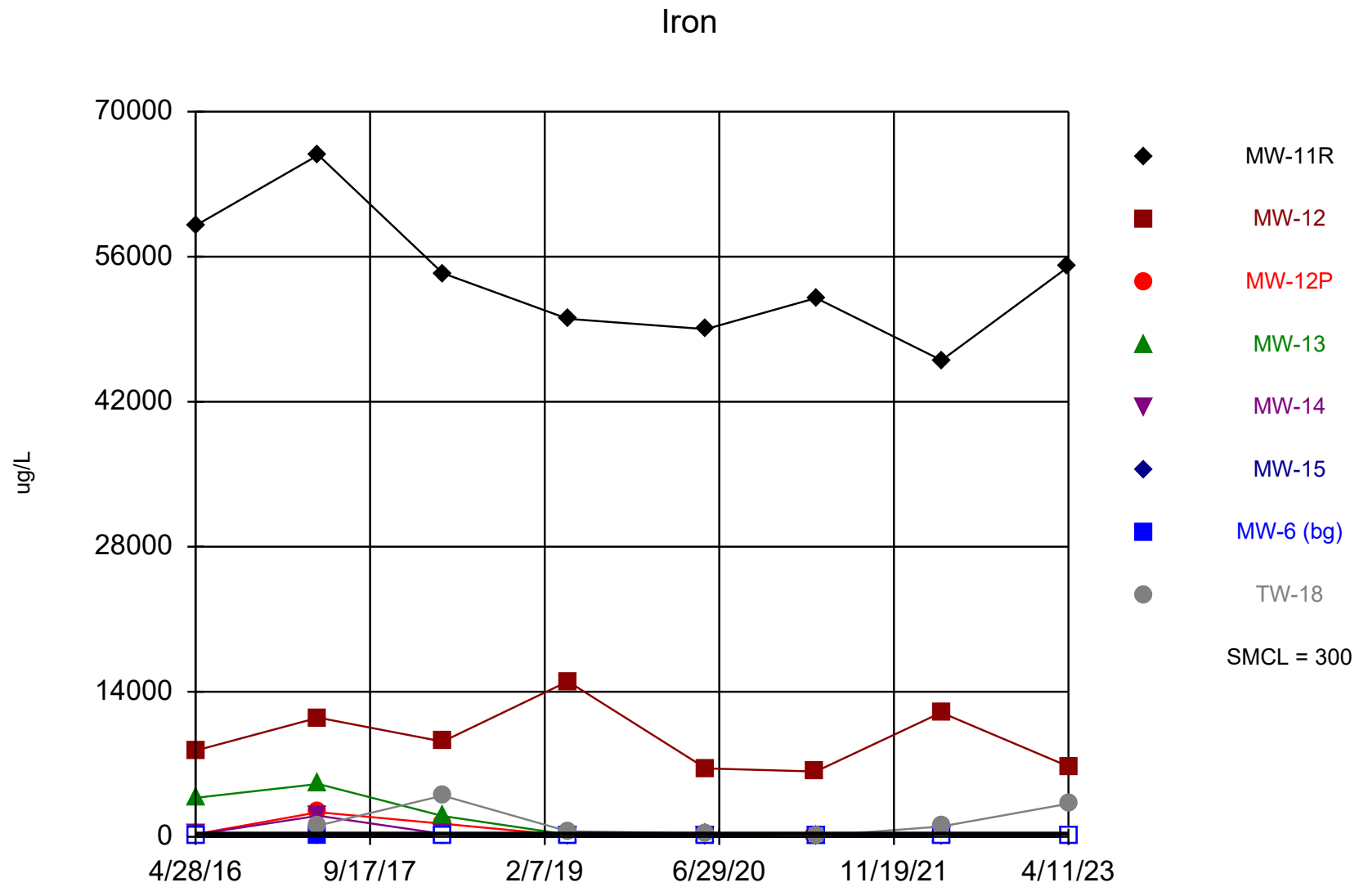
Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Time Series

Constituent: Groundwater Elevation (ft) Analysis Run 7/13/2023 3:02 PM View: Lansing State Data
Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-11R	MW-12	MW-12P	MW-13	MW-14	MW-15	MW-6 (bg)	TW-18
4/28/2016	645.96	650.05	650	643.56	641.56	634.71	662.8	
7/20/2016							663.21	
10/27/2016							670.82	
1/18/2017							666.28	
4/19/2017	648.24	653.68	653.4	647.61	643.01	634.5	669.82	649.03
6/19/2017							670.65	
8/15/2017							670.61	
10/16/2017							669.58	
4/16/2018	647.07	652.25	651.9	646.36	642.61	634.07	667.64	648.49
4/26/2018	647.47	651.75	652.54	646.38	645.46	634.14	667.96	648.35
10/8/2018							664.71	
4/15/2019	648.69	654.35	653.99	649.45	643.08	633.71	672.78	648.47
4/16/2019	648.69	654.35	653.99	649.45		633.71		648.47
10/2/2019							675.54	
5/20/2020							674.47	
5/21/2020	648.17	654.45	654.04	647.94				
5/22/2020					643.23	633.8		648.86
4/6/2021		652.31	652.92					
4/7/2021	647.97			647.39	642.92	634.38	671.08	648.86
4/6/2022		652.11	651.71		642.88		667.14	648.91
4/7/2022	647.31			646.61		640.13		
6/2/2022	646.78	651.73	651.37	645.41	642.58	635.53		648.61
4/10/2023	643.72							
4/11/2023		649.09	650.75		641.64		664.79	648.5

Hollow symbols indicate censored values.



Time Series Analysis Run 7/13/2023 3:01 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Time Series

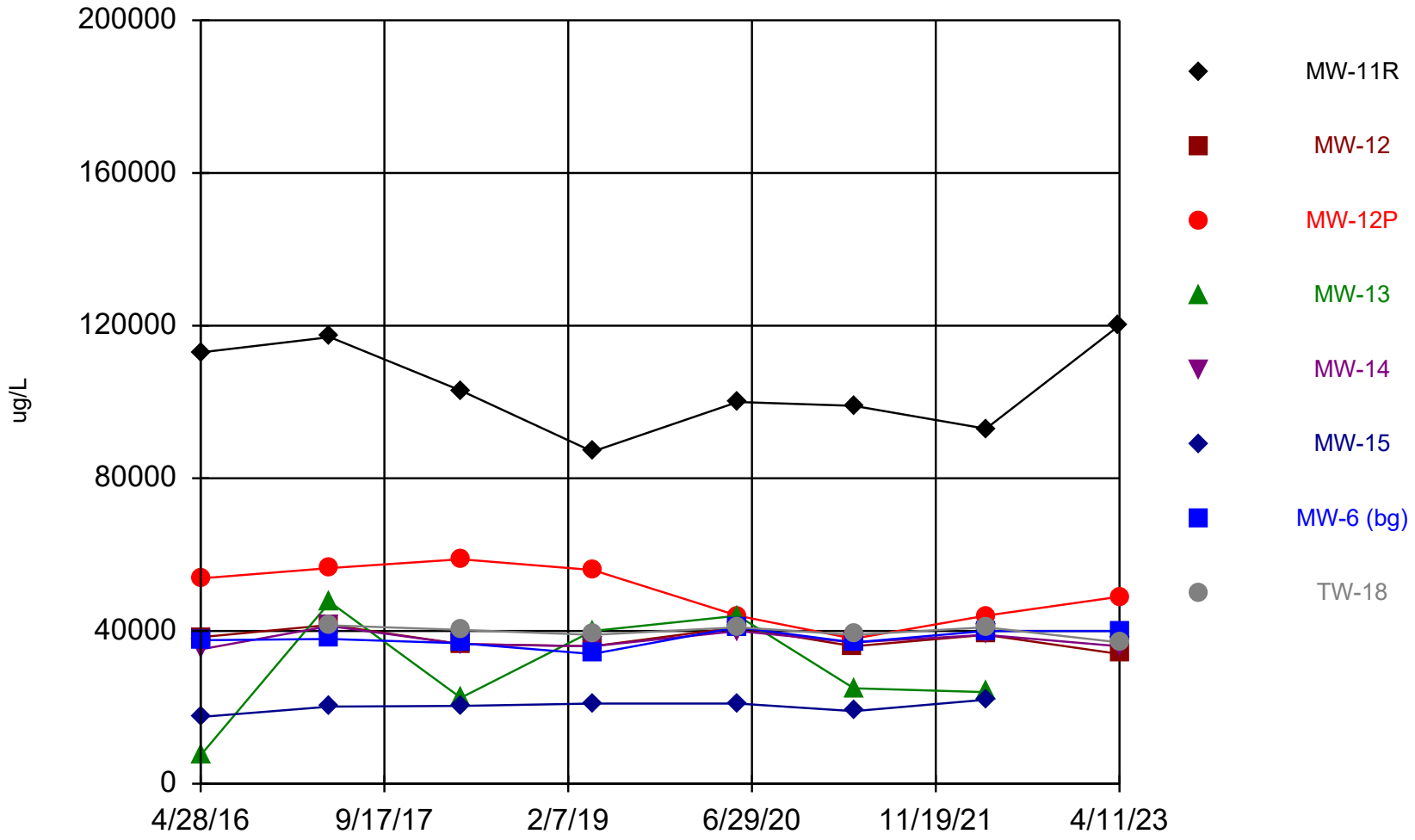
Constituent: Iron (ug/L) Analysis Run 7/13/2023 3:02 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-11R	MW-12	MW-12P	MW-13	MW-14	MW-15	MW-6 (bg)	TW-18
4/28/2016	59000	8320	250	3760				
4/29/2016					226	64.8	<12.8	
4/19/2017							27.1 (J,B)	
4/20/2017	65800	11500	2370	5100	2040	94.5 (B)		1090
4/16/2018							<9.6	
4/17/2018	54400	9190	1270	2010	285	13.4 (J)		3980
4/15/2019					110 (B)		<66	
4/16/2019	50000 (B)	15000 (B)	130 (B)	220 (B)		<66		530 (B)
5/20/2020							<50	
5/21/2020	49000	6600	120	240				
5/22/2020					57 (J)	<50		340
4/6/2021		6300	<36					
4/7/2021	52000			180	39 (J)	<36	<36	79 (J)
4/6/2022		12000	39 (J)		<36 (U)		<36 (U)	1000
4/7/2022	46000			280		<36 (U)		
4/10/2023	55000							
4/11/2023		6800	<36 (U)		<36 (U)		<36 (U)	3200

ND substitution: RL or RL/2 if <15% NDs.

Magnesium



Time Series Analysis Run 7/13/2023 3:01 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

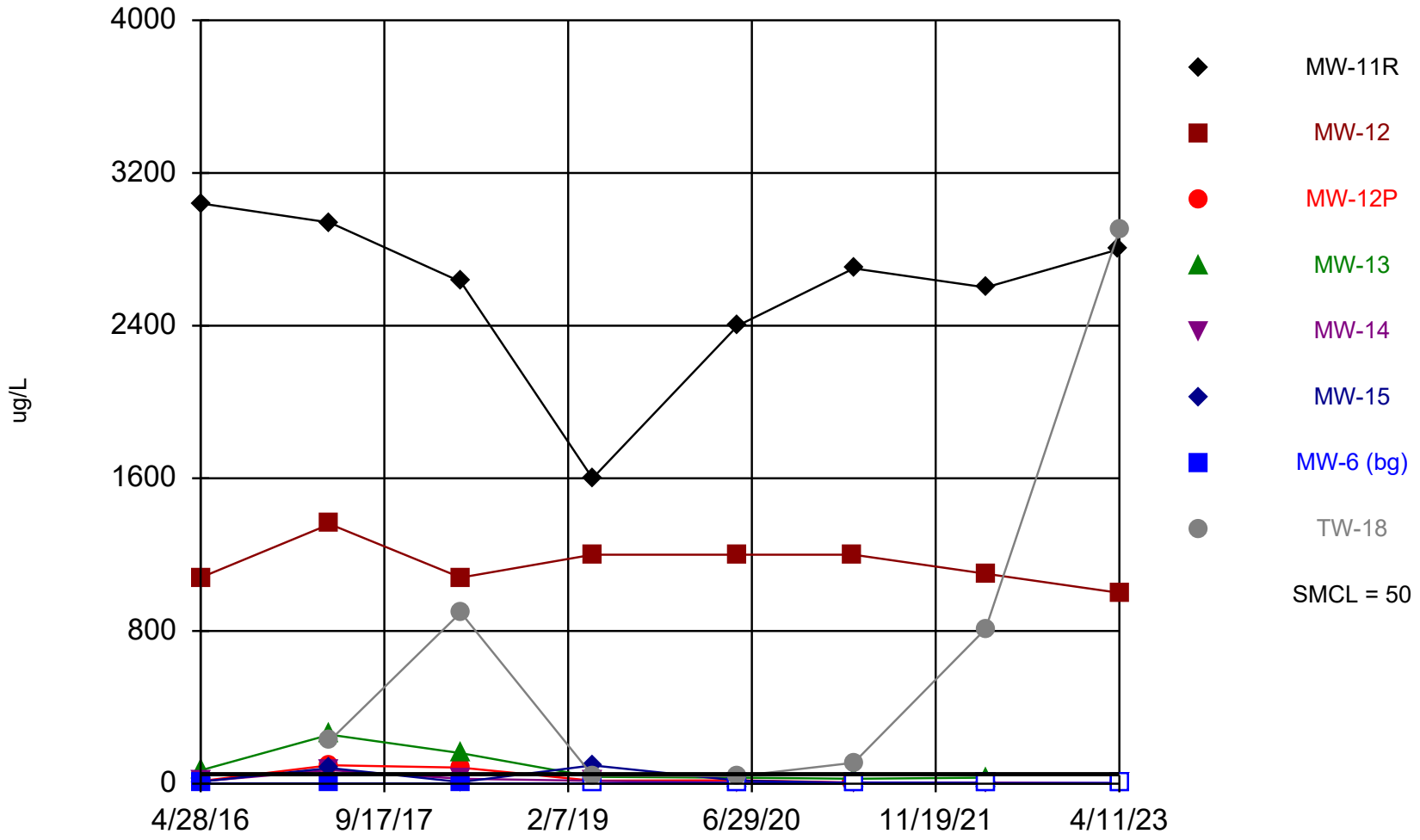
Time Series

Constituent: Magnesium (ug/L) Analysis Run 7/13/2023 3:02 PM View: Lansing State Data
Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-11R	MW-12	MW-12P	MW-13	MW-14	MW-15	MW-6 (bg)	TW-18
4/28/2016	113000	38400	53800	7490				
4/29/2016					35200	17500	37600	
4/19/2017							37900	
4/20/2017	117000	41600	56500	47600	41300	20200		41500
4/16/2018							36800	
4/17/2018	103000 (M1)	36600	58800	22500	36600	20400		40300
4/15/2019					36000		34000	
4/16/2019	87000	36000	56000	40000		21000		39000
5/20/2020							41000	
5/21/2020	100000	41000	44000	44000				
5/22/2020					40000	21000		41000
4/6/2021		36000	38000					
4/7/2021	99000			25000	37000	19000	37000	39000
4/6/2022		39000	44000		39000		40000	41000
4/7/2022	93000			24000		22000		
4/10/2023	120000							
4/11/2023		34000	49000		36000		40000	37000

Hollow symbols indicate censored values.

Manganese



Time Series Analysis Run 7/13/2023 3:01 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Time Series

Constituent: Manganese (ug/L) Analysis Run 7/13/2023 3:02 PM View: Lansing State Data

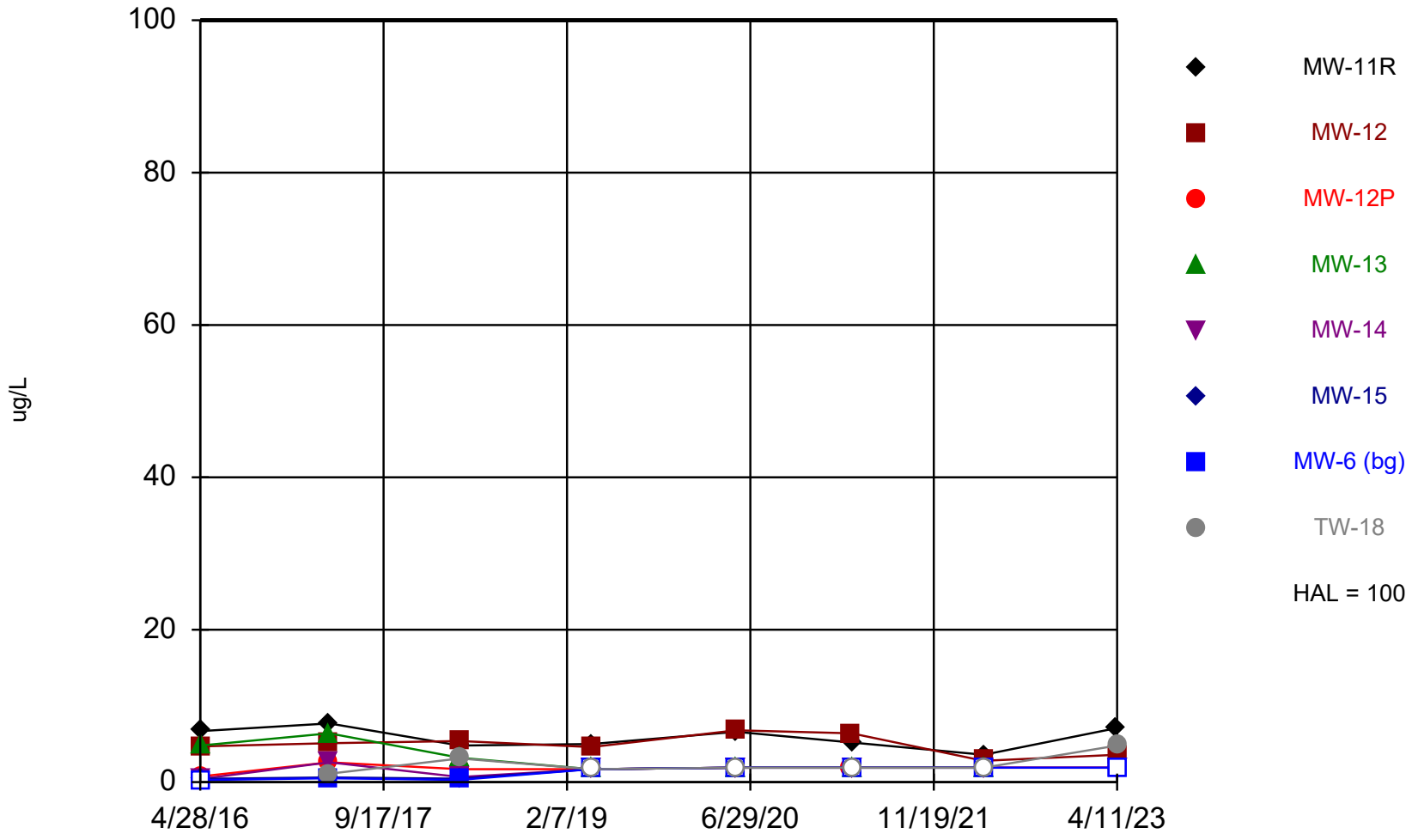
Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-11R	MW-12	MW-12P	MW-13	MW-14	MW-15	MW-6 (bg)	TW-18
4/28/2016	3040	1080	13.7	70.4				
4/29/2016					12.6	11.1	1.5 (Y)	
4/19/2017							1.8 (B)	
4/20/2017	2940	1360	96.9	257	71.7	82.1		227
4/16/2018							0.28 (J)	
4/17/2018	2630	1080	84.8	160	25.8	9.1		897
4/15/2019					15		<2.5	
4/16/2019	1600	1200	16	36		96		43
5/20/2020							<4	
5/21/2020	2400	1200	18	32				
5/22/2020					6 (J)	17		40
4/6/2021		1200	6.7 (J)					
4/7/2021	2700			26	<4.4	<4.4	<4.4	110
4/6/2022		1100	4.9 (J)		<3.6 (U)		<3.6 (U)	810
4/7/2022	2600			32		<3.6 (U)		
4/10/2023	2800							
4/11/2023		1000	<3.6 (U)		<3.6 (U)		<3.6 (U)	2900

ND substitution: RL or RL/2 if <15% NDs.

Hollow symbols indicate censored values.

Nickel



Time Series Analysis Run 7/13/2023 3:01 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Time Series

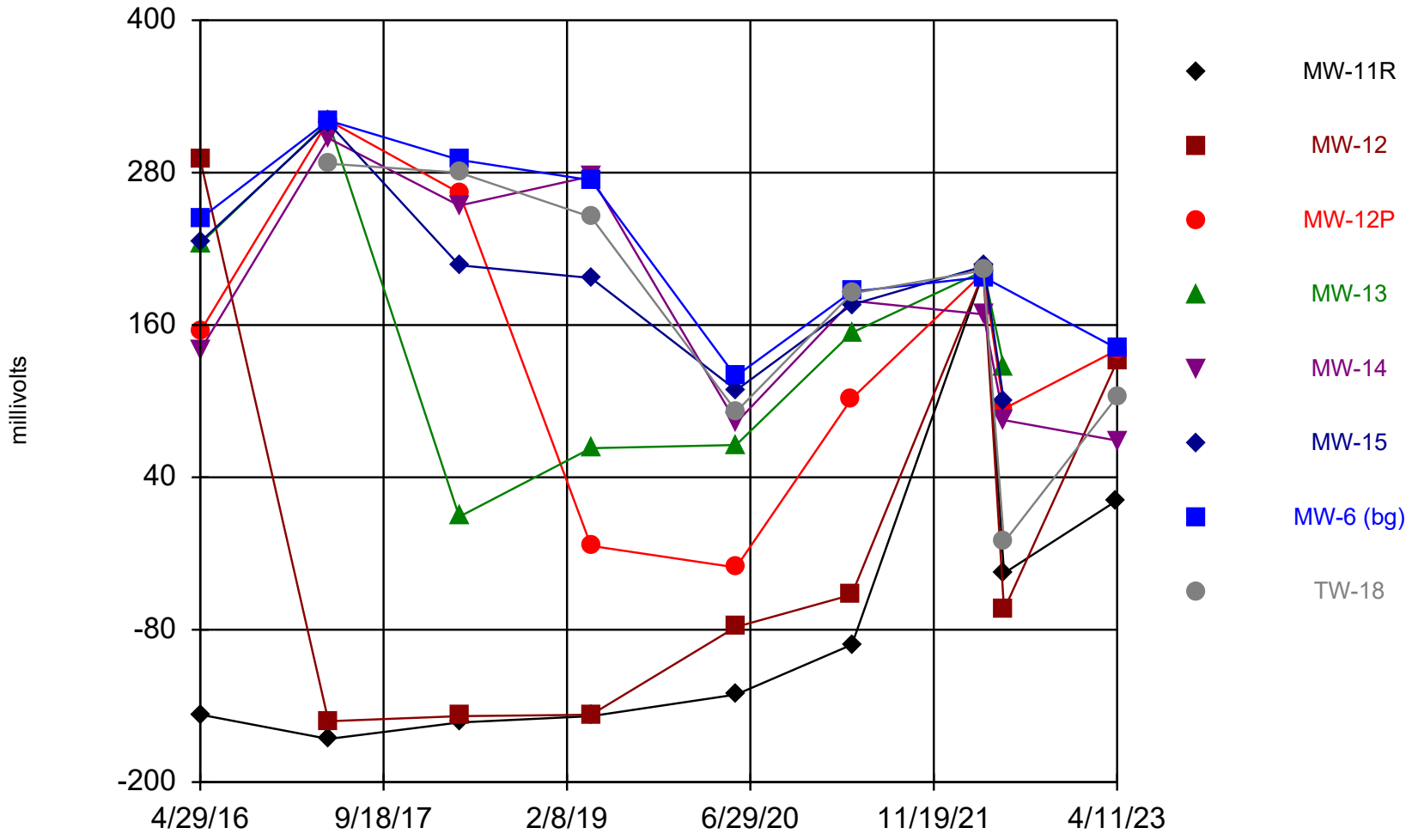
Constituent: Nickel (ug/L) Analysis Run 7/13/2023 3:02 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-11R	MW-12	MW-12P	MW-13	MW-14	MW-15	MW-6 (bg)	TW-18
4/28/2016	6.7	4.7	0.74 (J)	4.8				
4/29/2016					0.42 (J)	0.44 (J)	<0.27	
4/19/2017							0.5 (J,B)	
4/20/2017	7.7	5.1	2.6	6.4	2.6	0.62 (J,B)		1.1 (B)
4/16/2018							0.3 (J)	
4/17/2018	4.8	5.4	1.7	3.2	0.67 (J)	0.46 (J)		3.1
4/15/2019					<1.7		<1.7	
4/16/2019	5	4.6 (J)	<1.7	<1.7		<1.7		<1.7
5/20/2020							<1.9	
5/21/2020	6.6	6.8	<1.9	<1.9				
5/22/2020					<1.9	<1.9		<1.9
4/6/2021		6.4	<1.9					
4/7/2021	5.2			<1.9	<1.9	<1.9	<1.9	<1.9
4/6/2022		2.8 (J)	<1.9 (U)		<1.9 (U)		<1.9 (U)	<1.9 (U)
4/7/2022	3.6 (J)			<1.9 (U)		<1.9 (U)		
4/10/2023	7.1							
4/11/2023		3.6 (J)	<1.9 (U)		<1.9 (U)		<1.9 (U)	4.8 (J)

ND substitution: RL or RL/2 if <15% NDs.

Oxidation Reduction Potential



Time Series Analysis Run 7/13/2023 3:01 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

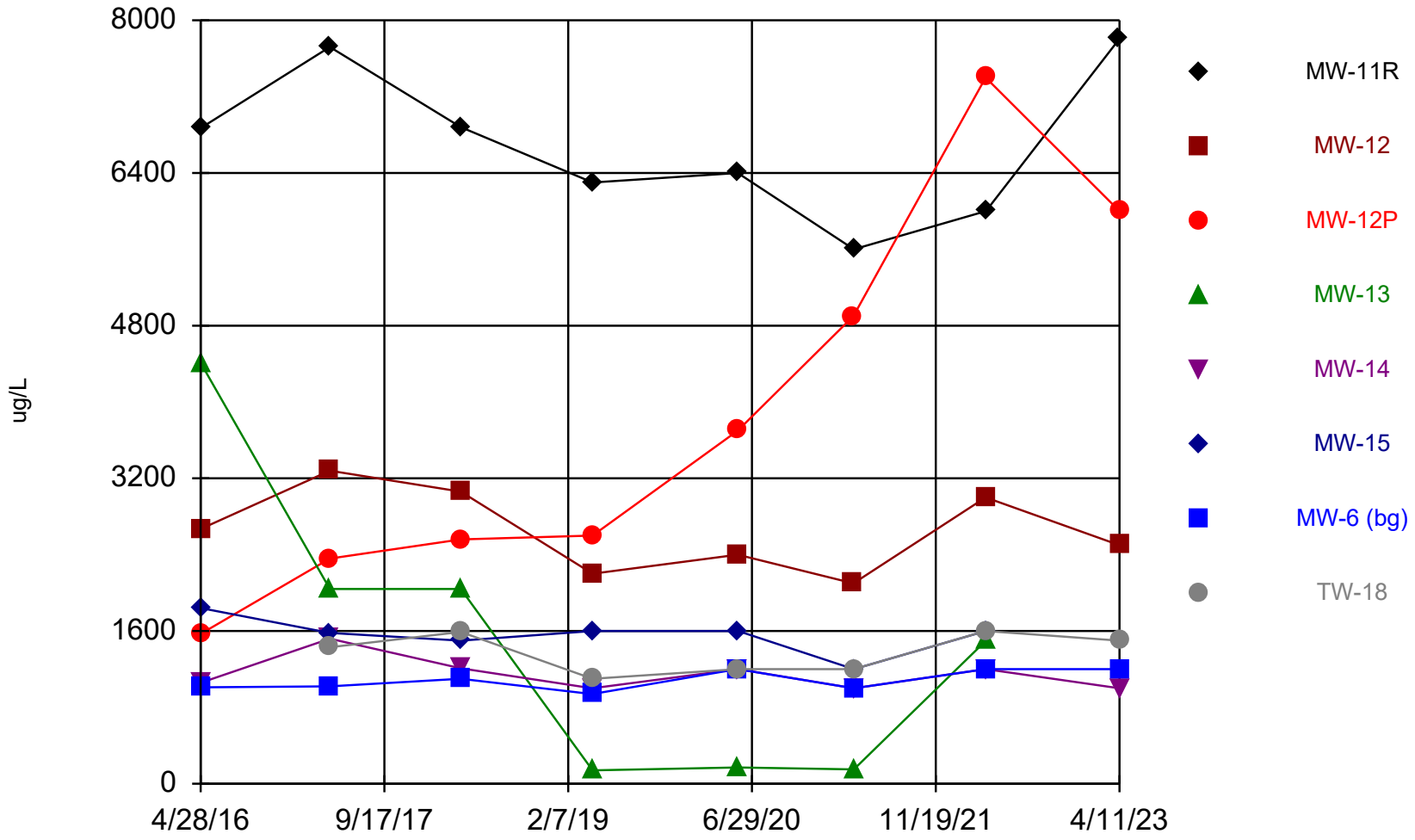
Time Series

Constituent: Oxidation Reduction Potential (millivolts) Analysis Run 7/13/2023 3:02 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-11R	MW-12	MW-12P	MW-13	MW-14	MW-15	MW-6 (bg)	TW-18
4/29/2016	-146.9	290.1	154.9	224	140	225.4	243.7	
4/19/2017	-166	-152	321	320	307	319	321	287
4/16/2018	-153	-148	264	9	254	207	290	280
4/15/2019					277		274	
4/16/2019	-148	-147	-14	63		197		245
5/20/2020							119.6	
5/21/2020	-131	-77.8	-30.9	65.5				
5/22/2020					83.1	108.7		91.9
4/6/2021		-52.5	101.9					
4/7/2021	-91.8			153.9	179	176	186.2	184.8
4/6/2022		200.9	201.2		168.4		197.7	202.9
4/7/2022	202.1			202.6		206.2		
6/2/2022	-35.5	-64.3	94	126.4	85.1	99.2		-11.1
4/10/2023	21.6							
4/11/2023		131.4	140.3		68.9		141.4	103.6

Potassium



Time Series Analysis Run 7/13/2023 3:01 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Time Series

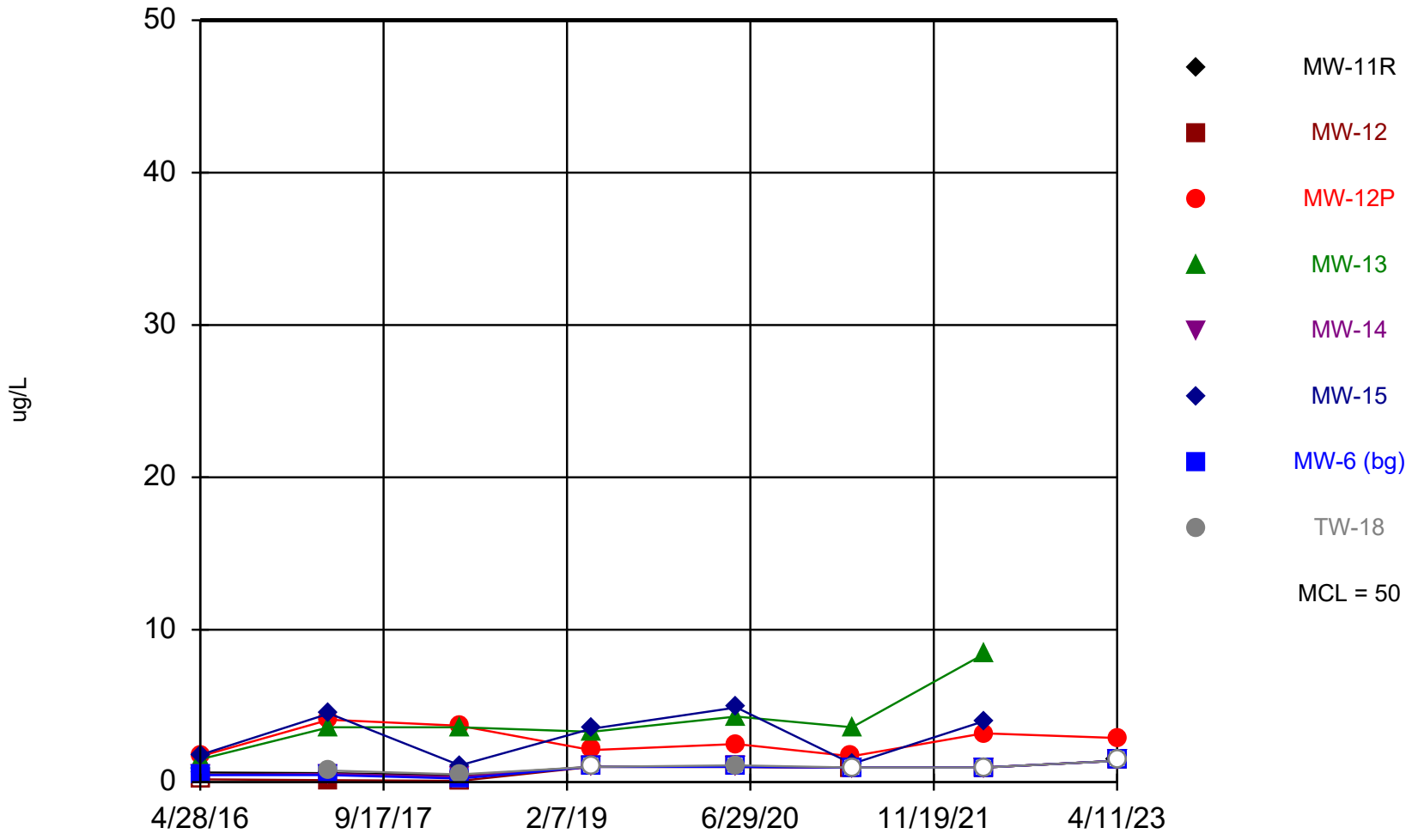
Constituent: Potassium (ug/L) Analysis Run 7/13/2023 3:02 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-11R	MW-12	MW-12P	MW-13	MW-14	MW-15	MW-6 (bg)	TW-18
4/28/2016	6870	2670	1570	4410				
4/29/2016					1060	1840	1010	
4/19/2017							1020	
4/20/2017	7720	3280	2360	2040	1520	1580		1430
4/16/2018							1100	
4/17/2018	6880	3060	2560	2040	1210	1500		1590
4/15/2019					1000		940	
4/16/2019	6300	2200	2600	140 (J)		1600		1100
5/20/2020							1200	
5/21/2020	6400	2400	3700	170 (J)				
5/22/2020					1200	1600		1200
4/6/2021		2100	4900					
4/7/2021	5600			150 (J)	1000	1200	1000	1200
4/6/2022		3000	7400		1200		1200	1600
4/7/2022	6000			1500		1600		
4/10/2023	7800							
4/11/2023		2500	6000		1000		1200	1500

Hollow symbols indicate censored values.

Selenium



Time Series Analysis Run 7/13/2023 3:01 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Time Series

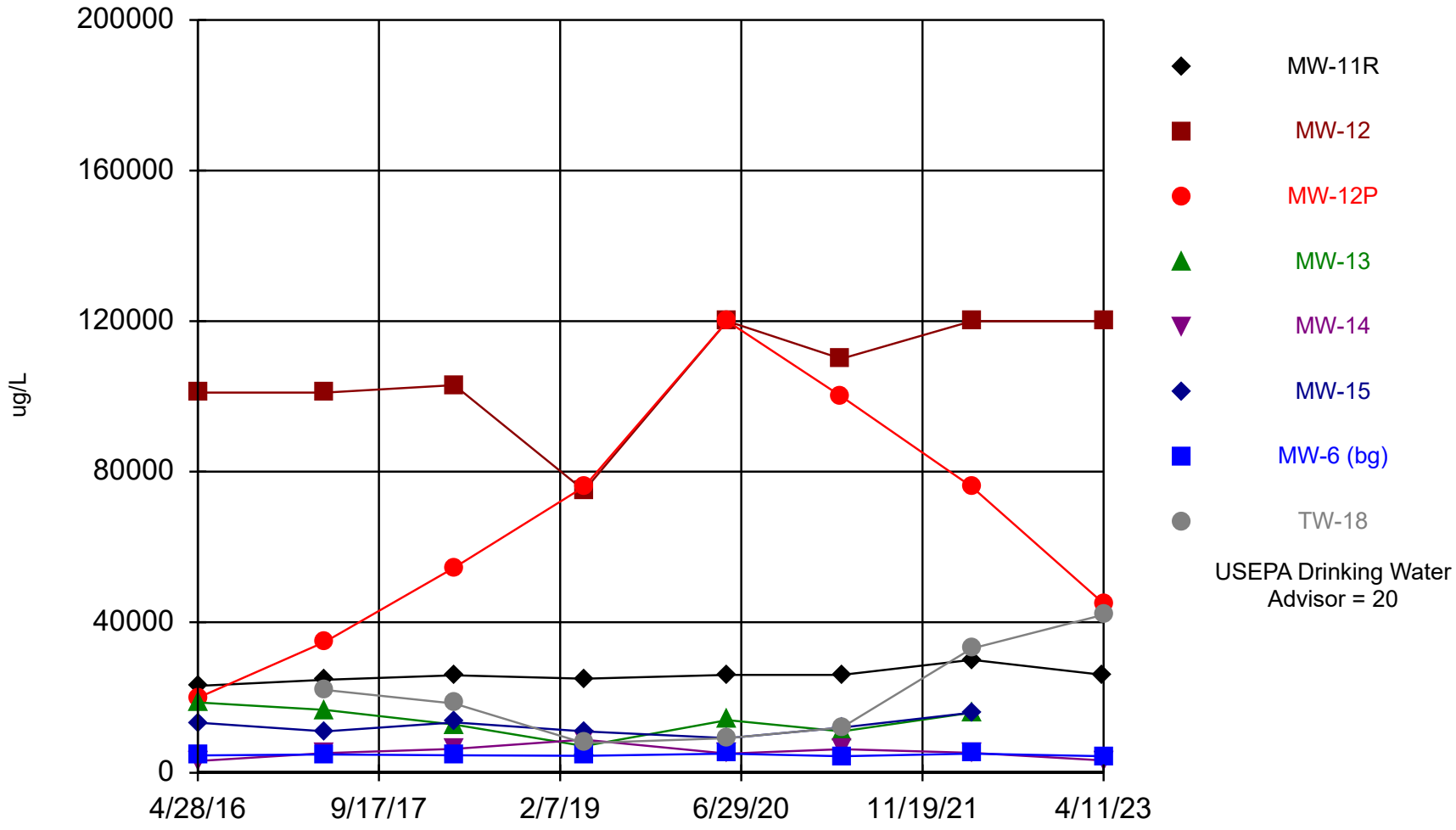
Constituent: Selenium (ug/L) Analysis Run 7/13/2023 3:02 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-11R	MW-12	MW-12P	MW-13	MW-14	MW-15	MW-6 (bg)	TW-18
4/28/2016	0.63 (J)	<0.18	1.7	1.5				
4/29/2016					0.48 (J)	1.8	0.46 (J)	
4/19/2017							0.46 (J)	
4/20/2017	0.59 (J)	0.13 (J)	4.1	3.6	0.54 (J)	4.5		0.76 (J)
4/16/2018							0.24 (J)	
4/17/2018	0.44 (J)	<0.086	3.7	3.6	0.34 (J)	1.1		0.51 (J)
4/15/2019					<1		<1	
4/16/2019	<1	<1	2.1 (J)	3.3 (J)		3.5 (J)		<1
5/20/2020							<1	
5/21/2020	<1	<1	2.5 (J)	4.3 (J)				
5/22/2020					<1	4.9 (J)		1.1 (J)
4/6/2021		<0.96	1.7 (J)					
4/7/2021	<0.96			3.6 (J,B)	<0.96	1.2 (J,B)	<0.96	<0.96
4/6/2022		<0.96 (U)	3.2 (J)		<0.96 (U)		<0.96 (U)	<0.96 (U)
4/7/2022	<0.96 (U)			8.4		4 (J)		
4/10/2023	1.4 (J)							
4/11/2023		<1.4 (U)	2.9 (J)		<1.4 (U)		<1.4 (U)	<1.4 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sodium



Time Series Analysis Run 7/13/2023 3:01 PM View: Lansing State Data

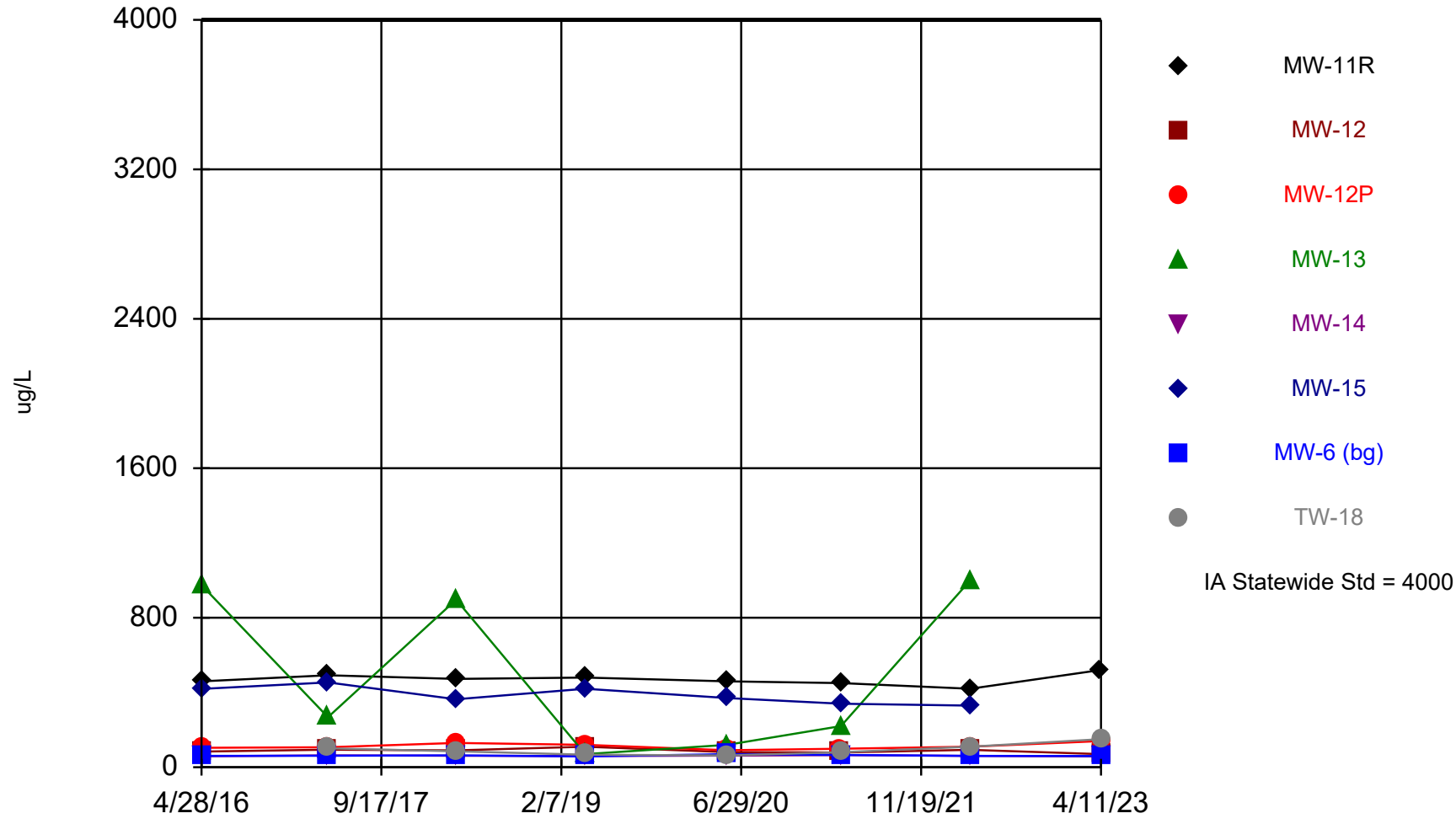
Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Time Series

Constituent: Sodium (ug/L) Analysis Run 7/13/2023 3:02 PM View: Lansing State Data
Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-11R	MW-12	MW-12P	MW-13	MW-14	MW-15	MW-6 (bg)	TW-18
4/28/2016	23100	101000	19900	18700				
4/29/2016					3140	13300	4610	
4/19/2017							4870	
4/20/2017	24700	101000	34800	16700	5220	11000		22000
4/16/2018							4650	
4/17/2018	25900	103000	54500	12800	6340	13400		18400
4/15/2019					8800		4500	
4/16/2019	25000	75000	76000	7100		11000		7900
5/20/2020							5100	
5/21/2020	26000	120000	120000	14000				
5/22/2020					5100	9200		9200
4/6/2021		110000	100000					
4/7/2021	26000			11000	6300	12000	4400	12000
4/6/2022		120000	76000		5300		5100	33000
4/7/2022	30000			16000		16000		
4/10/2023	26000							
4/11/2023		120000	45000		3300		4400	42000

Strontium



Time Series Analysis Run 7/13/2023 3:01 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

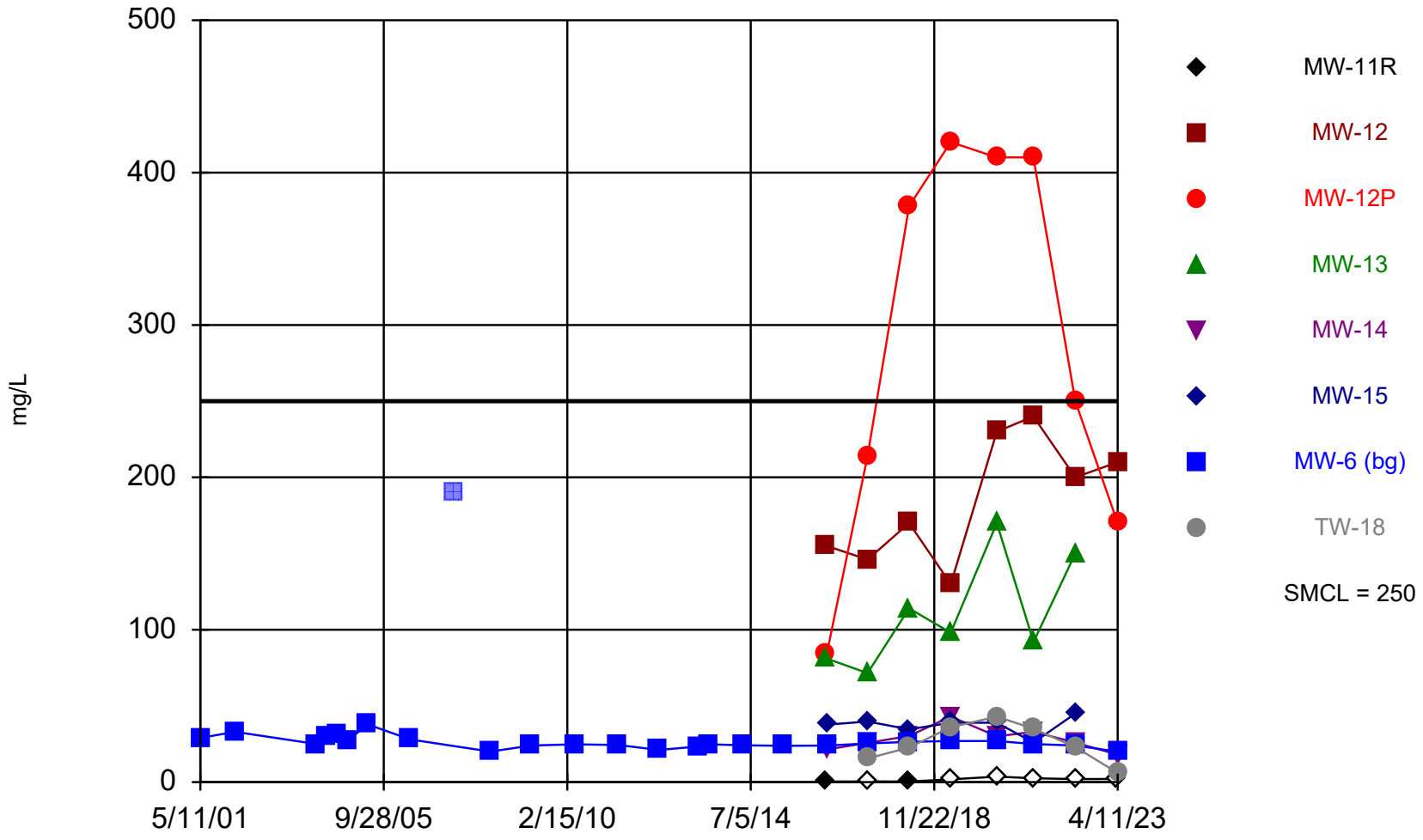
Time Series

Constituent: Strontium (ug/L) Analysis Run 7/13/2023 3:02 PM View: Lansing State Data
Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-11R	MW-12	MW-12P	MW-13	MW-14	MW-15	MW-6 (bg)	TW-18
4/28/2016	460 (Y)	83.9	104 (Y)	975 (Y)				
4/29/2016					58.3 (Y)	419 (Y)	60.7 (Y)	
4/19/2017							61.2 (N2)	
4/20/2017	492 (N2)	94.2 (N2)	107 (N2)	268 (N2)	63.8 (N2)	454 (N2)		101 (N2)
4/16/2018							63.8 (N2)	
4/17/2018	473 (N2)	90.6 (N2)	130 (N2)	897 (N2)	61.6 (N2)	364 (N2)		85.6 (N2)
4/15/2019					60		58	
4/16/2019	480	110	120	70		420		67
5/20/2020							70	
5/21/2020	460	81	91	120				
5/22/2020					62	370		63
4/6/2021		79	99					
4/7/2021	450			220	65	340	66	80
4/6/2022		93	110		61		61	110
4/7/2022	420			1000		330		
4/10/2023	520							
4/11/2023		70	140		58		60	150

Hollow symbols indicate censored values.

Sulfate



Time Series Analysis Run 7/13/2023 3:01 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Time Series

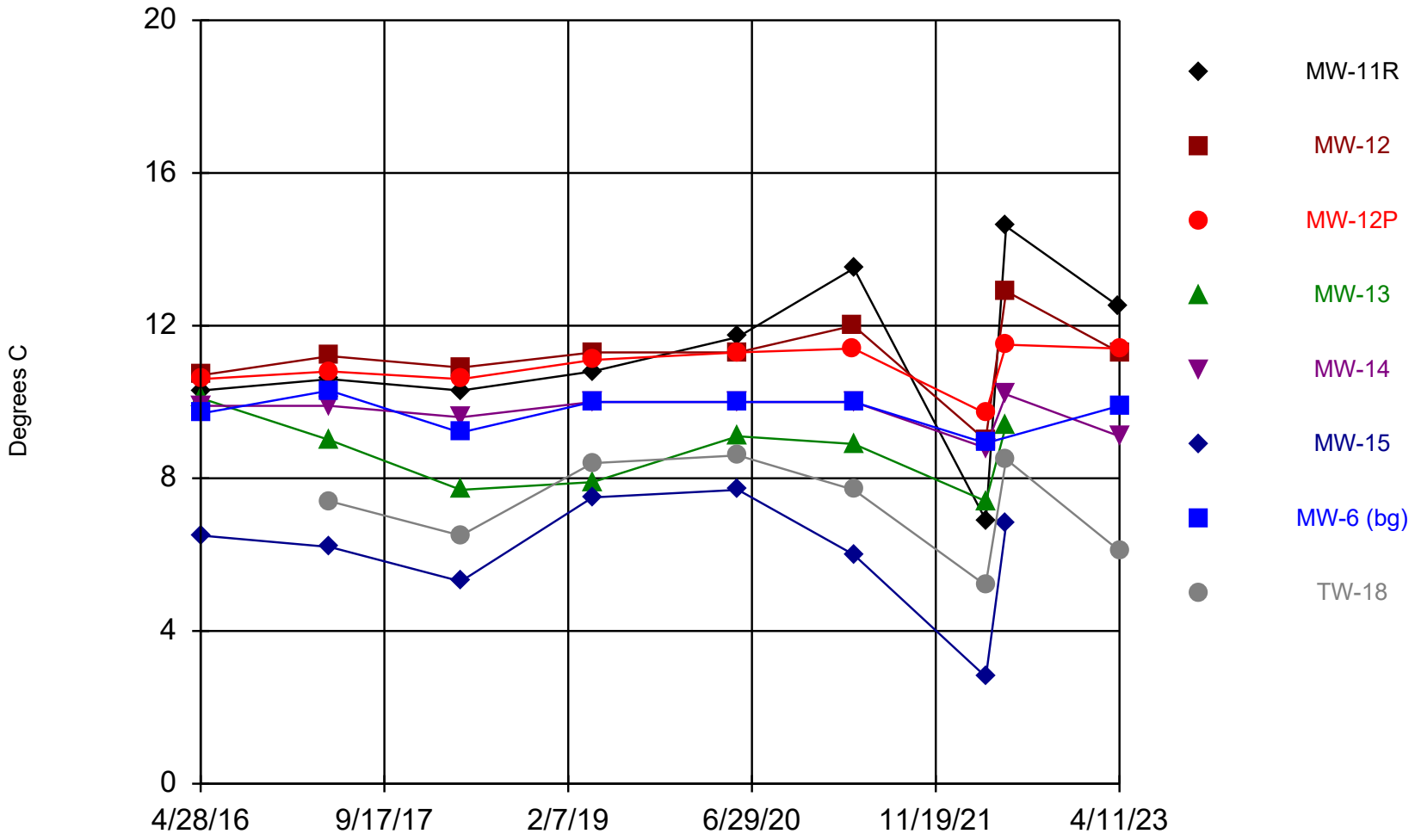
Constituent: Sulfate (mg/L) Analysis Run 7/13/2023 3:02 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-11R	MW-12	MW-12P	MW-13	MW-14	MW-15	MW-6 (bg)	TW-18
5/11/2001							29	
3/8/2002							33	
2/19/2004							25	
5/26/2004							30	
8/23/2004							31	
11/18/2004							27	
5/5/2005							38	
5/19/2006							28 (J)	
5/30/2007							190 (X)	
4/16/2008							20	
4/3/2009							24	
4/21/2010							24.8	
5/4/2011							24.4	
4/25/2012							21.1	
4/2/2013							23.4	
7/2/2013							24.8	
4/29/2014							24.2	
4/20/2015							23.8	
4/28/2016	0.38 (J,Y)	155	84.1	81.1				
4/29/2016					21.5	37.7	24	
4/19/2017							25.4	
4/20/2017	<0.5	146	214	71.5	25.7	39.8		15.5
4/16/2018							26.4	
4/17/2018	0.39 (J)	170	378	114	30.3	34.6		22.7
4/15/2019					43		27	
4/16/2019	<1.8	130	420	98		39		36
5/20/2020							27	
5/21/2020	<3.6	230	410	170				
5/22/2020					30	39		43
4/6/2021		240	410					
4/7/2021	<2.5			92	33	26	25	35
4/6/2022		200	250		26		24	23
4/7/2022	<2 (U)			150		45		
4/10/2023	<2.1 (U)							
4/11/2023		210	170		18		20	6.1

ND substitution: RL or RL/2 if <15% NDs.

Temperature, Field



Time Series Analysis Run 7/13/2023 3:01 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

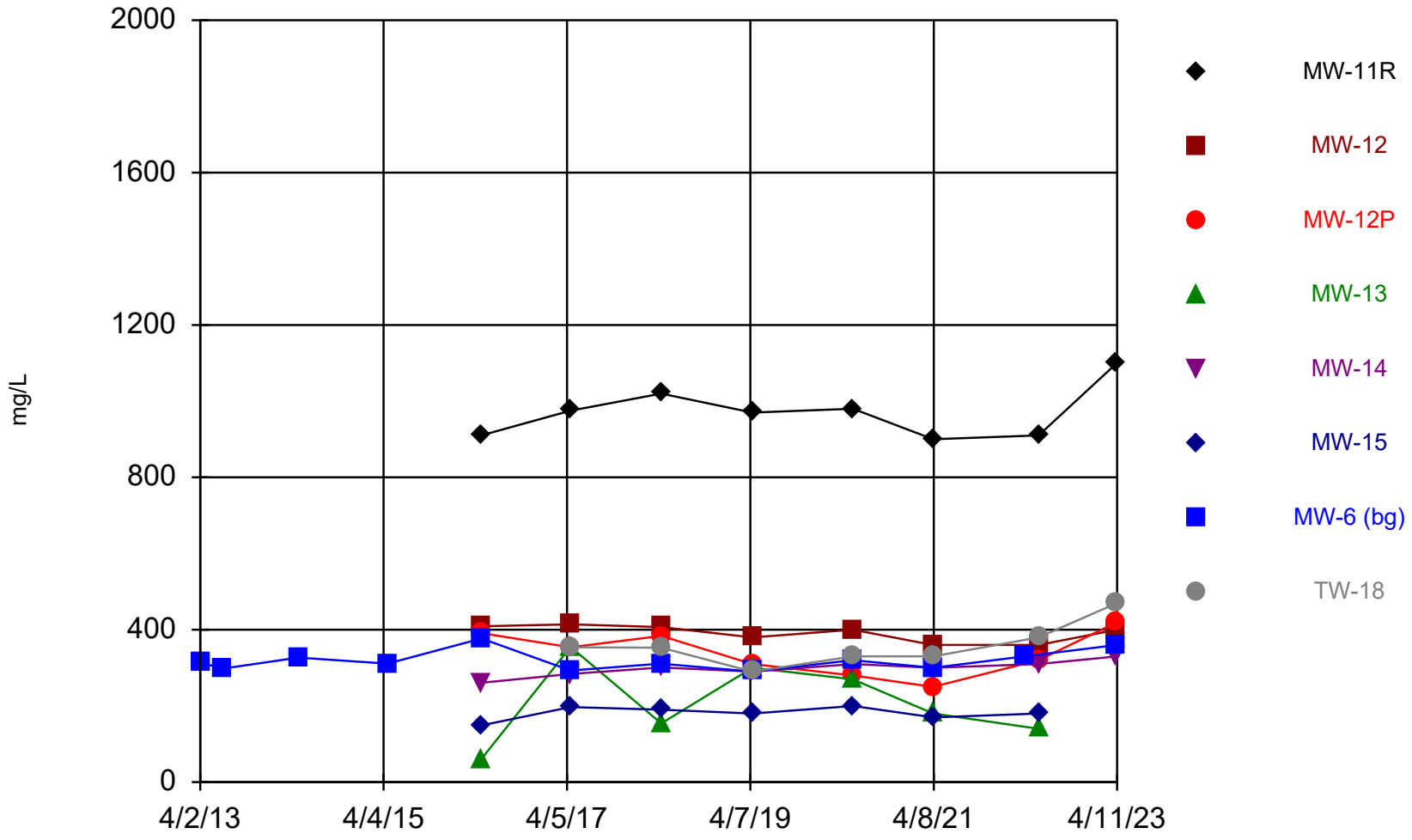
Time Series

Constituent: Temperature, Field (Degrees C) Analysis Run 7/13/2023 3:02 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-11R	MW-12	MW-12P	MW-13	MW-14	MW-15	MW-6 (bg)	TW-18
4/28/2016	10.3	10.7	10.6	10.1				
4/29/2016					9.9	6.5	9.7	
4/19/2017							10.3	
4/20/2017	10.6	11.2	10.8	9	9.9	6.2		7.4
4/16/2018							9.2	
4/17/2018	10.3	10.9	10.6	7.7	9.6	5.3		6.5
4/15/2019					10		10	
4/16/2019	10.8	11.3	11.1	7.9		7.5		8.4
5/20/2020							10	
5/21/2020	11.7	11.3	11.3	9.1				
5/22/2020					10	7.7		8.6
4/6/2021		12	11.4					
4/7/2021	13.5			8.9	10	6	10	7.7
4/6/2022		9	9.7		8.8		8.92	5.2
4/7/2022	6.9			7.4		2.8		
6/2/2022	14.6	12.9	11.5	9.4	10.2	6.8		8.5
4/10/2023	12.5							
4/11/2023		11.3	11.4		9.1		9.9	6.1

Total Alkalinity



Time Series Analysis Run 7/13/2023 3:01 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Time Series

Constituent: Total Alkalinity (mg/L) Analysis Run 7/13/2023 3:02 PM View: Lansing State Data
Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-11R	MW-12	MW-12P	MW-13	MW-14	MW-15	MW-6 (bg)	TW-18
4/2/2013							314	
7/2/2013							298	
4/29/2014							327	
4/20/2015							311	
4/28/2016	910	409	391	60.2				
4/29/2016					261	149	377	
4/19/2017							293	
4/20/2017	975	414	354	355	284	197		354
4/16/2018							311	
4/17/2018	1020	407	384	154	301	190		353
4/15/2019					290		290	
4/16/2019	970	380	310	300		180		290
5/20/2020							320	
5/21/2020	980	400	280	270				
5/22/2020					310	200		330
4/6/2021		360	250					
4/7/2021	900			180	300	170	300	330
4/6/2022							330	
6/2/2022	910	360	320	140	310	180		380
4/10/2023	1100							
4/11/2023		400	420		330		360	470

Attachment D2

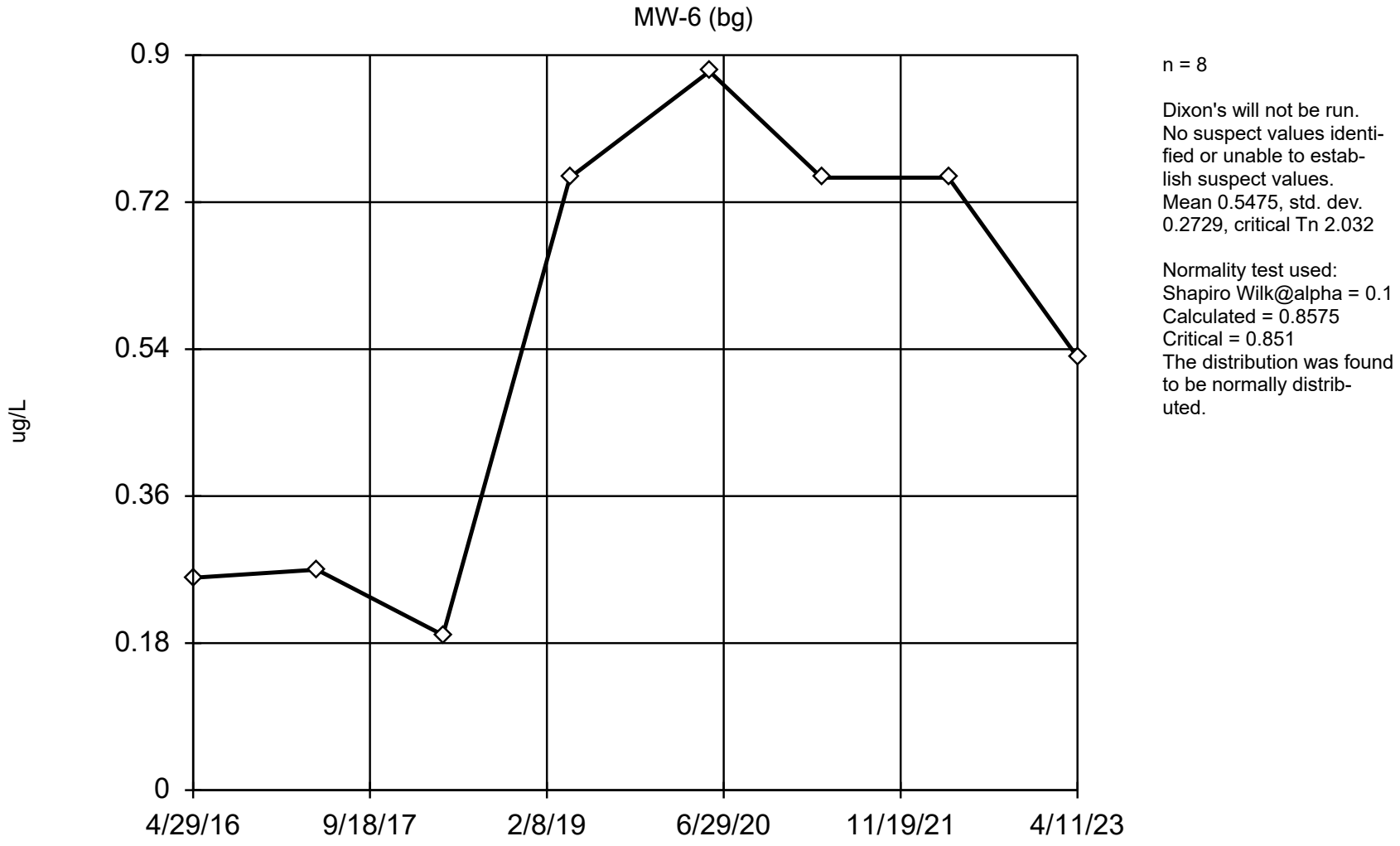
Outlier Analysis Results

Outlier Analysis

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions Printed 10/2/2023, 8:48 AM

Constituent	Well	Outlier	Value(s)	Date(s)	Method	Alpha	N	Mean	Std. Dev.	Distribution	Normality Test
Arsenic (ug/L)	MW-6 (bg)	No	n/a	n/a	EPA 1989	0.05	8	0.5475	0.2729	normal	ShapiroWilk
Barium (ug/L)	MW-6 (bg)	No	n/a	n/a	EPA 1989	0.05	8	45.85	2.517	normal	ShapiroWilk
Boron (ug/L)	MW-6 (bg)	No	n/a	n/a	EPA 1989	0.05	8	60.1	27.06	normal	ShapiroWilk
Calcium (mg/L)	MW-6 (bg)	No	n/a	n/a	EPA 1989	0.05	8	71.15	5.151	normal	ShapiroWilk
Chloride (mg/L)	MW-6 (bg)	No	n/a	n/a	NP (nrm)	NaN	26	5.748	2.527	unknown	ShapiroWilk
Cobalt (ug/L)	MW-6 (bg)	No	n/a	n/a	EPA 1989	0.05	8	0.1591	0.1513	ln(x)	ShapiroWilk
Copper (ug/L)	MW-6 (bg)	No	n/a	n/a	EPA 1989	0.05	8	1.354	1.079	normal	ShapiroWilk
Field pH (SU)	MW-6 (bg)	No	n/a	n/a	EPA 1989	0.05	15	7.352	0.1682	normal	ShapiroWilk
Iron (ug/L)	MW-6 (bg)	No	n/a	n/a	EPA 1989	0.05	8	34.19	18.46	normal	ShapiroWilk
Magnesium (ug/L)	MW-6 (bg)	No	n/a	n/a	EPA 1989	0.05	8	38038	2255	normal	ShapiroWilk
Manganese (ug/L)	MW-6 (bg)	No	n/a	n/a	Dixon`s	0.05	8	2.71	1.432	normal	ShapiroWilk
Nickel (ug/L)	MW-6 (bg)	No	n/a	n/a	NP (nrm)	NaN	8	1.296	0.7838	unknown	ShapiroWilk
Potassium (ug/L)	MW-6 (bg)	No	n/a	n/a	EPA 1989	0.05	8	1084	105.6	normal	ShapiroWilk
Selenium (ug/L)	MW-6 (bg)	No	n/a	n/a	EPA 1989	0.05	8	0.81	0.3846	normal	ShapiroWilk
Sodium (ug/L)	MW-6 (bg)	No	n/a	n/a	EPA 1989	0.05	8	4704	287.7	normal	ShapiroWilk
Strontium (ug/L)	MW-6 (bg)	No	n/a	n/a	EPA 1989	0.05	8	62.59	3.851	normal	ShapiroWilk
Sulfate (mg/L)	**MW-6 (bg)**	**Yes**	**190**	**5/30/2007**	**Rosner`s**	**0.01**	**26**	**32.32**	**32.4**	**ln(x)**	**ShapiroWilk**
Total Alkalinity (mg/L)	MW-6 (bg)	No	n/a	n/a	EPA 1989	0.05	12	319.3	26.46	normal	ShapiroWilk

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 0.5475, std. dev. 0.2729, critical Tn 2.032

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.8575
Critical = 0.851
The distribution was found to be normally distributed.

Constituent: Arsenic Analysis Run 10/2/2023 8:46 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

EPA 1989 Outlier Screening

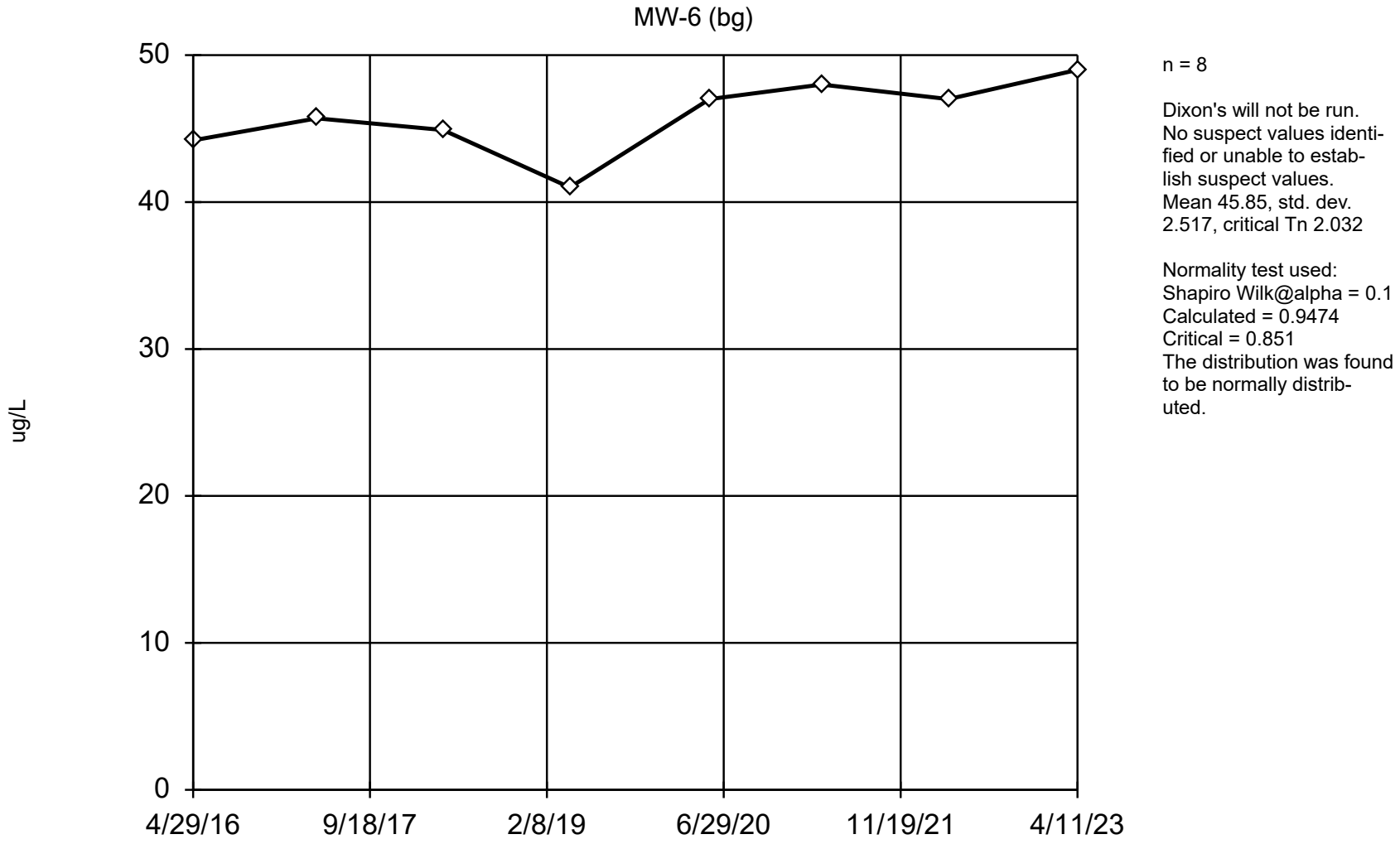
Constituent: Arsenic (ug/L) Analysis Run 10/2/2023 8:48 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-6 (bg)
4/29/2016	0.26 (J)
4/19/2017	0.27 (J)
4/16/2018	0.19 (J)
4/15/2019	<0.75
5/20/2020	<0.88
4/7/2021	<0.75
4/6/2022	<0.75 (U)
4/11/2023	<0.53 (U)

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 45.85, std. dev. 2.517, critical Tn 2.032

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.9474
Critical = 0.851
The distribution was found to be normally distributed.

Constituent: Barium Analysis Run 10/2/2023 8:46 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

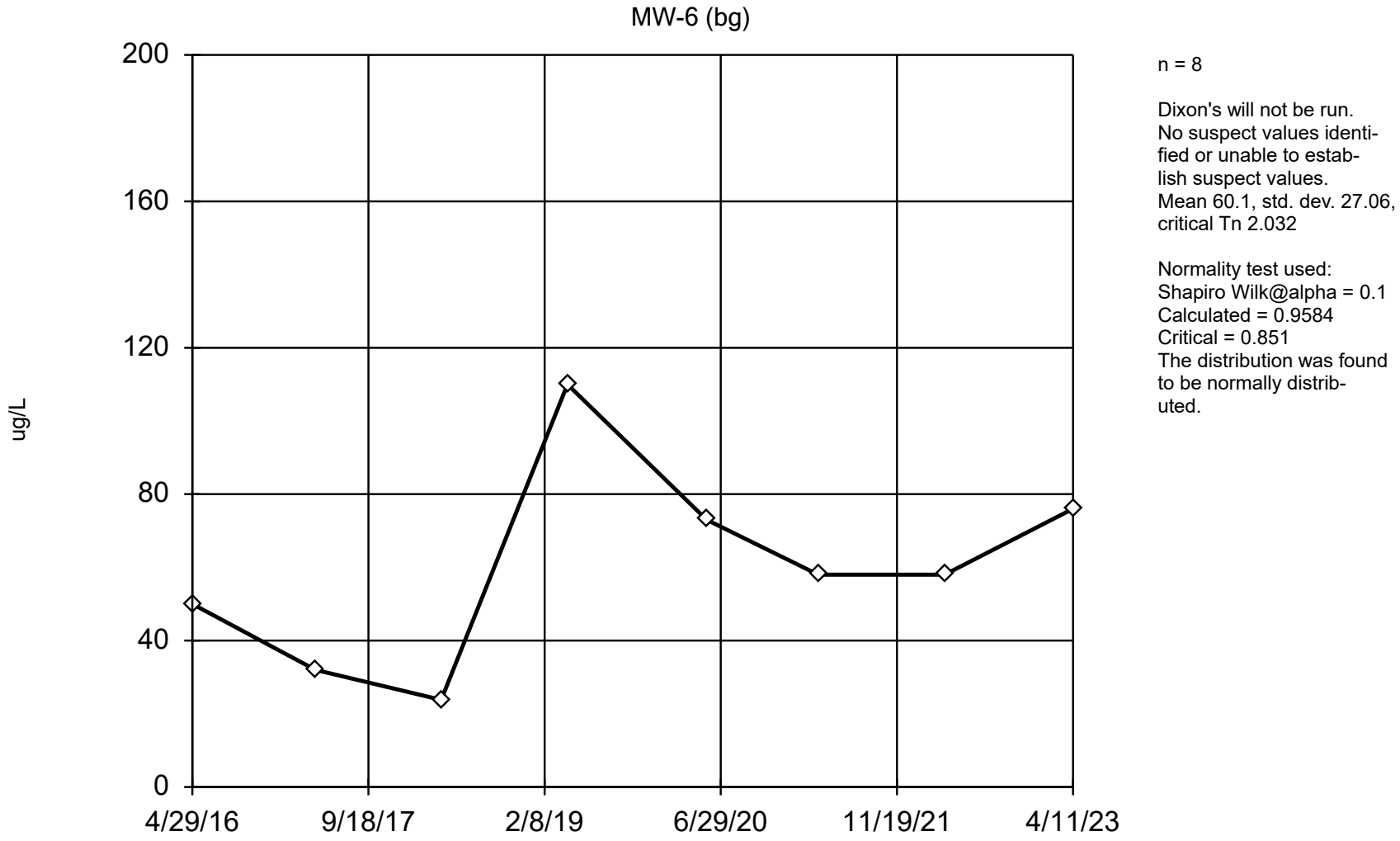
EPA 1989 Outlier Screening

Constituent: Barium (ug/L) Analysis Run 10/2/2023 8:48 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-6 (bg)
4/29/2016	44.2
4/19/2017	45.7
4/16/2018	44.9
4/15/2019	41 (B)
5/20/2020	47
4/7/2021	48
4/6/2022	47
4/11/2023	49

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 60.1, std. dev. 27.06, critical Tn 2.032

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.9584
Critical = 0.851
The distribution was found to be normally distributed.

Constituent: Boron Analysis Run 10/2/2023 8:47 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

EPA 1989 Outlier Screening

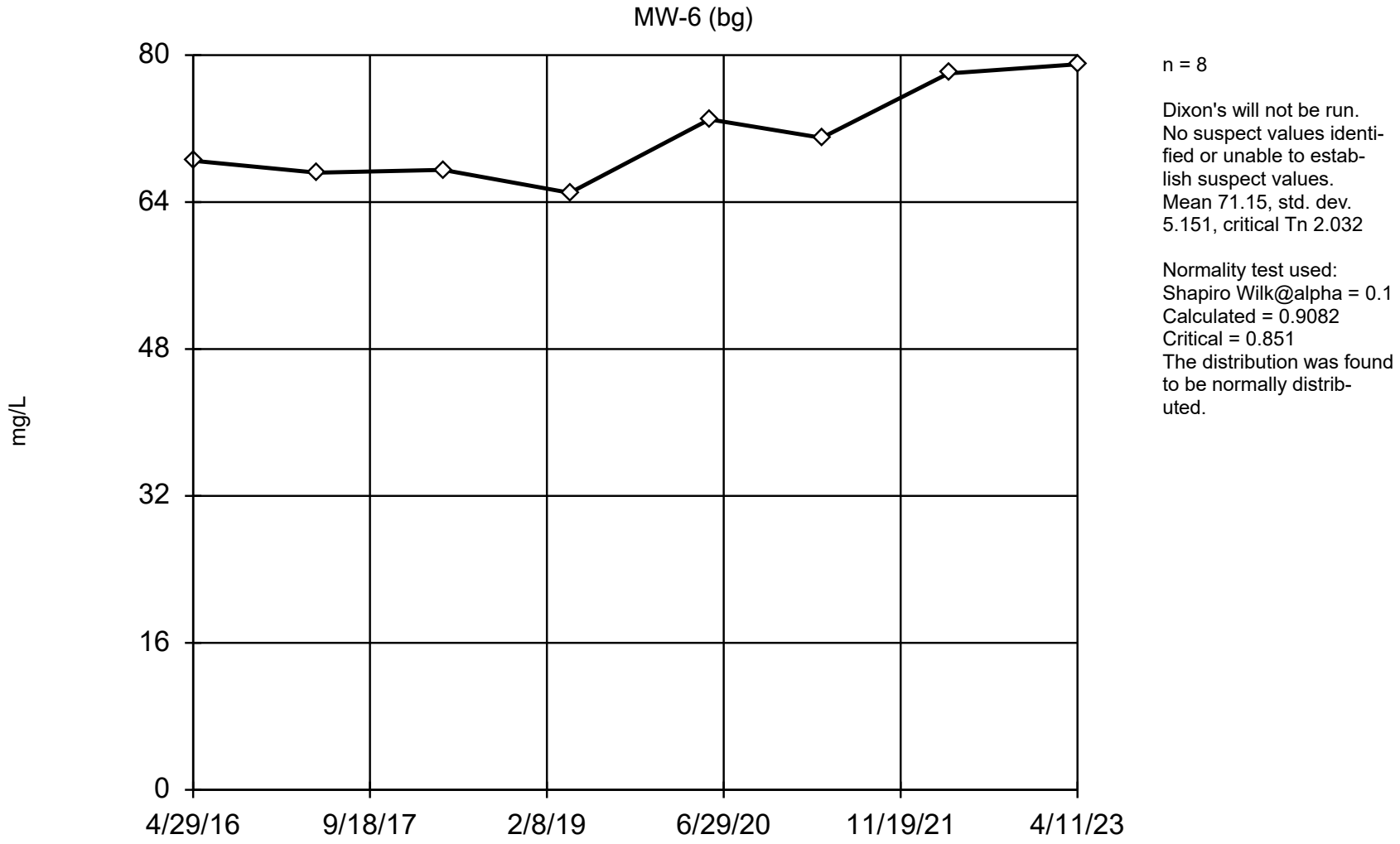
Constituent: Boron (ug/L) Analysis Run 10/2/2023 8:48 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-6 (bg)
4/29/2016	<50
4/19/2017	32 (J,B)
4/16/2018	23.8 (J)
4/15/2019	<110
5/20/2020	<73
4/7/2021	<58
4/6/2022	<58 (U)
4/11/2023	<76 (U)

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 71.15, std. dev. 5.151, critical Tn 2.032

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.9082
Critical = 0.851
The distribution was found to be normally distributed.

Constituent: Calcium Analysis Run 10/2/2023 8:47 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

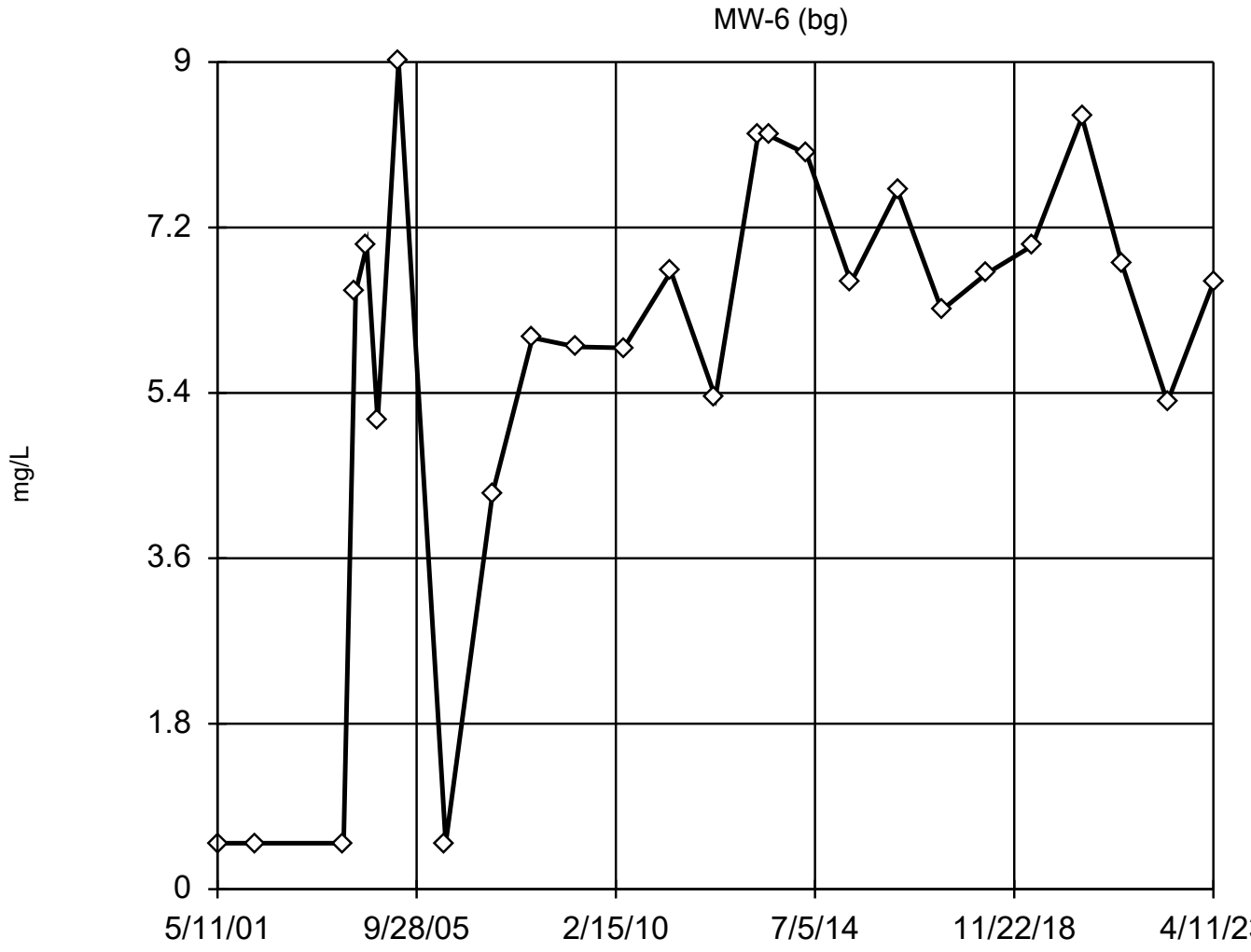
EPA 1989 Outlier Screening

Constituent: Calcium (mg/L) Analysis Run 10/2/2023 8:48 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-6 (bg)
4/29/2016	68.5
4/19/2017	67.2
4/16/2018	67.5
4/15/2019	65
5/20/2020	73
4/7/2021	71
4/6/2022	78
4/11/2023	79

Tukey's Outlier Screening



n = 26

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 = 10.45, low cutoff = -8.481, based on IQR multiplier of 3.

Constituent: Chloride Analysis Run 10/2/2023 8:47 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Tukey's Outlier Screening

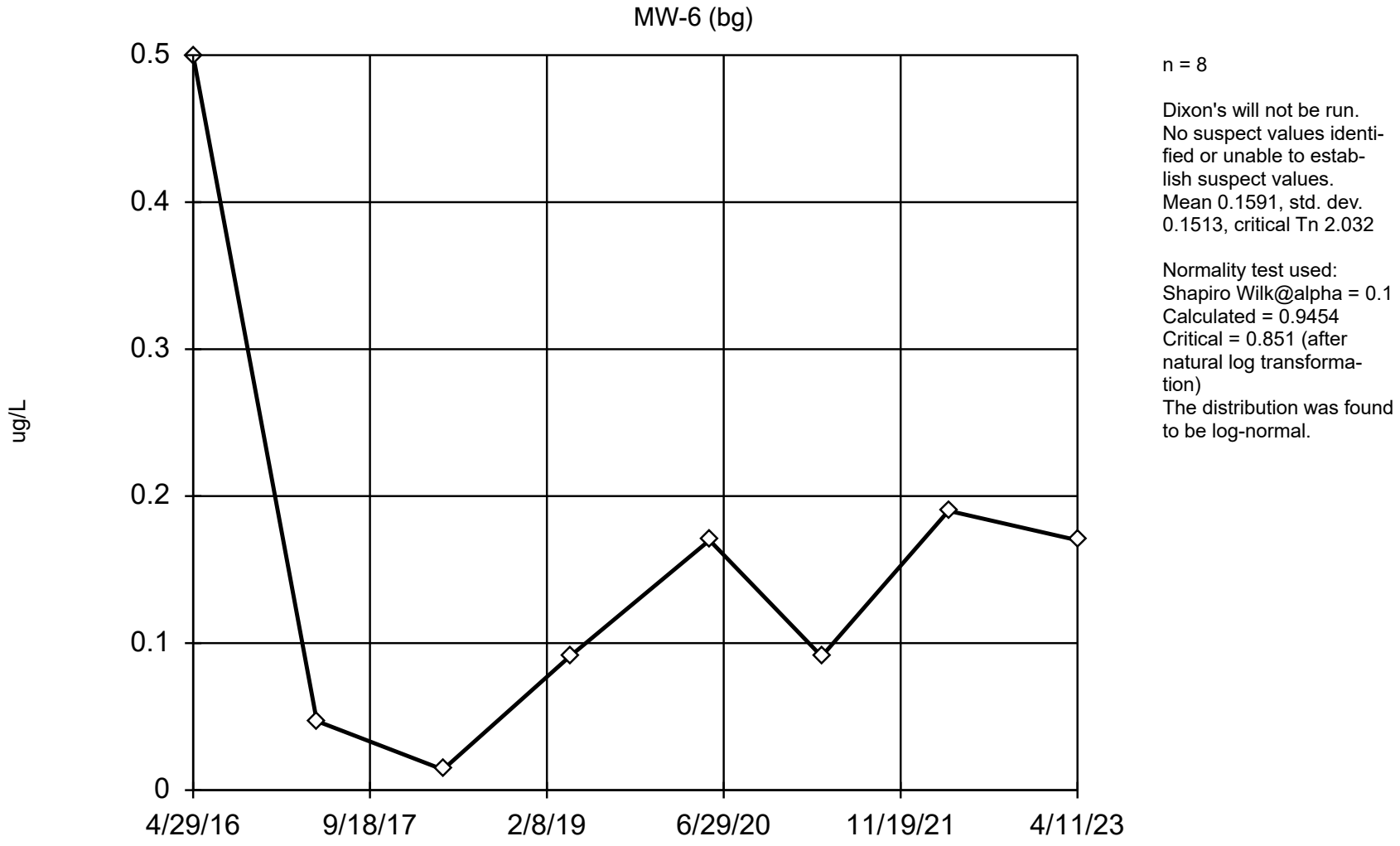
Constituent: Chloride (mg/L) Analysis Run 10/2/2023 8:48 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-6 (bg)
5/11/2001	<0.5 (X)
3/8/2002	<0.5 (X)
2/19/2004	<0.5 (X)
5/26/2004	6.5
8/23/2004	7
11/18/2004	5.1
5/5/2005	9
5/19/2006	<0.5 (X)
5/30/2007	4.3
4/16/2008	6
4/3/2009	5.9
4/21/2010	5.89
5/4/2011	6.72
4/25/2012	5.35
4/2/2013	8.2
7/2/2013	8.2
4/29/2014	8
4/20/2015	6.6
4/29/2016	7.6
4/19/2017	6.3
4/16/2018	6.7
4/15/2019	7
5/20/2020	8.4
4/7/2021	6.8
4/6/2022	5.3
4/11/2023	6.6

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 0.1591, std. dev. 0.1513, critical Tn 2.032

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.9454
Critical = 0.851 (after natural log transformation)
The distribution was found to be log-normal.

Constituent: Cobalt Analysis Run 10/2/2023 8:47 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

EPA 1989 Outlier Screening

Constituent: Cobalt (ug/L) Analysis Run 10/2/2023 8:48 AM View: Lansing State Data

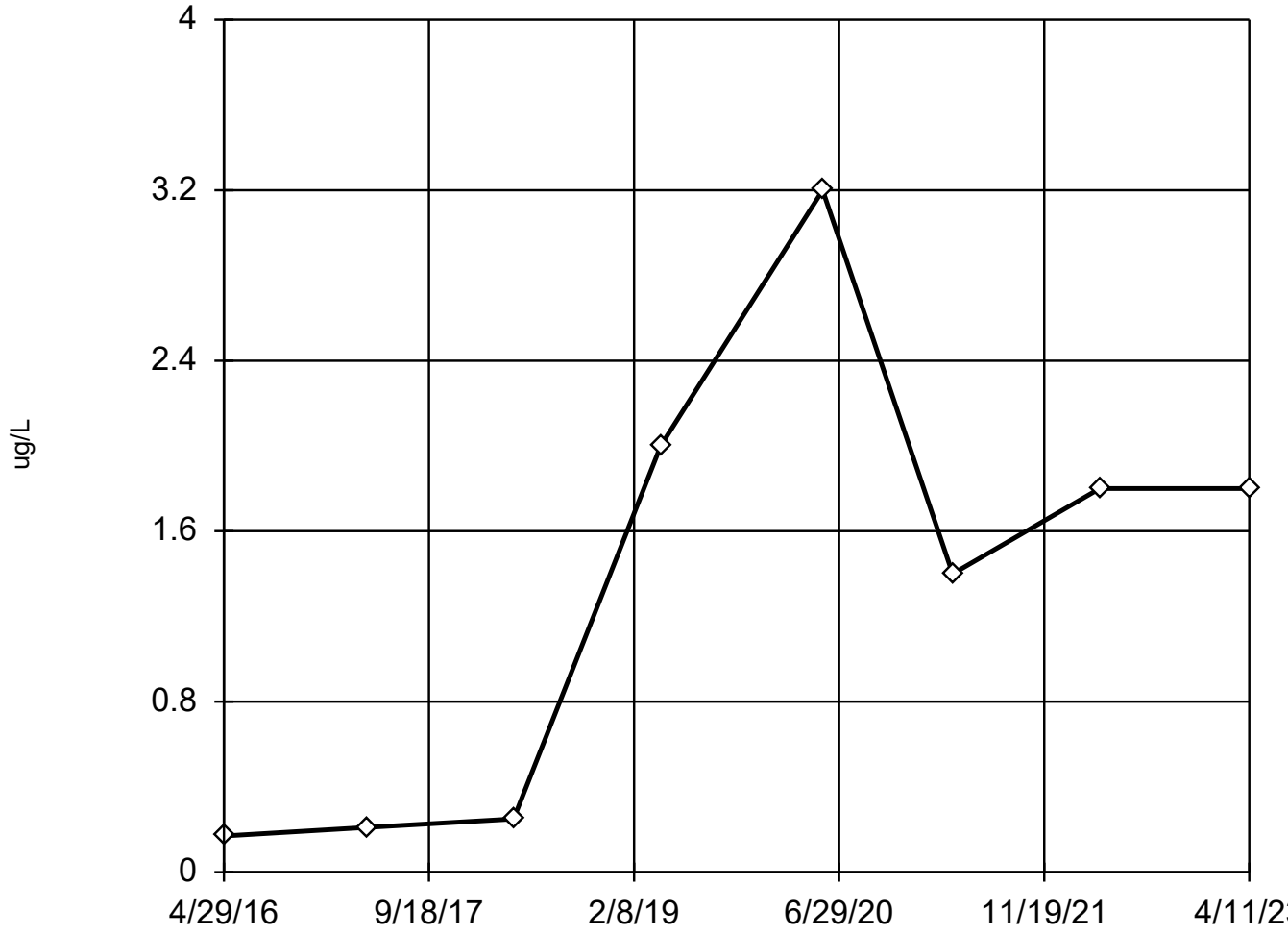
Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-6 (bg)
4/29/2016	<0.5
4/19/2017	0.047 (J,B)
4/16/2018	<0.014
4/15/2019	<0.091
5/20/2020	0.17 (J)
4/7/2021	<0.091
4/6/2022	<0.19 (U)
4/11/2023	<0.17 (U)

ND substitution: RL or RL/2 if <15% NDs.

EPA Screening (suspected outliers for Dixon's Test)

MW-6 (bg)



n = 8

Dixon's will not be run.
No suspect values identified or unable to establish suspect values.
Mean 1.354, std. dev. 1.079, critical Tn 2.032

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.8892
Critical = 0.851
The distribution was found to be normally distributed.

Constituent: Copper Analysis Run 10/2/2023 8:47 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

EPA 1989 Outlier Screening

Constituent: Copper (ug/L) Analysis Run 10/2/2023 8:48 AM View: Lansing State Data

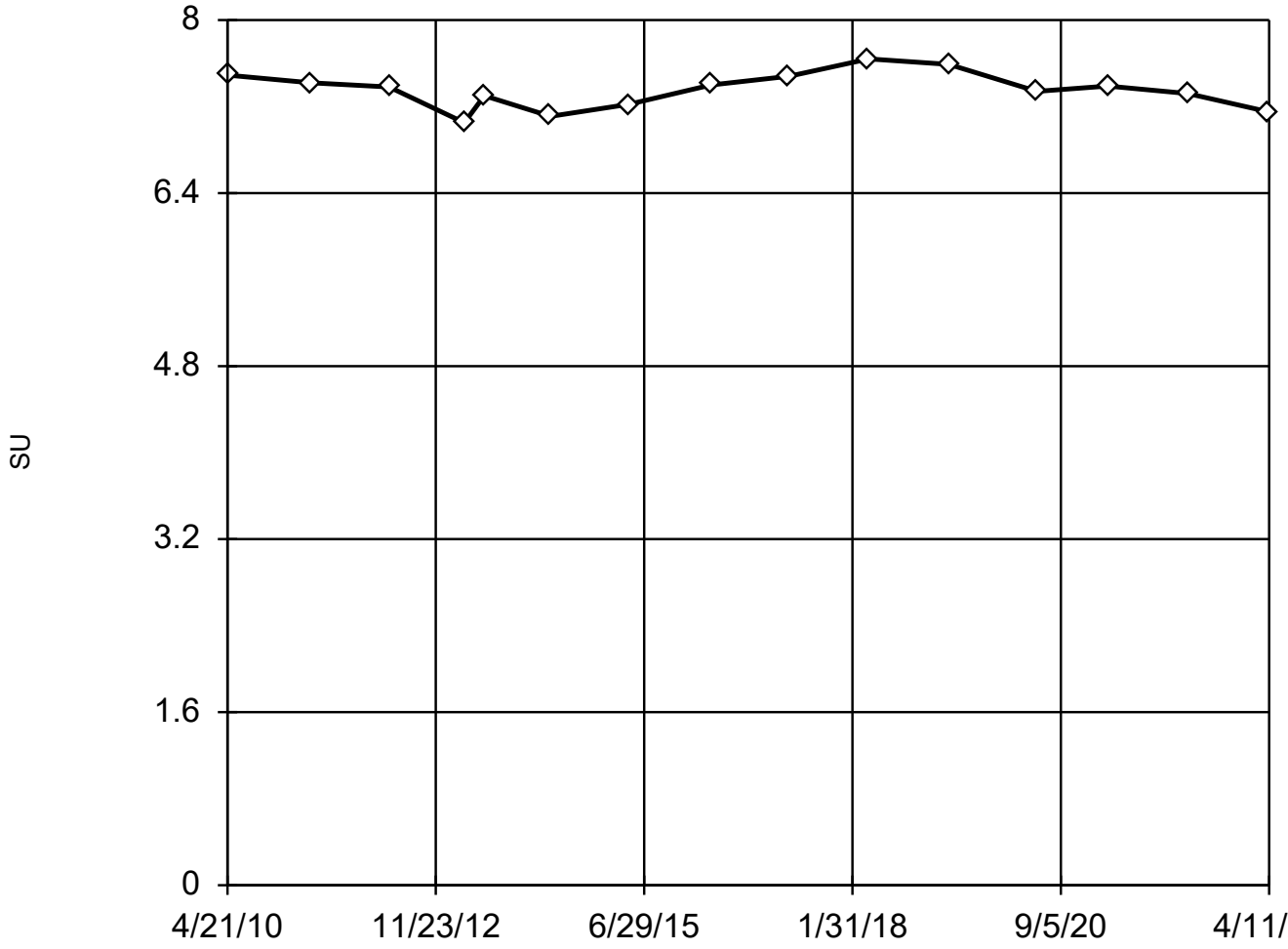
Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-6 (bg)
4/29/2016	0.17 (J,Y)
4/19/2017	0.21 (J,B)
4/16/2018	0.25 (J,B)
4/15/2019	<2
5/20/2020	<3.2
4/7/2021	<1.4
4/6/2022	<1.8 (U)
4/11/2023	<1.8 (U)

ND substitution: RL or RL/2 if <15% NDs.

EPA Screening (suspected outliers for Dixon's Test)

MW-6 (bg)



n = 15

Dixon's will not be run.
No suspect values identified or unable to establish suspect values.
Mean 7.352, std. dev. 0.1682, critical Tn 2.409

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.9757
Critical = 0.901
The distribution was found to be normally distributed.

Constituent: Field pH Analysis Run 10/2/2023 8:47 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

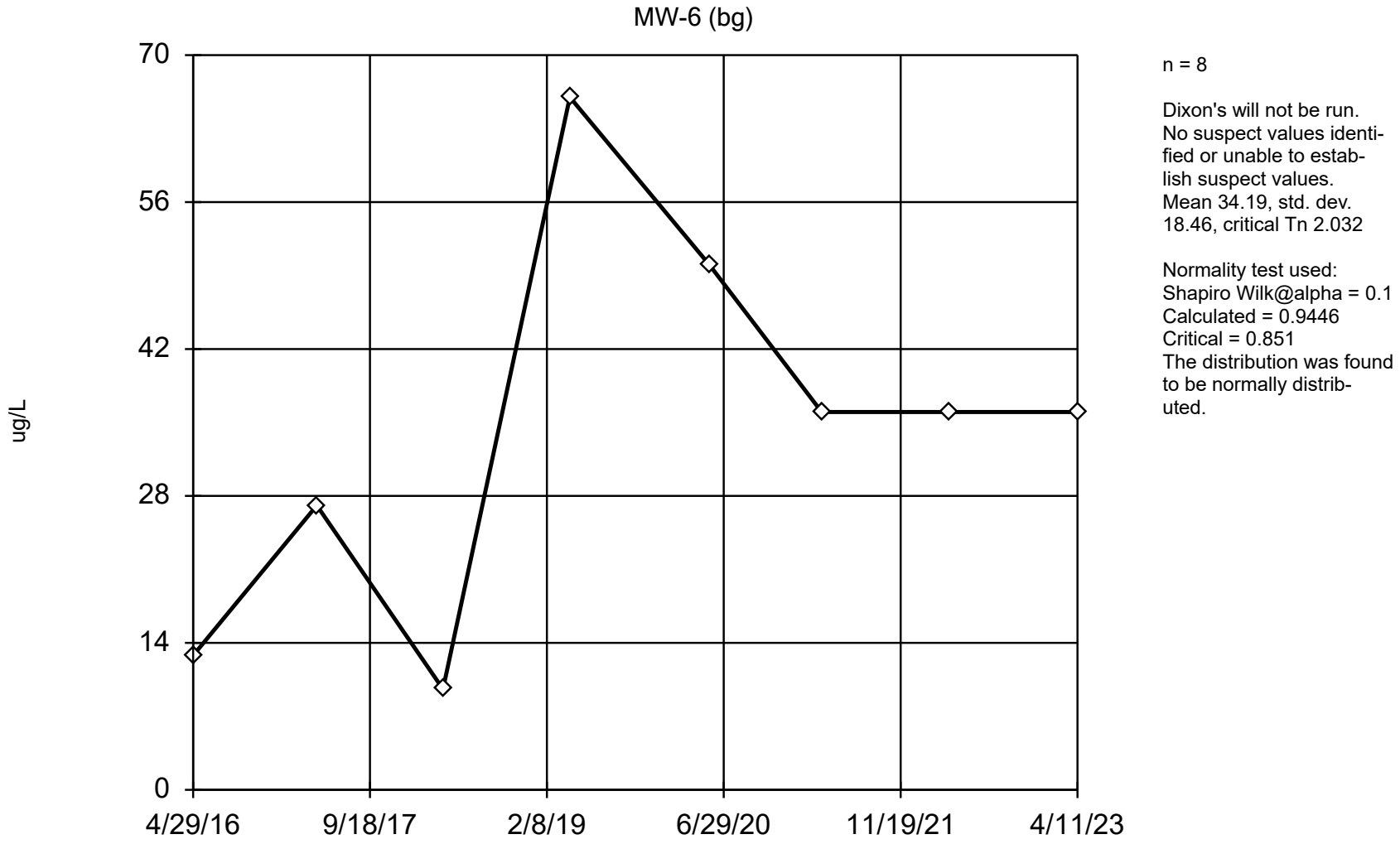
EPA 1989 Outlier Screening

Constituent: Field pH (SU) Analysis Run 10/2/2023 8:48 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-6 (bg)
4/21/2010	7.49
5/4/2011	7.42
4/25/2012	7.38
4/2/2013	7.05
7/2/2013	7.3
4/29/2014	7.11
4/20/2015	7.22
4/29/2016	7.4
4/19/2017	7.48
4/16/2018	7.64
4/15/2019	7.59
5/20/2020	7.34
4/7/2021	7.39
4/6/2022	7.32
4/11/2023	7.15

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 34.19, std. dev. 18.46, critical Tn 2.032

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.9446
Critical = 0.851
The distribution was found to be normally distributed.

Constituent: Iron Analysis Run 10/2/2023 8:47 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

EPA 1989 Outlier Screening

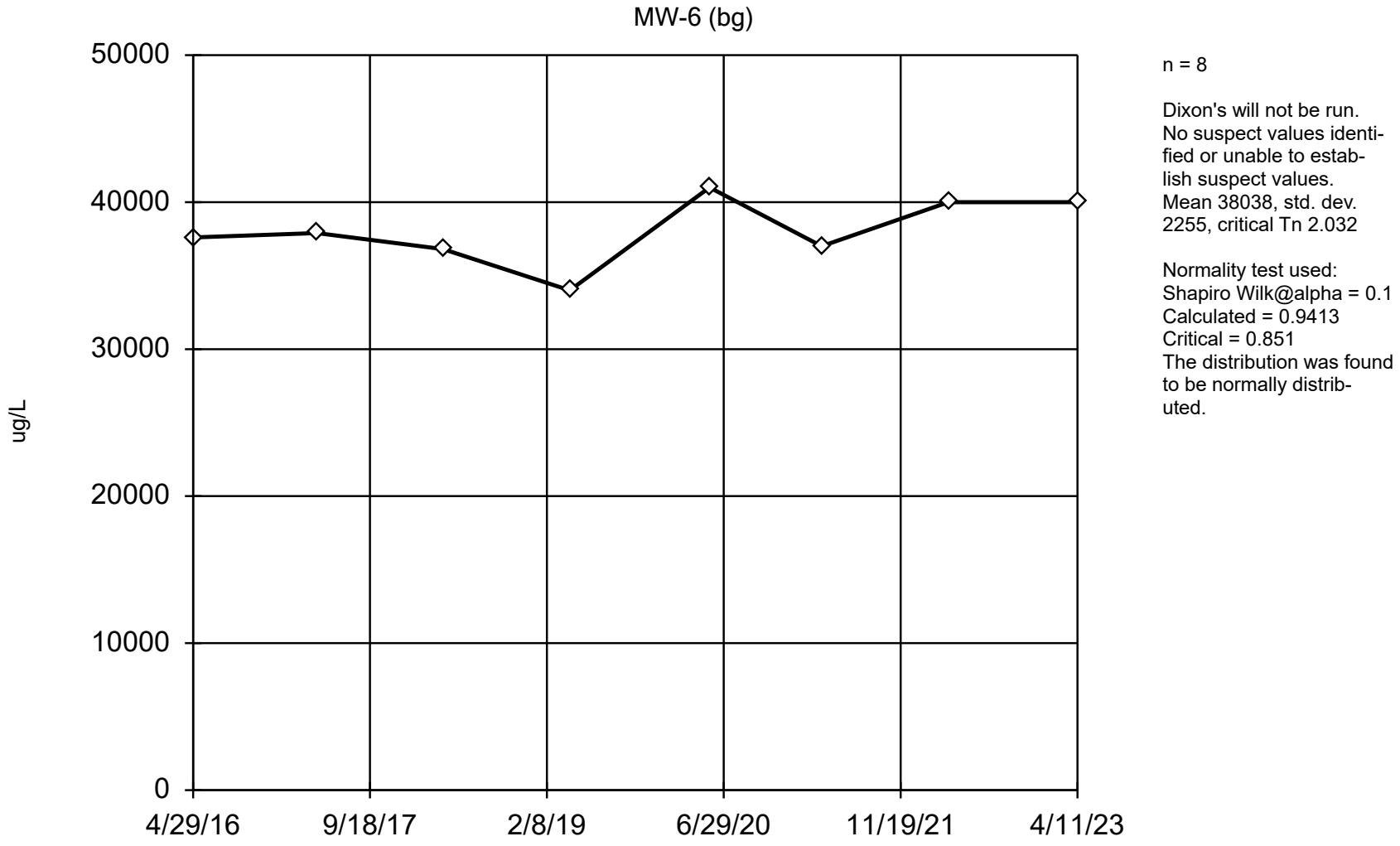
Constituent: Iron (ug/L) Analysis Run 10/2/2023 8:48 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-6 (bg)
4/29/2016	<12.8
4/19/2017	27.1 (J,B)
4/16/2018	<9.6
4/15/2019	<66
5/20/2020	<50
4/7/2021	<36
4/6/2022	<36 (U)
4/11/2023	<36 (U)

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 38038, std. dev. 2255, critical Tn 2.032

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.9413
Critical = 0.851
The distribution was found to be normally distributed.

Constituent: Magnesium Analysis Run 10/2/2023 8:47 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

EPA 1989 Outlier Screening

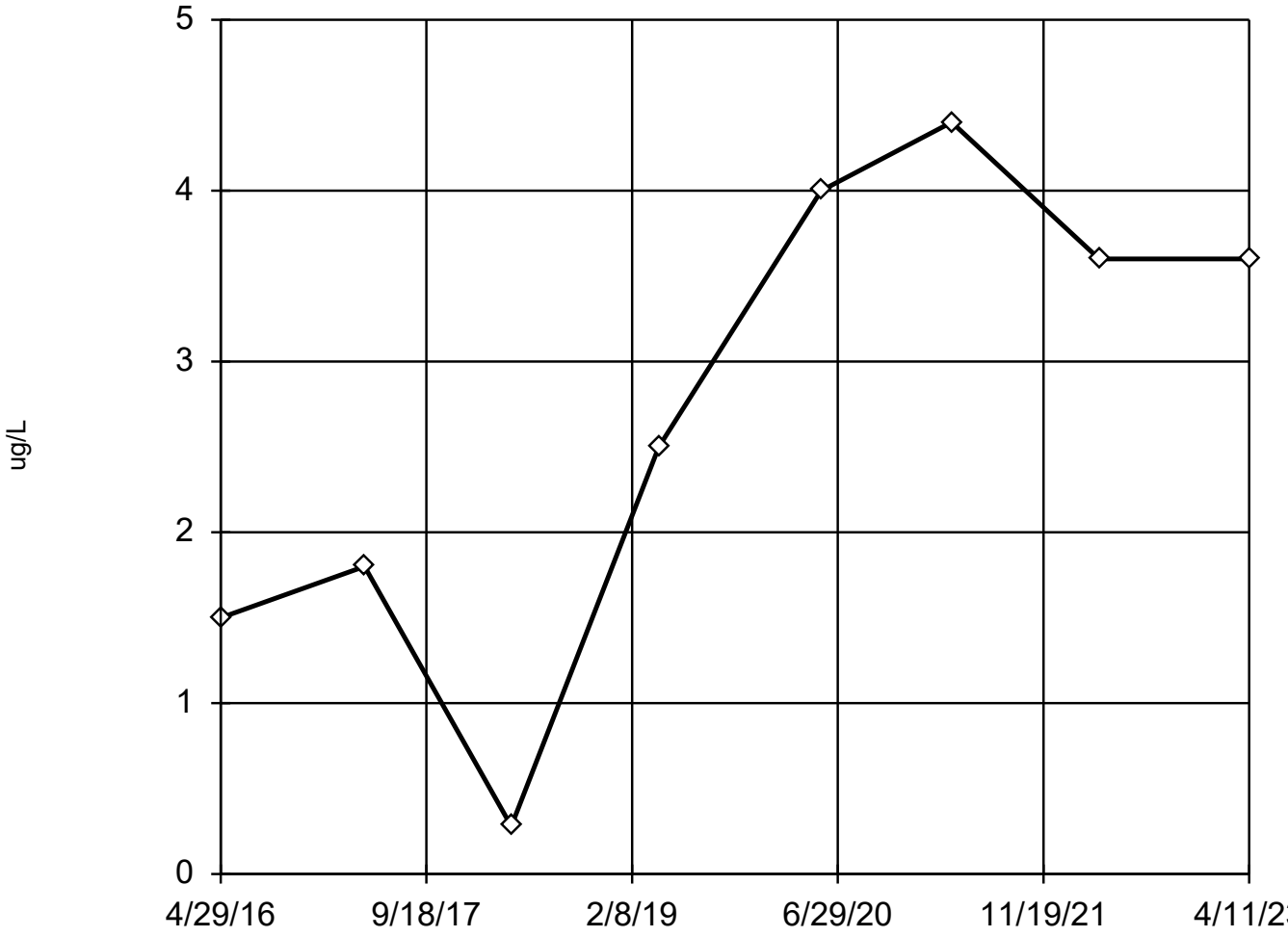
Constituent: Magnesium (ug/L) Analysis Run 10/2/2023 8:48 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-6 (bg)
4/29/2016	37600
4/19/2017	37900
4/16/2018	36800
4/15/2019	34000
5/20/2020	41000
4/7/2021	37000
4/6/2022	40000
4/11/2023	40000

Dixon's Outlier Test

MW-6 (bg)



n = 8

No statistical outliers.
Testing for 1 low outlier.
Mean = 2.71.
Std. Dev. = 1.432.
0.28 (J): c = 0.328
tabl = 0.554.
Alpha = 0.05.

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.9094
Critical = 0.838
The distribution was found to be normally distrib-uted.

Constituent: Manganese Analysis Run 10/2/2023 8:47 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Dixon's Outlier Test

Constituent: Manganese (ug/L) Analysis Run 10/2/2023 8:48 AM View: Lansing State Data

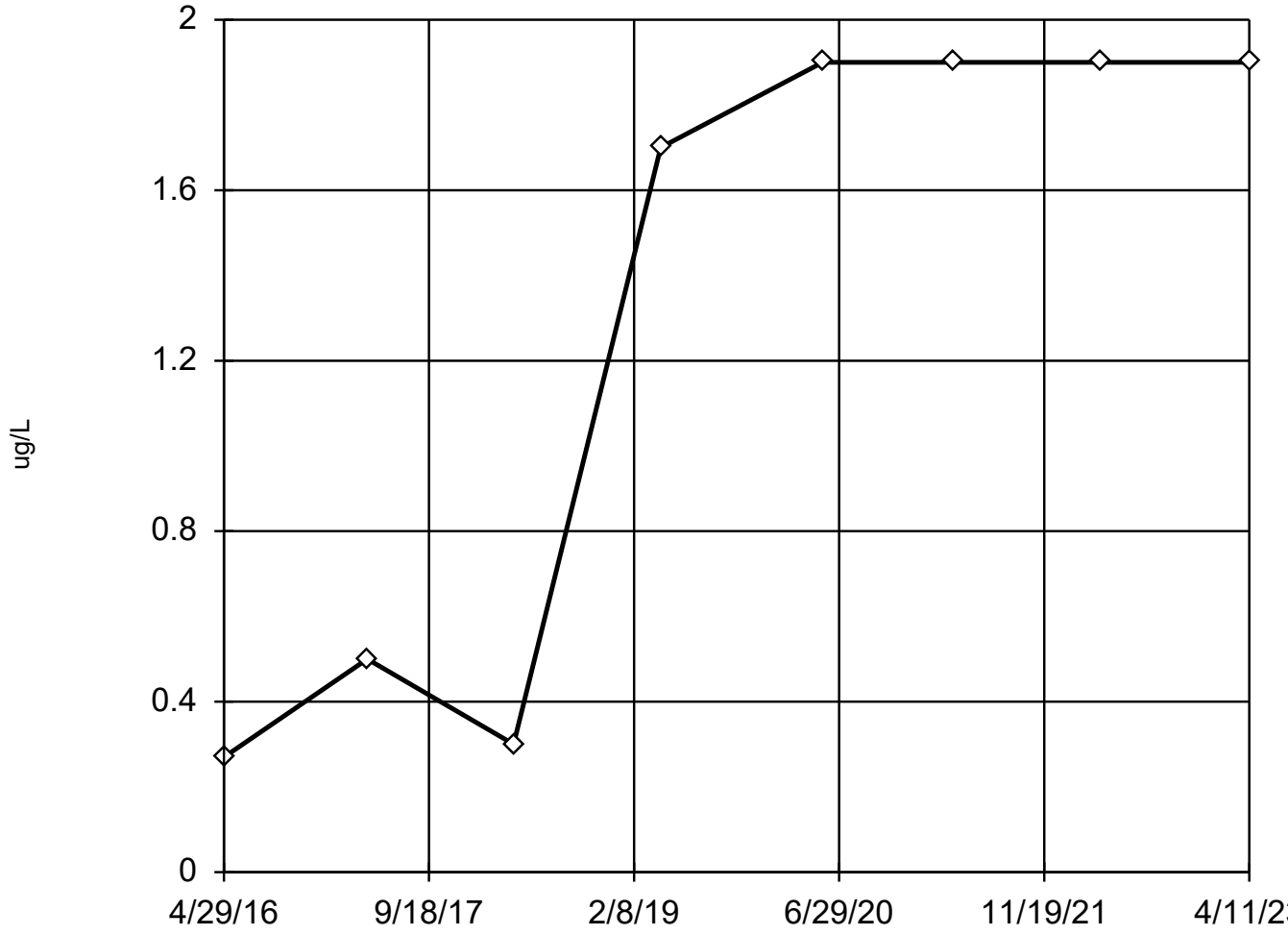
Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-6 (bg)
4/29/2016	1.5 (Y)
4/19/2017	1.8 (B)
4/16/2018	0.28 (J)
4/15/2019	<2.5
5/20/2020	<4
4/7/2021	<4.4
4/6/2022	<3.6 (U)
4/11/2023	<3.6 (U)

ND substitution: RL or RL/2 if <15% NDs.

Tukey's Outlier Screening

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

High cutoff = 2.394, low cutoff = -2.282, based on IQR multiplier of 3.

Constituent: Nickel Analysis Run 10/2/2023 8:47 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Tukey's Outlier Screening

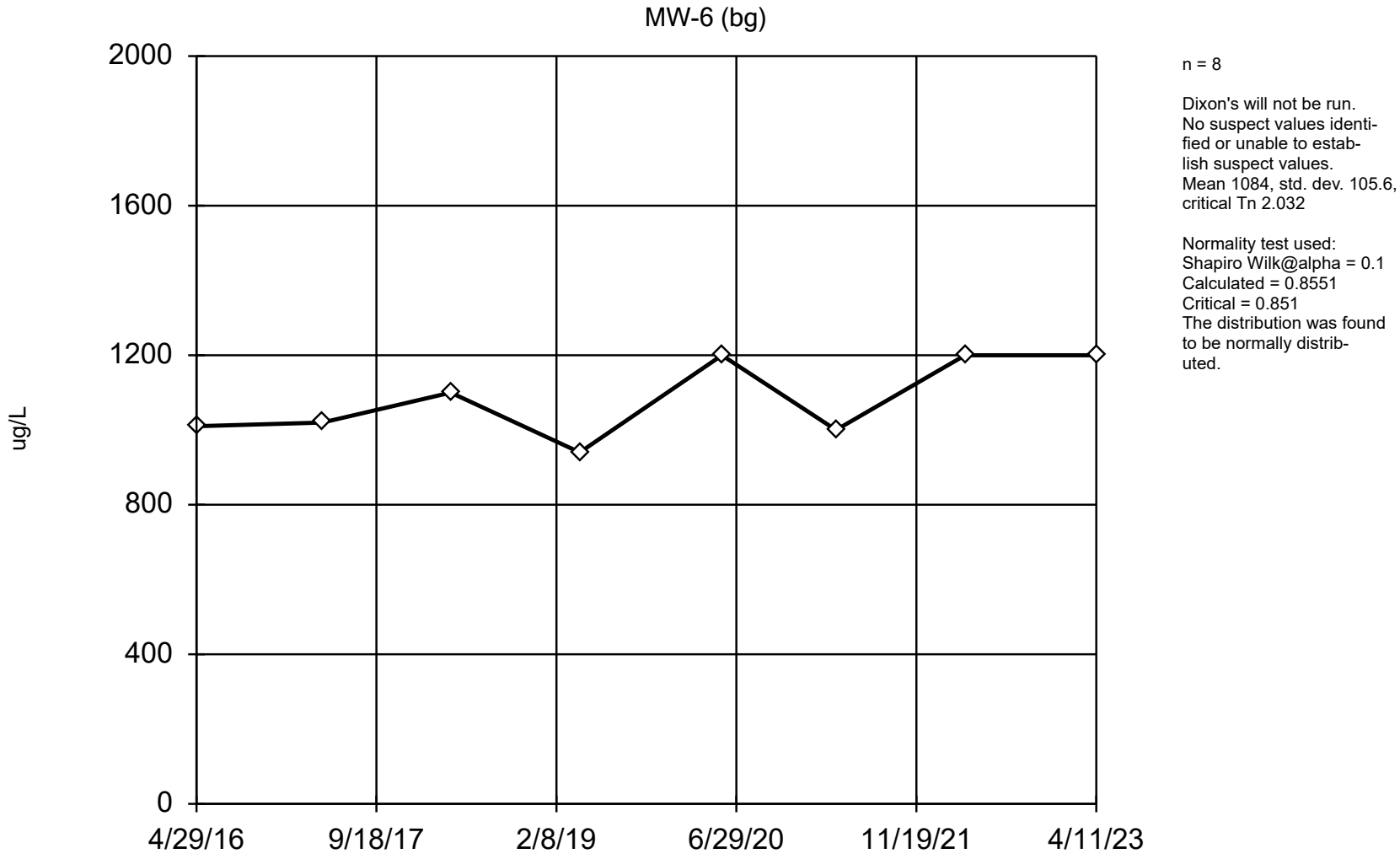
Constituent: Nickel (ug/L) Analysis Run 10/2/2023 8:48 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-6 (bg)
4/29/2016	<0.27
4/19/2017	0.5 (J,B)
4/16/2018	0.3 (J)
4/15/2019	<1.7
5/20/2020	<1.9
4/7/2021	<1.9
4/6/2022	<1.9 (U)
4/11/2023	<1.9 (U)

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 1084, std. dev. 105.6, critical Tn 2.032

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.8551
Critical = 0.851
The distribution was found to be normally distributed.

Constituent: Potassium Analysis Run 10/2/2023 8:47 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

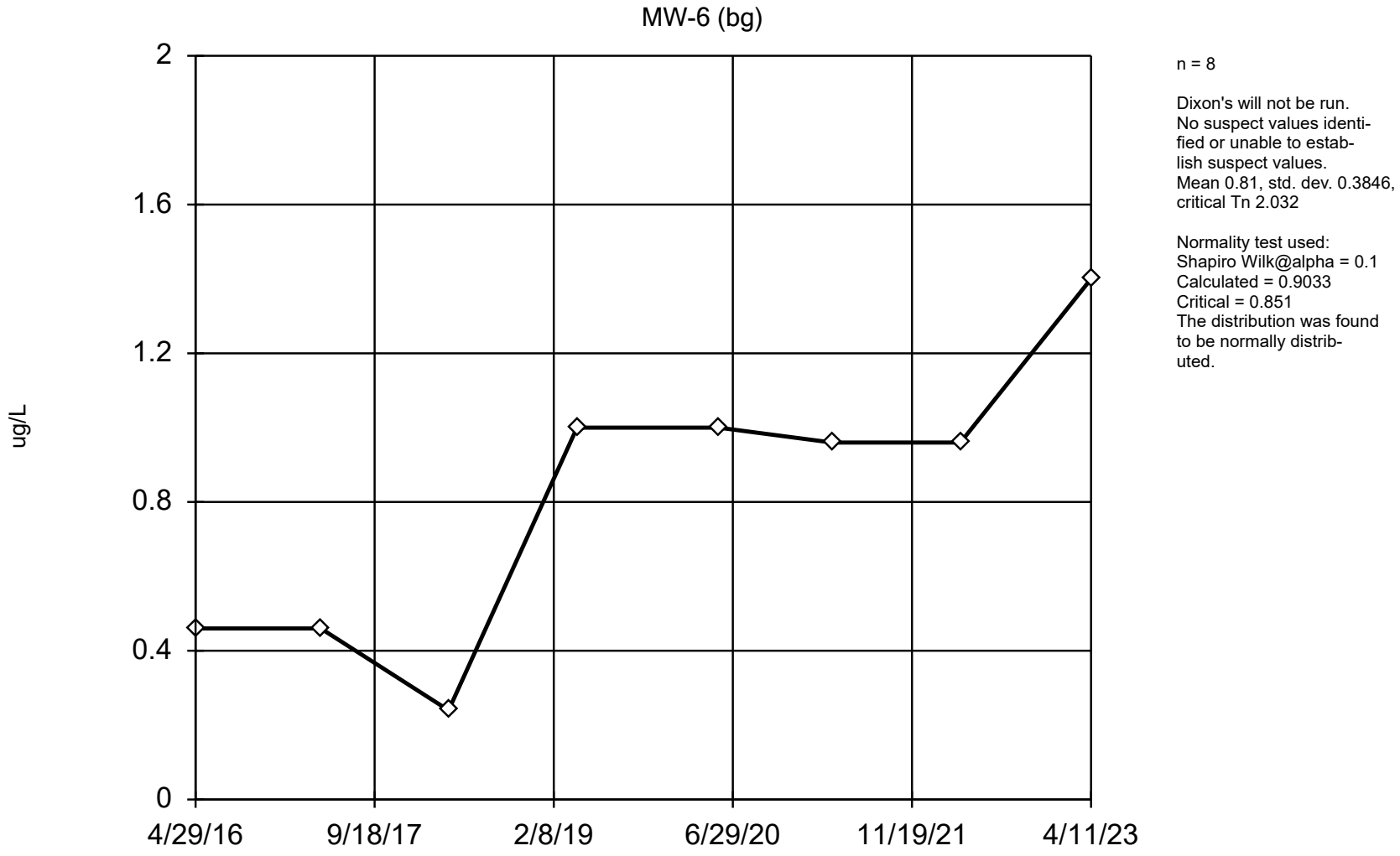
EPA 1989 Outlier Screening

Constituent: Potassium (ug/L) Analysis Run 10/2/2023 8:48 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-6 (bg)
4/29/2016	1010
4/19/2017	1020
4/16/2018	1100
4/15/2019	940
5/20/2020	1200
4/7/2021	1000
4/6/2022	1200
4/11/2023	1200

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 0.81, std. dev. 0.3846, critical Tn 2.032

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.9033
Critical = 0.851
The distribution was found to be normally distributed.

Constituent: Selenium Analysis Run 10/2/2023 8:47 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

EPA 1989 Outlier Screening

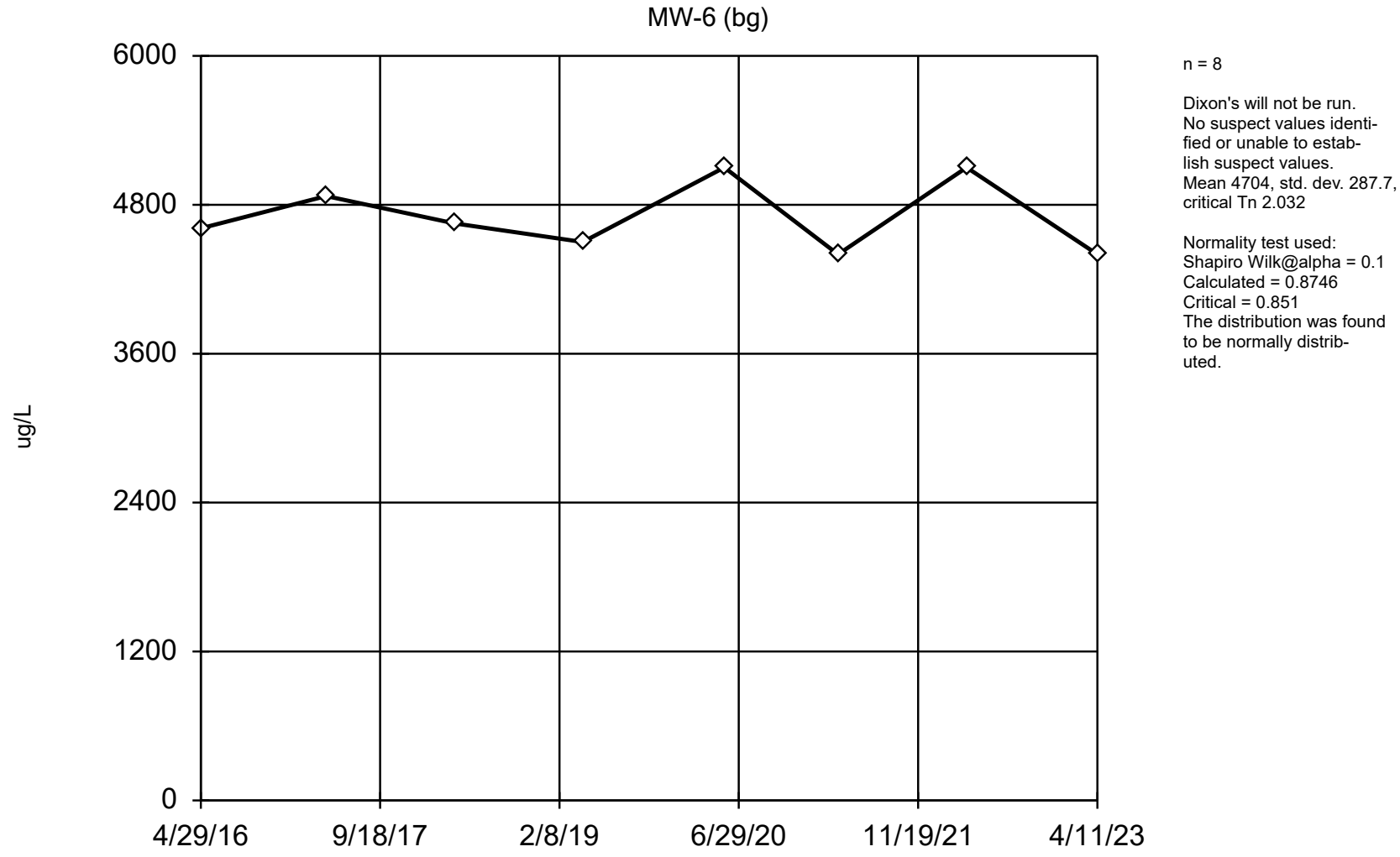
Constituent: Selenium (ug/L) Analysis Run 10/2/2023 8:48 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-6 (bg)
4/29/2016	0.46 (J)
4/19/2017	0.46 (J)
4/16/2018	0.24 (J)
4/15/2019	<1
5/20/2020	<1
4/7/2021	<0.96
4/6/2022	<0.96 (U)
4/11/2023	<1.4 (U)

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 4704, std. dev. 287.7, critical Tn 2.032

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.8746
Critical = 0.851
The distribution was found to be normally distributed.

Constituent: Sodium Analysis Run 10/2/2023 8:47 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

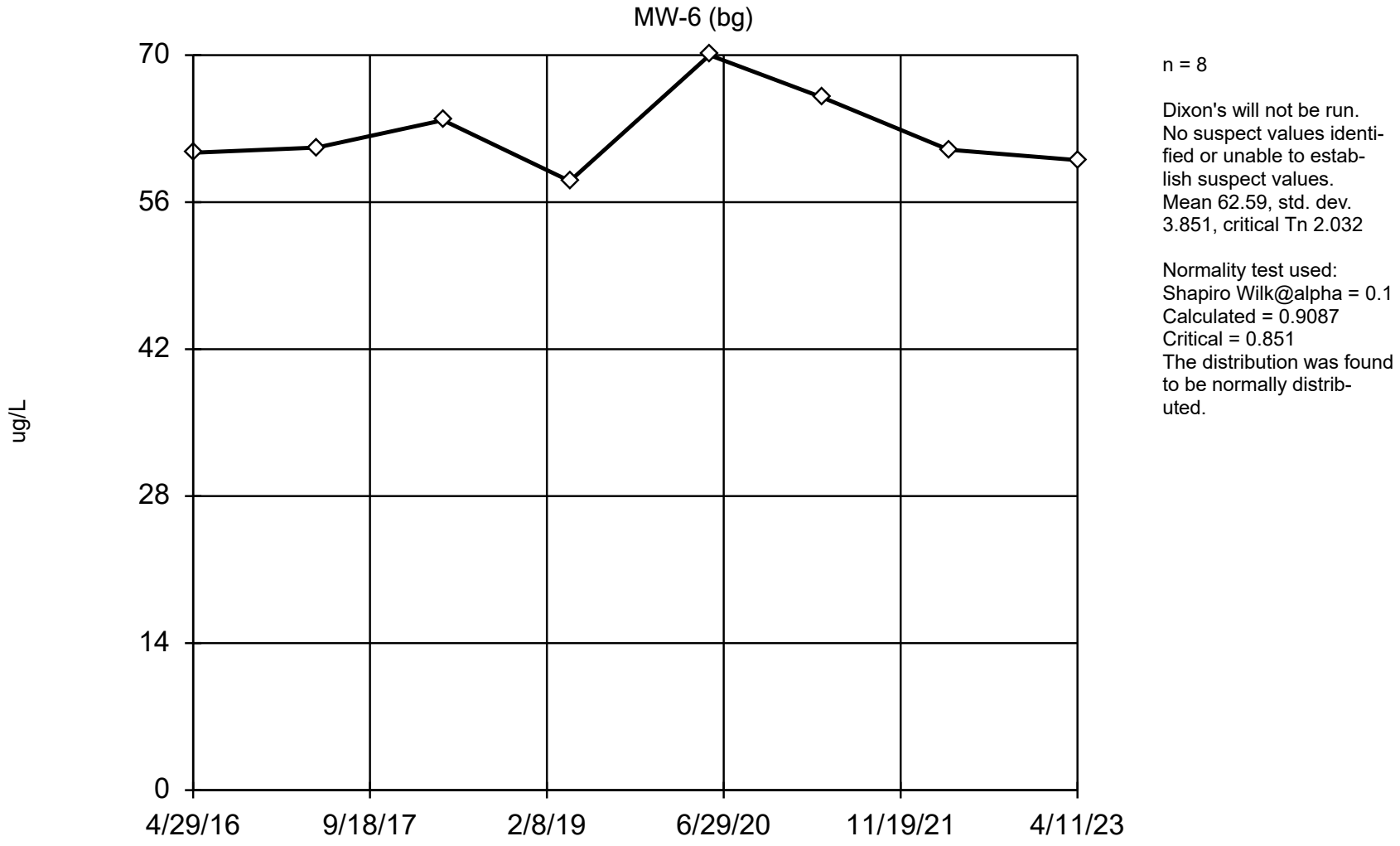
EPA 1989 Outlier Screening

Constituent: Sodium (ug/L) Analysis Run 10/2/2023 8:48 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-6 (bg)
4/29/2016	4610
4/19/2017	4870
4/16/2018	4650
4/15/2019	4500
5/20/2020	5100
4/7/2021	4400
4/6/2022	5100
4/11/2023	4400

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 62.59, std. dev. 3.851, critical Tn 2.032

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.9087
Critical = 0.851
The distribution was found to be normally distributed.

Constituent: Strontium Analysis Run 10/2/2023 8:47 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

EPA 1989 Outlier Screening

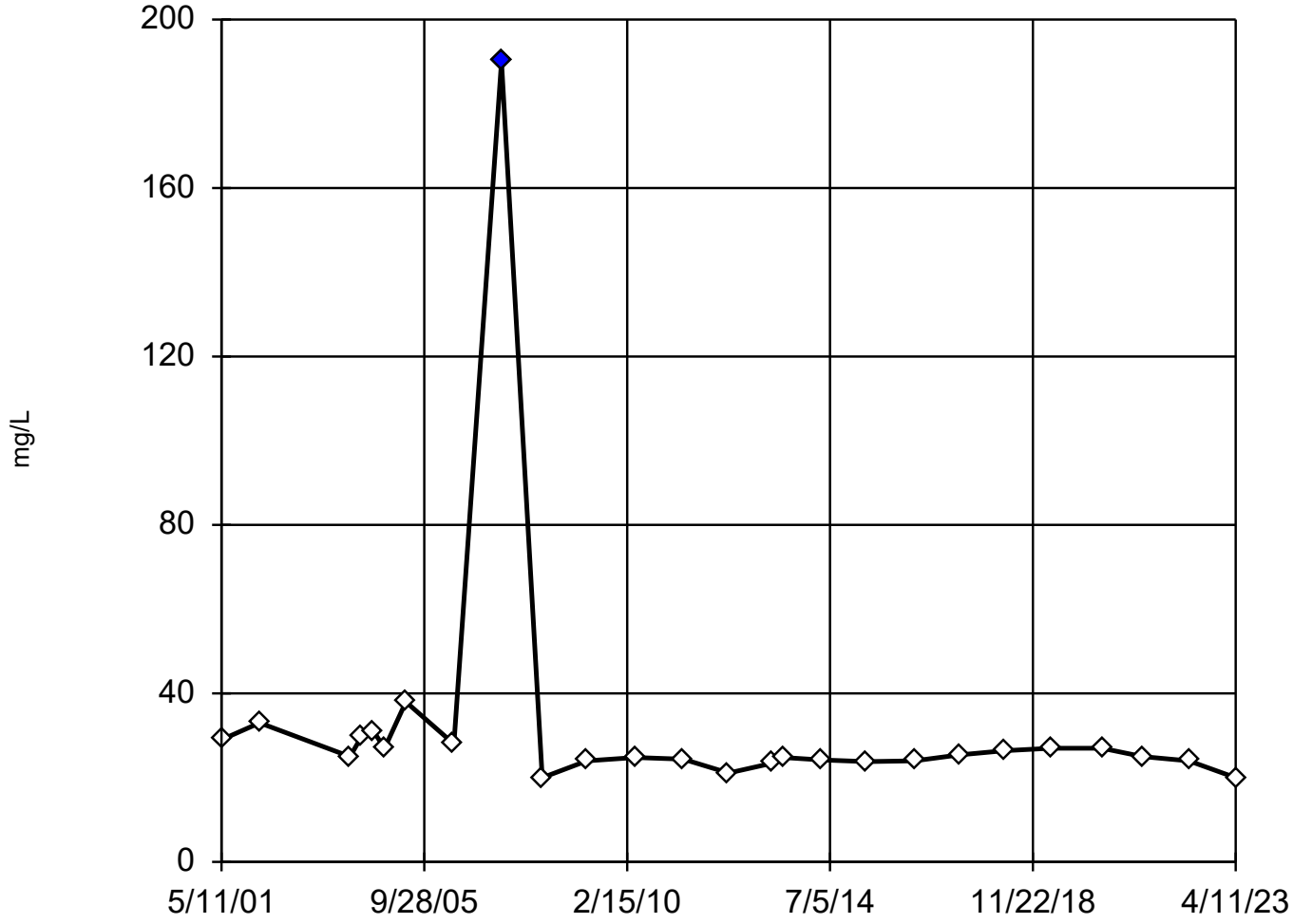
Constituent: Strontium (ug/L) Analysis Run 10/2/2023 8:48 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-6 (bg)
4/29/2016	60.7 (Y)
4/19/2017	61.2 (N2)
4/16/2018	63.8 (N2)
4/15/2019	58
5/20/2020	70
4/7/2021	66
4/6/2022	61
4/11/2023	60

Rosner's Outlier Test

MW-6 (bg)



n = 26

Statistical outlier is drawn as solid.

k = 2
r = 4.608
Tabulated value = 2.856
Alpha = 0.01

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.9436
Critical = 0.931 (after natural log transformation)
The distribution, after removal of suspect value, was found to be log-normal.

Constituent: Sulfate Analysis Run 10/2/2023 8:47 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

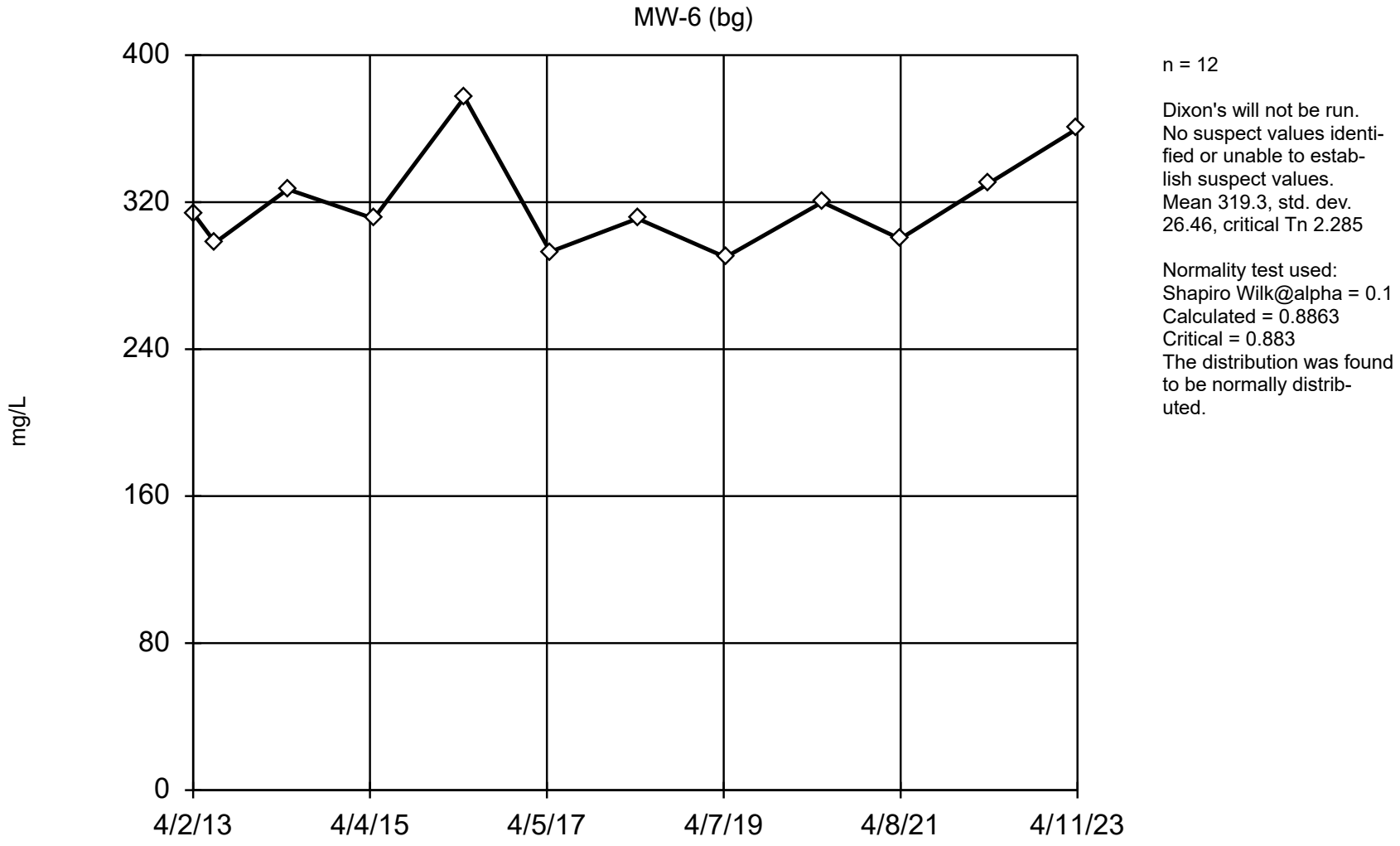
Rosner's Outlier Test

Constituent: Sulfate (mg/L) Analysis Run 10/2/2023 8:48 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-6 (bg)
5/11/2001	29
3/8/2002	33
2/19/2004	25
5/26/2004	30
8/23/2004	31
11/18/2004	27
5/5/2005	38
5/19/2006	28 (J)
5/30/2007	190 (XO)
4/16/2008	20
4/3/2009	24
4/21/2010	24.8
5/4/2011	24.4
4/25/2012	21.1
4/2/2013	23.4
7/2/2013	24.8
4/29/2014	24.2
4/20/2015	23.8
4/29/2016	24
4/19/2017	25.4
4/16/2018	26.4
4/15/2019	27
5/20/2020	27
4/7/2021	25
4/6/2022	24
4/11/2023	20

EPA Screening (suspected outliers for Dixon's Test)



n = 12

Dixon's will not be run.
No suspect values identified or unable to establish suspect values.
Mean 319.3, std. dev. 26.46, critical Tn 2.285

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.8863
Critical = 0.883
The distribution was found to be normally distributed.

Constituent: Total Alkalinity Analysis Run 10/2/2023 8:47 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

EPA 1989 Outlier Screening

Constituent: Total Alkalinity (mg/L) Analysis Run 10/2/2023 8:48 AM View: Lansing State Data
Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-6 (bg)
4/2/2013	314
7/2/2013	298
4/29/2014	327
4/20/2015	311
4/29/2016	377
4/19/2017	293
4/16/2018	311
4/15/2019	290
5/20/2020	320
4/7/2021	300
4/6/2022	330
4/11/2023	360

Attachment D3

Interwell Prediction Limit Analysis Results

Prediction Limit

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions Printed 7/14/2023, 9:27 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-11R**	**0.880**	**n/a**	**4/10/2023**	**36**	**Yes**	**8**	**MW-6**	**n/a**	**n/a**	**62.5**	**n/a**	**n/a**	**0.01836**	**NP Inter (NDs) 1 of 2**
Arsenic (ug/L)	**MW-12**	**0.880**	**n/a**	**4/11/2023**	**22**	**Yes**	**8**	**MW-6**	**n/a**	**n/a**	**62.5**	**n/a**	**n/a**	**0.01836**	**NP Inter (NDs) 1 of 2**
Arsenic (ug/L)	MW-12P	0.880	n/a	4/11/2023	0.53ND	No	8	MW-6	n/a	n/a	62.5	n/a	n/a	0.01836	NP Inter (NDs) 1 of 2
Arsenic (ug/L)	MW-13	0.880	n/a	4/7/2022	0.75ND	No	8	MW-6	n/a	n/a	62.5	n/a	n/a	0.01836	NP Inter (NDs) 1 of 2
Arsenic (ug/L)	MW-14	0.880	n/a	4/11/2023	0.53ND	No	8	MW-6	n/a	n/a	62.5	n/a	n/a	0.01836	NP Inter (NDs) 1 of 2
Arsenic (ug/L)	MW-15	0.880	n/a	4/7/2022	0.75ND	No	8	MW-6	n/a	n/a	62.5	n/a	n/a	0.01836	NP Inter (NDs) 1 of 2
Arsenic (ug/L)	TW-18	0.880	n/a	4/11/2023	0.94J	No	8	MW-6	n/a	n/a	62.5	n/a	n/a	0.01836	NP Inter (NDs) 1 of 2
Barium (ug/L)	**MW-11R**	**53.4**	**n/a**	**4/10/2023**	**520**	**Yes**	**8**	**MW-6**	**45.85**	**2.517**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Barium (ug/L)	**MW-12**	**53.4**	**n/a**	**4/11/2023**	**210**	**Yes**	**8**	**MW-6**	**45.85**	**2.517**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Barium (ug/L)	**MW-12P**	**53.4**	**n/a**	**4/11/2023**	**91**	**Yes**	**8**	**MW-6**	**45.85**	**2.517**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Barium (ug/L)	MW-13	53.4	n/a	4/7/2022	49	No	8	MW-6	45.85	2.517	0	None	No	0.000885	Param Inter 1 of 2
Barium (ug/L)	MW-14	53.4	n/a	4/11/2023	40	No	8	MW-6	45.85	2.517	0	None	No	0.000885	Param Inter 1 of 2
Barium (ug/L)	**MW-15**	**53.4**	**n/a**	**4/7/2022**	**100**	**Yes**	**8**	**MW-6**	**45.85**	**2.517**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Barium (ug/L)	**TW-18**	**53.4**	**n/a**	**4/11/2023**	**180**	**Yes**	**8**	**MW-6**	**45.85**	**2.517**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Boron (ug/L)	**MW-11R**	**110**	**n/a**	**4/10/2023**	**280**	**Yes**	**8**	**MW-6**	**n/a**	**n/a**	**75**	**n/a**	**n/a**	**0.01836**	**NP Inter (NDs) 1 of 2**
Boron (ug/L)	**MW-12**	**110**	**n/a**	**4/11/2023**	**1400**	**Yes**	**8**	**MW-6**	**n/a**	**n/a**	**75**	**n/a**	**n/a**	**0.01836**	**NP Inter (NDs) 1 of 2**
Boron (ug/L)	**MW-12P**	**110**	**n/a**	**4/11/2023**	**2200**	**Yes**	**8**	**MW-6**	**n/a**	**n/a**	**75**	**n/a**	**n/a**	**0.01836**	**NP Inter (NDs) 1 of 2**
Boron (ug/L)	**MW-13**	**110**	**n/a**	**4/7/2022**	**990**	**Yes**	**8**	**MW-6**	**n/a**	**n/a**	**75**	**n/a**	**n/a**	**0.01836**	**NP Inter (NDs) 1 of 2**
Boron (ug/L)	MW-14	110	n/a	4/11/2023	76ND	No	8	MW-6	n/a	n/a	75	n/a	n/a	0.01836	NP Inter (NDs) 1 of 2
Boron (ug/L)	**MW-15**	**110**	**n/a**	**4/7/2022**	**130**	**Yes**	**8**	**MW-6**	**n/a**	**n/a**	**75**	**n/a**	**n/a**	**0.01836**	**NP Inter (NDs) 1 of 2**
Boron (ug/L)	**TW-18**	**110**	**n/a**	**4/11/2023**	**190**	**Yes**	**8**	**MW-6**	**n/a**	**n/a**	**75**	**n/a**	**n/a**	**0.01836**	**NP Inter (NDs) 1 of 2**
Calcium (mg/L)	**MW-11R**	**86.6**	**n/a**	**4/10/2023**	**190**	**Yes**	**8**	**MW-6**	**71.15**	**5.151**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Calcium (mg/L)	MW-12	86.6	n/a	4/11/2023	76	No	8	MW-6	71.15	5.151	0	None	No	0.000885	Param Inter 1 of 2
Calcium (mg/L)	**MW-12P**	**86.6**	**n/a**	**4/11/2023**	**120**	**Yes**	**8**	**MW-6**	**71.15**	**5.151**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Calcium (mg/L)	**MW-13**	**86.6**	**n/a**	**4/7/2022**	**90**	**Yes**	**8**	**MW-6**	**71.15**	**5.151**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Calcium (mg/L)	MW-14	86.6	n/a	4/11/2023	76	No	8	MW-6	71.15	5.151	0	None	No	0.000885	Param Inter 1 of 2
Calcium (mg/L)	MW-15	86.6	n/a	4/7/2022	64	No	8	MW-6	71.15	5.151	0	None	No	0.000885	Param Inter 1 of 2
Calcium (mg/L)	**TW-18**	**86.6**	**n/a**	**4/11/2023**	**100**	**Yes**	**8**	**MW-6**	**71.15**	**5.151**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Chloride (mg/L)	**MW-11R**	**9.29**	**n/a**	**4/10/2023**	**16**	**Yes**	**22**	**MW-6**	**6.703**	**1.185**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Chloride (mg/L)	MW-12	9.29	n/a	4/11/2023	6	No	22	MW-6	6.703	1.185	0	None	No	0.000885	Param Inter 1 of 2
Chloride (mg/L)	**MW-12P**	**9.29**	**n/a**	**4/11/2023**	**17**	**Yes**	**22**	**MW-6**	**6.703**	**1.185**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Chloride (mg/L)	**MW-13**	**9.29**	**n/a**	**4/7/2022**	**18**	**Yes**	**22**	**MW-6**	**6.703**	**1.185**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Chloride (mg/L)	MW-14	9.29	n/a	4/11/2023	7	No	22	MW-6	6.703	1.185	0	None	No	0.000885	Param Inter 1 of 2
Chloride (mg/L)	**MW-15**	**9.29**	**n/a**	**4/7/2022**	**20**	**Yes**	**22**	**MW-6**	**6.703**	**1.185**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Chloride (mg/L)	**TW-18**	**9.29**	**n/a**	**4/11/2023**	**54**	**Yes**	**22**	**MW-6**	**6.703**	**1.185**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Cobalt (ug/L)	**MW-11R**	**0.500**	**n/a**	**4/10/2023**	**7.3**	**Yes**	**8**	**MW-6**	**n/a**	**n/a**	**75**	**n/a**	**n/a**	**0.01836**	**NP Inter (NDs) 1 of 2**
Cobalt (ug/L)	**MW-12**	**0.500**	**n/a**	**4/11/2023**	**1.2**	**Yes**	**8**	**MW-6**	**n/a**	**n/a**	**75**	**n/a**	**n/a**	**0.01836**	**NP Inter (NDs) 1 of 2**
Cobalt (ug/L)	MW-12P	0.500	n/a	4/11/2023	0.17ND	No	8	MW-6	n/a	n/a	75	n/a	n/a	0.01836	NP Inter (NDs) 1 of 2
Cobalt (ug/L)	**MW-13**	**0.500**	**n/a**	**4/7/2022**	**0.85**	**Yes**	**8**	**MW-6**	**n/a**	**n/a**	**75**	**n/a**	**n/a**	**0.01836**	**NP Inter (NDs) 1 of 2**
Cobalt (ug/L)	MW-14	0.500	n/a	4/11/2023	0.17ND	No	8	MW-6	n/a	n/a	75	n/a	n/a	0.01836	NP Inter (NDs) 1 of 2
Cobalt (ug/L)	MW-15	0.500	n/a	4/7/2022	0.19ND	No	8	MW-6	n/a	n/a	75	n/a	n/a	0.01836	NP Inter (NDs) 1 of 2
Cobalt (ug/L)	**TW-18**	**0.500**	**n/a**	**4/11/2023**	**2.9**	**Yes**	**8**	**MW-6**	**n/a**	**n/a**	**75**	**n/a**	**n/a**	**0.01836**	**NP Inter (NDs) 1 of 2**
Copper (ug/L)	MW-11R	3.20	n/a	4/10/2023	1.8ND	No	8	MW-6	n/a	n/a	62.5	n/a	n/a	0.01836	NP Inter (NDs) 1 of 2
Copper (ug/L)	MW-12	3.20	n/a	4/11/2023	1.8ND	No	8	MW-6	n/a	n/a	62.5	n/a	n/a	0.01836	NP Inter (NDs) 1 of 2
Copper (ug/L)	MW-12P	3.20	n/a	4/11/2023	1.8ND	No	8	MW-6	n/a	n/a	62.5	n/a	n/a	0.01836	NP Inter (NDs) 1 of 2
Copper (ug/L)	MW-13	3.20	n/a	4/7/2022	1.8ND	No	8	MW-6	n/a	n/a	62.5	n/a	n/a	0.01836	NP Inter (NDs) 1 of 2
Copper (ug/L)	MW-14	3.20	n/a	4/11/2023	1.8ND	No	8	MW-6	n/a	n/a	62.5	n/a	n/a	0.01836	NP Inter (NDs) 1 of 2
Copper (ug/L)	MW-15	3.20	n/a	4/7/2022	1.8ND	No	8	MW-6	n/a	n/a	62.5	n/a	n/a	0.01836	NP Inter (NDs) 1 of 2
Copper (ug/L)	TW-18	3.20	n/a	4/11/2023	1.8ND	No	8	MW-6	n/a	n/a	62.5	n/a	n/a	0.01836	NP Inter (NDs) 1 of 2
Iron (ug/L)	**MW-11R**	**66.0**	**n/a**	**4/10/2023**	**55000**	**Yes**	**8**	**MW-6**	**n/a**	**n/a**	**87.5**	**n/a**	**n/a**	**0.01836**	**NP Inter (NDs) 1 of 2**

Prediction Limit

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions Printed 7/14/2023, 9:27 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-12**	**66.0**	**n/a**	**4/11/2023**	**6800**	**Yes**	**8**	**MW-6**	**n/a**	**n/a**	**87.5**	**n/a**	**n/a**	**0.01836**	**NP Inter (NDs) 1 of 2**
Iron (ug/L)	MW-12P	66.0	n/a	4/11/2023	36ND	No	8	MW-6	n/a	n/a	87.5	n/a	n/a	0.01836	NP Inter (NDs) 1 of 2
Iron (ug/L)	**MW-13**	**66.0**	**n/a**	**4/7/2022**	**280**	**Yes**	**8**	**MW-6**	**n/a**	**n/a**	**87.5**	**n/a**	**n/a**	**0.01836**	**NP Inter (NDs) 1 of 2**
Iron (ug/L)	MW-14	66.0	n/a	4/11/2023	36ND	No	8	MW-6	n/a	n/a	87.5	n/a	n/a	0.01836	NP Inter (NDs) 1 of 2
Iron (ug/L)	MW-15	66.0	n/a	4/7/2022	36ND	No	8	MW-6	n/a	n/a	87.5	n/a	n/a	0.01836	NP Inter (NDs) 1 of 2
Iron (ug/L)	**TW-18**	**66.0**	**n/a**	**4/11/2023**	**3200**	**Yes**	**8**	**MW-6**	**n/a**	**n/a**	**87.5**	**n/a**	**n/a**	**0.01836**	**NP Inter (NDs) 1 of 2**
Magnesium (ug/L)	**MW-11R**	**44800**	**n/a**	**4/10/2023**	**120000**	**Yes**	**8**	**MW-6**	**38038**	**2255**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Magnesium (ug/L)	MW-12	44800	n/a	4/11/2023	34000	No	8	MW-6	38038	2255	0	None	No	0.000885	Param Inter 1 of 2
Magnesium (ug/L)	**MW-12P**	**44800**	**n/a**	**4/11/2023**	**49000**	**Yes**	**8**	**MW-6**	**38038**	**2255**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Magnesium (ug/L)	MW-13	44800	n/a	4/7/2022	24000	No	8	MW-6	38038	2255	0	None	No	0.000885	Param Inter 1 of 2
Magnesium (ug/L)	MW-14	44800	n/a	4/11/2023	36000	No	8	MW-6	38038	2255	0	None	No	0.000885	Param Inter 1 of 2
Magnesium (ug/L)	MW-15	44800	n/a	4/7/2022	22000	No	8	MW-6	38038	2255	0	None	No	0.000885	Param Inter 1 of 2
Magnesium (ug/L)	TW-18	44800	n/a	4/11/2023	37000	No	8	MW-6	38038	2255	0	None	No	0.000885	Param Inter 1 of 2
Manganese (ug/L)	**MW-11R**	**4.40**	**n/a**	**4/10/2023**	**2800**	**Yes**	**8**	**MW-6**	**n/a**	**n/a**	**62.5**	**n/a**	**n/a**	**0.01836**	**NP Inter (NDs) 1 of 2**
Manganese (ug/L)	**MW-12**	**4.40**	**n/a**	**4/11/2023**	**1000**	**Yes**	**8**	**MW-6**	**n/a**	**n/a**	**62.5**	**n/a**	**n/a**	**0.01836**	**NP Inter (NDs) 1 of 2**
Manganese (ug/L)	MW-12P	4.40	n/a	4/11/2023	3.6ND	No	8	MW-6	n/a	n/a	62.5	n/a	n/a	0.01836	NP Inter (NDs) 1 of 2
Manganese (ug/L)	**MW-13**	**4.40**	**n/a**	**4/7/2022**	**32**	**Yes**	**8**	**MW-6**	**n/a**	**n/a**	**62.5**	**n/a**	**n/a**	**0.01836**	**NP Inter (NDs) 1 of 2**
Manganese (ug/L)	MW-14	4.40	n/a	4/11/2023	3.6ND	No	8	MW-6	n/a	n/a	62.5	n/a	n/a	0.01836	NP Inter (NDs) 1 of 2
Manganese (ug/L)	MW-15	4.40	n/a	4/7/2022	3.6ND	No	8	MW-6	n/a	n/a	62.5	n/a	n/a	0.01836	NP Inter (NDs) 1 of 2
Manganese (ug/L)	**TW-18**	**4.40**	**n/a**	**4/11/2023**	**2900**	**Yes**	**8**	**MW-6**	**n/a**	**n/a**	**62.5**	**n/a**	**n/a**	**0.01836**	**NP Inter (NDs) 1 of 2**
Nickel (ug/L)	**MW-11R**	**1.90**	**n/a**	**4/10/2023**	**7.1**	**Yes**	**8**	**MW-6**	**n/a**	**n/a**	**75**	**n/a**	**n/a**	**0.01836**	**NP Inter (NDs) 1 of 2**
Nickel (ug/L)	MW-12	1.90	n/a	4/11/2023	3.6J	No	8	MW-6	n/a	n/a	75	n/a	n/a	0.01836	NP Inter (NDs) 1 of 2
Nickel (ug/L)	MW-12P	1.90	n/a	4/11/2023	1.9ND	No	8	MW-6	n/a	n/a	75	n/a	n/a	0.01836	NP Inter (NDs) 1 of 2
Nickel (ug/L)	MW-13	1.90	n/a	4/7/2022	1.9ND	No	8	MW-6	n/a	n/a	75	n/a	n/a	0.01836	NP Inter (NDs) 1 of 2
Nickel (ug/L)	MW-14	1.90	n/a	4/11/2023	1.9ND	No	8	MW-6	n/a	n/a	75	n/a	n/a	0.01836	NP Inter (NDs) 1 of 2
Nickel (ug/L)	MW-15	1.90	n/a	4/7/2022	1.9ND	No	8	MW-6	n/a	n/a	75	n/a	n/a	0.01836	NP Inter (NDs) 1 of 2
Nickel (ug/L)	TW-18	1.90	n/a	4/11/2023	4.8J	No	8	MW-6	n/a	n/a	75	n/a	n/a	0.01836	NP Inter (NDs) 1 of 2
Potassium (ug/L)	**MW-11R**	**1400**	**n/a**	**4/10/2023**	**7800**	**Yes**	**8**	**MW-6**	**1084**	**105.6**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Potassium (ug/L)	**MW-12**	**1400**	**n/a**	**4/11/2023**	**2500**	**Yes**	**8**	**MW-6**	**1084**	**105.6**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Potassium (ug/L)	**MW-12P**	**1400**	**n/a**	**4/11/2023**	**6000**	**Yes**	**8**	**MW-6**	**1084**	**105.6**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Potassium (ug/L)	**MW-13**	**1400**	**n/a**	**4/7/2022**	**1500**	**Yes**	**8**	**MW-6**	**1084**	**105.6**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Potassium (ug/L)	MW-14	1400	n/a	4/11/2023	1000	No	8	MW-6	1084	105.6	0	None	No	0.000885	Param Inter 1 of 2
Potassium (ug/L)	**MW-15**	**1400**	**n/a**	**4/7/2022**	**1600**	**Yes**	**8**	**MW-6**	**1084**	**105.6**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Potassium (ug/L)	**TW-18**	**1400**	**n/a**	**4/11/2023**	**1500**	**Yes**	**8**	**MW-6**	**1084**	**105.6**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Selenium (ug/L)	MW-11R	1.40	n/a	4/10/2023	1.4J	No	8	MW-6	n/a	n/a	62.5	n/a	n/a	0.01836	NP Inter (NDs) 1 of 2
Selenium (ug/L)	MW-12	1.40	n/a	4/11/2023	1.4ND	No	8	MW-6	n/a	n/a	62.5	n/a	n/a	0.01836	NP Inter (NDs) 1 of 2
Selenium (ug/L)	MW-12P	1.40	n/a	4/11/2023	2.9J	No	8	MW-6	n/a	n/a	62.5	n/a	n/a	0.01836	NP Inter (NDs) 1 of 2
Selenium (ug/L)	**MW-13**	**1.40**	**n/a**	**4/7/2022**	**8.4**	**Yes**	**8**	**MW-6**	**n/a**	**n/a**	**62.5**	**n/a**	**n/a**	**0.01836**	**NP Inter (NDs) 1 of 2**
Selenium (ug/L)	MW-14	1.40	n/a	4/11/2023	1.4ND	No	8	MW-6	n/a	n/a	62.5	n/a	n/a	0.01836	NP Inter (NDs) 1 of 2
Selenium (ug/L)	MW-15	1.40	n/a	4/7/2022	4J	No	8	MW-6	n/a	n/a	62.5	n/a	n/a	0.01836	NP Inter (NDs) 1 of 2
Selenium (ug/L)	TW-18	1.40	n/a	4/11/2023	1.4ND	No	8	MW-6	n/a	n/a	62.5	n/a	n/a	0.01836	NP Inter (NDs) 1 of 2
Sodium (ug/L)	**MW-11R**	**5570**	**n/a**	**4/10/2023**	**26000**	**Yes**	**8**	**MW-6**	**4704**	**287.7**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Sodium (ug/L)	**MW-12**	**5570**	**n/a**	**4/11/2023**	**120000**	**Yes**	**8**	**MW-6**	**4704**	**287.7**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Sodium (ug/L)	**MW-12P**	**5570**	**n/a**	**4/11/2023**	**45000**	**Yes**	**8**	**MW-6**	**4704**	**287.7**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Sodium (ug/L)	**MW-13**	**5570**	**n/a**	**4/7/2022**	**16000**	**Yes**	**8**	**MW-6**	**4704**	**287.7**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Sodium (ug/L)	MW-14	5570	n/a	4/11/2023	3300	No	8	MW-6	4704	287.7	0	None	No	0.000885	Param Inter 1 of 2
Sodium (ug/L)	**MW-15**	**5570**	**n/a**	**4/7/2022**	**16000**	**Yes**	**8**	**MW-6**	**4704**	**287.7**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Sodium (ug/L)	**TW-18**	**5570**	**n/a**	**4/11/2023**	**42000**	**Yes**	**8**	**MW-6**	**4704**	**287.7**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Strontium (ug/L)	**MW-11R**	**74.1**	**n/a**	**4/10/2023**	**520**	**Yes**	**8**	**MW-6**	**62.59**	**3.851**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Strontium (ug/L)	MW-12	74.1	n/a	4/11/2023	70	No	8	MW-6	62.59	3.851	0	None	No	0.000885	Param Inter 1 of 2

Prediction Limit

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions Printed 7/14/2023, 9:27 AM

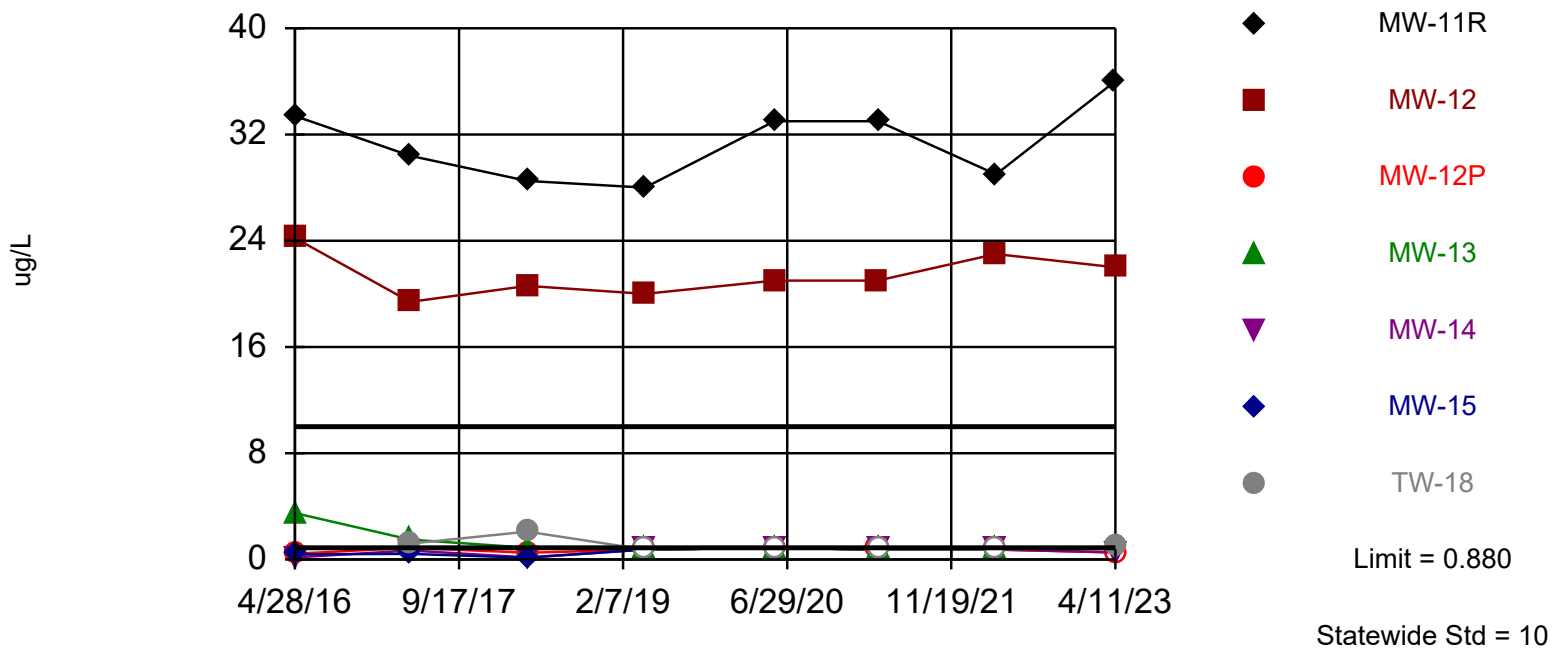
Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Wells	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Strontium (ug/L)	**MW-12P**	**74.1**	**n/a**	**4/11/2023**	**140**	**Yes**	**8**	**MW-6**	**62.59**	**3.851**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Strontium (ug/L)	**MW-13**	**74.1**	**n/a**	**4/7/2022**	**1000**	**Yes**	**8**	**MW-6**	**62.59**	**3.851**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Strontium (ug/L)	MW-14	74.1	n/a	4/11/2023	58	No	8	MW-6	62.59	3.851	0	None	No	0.000885	Param Inter 1 of 2
Strontium (ug/L)	**MW-15**	**74.1**	**n/a**	**4/7/2022**	**330**	**Yes**	**8**	**MW-6**	**62.59**	**3.851**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Strontium (ug/L)	**TW-18**	**74.1**	**n/a**	**4/11/2023**	**150**	**Yes**	**8**	**MW-6**	**62.59**	**3.851**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Sulfate (mg/L)	MW-11R	34.5	n/a	4/10/2023	1.05ND	No	25	MW-6	26.01	3.983	0	None	No	0.000885	Param Inter 1 of 2
Sulfate (mg/L)	**MW-12**	**34.5**	**n/a**	**4/11/2023**	**210**	**Yes**	**25**	**MW-6**	**26.01**	**3.983**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Sulfate (mg/L)	**MW-12P**	**34.5**	**n/a**	**4/11/2023**	**170**	**Yes**	**25**	**MW-6**	**26.01**	**3.983**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Sulfate (mg/L)	**MW-13**	**34.5**	**n/a**	**4/7/2022**	**150**	**Yes**	**25**	**MW-6**	**26.01**	**3.983**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Sulfate (mg/L)	MW-14	34.5	n/a	4/11/2023	18	No	25	MW-6	26.01	3.983	0	None	No	0.000885	Param Inter 1 of 2
Sulfate (mg/L)	**MW-15**	**34.5**	**n/a**	**4/7/2022**	**45**	**Yes**	**25**	**MW-6**	**26.01**	**3.983**	**0**	**None**	**No**	**0.000885**	**Param Inter 1 of 2**
Sulfate (mg/L)	TW-18	34.5	n/a	4/11/2023	6.1	No	25	MW-6	26.01	3.983	0	None	No	0.000885	Param Inter 1 of 2
Total Alkalinity (mg/L)	**MW-11R**	**386**	**253**	**4/10/2023**	**1100**	**Yes**	**12**	**MW-6**	**319.3**	**26.46**	**0**	**None**	**No**	**0.0004425**	**Param Inter 1 of 2**
Total Alkalinity (mg/L)	**MW-12**	**386**	**253**	**4/11/2023**	**400**	**Yes**	**12**	**MW-6**	**319.3**	**26.46**	**0**	**None**	**No**	**0.0004425**	**Param Inter 1 of 2**
Total Alkalinity (mg/L)	**MW-12P**	**386**	**253**	**4/11/2023**	**420**	**Yes**	**12**	**MW-6**	**319.3**	**26.46**	**0**	**None**	**No**	**0.0004425**	**Param Inter 1 of 2**
Total Alkalinity (mg/L)	**MW-13**	**386**	**253**	**6/2/2022**	**140**	**Yes**	**12**	**MW-6**	**319.3**	**26.46**	**0**	**None**	**No**	**0.0004425**	**Param Inter 1 of 2**
Total Alkalinity (mg/L)	MW-14	386	253	4/11/2023	330	No	12	MW-6	319.3	26.46	0	None	No	0.0004425	Param Inter 1 of 2
Total Alkalinity (mg/L)	**MW-15**	**386**	**253**	**6/2/2022**	**180**	**Yes**	**12**	**MW-6**	**319.3**	**26.46**	**0**	**None**	**No**	**0.0004425**	**Param Inter 1 of 2**
Total Alkalinity (mg/L)	**TW-18**	**386**	**253**	**4/11/2023**	**470**	**Yes**	**12**	**MW-6**	**319.3**	**26.46**	**0**	**None**	**No**	**0.0004425**	**Param Inter 1 of 2**

Hollow symbols indicate censored values.

Exceeds Limit: MW-11R, MW-12

Arsenic

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 8 background values. 62.5% NDs. Annual per-constituent alpha = 0.1216. Individual comparison alpha = 0.01836 (1 of 2). Comparing 7 points to limit.

Prediction Limit

Constituent: Arsenic (ug/L) Analysis Run 7/14/2023 9:27 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

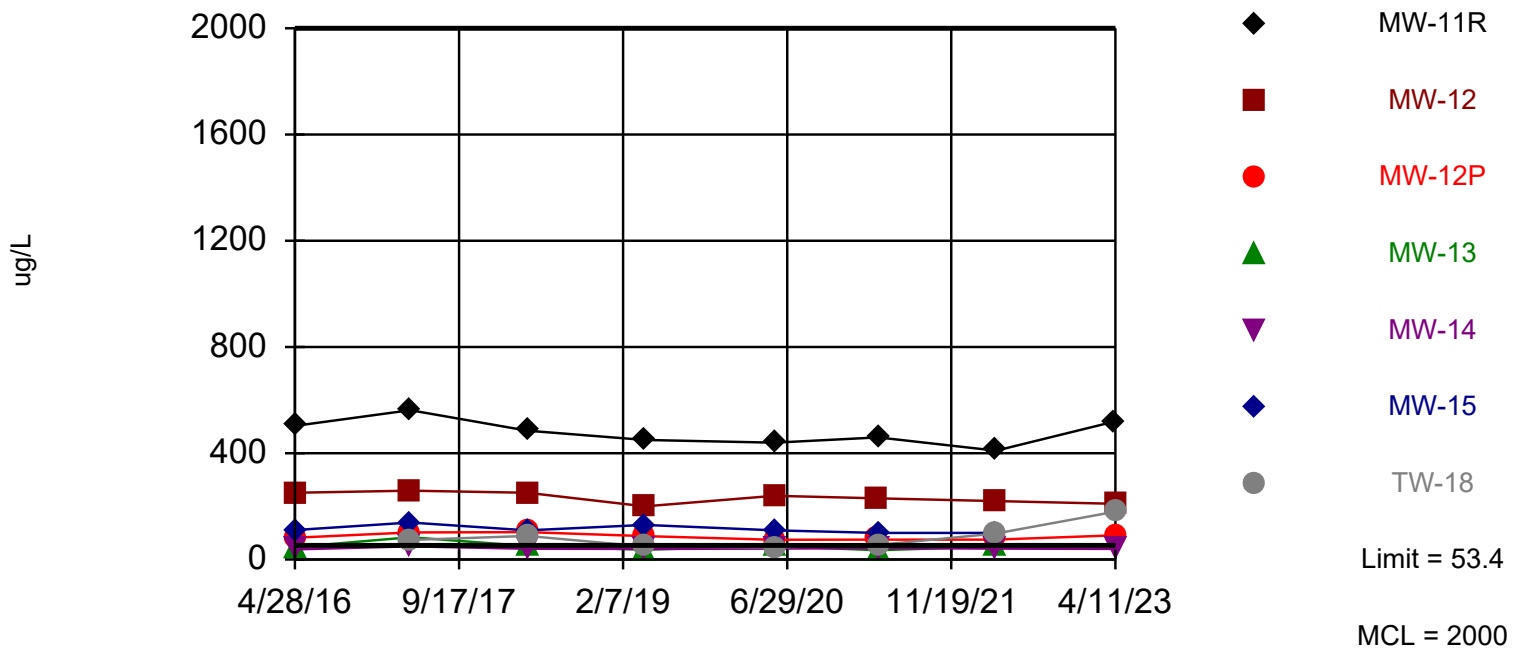
	MW-11R	MW-12	MW-13	MW-12P	MW-6 (bg)	MW-15	MW-14	TW-18
4/28/2016	33.4	24.2	3.5	0.44 (J)				
4/29/2016					0.26 (J)	0.39 (J)	0.16 (J)	
4/19/2017					0.27 (J)			
4/20/2017	30.4	19.4	1.5	0.88 (J)		0.42 (J)	0.68 (J)	1.2
4/16/2018					0.19 (J)			
4/17/2018	28.5	20.6	0.89 (J)	0.51 (J)		0.14 (J)	0.16 (J)	2.1
4/15/2019					<0.75		<0.75	
4/16/2019	28	20	<0.75	<0.75		<0.75		<0.75
5/20/2020					<0.88			
5/21/2020	33	21	<0.88	<0.88				
5/22/2020						<0.88	<0.88	<0.88
4/6/2021		21		<0.75				
4/7/2021	33		<0.75		<0.75	<0.75	<0.75	<0.75
4/6/2022		23		<0.75 (U)	<0.75 (U)		<0.75 (U)	<0.75 (U)
4/7/2022	29		<0.75 (U)			<0.75 (U)		
4/10/2023	36							
4/11/2023		22		<0.53 (U)	<0.53 (U)		<0.53 (U)	0.94 (J)

ND substitution: RL or RL/2 if <15% NDs.

Exceeds Limit: MW-11R, MW-12, MW-12P, MW-15, TW-18

Barium

Interwell Parametric



Background Data Summary: Mean=45.85, Std. Dev.=2.517, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9474, critical = 0.749. Kappa = 2.995 (c=17, w=7, 1 of 2, event alpha = 0.1). Report alpha = 0.006179. Individual comparison alpha = 0.000885. Comparing 7 points to limit.

Prediction Limit

Constituent: Barium (ug/L) Analysis Run 7/14/2023 9:27 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

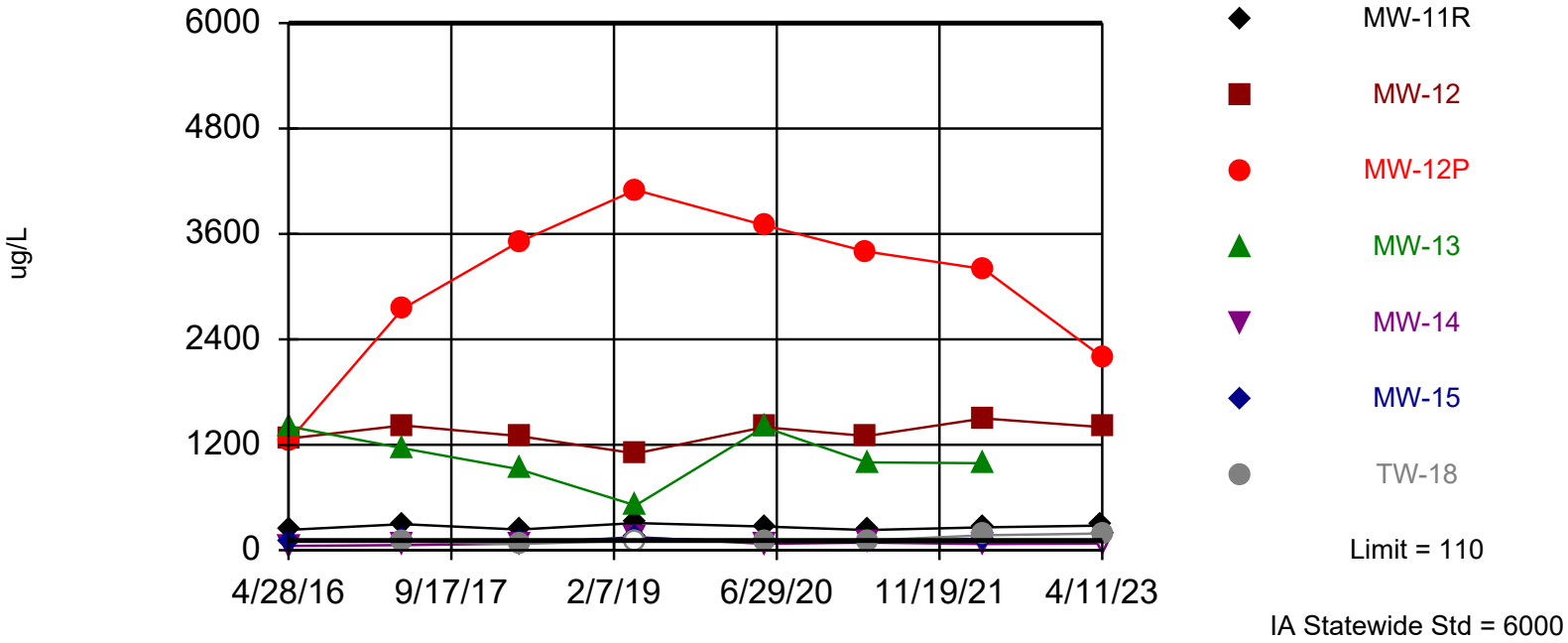
	MW-11R	MW-12	MW-13	MW-12P	MW-6 (bg)	MW-15	MW-14	TW-18
4/28/2016	503	251	46.4	82.2				
4/29/2016					44.2	111	38.2	
4/19/2017					45.7			
4/20/2017	562	259	83.8	102		139	49.8	73.6
4/16/2018					44.9			
4/17/2018	485	251	50.5	103		110	40.6	88.4
4/15/2019					41 (B)		40 (B)	
4/16/2019	450 (B)	200 (B)	37 (B)	88 (B)		130 (B)		49 (B)
5/20/2020					47			
5/21/2020	440	240	50	74				
5/22/2020						110	41	45
4/6/2021		230		75				
4/7/2021	460		35		48	100	43	55
4/6/2022		220		75	47		41	98
4/7/2022	410		49			100		
4/10/2023	520							
4/11/2023		210		91	49		40	180

Hollow symbols indicate censored values.

Exceeds Limit: MW-11R, MW-12, MW-12P, MW-13, MW-15, TW-18

Boron

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 8 background values. 75% NDs. Annual per-constituent alpha = 0.1216. Individual comparison alpha = 0.01836 (1 of 2). Comparing 7 points to limit.

Prediction Limit

Constituent: Boron (ug/L) Analysis Run 7/14/2023 9:27 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

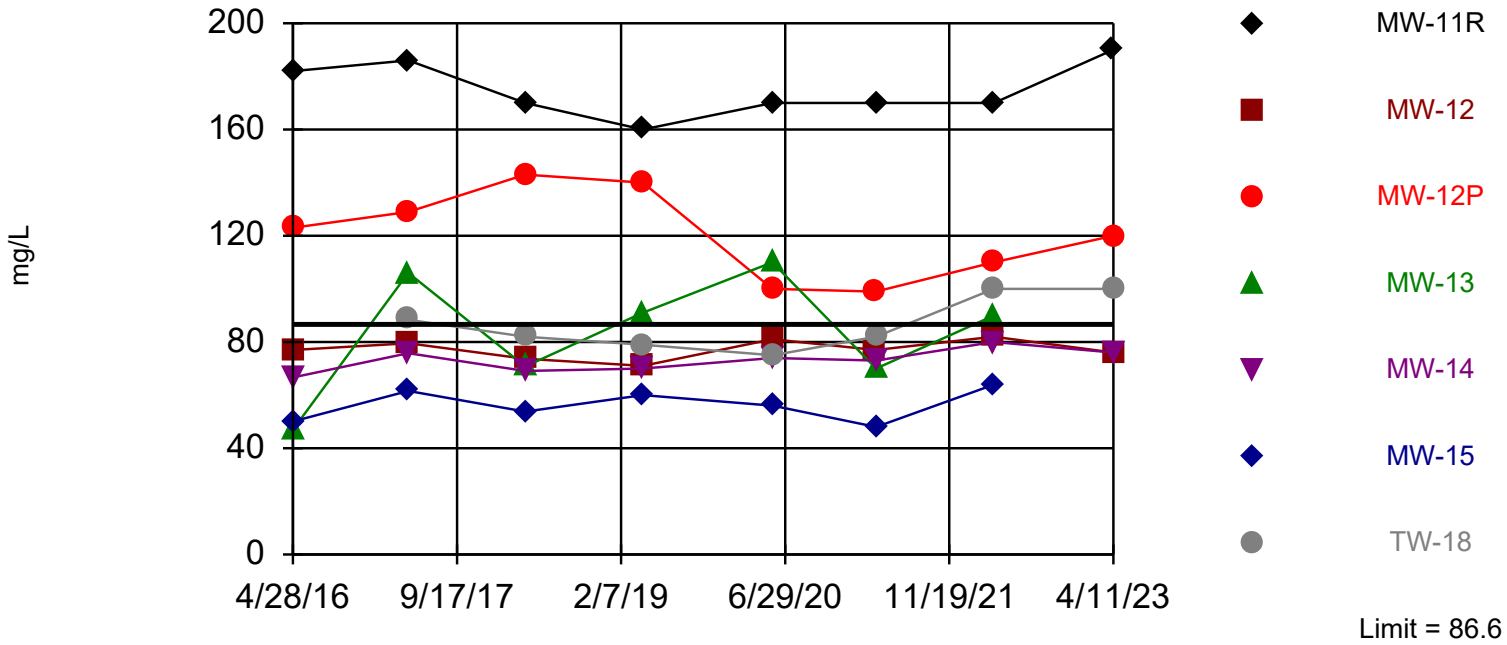
	MW-11R	MW-12	MW-13	MW-12P	MW-6 (bg)	MW-15	MW-14	TW-18
4/28/2016	231	1270	1410	1240				
4/29/2016					<50	97.1 (J)	<50	
4/19/2017					32 (J,B)			
4/20/2017	296	1420	1160	2750		116	57.3 (J)	97.6 (J)
4/16/2018					23.8 (J)			
4/17/2018	236	1300	922	3510		86.5 (J)	75 (J)	71.2 (J)
4/15/2019					<110		150 (J)	
4/16/2019	310	1100	510	4100		140 (J)		<110
5/20/2020					<73			
5/21/2020	270	1400	1400	3700				
5/22/2020						98 (J)	<73	110
4/6/2021		1300		3400				
4/7/2021	230		1000		<58	86 (J)	87 (J)	110
4/6/2022		1500		3200	<58 (U)		70 (J)	170
4/7/2022	260		990			130		
4/10/2023	280							
4/11/2023		1400		2200	<76 (U)		<76 (U)	190

ND substitution: RL or RL/2 if <15% NDs.

Exceeds Limit: MW-11R, MW-12P, MW-13, TW-18

Calcium

Interwell Parametric



Background Data Summary: Mean=71.15, Std. Dev.=5.151, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9082, critical = 0.749. Kappa = 2.995 (c=17, w=7, 1 of 2, event alpha = 0.1). Report alpha = 0.006179. Individual comparison alpha = 0.000885. Comparing 7 points to limit.

Prediction Limit Analysis Run 7/14/2023 9:25 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 7/14/2023 9:27 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

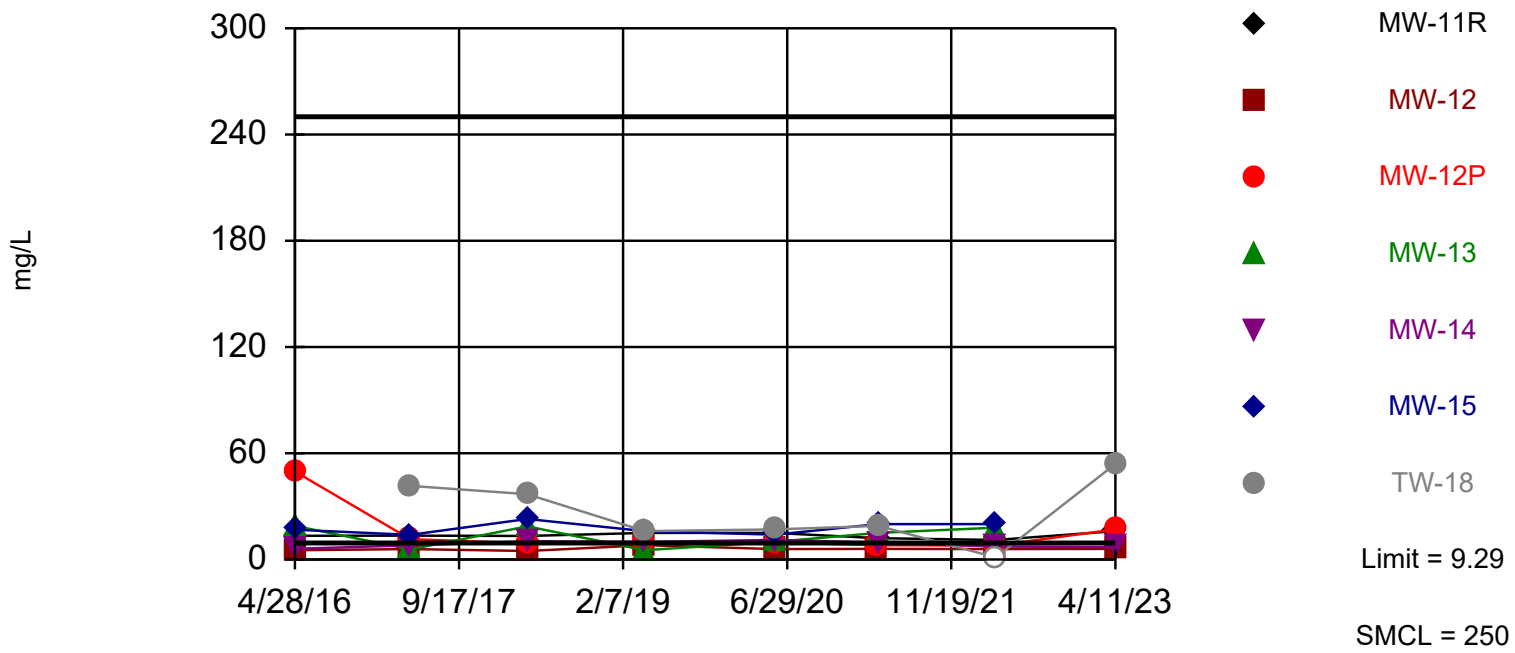
	MW-11R	MW-12	MW-13	MW-12P	MW-6 (bg)	MW-15	MW-14	TW-18
4/28/2016	182	77	47	123				
4/29/2016					68.5	50.1	66.7	
4/19/2017					67.2			
4/20/2017	186	79.5	106	129		61.6	75.8	88.4
4/16/2018					67.5			
4/17/2018	170 (M1)	73.7	70.8	143		53.8	69.1	82
4/15/2019					65		70	
4/16/2019	160	71	91	140		60		79
5/20/2020					73			
5/21/2020	170	81	110	100				
5/22/2020						56	74	75
4/6/2021		77		99				
4/7/2021	170		70		71	48	73	82
4/6/2022		82		110	78		80	100
4/7/2022	170		90			64		
4/10/2023	190							
4/11/2023		76		120	79		76	100

Hollow symbols indicate censored values.

Exceeds Limit: MW-11R, MW-12P, MW-13, MW-15, TW-18

Chloride

Interwell Parametric



Background Data Summary: Mean=6.703, Std. Dev.=1.185, n=22. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9782, critical = 0.878. Kappa = 2.187 (c=17, w=7, 1 of 2, event alpha = 0.1). Report alpha = 0.006179. Individual comparison alpha = 0.000885. Comparing 7 points to limit.

Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 7/14/2023 9:27 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-6 (bg)	MW-12P	MW-11R	MW-12	MW-13	MW-15	MW-14	TW-18
5/11/2001	<0.5 (X)							
3/8/2002	<0.5 (X)							
2/19/2004	<0.5 (X)							
5/26/2004	6.5							
8/23/2004	7							
11/18/2004	5.1							
5/5/2005	9							
5/19/2006	<0.5 (X)							
5/30/2007	4.3							
4/16/2008	6							
4/3/2009	5.9							
4/21/2010	5.89							
5/4/2011	6.72							
4/25/2012	5.35							
4/2/2013	8.2							
7/2/2013	8.2							
4/29/2014	8							
4/20/2015	6.6							
4/28/2016		49.7	13.4	5.3	19			
4/29/2016	7.6					16.8	6.1	
4/19/2017	6.3							
4/20/2017		11.5	13.5	5.9	5.7	13.9	8	41.6
4/16/2018	6.7							
4/17/2018		9.1	13.3	4.8	18.7	22.9	10.3	36.9
4/15/2019	7						10	
4/16/2019		8.5	15	8.1	5.3	16		16
5/20/2020	8.4							
5/21/2020		9.6	15	5.9	10			
5/22/2020						14	11	17
4/6/2021		8.1		6				
4/7/2021	6.8		12		15	20	9.6	19
4/6/2022	5.3	7.9		5.9			7.3	<2.3 (U)
4/7/2022			11		18	20		
4/10/2023			16					
4/11/2023	6.6	17		6			7	54

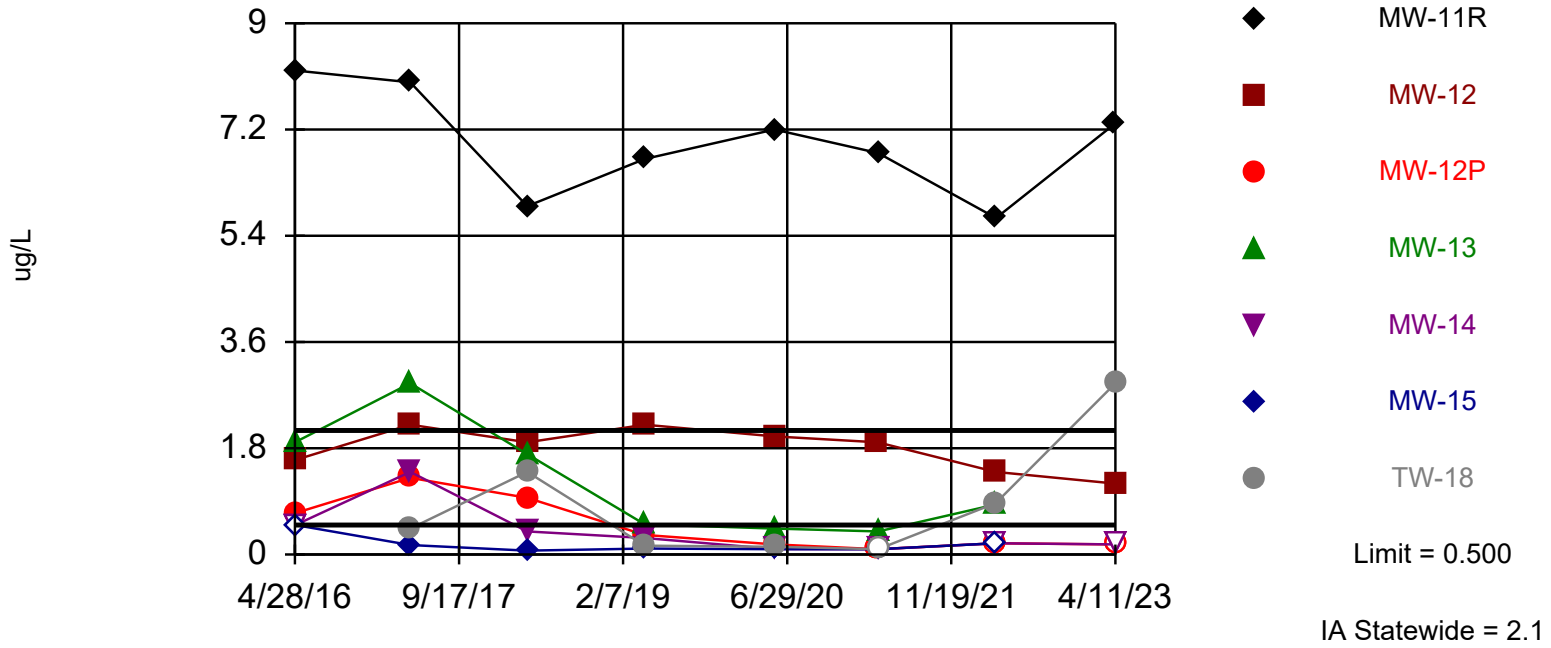
ND substitution: RL or RL/2 if <15% NDs.

Hollow symbols indicate censored values.

Exceeds Limit: MW-11R, MW-12, MW-13, TW-18

Cobalt

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 8 background values. 75% NDs. Annual per-constituent alpha = 0.1216. Individual comparison alpha = 0.01836 (1 of 2). Comparing 7 points to limit.

Prediction Limit

Constituent: Cobalt (ug/L) Analysis Run 7/14/2023 9:27 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-11R	MW-12	MW-13	MW-12P	MW-6 (bg)	MW-15	MW-14	TW-18
4/28/2016	8.2	1.6	1.9	0.7 (J)				
4/29/2016					<0.5	<0.5	<0.5	
4/19/2017					0.047 (J,B)			
4/20/2017	8	2.2	2.9	1.3		0.16 (J,B)	1.4	0.44 (J)
4/16/2018					<0.014			
4/17/2018	5.9	1.9	1.7	0.96 (J)		0.066 (J)	0.39 (J)	1.4
4/15/2019					<0.091		0.28 (J)	
4/16/2019	6.7	2.2	0.51	0.33 (J)		0.1 (J)		0.15 (J)
5/20/2020					0.17 (J)			
5/21/2020	7.2	2	0.44 (J)	0.17 (J)				
5/22/2020						<0.091	0.092 (J)	0.13 (J)
4/6/2021		1.9		<0.091				
4/7/2021	6.8		0.39 (J)		<0.091	<0.091	<0.091	<0.091
4/6/2022		1.4		<0.19 (U)	<0.19 (U)		<0.19 (U)	0.87
4/7/2022	5.7		0.85			<0.19 (U)		
4/10/2023	7.3							
4/11/2023		1.2		<0.17 (U)	<0.17 (U)		<0.17 (U)	2.9

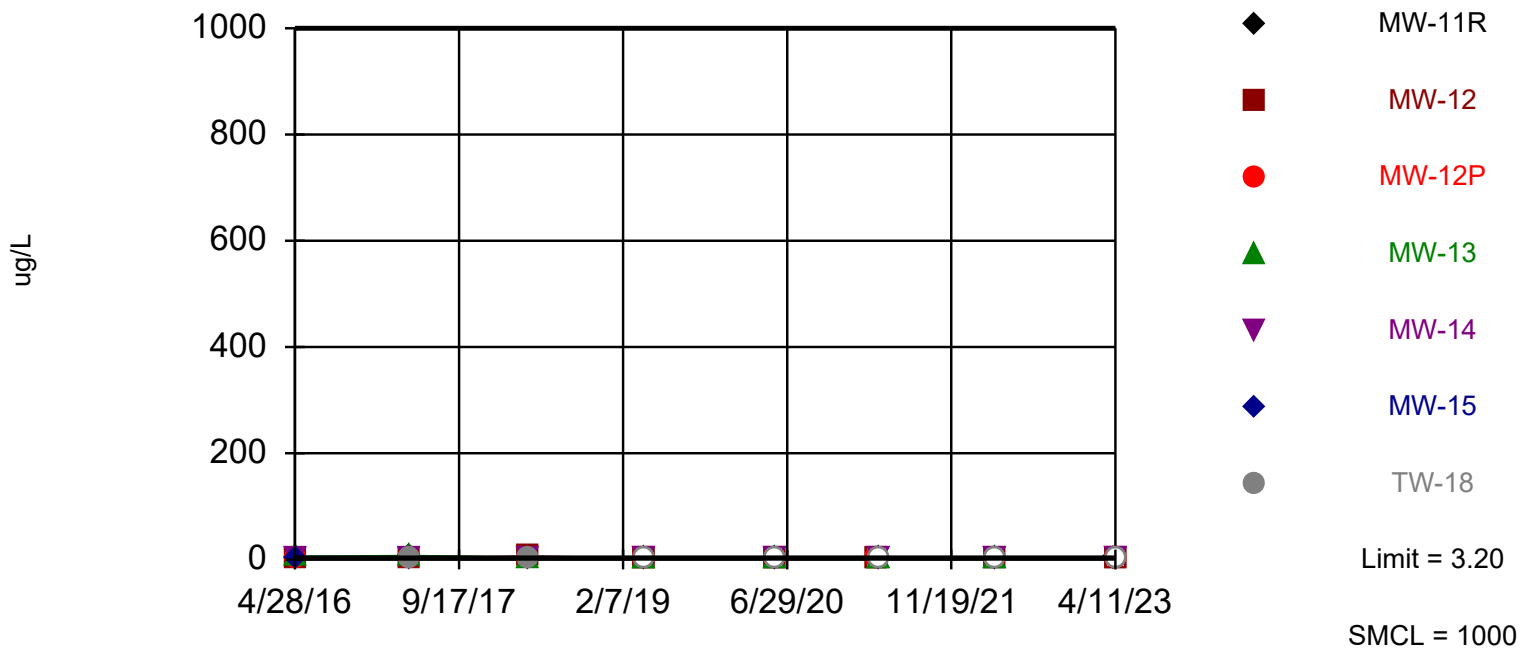
ND substitution: RL or RL/2 if <15% NDs.

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 50%. Limit is highest of 8 background values. 62.5% NDs. Annual per-constituent alpha = 0.1216. Individual comparison alpha = 0.01836 (1 of 2). Comparing 7 points to limit.

Prediction Limit

Constituent: Copper (ug/L) Analysis Run 7/14/2023 9:27 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-11R	MW-12	MW-13	MW-12P	MW-6 (bg)	MW-15	MW-14	TW-18
4/28/2016	0.94 (J,Y)	0.97 (J,Y)	5.1	0.58 (J,Y)				
4/29/2016					0.17 (J,Y)	0.96 (J,Y)	0.42 (J,Y)	
4/19/2017					0.21 (J,B)			
4/20/2017	5.8	1.7	6.6	2.3		0.87 (J,B)	2.3	0.84 (J,B)
4/16/2018					0.25 (J,B)			
4/17/2018	3.4	5.7	3.6	1.7		0.7 (J,B)	0.51 (J,B)	2.2
4/15/2019					<2		<2	
4/16/2019	<2	<2	<2	<2		<2		<2
5/20/2020					<3.2			
5/21/2020	<3.2	<3.2	<3.2	<3.2				
5/22/2020						<3.2	<3.2	<3.2
4/6/2021		<1.4		<1.4				
4/7/2021	<1.4		<1.4		<1.4	<1.4	<1.4	<1.4
4/6/2022		1.8 (J)		<1.8 (U)	<1.8 (U)		<1.8 (U)	<1.8 (U)
4/7/2022	<1.8 (U)		<1.8 (U)			<1.8 (U)		
4/10/2023	<1.8 (U)							
4/11/2023		<1.8 (U)		<1.8 (U)	<1.8 (U)		<1.8 (U)	<1.8 (U)

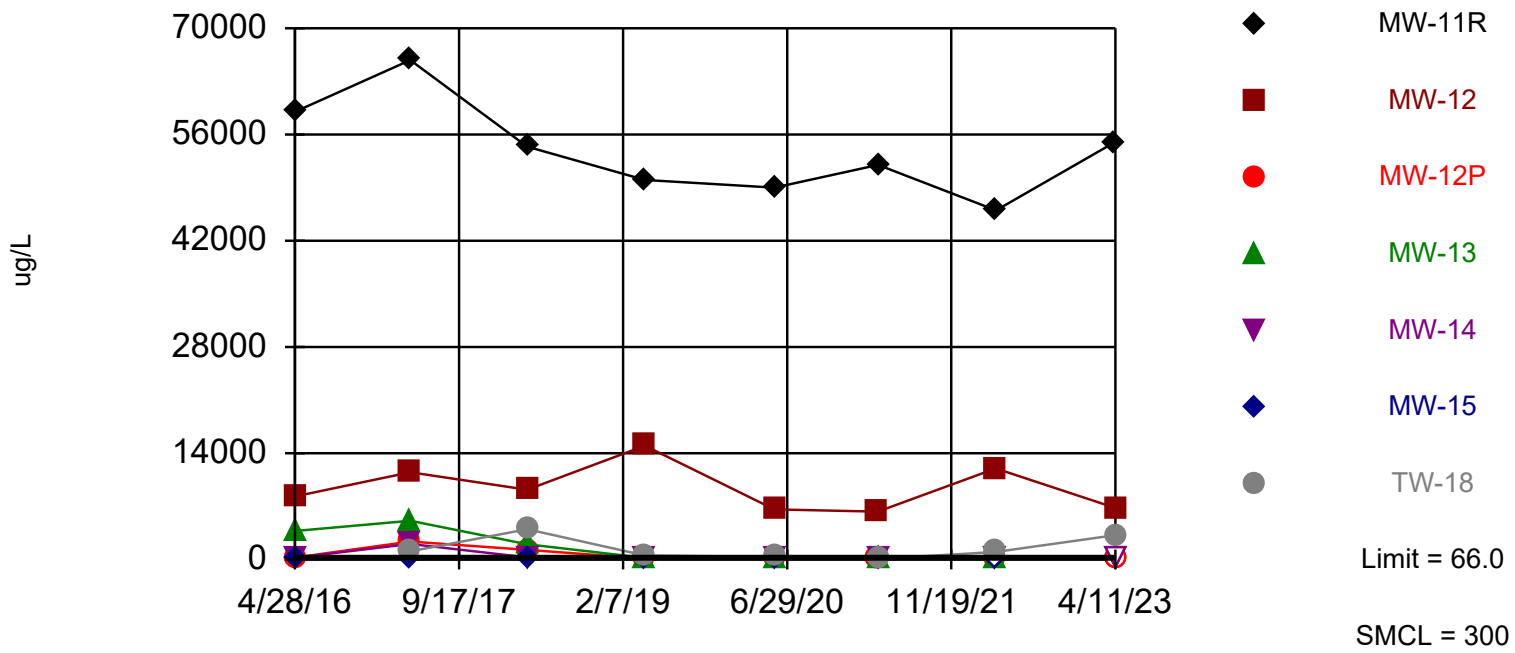
ND substitution: RL or RL/2 if <15% NDs.

Hollow symbols indicate censored values.

Exceeds Limit: MW-11R, MW-12, MW-13, TW-18

Iron

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 8 background values. 87.5% NDs. Annual per-constituent alpha = 0.1216. Individual comparison alpha = 0.01836 (1 of 2). Comparing 7 points to limit.

Prediction Limit

Constituent: Iron (ug/L) Analysis Run 7/14/2023 9:27 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

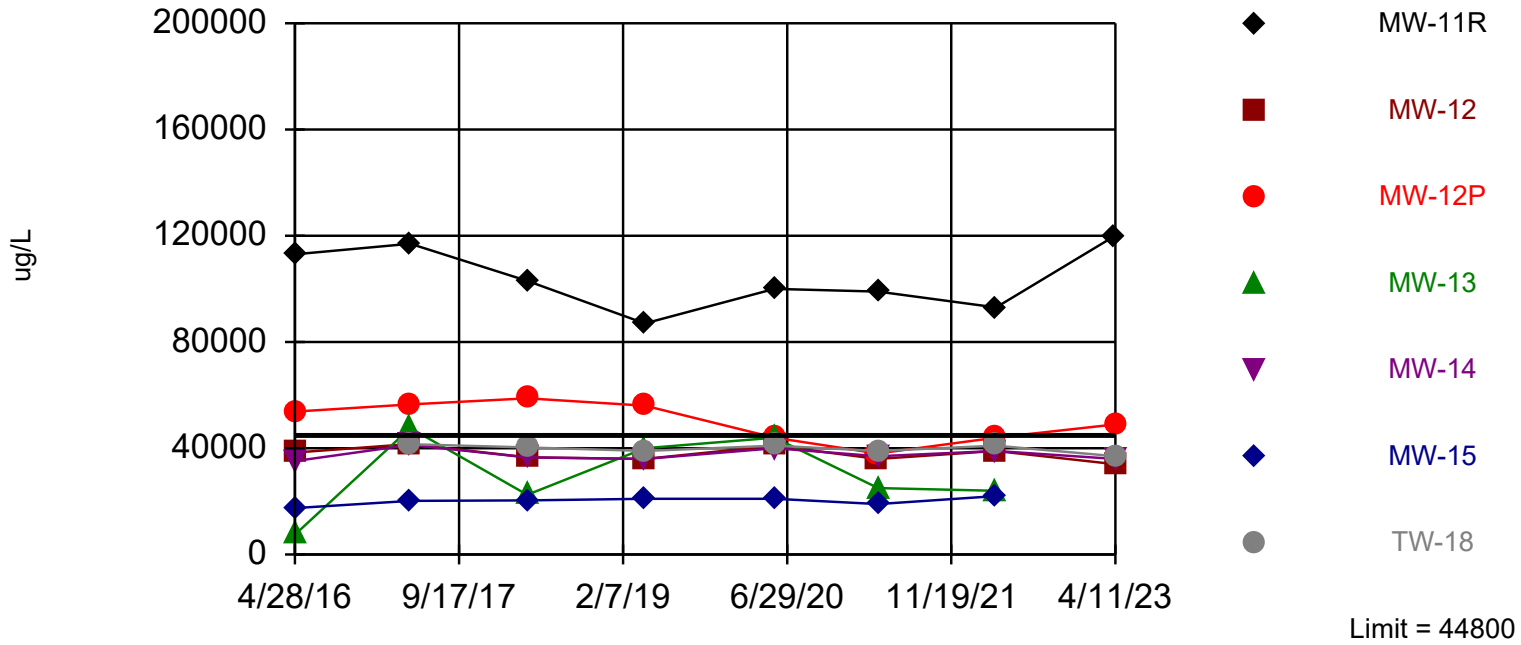
	MW-11R	MW-12	MW-13	MW-12P	MW-6 (bg)	MW-15	MW-14	TW-18
4/28/2016	59000	8320	3760	250				
4/29/2016					<12.8	64.8	226	
4/19/2017					27.1 (J,B)			
4/20/2017	65800	11500	5100	2370		94.5 (B)	2040	1090
4/16/2018					<9.6			
4/17/2018	54400	9190	2010	1270		13.4 (J)	285	3980
4/15/2019					<66		110 (B)	
4/16/2019	50000 (B)	15000 (B)	220 (B)	130 (B)		<66		530 (B)
5/20/2020					<50			
5/21/2020	49000	6600	240	120				
5/22/2020						<50	57 (J)	340
4/6/2021		6300		<36				
4/7/2021	52000		180		<36	<36	39 (J)	79 (J)
4/6/2022		12000		39 (J)	<36 (U)		<36 (U)	1000
4/7/2022	46000		280			<36 (U)		
4/10/2023	55000							
4/11/2023		6800		<36 (U)	<36 (U)		<36 (U)	3200

ND substitution: RL or RL/2 if <15% NDs.

Exceeds Limit: MW-11R, MW-12P

Magnesium

Interwell Parametric



Background Data Summary: Mean=38038, Std. Dev.=2255, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9413, critical = 0.749. Kappa = 2.995 (c=17, w=7, 1 of 2, event alpha = 0.1). Report alpha = 0.006179. Individual comparison alpha = 0.000885. Comparing 7 points to limit.

Prediction Limit Analysis Run 7/14/2023 9:25 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Prediction Limit

Constituent: Magnesium (ug/L) Analysis Run 7/14/2023 9:27 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

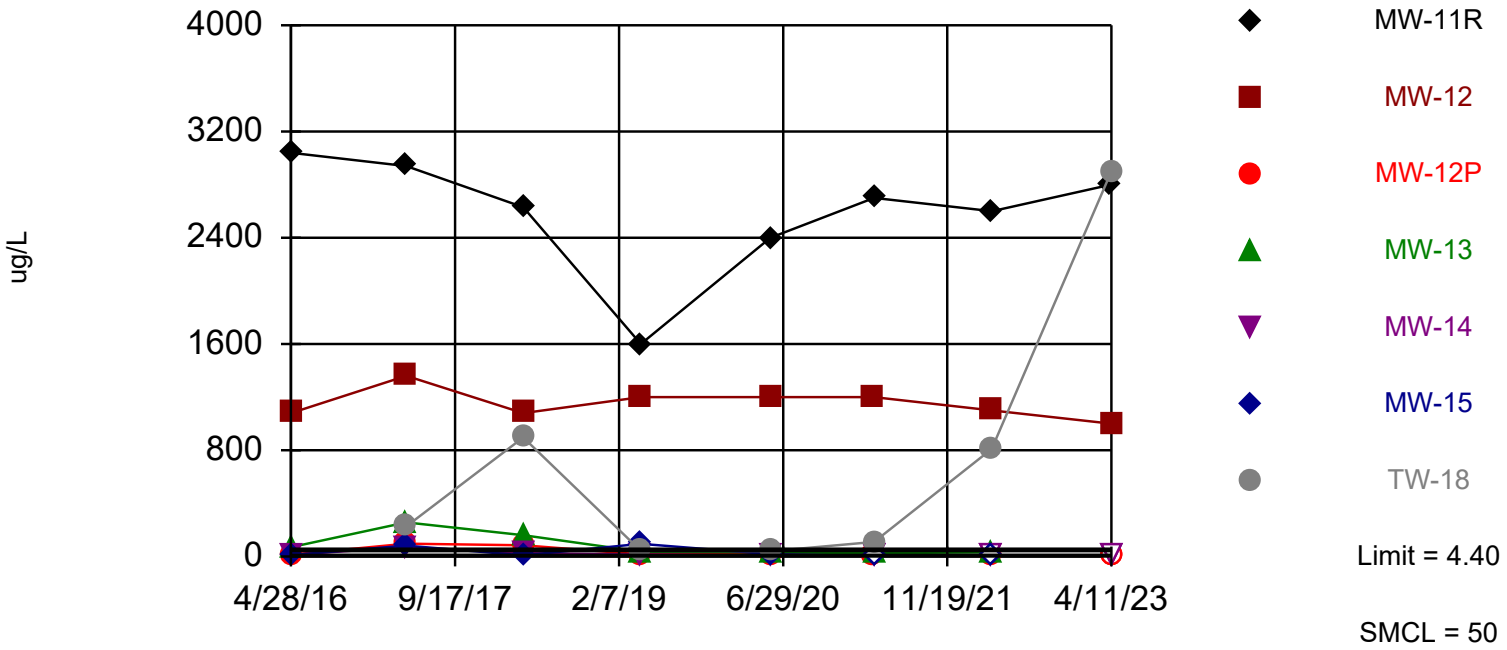
	MW-11R	MW-12	MW-13	MW-12P	MW-6 (bg)	MW-15	MW-14	TW-18
4/28/2016	113000	38400	7490	53800				
4/29/2016					37600	17500	35200	
4/19/2017					37900			
4/20/2017	117000	41600	47600	56500		20200	41300	41500
4/16/2018					36800			
4/17/2018	103000 (M1)	36600	22500	58800		20400	36600	40300
4/15/2019					34000		36000	
4/16/2019	87000	36000	40000	56000		21000		39000
5/20/2020					41000			
5/21/2020	100000	41000	44000	44000				
5/22/2020						21000	40000	41000
4/6/2021		36000		38000				
4/7/2021	99000		25000		37000	19000	37000	39000
4/6/2022		39000		44000	40000		39000	41000
4/7/2022	93000		24000			22000		
4/10/2023	120000							
4/11/2023		34000		49000	40000		36000	37000

Hollow symbols indicate censored values.

Exceeds Limit: MW-11R, MW-12, MW-13, TW-18

Manganese

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 8 background values. 62.5% NDs. Annual per-constituent alpha = 0.1216. Individual comparison alpha = 0.01836 (1 of 2). Comparing 7 points to limit.

Prediction Limit

Constituent: Manganese (ug/L) Analysis Run 7/14/2023 9:27 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-11R	MW-12	MW-13	MW-12P	MW-6 (bg)	MW-15	MW-14	TW-18
4/28/2016	3040	1080	70.4	13.7				
4/29/2016					1.5 (Y)	11.1	12.6	
4/19/2017					1.8 (B)			
4/20/2017	2940	1360	257	96.9		82.1	71.7	227
4/16/2018					0.28 (J)			
4/17/2018	2630	1080	160	84.8		9.1	25.8	897
4/15/2019					<2.5		15	
4/16/2019	1600	1200	36	16		96		43
5/20/2020					<4			
5/21/2020	2400	1200	32	18				
5/22/2020						17	6 (J)	40
4/6/2021		1200		6.7 (J)				
4/7/2021	2700		26		<4.4	<4.4	<4.4	110
4/6/2022		1100		4.9 (J)	<3.6 (U)		<3.6 (U)	810
4/7/2022	2600		32			<3.6 (U)		
4/10/2023	2800							
4/11/2023		1000		<3.6 (U)	<3.6 (U)		<3.6 (U)	2900

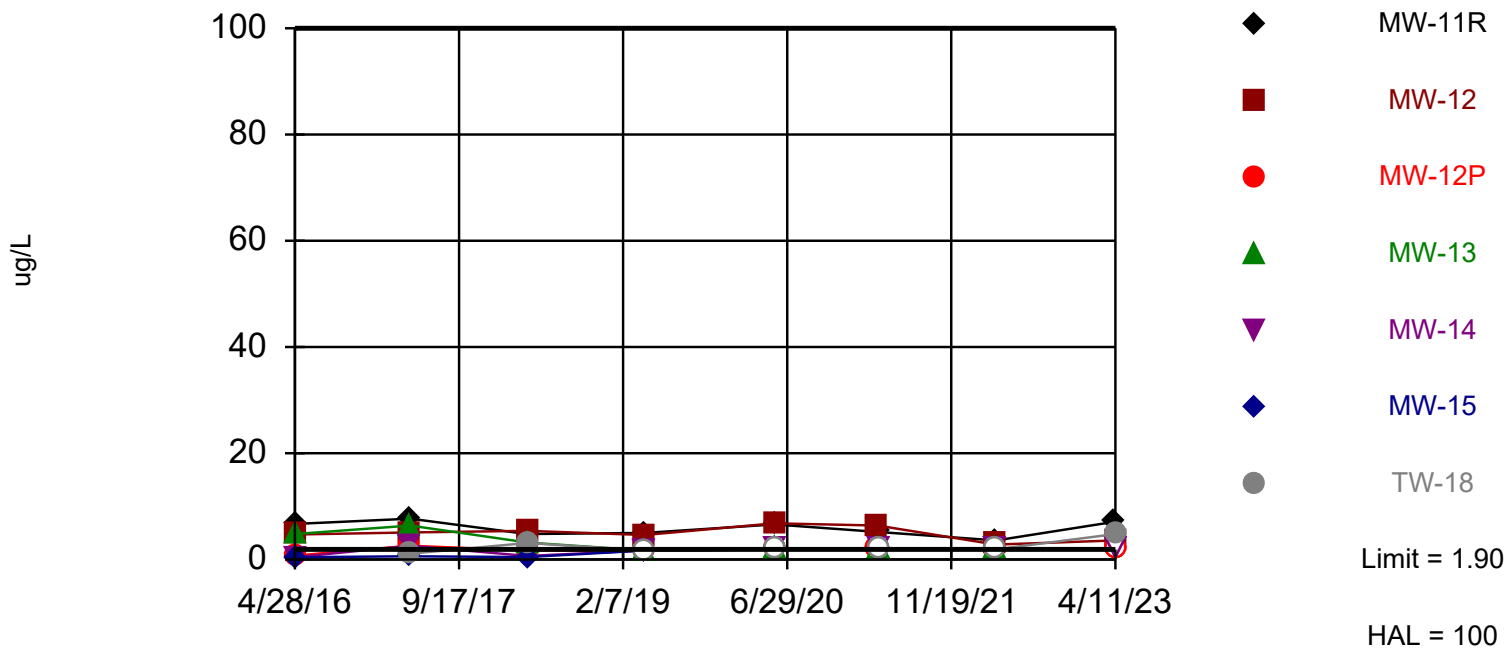
ND substitution: RL or RL/2 if <15% NDs.

Hollow symbols indicate censored values.

Exceeds Limit: MW-11R

Nickel

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 8 background values. 75% NDs. Annual per-constituent alpha = 0.1216. Individual comparison alpha = 0.01836 (1 of 2). Comparing 7 points to limit.

Prediction Limit

Constituent: Nickel (ug/L) Analysis Run 7/14/2023 9:27 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

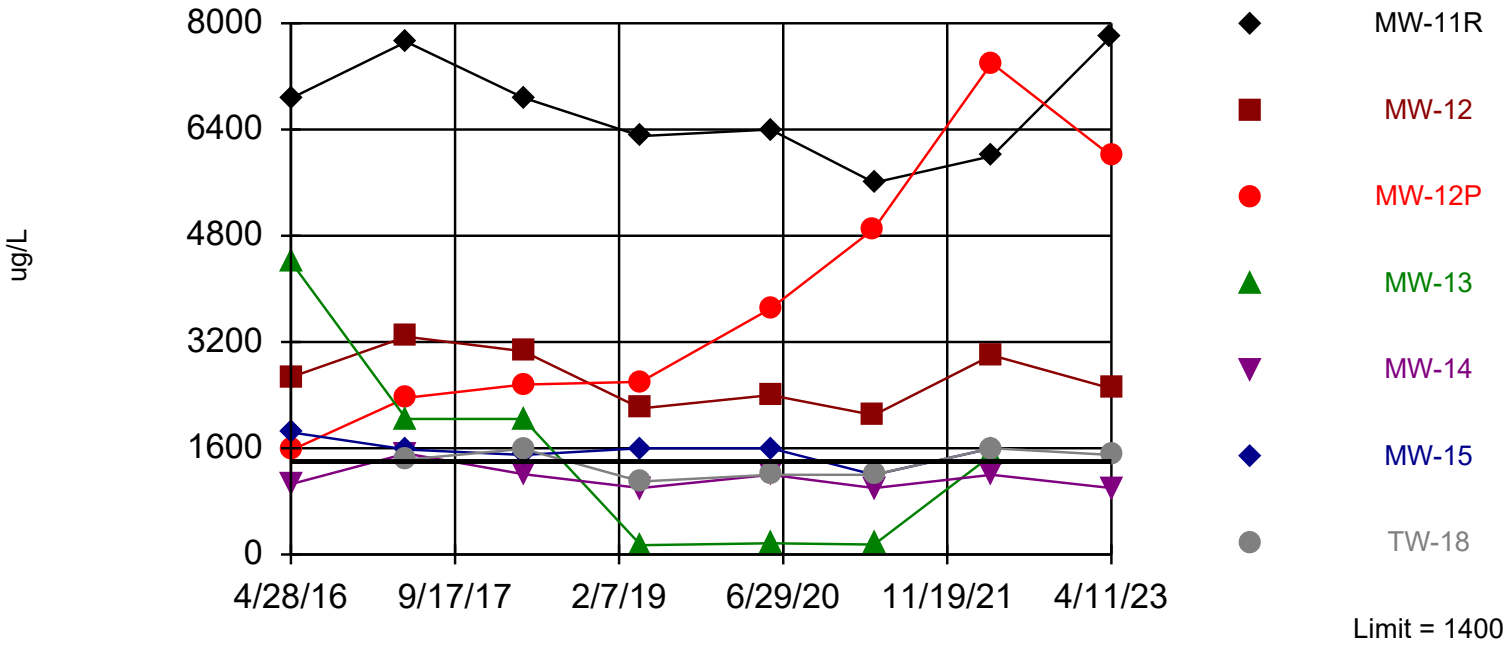
	MW-11R	MW-12	MW-13	MW-12P	MW-6 (bg)	MW-15	MW-14	TW-18
4/28/2016	6.7	4.7	4.8	0.74 (J)				
4/29/2016					<0.27	0.44 (J)	0.42 (J)	
4/19/2017					0.5 (J,B)			
4/20/2017	7.7	5.1	6.4	2.6		0.62 (J,B)	2.6	1.1 (B)
4/16/2018					0.3 (J)			
4/17/2018	4.8	5.4	3.2	1.7		0.46 (J)	0.67 (J)	3.1
4/15/2019					<1.7		<1.7	
4/16/2019	5	4.6 (J)	<1.7	<1.7		<1.7		<1.7
5/20/2020					<1.9			
5/21/2020	6.6	6.8	<1.9	<1.9				
5/22/2020						<1.9	<1.9	<1.9
4/6/2021		6.4		<1.9				
4/7/2021	5.2		<1.9		<1.9	<1.9	<1.9	<1.9
4/6/2022		2.8 (J)		<1.9 (U)	<1.9 (U)		<1.9 (U)	<1.9 (U)
4/7/2022	3.6 (J)		<1.9 (U)			<1.9 (U)		
4/10/2023	7.1							
4/11/2023		3.6 (J)		<1.9 (U)	<1.9 (U)		<1.9 (U)	4.8 (J)

ND substitution: RL or RL/2 if <15% NDs.

Exceeds Limit: MW-11R, MW-12, MW-12P, MW-13, MW-15, TW-18

Potassium

Interwell Parametric



Background Data Summary: Mean=1084, Std. Dev.=105.6, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8551, critical = 0.749. Kappa = 2.995 (c=17, w=7, 1 of 2, event alpha = 0.1). Report alpha = 0.006179. Individual comparison alpha = 0.000885. Comparing 7 points to limit.

Prediction Limit Analysis Run 7/14/2023 9:25 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Prediction Limit

Constituent: Potassium (ug/L) Analysis Run 7/14/2023 9:27 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

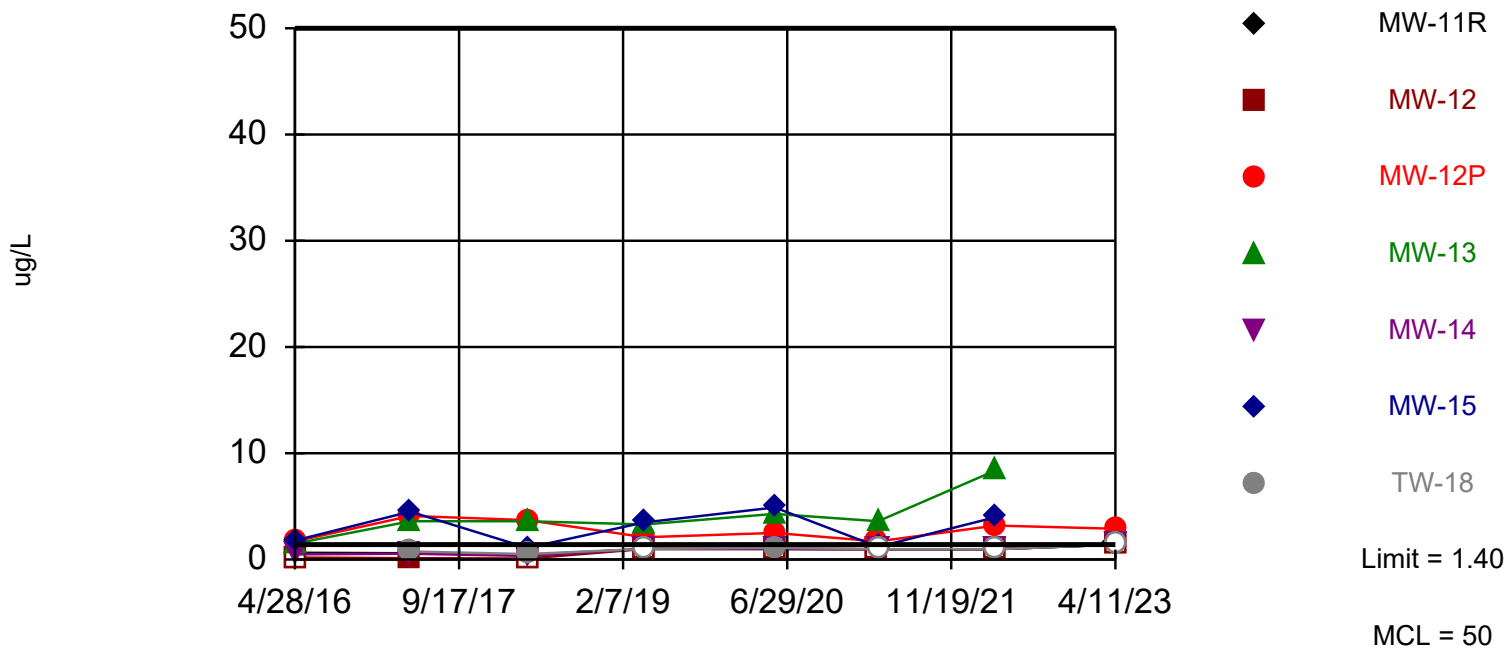
	MW-11R	MW-12	MW-13	MW-12P	MW-6 (bg)	MW-15	MW-14	TW-18
4/28/2016	6870	2670	4410	1570				
4/29/2016					1010	1840	1060	
4/19/2017					1020			
4/20/2017	7720	3280	2040	2360		1580	1520	1430
4/16/2018					1100			
4/17/2018	6880	3060	2040	2560		1500	1210	1590
4/15/2019					940		1000	
4/16/2019	6300	2200	140 (J)	2600		1600		1100
5/20/2020					1200			
5/21/2020	6400	2400	170 (J)	3700				
5/22/2020						1600	1200	1200
4/6/2021		2100		4900				
4/7/2021	5600		150 (J)		1000	1200	1000	1200
4/6/2022		3000		7400	1200		1200	1600
4/7/2022	6000		1500			1600		
4/10/2023	7800							
4/11/2023		2500		6000	1200		1000	1500

Hollow symbols indicate censored values.

Exceeds Limit: MW-13

Selenium

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 8 background values. 62.5% NDs. Annual per-constituent alpha = 0.1216. Individual comparison alpha = 0.01836 (1 of 2). Comparing 7 points to limit.

Prediction Limit

Constituent: Selenium (ug/L) Analysis Run 7/14/2023 9:27 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

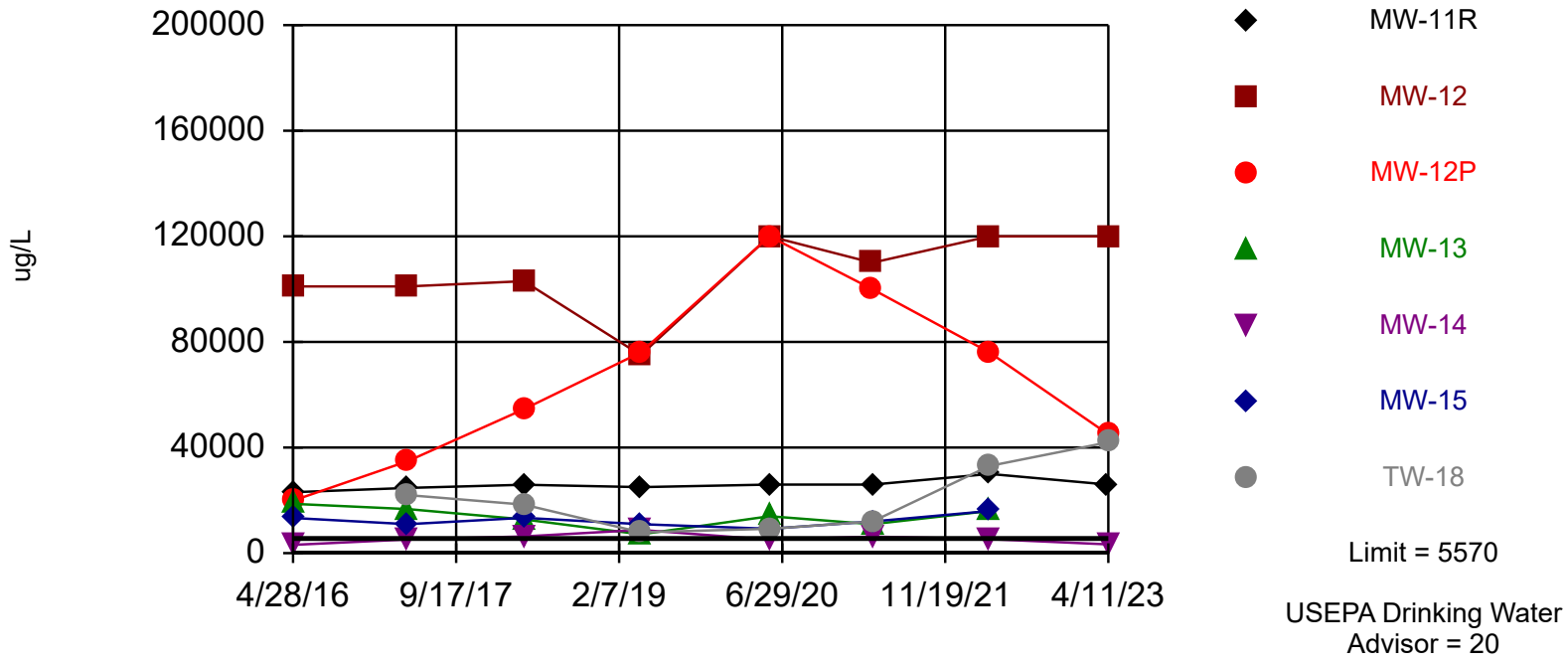
	MW-11R	MW-12	MW-13	MW-12P	MW-6 (bg)	MW-15	MW-14	TW-18
4/28/2016	0.63 (J)	<0.18	1.5	1.7				
4/29/2016					0.46 (J)	1.8	0.48 (J)	
4/19/2017					0.46 (J)			
4/20/2017	0.59 (J)	0.13 (J)	3.6	4.1		4.5	0.54 (J)	0.76 (J)
4/16/2018					0.24 (J)			
4/17/2018	0.44 (J)	<0.086	3.6	3.7		1.1	0.34 (J)	0.51 (J)
4/15/2019					<1		<1	
4/16/2019	<1	<1	3.3 (J)	2.1 (J)		3.5 (J)		<1
5/20/2020					<1			
5/21/2020	<1	<1	4.3 (J)	2.5 (J)				
5/22/2020						4.9 (J)	<1	1.1 (J)
4/6/2021		<0.96		1.7 (J)				
4/7/2021	<0.96		3.6 (J,B)		<0.96	1.2 (J,B)	<0.96	<0.96
4/6/2022		<0.96 (U)		3.2 (J)	<0.96 (U)		<0.96 (U)	<0.96 (U)
4/7/2022	<0.96 (U)		8.4			4 (J)		
4/10/2023	1.4 (J)							
4/11/2023		<1.4 (U)		2.9 (J)	<1.4 (U)		<1.4 (U)	<1.4 (U)

ND substitution: RL or RL/2 if <15% NDs.

Exceeds Limit: MW-11R, MW-12, MW-12P, MW-13, MW-15, TW-18

Sodium

Interwell Parametric



Background Data Summary: Mean=4704, Std. Dev.=287.7, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8746, critical = 0.749. Kappa = 2.995 (c=17, w=7, 1 of 2, event alpha = 0.1). Report alpha = 0.006179. Individual comparison alpha = 0.000885. Comparing 7 points to limit.

Prediction Limit

Constituent: Sodium (ug/L) Analysis Run 7/14/2023 9:27 AM View: Lansing State Data

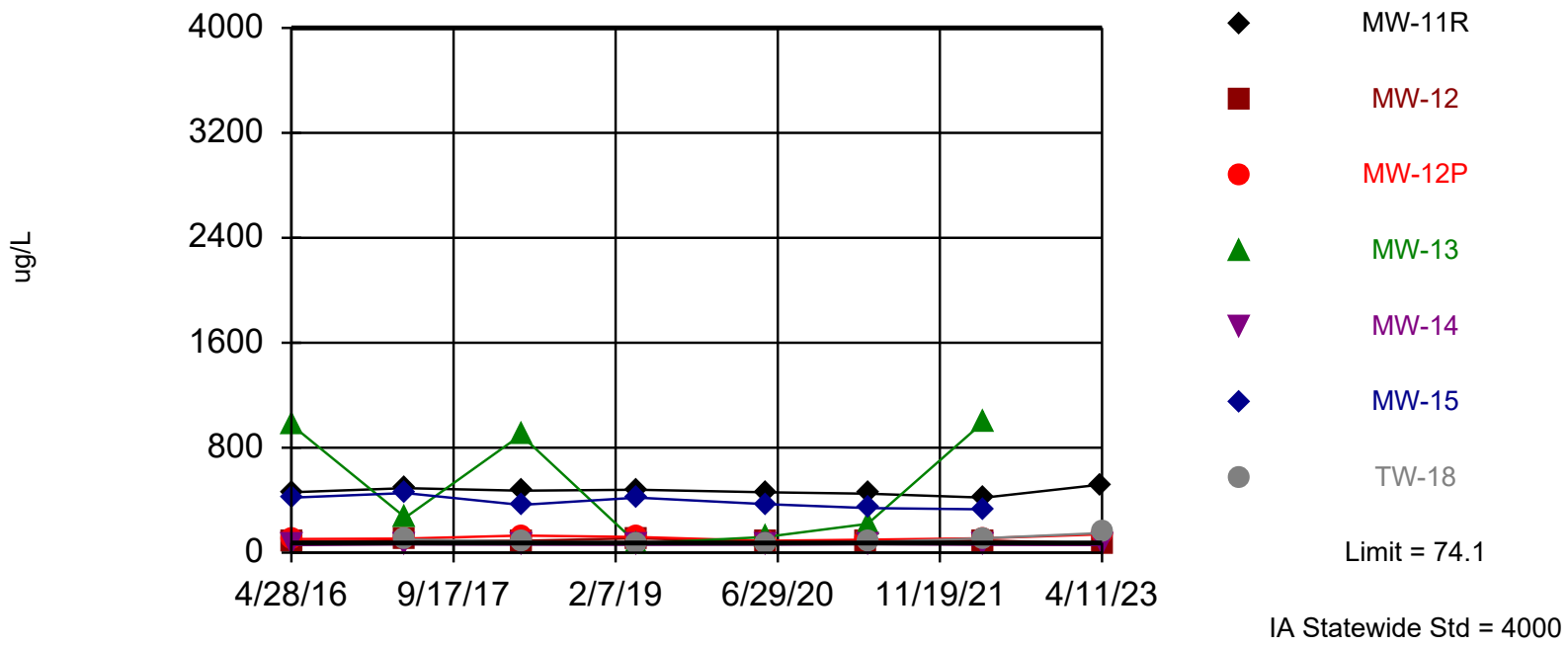
Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-11R	MW-12	MW-13	MW-12P	MW-6 (bg)	MW-15	MW-14	TW-18
4/28/2016	23100	101000	18700	19900				
4/29/2016					4610	13300	3140	
4/19/2017					4870			
4/20/2017	24700	101000	16700	34800		11000	5220	22000
4/16/2018					4650			
4/17/2018	25900	103000	12800	54500		13400	6340	18400
4/15/2019					4500		8800	
4/16/2019	25000	75000	7100	76000		11000		7900
5/20/2020					5100			
5/21/2020	26000	120000	14000	120000				
5/22/2020						9200	5100	9200
4/6/2021		110000		100000				
4/7/2021	26000		11000		4400	12000	6300	12000
4/6/2022		120000		76000	5100		5300	33000
4/7/2022	30000		16000			16000		
4/10/2023	26000							
4/11/2023		120000		45000	4400		3300	42000

Exceeds Limit: MW-11R, MW-12P, MW-13, MW-15, TW-18

Strontium

Interwell Parametric



Background Data Summary: Mean=62.59, Std. Dev.=3.851, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9087, critical = 0.749. Kappa = 2.995 (c=17, w=7, 1 of 2, event alpha = 0.1). Report alpha = 0.006179. Individual comparison alpha = 0.000885. Comparing 7 points to limit.

Prediction Limit

Constituent: Strontium (ug/L) Analysis Run 7/14/2023 9:27 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

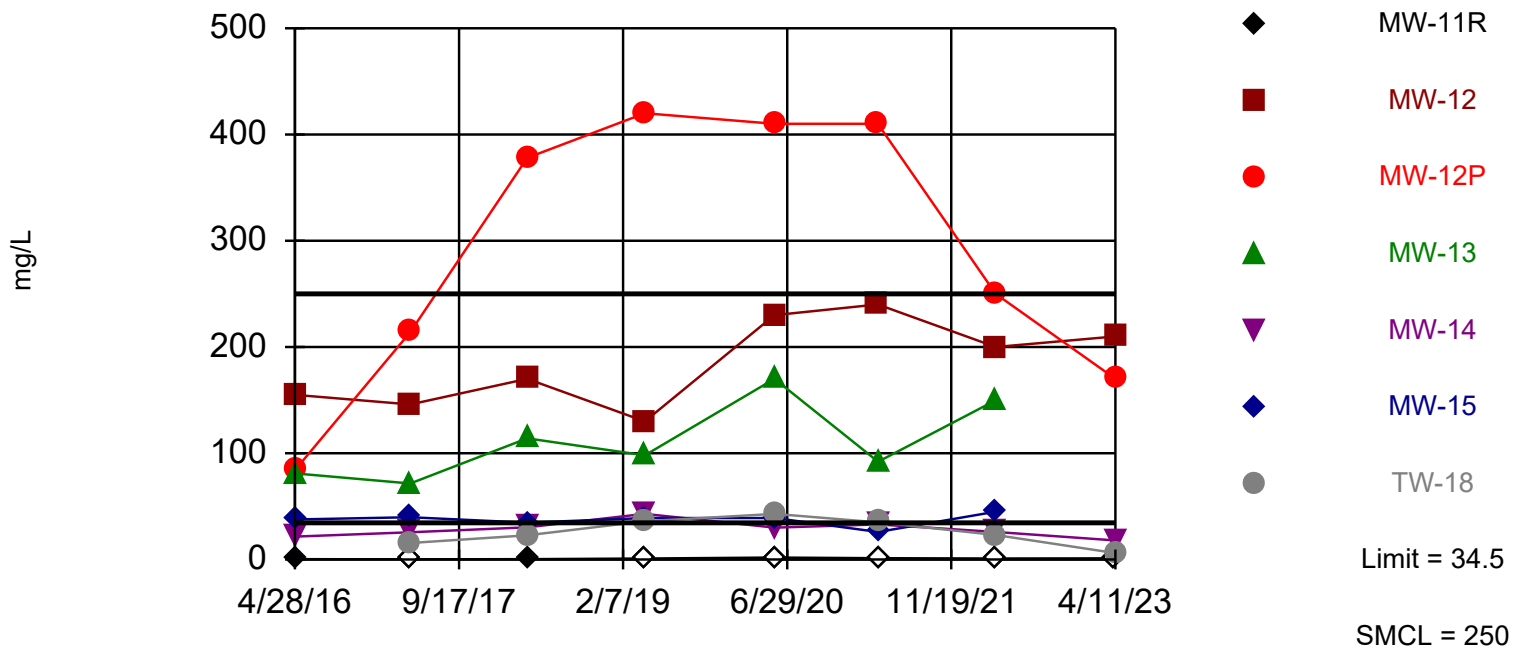
	MW-11R	MW-12	MW-13	MW-12P	MW-6 (bg)	MW-15	MW-14	TW-18
4/28/2016	460 (Y)	83.9	975 (Y)	104 (Y)				
4/29/2016					60.7 (Y)	419 (Y)	58.3 (Y)	
4/19/2017					61.2 (N2)			
4/20/2017	492 (N2)	94.2 (N2)	268 (N2)	107 (N2)		454 (N2)	63.8 (N2)	101 (N2)
4/16/2018					63.8 (N2)			
4/17/2018	473 (N2)	90.6 (N2)	897 (N2)	130 (N2)		364 (N2)	61.6 (N2)	85.6 (N2)
4/15/2019					58		60	
4/16/2019	480	110	70	120		420		67
5/20/2020					70			
5/21/2020	460	81	120	91				
5/22/2020						370	62	63
4/6/2021		79		99				
4/7/2021	450		220		66	340	65	80
4/6/2022		93		110	61		61	110
4/7/2022	420		1000			330		
4/10/2023	520							
4/11/2023		70		140	60		58	150

Hollow symbols indicate censored values.

Exceeds Limit: MW-12, MW-12P, MW-13, MW-15

Sulfate

Interwell Parametric



Background Data Summary: Mean=26.01, Std. Dev.=3.983, n=25. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9063, critical = 0.888. Kappa = 2.141 (c=17, w=7, 1 of 2, event alpha = 0.1). Report alpha = 0.006179. Individual comparison alpha = 0.000885. Comparing 7 points to limit.

Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 7/14/2023 9:27 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

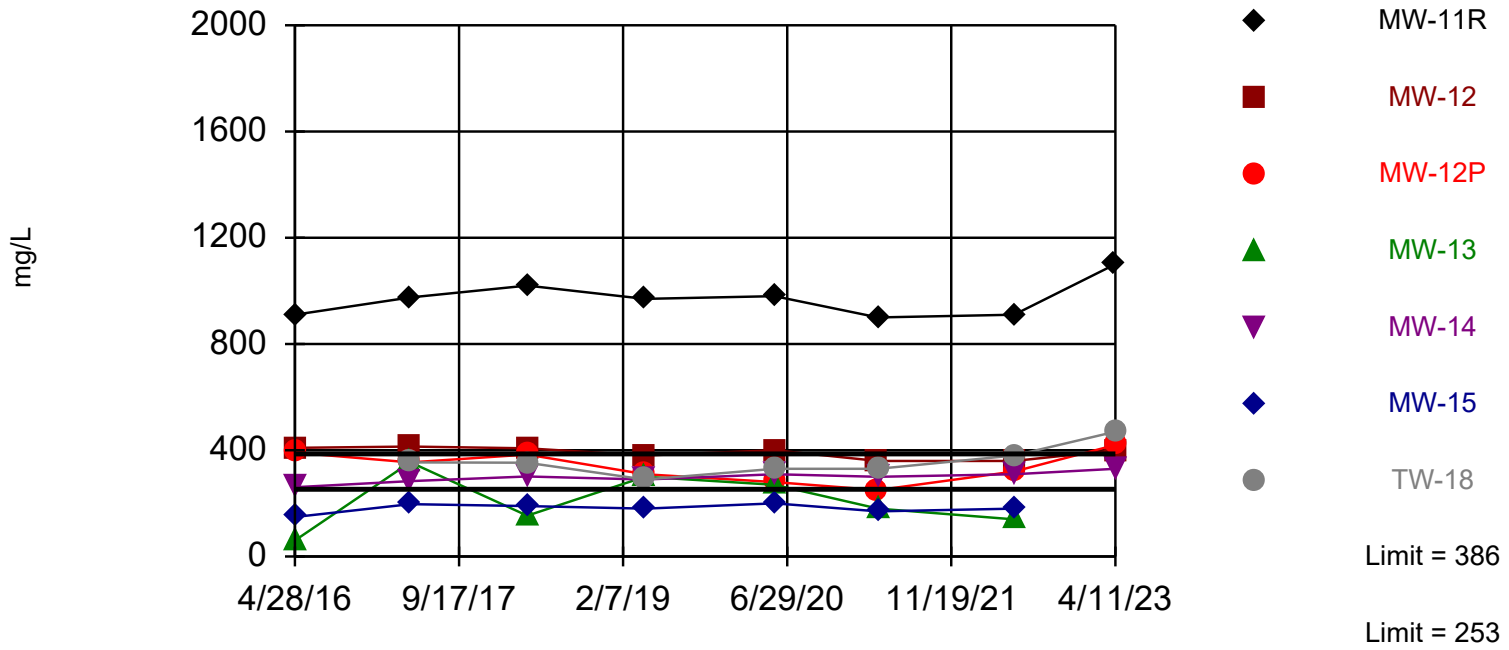
	MW-6 (bg)	MW-13	MW-11R	MW-12P	MW-12	MW-15	MW-14	TW-18
5/11/2001	29							
3/8/2002	33							
2/19/2004	25							
5/26/2004	30							
8/23/2004	31							
11/18/2004	27							
5/5/2005	38							
5/19/2006	28 (J)							
5/30/2007	190 (X)							
4/16/2008	20							
4/3/2009	24							
4/21/2010	24.8							
5/4/2011	24.4							
4/25/2012	21.1							
4/2/2013	23.4							
7/2/2013	24.8							
4/29/2014	24.2							
4/20/2015	23.8							
4/28/2016		81.1	0.38 (J,Y)	84.1	155			
4/29/2016	24					37.7	21.5	
4/19/2017	25.4							
4/20/2017		71.5	<0.5	214	146	39.8	25.7	15.5
4/16/2018	26.4							
4/17/2018		114	0.39 (J)	378	170	34.6	30.3	22.7
4/15/2019	27						43	
4/16/2019		98	<1.8	420	130	39		36
5/20/2020	27							
5/21/2020		170	<3.6	410	230			
5/22/2020						39	30	43
4/6/2021				410	240			
4/7/2021	25	92	<2.5			26	33	35
4/6/2022	24			250	200		26	23
4/7/2022		150	<2 (U)			45		
4/10/2023			<2.1 (U)					
4/11/2023	20			170	210		18	6.1

ND substitution: RL or RL/2 if <15% NDs.

Exceeds Limits: MW-11R, MW-12, MW-12P, MW-13, MW-15, TW-18

Total Alkalinity

Interwell Parametric



Background Data Summary: Mean=319.3, Std. Dev.=26.46, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8863, critical = 0.805. Kappa = 2.521 (c=17, w=7, 1 of 2, event alpha = 0.1). Report alpha = 0.006179. Individual comparison alpha = 0.0004425. Comparing 7 points to limit.

Prediction Limit Analysis Run 7/14/2023 9:25 AM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Prediction Limit

Constituent: Total Alkalinity (mg/L) Analysis Run 7/14/2023 9:27 AM View: Lansing State Data
Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-6 (bg)	MW-11R	MW-12	MW-13	MW-12P	MW-15	MW-14	TW-18
4/2/2013	314							
7/2/2013	298							
4/29/2014	327							
4/20/2015	311							
4/28/2016		910	409	60.2	391			
4/29/2016	377					149	261	
4/19/2017	293							
4/20/2017		975	414	355	354	197	284	354
4/16/2018	311							
4/17/2018		1020	407	154	384	190	301	353
4/15/2019	290						290	
4/16/2019		970	380	300	310	180		290
5/20/2020	320							
5/21/2020		980	400	270	280			
5/22/2020						200	310	330
4/6/2021			360		250			
4/7/2021	300	900		180		170	300	330
4/6/2022	330							
6/2/2022		910	360	140	320	180	310	380
4/10/2023		1100						
4/11/2023	360		400		420		330	470

Appendix E

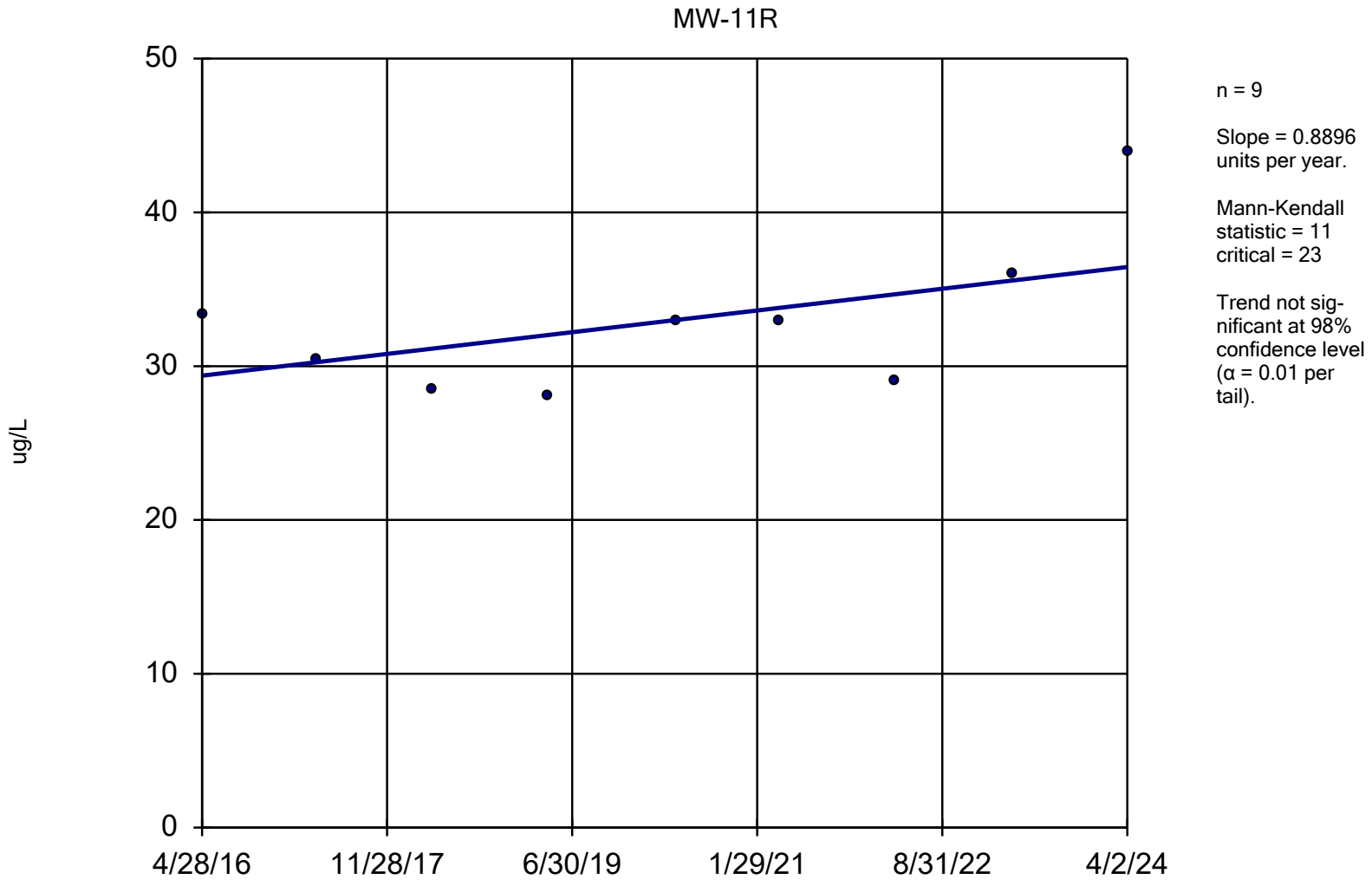
Trend Analysis

Trend Test

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions Printed 10/28/2024, 4:01 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Arsenic (ug/L)	MW-11R	0.8896	11	23	No	9	0	n/a	n/a	0.02	NP
Arsenic (ug/L)	MW-12	0.4031	14	23	No	9	0	n/a	n/a	0.02	NP
Arsenic (ug/L)	MW-12P	0	-1	-23	No	9	66.67	n/a	n/a	0.02	NP
Arsenic (ug/L)	MW-13	-0.151	-16	-17	No	7	57.14	n/a	n/a	0.02	NP
Arsenic (ug/L)	MW-14	0.00705	5	23	No	9	66.67	n/a	n/a	0.02	NP
Arsenic (ug/L)	MW-15	0.07284	10	17	No	7	57.14	n/a	n/a	0.02	NP
Arsenic (ug/L)	MW-6 (bg)	0.03572	8	23	No	9	66.67	n/a	n/a	0.02	NP
Arsenic (ug/L)	TW-18	0	1	20	No	8	50	n/a	n/a	0.02	NP
Cobalt (ug/L)	MW-11R	-0.00784	0	23	No	9	0	n/a	n/a	0.02	NP
Cobalt (ug/L)	MW-12	-0.1216	-19	-23	No	9	0	n/a	n/a	0.02	NP
Cobalt (ug/L)	MW-12P	-0.1056	-21	-23	No	9	44.44	n/a	n/a	0.02	NP
Cobalt (ug/L)	MW-13	-0.3053	-13	-17	No	7	0	n/a	n/a	0.02	NP
Cobalt (ug/L)	MW-14	-0.0489	-21	-23	No	9	55.56	n/a	n/a	0.02	NP
Cobalt (ug/L)	MW-15	-0.00...	-4	-17	No	7	57.14	n/a	n/a	0.02	NP
Cobalt (ug/L)	MW-6 (bg)	0.01349	8	23	No	9	77.78	n/a	n/a	0.02	NP
Cobalt (ug/L)	TW-18	0.2476	6	20	No	8	12.5	n/a	n/a	0.02	NP
Manganese (ug/L)	MW-11R	-64.47	-11	-23	No	9	0	n/a	n/a	0.02	NP
Manganese (ug/L)	MW-12	-13.77	-7	-23	No	9	0	n/a	n/a	0.02	NP
Manganese (ug/L)	**MW-12P**	**-3.728**	**-25**	**-23**	**Yes**	**9**	**22.22**	**n/a**	**n/a**	**0.02**	**NP**
Manganese (ug/L)	MW-13	-9.445	-14	-17	No	7	0	n/a	n/a	0.02	NP
Manganese (ug/L)	**MW-14**	**-2.059**	**-27**	**-23**	**Yes**	**9**	**44.44**	**n/a**	**n/a**	**0.02**	**NP**
Manganese (ug/L)	MW-15	-1.384	-9	-17	No	7	28.57	n/a	n/a	0.02	NP
Manganese (ug/L)	MW-6 (bg)	0.3231	17	23	No	9	66.67	n/a	n/a	0.02	NP
Manganese (ug/L)	TW-18	429	12	20	No	8	0	n/a	n/a	0.02	NP

Sen's Slope Estimator



Constituent: Arsenic Analysis Run 10/28/2024 3:50 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

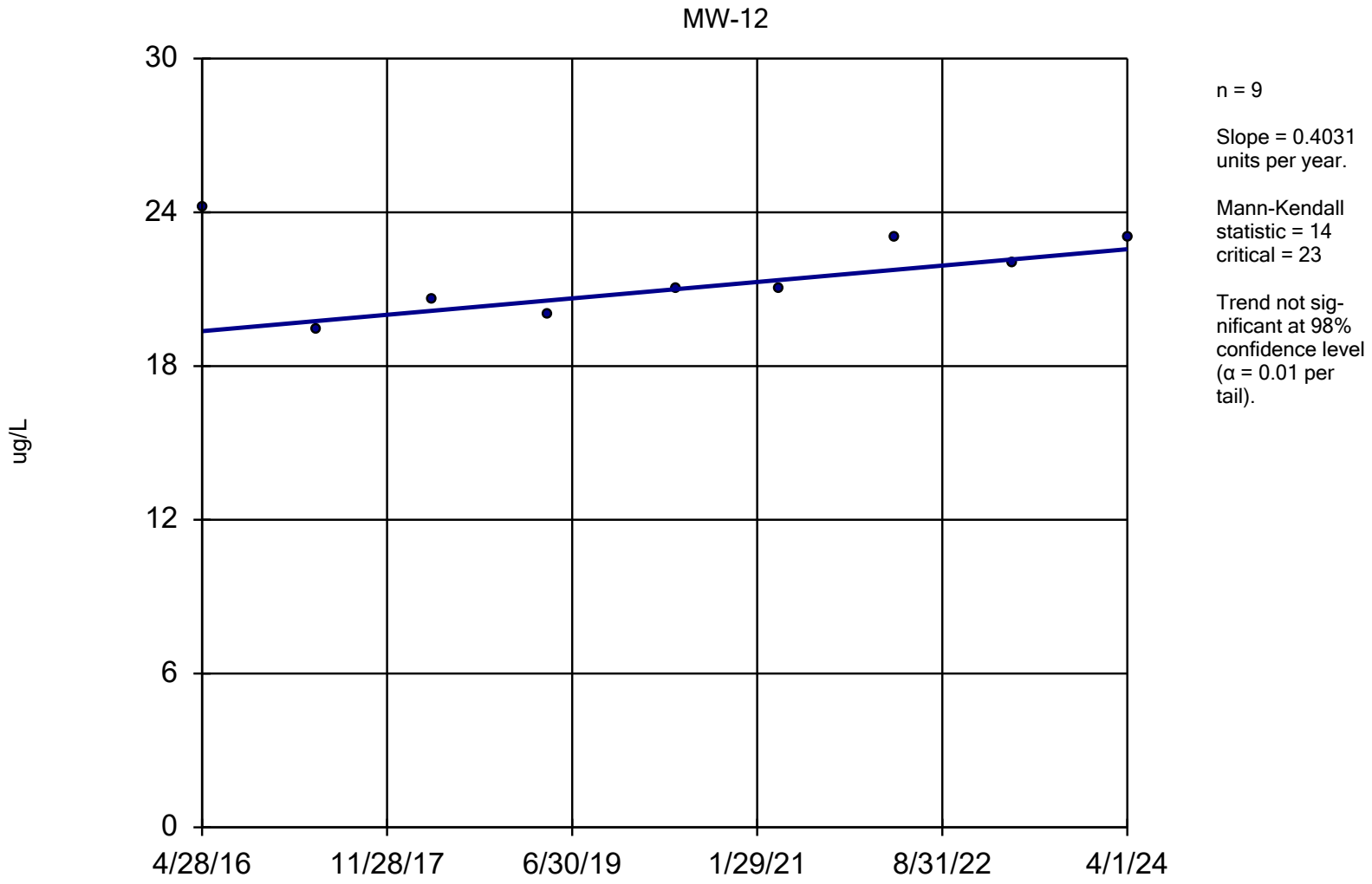
Sen's Slope Estimator

Constituent: Arsenic (ug/L) Analysis Run 10/28/2024 4:01 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-11R
4/28/2016	33.4
4/20/2017	30.4
4/17/2018	28.5
4/16/2019	28
5/21/2020	33
4/7/2021	33
4/7/2022	29
4/10/2023	36
4/2/2024	44

Sen's Slope Estimator



Constituent: Arsenic Analysis Run 10/28/2024 3:50 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Sen's Slope Estimator

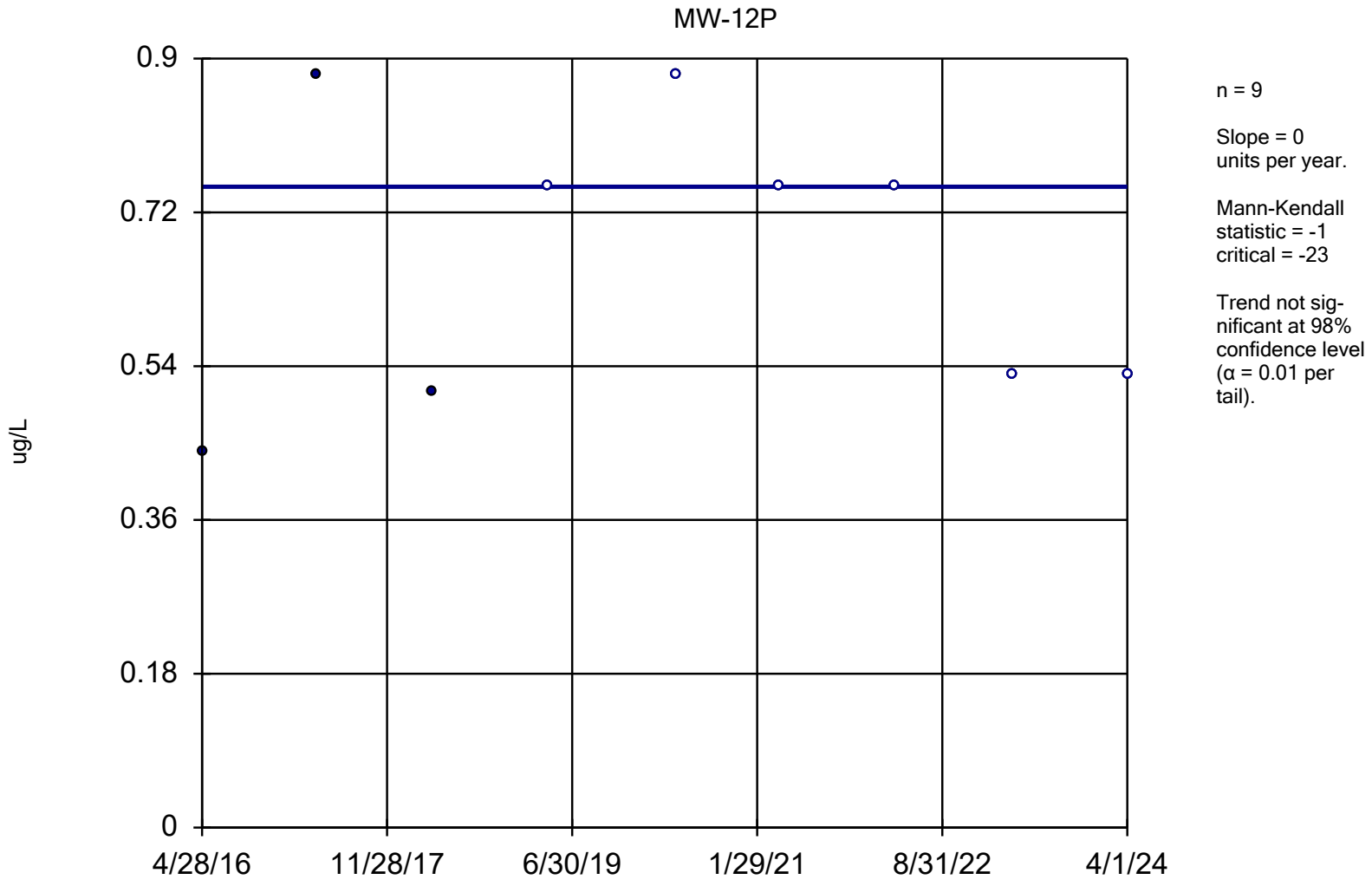
Constituent: Arsenic (ug/L) Analysis Run 10/28/2024 4:01 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-12
4/28/2016	24.2
4/20/2017	19.4
4/17/2018	20.6
4/16/2019	20
5/21/2020	21
4/6/2021	21
4/6/2022	23
4/11/2023	22
4/1/2024	23

Hollow symbols indicate censored values.

Sen's Slope Estimator



Constituent: Arsenic Analysis Run 10/28/2024 3:50 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Sen's Slope Estimator

Constituent: Arsenic (ug/L) Analysis Run 10/28/2024 4:01 PM View: Lansing State Data

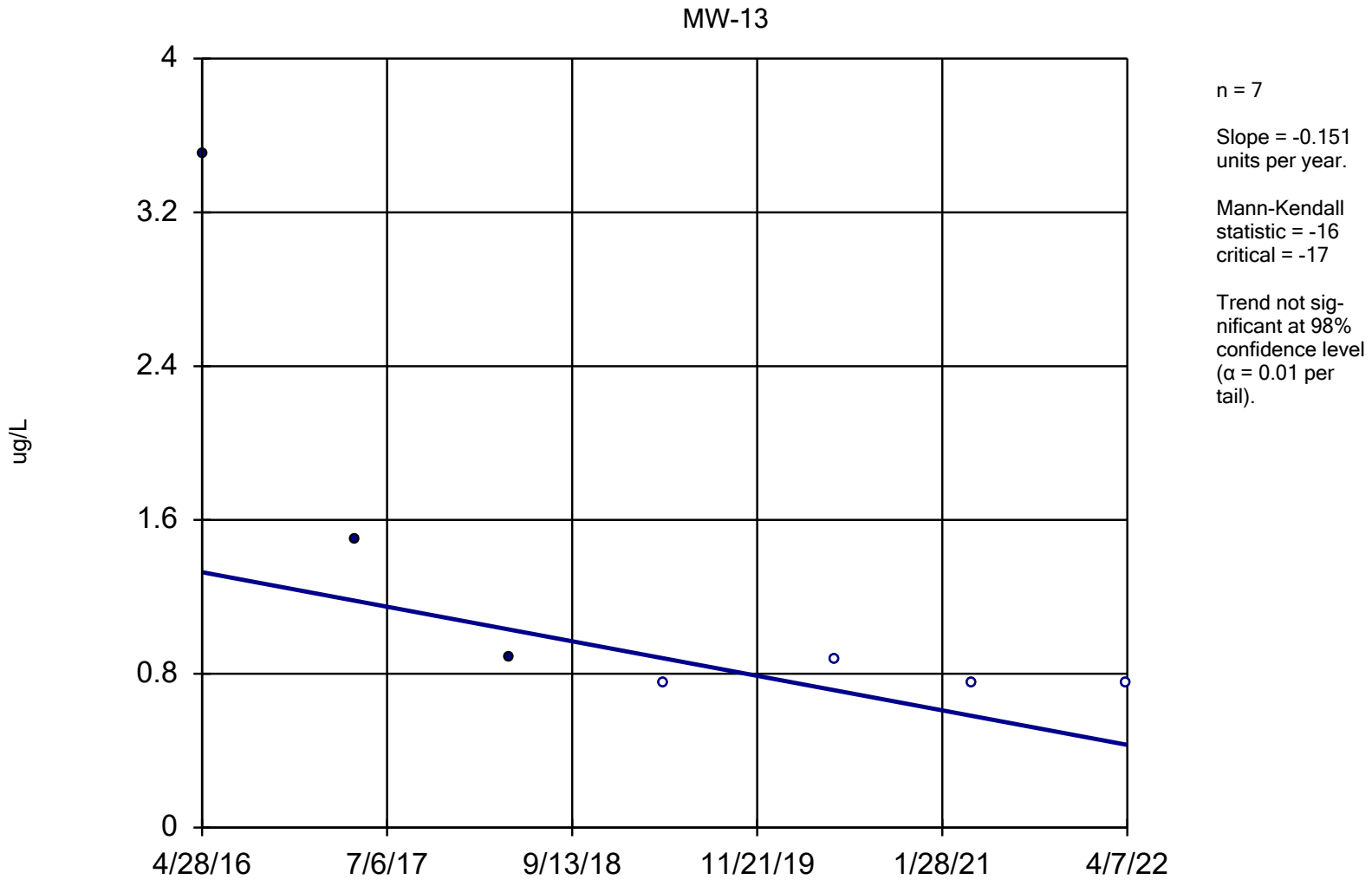
Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-12P
4/28/2016	0.44 (J)
4/20/2017	0.88 (J)
4/17/2018	0.51 (J)
4/16/2019	<0.75
5/21/2020	<0.88
4/6/2021	<0.75
4/6/2022	<0.75 (U)
4/11/2023	<0.53 (U)
4/1/2024	<0.53 (U)

ND substitution: RL or RL/2 if <15% NDs.

Hollow symbols indicate censored values.

Sen's Slope Estimator



Constituent: Arsenic Analysis Run 10/28/2024 3:50 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Sen's Slope Estimator

Constituent: Arsenic (ug/L) Analysis Run 10/28/2024 4:01 PM View: Lansing State Data

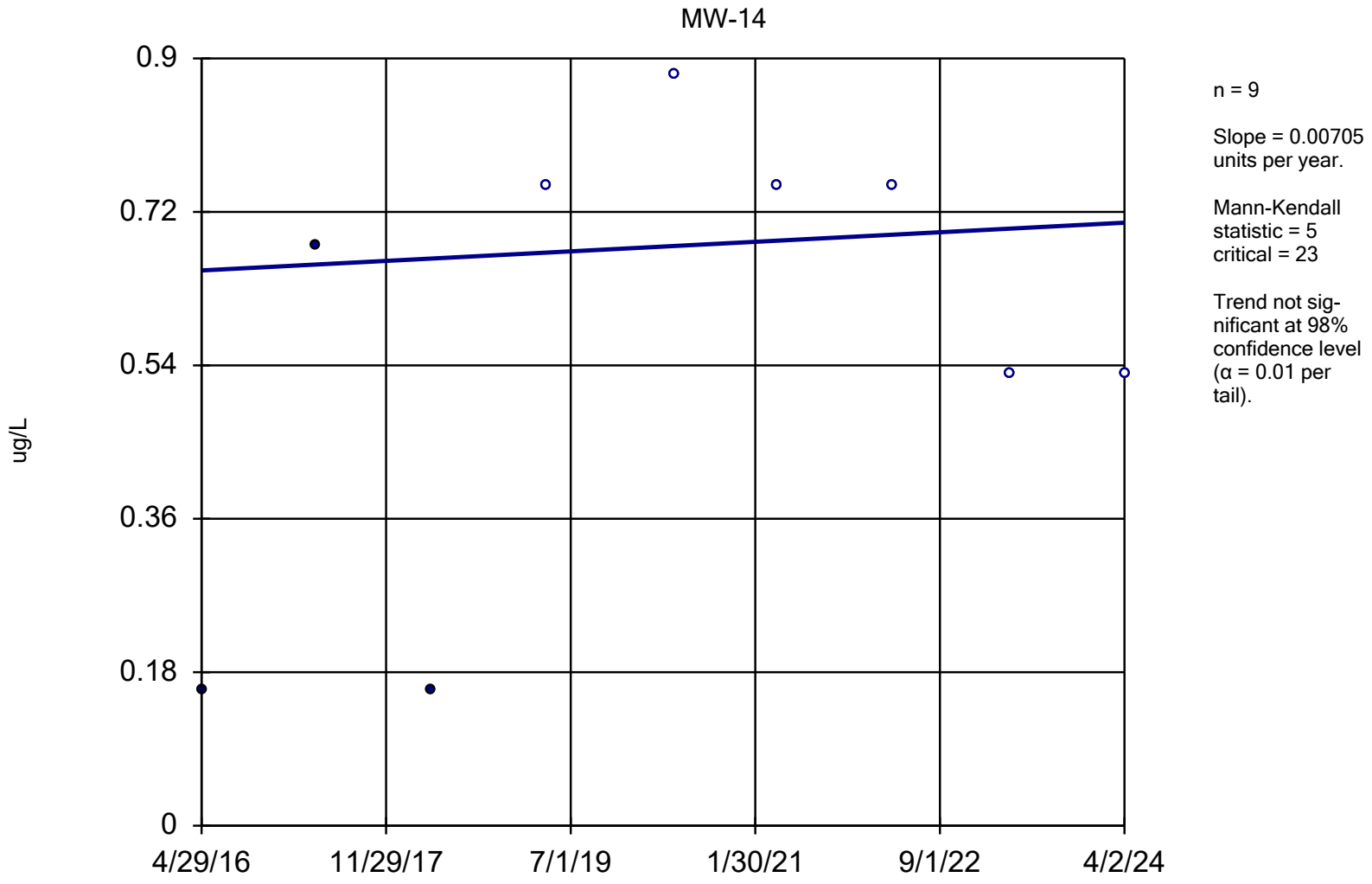
Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-13
4/28/2016	3.5
4/20/2017	1.5
4/17/2018	0.89 (J)
4/16/2019	<0.75
5/21/2020	<0.88
4/7/2021	<0.75
4/7/2022	<0.75 (U)

ND substitution: RL or RL/2 if <15% NDs.

Hollow symbols indicate censored values.

Sen's Slope Estimator



Constituent: Arsenic Analysis Run 10/28/2024 3:50 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Sen's Slope Estimator

Constituent: Arsenic (ug/L) Analysis Run 10/28/2024 4:01 PM View: Lansing State Data

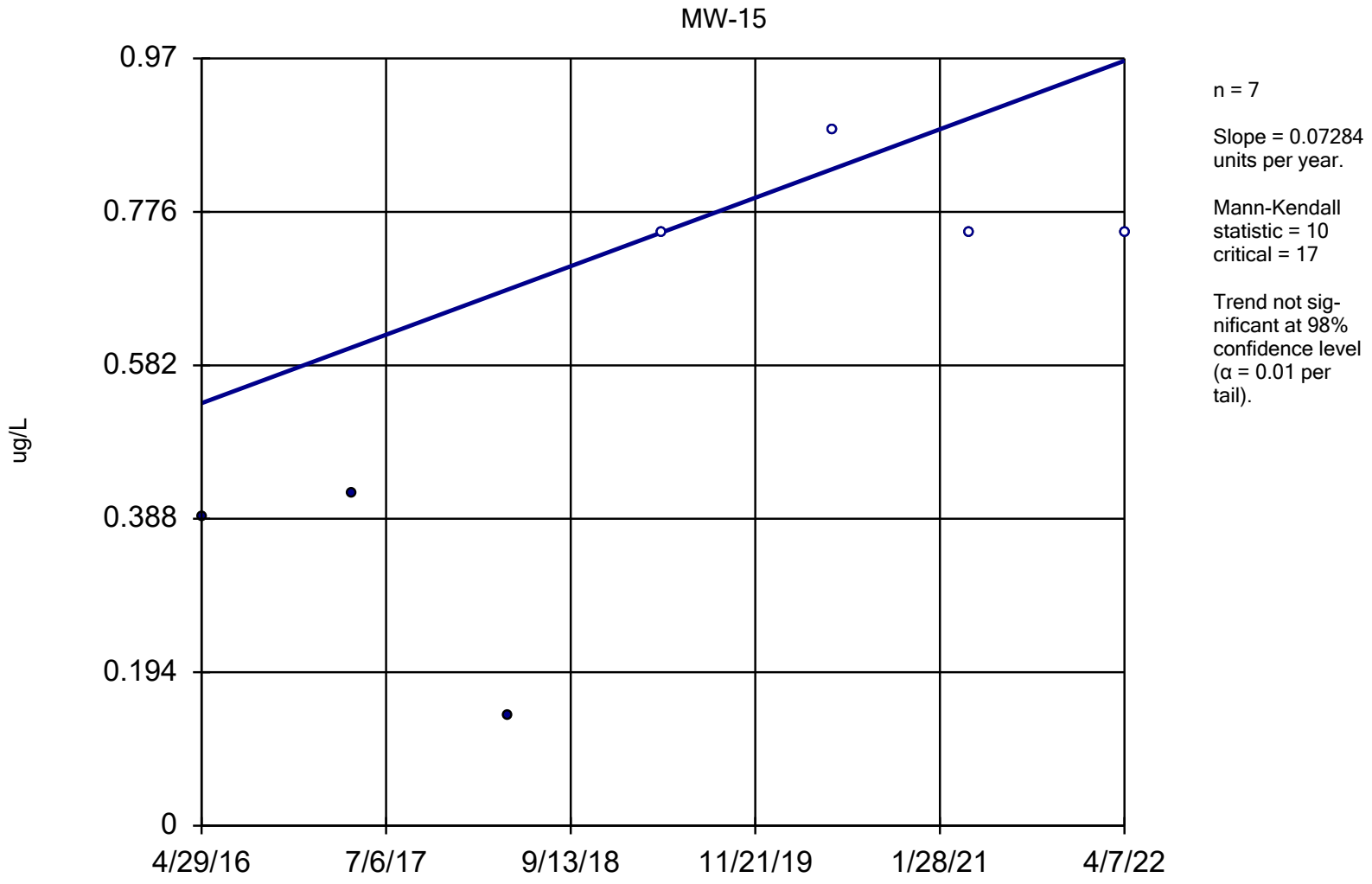
Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-14
4/29/2016	0.16 (J)
4/20/2017	0.68 (J)
4/17/2018	0.16 (J)
4/15/2019	<0.75
5/22/2020	<0.88
4/7/2021	<0.75
4/6/2022	<0.75 (U)
4/11/2023	<0.53 (U)
4/2/2024	<0.53 (U)

ND substitution: RL or RL/2 if <15% NDs.

Hollow symbols indicate censored values.

Sen's Slope Estimator



Constituent: Arsenic Analysis Run 10/28/2024 3:50 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Sen's Slope Estimator

Constituent: Arsenic (ug/L) Analysis Run 10/28/2024 4:01 PM View: Lansing State Data

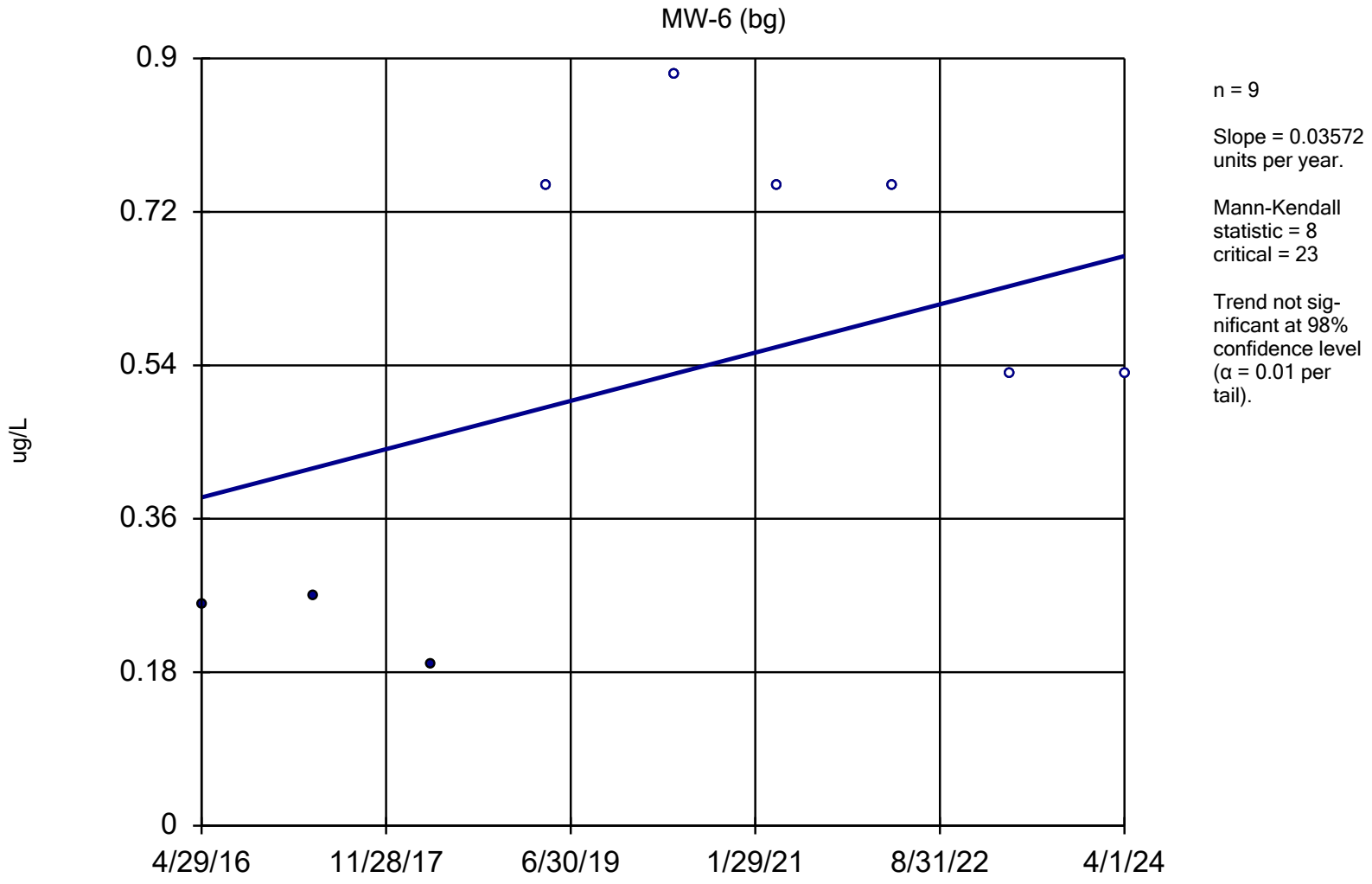
Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-15
4/29/2016	0.39 (J)
4/20/2017	0.42 (J)
4/17/2018	0.14 (J)
4/16/2019	<0.75
5/22/2020	<0.88
4/7/2021	<0.75
4/7/2022	<0.75 (U)

ND substitution: RL or RL/2 if <15% NDs.

Hollow symbols indicate censored values.

Sen's Slope Estimator



Constituent: Arsenic Analysis Run 10/28/2024 3:50 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Sen's Slope Estimator

Constituent: Arsenic (ug/L) Analysis Run 10/28/2024 4:01 PM View: Lansing State Data

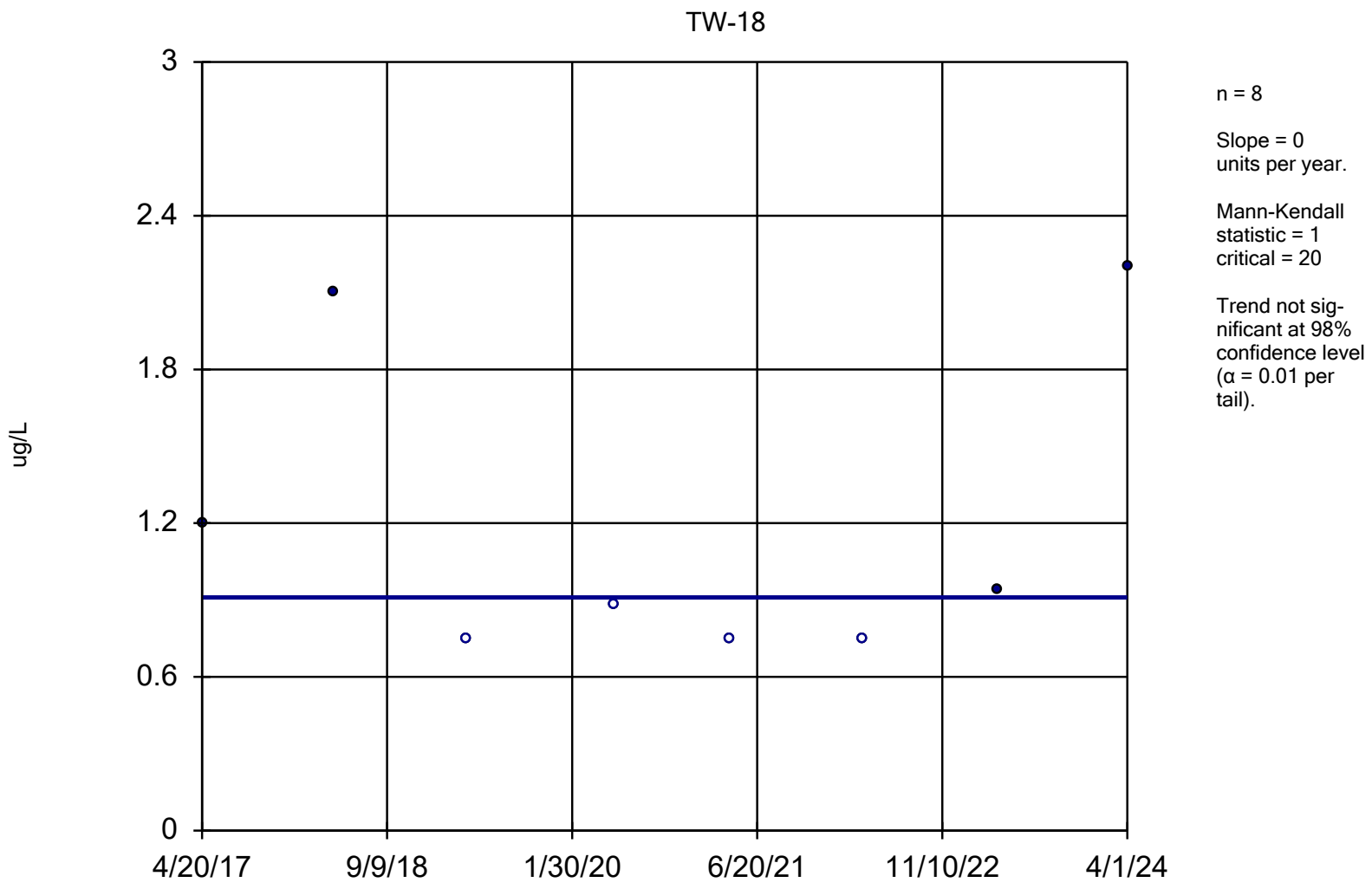
Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-6 (bg)
4/29/2016	0.26 (J)
4/19/2017	0.27 (J)
4/16/2018	0.19 (J)
4/15/2019	<0.75
5/20/2020	<0.88
4/7/2021	<0.75
4/6/2022	<0.75 (U)
4/11/2023	<0.53 (U)
4/1/2024	<0.53 (U)

ND substitution: RL or RL/2 if <15% NDs.

Hollow symbols indicate censored values.

Sen's Slope Estimator



Constituent: Arsenic Analysis Run 10/28/2024 3:50 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Sen's Slope Estimator

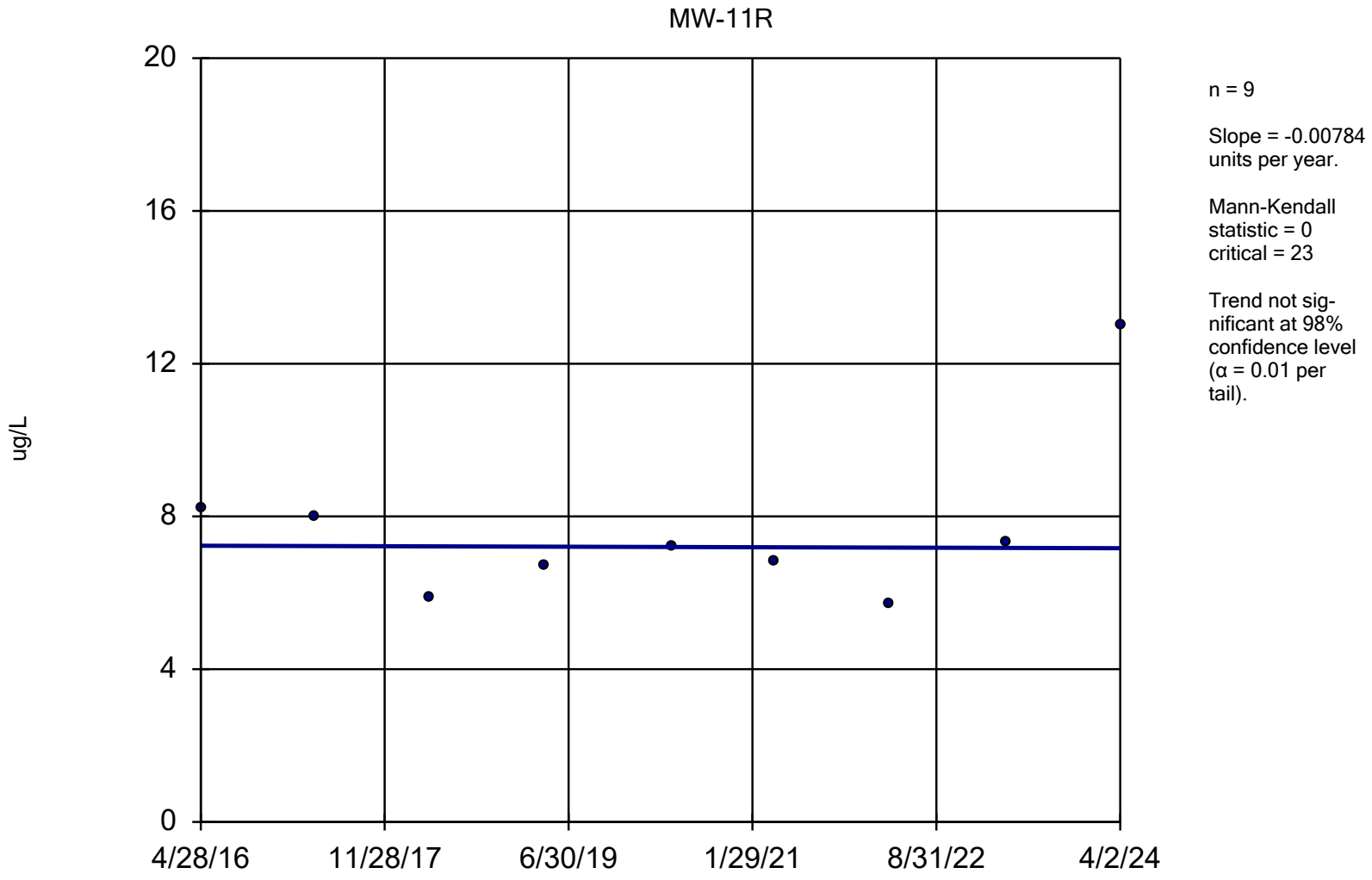
Constituent: Arsenic (ug/L) Analysis Run 10/28/2024 4:01 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	TW-18
4/20/2017	1.2
4/17/2018	2.1
4/16/2019	<0.75
5/22/2020	<0.88
4/7/2021	<0.75
4/6/2022	<0.75 (U)
4/11/2023	0.94 (J)
4/1/2024	2.2

ND substitution: RL or RL/2 if <15% NDs.

Sen's Slope Estimator



Constituent: Cobalt Analysis Run 10/28/2024 3:50 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

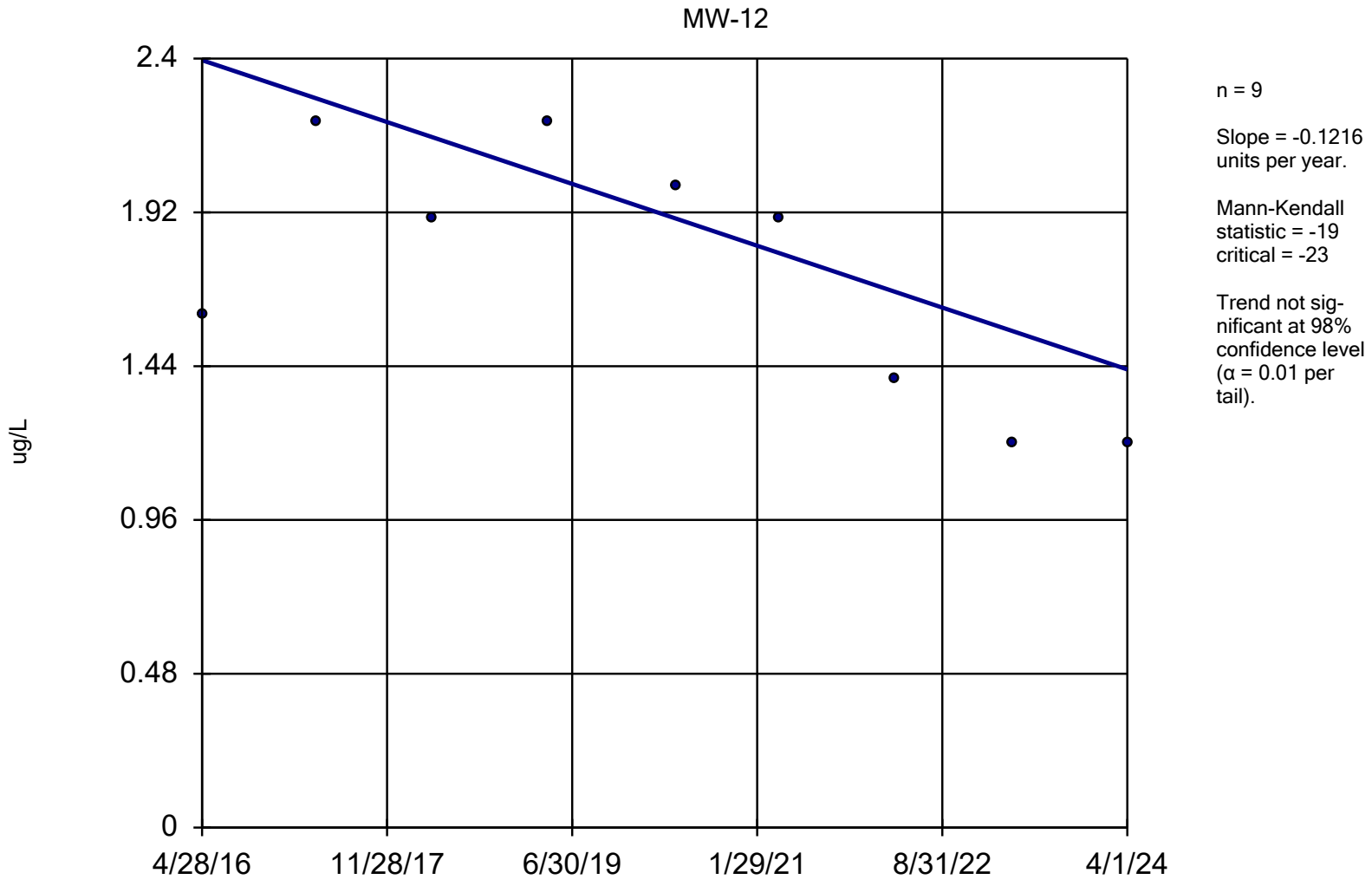
Sen's Slope Estimator

Constituent: Cobalt (ug/L) Analysis Run 10/28/2024 4:01 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-11R
4/28/2016	8.2
4/20/2017	8
4/17/2018	5.9
4/16/2019	6.7
5/21/2020	7.2
4/7/2021	6.8
4/7/2022	5.7
4/10/2023	7.3
4/2/2024	13

Sen's Slope Estimator



Constituent: Cobalt Analysis Run 10/28/2024 3:50 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Sen's Slope Estimator

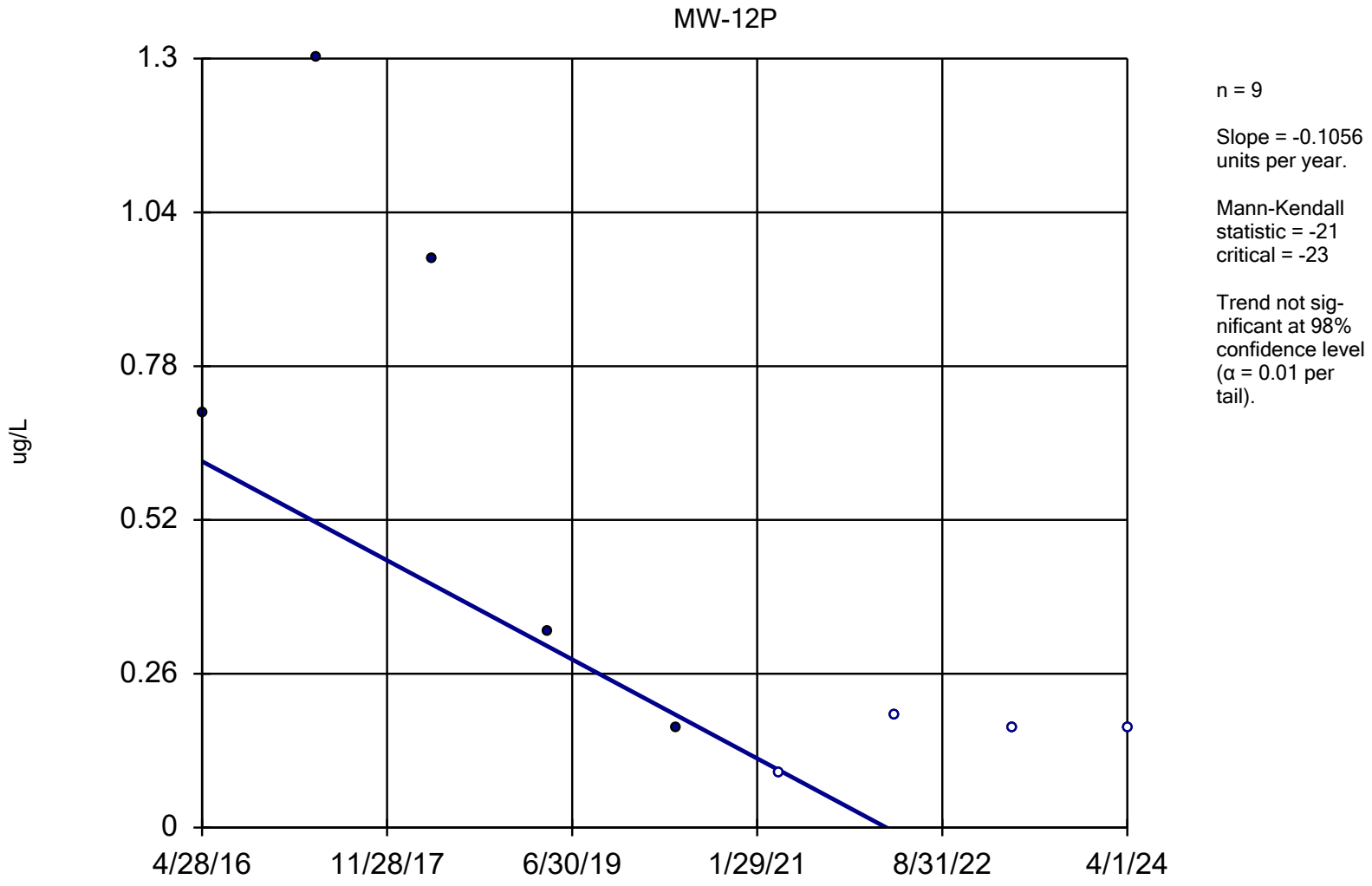
Constituent: Cobalt (ug/L) Analysis Run 10/28/2024 4:01 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-12
4/28/2016	1.6
4/20/2017	2.2
4/17/2018	1.9
4/16/2019	2.2
5/21/2020	2
4/6/2021	1.9
4/6/2022	1.4
4/11/2023	1.2
4/1/2024	1.2

Hollow symbols indicate censored values.

Sen's Slope Estimator



Constituent: Cobalt Analysis Run 10/28/2024 3:50 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Sen's Slope Estimator

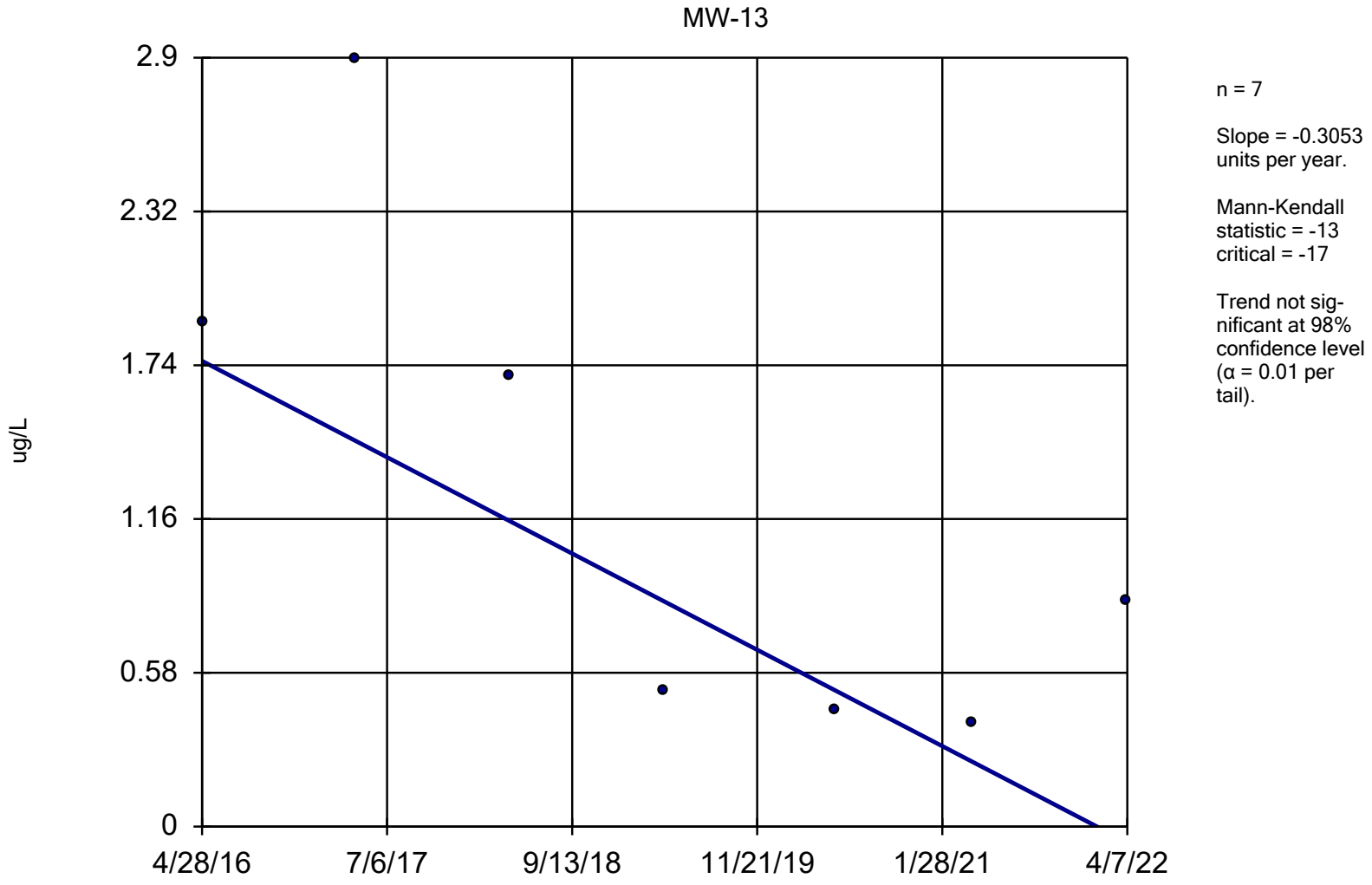
Constituent: Cobalt (ug/L) Analysis Run 10/28/2024 4:01 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-12P
4/28/2016	0.7 (J)
4/20/2017	1.3
4/17/2018	0.96 (J)
4/16/2019	0.33 (J)
5/21/2020	0.17 (J)
4/6/2021	<0.091
4/6/2022	<0.19 (U)
4/11/2023	<0.17 (U)
4/1/2024	<0.17 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sen's Slope Estimator



Constituent: Cobalt Analysis Run 10/28/2024 3:50 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Sen's Slope Estimator

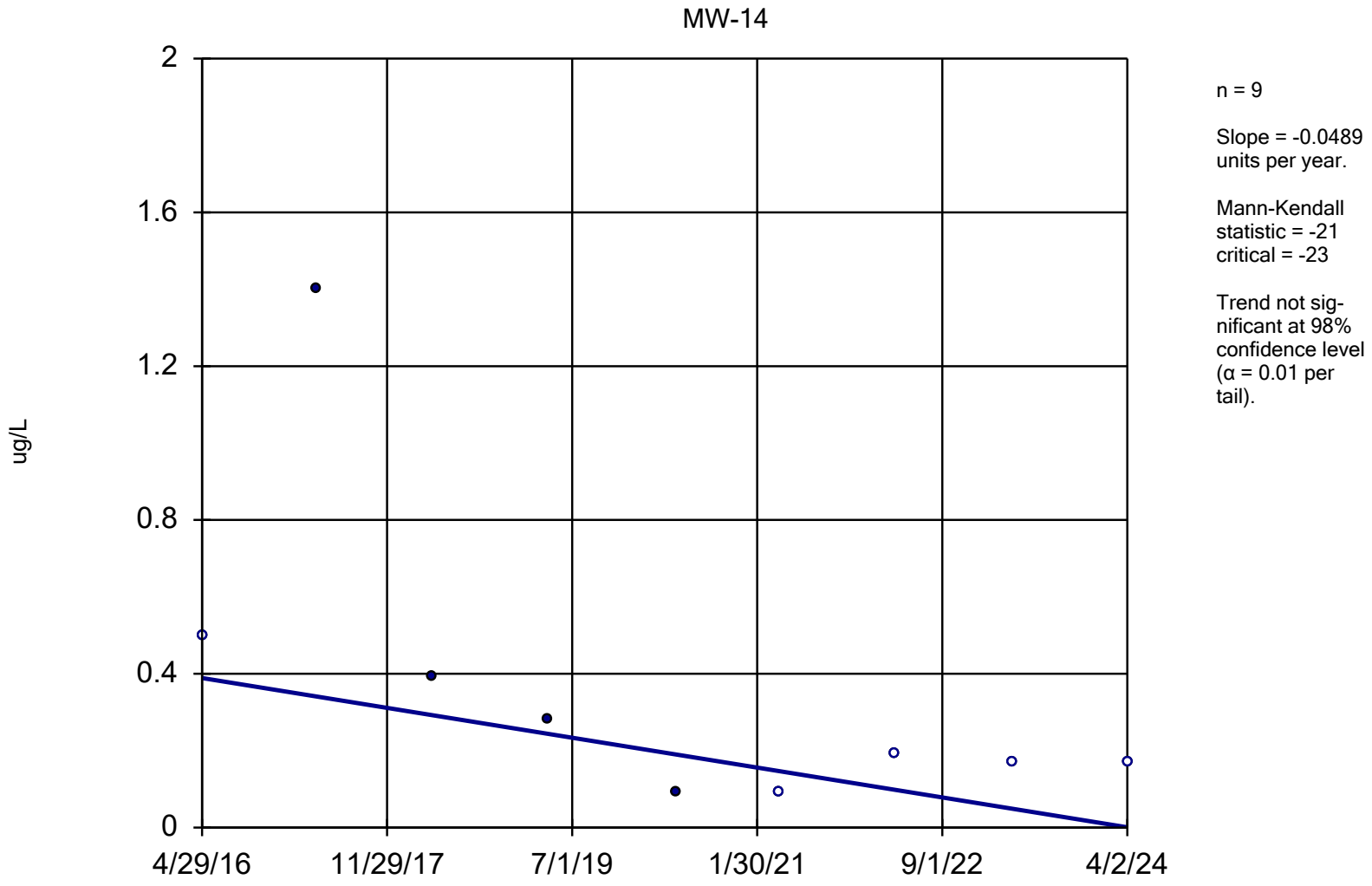
Constituent: Cobalt (ug/L) Analysis Run 10/28/2024 4:01 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-13
4/28/2016	1.9
4/20/2017	2.9
4/17/2018	1.7
4/16/2019	0.51
5/21/2020	0.44 (J)
4/7/2021	0.39 (J)
4/7/2022	0.85

Hollow symbols indicate censored values.

Sen's Slope Estimator



Constituent: Cobalt Analysis Run 10/28/2024 3:50 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Sen's Slope Estimator

Constituent: Cobalt (ug/L) Analysis Run 10/28/2024 4:01 PM View: Lansing State Data

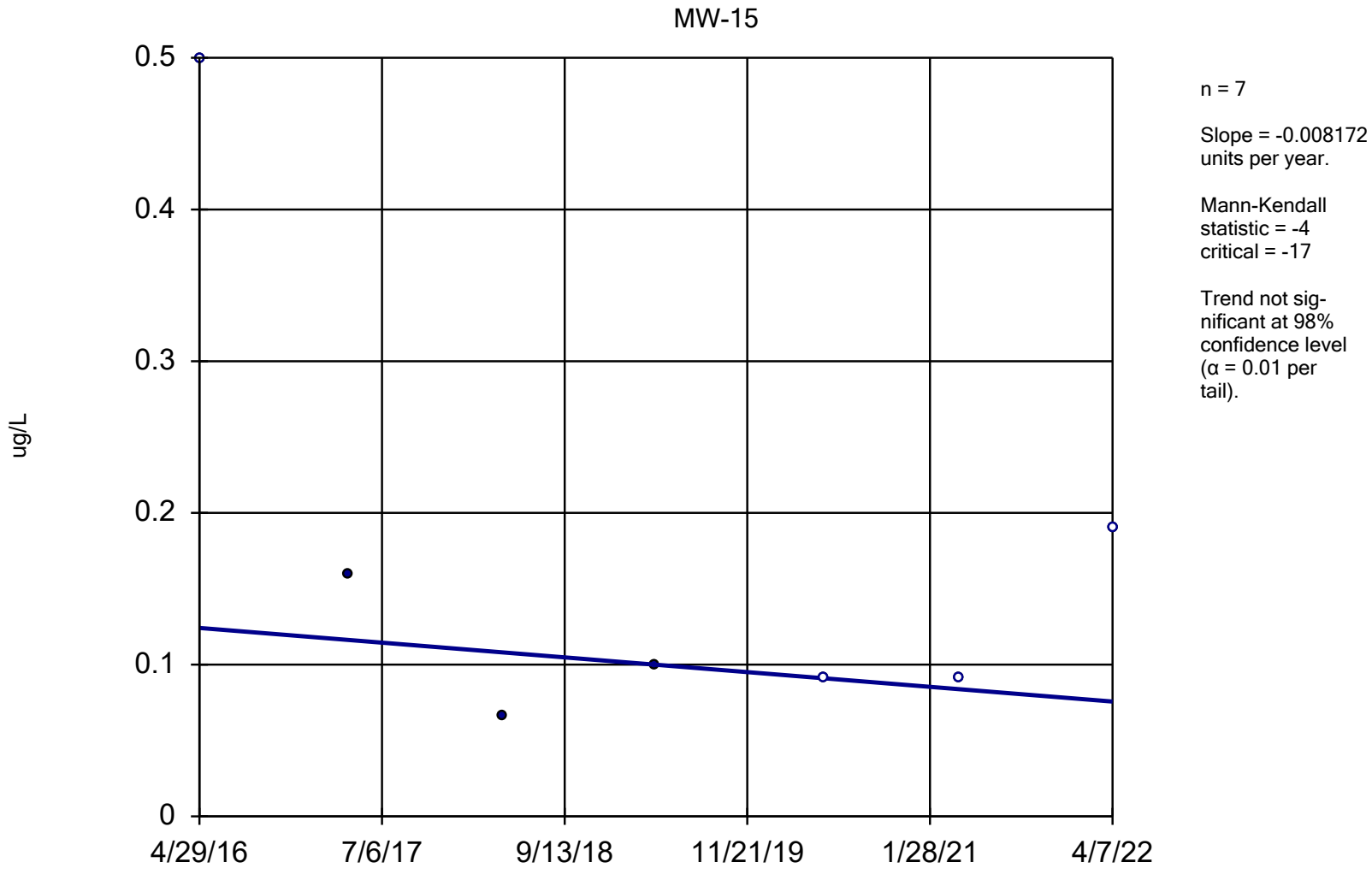
Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-14
4/29/2016	<0.5
4/20/2017	1.4
4/17/2018	0.39 (J)
4/15/2019	0.28 (J)
5/22/2020	0.092 (J)
4/7/2021	<0.091
4/6/2022	<0.19 (U)
4/11/2023	<0.17 (U)
4/2/2024	<0.17 (U)

ND substitution: RL or RL/2 if <15% NDs.

Hollow symbols indicate censored values.

Sen's Slope Estimator



Constituent: Cobalt Analysis Run 10/28/2024 3:50 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Sen's Slope Estimator

Constituent: Cobalt (ug/L) Analysis Run 10/28/2024 4:01 PM View: Lansing State Data

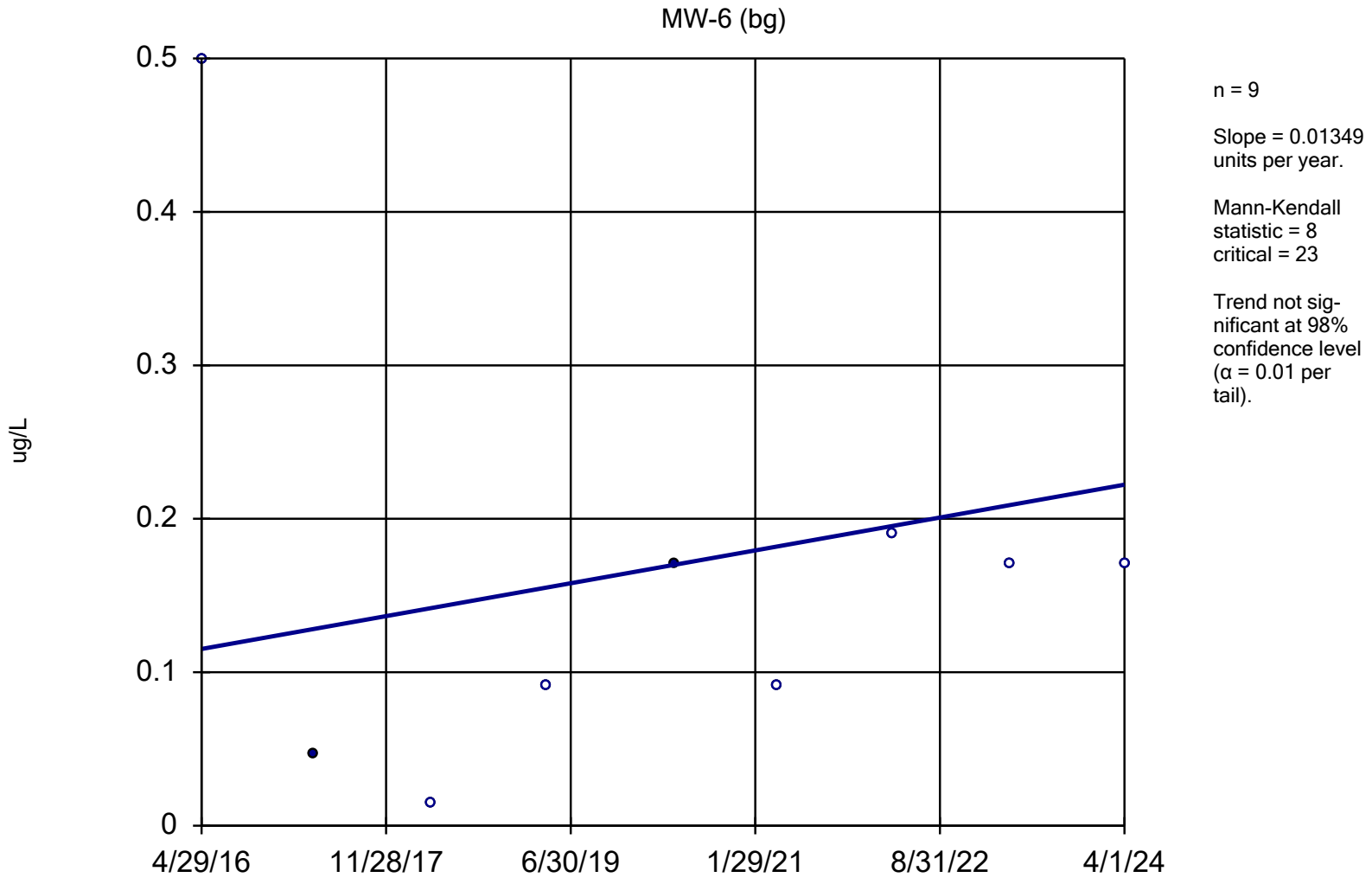
Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-15
4/29/2016	<0.5
4/20/2017	0.16 (J,B)
4/17/2018	0.066 (J)
4/16/2019	0.1 (J)
5/22/2020	<0.091
4/7/2021	<0.091
4/7/2022	<0.19 (U)

ND substitution: RL or RL/2 if <15% NDs.

Hollow symbols indicate censored values.

Sen's Slope Estimator



Constituent: Cobalt Analysis Run 10/28/2024 3:50 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Sen's Slope Estimator

Constituent: Cobalt (ug/L) Analysis Run 10/28/2024 4:01 PM View: Lansing State Data

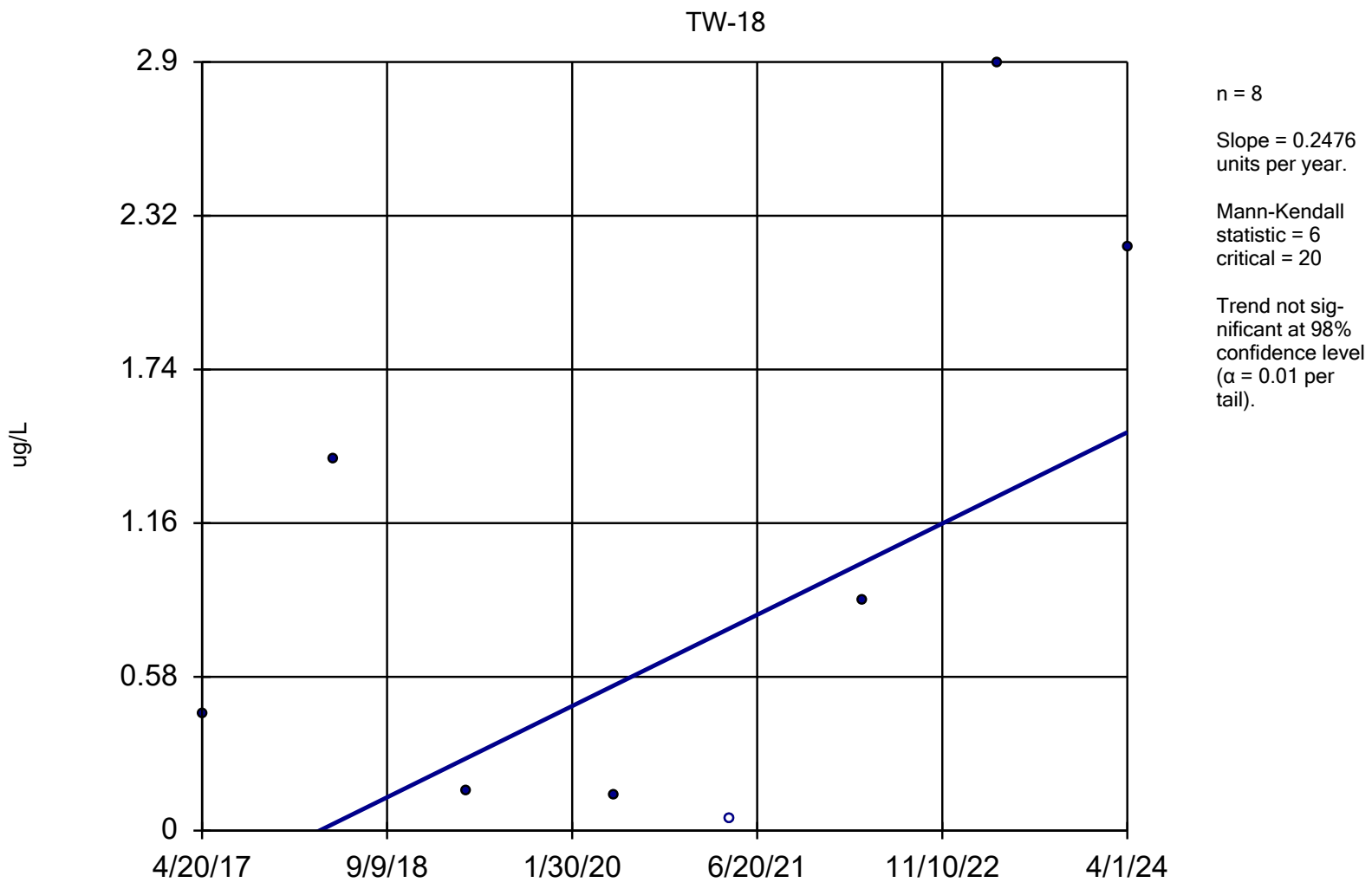
Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-6 (bg)
4/29/2016	<0.5
4/19/2017	0.047 (J,B)
4/16/2018	<0.014
4/15/2019	<0.091
5/20/2020	0.17 (J)
4/7/2021	<0.091
4/6/2022	<0.19 (U)
4/11/2023	<0.17 (U)
4/1/2024	<0.17 (U)

ND substitution: RL or RL/2 if <15% NDs.

Hollow symbols indicate censored values.

Sen's Slope Estimator



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Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Sen's Slope Estimator

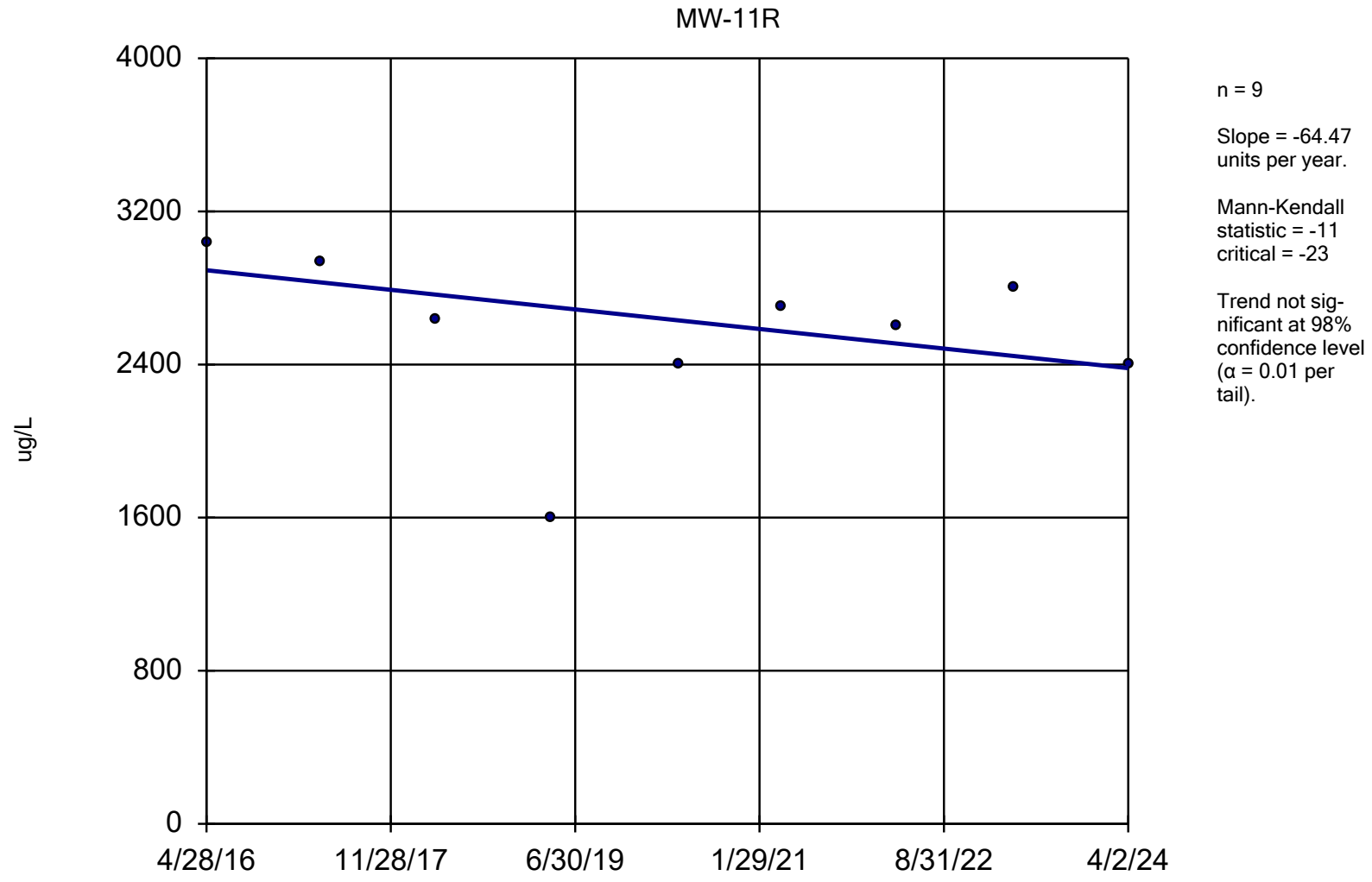
Constituent: Cobalt (ug/L) Analysis Run 10/28/2024 4:01 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	TW-18
4/20/2017	0.44 (J)
4/17/2018	1.4
4/16/2019	0.15 (J)
5/22/2020	0.13 (J)
4/7/2021	<0.091
4/6/2022	0.87
4/11/2023	2.9
4/1/2024	2.2

ND substitution: RL or RL/2 if <15% NDs.

Sen's Slope Estimator



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Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

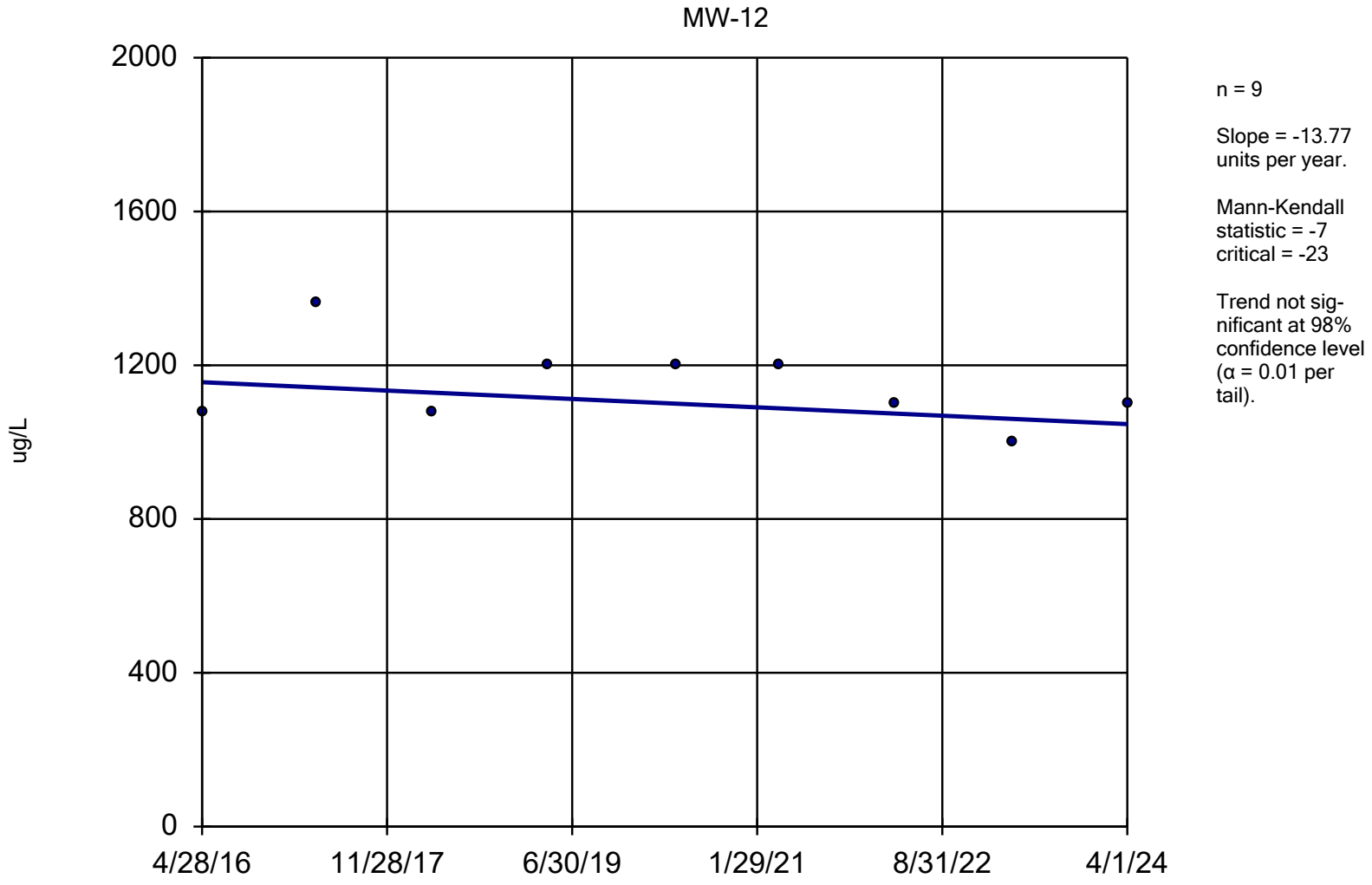
Sen's Slope Estimator

Constituent: Manganese (ug/L) Analysis Run 10/28/2024 4:01 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-11R
4/28/2016	3040
4/20/2017	2940
4/17/2018	2630
4/16/2019	1600
5/21/2020	2400
4/7/2021	2700
4/7/2022	2600
4/10/2023	2800
4/2/2024	2400

Sen's Slope Estimator



Constituent: Manganese Analysis Run 10/28/2024 3:50 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Sen's Slope Estimator

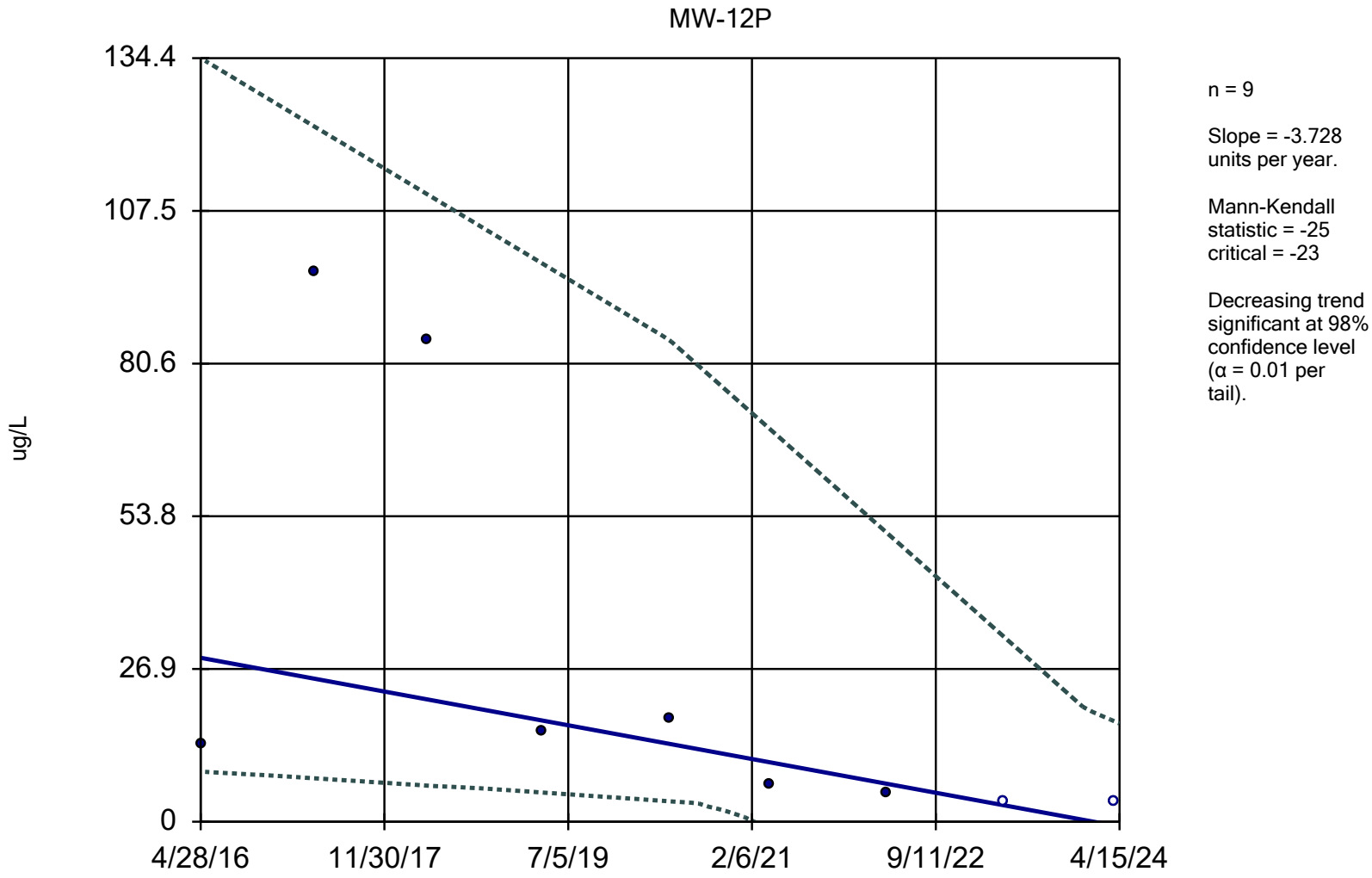
Constituent: Manganese (ug/L) Analysis Run 10/28/2024 4:01 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-12
4/28/2016	1080
4/20/2017	1360
4/17/2018	1080
4/16/2019	1200
5/21/2020	1200
4/6/2021	1200
4/6/2022	1100
4/11/2023	1000
4/1/2024	1100

Hollow symbols indicate censored values.

Sen's Slope and 95% Confidence Band



Constituent: Manganese Analysis Run 10/28/2024 3:50 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Sen's Slope Estimator

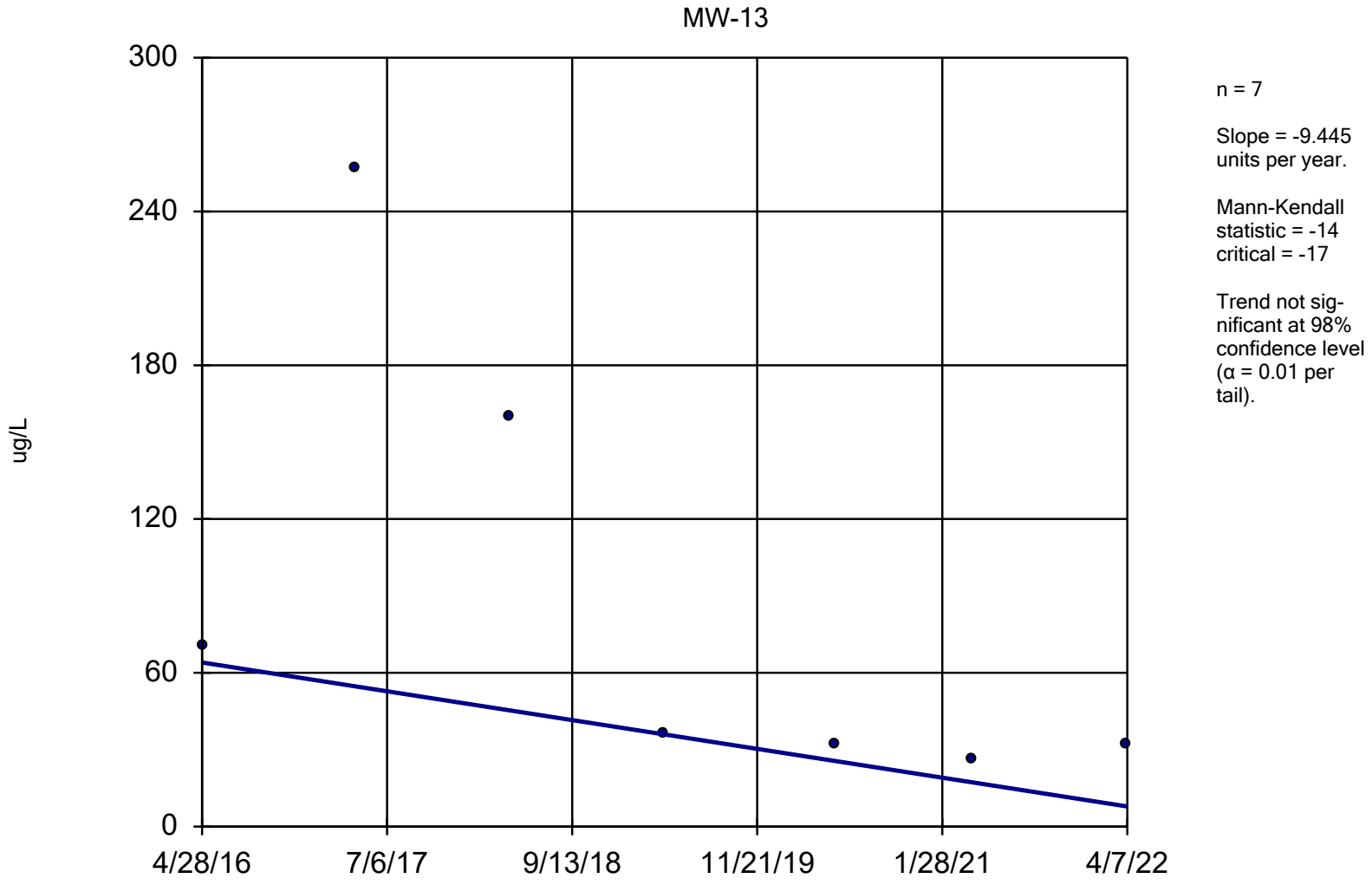
Constituent: Manganese (ug/L) Analysis Run 10/28/2024 4:01 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-12P	LCL	UCL
4/28/2016	13.7	8.816	134.4
4/20/2017	96.9	7.656	122.5
4/17/2018	84.8	6.353	110.4
4/16/2019	16	5.136	98.2
5/21/2020	18	3.6	84.8
4/6/2021	6.7 (J)	-1.859	69.02
4/6/2022	4.9 (J)	-18.12	51.01
4/11/2023	<3.6 (U)	-31.7	32.76
4/1/2024	<3.6 (U)	-44.89	17.62

ND substitution: RL or RL/2 if <15% NDs.

Sen's Slope Estimator



Constituent: Manganese Analysis Run 10/28/2024 3:51 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Sen's Slope Estimator

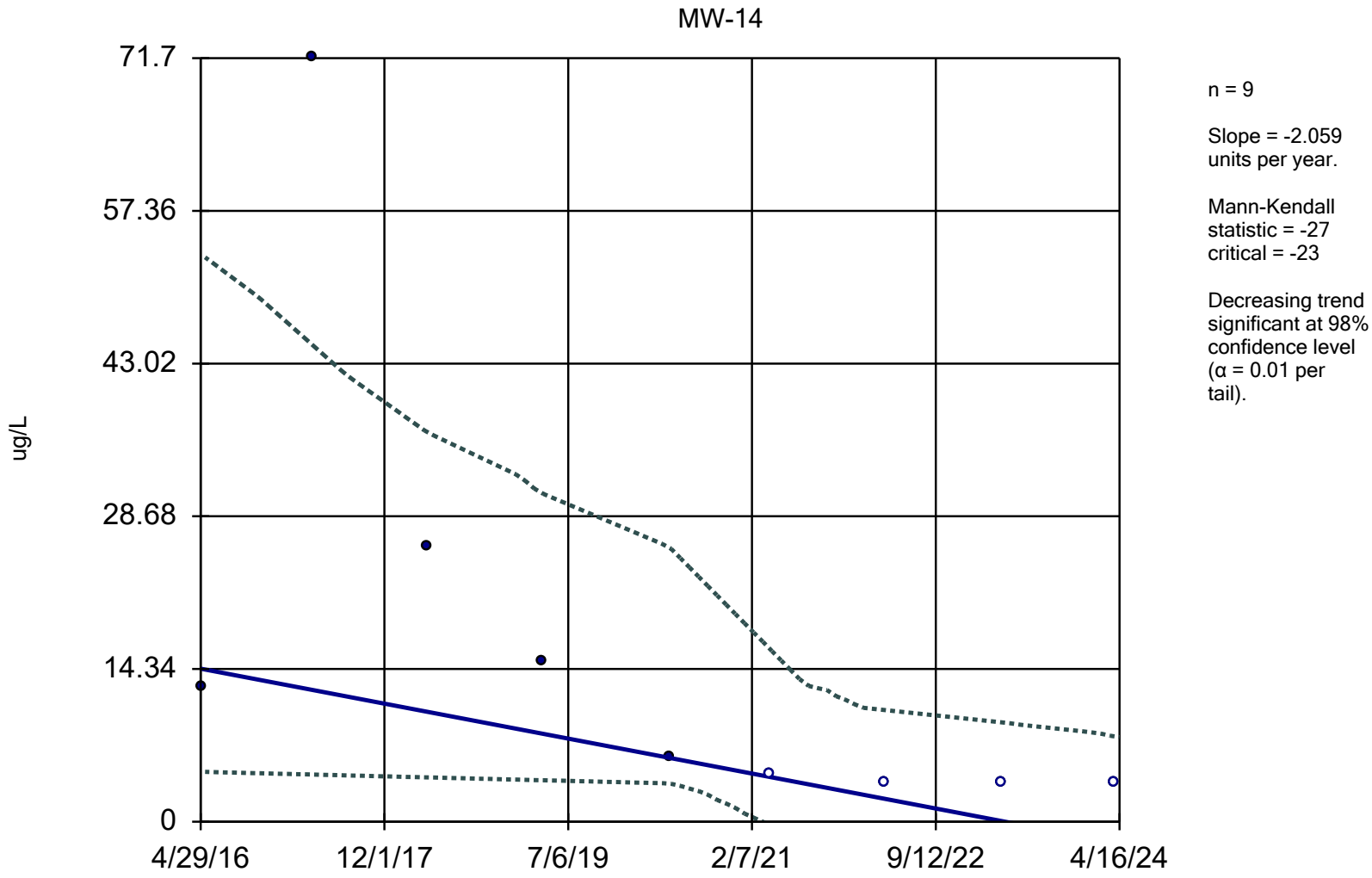
Constituent: Manganese (ug/L) Analysis Run 10/28/2024 4:01 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-13
4/28/2016	70.4
4/20/2017	257
4/17/2018	160
4/16/2019	36
5/21/2020	32
4/7/2021	26
4/7/2022	32

Hollow symbols indicate censored values.

Sen's Slope and 95% Confidence Band



Constituent: Manganese Analysis Run 10/28/2024 3:51 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Sen's Slope Estimator

Constituent: Manganese (ug/L) Analysis Run 10/28/2024 4:01 PM View: Lansing State Data

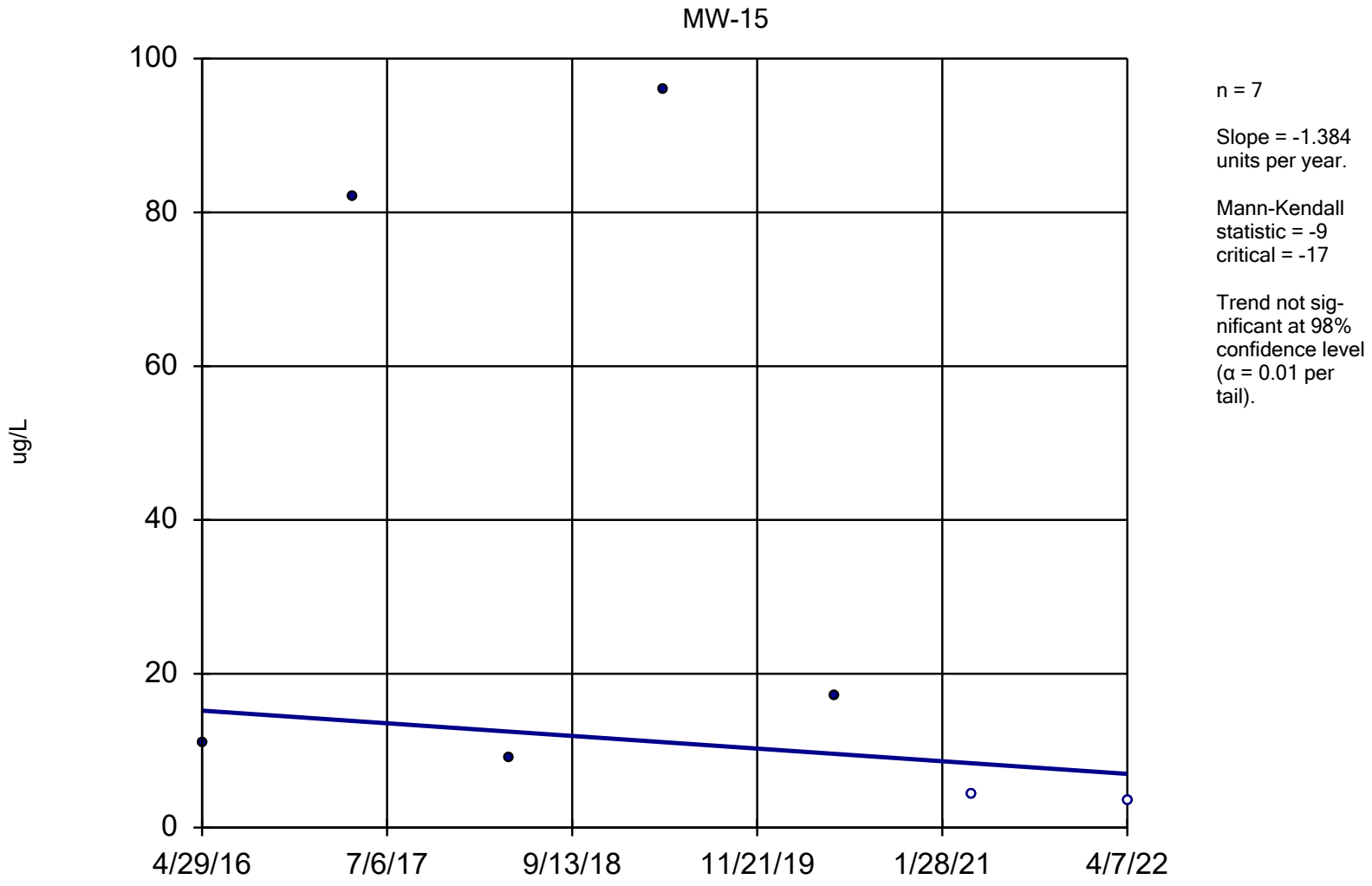
Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-14	LCL	UCL
4/29/2016	12.6	4.688	53.36
4/20/2017	71.7	4.427	44.71
4/17/2018	25.8	4.162	36.55
4/15/2019	15	3.896	30.83
5/22/2020	6 (J)	3.6	25.8
4/7/2021	<4.4	-0.3057	16.16
4/6/2022	<3.6 (U)	-6.404	10.47
4/11/2023	<3.6 (U)	-12.86	9.323
4/2/2024	<3.6 (U)	-21.75	7.998

ND substitution: RL or RL/2 if <15% NDs.

Hollow symbols indicate censored values.

Sen's Slope Estimator



Constituent: Manganese Analysis Run 10/28/2024 3:51 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Sen's Slope Estimator

Constituent: Manganese (ug/L) Analysis Run 10/28/2024 4:01 PM View: Lansing State Data

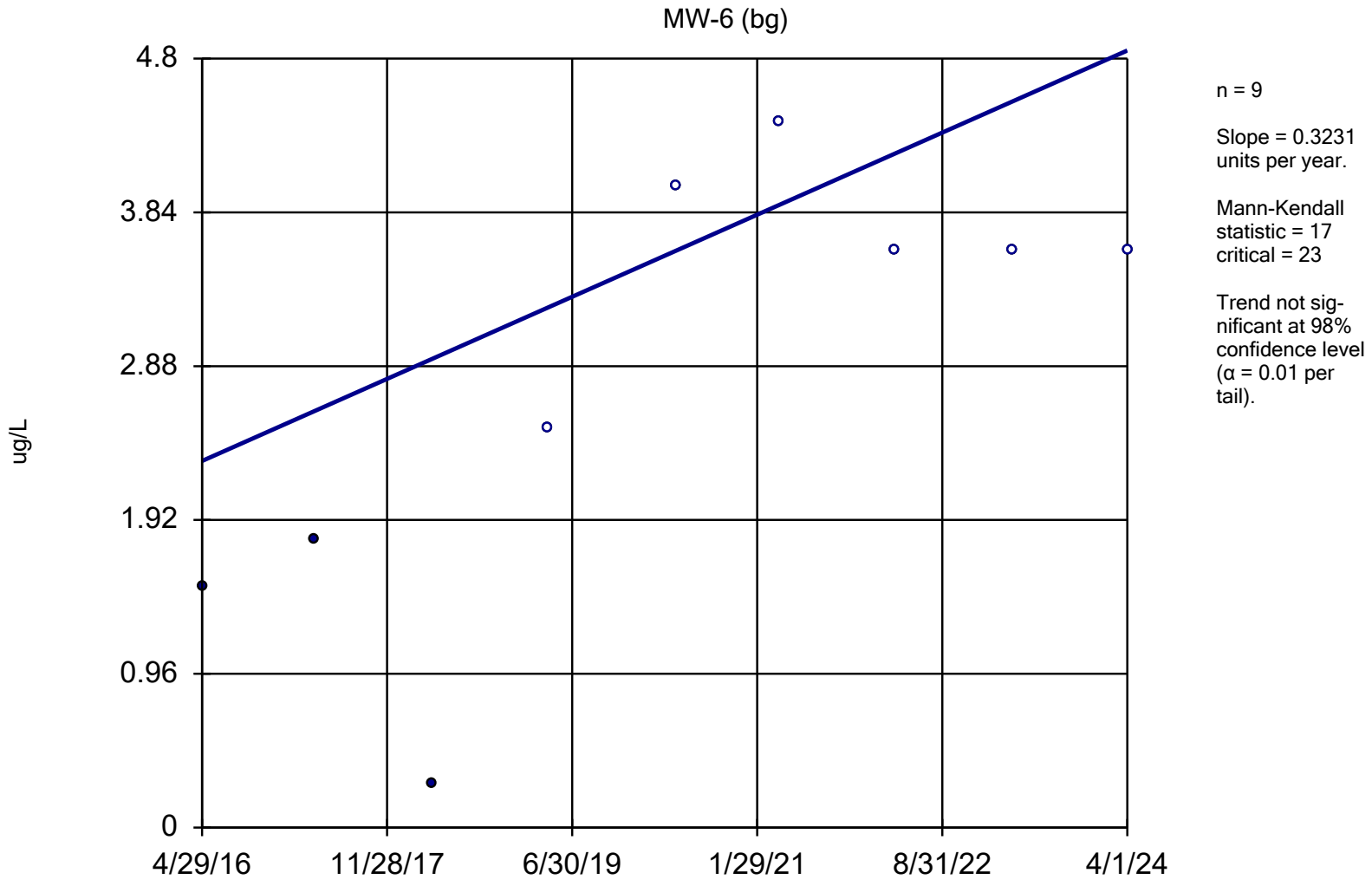
Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-15
4/29/2016	11.1
4/20/2017	82.1
4/17/2018	9.1
4/16/2019	96
5/22/2020	17
4/7/2021	<4.4
4/7/2022	<3.6 (U)

ND substitution: RL or RL/2 if <15% NDs.

Hollow symbols indicate censored values.

Sen's Slope Estimator



Constituent: Manganese Analysis Run 10/28/2024 3:51 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Sen's Slope Estimator

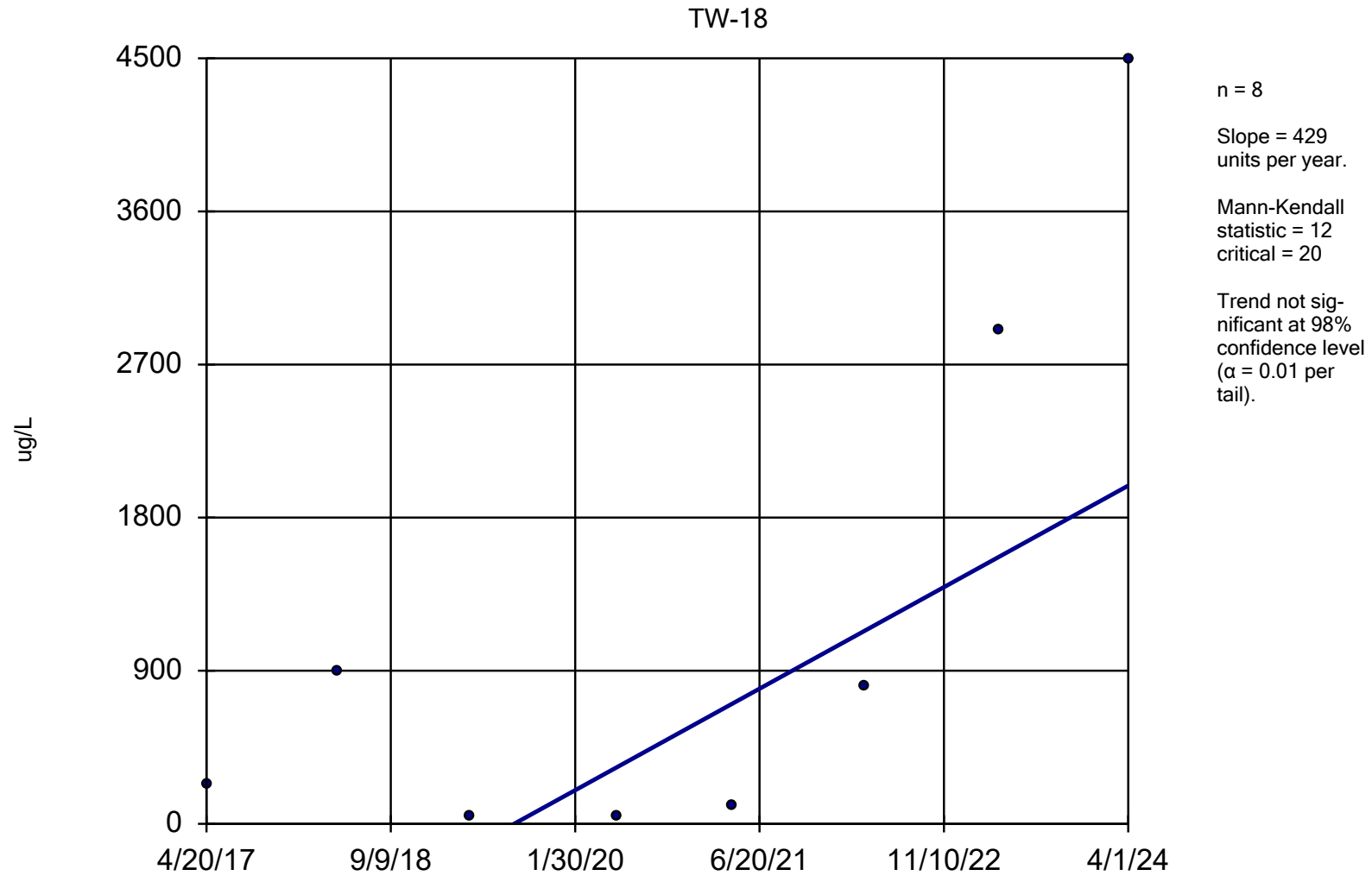
Constituent: Manganese (ug/L) Analysis Run 10/28/2024 4:01 PM View: Lansing State Data

Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

	MW-6 (bg)
4/29/2016	1.5 (Y)
4/19/2017	1.8 (B)
4/16/2018	0.28 (J)
4/15/2019	<2.5
5/20/2020	<4
4/7/2021	<4.4
4/6/2022	<3.6 (U)
4/11/2023	<3.6 (U)
4/1/2024	<3.6 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sen's Slope Estimator



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Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

Sen's Slope Estimator

Constituent: Manganese (ug/L) Analysis Run 10/28/2024 4:01 PM View: Lansing State Data

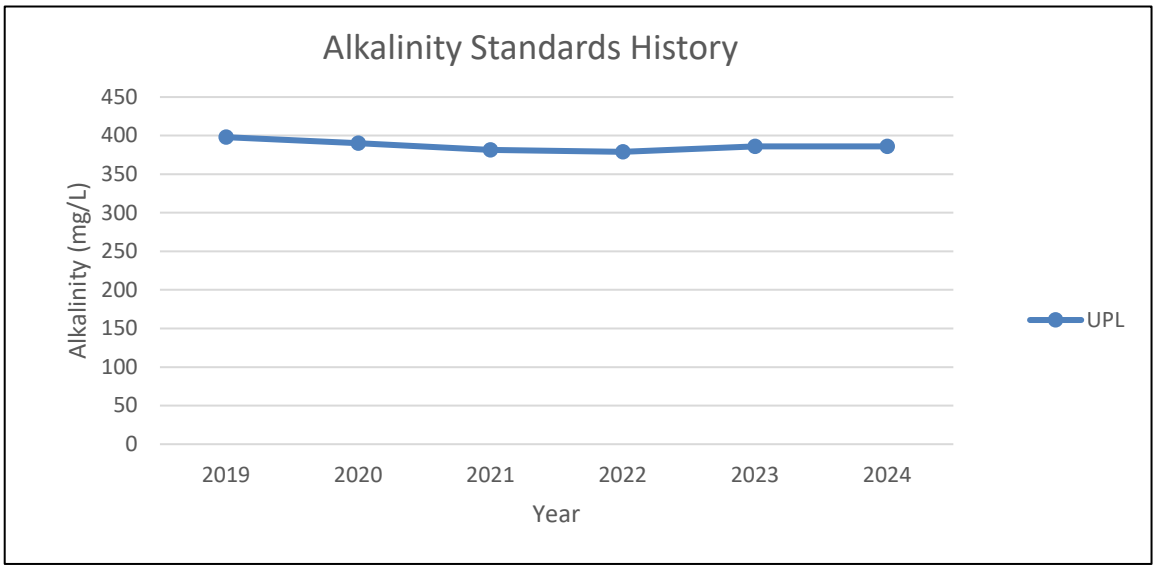
Lansing Generating Station Client: SCS Engineers Data: LAN - 2016 thru 2020 Data additions

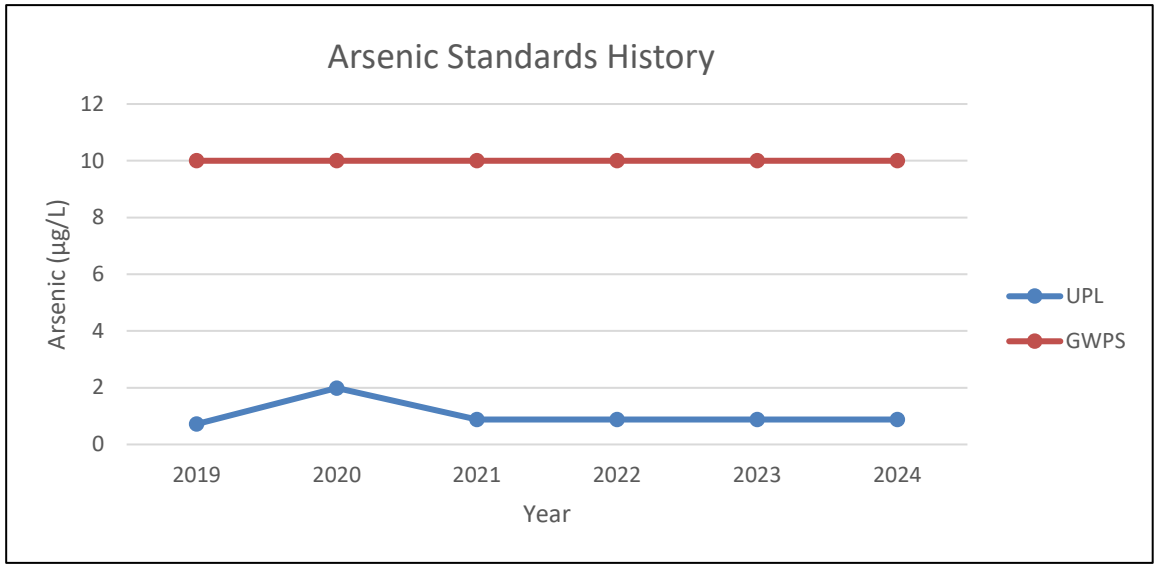
	TW-18
4/20/2017	227
4/17/2018	897
4/16/2019	43
5/22/2020	40
4/7/2021	110
4/6/2022	810
4/11/2023	2900
4/1/2024	4500

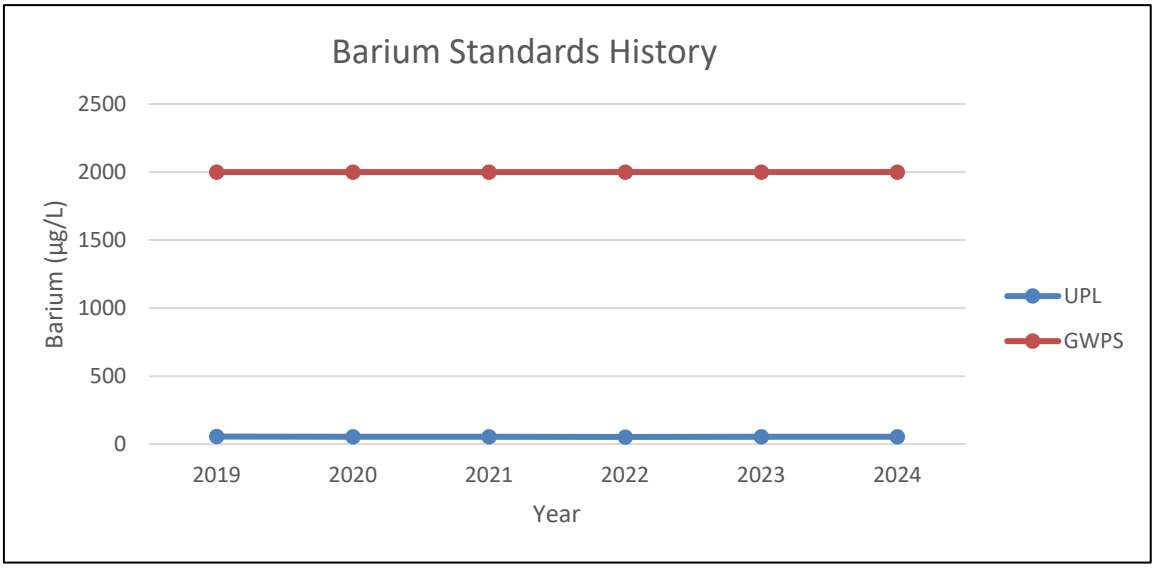
Appendix F

Standards History Graphs

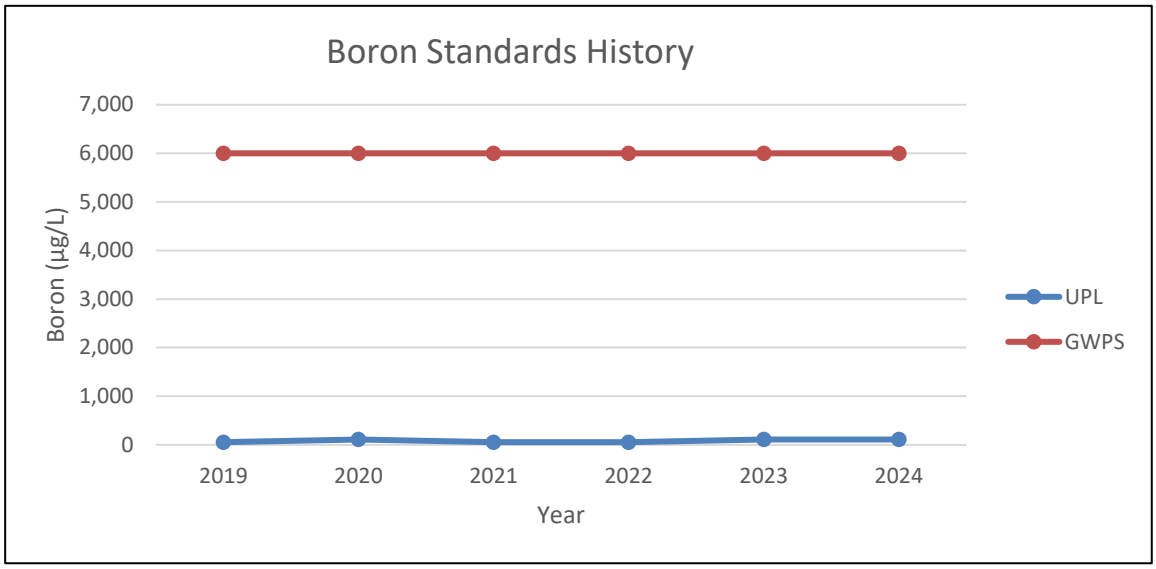
Lansing Generating Station CCR Landfill, Lansing, IA
Permit #03-SDP-05-01P

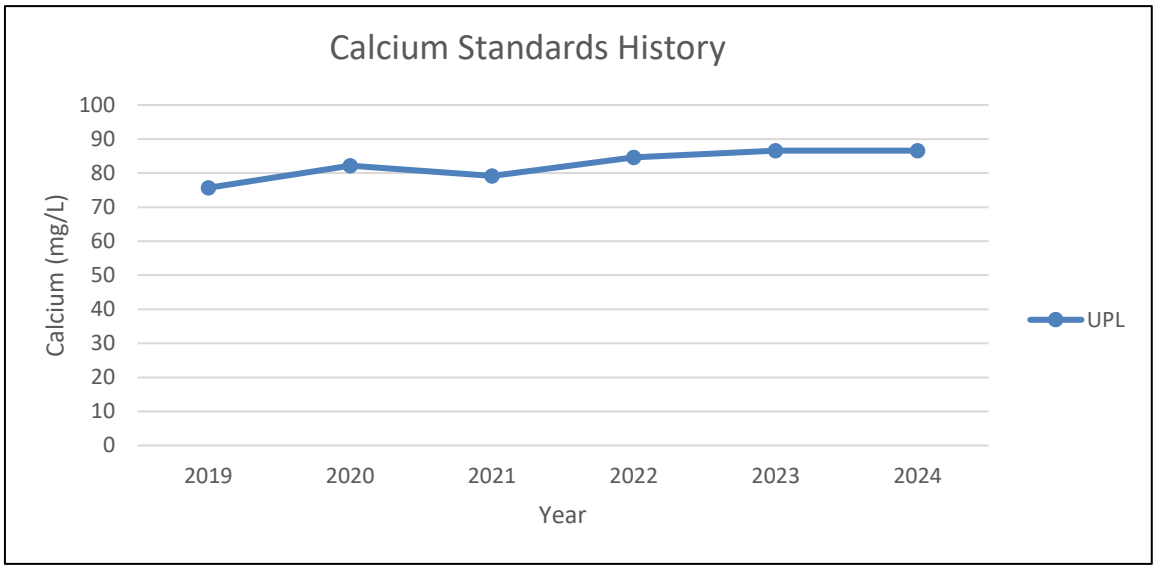


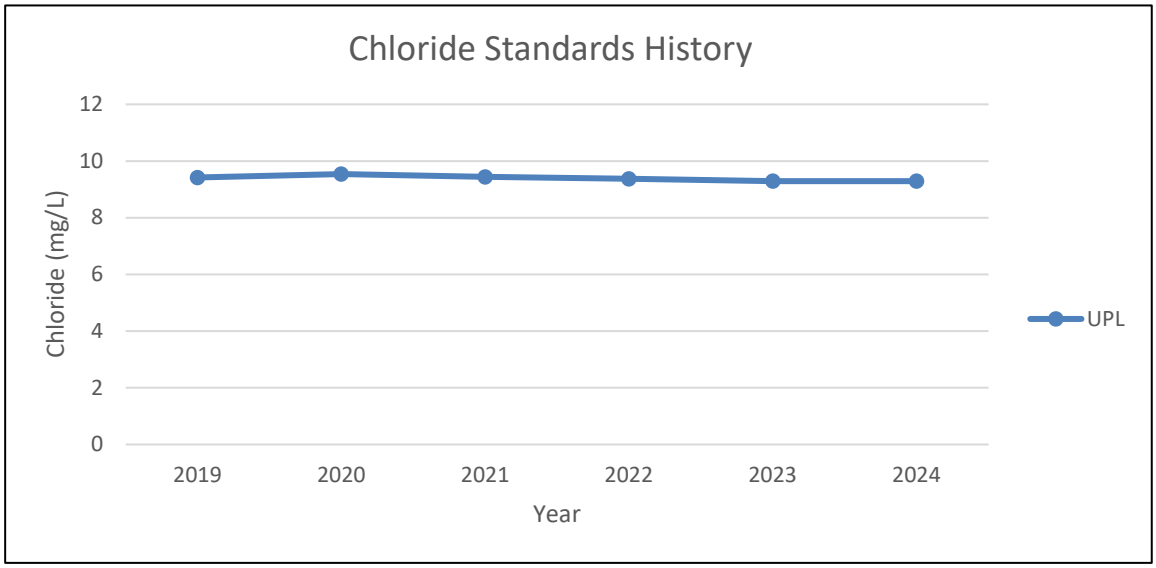




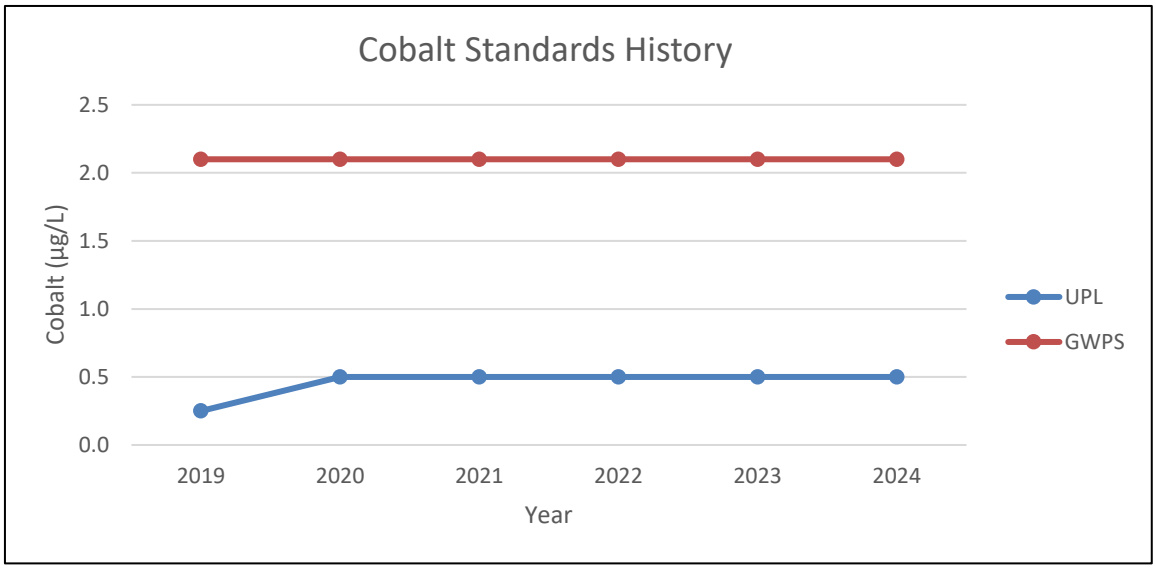
Lansing Generating Station CCR Landfill, Lansing, IA
Permit #03-SDP-05-01P

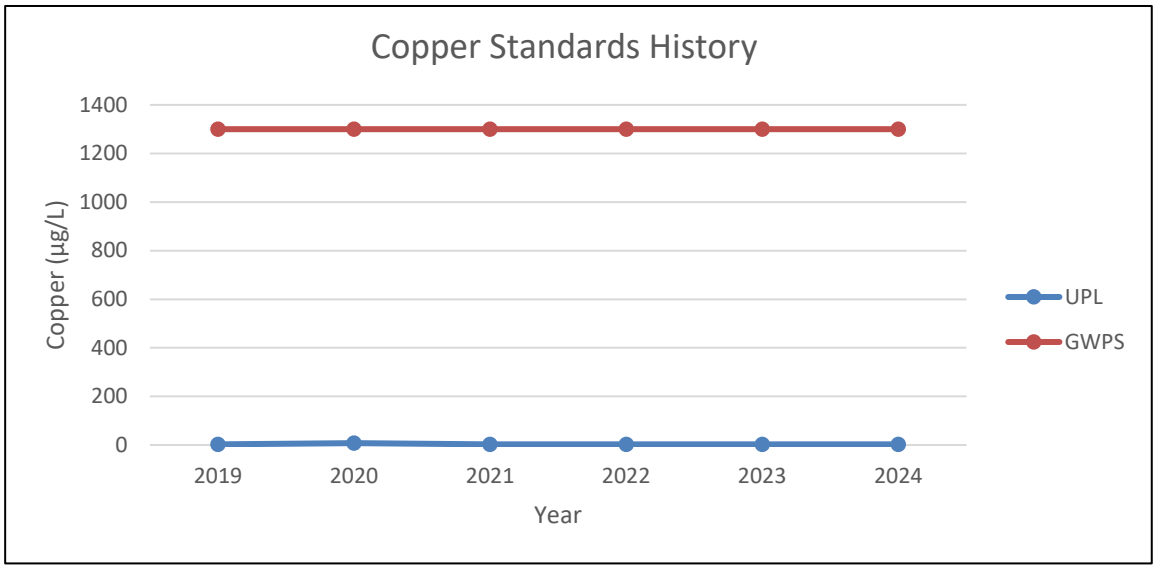


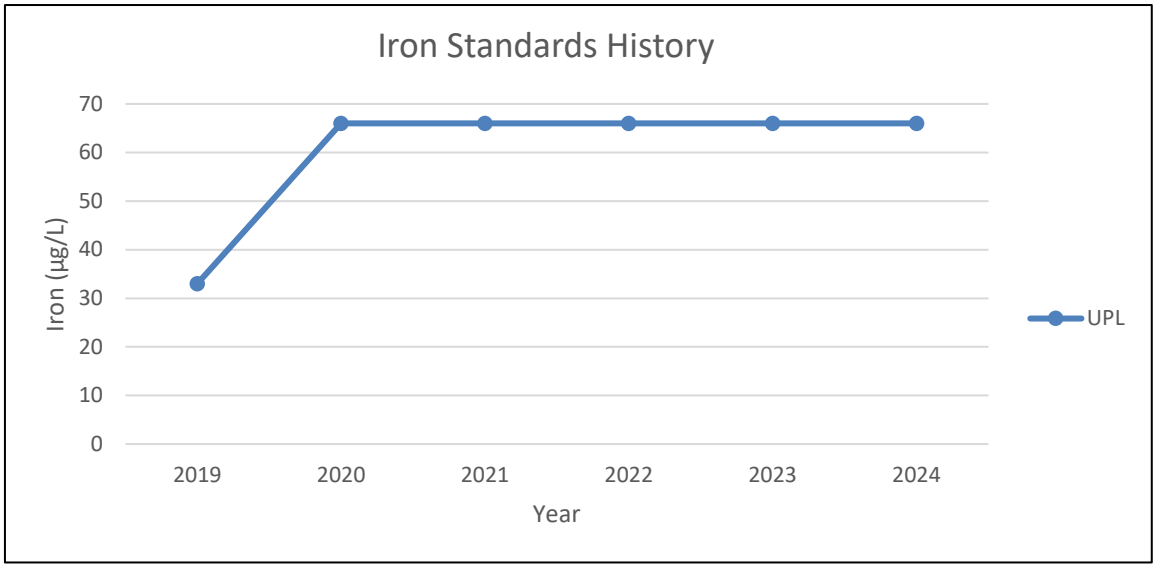




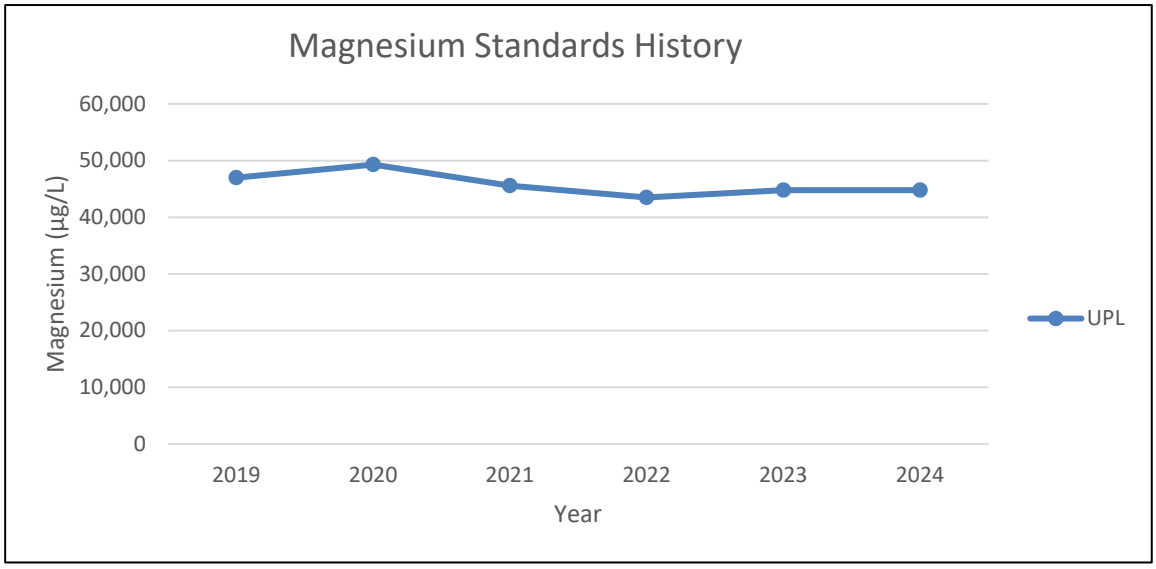
Lansing Generating Station CCR Landfill, Lansing, IA
Permit #03-SDP-05-01P

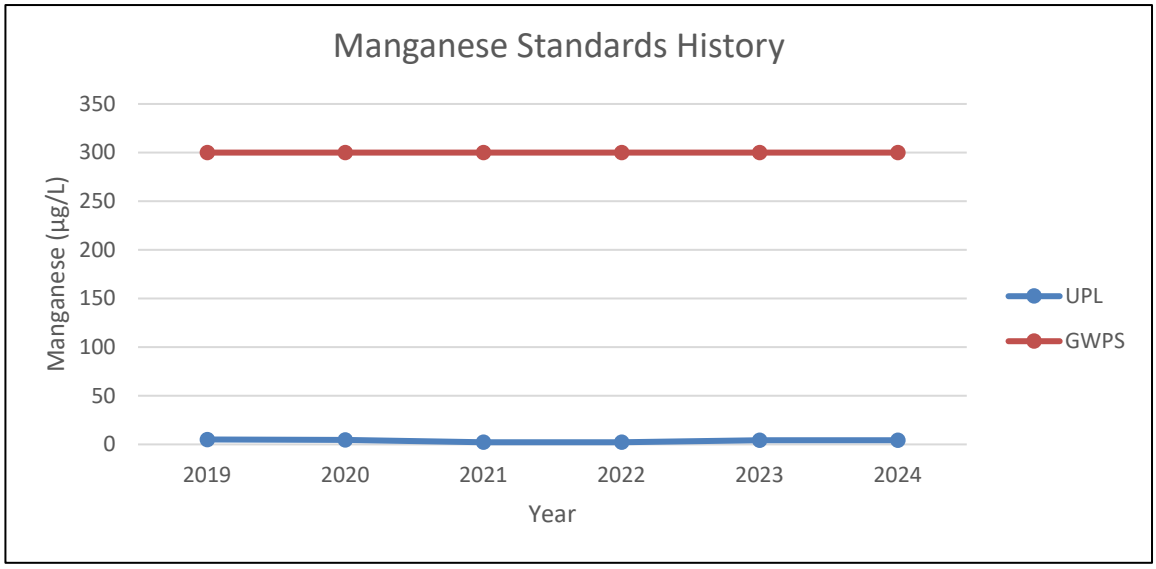


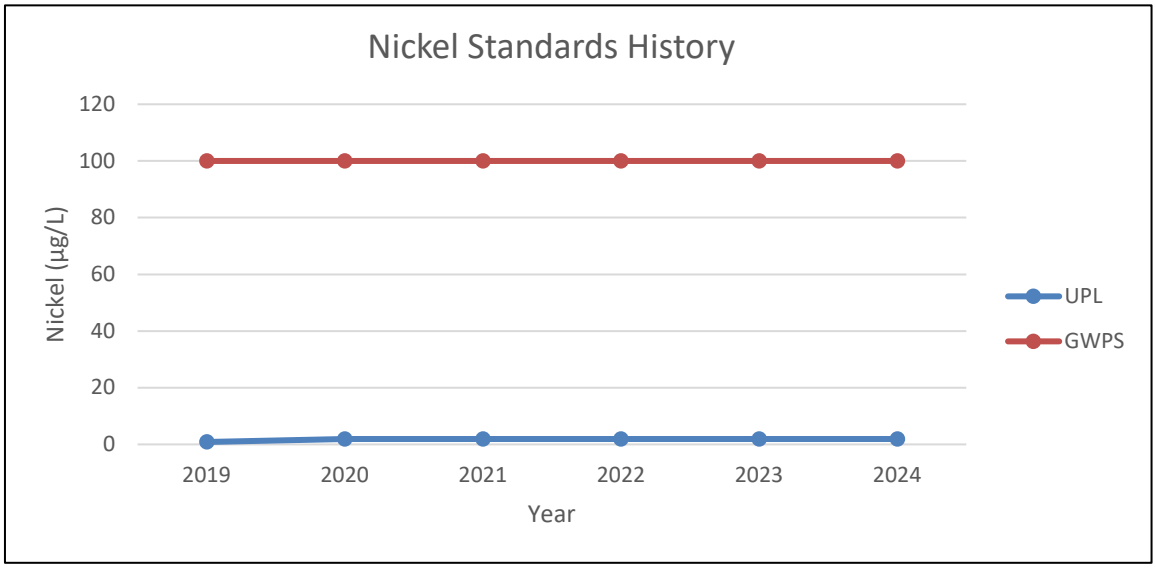




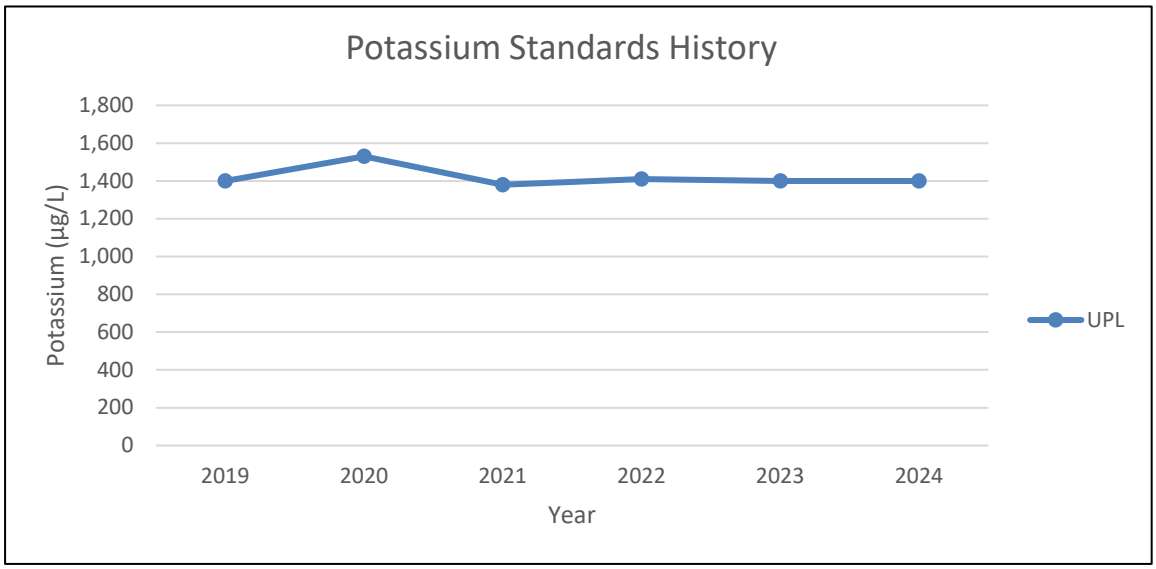
Lansing Generating Station CCR Landfill, Lansing, IA
Permit #03-SDP-05-01P

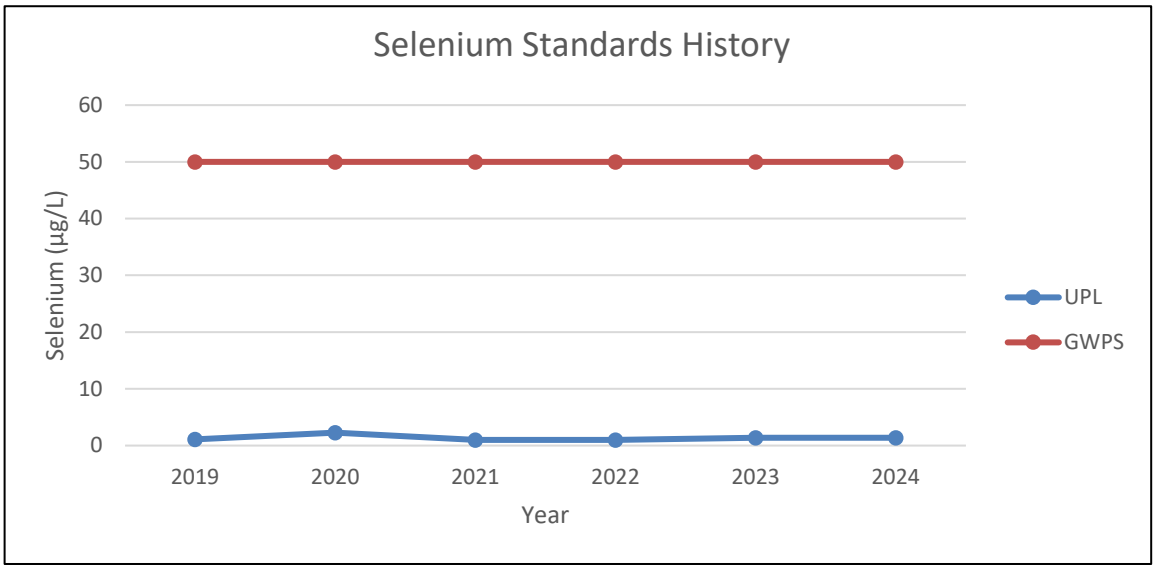


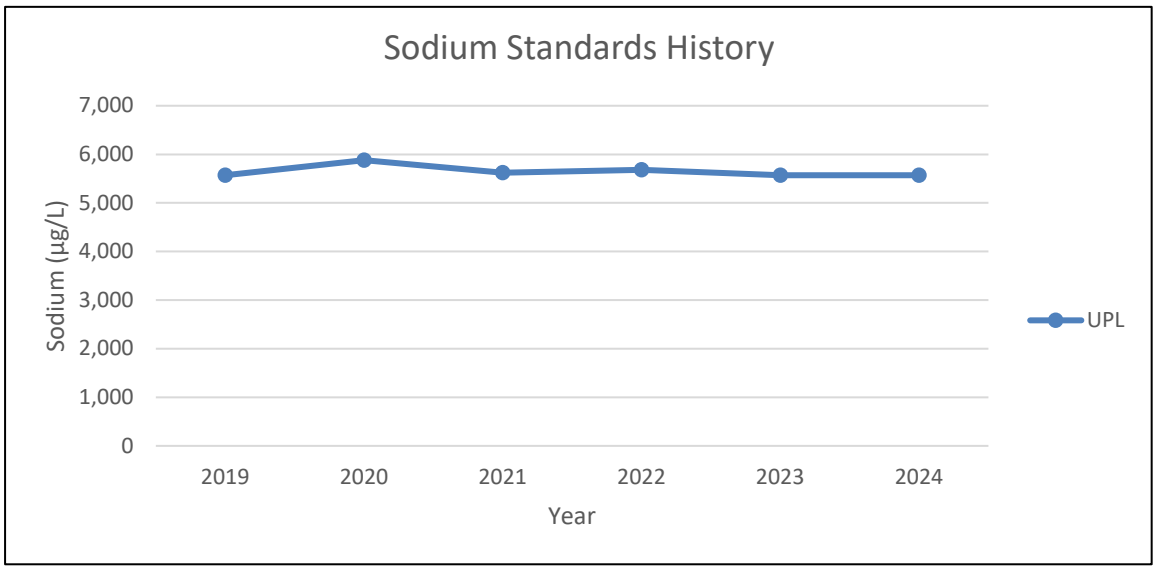




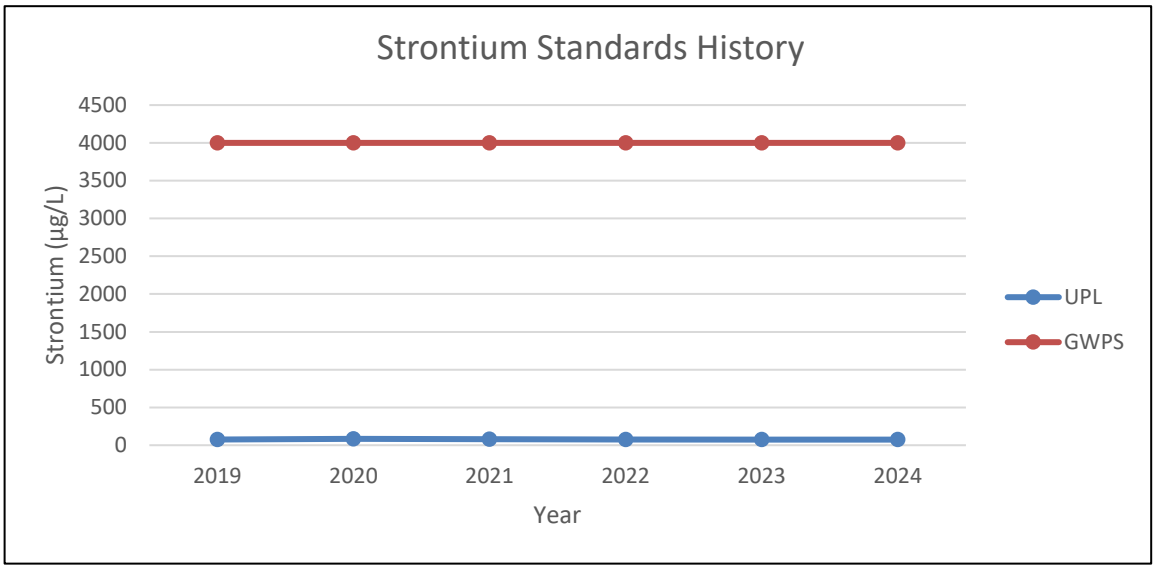
Lansing Generating Station CCR Landfill, Lansing, IA
Permit #03-SDP-05-01P

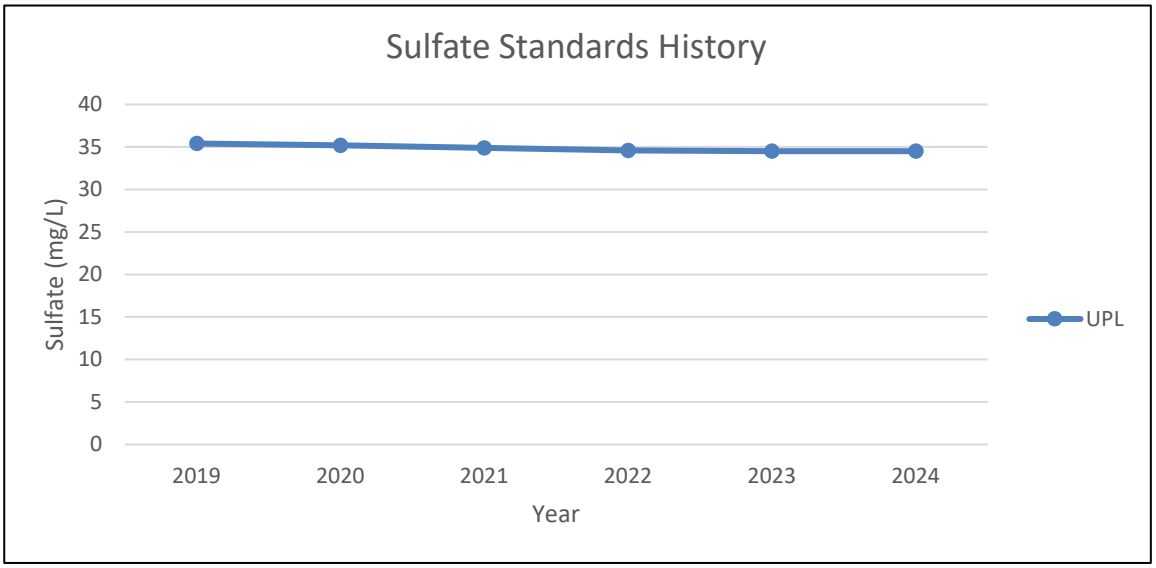






Lansing Generating Station CCR Landfill, Lansing, IA
Permit #03-SDP-05-01P





Appendix G

Annual Engineering Report

ANNUAL ENGINEERING REPORT – 2024
INTERSTATE POWER AND LIGHT COMPANY
LANSING CLOSED LANDFILL
PERMIT NO. 03-SDP-05-01C

On December 21, 2023, the Iowa Department of Natural Resources (DNR) issued a Closure Permit for the Coal Combustion Residue (CCR) Landfill at the former Interstate Power and Light Company (IPL) Lansing Generating Station (LAN). The final phase of closure at the LAN CCR landfill was completed in 2023, and the landfill no longer receives waste. This Annual Engineering Report was prepared to summarize the site's conformance and nonconformance with the closure permit and the approved plans and specifications. The Annual Engineering Report addresses the requirements in Special Provisions X.4 through X.6 and is based on observations made during the monthly post-closure inspections of the CCR landfill required in Special Provision X.3.

MONTHLY INSPECTIONS

Monthly post-closure inspections covered by this report were completed by SCS Engineers (SCS) between December 29, 2023, and November 8, 2024. Staff from SCS conducted monthly inspections under the supervision of Licensed Professional Engineer Eric Nelson, PE. A summary of the monthly inspections with respect to storm water diversion and drainage systems, vegetation, and final cover conditions is provided in the sections below. Copies of monthly inspection forms are provided in Attachment A.

Diversion and Drainage Systems

In accordance with Special Provision X.4, IPL has maintained the storm water diversion and drainage systems at the closed CCR landfill to provide run-on and run-off control of the 25-year, 24-hour rainfall event. IPL has maintained the required run-on and run-off capacity. However, the current reporting year represents the first growing season since landfill closure construction was completed in 2023. As such, monthly inspections identified multiple instances of erosion observed in the landfill drainage system, particularly the east swale, where IPL continues work to stabilize the site. Efforts to stabilize the diversion and drainage system infrastructure will continue into the next reporting period.

Vegetation

In accordance with Special Provision X.5, IPL has maintained the vegetation at the closed CCR landfill. Overall, vegetation conditions across the facility are good. IPL has addressed issues in vegetated cover identified during the monthly inspections throughout this first growing season following the completion of closure construction. Efforts to maintain and repair vegetation issues identified during the monthly inspections will continue into the next reporting period.

Final Cover

In accordance with Special Provision X.6, IPL has maintained the integrity and effectiveness of the final cover at the closed CCR landfill. With the exception of the drainage and vegetation issues noted above, the overall condition of the final cover is good and it is functioning as designed. Efforts to maintain and repair issues with the final cover identified during the monthly inspections will continue into the next reporting period.

IOWA DNR INSPECTIONS

The most recent Iowa DNR inspection of the facility was performed on October 15, 2024. The Iowa DNR inspection identified an area on the north side of the landfill perimeter berm outside the limits of waste and final cover where small trees had become established. Vegetation in the area was cut, and an email documenting the follow-up activities was provided to the Iowa DNR by IPL on November 4, 2024. A copy of the Iowa DNR inspection report and IPL's follow-up email are provided in Attachment B. No further action is required in response to the Iowa DNR inspection at this time.

I:\25224070.00\Deliverables\2024 LAN AWQR\App G - Annual Engineering Report\241127_Lansing LF Annual Engineering Report 2024_Final.docx

Attachment A

Site Inspection Report Forms

SCS ENGINEERS

Closed CCR Unit

IPL - Lansing Generating Station

Lansing, Iowa

Date: 12-29-23

Type of Inspection / Monitoring: ☑ Monthly Inspection ☐ Annual IDNR Post-Closure Inspection ☐ Event Related Inspection Due To: ☐ Storm Event ☐ Seismic Activity ☒ Other

Weather: Sunny, windy, 40F

CCR Unit: (Check if Inspected / Monitored) ☐ Lansing Main Ash Pond ☒ Lansing Landfill

Conditions Observed	Y / N	If Yes, Provide Detailed Description
Final Cover Instability Sloughing or sliding Bulging slope Cracking Scarps	N	
Seepage Areas Seepage Increase in seepage volumes Signs of piping or other internal erosion Boils Unusually wet and/or soft areas Unusual melting of snow in winter	N	
Subsidence and Erosion Subsidence, Sinkholes, or Depressions Erosion - sheet / gulley Erosion - wave action	Y	Erosion on the northeast slope off the access road (not within final cover area) and previously observed erosion in the east drainage ditch.
Vegetation Grass height hinders inspection Trees or woody vegetation Unusual thriving or distressed vegetation Irregularity in vegetation condition Water loving plants	N	
Animal Inhabitance Animal burrows Mounds of soil Hoof tracks, rills or eroded pathways	Y	Deer tracks primarily in the southern half of the landfill. Some "deer trails" visible on the southeast slope. Minimal disturbance of the final cover.
Groundwater Monitoring Wells Wells unlocked Well casing bent or leaning	N	
Visual Inspection and Report by Licensed Professional Engineer **Does the visual inspection indicate a significant deficiency or release and a subsequent need for an inspection by a professional licensed professional engineer? If necessary, the licensed professional engineer will visually inspect the surface and side slopes of the closed impoundment to identify any problem areas such as erosion, subsidence, settlement, or other events. Repair measures will be implemented if deemed necessary.**	N	

Inspection Summary / Additional Comments

Observed increased signs of wildlife activity. Area had snow from the previous day, melted by the afternoon. Ground is too wet/soft for erosion repairs. Will re-evaluate in spring.

Inspector Name: Rachael Huempfner Signature: Rachael Huempfner

SCS ENGINEERS

Closed CCR Unit

IPL - Lansing Generating Station

Lansing, Iowa

Date: 01/22/24

Type of Inspection / Monitoring: ☑ Monthly Inspection ☐ Annual IDNR Post-Closure Inspection ☐ Event Related Inspection Due To: ☐ Storm Event ☐ Seismic Activity ☒ Other

Weather: Partly cloudy, windy, 33F

CCR Unit: (Check if Inspected / Monitored) ☐ Lansing Main Ash Pond ☒ Lansing Landfill

Conditions Observed	Y / N	If Yes, Provide Detailed Description
Final Cover Instability Sloughing or sliding Bulging slope Cracking Scarps	N	
Seepage Areas Seepage Increase in seepage volumes Signs of piping or other internal erosion Boils Unusually wet and/or soft areas Unusual melting of snow in winter	N	
Subsidence and Erosion Subsidence, Sinkholes, or Depressions Erosion - sheet / gulley Erosion - wave action	Y	Landfill was snow covered, unable to determine status of previously observed erosion. (Northeast slope off the access road (not within final cover) and east drainage ditch)
Vegetation Grass height hinders inspection Trees or woody vegetation Unusual thriving or distressed vegetation Irregularity in vegetation condition Water loving plants	N	
Animal Inhabitance Animal burrows Mounds of soil Hoof tracks, rills or eroded pathways	Y	Large number of deer tracks/trails and bedding areas. Some grass areas exposed where deer have dug for food. Minimal disturbance of the final cover.
Groundwater Monitoring Wells Wells unlocked Well casing bent or leaning	N	
Visual Inspection and Report by Licensed Professional Engineer **Does the visual inspection indicate a significant deficiency or release and a subsequent need for an inspection by a professional licensed professional engineer? If necessary, the licensed professional engineer will visually inspect the surface and side slopes of the closed impoundment to identify any problem areas such as erosion, subsidence, settlement, or other events. Repair measures will be implemented if deemed necessary.**	N	

Inspection Summary / Additional Comments

Most of the closure area was covered by snow with drifts up to 12". Some exposed vegetation due to animal activity.

Inspector Name: Rachael Huempfner Signature: Rachael Huempfner

SCS ENGINEERS

Closed CCR Unit

IPL - Lansing Generating Station

Lansing, Iowa

Date: 02/19/24

Type of Inspection / Monitoring: ☑ Monthly Inspection ☐ Annual IDNR Post-Closure Inspection ☐ Event Related Inspection Due To: ☐ Storm Event ☐ Seismic Activity ☒ Other

Weather: Sunny, windy (5-10 mph), 44F

CCR Unit: (Check if Inspected / Monitored) ☐ Lansing Main Ash Pond ☒ Lansing Landfill

Conditions Observed	Y / N	If Yes, Provide Detailed Description
Final Cover Instability Sloughing or sliding Bulging slope Cracking Scarps	N	
Seepage Areas Seepage Increase in seepage volumes Signs of piping or other internal erosion Boils Unusually wet and/or soft areas Unusual melting of snow in winter	N	
Subsidence and Erosion Subsidence, Sinkholes, or Depressions Erosion - sheet / gulley Erosion - wave action	Y	Existing erosion along east and south ditches. Area of exposed rooting zone on the northeast slope near the peak. Final cover too wet for repair - will wait for dry weather. Moderate erosion damage on the northeast slope off the access road (not within final cover) and east drainage ditch.
Vegetation Grass height hinders inspection Trees or woody vegetation Unusual thriving or distressed vegetation Irregularity in vegetation condition Water loving plants	N	
Animal Inhabitance Animal burrows Mounds of soil Hoof tracks, rills or eroded pathways	Y	Large number of deer tracks/trails and bedding areas. Minimal disturbance of the final cover. Some erosion from the east bluff onto final cover areas due to animal activity.
Groundwater Monitoring Wells Wells unlocked Well casing bent or leaning	N	
Visual Inspection and Report by Licensed Professional Engineer **Does the visual inspection indicate a significant deficiency or release and a subsequent need for an inspection by a professional licensed professional engineer? If necessary, the licensed professional engineer will visually inspect the surface and side slopes of the closed impoundment to identify any problem areas such as erosion, subsidence, settlement, or other events. Repair measures will be implemented if deemed necessary.**	N	

Inspection Summary / Additional Comments

Eroded areas exposed by snow melt. Contractor to be notified to repair once conditions allow.

Inspector Name: Rachael Huempfner Signature: Rachael Huempfner

SCS ENGINEERS

Closed CCR Unit
IPL - Lansing Generating Station
Lansing, Iowa

Date: 03/18/24

Type of Inspection / Monitoring: ☑ Monthly Inspection ☐ Annual IDNR Post-Closure Inspection ☐ Event Related Inspection Due To: ☐ Storm Event ☐ Seismic Activity ☒ Other

Weather: Sunny, windy (10-15 mph) WNW, 32F

CCR Unit: (Check if Inspected / Monitored) ☐ Lansing Main Ash Pond ☒ Lansing Landfill

Conditions Observed	Y / N	If Yes, Provide Detailed Description
Final Cover Instability Sloughing or sliding Bulging slope Cracking Scarps	N	
Seepage Areas Seepage Increase in seepage volumes Signs of piping or other internal erosion Boils Unusually wet and/or soft areas Unusual melting of snow in winter	N	
Subsidence and Erosion Subsidence, Sinkholes, or Depressions Erosion - sheet / gulley Erosion - wave action	Y	Existing erosion along east and south ditches. Area of exposed rooting zone on the northeast slope near the peak. Final cover too wet for repair - will wait for dry weather. Moderate erosion damage on the northeast slope off the access road (not within final cover) and east drainage ditch.
Vegetation Grass height hinders inspection Trees or woody vegetation Unusual thriving or distressed vegetation Irregularity in vegetation condition Water loving plants	N	
Animal Inhabitance Animal burrows Mounds of soil Hoof tracks, rills or eroded pathways	Y	Large number of deer tracks/trails and bedding areas. Minimal disturbance of the final cover. Some erosion from the east bluff onto final cover areas due to animal activity.
Groundwater Monitoring Wells Wells unlocked Well casing bent or leaning	N	
Visual Inspection and Report by Licensed Professional Engineer **Does the visual inspection indicate a significant deficiency or release and a subsequent need for an inspection by a professional licensed professional engineer? If necessary, the licensed professional engineer will visually inspect the surface and side slopes of the closed impoundment to identify any problem areas such as erosion, subsidence, settlement, or other events. Repair measures will be implemented if deemed necessary.**	N	

Inspection Summary / Additional Comments

Completed walkthrough with contractor to discuss repairs to be completed during appropriate weather. Punchlist of repairs and other work to be completed, sent to contractor.

Inspector Name: Rachael Huempfner Signature: Rachael Huempfner

Closed CCR Unit
IPL - Lansing Generating Station
Lansing, Iowa

Date: 4/11/2024

Type of Inspection / Monitoring: ☑ Monthly Inspection ☐ Annual IDNR Post-Closure Inspection ☐ Event Related Inspection Due To: ☐ Storm Event ☐ Seismic Activity ☒ Other

Weather: 60 F Sunny

CCR Unit: (Check if Inspected / Monitored) ☒ Lansing Main Ash Pond ☒ Lansing Landfill

Conditions Observed	Y / N	If Yes, Provide Detailed Description
Final Cover Instability Sloughing or sliding Bulging slope Cracking Scarps	N	
Seepage Areas Seepage Increase in seepage volumes Signs of piping or other internal erosion Boils Unusually wet and/or soft areas Unusual melting of snow in winter	N	
Subsidence and Erosion Subsidence, Sinkholes, or Depressions Erosion - sheet / gulley Erosion - wave action	Y	Roadway (along switchback)seeing some erosion from winter melt/ rain events.
Vegetation Grass height hinders inspection Trees or woody vegetation Unusual thriving or distressed vegetation Irregularity in vegetation condition Water loving plants	N	
Animal Inhabitance Animal burrows Mounds of soil Hoof tracks, rills or eroded pathways	Y	Deer hoof tracks present along East side of waterway and in wet areas along switchback.
Groundwater Monitoring Wells Wells unlocked Well casing bent or leaning	N	
Visual Inspection and Report by Licensed Professional Engineer **Does the visual inspection indicate a significant deficiency or release and a subsequent need for an inspection by a professional licensed professional engineer? If necessary, the licensed professional engineer will visually inspect the surface and side slopes of the closed impoundment to identify any problem areas such as erosion, subsidence, settlement, or other events. Repair measures will be implemented if deemed necessary.**	N	

Inspection Summary / Additional Comments

Aside from deer tracks, and small water gullies along switchback road, all else looks sound and secure.

Inspector Name: Matthew Cieslak Signature: M. C.

Closed CCR Unit
IPL - Lansing Generating Station
Lansing, Iowa

Date: 5/10/2024

Type of Inspection / Monitoring:
- ☑ Monthly Inspection
- ☐ Annual IDNR Post-Closure Inspection
- ☐ Event Related Inspection Due To:
  - ☐ Storm Event
  - ☐ Seismic Activity
  - ☒ Other

Weather: 70 F Sunny

CCR Unit: (Check if Inspected / Monitored)
- ☒ Lansing Main Ash Pond
- ☒ Lansing Landfill

Conditions Observed	Y / N	If Yes, Provide Detailed Description
Final Cover Instability Sloughing or sliding Bulging slope Cracking Scarps	N	
Seepage Areas Seepage Increase in seepage volumes Signs of piping or other internal erosion Boils Unusually wet and/or soft areas Unusual melting of snow in winter	N	
Subsidence and Erosion Subsidence, Sinkholes, or Depressions Erosion - sheet / gulley Erosion - wave action	Y	Roadway (along switchback)seeing more severe washout from rain events. Exposed geotextile on roadway switchback
Vegetation Grass height hinders inspection Trees or woody vegetation Unusual thriving or distressed vegetation Irregularity in vegetation condition Water loving plants	N	
Animal Inhabitance Animal burrows Mounds of soil Hoof tracks, rills or eroded pathways	Y	Deer hoof tracks present along East side of waterway and in wet areas along switchback. Standing water in swales along west berms
Groundwater Monitoring Wells Wells unlocked Well casing bent or leaning	N	
Visual Inspection and Report by Licensed Professional Engineer **Does the visual inspection indicate a significant deficiency or release and a subsequent need for an inspection by a professional licensed professional engineer? If necessary, the licensed professional engineer will visually inspect the surface and side slopes of the closed impoundment to identify any problem areas such as erosion, subsidence, settlement, or other events. Repair measures will be implemented if deemed necessary.**	N	

Inspection Summary / Additional Comments

Roadway switchback will need attention due to gravel degradation. Deep gullies formed from rain washout.

Inspector Name: Matthew Cieslak

Signature: M. C.

SCS ENGINEERS

Inspection & Monitoring Checklist
Closed CCR Unit
IPL - Lansing Generating Station - Lansing, IA

Date: 06/07/2024

Type of Inspection/Monitoring: Monthly

Weather: Sunny 73.0°F

CCR Area Inspected: Lansing Landfill

Conditions Observed	Yes/No	If Yes, Provide Detailed Description
Embankment Instability		
Sloughing or sliding	No	
Bulging slope	No	
Cracking	No	
Scarps	No	
Seepage areas		
Seepage	No	
Increase in seepage volumes	No	
Signs of piping or other internal erosion	No	
Boils	No	
Unusually wet and/or soft areas	No	
Unusual melting of snow in winter	No	
Subsidence and Erosion		
Subsidence, Sinkholes, or Depressions	Yes	Large hole in the drainage ditch along the south access road. East access road switchback has heavy erosion/washout.
Erosion – sheet / gulley	Yes	
Erosion – wave action	No	
Vegetation		
Grass height hinders inspection	No	
Trees or woody vegetation	No	
Unusual Thriving or distressed vegetation	No	
Irregularity in vegetation condition	No	
Water loving plants	No	
Animal Inhabitance		
Animals burrows	No	
Mounds of soil	No	
Hoof tracks, rills or eroded pathways	No	
Groundwater Monitoring Wells		
Wells unlocked	No	
Well casing bent or leaning	No	

Inspection Summary / Additional Comments

The switchback on the east side gravel is washing out into the drainage ditch causing buildup of gravel on the riprap areas

Inspector Name: Colin Gloede

Signature: Colin Gloede

SCS ENGINEERS

Inspection & Monitoring Checklist
Closed CCR Unit
IPL - Lansing Generating Station - Lansing, IA

Date: 07/10/2024

Type of Inspection/Monitoring: Monthly

Weather: Sunny 78.0°F

CCR Area Inspected: Lansing Landfill

Conditions Observed	Yes/No	If Yes, Provide Detailed Description
Embankment Instability		
Sloughing or sliding	No	
Bulging slope	No	
Cracking	No	
Scarps	No	
Seepage areas		
Seepage	No	Areas noted with ponded water in previous inspections not observed.
Increase in seepage volumes	No	
Signs of piping or other internal erosion	No	
Boils	No	
Unusually wet and/or soft areas	No	
Unusual melting of snow in winter	No	
Subsidence and Erosion		
Subsidence, Sinkholes, or Depressions	No	Erosion and holes in eastern swale near bluff
Erosion – sheet / gulley	Yes	
Erosion – wave action	No	
Vegetation		
Grass height hinders inspection	Yes	Thick vegetation on western/southern slope, still walkable. Downed tree from bluff laying on eastern slope of landfill.
Trees or woody vegetation	No	
Unusual Thriving or distressed vegetation	No	
Irregularity in vegetation condition	No	
Water loving plants	No	
Animal Inhabitance		
Animals burrows	No	
Mounds of soil	No	
Hoof tracks, rills or eroded pathways	No	
Groundwater Monitoring Wells		
Wells unlocked	No	
Well casing bent or leaning	No	

Inspection Summary / Additional Comments

More severe erosion and rutting in the swale on the east side along the bluff. Downed tree on cover. Overall good vegetation establishment but very high. No ponding in previous inspection noted locations but some bare soil in these areas remain.

Inspector Name: Josh Dearlove

Signature:

SCS ENGINEERS

Inspection & Monitoring Checklist
Closed CCR Unit
IPL - Lansing Generating Station - Lansing, IA

Date: 08/06/2024

Type of Inspection/Monitoring: Monthly

Weather: Sunny 68.0°F

CCR Area Inspected: Lansing Landfill

Conditions Observed	Yes/No	If Yes, Provide Detailed Description
Embankment Instability		
Sloughing or sliding	No	
Bulging slope	No	
Cracking	No	
Scarps	No	
Seepage areas		
Seepage	No	
Increase in seepage volumes	No	
Signs of piping or other internal erosion	No	
Boils	No	
Unusually wet and/or soft areas	No	
Unusual melting of snow in winter	No	
Subsidence and Erosion		
Subsidence, Sinkholes, or Depressions	No	Erosional features along some of the ditch centerlines and edges of the access road.
Erosion – sheet / gulley	Yes	
Erosion – wave action	No	
Vegetation		
Grass height hinders inspection	Yes	Grass approximately knee height.
Trees or woody vegetation	No	
Unusual Thriving or distressed vegetation	No	
Irregularity in vegetation condition	No	
Water loving plants	No	
Animal Inhabitance		
Animals burrows	No	Animal tracks and signs of activity primarily on the east side of the landfill.
Mounds of soil	No	
Hoof tracks, rills or eroded pathways	Yes	
Groundwater Monitoring Wells		
Wells unlocked	No	
Well casing bent or leaning	No	

Inspection Summary / Additional Comments

Inspector Name: Garrett Korkowski

Signature:

SCS ENGINEERS

Inspection & Monitoring Checklist
Closed CCR Unit
IPL - Lansing Generating Station - Lansing, IA

Date: 09/06/2024

Type of Inspection/Monitoring: Monthly

Weather: Partially Sunny 64.0°F

CCR Area Inspected: Lansing Landfill

Conditions Observed	Yes/No	If Yes, Provide Detailed Description
Embankment Instability		
Sloughing or sliding	No	
Bulging slope	No	
Cracking	No	
Scarps	No	
Seepage areas		
Seepage	No	
Increase in seepage volumes	No	
Signs of piping or other internal erosion	No	
Boils	No	
Unusually wet and/or soft areas	No	
Unusual melting of snow in winter	No	
Subsidence and Erosion		
Subsidence, Sinkholes, or Depressions	No	Heavy erosion still present in the east swale along the bluff. Previous areas of erosion holes in south swale were filled in with soil. Areas of erosion or bare soil in west swale and on top of landfill repaired and vegetation starting to come back.
Erosion – sheet / gulley	Yes	
Erosion – wave action	No	
Vegetation		
Grass height hinders inspection	Yes	Vegetation height was hindering but mowing was started in areas of the landfill.
Trees or woody vegetation	No	
Unusual Thriving or distressed vegetation	No	
Irregularity in vegetation condition	No	
Water loving plants	No	
Animal Inhabitance		
Animals burrows	No	
Mounds of soil	No	
Hoof tracks, rills or eroded pathways	No	
Groundwater Monitoring Wells		
Wells unlocked	No	
Well casing bent or leaning	No	

Inspection Summary / Additional Comments

Big area of concern is the gulley/trench in the east swale along the bluff. Otherwise all the main issues noted in previous inspections had been addressed.

Inspector Name: Colin Gloede

Signature:

SCS ENGINEERS

Inspection & Monitoring Checklist
Closed CCR Unit
IPL - Lansing Generating Station - Lansing, IA

Date: 10/04/2024

Type of Inspection/Monitoring: Monthly

Weather: Sunny 65.0°F

CCR Area Inspected: Lansing Landfill

Conditions Observed	Yes/No	If Yes, Provide Detailed Description
Embankment Instability		
Sloughing or sliding	No	
Bulging slope	No	
Cracking	No	
Scarps	No	
Seepage areas		
Seepage	No	
Increase in seepage volumes	No	
Signs of piping or other internal erosion	No	
Boils	No	
Unusually wet and/or soft areas	No	
Unusual melting of snow in winter	No	
Subsidence and Erosion		
Subsidence, Sinkholes, or Depressions	No	Minor gulley and major large gulley in the east swale along the bluff still present.
Erosion – sheet / gulley	Yes	
Erosion – wave action	No	
Vegetation		
Grass height hinders inspection	No	Vegetation establishment in previous restoration areas coming in well.
Trees or woody vegetation	No	
Unusual Thriving or distressed vegetation	No	
Irregularity in vegetation condition	No	
Water loving plants	No	
Animal Inhabitance		
Animals burrows	No	
Mounds of soil	No	
Hoof tracks, rills or eroded pathways	No	
Groundwater Monitoring Wells		
Wells unlocked	No	
Well casing bent or leaning	No	

Inspection Summary / Additional Comments

Major concern is the large gulley in the east swale along the bluff. Other flagged areas have been restored and look good. Bare soil in some previously repaired areas still present.

Inspector Name: Colin Gloede

Signature:

SCS ENGINEERS

Inspection & Monitoring Checklist
Closed CCR Unit
IPL - Lansing Generating Station - Lansing, IA

Date: 11/08/2024

Type of Inspection/Monitoring: Monthly

Weather: Sunny 55.0°F

CCR Area Inspected: Lansing Landfill

Conditions Observed	Yes/No	If Yes, Provide Detailed Description
Embankment Instability		
Sloughing or sliding	No	
Bulging slope	No	
Cracking	No	
Scarps	No	
Seepage areas		
Seepage	No	Wet areas at bottom of slopes around the landfill near access road with some standing water in areas/swales.
Increase in seepage volumes	No	
Signs of piping or other internal erosion	No	
Boils	No	
Unusually wet and/or soft areas	Yes	
Unusual melting of snow in winter	No	
Subsidence and Erosion		
Subsidence, Sinkholes, or Depressions	No	Major gulley in east swale along the bluff is still present and appearing to worsen. A minor gulley forming in the east/south swale area bluff. Erosion/minor gulley forming in the diversion berm swale.
Erosion – sheet / gulley	Yes	
Erosion – wave action	No	
Vegetation		
Grass height hinders inspection	No	Overall vegetation growth in good condition. Areas of bare soil still in area so previous repair, particularly near flume inlet.
Trees or woody vegetation	No	
Unusual Thriving or distressed vegetation	No	
Irregularity in vegetation condition	No	
Water loving plants	No	
Animal Inhabitance		
Animals burrows	No	Evidence of animal activity including hoof marks and other throughout.
Mounds of soil	No	
Hoof tracks, rills or eroded pathways	Yes	
Groundwater Monitoring Wells		
Wells unlocked	No	
Well casing bent or leaning	No	

Inspection Summary / Additional Comments

Major gulley in east swale along bluff is continuing to worsen. Erosion in diversion berm swale and east/south swale area may worsen if unaddressed. Bare soil is still present in some of the previous repair areas.

Inspector Name: Bri Salome

Signature:

Attachment B

Iowa DNR Inspections

IOWA DEPARTMENT OF NATURAL RESOURCES
Field Office #1
1101 Commercial Court, Suite 10, Manchester, IA 52057
563/ 927-2640 (ph.) 563/927-2075 (fax)
Closed Coal Combustion Residue Landfill

Permit # 03-SDP-05-01C

Site: Alliant Energy Lansing CCR Landfill **Weather Conditions: Sunny/ 45°F**

Person Present: Clint Mohn (563-786-4698c) **Date This Visit: 10/15/2024**
Chad Wall, Project Manager (319-786-4210)
Matt Bizjack – Senior Env. Specialist (608-458-3197)
Jason Gearhart, IDNR, FO#1

N/A = not applicable or observed.

Observations:

Yes	No	N/A	Item
☐	☒	☐	1. Erosion
☐	☒	☐	2. Significant Leachate Seeps
☐	☒	☐	3. Inadequate Vegetative Cover
☐	☒	☐	4. Ponding, Poor Grading
☐	☒	☐	5. Other - Trees
☐	☒	☐	6. Follow-up Visit Needed?

Comments: This visit was made to observe this area after "final closure", which was completed last fall. Although this is one comprehensive permit, Alliant refers to the project as two separate areas. The area to the south is the "landfill" and the area to the north is the "upper fly ash pond". Access is restricted and the area is fenced with a locked gate. There is an all-weather road around the landfill and it is well maintained. The landfill and closed fly ash pond are graded to shed water during rainfall events and prevent ponding. The area was seeded last fall and the vegetation is well established. Erosion control measure have been installed and I did not observe any significant erosion. Areas where water velocity during rainfall events had begun to cause an issue have already been addressed with either rip rap or landscape fabric.

I was informed that the landfill is inspected every month, and the upper fly ash pond is inspected weekly. The fly ash pond will be inspected monthly in the future. Alliant has contracted with an engineering firm to conduct the routine inspections, and has an outside contractor to conduct any maintenance. Additional rip rap has been added to several areas since construction to address erosion issues/water runoff. It is apparent that this site is being actively managed at this time and Alliant Energy is addressing any issues as they arise.

I was told that they will be mowing the area at least once per year, and more than likely three times per year.

The most downward hill on the north side of the "landfill" has about 7 small trees growing on it. I was informed that this lowest hill is not part of the fill area. I suggested that since the hill is the support base for the fill area above, that as the trees mature, an uprooted tree could destabilize the supporting hill side and cause an issue. Mr. Bizjack informed me that he would look into having the trees removed and adding this area to their mowing schedule.

AUTHENTICATION

INSPECTOR	**NAME/TITLE:** Chad Kehrli CHAD KEHRLI, Environmental Specialist	**DATE: 10/16/2024**

CC: DNR SW Section
Efile: 03 SW Alliant Energy Lansing CCR-LF Closed 101524 visit cek

From: Bizjack, Matthew
To: Coughlin, Jenny; Blodgett, Meghan
Cc: Maxted, Jeffrey
Subject: FW: Re: Iowa DNR review completed for Field Office Inspection Report
Date: Friday, November 15, 2024 11:18:27 AM
Attachments: LAN north facing slope cleanup_20241028.png

Follow-up on the woody vegetation mentioned in the inspection report.

Matt Bizjack | Senior Environmental Specialist
Alliant Energy
Office: (608) 458-3197

From: Kehrli, Chad <chad.kehrli@dnr.iowa.gov>
Sent: Wednesday, November 6, 2024 3:28 PM
To: Bizjack, Matthew <MatthewBizjack@alliantenergy.com>
Subject: [EXTERNAL] Re: Iowa DNR review completed for Field Office Inspection Report

Thank you for addressing this.

-Chad

On Mon, Nov 4, 2024 at 8:32 AM Bizjack, Matthew <MatthewBizjack@alliantenergy.com> wrote:

> Mr. Kehrli,
>
> Once again, it was a pleasure to meet with you last month at the IPL Lansing site. The small trees identified on the north facing slope of the landfill have been cleared and the area has been mowed. I attached a photo for your reference. Please don't hesitate to reach out if you have any questions.
>
> Thanks,
>
> **Matt Bizjack | Senior Environmental Specialist**
> **Alliant Energy**
> Office: (608) 458-3197
>
> ---
>
> **From:** Maxted, Jeffrey <JeffreyMaxted@alliantenergy.com>
> **Sent:** Friday, November 1, 2024 2:30 PM
>
> **Jeff Maxted | Manager – Environmental Services & Corporate Sustainability**
> Pronouns: He/him/his
>
> **Alliant Energy**
> 4902 N Biltmore Lane | Madison, WI 53718

Office: (608) 458-3853
alliantenergy.com I jeffreymaxted@alliantenergy.com

From: becky.jolly@dnr.iowa.gov <becky.jolly@dnr.iowa.gov>
Sent: Friday, November 1, 2024 2:17 PM
To: Cigrand, Wendi <WendiCigrand@alliantenergy.com>; brian.rath@dnr.iowa.gov; Maxted, Jeffrey <JeffreyMaxted@alliantenergy.com>; Nelson, Robin <RobinNelson@alliantenergy.com>
Subject: [EXTERNAL] Iowa DNR review completed for Field Office Inspection Report

This is an automated email response to inform you that the following document(s) have been placed in the Iowa Department of Natural Resources's Electronic Document System for public access. Hard copy document(s) will not be available on the Electronic Document Retrieval System until scanned and uploaded. The unique number for the submitted document(s) and the link to the Electronic Document System are provided below for your reference.

If a regulatory review was required, it was performed, and our staff had no comments. Please proceed with the actions, if any, that were included in the document(s).

Please note that documentation of this emailed response is available on our Facility Snapshot which contains other current permit information. However, this email documentation is not available on the Electronic Document System.

Permit Number: 03-SDP-05-01
Facility Name: Alliant Energy / IPL - Lansing Generating Station
Review Date: 11/1/2024
Permit Action Type: Field Office Inspection Report
Document(s): 111073
Comments: (none)

Thank you for your submittal. If you have any questions, please contact Mick Leat, Landfill Engineer: mick.leat@dnr.iowa.gov.

--

CHAD KEHRLI
Environmental Specialist
Field Office 1/ Field Services Bureau
Iowa Department of Natural Resources
1101 Commercial Court, Ste. 10, Manchester, IA 52057
P: 563-927-2640 ext. 315 o 563-920-1843 c

chad.kehrli@dnr.iowa.gov
www.iowadnr.gov

DNR logo