November 14, 2024
File No. 27224060.00

Geoff Spain
Iowa Department of Natural Resources
Land Quality Bureau
6200 Park Avenue
Des Moines, Iowa 50321

Subject: 2024 Annual Water Quality Report
U.S. Gypsum Sperry Landfill (Closed)
Permit No. 29-SDP-04-89C

Dear Geoff:

SCS Engineers has completed the required groundwater monitoring and statistical evaluation for the U.S. Gypsum Sperry Landfill (Landfill) for the 2024 reporting year. Our services were performed in general accordance with the 1989 Iowa Administrative Code (IAC) 567-103, the closure permit requirements for implementation of the Hydrologic Monitoring System Plan (HMSP), and subsequent permit amendments and correspondence. Please find enclosed a copy of the 2024 Annual Water Quality Report for the Landfill.

If you have any questions about this report, please contact us as noted below.

Sincerely,

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Copies: Mr. Mike Brown – U.S. Gypsum Company

2024 Annual Water Quality Report

United States Gypsum – Sperry Landfill
Solid Waste Permit No. 29-SDP-04-89

Prepared for:

United States Gypsum Company

SCS ENGINEERS

27224060.00 | November 2024

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CERTIFICATION

Prepared by: Semir Omerovic Date: 11/13/2024

Typed: Semir Omerovic

Reviewed by: Timothy C. Buelow Date: 11/14/2024

Typed: Timothy C. Buelow, PE

Certification page (115.26(8)"d")

An annual report summarizing the effect of the facility on groundwater and surface water quality shall be submitted to the department each year. The summary is to be prepared by an engineer registered in the state of Iowa.

LICENSED PROFESSIONAL ENGINEER Timothy C. Buelow 14445 IOWA	I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa. Timothy C. Buelow, P.E. Date: 11/14/2024 License No. 14445 My license renewal date is December 31, 2025. Pages or sheets covered by this seal: All except Appendix B-1.

EXECUTIVE SUMMARY

ES.1 PERIOD OF REPORT COVERAGE

SCS Engineers (SCS), on behalf of the United States Gypsum Company, has completed the required groundwater sampling for the United States Gypsum – Sperry Landfill (Landfill). The purpose of this Annual Water Quality Report (AWQR) is to document and statistically evaluate the groundwater sampling results since the 2023 AWQR up to and including the August 2024 annual sampling event. This AWQR was prepared in accordance with the requirements of the site permit and current requirements for implementation of the Hydrologic Monitoring System Plan (HMSP).

ES.2 REPORT PRIORITY

The following summarizes report priorities associated with groundwater compliance at the Landfill:

- Department review urgency: None.
- Department review impact on rules schedule: None.
- Actions or activities on hold pending Department review or comment: None.
- Actions and/or permit amendments needed: In accordance with the DNR letter dated May 29, 2024 (Doc #110162), evaluation of the source of the sulfate and potential downgradient receptors will be performed in future reports.

ES.3 SITE STATUS AND APPLICABLE RULES

- Landfill Status: Closed, Closure Permit
- Types of waste accepted: Industrial
- Applicable IAC rules: 567-103 (effective date 9/16/1998)

ES.4 COMMENTS

The following summarizes points of special emphasis:

- Groundwater conditions at the site remain generally stable to improving. The concentrations of the analyzed parameters in groundwater at the Landfill were similar to the previous reporting period. Based on 2024 sampling results, nine monitoring well/constituent pairs were found to be increasing at an 80% confidence level; however, the impact on groundwater from the Landfill appears limited.

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1.0 ACRONYMS/ABBREVIATIONS

AL = Action Level
CCV = Continuing Calibration Verification
CL = Control Limit - Mean plus Two Standard Deviations (+/- for pH)
DNR = Iowa Department of Natural Resources
DO = Dissolved Oxygen
GWPS = Groundwater Protection Standard
GWQAP = Groundwater Quality Assessment Plan
LEL = Lower Explosive Limit
LCL = Lower Confidence Limit
LCS = Laboratory Control Sample
LN = Lognormal
M+/-2SD = Mean Plus/Minus Two Standard Deviations
MCL = EPA Maximum Contaminant Level
MDL = Method Detection Limit
N = Normal
NC = No Change
NM = Not Measured
ORP = Oxidation-Reduction Potential
PL = Prediction Limit
QA = Quality Assurance
QC = Quality Control
RL = Reporting Limit
SWS = DNR Statewide Standard for a Protected Groundwater Source
SSI = Statistically Significant Increase Above Background
SSL = Statistically Significant Level Above Groundwater Protection Standard
SSS = Site-Specific Standard (Site-Specific GWPS)
TSS = Total Suspended Solids
UCL = Upper Confidence Limit

2.0 SITE BACKGROUND

2.1 SITE LOCATION

The United States Gypsum-Sperry Landfill is depicted in Figure 1, Approved Monitoring Network. The Landfill is located approximately 1¾ miles north of Sperry, Iowa and 1¾ miles south of Mediapolis, Iowa in the north half of Section 1, T71N, R3W, in Des Moines County, Iowa.

2.2 FACILITY

According to historical records, the United States Gypsum Company purchased the Landfill property in November 1963 and began landfilling at that time. The Landfill accepted gypsum and minor amounts of plant waste from 1963 to 1999. The facility has been under a closure permit since September 30, 1999. Prior to landfilling activities this land was used for agricultural purposes and was not zoned.

2.3 GEOLOGY OF THE SITE

In the document entitled *Hydrogeological Investigation and Hydrologic Monitoring System Plan for the U.S. Gypsum Sanitary Landfill in Sperry, Iowa*, dated March 1992 and revised April 1993 by Montgomery Watson, hereafter referred to as the 1993 HIR (Doc #42894), the following geological description was provided:

> *The site is located in the Southern Iowa Drift Plain, which in western Des Moines County consists of flat uplands with steep hilly land near the stream valleys. Glacial drift deposits in the county from the Illinoian, Kansan, and Nebraskan glacial periods are usually covered by Wisconsin loess deposits. Soils at the site are part of the Clinton-Lindley Association and are described as loam, clay loam, and sandy loam. The average soil depth is 60 inches and the slope of the undisturbed area ranges from 2 to over 30%. In Des Moines County, bedrock is generally eroded Mississippian-aged limestones interbedded with shales. Devonian shales are found where Mississippian formations have been eroded away. In addition, structural deformation has occurred which has resulted in a regional tilt of all the formations to the southwest. It has also resulted in anticlines and synclines whose axes lie in a northwest-southeast direction. One such anticline runs through Mediapolis and is the dominant influence on the shape of the Devonian and older formations in the vicinity of the site.*

According to the 1993 HIR, the following hydrogeologic information was provided:

> *The U.S. Gypsum Sanitary Landfill is located in the valley and tributary ravines of Yellow Spring Creek near its source. The westernmost ravines have been filled level with the adjacent uplands with waste. Trenches have also been filled near LW-2 and LW-1. Yellow Spring Creek itself has been diverted to run along the eastern edge of the valley and is separated by a dike from the current fill area. Surface water draining from the site and adjacent areas flows to Yellow Spring Creek. The ravines that extend outside the site boundaries are drained with tile lines.*
>
> *Soil samples were taken by Shive-Hattery from SB-1, SB-2, and SB-3 and analyzed. Nine Shelby tube samples were also taken during the October 1991 drilling, one*

each from [SB-3], SB-5, SB-7, SB-11, SB-12, SB-13, SB-15, SB-16, and SB-17, at depths between 5 and 32 feet bgs. All samples collected, except SB-5, were classified as CL in the Unified Soil Classification. SB-5 was classified as SC. In-situ permeability tests of these soils were measured using the undisturbed samples. These gave values ranging from 2.7 x 10^{-3} to 1.1 x 10^{-8} cm/sec. Soil borings drilled during the investigation show that bedrock is highest on the northwest corner of the site and sloped to both the south and east. A deeply eroded channel with alluvium deposits over the buried channel deposits is found at MW-5, MW-6/MW-7, and SB-18. The buried channel deposits are also found at MW-16/MW-19. Apparently, the buried channel ends at the limestone bedrock to the north and west of the site and extends to the south and east. Bedrock is Lower Mississippian limestones and interbedded shales except at MW-6. Since MW-6 drilled through approximately 20 feet of shale without encountering any limestone and nearby well logs indicate that the top of the Upper Devonian aquiclude is found at an elevation of approximately 660 feet NGVD, it is likely that the shales found in MW-6 are from the Upper Devonian.

Three of the four vertical hydraulic gradients measured were positive, indicating flow from the uppermost aquifer, the combined limestone and buried channel, to the water table. They varied from 0.042 feet/foot for well cluster MW-13/MW-14 to 0.322 feet/foot for well cluster MW-9/MW-10 to 0.178 feet/foot for well cluster MW-6/MW-7. The only negative gradient in well cluster MW-16/MW-19 was -0.905 foot/foot. The water table appears to be topographically controlled. The water table is probably recharged by flow from the lower aquifers in all places except the higher recharge area around MW-15 and MW-16/MW-19. Additional evidence of this comes from MW-12, the only bedrock aquifer that is also a water table well. This is the only bedrock well in which part of the limestone unit was dry. The Mississippian limestone and buried channel deposits are probably hydraulically connected and form the uppermost aquifer on site. The Geological Survey Bureau of the IDNR indicates that Yellow Spring Creek is most likely to be in discharge, receiving water from the groundwater aquifer.

3.0 FIGURES DISCUSSION

The following figures are attached.

3.1 FIGURE 1 – APPROVED MONITORING NETWORK

The Landfill property and hydrologic monitoring system plan (HMSP) network is depicted in **Figure 1**. **Figure 1** indicates the locations of the monitoring wells.

3.2 FIGURE 2 – WATER TABLE AQUIFER GROUNDWATER CONTOURS

A groundwater contour map based on water levels measured in water table monitoring wells during the August 2024 groundwater sampling event is included in **Figure 2**. **Figure 2** indicates a generally northerly to northeasterly groundwater flow direction. Leachate elevations are shown on the figure but were not used in the development of the contours as it is not known if the leachate elevations represent a perched zone within the waste or a fully saturated waste mass or if the leachate is in hydraulic communication with the water table. Potential mounding of leachate is indicated by the leachate elevations exceeding the contour elevations.

3.3 FIGURE 3 – UPPERMOST WATER TABLE AQUIFER GROUNDWATER CONTOURS

A groundwater contour map based on water levels measured in the Uppermost Aquifer during the August 2024 annual groundwater sampling event is included as **Figure 3**. **Figure 3** indicates a generally northerly to northeasterly groundwater flow direction.

4.0 QA/QC SUMMARY

Date indicates the date(s) of sampling.

4.1 AUGUST 27, 2024 (2024 ANNUAL SAMPLING EVENT)

Based on the QA review, no samples were rejected as unusable due to QC failures. In general, the quality of the analytical data for this reporting period does not appear to have been compromised by analytical irregularities and results affected by QC anomalies are qualified with the appropriate data flags, which are listed in the laboratory report in Appendix B-1. Data validation documentation can be found in Appendix B-2.

5.0 DATA EVALUATION

Statistical evaluation in accordance with the DNR comment letter dated May 11, 2017 (Doc #89407) was conducted for the groundwater analytical data collected during the 2024 sampling event. The statistical evaluation for samples collected during the 2024 sampling event is located in **Appendix D** of this report.

5.1 DATA EVALUATION

Groundwater monitoring for the Landfill consists of sampling from two separate groundwater units. The water table contains two upgradient monitoring wells located on the south side of the Landfill and five downgradient monitoring wells, one located on the west side, three located on the north side, and one located on the east side. The uppermost aquifer contains two upgradient monitoring wells located on the south and southwest sides of the Landfill and four downgradient monitoring wells, one located on the north side, one located on the northeast side, and two located on the east side of the Landfill.

Concentrations of sulfate in upgradient monitoring well MW-15 and downgradient monitoring wells MW-11 and MW-12 have been largely consistent since sampling for these constituents began based on a review of concentrations listed in the Summary of Groundwater Chemistry in **Appendix C**. The MCL goal of 500 mg/L for sulfate established by DNR in the letter dated June 3, 1998 (Doc #42846) has generally been exceeded in upgradient monitoring well MW-15 and downgradient monitoring well MW-11 and only occasionally exceeded in downgradient monitoring well MW-12.

Fourteen prediction limit exceedances were measured based on 2024 sampling results as listed in **Table 1** compared to eleven prediction limit exceedances measured based on 2023 sampling results reported in the 2023 AWQR. The largest number of prediction limit exceedances measured based on 2024 sampling results were attributed to chloride.

Exceedances of action or advisory levels were limited to two exceedances of the maximum contaminant level goal (MCLG) for sulfate in upgradient water table monitoring well MW-15 and downgradient water table monitoring well MW-11 as listed in **Table 9**.

5.2 TRENDING IN MONITORING WELLS

Statistically significant decreasing trends at a 99% confidence level (α=0.01) were identified in two monitoring well/constituent pairs by Mann-Kendall analysis during this reporting period. A statistically significant increasing trend at a 99% confidence level (α=0.01) was identified in one monitoring well/constituent pair by Mann-Kendall analysis during this reporting period. The trend analysis is included in Attachment D of **Appendix D** of this report. The statistically significant trends were as follows:

Monitoring Point	Constituent	Trend
MW-8	pH	Decreasing
MW-10	pH	Decreasing
MW-13	Nitrogen, Ammonia	Increasing

Although not necessarily statistically significant, the Mann-Kendall statistics can provide an indication of general trending in the data. Trend indications for wells in the monitoring program are shown in the table below. The statistics used to develop the general trending differ from the Mann-

Kendall statistics used in the diagnostics section of the statistical evaluation in that a much lower trend threshold is applied for the general trending information (α=0.20 versus α=0.01). Trends classified as decreasing or increasing exhibited a statistically significant trend with 80% confidence using the most recent eight data points. Trends classified as stable did not exhibit a statistically significant trend with 80% confidence using the eight most recent data points. A summary of Mann-Kendall statistics by constituent in each monitoring point is included in **Appendix E** of this report.

Trending in Monitoring Wells					
Aquifer	**Monitoring Well**	**Decreasing Trends**	**Stable Trends**	**Increasing Trends**	**Number of Constituents Analyzed**
Water Table Aquifer	MW-15 (u)	20.00%	40.00%	40.00%	5
	MW-16 (u)	0.00%	80.00%	20.00%	5
	MW-7	14.29%	85.71%	0.00%	7
	MW-10	25.00%	50.00%	25.00%	4
	MW-11	28.57%	71.43%	0.00%	7
	MW-12	16.67%	66.67%	16.67%	6
	MW-14	20.00%	80.00%	0.00%	5
Uppermost Aquifer	MW-13 (u)	16.67%	66.67%	16.67%	6
	MW-19 (u)	20.00%	80.00%	0.00%	5
	MW-5	20.00%	80.00%	0.00%	5
	MW-6	0.00%	60.00%	40.00%	5
	MW-8	16.67%	83.33%	0.00%	6
	MW-9	16.67%	66.67%	16.67%	6
Combined	**Site Wide**	**16.67%**	**70.83%**	**12.50%**	**72**

(u) indicates an upgradient monitoring point.

Review of the Mann-Kendall statistics indicated that approximately 87.5% of the Mann-Kendall statistics were considered stable or decreasing following the 2024 annual statistical evaluation with 10 of the 12 decreasing trends being pH. There were nine monitoring well/constituent pairs with a generally increasing trend four of which were specific conductance. The monitoring well/constituent pairs with increasing trends and decreasing pH trends are discussed in the following table.

Monitoring Well	Constituent Name	Comments
MW-6	Chemical Oxygen Demand	Based on three actual detections and five non-detects. Highest concentration of 9.76 measured in 2024. These detections were similar to upgradient monitoring well MW-19.
MW-6	Iron	Based on eight actual detections. Highest concentration of 3.82 mg/L measured in 2020.
MW-9	Specific Conductance	Based on eight actual detections. Highest concentration of 712.8 µS/cm measured in 2024. These detections were below the historical maximum of 1130 µS/cm measured in 2013.

Monitoring Well	Constituent Name	Comments
MW-10	Chemical Oxygen Demand	Based on six actual detections and two non-detects. Highest concentration of 12.8 mg/L measured in 2022.
MW-12	Specific Conductance	Based on eight actual detections. Highest concentration of 1556.3 µS/cm measured in 2020.
MW-13 (u)	Nitrogen-Ammonia	Based on seven actual detections and one non-detect. Highest concentration of 0.388 mg/L measured in 2024. The Health Advisory Level (HAL) for Nitrogen-Ammonia is 30.0 mg/L
MW-15 (u)	Specific Conductance	Based on eight actual detections. Highest concentration of 2170.5 µS/cm measured in 2024.
MW-15 (u)	Sulfate	Based on eight actual detections. Highest concentration of 941 mg/L measured in 2024. The Maximum Containment Level Goal (MCLG) is 500 mg/L.
MW-16 (u)	Specific Conductance	Based on eight actual detections. Highest concentration of 803 µS/cm measured in 2024. All trend concentrations were within the historical range.
MW-5	pH (decreasing)	Based on eight measurements. Range of pH measurements between 6.66 and 7.50 S.U.
MW-7	pH (decreasing)	Based on eight measurements. Range of pH measurements between 6.24 and 7.65 S.U.
MW-8	pH (decreasing)	Based on eight measurements. Range of pH measurements between 7.00 and 7.30 S.U.
MW-9	pH (decreasing)	Based on eight measurements. Range of pH measurements between 7.02 and 7.20 S.U.
MW-10	pH (decreasing)	Based on eight measurements. Range of pH measurements between 6.69 and 7.00 S.U.
MW-11	pH (decreasing)	Based on eight measurements. Range of pH measurements between 6.19 and 6.84 S.U.
MW-13	pH (decreasing)	Based on eight measurements. Range of pH measurements between 6.98 and 7.32 S.U.
MW-14	pH (decreasing)	Based on eight measurements. Range of pH measurements between 6.97 and 7.12 S.U.
MW-15	pH (decreasing)	Based on eight measurements. Range of pH measurements between 6.47 and 7.65 S.U.
MW-19	pH (decreasing)	Based on eight measurements. Range of pH measurements between 6.94 and 7.28 S.U.

Nine monitoring well/constituent pairs were found to be increasing at an 80% confidence level and all increasing concentrations were well below applicable action levels where identified, with the exception of sulfate in upgradient monitoring well MW-15. The pH values of the ten monitoring well/constituent pairs found to be decreasing at an 80% confidence, including the two pH values that were found to be decreasing at a 99% confidence level, were all neutral to circumneutral. Overall, a generally continued stability of groundwater quality at the site was noted.

6.0 RECOMMENDATIONS

6.1 SITE IMPACT ON GROUNDWATER

Groundwater conditions at the site remain generally stable to improving. The concentrations of the analyzed parameters in groundwater at the Landfill were similar to the previous reporting period. Based on 2024 sampling results, nine monitoring well/constituent pairs were increasing at an 80% confidence level; however, the impact on groundwater from the Landfill appears limited.

6.2 PROPOSED MONITORING

The groundwater monitoring program is summarized in Table 1. No changes to the HMSP monitoring program are recommended at this time. It is recommended that sampling continue for calendar year 2025 as summarized in Table 2 and as required by the DNR letter dated February 2, 2023 (Doc #105739). In accordance with the DNR letter dated May 29, 2024 (Doc # 110162), evaluation of the source of the sulfate and potential downgradient receptors will be performed in future reports.

6.3 PROPOSED MONITORING WELL CHANGES

Monitoring well performance is summarized in Table 4. No proposed changes to the existing monitoring wells are recommended at this time.

Tables

Table 1
Monitoring Program Summary
2024 Annual Water Quality Report
United States Gypsum-Sperry Landfill
Permit No. 29-SDP-04-89C

Monitoring Well	Formation[1]	Current Monitoring Program	Change for Next Sampling Event	Prediction Limit Exceedances	Total Number of Samples in Each Monitoring Program Since January 1, 2018		
					Routine	Supplemental	Remedial Action
HMSP Monitoring Points - Water Table							
MW-15	Silty Clay/Sand/Sandy Silty Clay	Background	None	-	9	-	-
MW-16	Clayey Silt/Sandy Silty Clay	Background	None	-	9	-	-
MW-7	Sandy Silt/silty Sand/Sandy Clay	Detection	None	COD, Chloride, Iron, Nitrogen-Ammonia	9	-	-
MW-10	Sandy Silt/Clayey Sand/Sand and Gravel	Detection	None	Chloride	9	-	-
MW-11	Silty Clay/Sand/Sandy Silty Clay	Detection	None	COD, Chloride, Iron, Specific Conductance	9	-	-
MW-12	Sandy Silty Clay/Shaly Limestone/Limestone	Detection	None	Chloride	9	-	-
MW-14	Sandy/Clayey silt/Sandy Silty Clay/Sand	Detection	None	Chloride	9	-	-
HMSP Monitoring Points - Uppermost Aquifer							
MW-13	Sitly Clay/Sandy Clayeye Silt/Sand/Limestone	Background	None	-	9	-	-
MW-19	Clayey Silt/Sandy Silty Clay/Sand	Background	None	-	9	-	-
MW-5	Sandy Silty Lean Clay/Clayey Sand/Sand	Detection	None	Chloride, Iron	9	-	-
MW-6	Silty Sand/Sandy Clay/Shale	Detection	None	Nitrogen-Ammonia	9	-	-
MW-8	Sandy Clayey Silt/Silt/Limestone	Detection	None	-	9	-	-
MW-9	Sandy Silt/Clayey Sand/Shale/Limestone	Detection	None	-	9	-	-

Notes:
[1] Obtained from screened interval on boring logs.

Table 2
Monitoring Program Implementation Schedule
2024 Annual Water Quality Report
United States Gypsum-Sperry Landfill
Permit No. 29-SDP-04-89C

Monitoring Well	Recent Sampling Dates and Constituents		Upcoming Sampling Dates and Constituents	
	8/16/23	8/27/24	2025 Annual Event	2026 Annual Event
HMSP Monitoring Wells - Water Table				
MW-15	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance, Sulfate	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance, Sulfate	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance, Sulfate	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance, Sulfate
MW-16	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance
MW-7	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance, Arsenic	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance, Arsenic	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance, Arsenic	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance, Arsenic
MW-10	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance, Sulfate	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance, Sulfate	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance, Sulfate	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance, Sulfate
MW-11	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance, Sulfate	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance, Sulfate	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance, Sulfate	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance, Sulfate
MW-12	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance, Sulfate	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance, Sulfate	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance, Sulfate	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance, Sulfate
MW-14	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance
HMSP Monitoring Wells - Uppermost Aquifer				
MW-13	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance
MW-19	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance
MW-5	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance
MW-6	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance
MW-8	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance
MW-9	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance	Ammonia-Nitrogen, COD, Chloride, pH, Iron, Specific Conductance

Table 3
Monitoring Well Maintenance and Performance Re-Evaluation Schedule
2024 Annual Water Quality Report
United States Gypsum-Sperry Landfill

Compliance with:	2022	2023	2024	2025
567 IAC 114.21(2)"a" high and low water levels	Completed	Completed	Included	Scheduled
567 IAC 114.21(2)"b" changes in the hydrologic setting and flow paths	Completed	Completed	Included	Scheduled
567 IAC 114.21(2)"c" well depths	Completed	Completed	Included	Scheduled
567 IAC 114.21(2)"d" in-situ permeability tests		Completed		Scheduled

Comments:
In-situ permeability testing was replaced with biennial well recharge rate evaluation in DNR correspondence dated September 19, 2016 (Doc# 87235)

Table 4
Monitoring Well Performance and Maintenance Summary
2024 Annual Water Quality Report
United States Gypsum-Sperry Landfill
Permit No. 29-SDP-04-89C

Well	Top of Casing	Top of Screen	Total Depth		Date of Measurements	Maximum Depth Discrepancy (ft)
					8/28/2024	
MW-5	703.32	682.52	25.8	Groundwater Level (ft)	3.10	1.1
				Groundwater Elevation (Ft MSL)	700.22	
				Measured Well Depth (ft)	24.7	
				Submerged screen	Y	
MW-6	700.43	639.03	71.4	Groundwater Level (ft)	ARTESIAN	0.2
				Groundwater Elevation (Ft MSL)	ARTESIAN	
				Measured Well Depth (ft)	71.2	
				Submerged screen	Y	
MW-7	701.20	686.00	25.2	Groundwater Level (ft)	10.91	0.4
				Groundwater Elevation (Ft MSL)	690.29	
				Measured Well Depth (ft)	24.8	
				Submerged screen	Y	
MW-8	701.61	686.71	24.9	Groundwater Level (ft)	4.02	-0.2
				Groundwater Elevation (Ft MSL)	697.59	
				Measured Well Depth (ft)	25.1	
				Submerged screen	Y	
MW-9	706.36	683.76	32.6	Groundwater Level (ft)	6.79	-0.2
				Groundwater Elevation (Ft MSL)	699.57	
				Measured Well Depth (ft)	32.8	
				Submerged screen	Y	
MW-10	706.22	696.22	15.0	Groundwater Level (ft)	9.12	4.1
				Groundwater Elevation (Ft MSL)	697.10	
				Measured Well Depth (ft)	10.9	
				Submerged screen	Y	
MW-11	720.00	707.10	22.9	Groundwater Level (ft)	8.54	-0.2
				Groundwater Elevation (Ft MSL)	711.46	
				Measured Well Depth (ft)	23.1	
				Submerged screen	Y	
MW-12	754.63	716.63	48.0	Groundwater Level (ft)	34.52	2.8
				Groundwater Elevation (Ft MSL)	720.11	
				Measured Well Depth (ft)	45.2	
				Submerged screen	Y	
MW-13	757.10	696.10	71.0	Groundwater Level (ft)	34.82	0.4
				Groundwater Elevation (Ft MSL)	722.28	
				Measured Well Depth (ft)	70.6	
				Submerged screen	Y	
MW-14	757.83	724.83	43.0	Groundwater Level (ft)	36.00	-0.1
				Groundwater Elevation (Ft MSL)	721.83	
				Measured Well Depth (ft)	43.1	
				Submerged screen	N	
MW-15	747.86	729.86	28.0	Groundwater Level (ft)	10.62	-0.3
				Groundwater Elevation (Ft MSL)	737.24	
				Measured Well Depth (ft)	28.3	
				Submerged screen	Y	
MW-16	760.24	729.74	40.5	Groundwater Level (ft)	32.09	0.1
				Groundwater Elevation (Ft MSL)	728.15	
				Measured Well Depth (ft)	40.4	
				Submerged screen	N	
MW-19	761.22	700.02	71.2	Groundwater Level (ft)	41.48	-0.8
				Groundwater Elevation (Ft MSL)	719.74	
				Measured Well Depth (ft)	72.0	
				Submerged screen	Y	

Comments:

1) Measured well depths were within 1.0 foot of the installed depth with the following exceptions:
MW-5, MW-10, and MW-12: Monitoring wells MW-5, MW-10, and MW-12 measured between approximately 1.1 and 4.1 feet shallower than the installed depths during the 2024 sampling event. These measurements are consistent with a majority of previous measurements of total well depth in these monitoring wells. Additionally, since these monitoring wells produce sufficient groundwater for sampling it is likely that the wells are functioning adeqautely.

Table 5
Background and GWPS Summary
2024 Annual Water Quality Report
United States Gypsum-Sperry Landfill
Permit No. 29-SDP-04-89C

Interwell Background/GWPS (MW-15 & MW-16)

Constituent	Units	Samples	Detections	Min	Max	Mean	Statistical Test	Action Level	Source
Water Table									
Chemical Oxygen Demar	mg/L	40	14	2.5	12.8	4.33	PL		
Chloride	mg/L	40	40	7.97	17	11.18	PL	250 mg/L	SMCL
Iron	mg/L	20	5	0.0493	5.32	0.36	PL		
Nitrogen, Ammonia	mg/L	40	2	0.1	0.117	0.10	PL	30.0 mg/L	HAL
pH	S.U.	41	41	6.47	8.6	7.22	PL	6.5-8.5 S.U.	SMCL
Specific Conductance	µS/cm	41	41	264	2171	1198	PL		

Interwell Background/GWPS (MW-13 & MW-19)

Constituent	Units	Samples	Detections	Min	Max	Mean	Statistical Test	Action Level	Source
Uppermost Aquifer									
Chemical Oxygen Demar	mg/L	40	14	2.5	20.7	4.21	PL		
Chloride	mg/L	40	20	1.48	4.58	2.68	PL	250 mg/L	SMCL
Iron	mg/L	20	15	0.05	2.21	0.44	PL		
Nitrogen, Ammonia	mg/L	40	23	0.065	0.388	0.17	PL	30.0 mg/L	HAL
pH	S.U.	40	40	6.94	8.26	7.40	PL	6.5-8.5 S.U.	SMCL
Specific Conductance	µS/cm	40	40	512	1205	690	PL		

Notes:

1) Background levels based on calculated prediction limits limits or reporting limit, as applicable.

Acronyms/Abbreviations:

RL = Reporting Limit
GWPS = Groundwater Protection Standard
SSS = Site-Specific GWPS
SWS = Statewide Standard
HAL = Health Advisory Level
MCL = EPA Maximum Contaminant Level
PL = Prediction Limits
SMCL = Secondary Maximum Contaminant Level
MCLG = Maximum Contaminant Level Goal

Comments:

1) **Water quality results and effectiveness of the statistical data evaluation criteria**: Statistical evaluations consist of prediction limits.
2) **Changes to the previous statistical method during reporting period:** None.

Table 6

Summary of Well/Detected Constituent Pairs With No Immediately Preceding Prediction Limit Exceedances

2024 Annual Water Quality Report

United States Gypsum-Sperry Landfill

Permit No. 29-SDP-04-89C

Water Table

Well	Constituent	Units	Most Recent Result	Background Standard
MW-7	Iron	mg/L	9.16	5.32
	Nitrogen-Ammonia	mg/L	0.31	0.117
MW-11	Specific Conductance	µS/cm	2651	2171
MW-12	Chloride	mg/L	24.1	17

Comments:

1) **Problems with the current HMSP network:** None.
2) **Schedule to implement remedies:** Not applicable.
3) **Alternative constituent or sample frequency changes:** None.
4) **Significant changes to prediction limits:** None.
5) **Resampling strategy:** None; there are currently no wells in the detection monitoring program.

Table 7
Summary Table of Ongoing and Newly Identified Prediction Limit Exceedances
2024 Annual Water Quality Report
United States Gypsum-Sperry Landfill
Permit No. 29-SDP-04-89C

Key

	Denotes ongoing control limit exceedances that were identified as control limit exceedances during this reporting period and the previous reporting period at least once during each reporting period.
	Denotes newly identified control limit exceedances in the 2024 reporting period. Newly identified is defined as occuring at least once in the current reporting period but not in the immediately preceeding reporting period.

Water Table

Well	Constituent	Units	Most Recent Result	Background Standard	Action Level/ Statewide Standard
MW-7	COD	mg/L	29.3	13	-
	Chloride	mg/L	36.9	17	250
	Iron	mg/L	9.16	5.32	-
	Nitrogen-Ammonia	mg/L	0.31	0.177	30
MW-10	Chloride	mg/L	36.6	17	250
MW-11	COD	mg/L	23.3	13	-
	Chloride	mg/L	30.3	17	250
	Iron	mg/L	10.8	5.32	-
	Specific Conductance	µS/cm	2651	2171	-
MW-12	Chloride	mg/L	24.1	17	250
MW-14	Chloride	mg/L	51.8	17	250

Uppermost Aquifer

Well	Constituent	Units	Most Recent Result	Background Standard	Action Level/ Statewide Standard
MW-5	Chloride	mg/L	13.2	4.58	250
	Iron	mg/L	8.6	2.21	-
MW-6	Nitrogen-Ammonia	mg/L	0.556	0.388	30

Notes: None.

Comments:

1) **Problems with the current HMSP network:** None.
2) **Proposed remedies:** None.
3) **Alternative constituent or sample frequency changes:** None.
4) **Plume delineation strategies:** See Section 6.3.
5) **Property owner notifications:** Not applicable.

Table 8
Summary of Groundwater Chemistry
2024 Annual Water Quality Report
United States Gypsum-Sperry Landfill
Permit No. 29-SDP-04-89C

The Summary of Groundwater Chemistry is located in Appendix C.

Table 9
Historical Prediction Limit & Action Level Exceedances
2024 Annual Water Quality Report
United States Gypsum-Sperry Landfill

Key

	Prediction Limit Exceedance
X	Action Level Exceedance

Water Table

Well	Constituent	2021	2022	2023	2024
MW-7	Arsenic	**NS**			**X**
	COD				
	Chloride				
	Iron				
	Nitrogen-Ammonia				
MW-10	Chloride				
MW-11	COD				
	Chloride				
	Iron				
	Specific Conductance				
	Sulfate	**X**	**X**	**X**	**X**
MW-12	Chloride				
	Sulfate	**X**			
MW-14	Chloride				

Uppermost Aquifer

Well	Constituent	2020	2021	2022	2023
MW-5	Chloride				
	Iron				
MW-6	Nitrogen, Ammonia				
MW-8	Iron				

NS - Not Sampled.

Table 10
Groundwater Quality Assessment Plan Trend Analysis
2024 Annual Water Quality Report
United States Gypsum-Sperry Landfill
Permit No. 29-SDP-04-89C

See Appendix E for Mann-Kendall Trend Analysis

Figures

Approved Monitoring Network

Legend

- HMSP Monitoring Well
- Approximate Monitoring Well Location
- Approximate Leachate Piezometer Location
- Approximate Fenceline
- Creek/Stream
- Approximate Property Boundary

US Gypsum Landfill
Sperry, Iowa
Project No: 27224060.00
Drawing Date: November 2024

N
W
E
S

0 60 120 240 360 Feet

Figure 1

SCS ENGINEERS
environmental consultants and contractors

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environmental consultants and contractors

Water Table Aquifer Groundwater Contours

Legend

- Approximate Water Table Groundwater Contour Based on Field Measurments Taken on August 27, 2024
- Approximate Monitoring Well Location
- Approximate Leachate Piezometer Location
- Approximate Fenceline
- Creek/Stream
- Approximate Property Boundary

US Gypsum Landfill
Sperry, Iowa
Project No: 27224060.00
Drawing Date: November 2024

Figure 2

N W E S

0 60 120 240 360 Feet

Uppermost Water Table Aquifer Groundwater Contours

Figure 3

Legend

- Approximate Uppermost Water Table Groundwater Contour Based on Field Measurments Taken on August 27, 2024
- Approximate Monitoring Well Location
- Approximate Leachate Piezometer Location
- Approximate Fenceline
- Creek/Stream
- Approximate Property Boundary

US Gypsum Landfill
Sperry, Iowa
Project No: 27224060.00
Drawing Date: November 2024

SCS ENGINEERS
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Appendix A

Field Sampling Forms

FORM FOR GROUNDWATER SAMPLING

Project:	**UNITED STATES GYPSUM - SPERRY LANDFILL**		
Monitoring Well/Piezometer ID:	**MW-5**	Date:	**8/28/2024**
Gradient:	Down	Sampler:	Cole Tesar

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	Yes	Standing water around well.

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	24.7
Initial Static Water Level (feet):	3.10
Initial Groundwater Elevation (ft-amsl):	697.33
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
10:16 AM	Purging start time.						
10:19 AM	18.0	0.8	1147.0	6.74	-59.8	50.7	
10:22 AM	17.7	0.2	1145.5	6.73	-62.0	50.8	
10:25 AM	18.0	<0.1	1141.8	6.72	-63.0	61.6	
10:28 AM	17.7	<0.1	1146.2	6.72	-63.8	63.0	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	2.0
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	166.67

D. WELL MAINTENANCE		
Does the well require any future maintenance?	Yes	
If yes, explain:	Well Casing and PVC broke at base. Needs repair.	

Additional Comments:	Color: Clear; Odor: Swampy Artesian Well

FORM FOR GROUNDWATER SAMPLING

Project:	**UNITED STATES GYPSUM - SPERRY LANDFILL**		
Monitoring Well/Piezometer ID:	**MW-6**	Date:	**8/28/2024**
Gradient:	Down	Sampler:	Cole Tesar

A. MW/PIEZOMETER CONDITIONS

Well/Piezometer Capped?	No	Well did not have a cap.
Litter/Standing Water?	Yes	Standing water around well.

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)

Measured Well Total Depth (feet):	71.2
Initial Static Water Level (feet):	0.00
Initial Groundwater Elevation (ft-amsl):	700.43
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
9:24 AM	Purging start time.						
9:27 AM	17.5	0.5	733.2	7.32	-135.4	9.8	
9:30 AM	17.4	0.1	724.3	7.32	-133.4	-	
9:33 AM	17.2	<0.1	722.2	7.31	-131.5	35.9	
9:36 AM	18.0	<0.1	723.6	7.30	-132.1	16.2	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	2.1
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	175.00

D. WELL MAINTENANCE

Does the well require any future maintenance?	Yes	
If yes, explain:	Well cap needed.	

Additional Comments:	Color: Clear; Odor: Swampy Artesian Well Missing turbidity reading due to meter malfunction.

FORM FOR GROUNDWATER SAMPLING

Project:	**UNITED STATES GYPSUM - SPERRY LANDFILL**		
Monitoring Well/Piezometer ID:	**MW-7**	Date:	**8/28/2024**
Gradient:	Down	Sampler:	Cole Tesar

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	Yes	Water surrounding well.

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	24.8
Initial Static Water Level (feet):	10.91
Initial Groundwater Elevation (ft-amsl):	690.29
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
9:03 AM	Purging start time.						
9:06 AM	16.4	1.0	2005.7	6.29	-37.3	32.9	
9:09 AM	16.1	0.3	2000.0	6.30	-41.9	40.9	
9:12 AM	16.3	0.2	1988.9	6.31	-44.8	115.0	
9:15 AM	16.4	<0.1	1976.3	6.32	-47.0	63.8	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	2.0
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	166.67

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	Color: light orange; Odor: Swampy

FORM FOR GROUNDWATER SAMPLING

Project:	**UNITED STATES GYPSUM - SPERRY LANDFILL**		
Monitoring Well/Piezometer ID:	**MW-8**	Date:	**8/27/2024**
Gradient:	Down	Sampler:	Cole Tesar

A. MW/PIEZOMETER CONDITIONS

Well/Piezometer Capped?	Yes
Litter/Standing Water?	No

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)

Measured Well Total Depth (feet):	25.1
Initial Static Water Level (feet):	4.02
Initial Groundwater Elevation (ft-amsl):	697.59
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
2:56 PM	Purging start time.						
2:59 PM	21.0	0.8	703.0	7.12	-30.5	13.7	
3:02 PM	20.6	0.2	699.7	7.06	-30.5	13.2	
3:05 PM	20.9	0.1	695.0	7.03	-29.0	17.0	
3:08 PM	21.1	<0.1	696.6	7.01	-28.2	44.6	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	1.8
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	150.00

D. WELL MAINTENANCE

Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	Color: Clear Odor: None

FORM FOR GROUNDWATER SAMPLING

Project:	**UNITED STATES GYPSUM - SPERRY LANDFILL**		
Monitoring Well/Piezometer ID:	**MW-9**	Date:	**8/27/2024**
Gradient:	Down	Sampler:	Cole Tesar

A. MW/PIEZOMETER CONDITIONS

Well/Piezometer Capped?	Yes
Litter/Standing Water?	No

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)

Measured Well Total Depth (feet):	32.8
Initial Static Water Level (feet):	6.79
Initial Groundwater Elevation (ft-amsl):	699.57
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
2:02 PM	Purging start time.						
2:05 PM	19.0	0.5	750.1	7.18	-151.2	48.1	
2:08 PM	18.8	0.2	717.9	7.17	-148.2	39.1	
2:11 PM	18.8	<0.1	712.4	7.13	-139.1	15.9	
2:14 PM	19.0	<0.1	712.8	7.10	-131.7	42.9	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	2.1
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	175.00

D. WELL MAINTENANCE

Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	Color: Clear/ Black particles; Odor: None Duplicate collected.

FORM FOR GROUNDWATER SAMPLING

Project:	**UNITED STATES GYPSUM - SPERRY LANDFILL**		
Monitoring Well/Piezometer ID:	**MW-10**	Date:	**8/27/2024**
Gradient:	Down	Sampler:	Cole Tesar

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	10.9
Initial Static Water Level (feet):	9.12
Initial Groundwater Elevation (ft-amsl):	697.10
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
2:28 PM	Purging start time.						
2:31 PM	21.3	1.1	1215.3	6.82	4.8	18.2	
2:34 PM	20.6	0.4	1362.3	6.72	11.2	18.9	
2:37 PM	20.6	0.1	1430.5	6.69	14.3	28.1	
2:40 PM	20.6	<0.1	1449.1	6.69	16.2	15.0	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	2.0
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	166.67

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	Color: Clear; Odor: None

FORM FOR GROUNDWATER SAMPLING

Project:	**UNITED STATES GYPSUM - SPERRY LANDFILL**		
Monitoring Well/Piezometer ID:	**MW-11**	Date:	**8/27/2024**
Gradient:	Down	Sampler:	Cole Tesar

A. MW/PIEZOMETER CONDITIONS

Well/Piezometer Capped?	Yes
Litter/Standing Water?	No

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)

Measured Well Total Depth (feet):	23.1
Initial Static Water Level (feet):	8.54
Initial Groundwater Elevation (ft-amsl):	711.46
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
1:32 PM	Purging start time.						
1:35 PM	22.1	0.5	2776.0	6.16	-49.5	95.6	
1:38 PM	22.6	0.1	2704.0	6.19	-54.1	54.3	
1:41 PM	21.7	<0.1	2669.6	6.22	-55.4	88.7	
1:44 PM	21.9	<0.1	2650.9	6.23	-55.7	-	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	1.9
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	158.33

D. WELL MAINTENANCE

Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	Color: Cloudy; Odor: None Missing turbidity reading due to meter malfunction.

FORM FOR GROUNDWATER SAMPLING

Project:	**UNITED STATES GYPSUM - SPERRY LANDFILL**		
Monitoring Well/Piezometer ID:	**MW-12**	Date:	**8/27/2024**
Gradient:	Down	Sampler:	Cole Tesar

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	45.2
Initial Static Water Level (feet):	34.52
Initial Groundwater Elevation (ft-amsl):	720.11
Equipment Used:	Dedicated Submersible

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
12:58 PM	Purging start time.						
1:01 PM	19.6	4.0	1270.9	6.55	235.9	28.7	
1:04 PM	18.4	3.9	1260.2	6.64	232.5	20.7	
1:07 PM	18.4	3.8	1274.3	6.68	230.9	29.2	
1:10 PM	18.0	3.8	1269.6	6.72	229.4	36.9	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	2.1
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	175.00

D. WELL MAINTENANCE

Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	Color: Clear; Odor: None

FORM FOR GROUNDWATER SAMPLING

Project:	**UNITED STATES GYPSUM - SPERRY LANDFILL**		
Monitoring Well/Piezometer ID:	**MW-13**	Date:	**8/27/2024**
Gradient:	Up	Sampler:	Cole Tesar

A. MW/PIEZOMETER CONDITIONS

Well/Piezometer Capped?	Yes
Litter/Standing Water?	No

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)

Measured Well Total Depth (feet):	70.6
Initial Static Water Level (feet):	34.82
Initial Groundwater Elevation (ft-amsl):	722.28
Equipment Used:	Dedicated Submersible

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
4:11 PM	Purging start time.						
4:14 PM	14.4	1.1	664.1	7.22	-64.7	67.9	
4:17 PM	14.5	0.5	664.6	7.11	-63.3	30.3	
4:20 PM	14.6	0.3	665.2	7.06	-65.1	21.5	
4:23 PM	14.5	0.1	665.3	7.04	-67.3	23.8	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	2.8
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	233.33

D. WELL MAINTENANCE

Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	Color: Clear; Odor: None

FORM FOR GROUNDWATER SAMPLING

Project:	**UNITED STATES GYPSUM - SPERRY LANDFILL**		
Monitoring Well/Piezometer ID:	**MW-14**	Date:	**8/27/2024**
Gradient:	Down	Sampler:	Chad Dentlinger

A. MW/PIEZOMETER CONDITIONS

Well/Piezometer Capped?	Yes
Litter/Standing Water?	No

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)

Measured Well Total Depth (feet):	43.1
Initial Static Water Level (feet):	36.00
Initial Groundwater Elevation (ft-amsl):	721.83
Equipment Used:	Dedicated Submersible

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
3:44 PM	Purging start time.						
3:47 PM	18.4	5.2	903.4	7.10	31.7	43.1	
3:50 PM	18.8	5.2	902.6	7.02	53.0	33.0	
3:53 PM	16.6	5.2	894.2	7.02	65.2	27.1	
3:56 PM	15.4	5.2	885.3	7.02	74.0	23.6	
3:59 PM	16.7	5.2	876.6	7.00	80.2	26.2	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	2.7
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	15:00
Average Purge Rate (mL/min):	180.00

D. WELL MAINTENANCE

Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	Color: Clear; Odor: None

FORM FOR GROUNDWATER SAMPLING

Project:	**UNITED STATES GYPSUM - SPERRY LANDFILL**		
Monitoring Well/Piezometer ID:	**MW-15**	Date:	**8/27/2024**
Gradient:	Up	Sampler:	Cole Tesar

A. MW/PIEZOMETER CONDITIONS

Well/Piezometer Capped?	Yes
Litter/Standing Water?	No

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)

Measured Well Total Depth (feet):	28.3
Initial Static Water Level (feet):	10.62
Initial Groundwater Elevation (ft-amsl):	737.24
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
4:42 PM	Purging start time.						
4:45 PM	24.0	0.8	1840.5	6.56	52.6	96.5	
4:48 PM	25.1	0.4	2055.4	6.50	52.2	106.0	
4:51 PM	24.8	0.2	2121.9	6.49	51.8	53.6	
4:54 PM	25.3	0.3	2170.5	6.48	52.7	79.6	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	1.8
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	150.00

D. WELL MAINTENANCE

Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	Color: Clear; Odor: None

FORM FOR GROUNDWATER SAMPLING

Project:	**UNITED STATES GYPSUM - SPERRY LANDFILL**		
Monitoring Well/Piezometer ID:	**MW-16**	Date:	**8/27/2024**
Gradient:	Up	Sampler:	Cole Tesar

A. MW/PIEZOMETER CONDITIONS

Well/Piezometer Capped?	Yes
Litter/Standing Water?	No

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)

Measured Well Total Depth (feet):	40.4
Initial Static Water Level (feet):	32.09
Initial Groundwater Elevation (ft-amsl):	728.15
Equipment Used:	Dedicated Submersible

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
5:48 PM	Purging start time.						
5:51 PM	13.6	2.2	793.0	6.93	-20.8	16.7	
5:54 PM	13.7	2.6	799.8	6.90	-12.1	15.8	
5:57 PM	13.5	4.2	801.9	6.91	-3.9	8.8	
6:00 PM	14.0	4.7	803.0	6.91	2.7	8.4	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	2.8
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	233.33

D. WELL MAINTENANCE

Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	Color: Clear/Black particles; Odor: Swampy

FORM FOR GROUNDWATER SAMPLING

Project:	**UNITED STATES GYPSUM - SPERRY LANDFILL**		
Monitoring Well/Piezometer ID:	**MW-19**	Date:	**8/27/2024**
Gradient:	Up	Sampler:	Cole Tesar

A. MW/PIEZOMETER CONDITIONS

Well/Piezometer Capped?	Yes
Litter/Standing Water?	No

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)

Measured Well Total Depth (feet):	72.0
Initial Static Water Level (feet):	41.48
Initial Groundwater Elevation (ft-amsl):	719.74
Equipment Used:	Dedicated Submersible

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
5:21 PM	Purging start time.						
5:24 PM	14.4	1.4	684.9	7.12	-81.0	43.4	
5:27 PM	14.2	2.2	687.1	7.10	-89.1	16.0	
5:30 PM	14.2	2.4	682.7	7.08	-96.9	9.9	
5:33 PM	14.6	2.7	683.3	7.08	-102.4	10.5	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	2.5
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	208.33

D. WELL MAINTENANCE

Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	Color: Cloudy grey; Odor: Swampy

Appendix B-1

Laboratory Analytical Data Sheets

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Kevin Jensen
SCS Engineers
1690 All State Court
Suite 100
West Des Moines, Iowa 50265

Generated 9/10/2024 4:36:13 PM

JOB DESCRIPTION

US Gypsum - Sperry Landfill

JOB NUMBER

310-289352-1

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

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Authorized for release by
Samuel Miller, Project Management Assistant I
Samuel.Miller@et.eurofinsus.com
(319)277-2401

Table of Contents

Job Narrative
310-289352-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 8/30/2024 5:00 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 time was 5.6°C.

HPLC/IC
Method 9056A_ORGFM_28D: The following samples were diluted due to the nature of the sample matrix: MW-6 (310-289352-2), MW-8 (310-289352-3) and MW-13 (310-289352-6). Elevated reporting limits (RLs) are provided.

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

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

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

Sample Summary

Client: SCS Engineers
Job ID: 310-289352-1
Project/Site: US Gypsum - Sperry Landfill

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-289352-1	MW-5	Water	08/28/24 10:16	08/30/24 05:00
310-289352-2	MW-6	Water	08/28/24 09:24	08/30/24 05:00
310-289352-3	MW-8	Water	08/27/24 14:56	08/30/24 05:00
310-289352-4	MW-9	Water	08/27/24 14:02	08/30/24 05:00
310-289352-5	MW-10	Water	08/27/24 14:28	08/30/24 05:00
310-289352-6	MW-13	Water	08/27/24 16:11	08/30/24 05:00
310-289352-7	MW-14	Water	08/27/24 15:44	08/30/24 05:00
310-289352-8	MW-16	Water	08/27/24 17:48	08/30/24 05:00
310-289352-9	MW-19	Water	08/27/24 17:21	08/30/24 05:00
310-289352-10	MW-D	Water	08/27/24 14:02	08/30/24 05:00
310-289352-11	MW-7	Water	08/28/24 09:03	08/30/24 05:00
310-289352-12	MW-11	Water	08/27/24 13:32	08/30/24 05:00
310-289352-13	MW-12	Water	08/27/24 12:58	08/30/24 05:00
310-289352-14	MW-15	Water	08/27/24 16:42	08/30/24 05:00

Detection Summary

Client: SCS Engineers
Job ID: 310-289352-1
Project/Site: US Gypsum - Sperry Landfill

Client Sample ID: MW-5 — Lab Sample ID: 310-289352-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	13.2		5.00	2.25	mg/L	5		9056A	Total/NA
Iron	8.60		0.100	0.0360	mg/L	1		6020B	Total/NA
Chemical Oxygen Demand	11.8		5.00	4.80	mg/L	1		5220D LL	Total/NA

Client Sample ID: MW-6 — Lab Sample ID: 310-289352-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron	1.65		0.100	0.0360	mg/L	1		6020B	Total/NA
Ammonia	0.556		0.200	0.100	mg/L	1		350.1	Total/NA
Chemical Oxygen Demand	9.76		5.00	4.80	mg/L	1		5220D LL	Total/NA

Client Sample ID: MW-8 — Lab Sample ID: 310-289352-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ammonia	0.249		0.200	0.100	mg/L	1		350.1	Total/NA

Client Sample ID: MW-9 — Lab Sample ID: 310-289352-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	2.56	J	5.00	2.25	mg/L	5		9056A	Total/NA
Iron	0.0439	J	0.100	0.0360	mg/L	1		6020B	Total/NA
Ammonia	0.270		0.200	0.100	mg/L	1		350.1	Total/NA
Chemical Oxygen Demand	7.77		5.00	4.80	mg/L	1		5220D LL	Total/NA

Client Sample ID: MW-10 — Lab Sample ID: 310-289352-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	36.6		5.00	2.25	mg/L	5		9056A	Total/NA
Chemical Oxygen Demand	12.1		5.00	4.80	mg/L	1		5220D LL	Total/NA

Client Sample ID: MW-13 — Lab Sample ID: 310-289352-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron	0.106		0.100	0.0360	mg/L	1		6020B	Total/NA
Ammonia	0.388		0.200	0.100	mg/L	1		350.1	Total/NA
Chemical Oxygen Demand	6.12		5.00	4.80	mg/L	1		5220D LL	Total/NA

Client Sample ID: MW-14 — Lab Sample ID: 310-289352-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	51.8		5.00	2.25	mg/L	5		9056A	Total/NA
Chemical Oxygen Demand	8.10		5.00	4.80	mg/L	1		5220D LL	Total/NA

Client Sample ID: MW-16 — Lab Sample ID: 310-289352-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	10.4		5.00	2.25	mg/L	5		9056A	Total/NA
Iron	0.0813	J	0.100	0.0360	mg/L	1		6020B	Total/NA
Chemical Oxygen Demand	5.79		5.00	4.80	mg/L	1		5220D LL	Total/NA

Client Sample ID: MW-19 — Lab Sample ID: 310-289352-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	2.75	J	5.00	2.25	mg/L	5		9056A	Total/NA
Iron	0.572		0.100	0.0360	mg/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: SCS Engineers
Job ID: 310-289352-1
Project/Site: US Gypsum - Sperry Landfill

Client Sample ID: MW-19 (Continued) — Lab Sample ID: 310-289352-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chemical Oxygen Demand	10.8		5.00	4.80	mg/L	1		5220D LL	Total/NA

Client Sample ID: MW-D — Lab Sample ID: 310-289352-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	2.56	J	5.00	2.25	mg/L	5		9056A	Total/NA
Iron	6.72		0.100	0.0360	mg/L	1		6020B	Total/NA
Ammonia	0.253		0.200	0.100	mg/L	1		350.1	Total/NA

Client Sample ID: MW-7 — Lab Sample ID: 310-289352-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	36.9		5.00	2.25	mg/L	5		9056A	Total/NA
Arsenic	0.0160		0.00200	0.000530	mg/L	1		6020B	Total/NA
Iron	9.16		0.100	0.0360	mg/L	1		6020B	Total/NA
Ammonia	0.310		0.200	0.100	mg/L	1		350.1	Total/NA
Chemical Oxygen Demand	29.3		5.00	4.80	mg/L	1		5220D LL	Total/NA

Client Sample ID: MW-11 — Lab Sample ID: 310-289352-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	30.3		5.00	2.25	mg/L	5		9056A	Total/NA
Sulfate	716		50.0	21.0	mg/L	50		9056A	Total/NA
Iron	10.8		0.100	0.0360	mg/L	1		6020B	Total/NA
Chemical Oxygen Demand	23.3		5.00	4.80	mg/L	1		5220D LL	Total/NA

Client Sample ID: MW-12 — Lab Sample ID: 310-289352-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	24.1		20.0	9.00	mg/L	20		9056A	Total/NA
Sulfate	357		20.0	8.40	mg/L	20		9056A	Total/NA
Iron	0.0545	J	0.100	0.0360	mg/L	1		6020B	Total/NA
Chemical Oxygen Demand	6.89		5.00	4.80	mg/L	1		5220D LL	Total/NA

Client Sample ID: MW-15 — Lab Sample ID: 310-289352-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	9.03		5.00	2.25	mg/L	5		9056A	Total/NA
Sulfate	941		50.0	21.0	mg/L	50		9056A	Total/NA
Chemical Oxygen Demand	8.20		5.00	4.80	mg/L	1		5220D LL	Total/NA

This Detection Summary does not include radiochemical test results.

Client: SCS Engineers
Job ID: 310-289352-1
Project/Site: US Gypsum - Sperry Landfill

Client Sample ID: MW-5
Lab Sample ID: 310-289352-1
Date Collected: 08/28/24 10:16
Matrix: Water
Date Received: 08/30/24 05:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	13.2		5.00	2.25	mg/L			09/06/24 12:57	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	8.60		0.100	0.0360	mg/L		09/03/24 09:30	09/04/24 17:11	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	<0.200		0.200	0.100	mg/L			09/03/24 16:28	1
Chemical Oxygen Demand (SM 5220D LL)	11.8		5.00	4.80	mg/L			09/03/24 11:57	1

Client: SCS Engineers
Job ID: 310-289352-1
Project/Site: US Gypsum - Sperry Landfill

Client Sample ID: MW-6
Lab Sample ID: 310-289352-2
Date Collected: 08/28/24 09:24
Matrix: Water
Date Received: 08/30/24 05:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00	2.25	mg/L			09/06/24 13:09	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	1.65		0.100	0.0360	mg/L		09/03/24 09:30	09/04/24 17:31	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	0.556		0.200	0.100	mg/L			09/03/24 16:30	1
Chemical Oxygen Demand (SM 5220D LL)	9.76		5.00	4.80	mg/L			09/03/24 11:57	1

Client: SCS Engineers
Job ID: 310-289352-1
Project/Site: US Gypsum - Sperry Landfill

Client Sample ID: MW-8
Lab Sample ID: 310-289352-3
Date Collected: 08/27/24 14:56
Matrix: Water
Date Received: 08/30/24 05:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00	2.25	mg/L			09/06/24 13:21	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<0.100		0.100	0.0360	mg/L		09/03/24 09:30	09/04/24 17:33	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	**0.249**		0.200	0.100	mg/L			09/03/24 16:31	1
Chemical Oxygen Demand (SM 5220D LL)	<5.00		5.00	4.80	mg/L			09/03/24 11:57	1

Client: SCS Engineers
Job ID: 310-289352-1
Project/Site: US Gypsum - Sperry Landfill

Client Sample ID: MW-9
Lab Sample ID: 310-289352-4
Date Collected: 08/27/24 14:02
Matrix: Water
Date Received: 08/30/24 05:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2.56	J	5.00	2.25	mg/L			09/06/24 13:33	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.0439	J	0.100	0.0360	mg/L		09/03/24 09:30	09/04/24 17:35	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	0.270		0.200	0.100	mg/L			09/03/24 16:31	1
Chemical Oxygen Demand (SM 5220D LL)	7.77		5.00	4.80	mg/L			09/03/24 11:57	1

Client: SCS Engineers
Job ID: 310-289352-1
Project/Site: US Gypsum - Sperry Landfill

Client Sample ID: MW-10
Lab Sample ID: 310-289352-5
Date Collected: 08/27/24 14:28
Matrix: Water
Date Received: 08/30/24 05:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**36.6**		5.00	2.25	mg/L			09/06/24 13:45	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<0.100		0.100	0.0360	mg/L		09/03/24 09:30	09/04/24 17:37	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	<0.200		0.200	0.100	mg/L			09/03/24 16:33	1
Chemical Oxygen Demand (SM 5220D LL)	**12.1**		5.00	4.80	mg/L			09/03/24 11:57	1

Client: SCS Engineers
Job ID: 310-289352-1
Project/Site: US Gypsum - Sperry Landfill

Client Sample ID: MW-13
Lab Sample ID: 310-289352-6
Date Collected: 08/27/24 16:11
Matrix: Water
Date Received: 08/30/24 05:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00	2.25	mg/L			09/06/24 13:57	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.106		0.100	0.0360	mg/L		09/03/24 09:30	09/04/24 17:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	0.388		0.200	0.100	mg/L			09/03/24 16:33	1
Chemical Oxygen Demand (SM 5220D LL)	6.12		5.00	4.80	mg/L			09/03/24 11:57	1

Client: SCS Engineers
Job ID: 310-289352-1
Project/Site: US Gypsum - Sperry Landfill

Client Sample ID: MW-14
Lab Sample ID: 310-289352-7
Date Collected: 08/27/24 15:44
Matrix: Water
Date Received: 08/30/24 05:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**51.8**		5.00	2.25	mg/L			09/06/24 14:09	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<0.100		0.100	0.0360	mg/L		09/03/24 09:30	09/04/24 17:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	<0.200		0.200	0.100	mg/L			09/03/24 16:36	1
Chemical Oxygen Demand (SM 5220D LL)	**8.10**		5.00	4.80	mg/L			09/03/24 11:57	1

Client: SCS Engineers
Job ID: 310-289352-1
Project/Site: US Gypsum - Sperry Landfill

Client Sample ID: MW-16
Lab Sample ID: 310-289352-8
Date Collected: 08/27/24 17:48
Matrix: Water
Date Received: 08/30/24 05:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	10.4		5.00	2.25	mg/L			09/06/24 14:21	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.0813	J	0.100	0.0360	mg/L		09/03/24 09:30	09/04/24 17:44	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	<0.200		0.200	0.100	mg/L			09/03/24 16:36	1
Chemical Oxygen Demand (SM 5220D LL)	5.79		5.00	4.80	mg/L			09/03/24 11:57	1

Client: SCS Engineers
Job ID: 310-289352-1
Project/Site: US Gypsum - Sperry Landfill

Client Sample ID: MW-19
Lab Sample ID: 310-289352-9
Date Collected: 08/27/24 17:21
Matrix: Water
Date Received: 08/30/24 05:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2.75	J	5.00	2.25	mg/L			09/06/24 14:33	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.572		0.100	0.0360	mg/L		09/03/24 09:30	09/04/24 17:46	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	<0.200		0.200	0.100	mg/L			09/03/24 16:38	1
Chemical Oxygen Demand (SM 5220D LL)	10.8		5.00	4.80	mg/L			09/03/24 11:57	1

Client: SCS Engineers
Job ID: 310-289352-1
Project/Site: US Gypsum - Sperry Landfill

Client Sample ID: MW-D
Lab Sample ID: 310-289352-10
Date Collected: 08/27/24 14:02
Matrix: Water
Date Received: 08/30/24 05:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2.56	J	5.00	2.25	mg/L			09/06/24 14:45	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	6.72		0.100	0.0360	mg/L		09/03/24 09:30	09/04/24 17:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	0.253		0.200	0.100	mg/L			09/03/24 16:38	1
Chemical Oxygen Demand (SM 5220D LL)	<5.00		5.00	4.80	mg/L			09/03/24 11:57	1

Client: SCS Engineers
Job ID: 310-289352-1
Project/Site: US Gypsum - Sperry Landfill

Client Sample ID: MW-7
Lab Sample ID: 310-289352-11
Date Collected: 08/28/24 09:03
Matrix: Water
Date Received: 08/30/24 05:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	36.9		5.00	2.25	mg/L			09/06/24 15:22	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0160		0.00200	0.000530	mg/L		09/03/24 09:30	09/04/24 18:00	1
Iron	9.16		0.100	0.0360	mg/L		09/03/24 09:30	09/04/24 18:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	0.310		0.200	0.100	mg/L			09/03/24 16:38	1
Chemical Oxygen Demand (SM 5220D LL)	29.3		5.00	4.80	mg/L			09/03/24 11:57	1

Client: SCS Engineers
Job ID: 310-289352-1
Project/Site: US Gypsum - Sperry Landfill

Client Sample ID: MW-11
Lab Sample ID: 310-289352-12
Date Collected: 08/27/24 13:32
Matrix: Water
Date Received: 08/30/24 05:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	30.3		5.00	2.25	mg/L			09/10/24 09:10	5
Sulfate	716		50.0	21.0	mg/L			09/06/24 15:34	50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	10.8		0.100	0.0360	mg/L		09/03/24 09:30	09/04/24 18:04	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	<0.200		0.200	0.100	mg/L			09/03/24 16:40	1
Chemical Oxygen Demand (SM 5220D LL)	23.3		5.00	4.80	mg/L			09/03/24 11:57	1

Client: SCS Engineers
Job ID: 310-289352-1
Project/Site: US Gypsum - Sperry Landfill

Client Sample ID: MW-12
Lab Sample ID: 310-289352-13
Date Collected: 08/27/24 12:58
Matrix: Water
Date Received: 08/30/24 05:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	24.1		20.0	9.00	mg/L			09/06/24 15:46	20
Sulfate	357		20.0	8.40	mg/L			09/06/24 15:46	20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.0545	J	0.100	0.0360	mg/L		09/03/24 09:30	09/04/24 18:06	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	<0.200		0.200	0.100	mg/L			09/03/24 16:40	1
Chemical Oxygen Demand (SM 5220D LL)	6.89		5.00	4.80	mg/L			09/05/24 08:29	1

Client: SCS Engineers
Job ID: 310-289352-1
Project/Site: US Gypsum - Sperry Landfill

Client Sample ID: MW-15
Lab Sample ID: 310-289352-14
Date Collected: 08/27/24 16:42
Matrix: Water
Date Received: 08/30/24 05:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9.03		5.00	2.25	mg/L			09/06/24 15:58	5
Sulfate	941		50.0	21.0	mg/L			09/10/24 09:22	50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<0.100		0.100	0.0360	mg/L		09/03/24 09:30	09/04/24 18:09	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	<0.200		0.200	0.100	mg/L			09/03/24 16:41	1
Chemical Oxygen Demand (SM 5220D LL)	8.20		5.00	4.80	mg/L			09/05/24 08:29	1

Qualifiers

HPLC/IC

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

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
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 310-432745/3
Matrix: Water
Analysis Batch: 432745

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00	0.450	mg/L			09/06/24 09:23	1
Sulfate	<1.00		1.00	0.420	mg/L			09/06/24 09:23	1

Lab Sample ID: LCS 310-432745/4
Matrix: Water
Analysis Batch: 432745

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	9.654		mg/L		97	90 - 110
Sulfate	10.0	10.20		mg/L		102	90 - 110

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-431955/1-A
Matrix: Water
Analysis Batch: 432273

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 431955

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200	0.000530	mg/L		09/03/24 09:30	09/04/24 17:06	1
Iron	<0.100		0.100	0.0360	mg/L		09/03/24 09:30	09/04/24 17:06	1

Lab Sample ID: LCS 310-431955/2-A
Matrix: Water
Analysis Batch: 432273

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 431955

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	0.200	0.2145		mg/L		107	80 - 120
Iron	0.200	0.1835		mg/L		92	80 - 120

Lab Sample ID: 310-289352-1 MS
Matrix: Water
Analysis Batch: 432273

Client Sample ID: MW-5
Prep Type: Total/NA
Prep Batch: 431955

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	0.00239		0.200	0.2247		mg/L		111	75 - 125
Iron	8.60		0.200	8.830	4	mg/L		116	75 - 125

Lab Sample ID: 310-289352-1 MSD
Matrix: Water
Analysis Batch: 432273

Client Sample ID: MW-5
Prep Type: Total/NA
Prep Batch: 431955

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	0.00239		0.200	0.2202		mg/L		109	75 - 125	2	20
Iron	8.60		0.200	9.235	4	mg/L		318	75 - 125	4	20

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

Lab Sample ID: 310-289352-11 DU — **Client Sample ID: MW-7**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 432273 — **Prep Batch: 431955**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	0.0160		0.01621		mg/L		1	20
Iron	9.16		9.751		mg/L		6	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 310-432076/170 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 432076

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	<0.200		0.200	0.100	mg/L			09/03/24 16:26	1

Lab Sample ID: LCS 310-432076/171 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 432076

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	8.55	8.584		mg/L		100	90 - 110

Lab Sample ID: 310-289352-1 MS — **Client Sample ID: MW-5**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 432076

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	<0.200		1.00	0.9398		mg/L		94	90 - 110

Lab Sample ID: 310-289352-1 MSD — **Client Sample ID: MW-5**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 432076

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia	<0.200		1.00	0.9400		mg/L		94	90 - 110	0	13

Method: 5220D LL - COD

Lab Sample ID: MB 310-432069/60 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 432069

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	<5.00		5.00	4.80	mg/L			09/03/24 11:57	1

Lab Sample ID: LCS 310-432069/63 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 432069

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chemical Oxygen Demand	125	121.7		mg/L		97	85 - 110

Method: 5220D LL - COD (Continued)

Lab Sample ID: 310-289352-1 MS
Matrix: Water
Analysis Batch: 432069

Client Sample ID: MW-5
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chemical Oxygen Demand	11.8		50.0	66.40		mg/L		109	83 - 146		

Lab Sample ID: 310-289352-1 MSD
Matrix: Water
Analysis Batch: 432069

Client Sample ID: MW-5
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chemical Oxygen Demand	11.8		50.0	71.37		mg/L		119	83 - 146	7	18

Lab Sample ID: MB 310-432276/5
Matrix: Water
Analysis Batch: 432276

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	<5.00		5.00	4.80	mg/L			09/05/24 08:29	1

Lab Sample ID: LCS 310-432276/3
Matrix: Water
Analysis Batch: 432276

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chemical Oxygen Demand	125	121.3		mg/L		97	85 - 110		

Lab Sample ID: 310-289352-13 MS
Matrix: Water
Analysis Batch: 432276

Client Sample ID: MW-12
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chemical Oxygen Demand	6.89		50.0	62.26		mg/L		111	83 - 146		

Lab Sample ID: 310-289352-13 MSD
Matrix: Water
Analysis Batch: 432276

Client Sample ID: MW-12
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chemical Oxygen Demand	6.89		50.0	59.64		mg/L		106	83 - 146	4	18

HPLC/IC

Analysis Batch: 432745

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-289352-1	MW-5	Total/NA	Water	9056A	
310-289352-2	MW-6	Total/NA	Water	9056A	
310-289352-3	MW-8	Total/NA	Water	9056A	
310-289352-4	MW-9	Total/NA	Water	9056A	
310-289352-5	MW-10	Total/NA	Water	9056A	
310-289352-6	MW-13	Total/NA	Water	9056A	
310-289352-7	MW-14	Total/NA	Water	9056A	
310-289352-8	MW-16	Total/NA	Water	9056A	
310-289352-9	MW-19	Total/NA	Water	9056A	
310-289352-10	MW-D	Total/NA	Water	9056A	
310-289352-11	MW-7	Total/NA	Water	9056A	
310-289352-12	MW-11	Total/NA	Water	9056A	
310-289352-12	MW-11	Total/NA	Water	9056A	
310-289352-13	MW-12	Total/NA	Water	9056A	
310-289352-14	MW-15	Total/NA	Water	9056A	
310-289352-14	MW-15	Total/NA	Water	9056A	
MB 310-432745/3	Method Blank	Total/NA	Water	9056A	
LCS 310-432745/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 431955

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-289352-1	MW-5	Total/NA	Water	3005A	
310-289352-2	MW-6	Total/NA	Water	3005A	
310-289352-3	MW-8	Total/NA	Water	3005A	
310-289352-4	MW-9	Total/NA	Water	3005A	
310-289352-5	MW-10	Total/NA	Water	3005A	
310-289352-6	MW-13	Total/NA	Water	3005A	
310-289352-7	MW-14	Total/NA	Water	3005A	
310-289352-8	MW-16	Total/NA	Water	3005A	
310-289352-9	MW-19	Total/NA	Water	3005A	
310-289352-10	MW-D	Total/NA	Water	3005A	
310-289352-11	MW-7	Total/NA	Water	3005A	
310-289352-12	MW-11	Total/NA	Water	3005A	
310-289352-13	MW-12	Total/NA	Water	3005A	
310-289352-14	MW-15	Total/NA	Water	3005A	
MB 310-431955/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-431955/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-289352-1 MS	MW-5	Total/NA	Water	3005A	
310-289352-1 MSD	MW-5	Total/NA	Water	3005A	
310-289352-11 DU	MW-7	Total/NA	Water	3005A	

Analysis Batch: 432273

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-289352-1	MW-5	Total/NA	Water	6020B	431955
310-289352-2	MW-6	Total/NA	Water	6020B	431955
310-289352-3	MW-8	Total/NA	Water	6020B	431955
310-289352-4	MW-9	Total/NA	Water	6020B	431955
310-289352-5	MW-10	Total/NA	Water	6020B	431955
310-289352-6	MW-13	Total/NA	Water	6020B	431955

Metals (Continued)

Analysis Batch: 432273 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-289352-7	MW-14	Total/NA	Water	6020B	431955
310-289352-8	MW-16	Total/NA	Water	6020B	431955
310-289352-9	MW-19	Total/NA	Water	6020B	431955
310-289352-10	MW-D	Total/NA	Water	6020B	431955
310-289352-11	MW-7	Total/NA	Water	6020B	431955
310-289352-12	MW-11	Total/NA	Water	6020B	431955
310-289352-13	MW-12	Total/NA	Water	6020B	431955
310-289352-14	MW-15	Total/NA	Water	6020B	431955
MB 310-431955/1-A	Method Blank	Total/NA	Water	6020B	431955
LCS 310-431955/2-A	Lab Control Sample	Total/NA	Water	6020B	431955
310-289352-1 MS	MW-5	Total/NA	Water	6020B	431955
310-289352-1 MSD	MW-5	Total/NA	Water	6020B	431955
310-289352-11 DU	MW-7	Total/NA	Water	6020B	431955

General Chemistry

Analysis Batch: 432069

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-289352-1	MW-5	Total/NA	Water	5220D LL	
310-289352-2	MW-6	Total/NA	Water	5220D LL	
310-289352-3	MW-8	Total/NA	Water	5220D LL	
310-289352-4	MW-9	Total/NA	Water	5220D LL	
310-289352-5	MW-10	Total/NA	Water	5220D LL	
310-289352-6	MW-13	Total/NA	Water	5220D LL	
310-289352-7	MW-14	Total/NA	Water	5220D LL	
310-289352-8	MW-16	Total/NA	Water	5220D LL	
310-289352-9	MW-19	Total/NA	Water	5220D LL	
310-289352-10	MW-D	Total/NA	Water	5220D LL	
310-289352-11	MW-7	Total/NA	Water	5220D LL	
310-289352-12	MW-11	Total/NA	Water	5220D LL	
MB 310-432069/60	Method Blank	Total/NA	Water	5220D LL	
LCS 310-432069/63	Lab Control Sample	Total/NA	Water	5220D LL	
310-289352-1 MS	MW-5	Total/NA	Water	5220D LL	
310-289352-1 MSD	MW-5	Total/NA	Water	5220D LL	

Analysis Batch: 432076

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-289352-1	MW-5	Total/NA	Water	350.1	
310-289352-2	MW-6	Total/NA	Water	350.1	
310-289352-3	MW-8	Total/NA	Water	350.1	
310-289352-4	MW-9	Total/NA	Water	350.1	
310-289352-5	MW-10	Total/NA	Water	350.1	
310-289352-6	MW-13	Total/NA	Water	350.1	
310-289352-7	MW-14	Total/NA	Water	350.1	
310-289352-8	MW-16	Total/NA	Water	350.1	
310-289352-9	MW-19	Total/NA	Water	350.1	
310-289352-10	MW-D	Total/NA	Water	350.1	
310-289352-11	MW-7	Total/NA	Water	350.1	
310-289352-12	MW-11	Total/NA	Water	350.1	
310-289352-13	MW-12	Total/NA	Water	350.1	
310-289352-14	MW-15	Total/NA	Water	350.1	

General Chemistry (Continued)

Analysis Batch: 432076 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-432076/170	Method Blank	Total/NA	Water	350.1	
LCS 310-432076/171	Lab Control Sample	Total/NA	Water	350.1	
310-289352-1 MS	MW-5	Total/NA	Water	350.1	
310-289352-1 MSD	MW-5	Total/NA	Water	350.1	

Analysis Batch: 432276

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-289352-13	MW-12	Total/NA	Water	5220D LL	
310-289352-14	MW-15	Total/NA	Water	5220D LL	
MB 310-432276/5	Method Blank	Total/NA	Water	5220D LL	
LCS 310-432276/3	Lab Control Sample	Total/NA	Water	5220D LL	
310-289352-13 MS	MW-12	Total/NA	Water	5220D LL	
310-289352-13 MSD	MW-12	Total/NA	Water	5220D LL	

Lab Chronicle

Client: SCS Engineers
Job ID: 310-289352-1
Project/Site: US Gypsum - Sperry Landfill

Client Sample ID: MW-5
Lab Sample ID: 310-289352-1
Date Collected: 08/28/24 10:16
Matrix: Water
Date Received: 08/30/24 05:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	432745	QTZ5	EET CF	09/06/24 12:57
Total/NA	Prep	3005A			431955	F5MW	EET CF	09/03/24 09:30
Total/NA	Analysis	6020B		1	432273	NFT2	EET CF	09/04/24 17:11
Total/NA	Analysis	350.1		1	432076	ENB7	EET CF	09/03/24 16:28
Total/NA	Analysis	5220D LL		1	432069	ENB7	EET CF	09/03/24 11:57

Client Sample ID: MW-6
Lab Sample ID: 310-289352-2
Date Collected: 08/28/24 09:24
Matrix: Water
Date Received: 08/30/24 05:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	432745	QTZ5	EET CF	09/06/24 13:09
Total/NA	Prep	3005A			431955	F5MW	EET CF	09/03/24 09:30
Total/NA	Analysis	6020B		1	432273	NFT2	EET CF	09/04/24 17:31
Total/NA	Analysis	350.1		1	432076	ENB7	EET CF	09/03/24 16:30
Total/NA	Analysis	5220D LL		1	432069	ENB7	EET CF	09/03/24 11:57

Client Sample ID: MW-8
Lab Sample ID: 310-289352-3
Date Collected: 08/27/24 14:56
Matrix: Water
Date Received: 08/30/24 05:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	432745	QTZ5	EET CF	09/06/24 13:21
Total/NA	Prep	3005A			431955	F5MW	EET CF	09/03/24 09:30
Total/NA	Analysis	6020B		1	432273	NFT2	EET CF	09/04/24 17:33
Total/NA	Analysis	350.1		1	432076	ENB7	EET CF	09/03/24 16:31
Total/NA	Analysis	5220D LL		1	432069	ENB7	EET CF	09/03/24 11:57

Client Sample ID: MW-9
Lab Sample ID: 310-289352-4
Date Collected: 08/27/24 14:02
Matrix: Water
Date Received: 08/30/24 05:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	432745	QTZ5	EET CF	09/06/24 13:33
Total/NA	Prep	3005A			431955	F5MW	EET CF	09/03/24 09:30
Total/NA	Analysis	6020B		1	432273	NFT2	EET CF	09/04/24 17:35
Total/NA	Analysis	350.1		1	432076	ENB7	EET CF	09/03/24 16:31
Total/NA	Analysis	5220D LL		1	432069	ENB7	EET CF	09/03/24 11:57

Lab Chronicle

Client: SCS Engineers
Job ID: 310-289352-1
Project/Site: US Gypsum - Sperry Landfill

Client Sample ID: MW-10
Lab Sample ID: 310-289352-5
Date Collected: 08/27/24 14:28
Matrix: Water
Date Received: 08/30/24 05:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	432745	QTZ5	EET CF	09/06/24 13:45
Total/NA	Prep	3005A			431955	F5MW	EET CF	09/03/24 09:30
Total/NA	Analysis	6020B		1	432273	NFT2	EET CF	09/04/24 17:37
Total/NA	Analysis	350.1		1	432076	ENB7	EET CF	09/03/24 16:33
Total/NA	Analysis	5220D LL		1	432069	ENB7	EET CF	09/03/24 11:57

Client Sample ID: MW-13
Lab Sample ID: 310-289352-6
Date Collected: 08/27/24 16:11
Matrix: Water
Date Received: 08/30/24 05:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	432745	QTZ5	EET CF	09/06/24 13:57
Total/NA	Prep	3005A			431955	F5MW	EET CF	09/03/24 09:30
Total/NA	Analysis	6020B		1	432273	NFT2	EET CF	09/04/24 17:40
Total/NA	Analysis	350.1		1	432076	ENB7	EET CF	09/03/24 16:33
Total/NA	Analysis	5220D LL		1	432069	ENB7	EET CF	09/03/24 11:57

Client Sample ID: MW-14
Lab Sample ID: 310-289352-7
Date Collected: 08/27/24 15:44
Matrix: Water
Date Received: 08/30/24 05:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	432745	QTZ5	EET CF	09/06/24 14:09
Total/NA	Prep	3005A			431955	F5MW	EET CF	09/03/24 09:30
Total/NA	Analysis	6020B		1	432273	NFT2	EET CF	09/04/24 17:42
Total/NA	Analysis	350.1		1	432076	ENB7	EET CF	09/03/24 16:36
Total/NA	Analysis	5220D LL		1	432069	ENB7	EET CF	09/03/24 11:57

Client Sample ID: MW-16
Lab Sample ID: 310-289352-8
Date Collected: 08/27/24 17:48
Matrix: Water
Date Received: 08/30/24 05:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	432745	QTZ5	EET CF	09/06/24 14:21
Total/NA	Prep	3005A			431955	F5MW	EET CF	09/03/24 09:30
Total/NA	Analysis	6020B		1	432273	NFT2	EET CF	09/04/24 17:44
Total/NA	Analysis	350.1		1	432076	ENB7	EET CF	09/03/24 16:36
Total/NA	Analysis	5220D LL		1	432069	ENB7	EET CF	09/03/24 11:57

Lab Chronicle

Client: SCS Engineers
Job ID: 310-289352-1
Project/Site: US Gypsum - Sperry Landfill

Client Sample ID: MW-19
Lab Sample ID: 310-289352-9
Date Collected: 08/27/24 17:21
Matrix: Water
Date Received: 08/30/24 05:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	432745	QTZ5	EET CF	09/06/24 14:33
Total/NA	Prep	3005A			431955	F5MW	EET CF	09/03/24 09:30
Total/NA	Analysis	6020B		1	432273	NFT2	EET CF	09/04/24 17:46
Total/NA	Analysis	350.1		1	432076	ENB7	EET CF	09/03/24 16:38
Total/NA	Analysis	5220D LL		1	432069	ENB7	EET CF	09/03/24 11:57

Client Sample ID: MW-D
Lab Sample ID: 310-289352-10
Date Collected: 08/27/24 14:02
Matrix: Water
Date Received: 08/30/24 05:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	432745	QTZ5	EET CF	09/06/24 14:45
Total/NA	Prep	3005A			431955	F5MW	EET CF	09/03/24 09:30
Total/NA	Analysis	6020B		1	432273	NFT2	EET CF	09/04/24 17:58
Total/NA	Analysis	350.1		1	432076	ENB7	EET CF	09/03/24 16:38
Total/NA	Analysis	5220D LL		1	432069	ENB7	EET CF	09/03/24 11:57

Client Sample ID: MW-7
Lab Sample ID: 310-289352-11
Date Collected: 08/28/24 09:03
Matrix: Water
Date Received: 08/30/24 05:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	432745	QTZ5	EET CF	09/06/24 15:22
Total/NA	Prep	3005A			431955	F5MW	EET CF	09/03/24 09:30
Total/NA	Analysis	6020B		1	432273	NFT2	EET CF	09/04/24 18:00
Total/NA	Analysis	350.1		1	432076	ENB7	EET CF	09/03/24 16:38
Total/NA	Analysis	5220D LL		1	432069	ENB7	EET CF	09/03/24 11:57

Client Sample ID: MW-11
Lab Sample ID: 310-289352-12
Date Collected: 08/27/24 13:32
Matrix: Water
Date Received: 08/30/24 05:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		50	432745	QTZ5	EET CF	09/06/24 15:34
Total/NA	Analysis	9056A		5	432745	QTZ5	EET CF	09/10/24 09:10
Total/NA	Prep	3005A			431955	F5MW	EET CF	09/03/24 09:30
Total/NA	Analysis	6020B		1	432273	NFT2	EET CF	09/04/24 18:04
Total/NA	Analysis	350.1		1	432076	ENB7	EET CF	09/03/24 16:40
Total/NA	Analysis	5220D LL		1	432069	ENB7	EET CF	09/03/24 11:57

Lab Chronicle

Client: SCS Engineers
Job ID: 310-289352-1
Project/Site: US Gypsum - Sperry Landfill

Client Sample ID: MW-12
Lab Sample ID: 310-289352-13
Date Collected: 08/27/24 12:58
Matrix: Water
Date Received: 08/30/24 05:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		20	432745	QTZ5	EET CF	09/06/24 15:46
Total/NA	Prep	3005A			431955	F5MW	EET CF	09/03/24 09:30
Total/NA	Analysis	6020B		1	432273	NFT2	EET CF	09/04/24 18:06
Total/NA	Analysis	350.1		1	432076	ENB7	EET CF	09/03/24 16:40
Total/NA	Analysis	5220D LL		1	432276	ENB7	EET CF	09/05/24 08:29

Client Sample ID: MW-15
Lab Sample ID: 310-289352-14
Date Collected: 08/27/24 16:42
Matrix: Water
Date Received: 08/30/24 05:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	432745	QTZ5	EET CF	09/06/24 15:58
Total/NA	Analysis	9056A		50	432745	QTZ5	EET CF	09/10/24 09:22
Total/NA	Prep	3005A			431955	F5MW	EET CF	09/03/24 09:30
Total/NA	Analysis	6020B		1	432273	NFT2	EET CF	09/04/24 18:09
Total/NA	Analysis	350.1		1	432076	ENB7	EET CF	09/03/24 16:41
Total/NA	Analysis	5220D LL		1	432276	ENB7	EET CF	09/05/24 08:29

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: 310-289352-1
Project/Site: US Gypsum - Sperry Landfill

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: 310-289352-1
Project/Site: US Gypsum - Sperry Landfill

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
350.1	Nitrogen, Ammonia	EPA	EET CF
5220D LL	COD	SM	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

310-289352 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: SCS Engineers

City/State: CITY West Des Moines | STATE IA | Project:

Receipt Information

Date/Time Received: DATE 8/30/24 | TIME 0500 | Received By: JJ

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: 2 | 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): 5.6 | Corrected Temp (°C): 5.6

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

Chain of Custody Record

TestAmerica Des Moines SC
214

eurofins

Client Information	Sampler: Cole Tesar	Lab PM: Yang, Mary E	Carrier Tracking No(s):	COC No: 310-95814-26414 1
Client Contact: Kevin Jensen	Phone: 641-844-4459	E-Mail: Mary Yang@ET EurofinsUS.com	State of Origin:	Page: Page 1 of 2
Company: SCS Engineers	PWSID:			Job #:
Address: 1690 All State Court Suite 100	Due Date Requested:			
City: West Des Moines	TAT Requested (days):			
State, Zip: IA, 50265	Compliance Project: Δ Yes Δ No			
Phone: 515-368-3155(Tel)	PO #: Purchase Order not required			
Email: kjensen@scsengineers.com	WO #:			
Project Name: US Gypsum - Sperry Landfill Sampling 2024	Project #: 31002935			
Site: US Gypsum - Sperry Landfill	SSOW#:			

Analysis Requested

Preservation Codes:
S - H2SO4
N - None
D - HNO3

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Ammonia	Chemical Oxygen Demand	Chloride	Total Iron	Total Arsenic	Sulfate	Total Number of containers	Special Instructions/Note:
			Preservation Code:				S	S	N	D	D	N		
MW-5	8-28-24	1 16 AM	G	Water			x	x	x	x				
MW-6	8-28-24	924	G	Water			x	x	x	x				
MW-8	8-27-24	456	G	Water			x	x	x	x				
MW-9	8-27 24	1402	G	Water			x	x	x	x				
MW-10	8-27-24	1428	G	Water			x	x	x	x				
MW-13	8-27-24	6	G	Water			x	x	x	x				
MW-14	8-27-24	544	G	Water			x	x	x	x				
MW-16	8-27 24	1748	G	Water			x	x	x	x				
MW-19	8-27-24	721	G	Water			x	x	x	x				
MW-D	8-27-24	1402	G	Water			x	x	x	x				
MW-7	8-28-24	903	G	Water			x	x	x	x	x			

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

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

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

Special Instructions/QC Requirements:

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

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
	Cole Tesar	8-28-24 1728	SCS			
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 8/30/24	Company

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

Ver 05/06/2024

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

Chain of Custody Record

TestAmerica Des Moines SC
214

eurofins

Client Information	Sampler: Cole Tesar	Lab PM: Yang, Mary E	Carrier Tracking No(s):	COC No: 310-95814-26414.2
Client Contact: Kevin Jensen	Phone: 641-844-4459	E-Mail: Mary Yang@ET EurofinsUS com	State of Origin.	Page: Page 2 of 2
Company: SCS Engineers	PWSID:			Job #:

Address: 1690 All State Court Suite 100	Due Date Requested:
City: West Des Moines	TAT Requested (days):
State, Zip: IA, 50265	Compliance Project: Δ Yes Δ No
Phone: 515-368-3155(Tel)	PO #: Purchase Order not required
Email: kjensen@scsengineers.com	WO #:
Project Name: US Gypsum - Sperry Landfill	Project #: 31002935
Site:	SSOW#:

Analysis Requested

Preservation Codes:
S - H2SO4
N - None
D - HNO3
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Ammonia	Chemical Oxygen Demand	Chloride	Total Iron	Total Arsenic	Sulfate	Total Number of containers	Special Instructions/Note:
			Preservation Code:				S	S	N	D	D	N		
MW-11	8-27-24	1332	G	Water			x	x	x	x		x		
MW-12	8-27-24	1258	G	Water			x	x	x	x		x		
MW-15	8-27-24	1642	G	Water			x	x	x	x		x		

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

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

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

Special Instructions/QC Requirements:

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

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Cole Tesar	8-28-24 1728	SCS			
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 8/30/24 0800	Company

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

Ver 05/06/2024

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-289352-1

Login Number: 289352

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Homolar, Dana J

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

Appendix B-2

Data Validation

Completed by: Semir Omerovic

Lab Report Date: 9/10/2024

Site Name: US Gypsum - Sperry Landfill

Lab Report Number: 310-289352-1

	OK	NO	N/A	NOTES
Sample Collection and Sample Handling				
Chain of Custody	X			
Temperature	X			
Preservation	X			
Condition	X			
Reporting Limits		X		Method 9056A_ORGFM_28D: The following samples were diluted due to the nature of the sample matrix: MW-6 (310-262966-2), MW-8 (310-262966-4), MW-9 (310-262966-5) and MW-13 (310-262966-9). Elevated reporting limits (RLs) are provided.
Case Narrative	X			
Holding Times	X			
Analytical Sensitivty and Blanks				
Method Blank Detections	X			
Trip Blank Detections			X	
Accuracy				
ICV/CCV	X			
LCS/LCSD	X			
MS/MSD		X		MS/MSD results indicate iron was above recovery limits in analysis batch 432273.
Surrogates (organics only)	X			
Precision				
QA/QC Sample RPDs	X			
Field Duplicates	X			The duplicate sample was collected from MW-9 during the 2024 sampling event. All parameters had <50% relative difference. Constituents with J flag concentrations were not considered for the duplicate sample comparisons.

Appendix C

Summary of Groundwater Chemistry

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Summary of Groundwater Chemistry
U.S. Gypsum Sperry Landfill 29 SDP 04 89C

Total Metals Constituents	Sample Date	MW-13 UPG	MW-15 UPG	MW-16 UPG	MW-19 UPG	MW-5 DNG	MW-6 DNG	MW-7 DNG	MW-8 DNG	MW-9 DNG	MW-10 DNG	MW-11 DNG	MW-12 DNG	MW-14 DNG
Arsenic, mg/L (CAS NO - 7440-38-2)	10/24/2017	< 0.002	< 0.002	< 0.002	**0.000542**	**0.00105**	**0.000791**	**0.00662**	< 0.002	< 0.002	< 0.002	**0.0242**	< 0.002	**0.000521**
NRL - 0.00002 mg/L	4/9/2018	< 0.002	< 0.002	< 0.002	**0.00101**	**0.00212**	**0.004**	**0.0135**	< 0.002	< 0.002	< 0.002	**0.0462**	< 0.002	< 0.002
MCL - 0.01 mg/L	8/21/2018	< 0.002	< 0.002	**0.00239**	**0.000731**	**0.00212**	**0.000936**	**0.0228**	< 0.002	< 0.002	< 0.002	**0.0223**	**0.00106**	**0.0066**
	3/6/2019	< 0.002	< 0.002	N/A	**0.00079**	N/A	N/A	**0.00611**	< 0.002	< 0.002	< 0.002	N/A	< 0.002	< 0.002
	4/8/2019	N/A	N/A	< 0.002	N/A	0.00173*	0.000848*	N/A	N/A	N/A	N/A	**0.0296**	N/A	N/A
	9/4/2019	< 0.002	< 0.002	< 0.002	< 0.002	0.00144*	0.000949*	**0.0171**	< 0.002	< 0.002	< 0.002	**0.0118**	< 0.002	< 0.002
	9/4/2019	N/A	N/A	N/A	N/A	N/A	N/A	**0.00636**	N/A	N/A	N/A	N/A	N/A	N/A
	5/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	**0.025**	N/A	N/A	N/A	N/A	N/A	N/A
	6/9/2021	N/A	N/A	N/A	N/A	N/A	0.00129*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	7/12/2022	N/A	N/A	N/A	N/A	N/A	N/A	**0.00798**	N/A	N/A	N/A	N/A	N/A	N/A
	8/16/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A	N/A	N/A	N/A
	8/27/2024	N/A	N/A	N/A	N/A	N/A	N/A	**0.016**	N/A	N/A	N/A	N/A	N/A	N/A
Boron, mg/L (CAS NO - 7440-42-8)	10/24/2017	< 0.2	**0.521**	< 0.2	< 0.2	**0.107**	**0.289**	**1.85**	< 0.2	< 0.2	< 0.2	**1.61**	< 0.2	< 0.2
HAL - 6 mg/L	4/9/2018	< 0.2	**0.364**	< 0.2	< 0.2	**0.11**	**0.295**	**1.4**	< 0.2	< 0.2	< 0.2	**1.28**	< 0.2	< 0.2
	8/21/2018	< 0.2	**0.355**	< 0.2	< 0.2	**0.123**	**0.29**	**1.91**	< 0.2	< 0.2	< 0.2	**1.35**	< 0.2	< 0.2
	3/6/2019	< 0.2	**0.383**	N/A	< 0.2	N/A	N/A	**2.3**	**0.139**	< 0.2	< 0.2	N/A	< 0.2	< 0.2
	4/8/2019	N/A	N/A	< 0.2	N/A	0.131*	**0.337**	N/A	N/A	N/A	N/A	**1.35**	N/A	N/A
	9/4/2019	< 0.2	**0.336**	< 0.2	< 0.2	0.137*	**0.314**	**1.9**	0.115*	< 0.2	< 0.2	**1.39**	< 0.2	< 0.2
	9/4/2019	N/A	N/A	N/A	N/A	N/A	N/A	**1.27**	N/A	N/A	N/A	N/A	N/A	N/A
Cadmium, mg/L (CAS NO - 7440-43-9)	10/24/2017	< 0.0005	**0.000049**	**0.000102**	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	**0.000046**
MCL - 0.005 mg/L	4/9/2018	< 0.0005	< 0.0005	**0.000108**	**0.000085**	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
	8/21/2018	< 0.0005	< 0.0005	**0.000225**	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	**0.000396**	< 0.0005	< 0.0005	**0.000088**	**0.000339**
	3/6/2019	< 0.0005	< 0.0005	N/A	**0.000115**	N/A	N/A	< 0.0005	< 0.0005	< 0.0005	< 0.0005	N/A	< 0.0005	< 0.0005
	4/8/2019	N/A	N/A	< 0.0005	N/A	< 0.0005	< 0.0005	N/A	N/A	N/A	N/A	< 0.0005	N/A	N/A
	9/4/2019	< 0.0001	< 0.0001	< 0.0001	0.000045*	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
	9/4/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0001	N/A	N/A	N/A	N/A	N/A	N/A
Calcium, mg/L (CAS NO - 7440-70-2)	10/24/2017	**69.7**	**252**	**100**	**93.6**	**186**	**65**	**293**	**73.7**	**76.5**	**170**	**448**	**226**	**98.8**
	4/9/2018	**70.7**	**328**	**103**	**96.5**	**175**	**61.6**	**254**	**67.9**	**69.6**	**174**	**429**	**201**	**104**
	8/21/2018	**67.5**	**256**	**105**	**85.3**	**143**	**50**	**259**	**60.6**	**64.9**	**128**	**398**	**186**	**120**
	3/6/2019	**77.1**	**363**	N/A	**105**	N/A	N/A	**306**	**79.2**	**76.4**	**214**	N/A	**214**	**114**
	4/8/2019	N/A	N/A	**111**	N/A	**168**	**64.9**	N/A	N/A	N/A	N/A	**450**	N/A	N/A
	9/4/2019	**70.2**	**321**	**102**	**97**	**162**	**56.8**	**250**	**64.8**	**67.9**	**172**	**434**	**197**	**99.4**
	9/4/2019	N/A	N/A	N/A	N/A	N/A	N/A	**242**	N/A	N/A	N/A	N/A	N/A	N/A
Chromium, mg/L (CAS NO - 7440-47-3)	10/24/2017	< 0.005	< 0.005	**0.00257**	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	**0.000783**	**0.00122**
MCL - 0.1 mg/L	4/9/2018	< 0.005	< 0.005	**0.0026**	**0.00285**	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	**0.00084**
	8/21/2018	< 0.005	< 0.005	**0.00891**	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	**0.00249**	**0.015**
	3/6/2019	< 0.005	< 0.005	N/A	**0.00126**	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005	N/A	< 0.005	**0.00108**
	4/8/2019	N/A	N/A	0.00141*	N/A	< 0.005	< 0.005	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A
	9/4/2019	< 0.005	< 0.005	0.00104*	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	**0.0192**	< 0.005	**0.00876**	0.00137*	< 0.005
	9/4/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A
Cobalt, mg/L (CAS NO - 7440-48-4)	10/24/2017	**0.00036**	**0.000072**	**0.000062**	**0.000465**	< 0.0005	**0.000091**	**0.000525**	**0.000153**	**0.000131**	**0.000784**	**0.00214**	**0.00021**	**0.000945**
MCL - 0.0021 mg/L	4/9/2018	**0.000104**	< 0.0005	< 0.0005	**0.00122**	< 0.0005	**0.000093**	**0.000506**	< 0.0005	< 0.0005	**0.000591**	**0.00177**	< 0.0005	< 0.0005
	8/21/2018	**0.000208**	**0.000077**	**0.00334**	**0.000332**	< 0.0005	**0.00008**	**0.000524**	**0.000183**	**0.000096**	**0.00218**	**0.00172**	**0.00131**	**0.00818**
	3/6/2019	**0.000136**	< 0.0005	N/A	**0.000753**	N/A	N/A	**0.000526**	**0.000158**	< 0.0005	**0.000449**	N/A	< 0.0005	**0.0002**
	4/8/2019	N/A	N/A	< 0.0005	N/A	< 0.0005	< 0.0005	N/A	N/A	N/A	N/A	**0.00183**	N/A	N/A
	9/4/2019	< 0.0005	< 0.0005	< 0.0005	0.000332*	< 0.0005	< 0.0005	0.000499*	0.000195*	< 0.0005	**0.000808**	**0.00179**	< 0.0005	< 0.0005
	9/4/2019	N/A	N/A	N/A	N/A	N/A	N/A	0.000391*	N/A	N/A	N/A	N/A	N/A	N/A

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Total Metals Constituents	Sample Date	MW-13 UPG	MW-15 UPG	MW-16 UPG	MW-19 UPG	MW-5 DNG	MW-6 DNG	MW-7 DNG	MW-8 DNG	MW-9 DNG	MW-10 DNG	MW-11 DNG	MW-12 DNG	MW-14 DNG
Copper, mg/L (CAS NO - 7440-50-8)	10/24/2017	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
SDWR - 1.0 mg/L	4/9/2018	< 0.005	< 0.005	< 0.005	**0.00192**	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
MCL - 1.3 mg/L	8/21/2018	< 0.005	< 0.005	**0.00904**	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	**0.00318**	**0.0137**
	3/6/2019	< 0.005	< 0.005	N/A	< 0.005	N/A	N/A	< 0.005	< 0.005	**0.0165**	< 0.005	N/A	< 0.005	< 0.005
	4/8/2019	N/A	N/A	< 0.005	N/A	< 0.005	< 0.005	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A
	9/4/2019	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
	9/4/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A
Iron, mg/L (CAS NO - 7439-89-6)	10/24/2017	**0.288**	< 0.1	< 0.1	**0.968**	**2.15**	**0.874**	**6.47**	< 0.1	< 0.1	< 0.1	**16.6**	**0.126**	**0.546**
SDWR - 0.3 mg/L	4/9/2018	**0.135**	< 0.1	< 0.1	**2.21**	**3.2**	**8.62**	**8.16**	< 0.1	< 0.1	< 0.1	**13.5**	< 0.1	**0.101**
	8/21/2018	**0.291**	< 0.1	**5.32**	**0.556**	**2.78**	**0.725**	**9.23**	< 0.1	**0.0754**	< 0.1	**13.1**	**1.71**	**17.3**
	3/6/2019	**0.11**	< 0.1	N/A	**1.42**	N/A	N/A	**6.95**	< 0.1	< 0.1	< 0.1	N/A	< 0.1	**0.196**
	4/8/2019	N/A	N/A	< 0.1	N/A	**2.32**	**0.832**	N/A	N/A	N/A	N/A	**12.5**	N/A	N/A
	9/4/2019	< 0.1	< 0.1	< 0.1	**0.323**	**2.13**	**0.763**	**8.09**	< 0.1	**0.163**	< 0.1	**10.7**	< 0.1	< 0.1
	9/4/2019	N/A	N/A	N/A	N/A	N/A	N/A	**4.79**	N/A	N/A	N/A	N/A	N/A	N/A
	5/20/2020	< 0.1	< 0.1	< 0.1	**0.264**	**2.15**	**3.82**	**11.5**	< 0.1	< 0.1	< 0.1	**20.2**	< 0.1	0.0532*
	5/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.1	N/A	N/A	N/A	N/A	N/A
	6/9/2021	< 0.5	< 0.5	< 0.5	0.315*	**1.96**	**1.18**	**5.94**	< 0.5	< 0.5	< 0.5	**12.5**	< 0.5	< 0.5
	6/9/2021	N/A	N/A	N/A	N/A	**1.97**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	7/12/2022	< 0.1	0.0493*	0.0878*	**0.598**	**1.9**	**1.24**	**6.97**	< 0.1	< 0.1	< 0.1	**30.5**	< 0.1	< 0.1
	7/12/2022	N/A	N/A	N/A	N/A	**2.03**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/16/2023	< 0.1	< 0.1	**0.517**	0.0705*	**2.36**	**2.06**	< 0.1	**7.46**	0.0423*	< 0.1	**10.4**	0.0794*	**0.339**
	8/16/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.1	N/A	N/A	N/A	N/A	N/A
	8/27/2024	**0.106**	< 0.1	0.0813*	**0.572**	**8.6**	**1.65**	**9.16**	< 0.1	0.0439*	< 0.1	**10.8**	0.0545*	< 0.1
	8/27/2024	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**6.72**	N/A	N/A	N/A	N/A
Lead, mg/L (CAS NO - 7439-92-1)	10/24/2017	**0.000399**	< 0.0005	< 0.0005	**0.000425**	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	**0.00107**	**0.000763**	**0.00138**
MCL - 0.015 mg/L	4/9/2018	< 0.0005	< 0.0005	< 0.0005	**0.00108**	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	**0.000722**	< 0.0005	< 0.0005
	8/21/2018	**0.00196**	< 0.0005	**0.00372**	**0.000931**	< 0.0005	< 0.0005	**0.000278**	< 0.0005	**0.165**	< 0.0005	**0.000353**	**0.00324**	**0.00934**
	3/6/2019	**0.0009**	**0.000568**	N/A	**0.000934**	N/A	N/A	< 0.0005	< 0.0005	**0.000654**	< 0.0005	N/A	**0.00027**	**0.000438**
	4/8/2019	N/A	N/A	< 0.0005	N/A	< 0.0005	< 0.0005	N/A	N/A	N/A	N/A	0.000385*	N/A	N/A
	9/4/2019	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
	9/4/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0005	N/A	N/A	N/A	N/A	N/A	N/A
Magnesium, mg/L (CAS NO - 7439-95-4)	10/24/2017	**41.6**	**95.8**	**44.5**	**36.7**	**69.1**	**35.1**	**95.5**	**35.3**	**40.1**	**64.9**	**150**	**78.8**	**45.7**
	4/9/2018	**35.7**	**140**	**37.6**	**31.3**	**58.7**	**30.6**	**87.2**	**31.1**	**34.2**	**66.5**	**158**	**65.4**	**36.9**
	8/21/2018	**34**	**103**	**36.7**	**28.6**	**51.4**	**27**	**88.6**	**27.9**	**32.5**	**45.8**	**133**	**59.6**	**34.3**
	3/6/2019	**40.4**	**114**	N/A	**36.3**	N/A	N/A	**107**	**37.5**	**38.8**	**84.2**	N/A	**77.6**	**43.5**
	4/8/2019	N/A	N/A	**40.9**	N/A	**59.3**	**32.1**	N/A	N/A	N/A	N/A	**146**	N/A	N/A
	9/4/2019	**36.4**	**110**	**39.8**	**34.4**	**63.2**	**32.6**	**101**	**33.1**	**37**	**64.9**	**147**	**74.9**	**37.3**
	9/4/2019	N/A	N/A	N/A	N/A	N/A	N/A	**89.4**	N/A	N/A	N/A	N/A	N/A	N/A
Manganese, mg/L (CAS NO - 7439-96-5)	10/24/2017	**0.207**	**0.0203**	**0.0039**	**0.433**	**0.342**	**0.0209**	**0.95**	**0.242**	**0.233**	**2.29**	**0.949**	**0.03**	**0.0716**
HAL - 0.3 mg/L	4/9/2018	**0.162**	**0.015**	**0.00174**	**0.455**	**0.439**	**0.0196**	**0.761**	**0.131**	**0.193**	**2.2**	**0.951**	**0.00262**	**0.00338**
MCL - 0.3 mg/L	8/21/2018	**0.181**	**0.0366**	**0.196**	**0.396**	**0.384**	**0.0154**	**0.798**	**0.208**	**0.208**	**1.87**	**0.769**	**0.17**	**0.516**
SDWR - 0.05 mg/L	3/6/2019	**0.173**	**0.0169**	N/A	**0.505**	N/A	N/A	**1.03**	**0.302**	**0.233**	**2.41**	N/A	**0.00667**	**0.0173**
	4/8/2019	N/A	N/A	< 0.01	N/A	**0.425**	**0.0153**	N/A	N/A	N/A	N/A	**0.944**	N/A	N/A
	9/4/2019	**0.137**	**0.0274**	< 0.01	**0.353**	**0.41**	**0.0152**	**0.803**	**0.22**	**0.196**	**2.24**	**0.89**	< 0.01	0.00417*
	9/4/2019	N/A	N/A	N/A	N/A	N/A	N/A	**0.703**	N/A	N/A	N/A	N/A	N/A	N/A
Mercury, mg/L (CAS NO - 7439-97-6)	10/24/2017	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
HAL - 0.002 mg/L	4/9/2018	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
MCL - 0.002 mg/L	8/21/2018	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
	3/6/2019	< 0.0002	< 0.0002	N/A	< 0.0002	N/A	N/A	< 0.0002	< 0.0002	< 0.0002	< 0.0002	N/A	< 0.0002	< 0.0002
	9/4/2019	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
	9/4/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0002	N/A	N/A	N/A	N/A	N/A	N/A

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Total Metals Constituents	Sample Date	MW-13 UPG	MW-15 UPG	MW-16 UPG	MW-19 UPG	MW-5 DNG	MW-6 DNG	MW-7 DNG	MW-8 DNG	MW-9 DNG	MW-10 DNG	MW-11 DNG	MW-12 DNG	MW-14 DNG
Molybdenum, mg/L (CAS NO - 7439-98-7)	10/24/2017	< 0.002	**0.00033**	**0.000823**	**0.000363**	**0.000689**	**0.00178**	**0.00074**	< 0.002	< 0.002	**0.000852**	**0.000382**	< 0.002	< 0.002
HAL - 0.04 mg/L	4/9/2018	< 0.002	< 0.002	**0.00119**	**0.00098**	**0.00107**	**0.0021**	**0.00111**	< 0.002	< 0.002	< 0.002	**0.00108**	< 0.002	< 0.002
	8/21/2018	< 0.002	< 0.002	**0.000991**	< 0.002	< 0.002	**0.00142**	< 0.002	< 0.002	< 0.002	< 0.002	**0.000789**	< 0.002	**0.000973**
	3/6/2019	< 0.002	< 0.002	N/A	< 0.002	N/A	N/A	< 0.002	< 0.002	< 0.002	< 0.002	N/A	< 0.002	< 0.002
	4/8/2019	N/A	N/A	< 0.002	N/A	< 0.002	0.00151*	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A
	9/4/2019	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	0.00157*	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
	9/4/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A	N/A	N/A	N/A
Nickel, mg/L (CAS NO - 7440-02-0)	10/24/2017	< 0.005	**0.00199**	< 0.005	< 0.005	< 0.005	< 0.005	**0.00148**	< 0.005	< 0.005	**0.00201**	**0.00502**	< 0.005	**0.00159**
MCL - 0.1 mg/L	4/9/2018	< 0.005	**0.00222**	< 0.005	**0.00315**	< 0.005	< 0.005	**0.00136**	< 0.005	< 0.005	**0.00154**	**0.00413**	< 0.005	< 0.005
	8/21/2018	< 0.005	**0.00123**	**0.00672**	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	**0.0032**	**0.0024**	**0.0185**
	3/6/2019	< 0.005	**0.00187**	N/A	< 0.005	N/A	N/A	< 0.005	< 0.005	< 0.005	**0.00191**	N/A	< 0.005	< 0.005
	4/8/2019	N/A	N/A	< 0.005	N/A	< 0.005	< 0.005	N/A	N/A	N/A	N/A	0.00381*	N/A	N/A
	9/4/2019	< 0.005	0.0025*	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00197*	0.00425*	< 0.005	< 0.005
	9/4/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A
Selenium, mg/L (CAS NO - 7782-49-2)	10/24/2017	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	**0.00133**
MCL - 0.05 mg/L	4/9/2018	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	**0.00112**
	8/21/2018	< 0.005	< 0.005	**0.00115**	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	**0.00094**	< 0.005	< 0.005	**0.00233**
	3/6/2019	< 0.005	< 0.005	N/A	< 0.005	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005	N/A	< 0.005	**0.00134**
	4/8/2019	N/A	N/A	< 0.005	N/A	< 0.005	< 0.005	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A
	9/4/2019	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
	9/4/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A
Zinc, mg/L (CAS NO - 7440-66-6)	10/24/2017	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	**0.0302**	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
MCL - 2.0 mg/L	4/9/2018	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
SDWR - 5 mg/L	8/21/2018	< 0.02	< 0.02	**0.0209**	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	**0.0138**	**0.0441**
	3/6/2019	< 0.02	< 0.02	N/A	< 0.02	N/A	N/A	< 0.02	< 0.02	**0.0112**	< 0.02	N/A	< 0.02	< 0.02
	4/8/2019	N/A	N/A	< 0.02	N/A	< 0.02	< 0.02	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A
	9/4/2019	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
	9/4/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A

Note: * indicates 'J flag'. Detection is below the reporting limit, but greater than the MDL (Method Detection Limit). The concentration is estimated.

Denotes Detection.
Denotes Confirmed Outlier. Statistically Excluded.

Sampling performed over multiple dates is recorded on the first date sampled. Refer to field forms for exact sample date.

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Other Constituents	Sample Date	MW-13 UPG	MW-15 UPG	MW-16 UPG	MW-19 UPG	MW-5 DNG	MW-6 DNG	MW-7 DNG	MW-8 DNG	MW-9 DNG	MW-10 DNG	MW-11 DNG	MW-12 DNG	MW-14 DNG
Chemical Oxygen Demand, mg/L (CAS NO - COD)	4/1/1995	< 5	9.8	< 5	< 5	< 5	< 5	24	< 5	< 5	< 5	33	< 5	< 5
	7/1/1995	< 5	< 5	< 5	< 5	< 5	< 5	35	< 5	< 5	5.8	34	< 5	< 5
	10/1/1995	< 5	< 5	13	< 5	< 5	< 5	34	< 5	< 5	6.1	33	< 5	< 5
	1/1/1996	< 5	< 5	< 5	< 5	< 5	< 5	30	< 5	< 5	< 5	23	< 5	< 5
	4/1/1996	< 10	< 10	< 10	< 10	< 10	< 10	N/A	< 10	< 10	< 10	31	< 10	< 10
	10/1/1996	< 10	< 10	< 10	< 10	< 10	< 10	13	< 10	< 10	< 10	32	< 10	< 10
	4/1/1997	< 10	< 10	< 10	< 10	< 10	< 10	40	< 10	< 10	< 10	40	< 10	< 10
	10/1/1997	< 10	< 10	< 10	< 10	< 10	< 10	23	< 10	< 10	< 10	27	< 10	< 10
	4/1/1998	< 10	< 10	< 10	< 10	< 10	< 10	24	< 10	< 10	< 10	33	< 10	< 10
	10/1/1998	< 10	< 10	< 10	< 10	< 10	< 10	14	< 10	< 10	< 10	22	< 10	< 10
	4/1/1999	< 10	< 10	< 10	< 10	< 10	< 10	33	< 10	< 10	< 10	37	< 10	< 10
	10/1/1999	< 10	< 10	< 10	< 10	< 10	< 10	19	< 10	< 10	< 10	35	< 10	< 10
	4/1/2000	< 10	< 10	< 10	< 10	< 10	< 10	27	< 10	< 10	< 10	26	< 10	< 10
	10/1/2000	< 10	< 10	< 10	< 10	< 10	< 10	26	< 10	< 10	< 10	30	< 10	< 10
	4/1/2001	< 10	< 10	< 10	< 10	< 10	< 10	35	< 10	< 10	< 10	26	< 10	< 10
	10/1/2001	< 10	< 10	< 10	< 10	< 10	< 10	40	< 10	< 10	< 10	38	< 10	< 10
	4/1/2002	< 10	< 10	< 10	< 10	< 10	< 10	36	< 10	< 10	< 10	32	< 10	< 10
	10/1/2002	< 10	< 10	< 10	< 10	12	11	57	< 10	< 10	< 10	41	12	< 10
	4/23/2003	< 5	< 5	< 5	< 5	< 5	< 5	41	< 5	< 5	< 5	30	< 5	< 5
	10/14/2003	< 5	< 5	< 5	< 5	< 5	< 5	36	< 5	< 5	< 5	31	< 5	< 5
	4/7/2004	< 5	< 5	< 5	< 5	< 5	< 5	41	< 5	< 5	< 5	24	< 5	< 5
	10/13/2004	< 5	< 5	< 5	< 5	< 5	< 5	9.3	< 5	< 5	< 5	26	< 5	< 5
	4/7/2005	< 5	< 5	< 5	< 5	< 5	< 5	32	< 5	< 5	5.1	25	< 5	< 5
	10/7/2005	< 5	< 5	< 5	< 5	< 5	< 5	10	< 5	< 5	< 5	25	< 5	< 5
	4/4/2006	< 5	< 5	< 5	< 5	< 5	< 5	33.3	< 5	< 5	< 5	23.9	< 5	< 5
	10/13/2006	< 5	< 5	< 5	< 5	< 5	36.6	< 5	< 5	< 5	< 5	26.2	< 5	< 5
	4/4/2007	5.7	8.3	< 5	< 5	< 5	< 5	7.2	< 5	< 5	13.4	24.1	< 5	< 5
	10/9/2007	9	10.8	< 5	< 5	6.5	6.3	25.4	< 5	5.7	14.5	30.6	10.1	7.2
	4/17/2008	< 5	8.4	6.6	8.7	7.1	5	14.2	< 5	< 5	9.3	27.1	5.2	7.4
	10/10/2008	< 5	< 5	< 5	7.8	< 5	< 5	24.1	< 5	< 5	6.2	24.1	6.2	< 5
	4/28/2009	< 5	< 5	< 5	< 5	6.1	< 5	16.5	< 5	< 5	< 5	14	< 5	< 5
	10/14/2009	< 5	< 5	< 5	< 5	< 5	< 5	27.4	< 5	< 5	8.1	20.1	< 5	< 5
	10/28/2010	< 25	< 5	< 5	27.3	10.4	< 5	< 5	7.8	8.5	< 5	26.3	< 5	< 5
	4/13/2011	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	17.1	< 5	< 5
	10/13/2011	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	14.8	< 5	< 5
	4/24/2012	< 10	13	< 10	256	26	< 10	52	< 10	< 10	17	118	17	13
	10/23/2012	< 5	< 5	< 5	< 5	**7.7**	< 5	< 5	**8.7**	**7.4**	**15.3**	**25.4**	< 5	< 5
	4/11/2013	< 5	< 5	< 5	< 5	< 5	< 5	**8.8**	< 5	< 5	< 5	**15.1**	< 5	< 5
	10/29/2013	< 5	< 5	< 5	< 5	**8.6**	< 5	**34.1**	< 5	< 5	< 5	< 5	< 5	< 5
	4/8/2014	< 5	**12.8**	< 5	< 5	< 5	< 5	**30.1**	< 5	< 5	< 5	**15.8**	< 5	< 5
	10/13/2014	< 5	< 5	< 5	**20.7**	< 5	< 5	**32.2**	< 5	< 5	< 5	**18.8**	< 5	< 5
	4/1/2015	< 5	< 5	< 5	< 5	< 5	< 5	**28**	< 5	< 5	< 5	**18.4**	< 5	< 5
	10/12/2015	< 5	< 5	< 5	< 5	< 5	< 5	**28.7**	< 5	< 5	**4.45**	**14.2**	< 5	< 5
	4/19/2016	**3.06**	< 5	**3.06**	< 5	**3.06**	**4.6**	**36.4**	< 5	< 5	**6.51**	**17.2**	< 5	< 5
	10/17/2016	**3.94**	**6.76**	**3.24**	**5.71**	**5.35**	< 5	**27.6**	< 5	**5.71**	**10.3**	**16.3**	**7.12**	**3.24**
	4/4/2017	< 5	< 5	< 5	< 5	**6.33**	**6.65**	**17.7**	< 5	< 5	**6**	**18.3**	< 5	< 5
	10/24/2017	< 5	**7.73**	< 5	**7.1**	< 5	**5.22**	**18.7**	< 5	< 5	< 5	**15.6**	**12.1**	< 5
	4/9/2018	< 5	**7.56**	< 5	**6.28**	**7.56**	**5.63**	**19.1**	< 5	< 5	**7.24**	**17.8**	< 5	< 5
	8/21/2018	**5.11**	< 5	< 5	**8.99**	**7.37**	< 5	**21.3**	**5.76**	< 5	**9.31**	**27.1**	**7.05**	< 5
	3/6/2019	< 5	< 5	N/A	< 5	N/A	N/A	**15.9**	< 5	< 5	**4.8**	N/A	< 5	< 5
	4/8/2019	N/A	N/A	< 10	N/A	**8.09**	< 5	N/A	N/A	N/A	N/A	**21**	N/A	N/A

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Other Constituents	Sample Date	MW-13 UPG	MW-15 UPG	MW-16 UPG	MW-19 UPG	MW-5 DNG	MW-6 DNG	MW-7 DNG	MW-8 DNG	MW-9 DNG	MW-10 DNG	MW-11 DNG	MW-12 DNG	MW-14 DNG
Chemical Oxygen Demand, mg/L (CAS NO - COD)	9/4/2019	< 5	10.1	< 5	< 5	< 5	< 5	18.4	< 5	< 5	< 5	14.9	< 5	< 5
	9/4/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A
	5/20/2020	< 5	8.67	< 5	< 5	< 5	< 5	17.4	< 5	< 5	< 5	15.2	7.7	< 5
	5/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A
	6/9/2021	5.74	< 5	7.78	8.12	10.2	< 5	26.1	< 5	< 5	9.48	22.4	8.46	< 5
	6/9/2021	N/A	N/A	N/A	N/A	9.82	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	7/12/2022	< 5	8.4	6.5	6.5	8.4	6.82	24.8	7.13	9.03	12.8	18.5	6.18	6.5
	7/12/2022	N/A	N/A	N/A	N/A	11.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/16/2023	< 5	9.12	< 5	5.06	7.09	5.4	20.6	< 5	< 5	9.8	17.3	8.11	< 5
	8/16/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A
	8/27/2024	6.12	8.2	5.79	10.8	11.8	9.76	29.3	< 5	7.77	12.1	23.3	6.89	8.1
	8/27/2024	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A
Chloride, mg/L (CAS NO - 16887-00-6) SDWR - 250 mg/L	4/1/1995	< 5	14	< 5	< 5	< 5	< 5	< 5	< 5	< 5	44	< 5	17	6.6
	7/1/1995	< 5	13	< 5	< 5	< 5	< 5	34	< 5	< 5	35	42	18	6.4
	10/1/1995	< 5	26	< 5	< 5	< 5	< 5	36	< 5	< 5	36	46	16	6.8
	1/1/1996	< 5	17	< 5	< 5	< 5	< 5	31	< 5	< 5	44	38	17	6.7
	4/1/1996	2.8	15	5.6	3.1	5.2	3.1	N/A	2.8	3	39	39	15	7.2
	10/1/1996	1.2	20.6	4.4	1.4	4.9	1.5	19.1	1.3	2	2.6	38.4	15.6	6.7
	4/1/1997	< 10	19	< 10	< 10	< 10	< 10	16	< 10	< 10	38	44	17	< 10
	10/1/1997	< 10	30	< 10	< 10	< 10	< 10	37	< 10	< 10	31	42	17	< 10
	4/1/1998	< 10	28	< 10	< 10	< 10	< 10	17	< 10	< 10	38	42	20	N/A
	10/1/1998	< 10	31	< 10	< 10	< 10	< 10	33	< 10	< 10	33	44	17	< 10
	4/1/1999	< 10	21	11	< 10	< 10	< 10	38	< 10	< 10	37	41	19	10
	10/1/1999	< 10	26	< 10	< 10	< 10	< 10	29	< 10	< 10	32	38	15	11
	4/1/2000	< 10	24	28	< 10	< 10	< 10	32	< 10	< 10	37	35	18	14
	10/1/2000	< 10	30	< 10	< 10	< 10	< 10	39	28	< 10	33	37	17	11
	4/1/2001	< 10	29	< 10	< 10	< 10	< 10	43	< 10	< 10	38	34	20	10
	10/1/2001	< 10	26	< 10	< 10	< 10	< 10	42	< 10	< 10	34	34	17	11
	4/1/2002	< 10	26	11	< 10	< 10	< 10	52	< 10	< 10	40	36	19	15
	10/1/2002	< 10	22	10	< 10	< 10	< 10	51	< 10	< 10	36	37	18	13
	4/23/2003	< 5	29.1	9.3	< 5	10	< 5	49.4	< 5	< 5	58.4	38.9	18.1	13.2
	10/14/2003	< 5	29.7	9.7	< 5	10.1	< 5	47.5	< 5	< 5	45.6	36.9	24.5	15.2
	4/7/2004	< 5	26.8	9.8	< 5	11.9	< 5	51.7	< 5	< 5	56.5	40.2	33.8	18
	10/13/2004	< 5	27.1	9.2	< 5	10.9	< 5	15.7	< 5	< 5	55.7	37.8	32.3	18
	4/7/2005	< 5	27.7	10.3	< 5	9.9	< 5	49.6	< 5	< 5	62.4	35.8	31.2	19.9
	10/7/2005	< 5	29	9.1	< 5	11.3	< 5	14.5	< 5	< 5	54.2	34.6	27	10.5
	4/4/2006	< 5	23.8	9.33	< 5	11.5	< 5	50.4	< 5	< 5	65.6	33.8	17.5	17.6
	10/13/2006	< 5	27	9.61	< 5	12.1	< 5	9.71	< 5	< 5	61.3	36.3	33.8	21.2
	4/4/2007	< 5	25.4	9.01	< 5	11.8	< 5	21	< 5	< 5	65	35.1	23.2	21.5
	10/9/2007	< 5	24.4	8.88	< 5	11.5	< 5	24.4	< 5	< 5	52.1	33.8	40.2	24.8
	4/17/2008	< 5	20.8	8.88	< 5	8.04	< 5	5.51	< 5	< 5	48.3	31.8	41.3	22.6
	10/10/2008	< 5	23.5	8.61	< 5	11.2	< 5	22	< 5	< 5	61	35.2	39.5	27
	4/28/2009	< 5	19	10.5	7.73	11.4	< 5	27.3	< 5	< 5	52	34.4	30.1	29.5
	10/14/2009	< 5	19.3	11.2	< 5	13.1	< 5	25.9	< 5	< 5	61	34.9	29.6	33.3
	10/28/2010	< 5	15.4	10.7	< 5	12.7	< 5	10.7	< 5	< 5	47.8	34.6	21.1	40.7
	4/13/2011	< 5	13.9	12.1	< 5	13.9	< 5	8.17	< 5	< 5	57.2	35.8	24	41.5
	10/13/2011	< 5	17.8	12.4	< 5	13.7	< 5	< 5	< 5	< 5	52.5	31.1	22.1	40.4
	4/24/2012	< 10	12	12	< 10	14	< 10	27	< 10	< 10	72	32	25	39
	10/23/2012	< 5	17	10.4	< 5	12.6	< 5	30.2	< 5	< 5	52.8	31.5	22.1	40.2
	4/11/2013	< 5	16.3	10.4	< 5	11.1	< 5	21.1	< 5	< 5	56	32.4	20.8	42.3
	10/29/2013	2.09	16.3	11.4	3.27	12.9	2.3	39.5	2.38	2.41	44	33.4	23.8	45.5

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Other Constituents	Sample Date	MW-13 UPG	MW-15 UPG	MW-16 UPG	MW-19 UPG	MW-5 DNG	MW-6 DNG	MW-7 DNG	MW-8 DNG	MW-9 DNG	MW-10 DNG	MW-11 DNG	MW-12 DNG	MW-14 DNG
Chloride, mg/L (CAS NO - 16887-00-6)	4/8/2014	< 5	16.4	11.6	< 5	14	< 5	42.2	< 5	< 5	41.1	34.2	30.2	42.8
SDWR - 250 mg/L	10/13/2014	< 5	15	10.5	< 5	12.6	< 5	34.8	< 5	< 5	51.8	31.5	32.5	40
	4/1/2015	< 5	10	10.2	2.58	13.2	< 5	25.1	< 5	< 5	58.8	32.6	30	43
	10/12/2015	< 5	12.3	9.17	2.77	11.8	< 5	24.1	< 5	< 5	43.2	30.9	29.6	46.3
	4/19/2016	2.8	9.63	10.9	3.8	13.8	2.84	26.4	3.14	3.23	55.3	31.3	28.3	47.6
	10/17/2016	4.39	12.7	10.4	3.6	13.1	4.47	26.2	4.76	4.98	47.6	28.9	25.9	45.1
	4/4/2017	< 5	11	11.1	4.58	14.6	< 5	33.8	< 5	< 5	56.7	32.5	26.7	51.7
	10/24/2017	< 5	14.2	10.6	2.78	14.7	< 5	39.2	< 5	1.93	44.9	32.7	28.7	49.9
	4/9/2018	1.71	10.8	11.5	3.19	14.6	< 5	34.6	2.04	2.08	49.9	32.1	29	47.9
	8/21/2018	1.82	11.7	10	< 5	15.2	< 5	38.6	< 5	< 5	39.5	142	117	49
	3/6/2019	< 5	10.2	N/A	2.33	N/A	N/A	37.9	1.84	2.24	44.5	N/A	30.7	49.4
	4/8/2019	N/A	N/A	10.3	N/A	14	< 5	N/A	N/A	N/A	N/A	30.1	N/A	N/A
	9/4/2019	< 5	9.76	9.38	1.48*	12.8	< 5	33.9	< 5	< 5	35.8	29	27.5	47.5
	9/4/2019	N/A	N/A	N/A	N/A	N/A	N/A	33.9	N/A	N/A	N/A	N/A	N/A	N/A
	5/20/2020	3.14*	10.8	11.3	3.01*	13.9	2.1*	39.4	2.2*	3.14*	44.7	33	25.8	50.4
	5/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.71*	N/A	N/A	N/A	N/A	N/A
	6/9/2021	< 5	7.97	9.7	2.25*	12.9	< 5	33.2	< 5	< 5	41	30.2	19.4	47.7
	6/9/2021	N/A	N/A	N/A	N/A	12.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	7/12/2022	< 5	8.39	9.19	2.96*	13.1	2.45*	31.6	2.48*	2.8*	33.9	27	18.2	42.9
	7/12/2022	N/A	N/A	N/A	N/A	12.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/16/2023	< 5	8.92	10.5	< 5	13.3	< 5	33.7	< 5	2.27*	35.3	31.7	20.5	46.4
	8/16/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A
	8/27/2024	< 5	9.03	10.4	2.75*	13.2	< 5	36.9	< 5	2.56*	36.6	30.3	24.1	51.8
	8/27/2024	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.56*	N/A	N/A	N/A	N/A
Nitrogen, Ammonia, mg/L (CAS NO - 7664-41-7)	4/1/1995	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.42	0.33	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
HAL - 30.0 mg/L	7/1/1995	0.23	< 0.2	< 0.2	< 0.2	0.76	0.77	1.14	0.21	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	10/1/1995	0.23	< 0.2	< 0.2	< 0.2	0.28	0.44	0.77	0.24	0.23	< 0.2	< 0.2	< 0.2	< 0.2
	1/1/1996	0.2	< 0.2	< 0.2	< 0.2	0.3	0.71	0.75	0.28	0.27	< 0.2	< 0.2	< 0.2	< 0.2
	4/1/1996	< 1	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	10/1/1996	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
	4/1/1997	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
	10/1/1997	< 1	< 1	< 1	< 1	< 1	< 1	1	< 1	< 1	< 1	< 1	< 1	< 1
	4/1/1998	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
	10/1/1998	< 1	< 1	< 1	< 1	< 1	< 1	1.02	< 1	< 1	< 1	< 1	< 1	< 1
	4/1/1999	< 1	< 1	< 1	< 1	< 1	< 1	1.4	< 1	< 1	< 1	< 1	< 1	< 1
	10/1/1999	< 1	< 1	< 1	< 1	< 1	< 1	1.12	< 1	< 1	< 1	< 1	< 1	< 1
	4/1/2000	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
	10/1/2000	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
	4/1/2001	< 1	< 1	< 1	< 1	< 1	< 1	1.5	< 1	< 1	< 1	< 1	< 1	< 1
	10/1/2001	< 1	< 1	< 1	< 1	< 1	< 1	1.3	< 1	< 1	< 1	< 1	< 1	< 1
	4/1/2002	< 1	< 1	< 1	< 1	< 1	< 1	1.2	< 1	< 1	< 1	< 1	< 1	< 1
	10/1/2002	< 1	< 1	< 1	< 1	< 1	< 1	1.3	< 1	< 1	< 1	< 1	< 1	< 1
	4/23/2003	0.21	< 0.2	< 0.2	< 0.2	< 0.2	0.62	1.32	< 0.2	0.22	< 0.2	< 0.2	< 0.2	< 0.2
	10/14/2003	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.55	1.16	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	4/7/2004	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.5	1.19	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	10/13/2004	< 0.2	0.29	< 0.2	< 0.2	< 0.2	0.55	0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	4/7/2005	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.5	1.05	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	10/7/2005	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.55	0.27	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	4/4/2006	0.242	< 0.2	< 0.2	< 0.2	< 0.2	0.528	1.44	< 0.2	0.216	< 0.2	< 0.2	< 0.2	< 0.2
	10/13/2006	0.252	< 0.2	< 0.2	< 0.2	< 0.2	0.626	< 0.2	0.251	0.262	< 0.2	< 0.2	< 0.2	< 0.2
	4/4/2007	< 0.2	< 0.2	0.252	< 0.2	< 0.2	0.487	0.24	< 0.2	< 0.2	0.252	< 0.2	< 0.2	< 0.2

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Other Constituents	Sample Date	MW-13 UPG	MW-15 UPG	MW-16 UPG	MW-19 UPG	MW-5 DNG	MW-6 DNG	MW-7 DNG	MW-8 DNG	MW-9 DNG	MW-10 DNG	MW-11 DNG	MW-12 DNG	MW-14 DNG
Nitrogen, Ammonia, mg/L (CAS NO - 7664-41-7)	10/9/2007	0.239	< 0.2	< 0.2	< 0.2	< 0.2	0.477	1.6	0.244	0.21	< 0.2	< 0.2	< 0.2	< 0.2
HAL - 30.0 mg/L	4/17/2008	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.604	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	10/10/2008	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.351	1.1	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	4/28/2009	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.505	1.14	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	10/14/2009	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.45	1.24	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	10/28/2010	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.506	< 0.2	< 0.2	0.268	< 0.2	< 0.2	< 0.2	< 0.2
	4/13/2011	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.572	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	10/13/2011	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.549	< 0.2	0.228	0.228	< 0.2	< 0.2	< 0.2	< 0.2
	4/24/2012	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
	10/23/2012	0.214	< 0.2	< 0.2	< 0.2	< 0.2	0.562	1.28	0.231	0.219	< 0.2	< 0.2	< 0.2	< 0.2
	4/11/2013	0.255	< 0.2	< 0.2	< 0.2	< 0.2	0.544	< 0.2	0.231	0.247	< 0.2	< 0.2	< 0.2	< 0.2
	10/29/2013	0.228	< 0.2	< 0.2	0.065	0.066	0.651	2.66	0.278	0.247	< 0.2	< 0.2	< 0.2	< 0.2
	4/8/2014	0.213	< 0.2	< 0.2	< 0.2	< 0.2	0.519	1.7	0.201	0.22	< 0.2	< 0.2	< 0.2	< 0.2
	10/13/2014	0.219	< 0.2	< 0.2	0.129	< 0.2	0.482	1.74	0.22	0.186	< 0.2	< 0.2	< 0.2	< 0.2
	4/1/2015	0.2	< 0.2	< 0.2	0.118	< 0.2	0.494	1.73	0.13	0.157	< 0.2	< 0.2	< 0.2	< 0.2
	10/12/2015	0.165	< 0.2	< 0.2	< 0.2	< 0.2	0.438	2.32	0.145	0.104	< 0.2	< 0.2	< 0.2	< 0.2
	4/19/2016	0.176	< 0.2	< 0.2	< 0.2	< 0.2	0.42	1.88	0.175	0.124	< 0.2	< 0.2	< 0.2	< 0.2
	10/17/2016	0.194	< 0.2	< 0.2	< 0.2	< 0.2	0.484	1.95	0.259	0.191	< 0.2	< 0.2	< 0.2	< 0.2
	4/4/2017	0.239	< 0.2	< 0.2	< 0.2	< 0.2	0.507	0.66	0.246	0.248	< 0.2	< 0.2	< 0.2	< 0.2
	10/24/2017	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.478	0.234	0.193	0.182	< 0.2	< 0.2	< 0.2	< 0.2
	4/9/2018	0.227	< 0.2	< 0.2	< 0.2	< 0.2	0.536	0.523	0.114	0.228	< 0.2	< 0.2	< 0.2	< 0.2
	8/21/2018	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.607	0.383	0.261	0.242	< 0.2	0.224	< 0.2	< 0.2
	3/6/2019	0.162	< 0.2	N/A	< 0.2	N/A	N/A	0.247	0.184	0.118	< 0.2	N/A	< 0.2	< 0.2
	4/8/2019	N/A	N/A	< 0.2	N/A	< 0.2	0.499	N/A	N/A	N/A	N/A	< 0.2	N/A	N/A
	9/4/2019	0.256	< 0.2	< 0.2	< 0.2	< 0.2	0.586	0.292	0.279	0.239	< 0.2	< 0.2	< 0.2	< 0.2
	9/4/2019	N/A	N/A	N/A	N/A	N/A	N/A	0.246	N/A	N/A	N/A	N/A	N/A	N/A
	5/20/2020	0.249	< 0.2	< 0.2	< 0.2	< 0.2	0.556	0.337	0.27	0.227	< 0.2	< 0.2	< 0.2	< 0.2
	5/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.256	N/A	N/A	N/A	N/A	N/A
	6/9/2021	0.271	< 0.2	< 0.2	< 0.2	< 0.2	0.57	0.344	0.257	0.227	< 0.2	0.148*	< 0.2	< 0.2
	6/9/2021	N/A	N/A	N/A	N/A	< 0.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	7/12/2022	0.311	< 0.2	0.146*	0.156*	0.12*	0.585	0.393	0.298	0.294	< 0.2	0.121*	< 0.2	< 0.2
	7/12/2022	N/A	N/A	N/A	N/A	0.105*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/16/2023	0.384	< 0.2	0.177*	0.121*	0.108*	0.641	0.396	0.356	0.293	< 0.2	0.13*	< 0.2	< 0.2
	8/16/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.337	N/A	N/A	N/A	N/A	N/A
	8/27/2024	0.388	< 0.2	< 0.2	< 0.2	< 0.2	0.556	0.31	0.249	0.27	< 0.2	< 0.2	< 0.2	< 0.2
	8/27/2024	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.253	N/A	N/A	N/A	N/A
pH, S.U. (CAS NO - PH)	4/1/1995	7.86	7.65	7.04	6.64	8.69	9.15	8.27	8.4	7.93	8.27	7.19	7.7	7.78
SDWR - 6.5 - 8.5 S.U.	7/1/1995	7.18	6.87	7.1	7.21	7.04	7.35	6.67	7.02	7.13	6.95	6.36	6.83	7.22
	10/1/1995	5.12	5.37	5.1	5.91	5.25	5.3	5.31	5.38	5.93	5.88	5.06	5.47	5.13
	4/1/1996	7.12	6.86	7	7.21	7.21	7.19	6.99	7.26	6.89	6.73	6.32	6.99	7.25
	10/1/1996	7.19	6.68	6.16	6.35	6.9	7.17	6.92	7.4	7.19	7.23	6.4	6.9	7.39
	4/1/1997	6.9	7.1	7.4	7.4	7.4	7.6	7.6	7.4	7.2	7.1	6.6	7.1	7.6
	10/1/1997	7.6	7.1	7.5	7.9	7.5	8	6.9	7.6	7.6	7.5	6.9	7.4	7.7
	4/1/1998	8	7.7	7.8	6.9	7.1	7.6	6.7	7.3	7.2	7.2	7	7.4	8.3
	10/1/1998	7.9	7.8	8.1	8.4	8.1	7.8	7.4	8.1	7.9	7.8	7.4	8.4	7.8
	4/1/1999	7.5	7.5	7.5	7.2	7.4	7.6	6.7	7.8	7.6	7.4	6.5	7.2	7.6
	10/1/1999	7.8	7.4	7.8	7.8	8.1	8.5	6.8	8.1	7.8	7.6	6.7	7.8	7.8
	4/1/2000	7.7	7.6	7.3	7.2	7.9	8.1	6.9	7.8	8	7.6	6.8	7.8	7.7
	10/1/2000	8.1	8.1	8.3	8.6	7.9	8	8	7.9	7.8	8	7.7	8.2	8.2
	4/1/2001	7.8	7.7	7.7	7.8	7.9	7.8	7.9	7.8	7.8	7.8	7.7	7.8	7.9
	10/1/2001	8	7.4	7.6	7.8	7.6	7.8	6.7	7.8	7.6	7.6	6.6	7.4	8

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Other Constituents	Sample Date	MW-13 UPG	MW-15 UPG	MW-16 UPG	MW-19 UPG	MW-5 DNG	MW-6 DNG	MW-7 DNG	MW-8 DNG	MW-9 DNG	MW-10 DNG	MW-11 DNG	MW-12 DNG	MW-14 DNG
pH, S.U. (CAS NO - PH)	4/1/2002	7.6	7.2	7.2	7.5	7.1	7.8	6.5	7.4	7.8	7.4	6.4	7.1	7.6
SDWR - 6.5 - 8.5 S.U.	10/1/2002	7.4	6.6	7.1	6.9	6.5	7.6	7.2	7.4	7.2	7	6.4	7	6.8
	4/23/2003	7.17	6.78	7.15	7.18	7.04	7.49	6.41	7.38	7.31	7.1	6.32	6.8	7.39
	10/14/2003	7.04	6.68	7.13	7.14	6.87	7.62	6.28	7.34	7.23	6.95	6.26	7.33	7.24
	4/7/2004	7.67	7.4	7.73	7.78	7.83	7.97	6.95	7.72	7.71	7.54	6.83	7.56	7.55
	10/13/2004	7.1	6.59	7.11	7.12	7.34	7.08	7.47	7.67	7.74	7.36	6.62	7.77	7.3
	4/7/2005	7.67	7.4	7.73	7.78	7.83	7.97	6.95	7.72	7.71	7.54	6.83	7.56	7.55
	10/7/2005	7.13	7.07	7	6.99	7.3	7.1	7.57	7.7	7.8	7.51	7.7	8	7.42
	4/4/2006	7.18	6.75	6.97	6.92	6.87	7.06	6.64	6.81	6.99	6.85	6.39	6.69	7.14
	10/13/2006	7.22	6.63	7.21	7.06	7.22	6.99	7.55	7.74	7.83	7.22	6.93	7.65	7.46
	4/4/2007	7.74	7.22	7.51	6.99	7.51	7.6	7.22	7.55	7.54	7.46	7	7.48	7.56
	10/9/2007	7.12	6.65	7.05	7.09	6.83	7.3	6.55	7.19	7.16	6.85	6.31	7.23	7.12
	4/17/2008	7.34	7.12	7.3	6.59	7.43	7.16	7.22	7.81	7.97	7.4	7.73	7.54	7.77
	10/10/2008	7.36	6.87	7.17	7.26	6.81	7.23	6.79	7.08	7.17	6.92	6.38	7.02	7.28
	4/28/2009	7.03	7.18	7.11	6.97	7.01	7.7	6.8	7.11	7.32	7.01	6.55	6.86	7.25
	10/14/2009	7.35	7.2	7.19	7.24	7.11	7.54	6.65	7.31	7.31	6.99	6.44	7.02	7.36
	4/21/2010	7.18	7.12	7.2	7.19	7.01	7.45	6.82	7.28	7.31	7.07	6.5	7.06	7.28
	10/28/2010	7.1	7.2	6.91	7.2	6.8	7.62	7.12	7.54	7.4	7.05	6.71	6.82	7.42
	4/13/2011	7.33	7.21	7.15	7.5	6.93	7.45	7.2	7.5	7.54	7.23	7.59	7.24	7.55
	10/13/2011	7.35	7.25	7.2	7.6	6.97	7.5	6.7	7.6	7.58	7.05	7.62	7.29	7.6
	4/24/2012	8.2	7.25	7.2	7.5	6.93	6.59	6.7	7.8	7.5	7.69	7.3	7.25	7.7
	10/23/2012	7.3	6.95	7.58	7.1	7.5	7.49	6.98	7	7.2	7.1	7.05	6.85	7.2
	4/11/2013	8.15	7.15	7.25	7.6	7.55	6.8	7	7.89	7.58	7.7	7.4	7.05	7.8
	10/29/2013	7.43	7.16	7.7	7.39	7.4	8.29	7.02	6.82	6.97	6.98	6.69	6.68	7.46
	4/8/2014	7.83	7.63	7.75	7.39	6.97	7.15	7.3	6.2	7.2	7.4	6.65	7	8
	10/13/2014	8.26	8.6	7.89	7.62	8.48	7.63	8.07	7.27	7.32	7.12	7.5	8.53	7.74
	4/1/2015	7.71	7.48	7.85	7.85	7.64	7.98	9.38	7.81	7.75	7.59	7.15	8.08	7.74
	10/12/2015	7.94	7.52	7.57	7.59	7.36	6.96	6.6	7.7	7.91	7.49	6.98	7.63	7.86
	4/19/2016	7.54	7.47	7.75	7.47	7.21	7.85	6.79	7.93	7.9	7.75	7.06	7.75	7.68
	10/17/2016	7.66	7.41	8.48	7.99	7.51	8.05	7.1	8.19	8.04	7.46	8.2	8.04	8.5
	4/4/2017	7.94	6.91	7.34	7.59	7.04	7.56	6.63	7.35	7.34	7.08	6.52	6.88	7.18
	10/24/2017	7.44	6.93	7.38	7.34	7.47	7.7	6.68	7.38	7.39	7.11	6.51	6.91	7.45
	4/9/2018	7.27	6.76	7.18	7.2	6.93	7.53	6.56	7.3	7.25	7.02	6.42	7.1	7.26
	8/21/2018	7.32	7.65	7.24	7.11	7.5	7.65	7.65	7.3	7.2	7	6.84	7.89	7.12
	3/6/2019	6.98	6.74	7.04	7.07	N/A	N/A	6.24	7.16	7.16	6.83	N/A	6.88	7.01
	4/8/2019	N/A	N/A	6.89	N/A	6.66	7.28	N/A	N/A	N/A	N/A	6.27	N/A	N/A
	9/4/2019	7.14	6.53	7.23	7.28	6.85	7.47	6.4	7.16	7.11	6.81	6.29	6.83	7.07
	5/20/2020	7.13	6.64	7.01	7.07	6.81	7.35	6.38	7.15	7.07	6.84	6.19	6.48	7.08
	6/9/2021	7.05	6.58	6.99	7.05	6.79	7.37	6.34	7.1	7.1	6.78	6.28	6.74	7.02
	7/12/2022	7.12	6.55	6.74	7.01	6.78	7.36	6.34	7	7.07	6.74	6.27	6.86	7.07
	8/16/2023	7.05	6.47	6.83	6.94	6.66	7.23	6.32	7.05	7.02	6.74	6.25	6.89	6.97
	8/27/2024	7.04	6.48	6.91	7.08	6.72	7.3	6.32	7.01	7.1	6.69	6.23	6.72	7
Phosphorus, mg/L (CAS NO - 7723-14-0)	10/24/2017	**0.0517**	< 0.1	< 0.1	**0.053**	< 0.1	**0.0756**	< 0.1	**0.0681**	< 0.1	< 0.1	**0.0616**	**0.0477**	**0.105**
	4/9/2018	< 0.1	< 0.1	**0.0493**	< 0.1	**0.0708**	**0.0599**	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	8/21/2018	< 0.1	< 0.1	**0.355**	**0.0705**	< 0.1	**0.0512**	**1.44**	< 0.1	< 0.1	< 0.1	**0.0854**	**0.117**	**0.463**
	3/6/2019	**0.0489**	< 0.1	N/A	**0.0793**	N/A	N/A	< 0.1	< 0.1	< 0.1	< 0.1	N/A	< 0.1	< 0.1
	9/4/2019	< 0.1	< 0.1	< 0.1	< 0.1	0.048*	0.0686*	0.0528*	< 0.1	< 0.1	0.0444*	< 0.1	< 0.1	< 0.1
	9/4/2019	N/A	N/A	N/A	N/A	N/A	N/A	0.051*	N/A	N/A	N/A	N/A	N/A	N/A
Specific Conductance, umhos/cm (CAS NO - SC)	4/1/1995	651	2400	748	665	742	668	1719	614	620	1372	2670	1816	595
	7/1/1995	698	2250	799	733	824	751	1957	700	688	1404	2840	1889	661
	10/1/1995	695	3220	798	691	874	737	1913	716	687	1451	2870	1715	630

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Other Constituents	Sample Date	MW-13 UPG	MW-15 UPG	MW-16 UPG	MW-19 UPG	MW-5 DNG	MW-6 DNG	MW-7 DNG	MW-8 DNG	MW-9 DNG	MW-10 DNG	MW-11 DNG	MW-12 DNG	MW-14 DNG
Specific Conductance, umhos/cm (CAS NO - SC)	1/1/1996	996	N/A	N/A	N/A	N/A	N/A	N/A	N/A	651	1438	2650	1675	836
	4/1/1996	620	1860	690	620	730	680	1570	650	740	1280	2450	1620	580
	10/1/1996	310	1340	430	440	380	340	1650	280	290	620	1770	1070	380
	4/1/1997	630	2050	670	440	620	560	1860	480	580	1060	2060	1390	550
	10/1/1997	610	1730	660	650	760	660	1850	620	610	1060	2640	1510	550
	4/1/1998	500	2000	600	500	700	600	1400	600	600	1000	2400	1500	500
	10/1/1998	660	220	750	660	820	780	1660	640	610	1120	2730	1700	620
	4/1/1999	594	1675	708	666	723	681	1683	593	608	1000	2510	1600	625
	10/1/1999	597	1840	683	606	732	651	1630	598	624	1010	2450	1484	550
	4/1/2000	620	2070	770	710	732	651	1630	624	664	1036	2670	1478	680
	10/1/2000	5830	960	755	670	790	660	940	550	684	950	2430	1365	627
	4/1/2001	640	1700	654	590	732	600	1617	488	587	756	1836	1514	560
	10/1/2001	664	1953	720	665	831	711	1753	594	607	985	2500	1628	616
	4/1/2002	621	2130	652	587	862	751	1846	525	602	930	2640	1648	596
	10/1/2002	683	2070	810	730	2090	780	939	658	686	1130	2870	1793	728
	4/23/2003	628	1726	715	640	871	690	1617	635	648	1099	2096	1365	605
	10/14/2003	636	2068	778	665	928	701	1906	726	688	1099	2758	1509	647
	4/7/2004	632	1760	748	649	970	684	1918	642	643	1365	2721	1634	633
	10/13/2004	620	2070	792	652	885	537	764	153	723	1054	2459	1415	655
	4/7/2005	632	1760	748	649	970	684	1918	642	643	1365	2721	1634	633
	10/7/2005	604	1562	633	580	890	629	1725	577	616	2155	1450	1400	569
	4/4/2006	625	1940	730	633	990	662	1893	663	631	1171	2560	1534	629
	10/13/2006	695	2180	833	620	899	549	673	202	699	1103	2320	1339	702
	4/4/2007	714	1655	700	613	1000	800	1400	555	815	987	2001	1315	598
	10/9/2007	692	2280	832	723	1105	763	1992	708	703	1343	3000	1609	739
	4/17/2008	740	1010	750	701	880	620	982	633	684	1134	1214	1484	622
	10/10/2008	536	980	606	554	789	599	1159	560	559	947	1428	1088	551
	4/28/2009	725	1633	890	733	1188	757	1865	751	789	1285	3100	1876	825
	10/14/2009	594	1114	701	608	938	634	1442	594	616	1171	2940	2010	646
	4/21/2010	672	1349	794	597	1127	730	1362	648	641	1310	2620	1649	761
	10/28/2010	680	1117	739	618	1001	642	1534	601	620	1341	2420	1697	750
	4/13/2011	710	1320	1251	1325	1225	822	823	754	752	1300	1289	1703	820
	10/13/2011	668	1325	1175	1225	1095	709	1388	668	725	1225	1185	1505	859
	4/24/2012	688	1320	1180	1220	1090	1120	1375	650	824	1123	1500	1125	855
	10/23/2012	630	1410	1150	1200	1114	706	1480	790	680	1215	1100	1526	750
	4/11/2013	870	1170	1229	1205	1080	1115	1365	645	1130	1510	1130	689	790
	10/29/2013	639	1499	739	625	1064	669	2300	652	657	981	2820	1526	744
	4/8/2014	805	1665	740	635	1088	702	1775	645	666	949	2880	1414	754
	10/13/2014	696	1806	810	704	1154	535	1871	732	777	1158	2550	1517	808
	4/1/2015	706	1916	852	724	1230	753	1952	690	707	1350	2706	1370	829
	10/12/2015	632	1565	754	627	1025	678	1708	667	648	1197	2351	1357	736
	4/19/2016	569	264	680	609	947	312	1620	563	570	1190	2068	1220	736
	10/17/2016	680	1641	842	679	1099	704	1896	692	684	1308	2601	1453	895
	4/4/2017	624	1492	747	574	885	533	1397	496	517	976	1971	1284	548
	10/24/2017	595	1414	681	603	1008	654	1569	637	646	1094	2141	1184	779
	4/9/2018	645	1967	769	660	1159	691	1758	661	675	1366	2602	1380	807
	8/21/2018	1027	1792	1209	843	1465	709	1889	692	642	1294	2704	901	944
	3/6/2019	512	1322	638.8	554	N/A	N/A	1660.8	517	532	876	N/A	1046	626
	4/8/2019	N/A	N/A	754	N/A	1120.3	686.1	N/A	N/A	N/A	N/A	2484.3	N/A	N/A
	9/4/2019	601	1343.9	682	718.7	956.1	671.9	1459.2	636.7	642.4	1131.6	1857.1	1141.6	746.6
	5/20/2020	574.5	1710.5	681	586.4	995.9	619.4	1641.8	591.7	603.2	1017.3	2262.1	1294.2	744.2

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Other Constituents	Sample Date	MW-13 UPG	MW-15 UPG	MW-16 UPG	MW-19 UPG	MW-5 DNG	MW-6 DNG	MW-7 DNG	MW-8 DNG	MW-9 DNG	MW-10 DNG	MW-11 DNG	MW-12 DNG	MW-14 DNG
Specific Conductance, umhos/cm (CAS NO - SC)	6/9/2021	653.4	2026.4	779	672	1142.7	711.9	1926.2	678.6	690.4	1457.6	2617.6	1556.3	856.2
	7/12/2022	626.3	1896.7	755.5	644.4	1144.6	690.3	1911.3	645.9	668.5	1288.5	2539.8	1383.5	824.2
	8/16/2023	653.5	1989	765.3	652.6	1096.3	693	1907.2	662	673.9	1277.7	2554.4	1231.4	846.8
	8/27/2024	665.3	2170.5	803	683.3	1146.2	723.6	1976.3	696.6	712.8	1449.1	2650.9	1269.6	876.6
Sulfate, mg/L (CAS NO - 14808-79-8)	4/1/1995	**6.9**	**1000**	**11**	**6.5**	**37**	**12**	**240**	**7**	**6.8**	**160**	**720**	**780**	**16**
MCLG - 500 mg/L	7/1/1995	**8.5**	**1000**	**15**	**9.2**	**43**	**11**	**270**	**8.6**	**8.4**	**350**	**720**	**800**	**14**
SDWR - 250 mg/L	10/1/1995	**10**	**1100**	**17**	**17**	**37**	**11**	**310**	**8.4**	**8.6**	**410**	**730**	**900**	**22**
	1/1/1996	**7.4**	**980**	**13**	**5.4**	**39**	**9.3**	**220**	**7.1**	**7**	**430**	**800**	**740**	**19**
	10/1/1996	N/A	**843**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**636**	**729**	N/A
	4/1/1997	N/A	**1130**	N/A	N/A	**48.2**	N/A	N/A	N/A	N/A	N/A	**759**	**N/A**	N/A
	10/1/1997	N/A	**1080**	N/A	N/A	**51.3**	N/A	N/A	N/A	N/A	N/A	**681**	**663**	N/A
	4/1/1998	N/A	**1200**	N/A	N/A	**58**	N/A	N/A	N/A	N/A	N/A	**796**	**807**	N/A
	7/1/1998	**7.8**	**925**	**13.3**	**5.3**	**53.4**	**7.5**	**280**	**7**	**7.5**	**218**	**768**	**731**	**26.7**
	10/1/1998	**26**	**1030**	**15**	**9**	**62**	**10**	**244**	**9**	**9**	**217**	**664**	**675**	**26**
	4/1/1999	**9.6**	**914**	**17.5**	**4.8**	**62.4**	**9.8**	**222**	**8.7**	**10.2**	**205**	**759**	**750**	**40.5**
	10/1/1999	N/A	**922**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**735**	**785**	N/A
	4/1/2000	N/A	**1890**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**705**	**681**	N/A
	10/1/2000	N/A	**1240**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**820**	**765**	N/A
	4/1/2001	N/A	**1010**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**719**	**712**	N/A
	10/1/2001	N/A	**921**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**679**	**614**	N/A
	4/1/2002	N/A	**916**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**804**	**725**	N/A
	10/1/2002	N/A	**816**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**773**	**N/A**	N/A
	4/23/2003	N/A	**850**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**690**	**530**	N/A
	10/14/2003	N/A	**930**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**840**	**700**	N/A
	4/7/2004	N/A	**1100**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**840**	**700**	N/A
	10/13/2004	N/A	**730**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**920**	**690**	N/A
	4/7/2005	N/A	**820**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**890**	**780**	N/A
	10/7/2005	N/A	**920**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**880**	**890**	N/A
	4/4/2006	N/A	**1160**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**1220**	**817**	N/A
	10/13/2006	N/A	**943**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**843**	**730**	N/A
	4/4/2007	N/A	**841**	14.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**763**	**400**	N/A
	10/9/2007	N/A	**817**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**849**	**635**	N/A
	4/17/2008	N/A	**870**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**827**	**656**	N/A
	10/10/2008	N/A	**534**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**787**	**687**	N/A
	4/28/2009	N/A	**578**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**834**	**763**	N/A
	10/14/2009	N/A	**340**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**700**	**700**	N/A
	4/21/2010	N/A	**363**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**199**	**701**	N/A
	10/28/2010	N/A	**242**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**751**	**727**	N/A
	4/13/2011	N/A	**365**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**754**	**635**	N/A
	10/13/2011	N/A	**380**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**802**	**644**	N/A
	4/24/2012	N/A	**517**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**699**	**934**	N/A
	10/23/2012	N/A	**421**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**811**	**600**	N/A
	4/11/2013	N/A	**552**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**804**	**628**	N/A
	10/29/2013	N/A	**690**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**866**	**661**	N/A
	4/8/2014	N/A	**592**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**811**	**554**	N/A
	10/13/2014	N/A	**520**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**744**	**461**	N/A
	4/1/2015	N/A	**731**	**13.9**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**801**	**463**	N/A
	10/12/2015	N/A	**621**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**786**	**481**	N/A
	4/19/2016	N/A	**765**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**779**	**501**	N/A
	10/17/2016	N/A	**607**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**808**	**499**	N/A
	4/4/2017	N/A	**935**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**875**	**555**	N/A

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Summary of Groundwater Chemistry
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Other Constituents	Sample Date	MW-13 UPG	MW-15 UPG	MW-16 UPG	MW-19 UPG	MW-5 DNG	MW-6 DNG	MW-7 DNG	MW-8 DNG	MW-9 DNG	MW-10 DNG	MW-11 DNG	MW-12 DNG	MW-14 DNG
Sulfate, mg/L (CAS NO - 14808-79-8)	10/24/2017	N/A	658	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	821	507	N/A
MCLG - 500 mg/L	4/9/2018	N/A	825	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	803	470	N/A
SDWR - 250 mg/L	8/21/2018	N/A	652	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	781	464	N/A
	3/6/2019	N/A	734	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	424	N/A
	4/8/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	806	N/A	N/A
	9/4/2019	N/A	724	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	767	444	N/A
	5/20/2020	N/A	874	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	808	486	N/A
	6/9/2021	N/A	926	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	773	544	N/A
	7/12/2022	N/A	878	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	720	438	N/A
	8/16/2023	N/A	871	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	748	398	N/A
	8/27/2024	N/A	941	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	716	357	N/A
Sulfur, mg/L (CAS NO - 7704-34-9)	10/24/2017	2.1	187	5.18	3.04	51.7	2.85	83.2	2.9	3.53	70.9	247	157	10
	4/9/2018	2.13	273	5.33	2.86	59.9	2.75	78.7	2.45	3.69	103	269	156	10.5
	8/21/2018	< 0.5	225	4.86	0.828	58.6	5.64	92	4.33	5.57	75.4	273	156	13.9
	3/6/2019	2.12	268	N/A	2.97	N/A	N/A	83.2	2.38	3.59	117	N/A	144	9.95
	9/4/2019	2.11	258	5.11	3.08	61.2	2.48	83.9	2.57	3.45	96.9	278	159	10.9
	9/4/2019	N/A	N/A	N/A	N/A	N/A	N/A	64	N/A	N/A	N/A	N/A	N/A	N/A
Total Organic Halogens, mg/L (CAS NO - TOX)	10/1/1995	< 0.01	0.018	< 0.01	< 0.01	< 0.01	< 0.01	0.049	< 0.01	< 0.01	0.02	0.06	< 0.01	< 0.01
	10/1/1996	< 0.01	0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01	0.07	< 0.01	0.01
	10/1/1997	< 0.01	0.02	< 0.01	< 0.01	< 0.01	< 0.01	0.03	< 0.01	< 0.01	0.02	0.06	< 0.01	0.01
	10/1/1998	< 0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.02	< 0.01	< 0.01	0.01	0.06	0.01	< 0.01
	10/1/1999	< 0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.02	< 0.01	< 0.01	< 0.01	0.06	< 0.01	< 0.01
	10/1/2000	< 0.01	0.04	< 0.0001	0.04	0.01	< 0.01	0.05	< 0.01	< 0.01	0.01	0.07	0.02	< 0.01
	10/1/2001	0.011	0.048	0.02	0.015	< 0.01	0.014	0.059	0.014	0.01	0.015	0.09	0.019	< 0.1
	10/1/2002	< 0.01	0.033	0.019	0.016	0.146	0.211	0.093	0.01	0.013	0.036	0.106	0.068	0.053
	10/14/2003	< 0.01	0.017	< 0.01	< 0.01	< 0.01	< 0.01	0.036	< 0.01	< 0.01	< 0.01	0.053	0.011	< 0.01
	10/13/2004	< 0.01	0.012	< 0.01	< 0.01	< 0.01	< 0.01	0.019	< 0.01	< 0.01	0.012	0.055	< 0.01	< 0.01
	10/7/2005	< 0.01	0.011	< 0.01	< 0.01	< 0.01	< 0.01	0.019	< 0.01	< 0.01	< 0.01	0.039	< 0.01	< 0.01
	10/13/2006	< 0.01	0.0115	< 0.01	< 0.01	< 0.01	< 0.01	0.0127	< 0.01	< 0.01	0.0133	0.0425	< 0.01	< 0.01
	10/9/2007	< 0.01	0.017	< 0.01	< 0.01	< 0.01	< 0.01	0.0188	< 0.01	< 0.01	0.0216	0.0399	0.0128	< 0.01
	10/10/2008	< 0.01	0.0147	< 0.01	< 0.01	0.012	< 0.01	0.0274	< 0.01	< 0.01	0.0266	0.0369	< 0.01	< 0.01
	10/14/2009	< 0.01	0.0119	< 0.01	< 0.01	< 0.01	< 0.01	0.0252	< 0.01	< 0.01	0.0253	0.0394	0.0119	< 0.01
	4/21/2010	< 0.01	0.0135	< 0.01	< 0.01	0.0145	0.011	0.0448	0.0125	< 0.01	0.0199	0.0443	0.015	< 0.01
	10/28/2010	< 0.01	< 0.01	< 0.01	< 0.01	0.0161	< 0.01	0.0221	< 0.01	< 0.01	0.0206	0.0378	0.0167	< 0.01
	10/13/2011	< 0.01	0.0162	< 0.01	< 0.01	0.0135	< 0.01	0.0148	< 0.01	< 0.01	0.0196	0.0372	0.0164	< 0.01
	10/23/2012	< 0.01	0.0264	0.0321	0.0124	0.0187	< 0.01	0.185	< 0.01	< 0.01	0.0239	0.0411	0.03	< 0.01
	10/29/2013	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.0457	< 0.03	< 0.03	< 0.03	0.0485	< 0.03	< 0.03
	10/13/2014	< 0.03	0.0216	< 0.03	< 0.03	0.0167	< 0.03	0.105	< 0.03	< 0.03	0.0222	0.0786	0.0194	0.0196
	10/12/2015	0.0198	0.0327	0.0187	0.0314	0.0499	0.0269	0.103	0.0567	0.0382	0.0424	0.131	0.0391	0.0266
	10/17/2016	< 0.03	0.0163	0.01	0.0228	0.0107	< 0.03	0.0793	< 0.03	0.012	0.022	0.0507	< 0.03	< 0.03
	10/24/2017	< 0.03	0.0178	< 0.03	< 0.03	0.0118	< 0.03	0.0188	0.0132	< 0.03	0.0137	0.0476	0.0145	< 0.03
	4/9/2018	< 0.03	0.0202	0.025	< 0.03	0.0127	< 0.03	0.0244	< 0.03	< 0.03	0.0161	0.0491	< 0.03	< 0.03
	8/21/2018	0.0165	< 0.03	< 0.03	0.0142	< 0.03	< 0.03	0.0655	< 0.03	< 0.03	0.0105	0.0269	0.0122	< 0.03
	3/6/2019	< 0.03	0.0152	N/A	< 0.03	N/A	N/A	0.0279	< 0.03	< 0.03	0.0116	N/A	< 0.03	< 0.03
	4/8/2019	N/A	N/A	< 0.03	N/A	< 0.03	< 0.03	N/A	N/A	N/A	N/A	0.0242	N/A	N/A
	9/4/2019	< 0.01	0.016	< 0.01	< 0.01	< 0.01	< 0.01	0.021	< 0.01	0.021	< 0.01	0.026	< 0.01	< 0.01
	9/4/2019	N/A	N/A	N/A	N/A	N/A	N/A	0.054	N/A	N/A	N/A	N/A	N/A	N/A
Total Phenols, mg/L (CAS NO - 108-95-2)	10/1/1995	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02	0.028	0.028	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
HAL - 2.0 mg/L	10/1/1996	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	10/1/1997	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	10/1/1998	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

SCS ENGINEERS

Summary of Groundwater Chemistry
U.S. Gypsum Sperry Landfill 29 SDP 04 89C

Other Constituents	Sample Date	MW-13 UPG	MW-15 UPG	MW-16 UPG	MW-19 UPG	MW-5 DNG	MW-6 DNG	MW-7 DNG	MW-8 DNG	MW-9 DNG	MW-10 DNG	MW-11 DNG	MW-12 DNG	MW-14 DNG
Total Phenols, mg/L (CAS NO - 108-95-2)	10/1/1999	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
HAL - 2.0 mg/L	10/1/2000	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	10/1/2001	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	10/1/2002	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	10/14/2003	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
	10/13/2004	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
	10/7/2005	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
	10/13/2006	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
	10/9/2007	< 0.018	< 0.02	< 0.02	< 0.02	< 0.018	< 0.02	< 0.018	< 0.02	< 0.02	< 0.018	< 0.02	< 0.018	< 0.018
	10/10/2008	< 0.018	< 0.018	< 0.018	< 0.02	< 0.02	< 0.02	< 0.02	< 0.018	< 0.018	< 0.018	< 0.018	< 0.02	< 0.02
	10/14/2009	< 0.02	< 0.02	< 0.018	< 0.02	< 0.02	< 0.02	< 0.018	< 0.02	< 0.02	< 0.02	< 0.018	< 0.02	< 0.018
	4/21/2010	< 0.018	< 0.018	< 0.018	< 0.018	< 0.018	< 0.018	< 0.02	< 0.02	< 0.02	< 0.018	< 0.02	< 0.018	< 0.018
	10/28/2010	< 0.018	< 0.02	< 0.018	< 0.018	**0.0872**	< 0.018	< 0.018	< 0.02	< 0.018	< 0.018	< 0.018	< 0.018	< 0.018
	10/13/2011	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.018	< 0.018	< 0.02	< 0.02	< 0.02	**106**	< 0.02	< 0.02
	10/23/2012	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.018	< 0.02	< 0.02
	10/29/2013	< 0.02	< 0.0208	< 0.02	< 0.0192	< 0.0204	**0.0053**	< 0.02	< 0.0208	< 0.02	< 0.02	< 0.0192	< 0.0196	< 0.02
	10/13/2014	< 0.0208	< 0.0212	< 0.0204	< 0.0212	**0.0073**	< 0.0196	< 0.02	**0.00732**	**0.017**	**0.0077**	**0.00781**	< 0.018	< 0.0192
	10/12/2015	< 0.0208	< 0.018	< 0.0204	< 0.018	< 0.0196	< 0.0204	< 0.0196	< 0.018	< 0.018	< 0.0216	< 0.0212	< 0.018	< 0.0216
	10/17/2016	< 0.018	< 0.018	< 0.018	< 0.018	< 0.0184	**0.00593**	< 0.018	< 0.018	< 0.0184	< 0.0184	< 0.0184	< 0.0192	< 0.018
	10/24/2017	< 0.0188	< 0.02	< 0.0192	< 0.0196	< 0.0184	< 0.018	< 0.0192	< 0.0188	< 0.02	< 0.0192	< 0.02	< 0.0196	< 0.02
	4/9/2018	< 0.0192	< 0.018	< 0.02	< 0.0208	< 0.0184	< 0.0188	< 0.0184	< 0.018	< 0.018	< 0.04	**0.016**	< 0.0204	< 0.018
	8/21/2018	< 0.0192	< 0.02	< 0.0196	< 0.02	< 0.0212	< 0.0224	< 0.02	< 0.0208	< 0.0204	< 0.02	< 0.0196	< 0.0192	< 0.0196
	3/6/2019	< 0.0204	< 0.0212	N/A	< 0.0216	N/A	N/A	< 0.02	< 0.0188	< 0.0208	< 0.0188	N/A	< 0.018	< 0.0212
	4/8/2019	N/A	N/A	< 0.0192	N/A	< 0.02	< 0.02	N/A	N/A	N/A	N/A	< 0.0192	N/A	N/A
	9/4/2019	< 0.0184	< 0.02	< 0.0188	< 0.018	< 0.0188	< 0.0188	< 0.02	< 0.0192	< 0.0184	< 0.0192	< 0.0184	< 0.0196	< 0.0188
	9/4/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0184	N/A	N/A	N/A	N/A	N/A	N/A

Note: * indicates 'J flag'. Detection is below the reporting limit, but greater than the MDL (Method Detection Limit). The concentration is estimated.

Denotes Detection.
Denotes Confirmed Outlier. Statistically Excluded.

Sampling performed over multiple dates is recorded on the first date sampled. Refer to field forms for exact sample date.

Appendix D

Statistical Report

STATISTICAL METHODOLOGY

Statistical Method

The approved Groundwater Assessment Plan Update (Doc #79942) proposed the use of parametric and non-parametric prediction limits for statistical evaluation in lieu of the control limits required by Iowa Administrative Code 567-115. Prediction limits are the recommended approach of the "Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities - Unified Guidance," as published by the United States Environmental Protection Agency. Prediction limits were used for the statistical evaluation during this reporting period.

Diagnostic and Exploratory Evaluations and Tests of Assumptions

The statistical program includes diagnostic and exploratory evaluations and statistical tests of assumptions, as appropriate, including the following:

- Time series plots
- Ohio EPA Method for Outliers

Management of Non-Detect Data

Non-detect values in the dataset are managed using simple substitution or the Kaplan-Meier estimator. If less than 15% of the data are non-detects, simple substitution is used, where non-detect values are assigned a concentration of one-half (½) of the practical quantification limit (PQL). If greater than 15% but less than 50% of the data are non-detects, the Kaplan-Meier estimator is used to define the distribution for the dataset. If non-detects comprise greater than 50% of the available data, non-parametric statistical methods are used.

Management of Outliers

Background datasets are evaluated for outliers using the Ohio EPA Method as included in the statistical software program Sanitas™ and described below, which included the use of Dixon's, Rosner's, and Tukey's outlier tests, as appropriate based on the diagnostic tests, for the datasets containing less than 75% of the measured concentrations below the practical quantification limit (PQL).

Management of Data (ND data < 75%)

If less than 75% of the background dataset is below the PQL, outliers are statistically evaluated using the following guidelines.

- Parametric datasets with n < 20 are evaluated using Dixon's outlier test.
- Parametric datasets with n ≥ 20 are evaluated using Rosner's outlier test.
- Non-parametric datasets are evaluated using Tukey's outlier test.

In accordance with the Ohio EPA Method, if a statistically significant outlier is not found using the above tests, but the highest value data point exceeds the second highest data point by an order of magnitude, the highest point is considered an outlier.

Management of Data (ND data ≥ 75%)

If greater than or equal to 75% of the background dataset is less than the PQL, outliers are statistically evaluated using the following guidelines.

- Single detection ≥ PQL:
  - If ≥ 50% of the background dataset has detections ≥ method detection limit (MDL), any value ≥ two times PQL of background is considered an outlier.
  - If < 50% of the background dataset has detections ≥ MDL, any value ≥ PQL of background is considered an outlier.
- Two or more detections ≥ PQL:
  - If ≥ 50% of the background dataset has detections ≥ MDL, any value ≥ three times PQL of background is considered an outlier.
  - If < 50% of the background dataset has detections ≥ MDL, any value ≥ two times the PQL of background is considered an outlier.

Interwell Prediction Limits

Interwell prediction limits were selected as the appropriate statistical method for the determination of constituents statistically above background. Prediction limits are established using the process below. Data from the most recent sampling events is compared to the prediction limits for the determination of constituents above background.

- If the dataset has a normal distribution (or can be transformed to a normal distribution using Ladder of Powers) and has less than 50% non-detects, parametric interwell prediction limits are calculated if at least five data sets have been collected.
- If the dataset does not have a normal distribution (and cannot be transformed to a normal distribution using Ladder of Powers) or has greater than 50% non-detects, non-parametric interwell prediction limits are calculated if at least five data sets have been collected.

Double Quantification Method

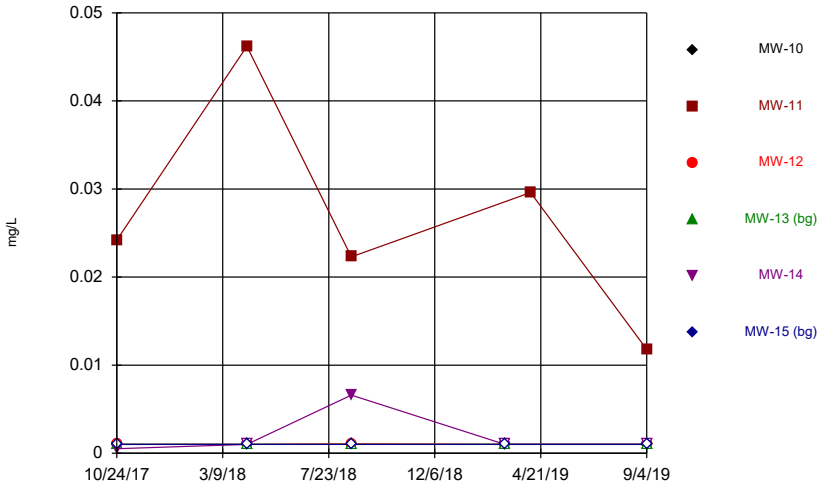
The quasi-statistical “double quantification” method was used for constituents not detected in the associated background data set. If a constituent was detected in the compliance dataset during two consecutive years that has not been historically detected in the background dataset, the SSI is confirmed.

Attachment A

Time Series Graphs

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. EPA
Hollow symbols indicate censored values.

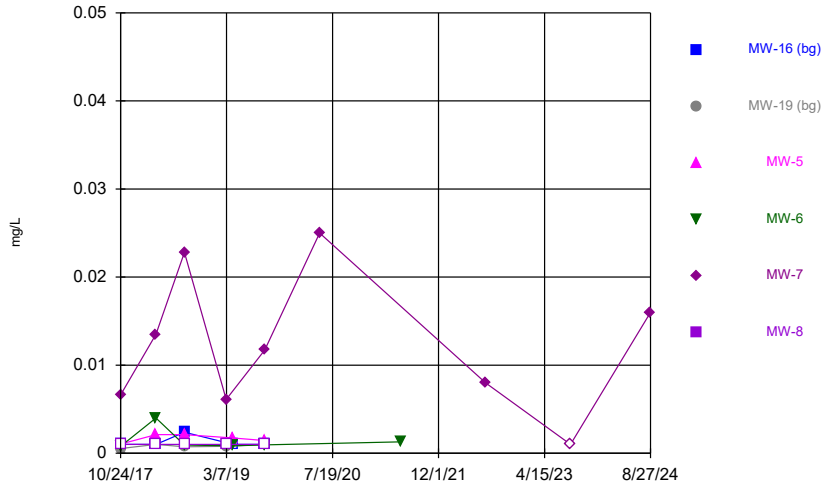
Time Series



Constituent: Arsenic Analysis Run 10/1/2024 1:57 PM View: 2024AWQR - Time Series
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. EPA
Hollow symbols indicate censored values.

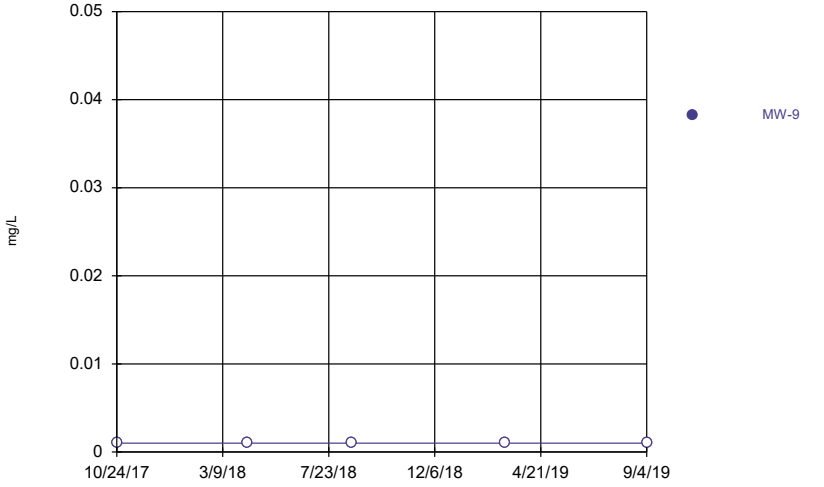
Time Series



Constituent: Arsenic Analysis Run 10/1/2024 1:57 PM View: 2024AWQR - Time Series
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. EPA
Hollow symbols indicate censored values.

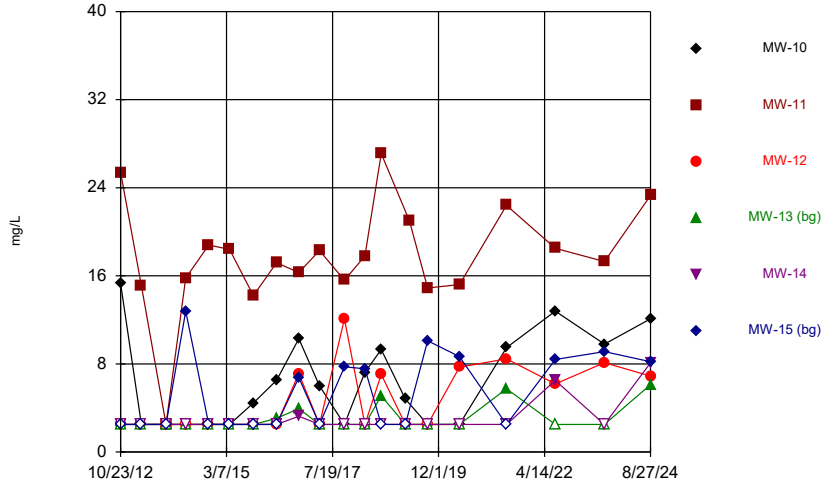
Time Series



Constituent: Arsenic Analysis Run 10/1/2024 1:57 PM View: 2024AWQR - Time Series
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. EPA
Hollow symbols indicate censored values.

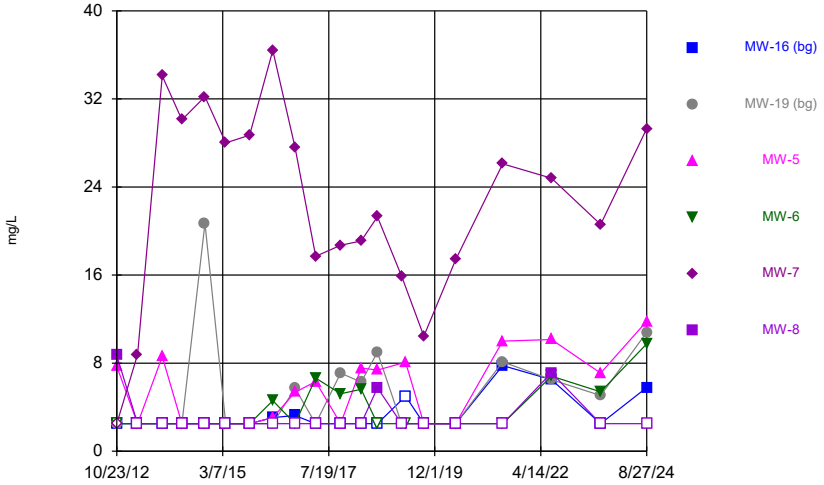
Time Series



Constituent: Chemical Oxygen Demand Analysis Run 10/1/2024 1:57 PM View: 2024AWQR - Time Series
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. EPA
Hollow symbols indicate censored values.

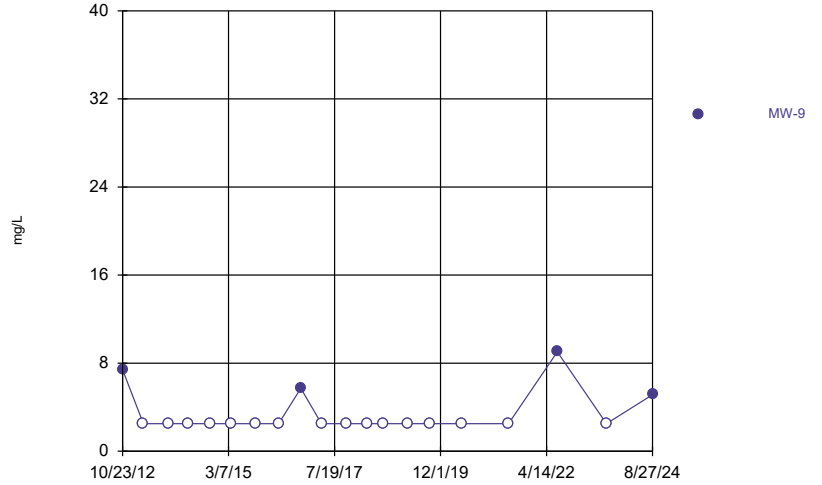
Time Series



Constituent: Chemical Oxygen Demand Analysis Run 10/1/2024 1:57 PM View: 2024AWQR - Time Series
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. EPA
Hollow symbols indicate censored values.

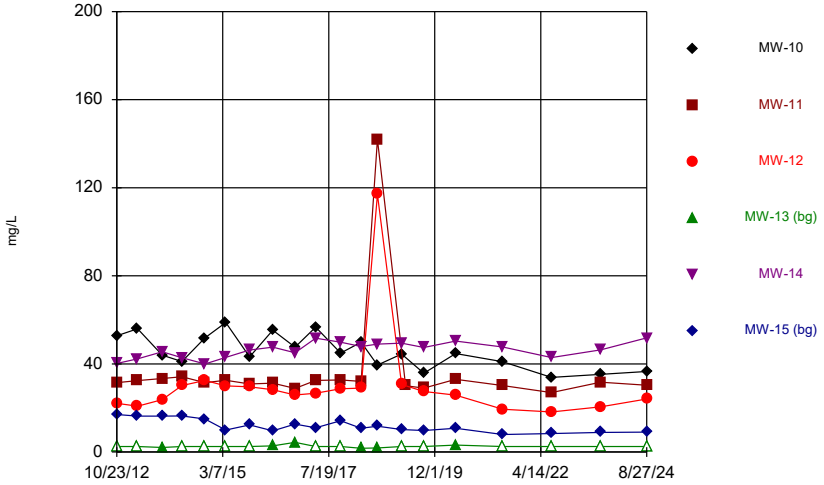
Time Series



Constituent: Chemical Oxygen Demand Analysis Run 10/1/2024 1:57 PM View: 2024AWQR - Time Series
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. EPA
Hollow symbols indicate censored values.

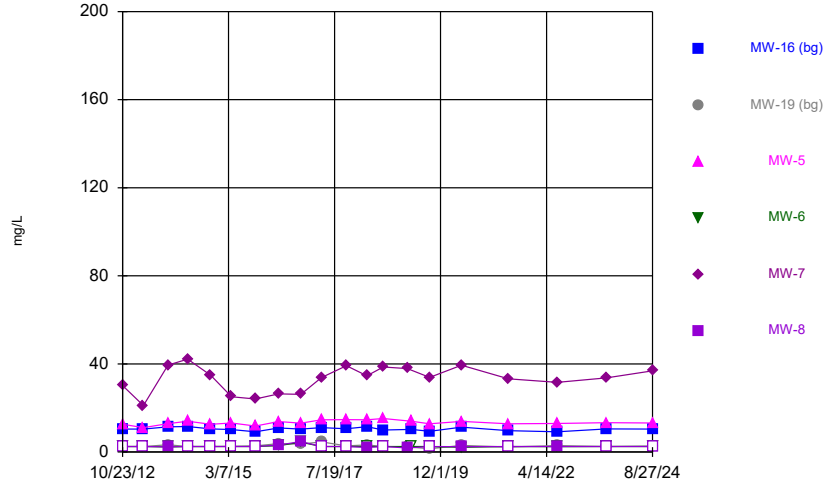
Time Series



Constituent: Chloride Analysis Run 10/1/2024 1:57 PM View: 2024AWQR - Time Series
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. EPA
Hollow symbols indicate censored values.

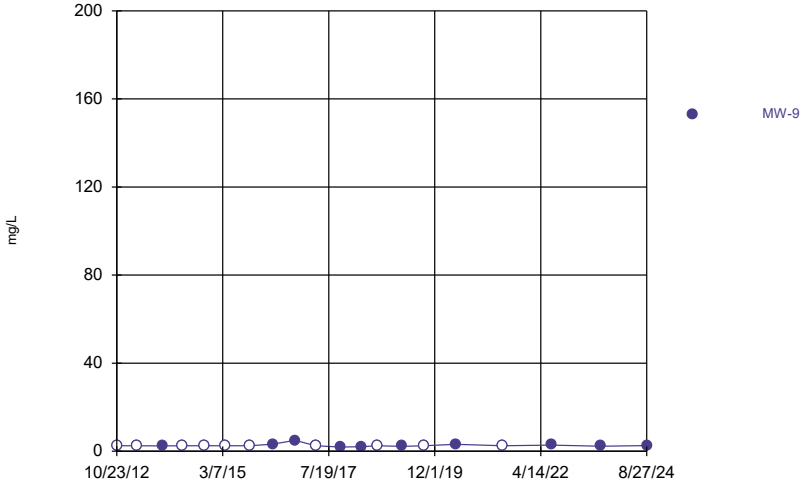
Time Series



Constituent: Chloride Analysis Run 10/1/2024 1:57 PM View: 2024AWQR - Time Series
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. EPA
Hollow symbols indicate censored values.

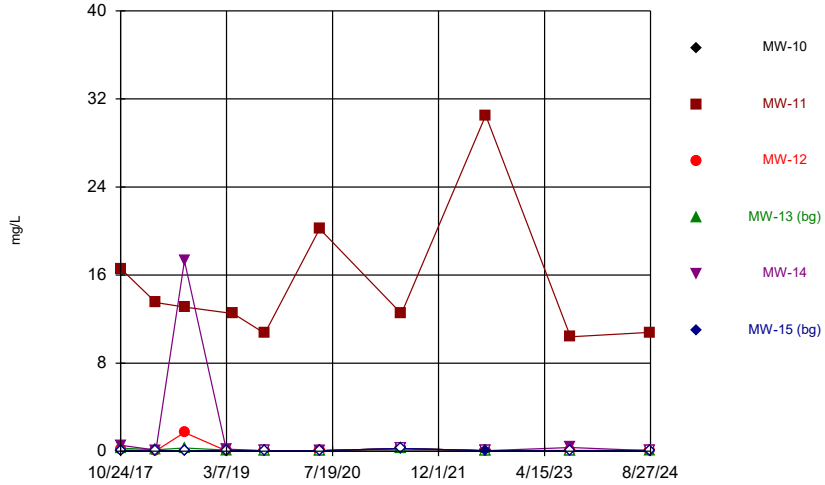
Time Series



Constituent: Chloride Analysis Run 10/1/2024 1:57 PM View: 2024AWQR - Time Series
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. EPA
Hollow symbols indicate censored values.

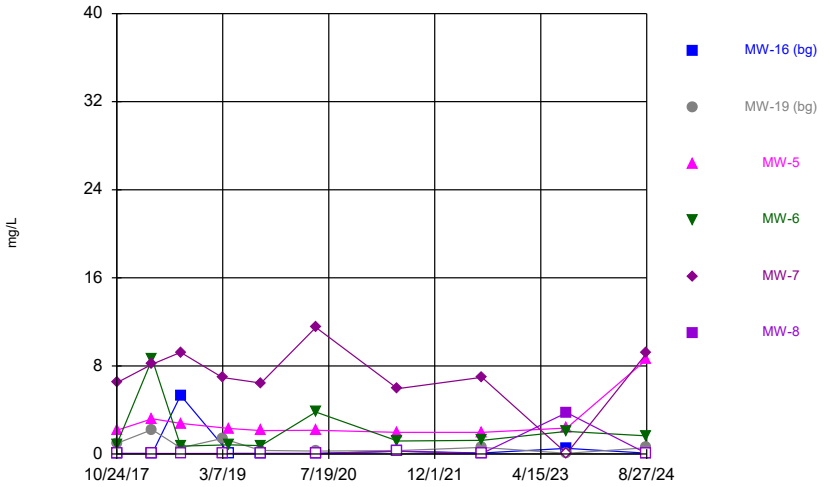
Time Series



Constituent: Iron Analysis Run 10/1/2024 1:57 PM View: 2024AWQR - Time Series
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. EPA
Hollow symbols indicate censored values.

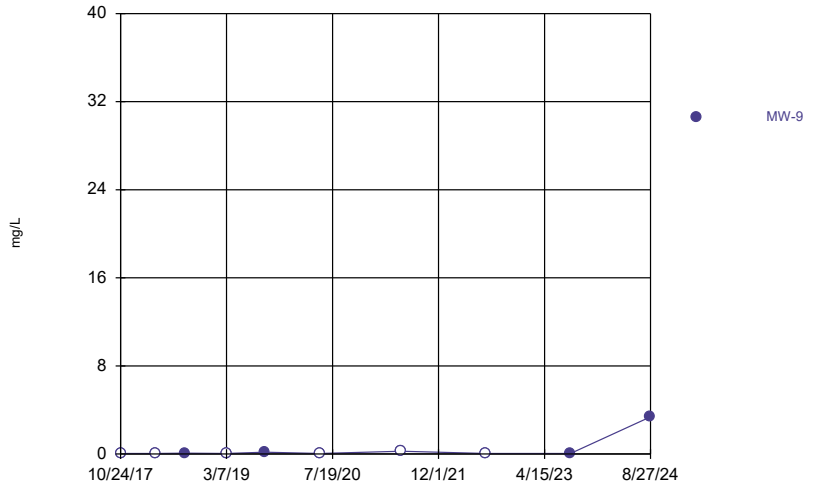
Time Series



Constituent: Iron Analysis Run 10/1/2024 1:57 PM View: 2024AWQR - Time Series
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. EPA
Hollow symbols indicate censored values.

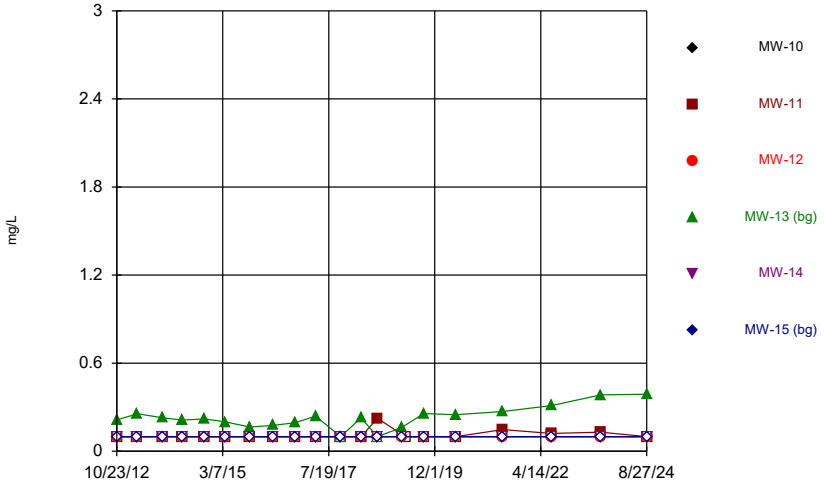
Time Series



Constituent: Iron Analysis Run 10/1/2024 1:58 PM View: 2024AWQR - Time Series
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. EPA
Hollow symbols indicate censored values.

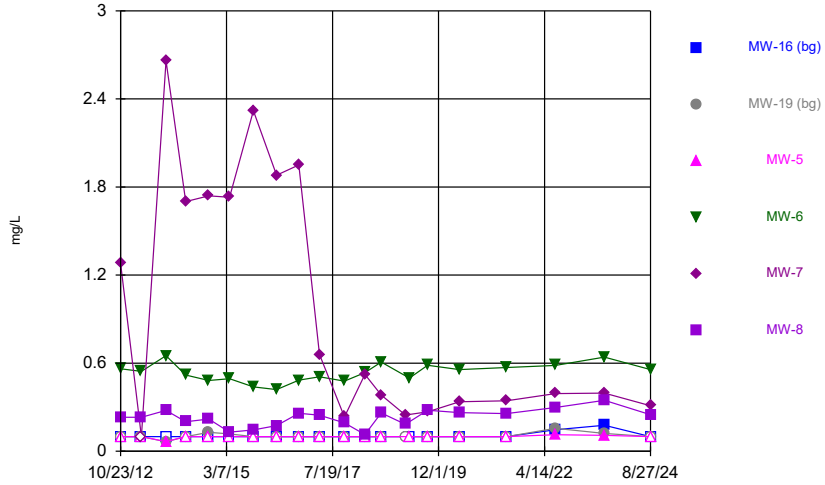
Time Series



Constituent: Nitrogen, Ammonia Analysis Run 10/1/2024 1:58 PM View: 2024AWQR - Time Series
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. EPA
Hollow symbols indicate censored values.

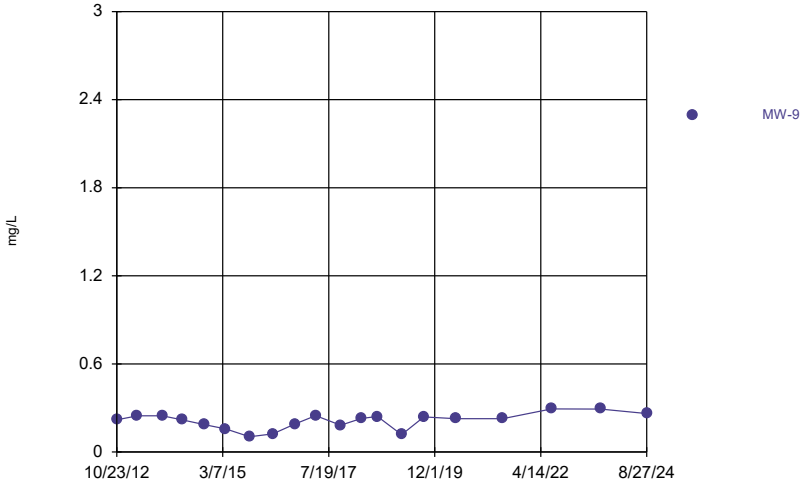
Time Series



Constituent: Nitrogen, Ammonia Analysis Run 10/1/2024 1:58 PM View: 2024AWQR - Time Series
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. EPA

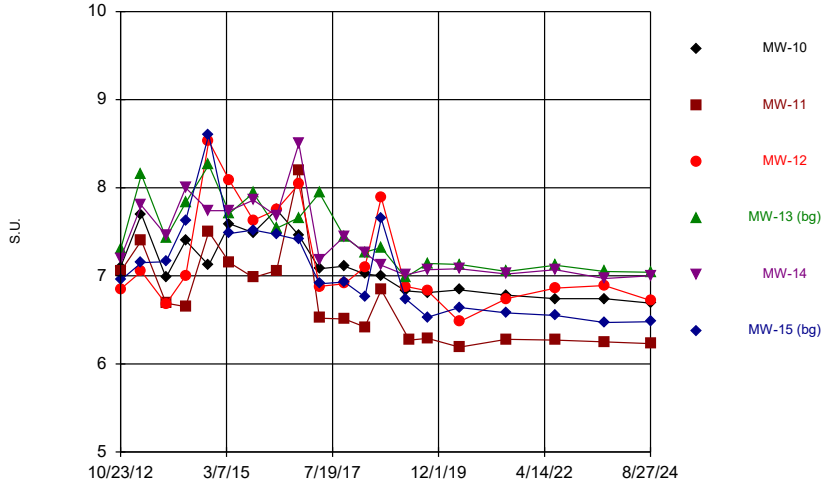
Time Series



Constituent: Nitrogen, Ammonia Analysis Run 10/1/2024 1:58 PM View: 2024AWQR - Time Series
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

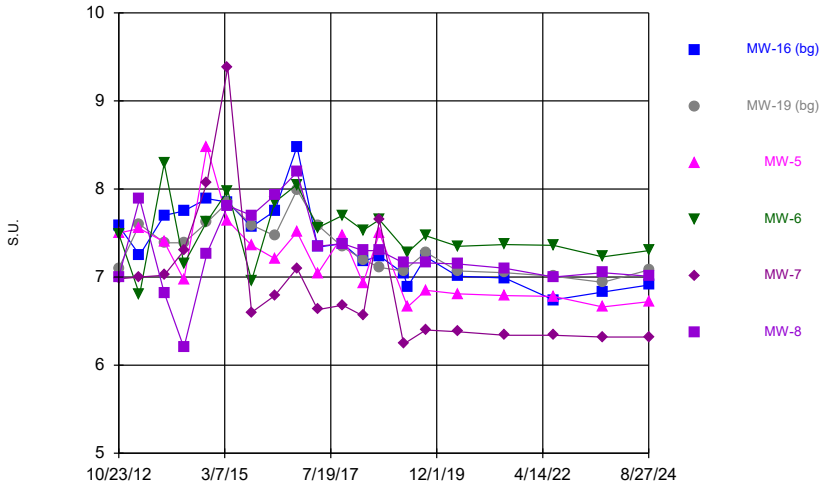
Sanitas™ v.9.6.37 Software licensed to SCS Engineers. EPA

Time Series



Constituent: pH Analysis Run 10/1/2024 1:58 PM View: 2024AWQR - Time Series
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

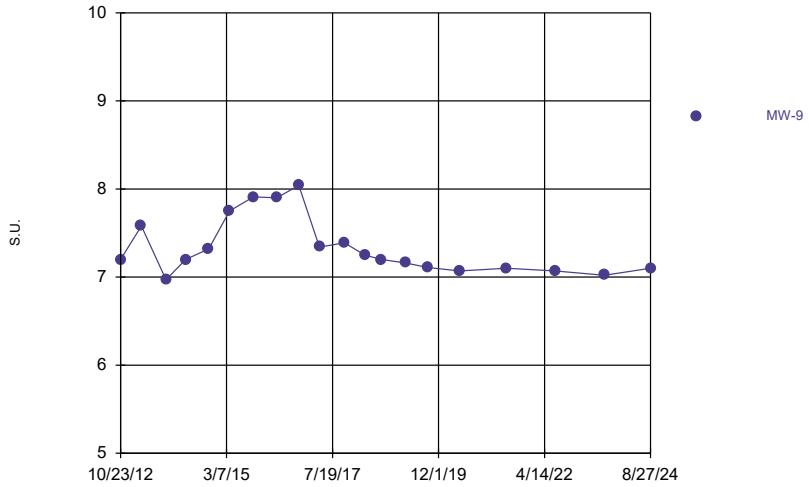
Time Series



Constituent: pH Analysis Run 10/1/2024 1:58 PM View: 2024AWQR - Time Series
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. EPA

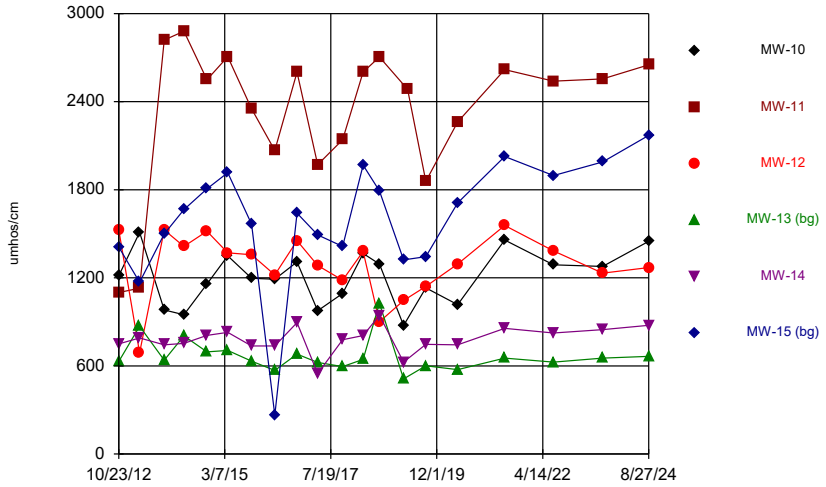
Time Series



Constituent: pH Analysis Run 10/1/2024 1:58 PM View: 2024AWQR - Time Series
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. EPA

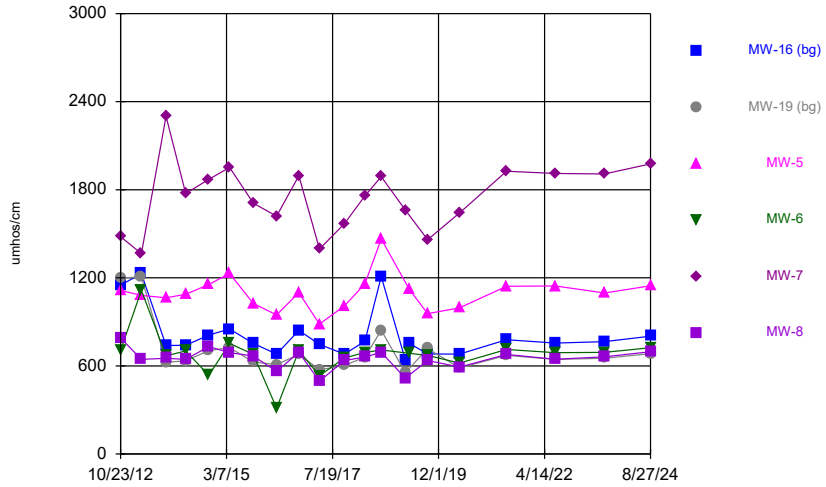
Time Series



Constituent: Specific Conductance Analysis Run 10/1/2024 1:58 PM View: 2024AWQR - Time Series
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

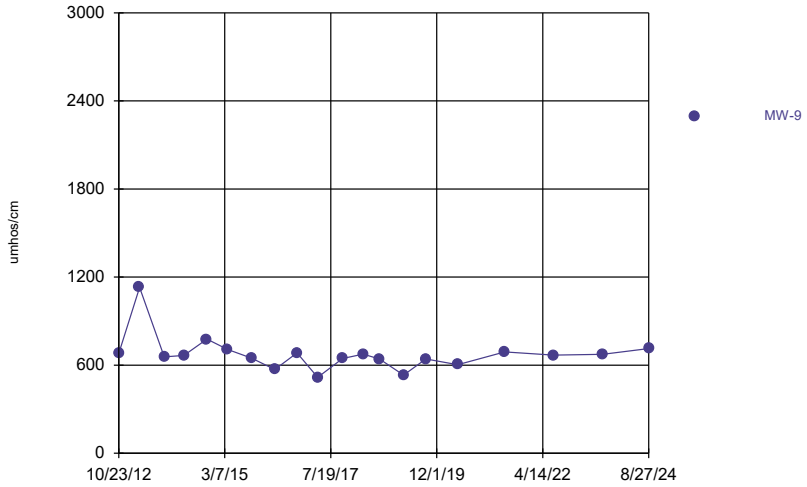
Sanitas™ v.9.6.37 Software licensed to SCS Engineers. EPA

Time Series



Constituent: Specific Conductance Analysis Run 10/1/2024 1:58 PM View: 2024AWQR - Time Series
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

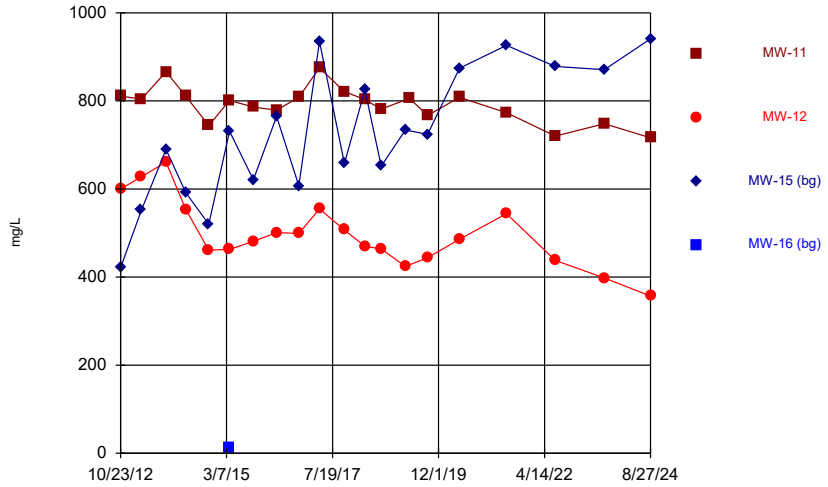
Time Series



Constituent: Specific Conductance Analysis Run 10/1/2024 1:58 PM View: 2024AWQR - Time Series
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. EPA

Time Series



Constituent: Sulfate Analysis Run 10/1/2024 1:58 PM View: 2024AWQR - Time Series
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

Attachment B

Outliers

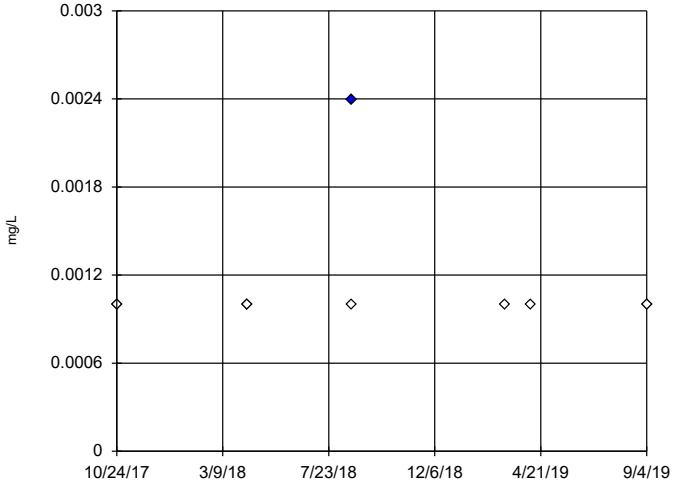
Water BG Outlier Analysis

US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP Printed 10/1/2024, 3:07 PM

Constituent	Well	Outlier	Value(s)	Date(s)	Method	Alpha	N	Mean	Std. Dev.	Normality Test
Arsenic (mg/L)	**MW-15,MW-16**	**Yes**	**0.00239**	**n/a w/combined bg**	**OH**	**NaN**	**10**	**0.001139**	**0.0004396**	**n/a**
Chemical Oxygen Demand (mg/L)	MW-15,MW-16	No	n/a	n/a w/combined bg	NP (nrm)/OH	NaN	40	4.33	2.828	ShapiroWilk
Chloride (mg/L)	**MW-15,MW-16**	**Yes**	**17**	**n/a w/combined bg**	**NP (nrm)/OH**	**NaN**	**40**	**11.18**	**2.246**	**ShapiroWilk**
Iron (mg/L)	**MW-15,MW-16**	**Yes**	**5.32,0.517,0.25**	**n/a w/combined bg**	**OH**	**NaN**	**20**	**0.3603**	**1.173**	**n/a**
Nitrogen, Ammonia (mg/L)	MW-15,MW-16	No	n/a	n/a w/combined bg	OH	NaN	40	0.1031	0.01402	n/a
pH (S.U.)	MW-15,MW-16	No	n/a	n/a w/combined bg	EPA/OH	0.05	41	7.225	0.5058	ShapiroWilk
Specific Conductance (umhos/cm)	MW-15,MW-16	No	n/a	n/a w/combined bg	NP (nrm)/OH	NaN	41	1198	506.6	ShapiroWilk
Sulfate (mg/L)	**MW-15,MW-16**	**Yes**	**13.9**	**n/a w/combined bg**	**EPA/OH**	**0.05**	**21**	**691.9**	**213.4**	**ShapiroWilk**

Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-15,MW-16



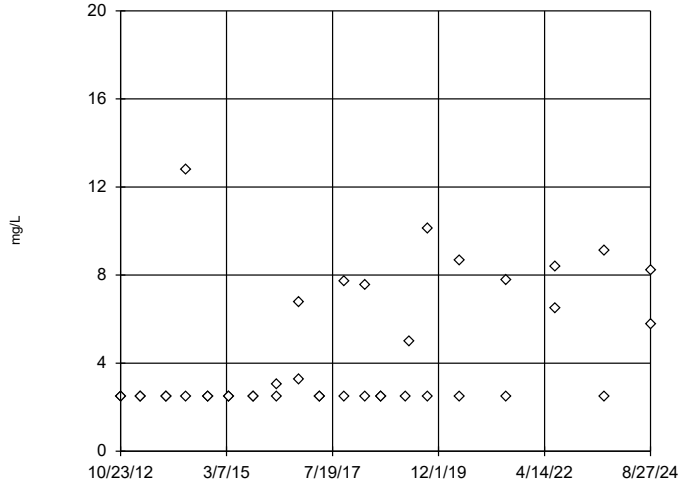
n = 10

Statistical outlier is drawn as solid.
Outlier per Ohio method.

Constituent: Arsenic Analysis Run 10/1/2024 3:06 PM View: 2024AWQR - Outliers-Water
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-15,MW-16



n = 40

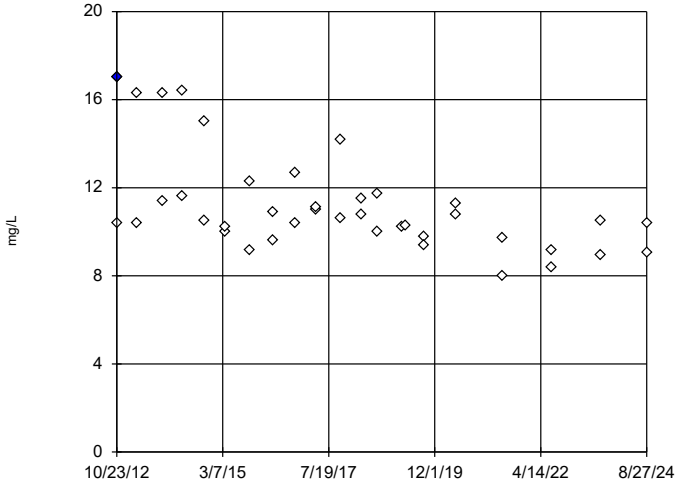
No outliers found.
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.

High cutoff = 19.02, low cutoff = -9.89, based on IQR multiplier of 3.

Constituent: Chemical Oxygen Demand Analysis Run 10/1/2024 3:06 PM View: 2024AWQR - Outliers-Wa
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-15,MW-16



n = 40

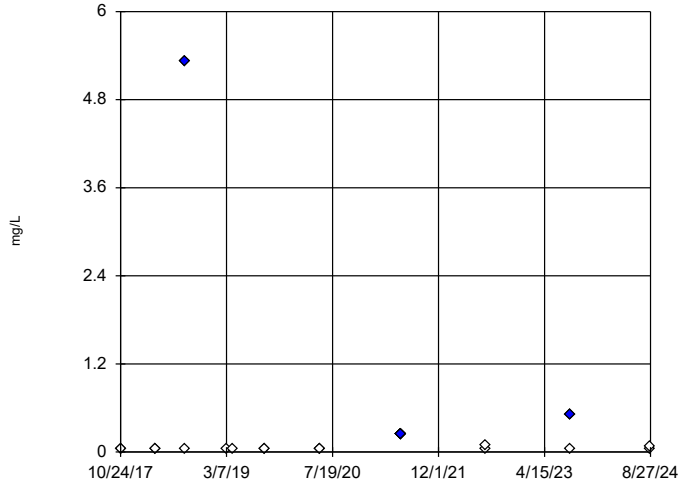
Outlier is drawn as solid.
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.

High cutoff = 16.56, low cutoff = 4.87, based on IQR multiplier of 3.

Constituent: Chloride Analysis Run 10/1/2024 3:06 PM View: 2024AWQR - Outliers-Water
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-15,MW-16



n = 20

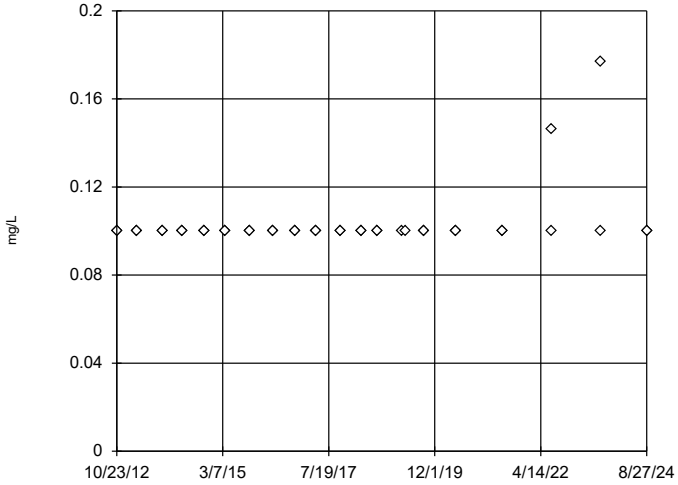
Statistical outliers are drawn as solid.
Outliers per Ohio method.

Normality test used:
Shapiro Wilk@alpha = 0.05
Calculated = 0.8956
Critical = 0.94
The distribution, after removal of suspect values, was found to be normally distributed.

Constituent: Iron Analysis Run 10/1/2024 3:06 PM View: 2024AWQR - Outliers-Water
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-15,MW-16



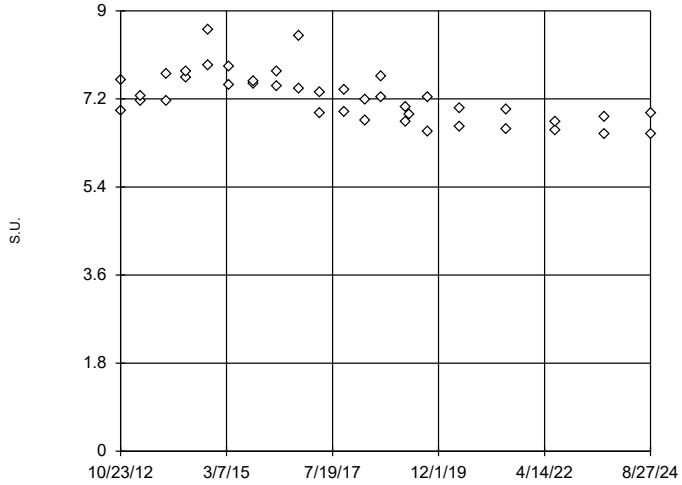
n = 40

No statistical outliers.

Constituent: Nitrogen, Ammonia Analysis Run 10/1/2024 3:06 PM View: 2024AWQR - Outliers-Water
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

EPA 1989 Outlier Screening / Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-15,MW-16



n = 41

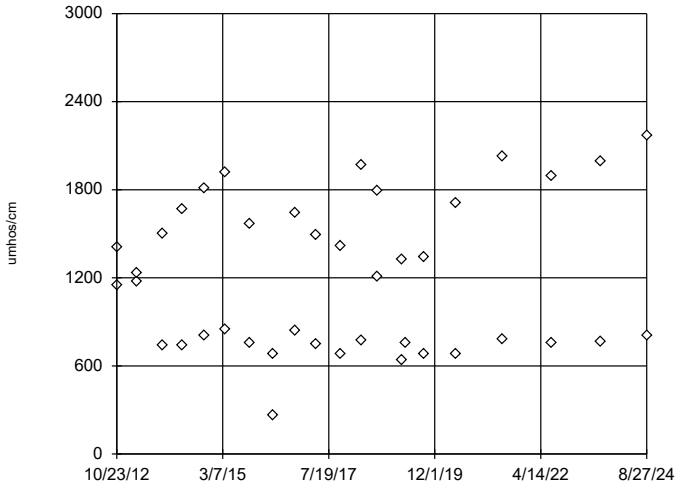
No statistical outliers.
Mean 7.225, std. dev. 0.5058, critical Tn 2.877

Normality test used:
Shapiro Wilk@alpha = 0.05
Calculated = 0.95
Critical = 0.941
The distribution was found to be normally distrib-uted.

Constituent: pH Analysis Run 10/1/2024 3:06 PM View: 2024AWQR - Outliers-Water
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-15,MW-16



n = 41

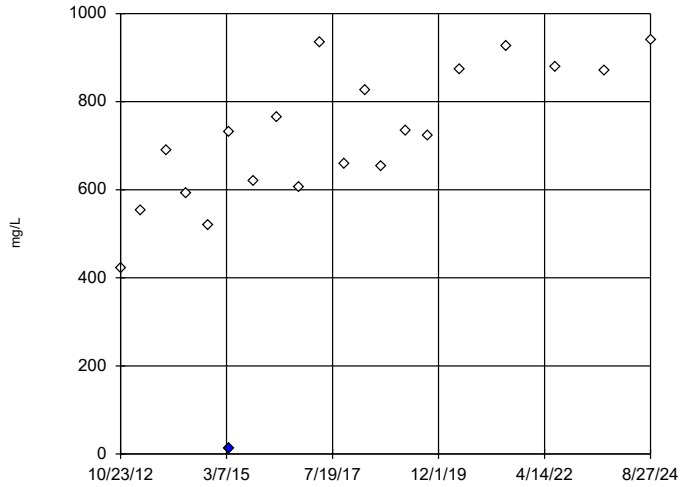
No outliers found.
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.

High cutoff = 4350, low cutoff = -1943, based on IQR multiplier of 3.

Constituent: Specific Conductance Analysis Run 10/1/2024 3:06 PM View: 2024AWQR - Outliers-Water
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

EPA 1989 Outlier Screening / Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-15,MW-16



n = 21

Statistical outlier is drawn as solid.
Mean 691.9, std. dev. 213.4, critical Tn 2.58. After removing suspect data: mean 725.9, std. dev. 150, Tn 2.557.

Normality test used:
Shapiro Wilk@alpha = 0.05
Calculated = 0.9592
Critical = 0.905
The distribution, after removal of suspect val-ue, was found to be nor-mally distributed.

Constituent: Sulfate Analysis Run 10/1/2024 3:06 PM View: 2024AWQR - Outliers-Water
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

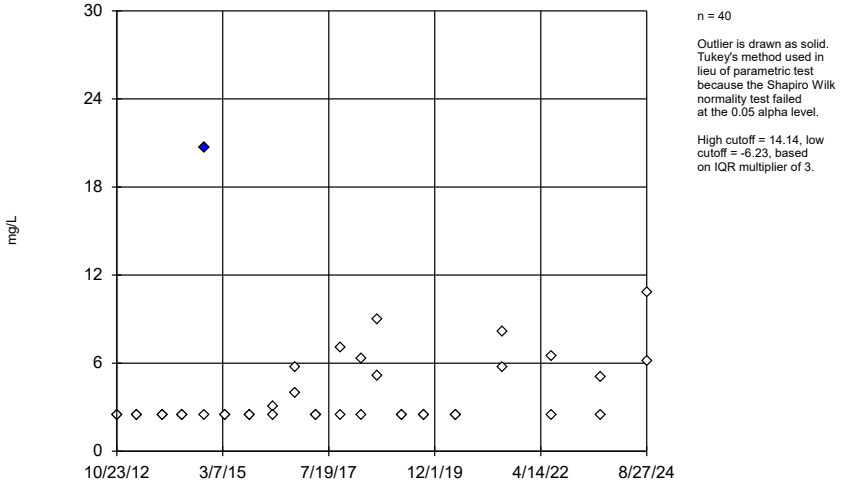
Upper BG Outlier Analysis

US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP Printed 10/1/2024, 3:02 PM

Constituent	Well	Outlier	Value(s)	Date(s)	Method	Alpha	N	Mean	Std. Dev.	Normality Test
Chemical Oxygen Demand (mg/L)	**MW-13,MW-19**	**Yes**	**20.7**	**n/a w/combined bg**	**NP (nrm)/OH**	**NaN**	**40**	**4.206**	**3.429**	**ShapiroWilk**
Chloride (mg/L)	**MW-13,MW-19**	**Yes**	**4.39,3.8,4.58,1.48**	**n/a w/combined bg**	**NP (nrm)/OH**	**NaN**	**40**	**2.683**	**0.6016**	**ShapiroWilk**
Iron (mg/L)	MW-13,MW-19	No	n/a	n/a w/combined bg	EPA/OH	0.05	20	0.4338	0.5442	ShapiroWilk
Nitrogen, Ammonia (mg/L)	MW-13,MW-19	No	n/a	n/a w/combined bg	NP (nrm)/OH	NaN	40	0.166	0.08229	ShapiroWilk
pH (S.U.)	MW-13,MW-19	No	n/a	n/a w/combined bg	NP (nrm)/OH	NaN	40	7.401	0.3513	ShapiroWilk
Specific Conductance (umhos/cm)	**MW-13,MW-19**	**Yes**	**1205,1200,1027**	**n/a w/combined bg**	**EPA/OH**	**0.05**	**40**	**690.1**	**150.5**	**ShapiroWilk**

Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-13,MW-19



n = 40

Outlier is drawn as solid.
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.

High cutoff = 14.14, low cutoff = -6.23, based on IQR multiplier of 3.

Constituent: Chemical Oxygen Demand Analysis Run 10/1/2024 3:01 PM View: 2024AWQR - Outliers-Up
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

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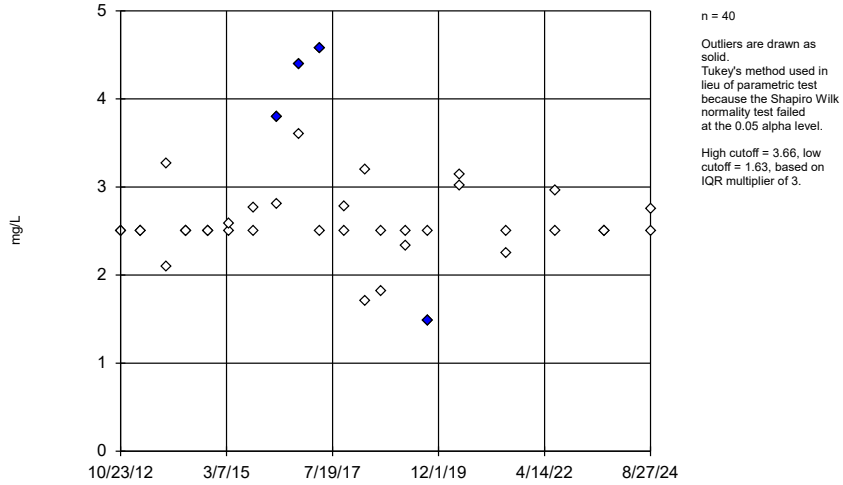
Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-13,MW-19



n = 40

Outliers are drawn as solid.
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.

High cutoff = 3.66, low cutoff = 1.63, based on IQR multiplier of 3.

Constituent: Chloride Analysis Run 10/1/2024 3:01 PM View: 2024AWQR - Outliers-Upper
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

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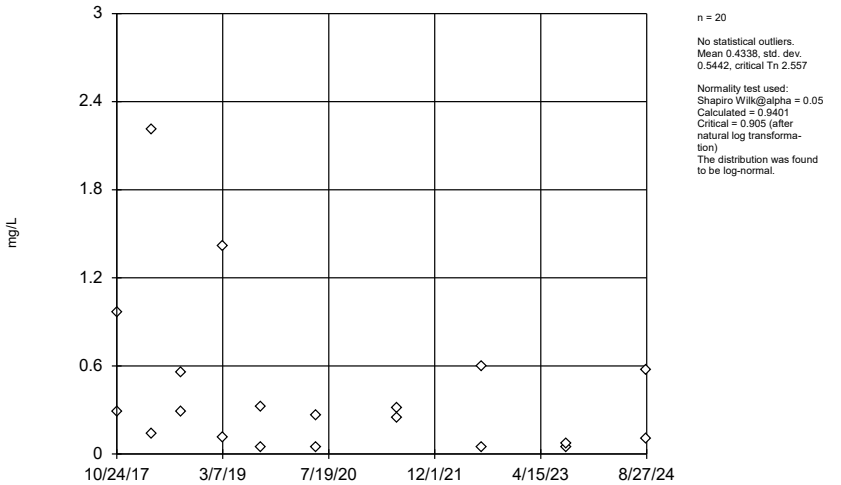
EPA 1989 Outlier Screening / Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-13,MW-19



n = 20

No statistical outliers.
Mean 0.4338, std. dev. 0.5442, critical Tn 2.557

Normality test used:
Shapiro Wilk@alpha = 0.05
Calculated = 0.9401
Critical = 0.905 (after natural log transformation)
The distribution was found to be log-normal.

Constituent: Iron Analysis Run 10/1/2024 3:01 PM View: 2024AWQR - Outliers-Upper
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

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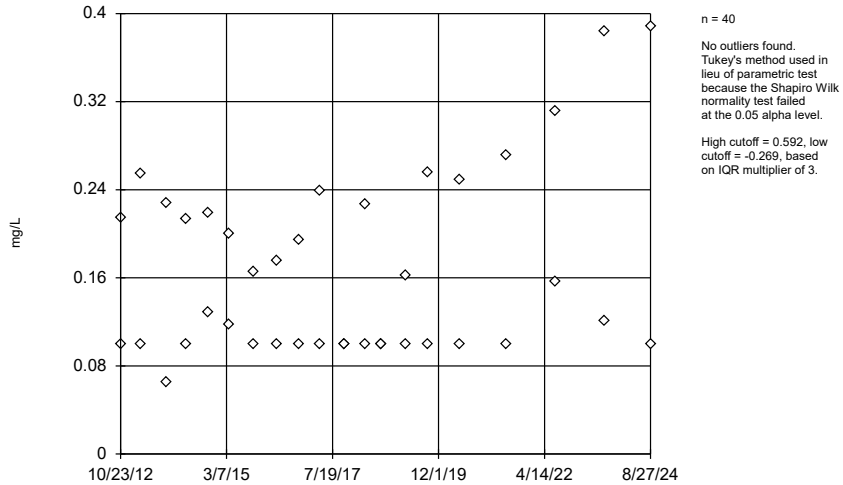
Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-13,MW-19



n = 40

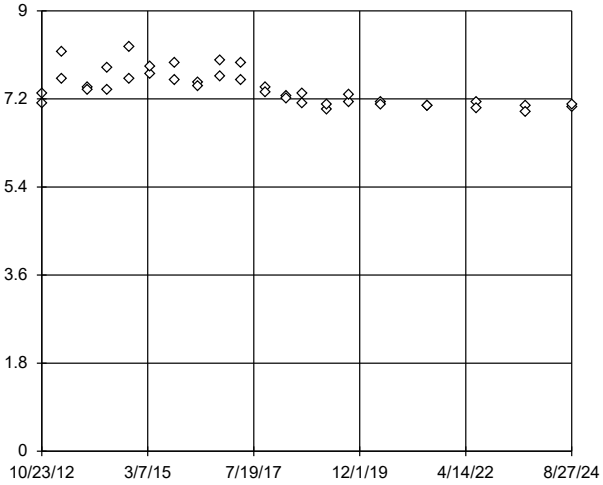
No outliers found.
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.

High cutoff = 0.592, low cutoff = -0.269, based on IQR multiplier of 3.

Constituent: Nitrogen, Ammonia Analysis Run 10/1/2024 3:01 PM View: 2024AWQR - Outliers-Upper
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-13,MW-19



n = 40

No outliers found.
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.

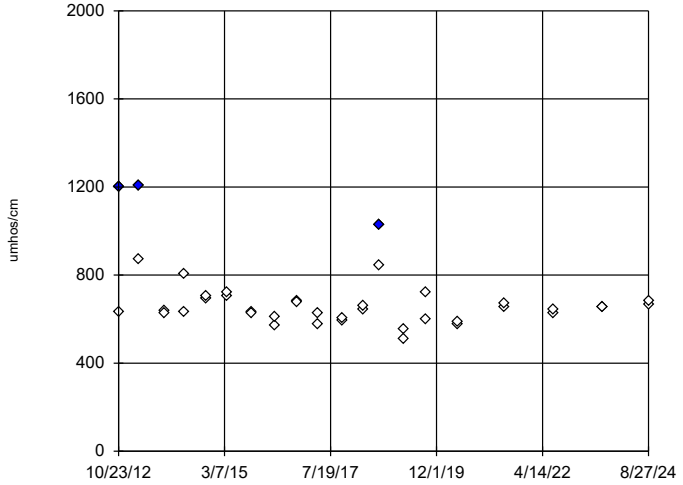
High cutoff = 9.17, low cutoff = 5.53, based on IQR multiplier of 3.

Constituent: pH Analysis Run 10/1/2024 3:01 PM View: 2024AWQR - Outliers-Upper
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. EPA

EPA 1989 Outlier Screening / Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-13,MW-19



n = 40

Statistical outliers are drawn as solid.
Mean 690.1, std. dev. 150.5, critical Tn 2.866.
After removing suspect data: mean 676.9, std. dev. 126.8, Tn 2.857; mean 663.1, std. dev. 94.51, Tn 2.846; mean 653.3, std. dev. 73.51, Tn 2.835.

Normality test used:
Shapiro Wilk@alpha = 0.05
Calculated = 0.9535
Critical = 0.936 (after natural log transformation)
The distribution, after removal of suspect values, was found to be log-normal.

Constituent: Specific Conductance Analysis Run 10/1/2024 3:01 PM View: 2024AWQR - Outliers-Upper
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

Attachment C

Prediction Limits

WaterTable Prediction Limit

US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP Printed 10/2/2024, 2:53 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Wells	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Chemical Oxygen Demand (mg/L)	MW-10	12.8	n/a	8/27/2024	12.1	No	40	MW-15,MW-16	n/a	n/a	65	n/a	n/a	0.02328	NP Inter (NDs)
Chemical Oxygen Demand (mg/L)	**MW-11**	**12.8**	**n/a**	**8/27/2024**	**23.3**	**Yes**	**40**	**MW-15,MW-16**	**n/a**	**n/a**	**65**	**n/a**	**n/a**	**0.02328**	**NP Inter (NDs)**
Chemical Oxygen Demand (mg/L)	MW-12	12.8	n/a	8/27/2024	6.89	No	40	MW-15,MW-16	n/a	n/a	65	n/a	n/a	0.02328	NP Inter (NDs)
Chemical Oxygen Demand (mg/L)	MW-14	12.8	n/a	8/27/2024	8.1	No	40	MW-15,MW-16	n/a	n/a	65	n/a	n/a	0.02328	NP Inter (NDs)
Chemical Oxygen Demand (mg/L)	**MW-7**	**12.8**	**n/a**	**8/27/2024**	**29.3**	**Yes**	**40**	**MW-15,MW-16**	**n/a**	**n/a**	**65**	**n/a**	**n/a**	**0.02328**	**NP Inter (NDs)**
Chloride (mg/L)	**MW-10**	**17**	**n/a**	**8/27/2024**	**36.6**	**Yes**	**40**	**MW-15,MW-16**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.02328**	**NP Inter (normality)**
Chloride (mg/L)	**MW-11**	**17**	**n/a**	**8/27/2024**	**30.3**	**Yes**	**40**	**MW-15,MW-16**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.02328**	**NP Inter (normality)**
Chloride (mg/L)	**MW-12**	**17**	**n/a**	**8/27/2024**	**24.1**	**Yes**	**40**	**MW-15,MW-16**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.02328**	**NP Inter (normality)**
Chloride (mg/L)	**MW-14**	**17**	**n/a**	**8/27/2024**	**51.8**	**Yes**	**40**	**MW-15,MW-16**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.02328**	**NP Inter (normality)**
Chloride (mg/L)	**MW-7**	**17**	**n/a**	**8/27/2024**	**36.9**	**Yes**	**40**	**MW-15,MW-16**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.02328**	**NP Inter (normality)**
Iron (mg/L)	MW-10	5.32	n/a	8/27/2024	0.05ND	No	20	MW-15,MW-16	n/a	n/a	75	n/a	n/a	0.04365	NP Inter (NDs)
Iron (mg/L)	**MW-11**	**5.32**	**n/a**	**8/27/2024**	**10.8**	**Yes**	**20**	**MW-15,MW-16**	**n/a**	**n/a**	**75**	**n/a**	**n/a**	**0.04365**	**NP Inter (NDs)**
Iron (mg/L)	MW-12	5.32	n/a	8/27/2024	0.0545J	No	20	MW-15,MW-16	n/a	n/a	75	n/a	n/a	0.04365	NP Inter (NDs)
Iron (mg/L)	MW-14	5.32	n/a	8/27/2024	0.05ND	No	20	MW-15,MW-16	n/a	n/a	75	n/a	n/a	0.04365	NP Inter (NDs)
Iron (mg/L)	**MW-7**	**5.32**	**n/a**	**8/27/2024**	**9.16**	**Yes**	**20**	**MW-15,MW-16**	**n/a**	**n/a**	**75**	**n/a**	**n/a**	**0.04365**	**NP Inter (NDs)**
Nitrogen, Ammonia (mg/L)	MW-10	0.177	n/a	8/27/2024	0.1ND	No	40	MW-15,MW-16	n/a	n/a	95	n/a	n/a	0.02328	NP Inter (NDs)
Nitrogen, Ammonia (mg/L)	MW-11	0.177	n/a	8/27/2024	0.1ND	No	40	MW-15,MW-16	n/a	n/a	95	n/a	n/a	0.02328	NP Inter (NDs)
Nitrogen, Ammonia (mg/L)	MW-12	0.177	n/a	8/27/2024	0.1ND	No	40	MW-15,MW-16	n/a	n/a	95	n/a	n/a	0.02328	NP Inter (NDs)
Nitrogen, Ammonia (mg/L)	MW-14	0.177	n/a	8/27/2024	0.1ND	No	40	MW-15,MW-16	n/a	n/a	95	n/a	n/a	0.02328	NP Inter (NDs)
Nitrogen, Ammonia (mg/L)	**MW-7**	**0.177**	**n/a**	**8/27/2024**	**0.31**	**Yes**	**40**	**MW-15,MW-16**	**n/a**	**n/a**	**95**	**n/a**	**n/a**	**0.02328**	**NP Inter (NDs)**
pH (S.U.)	MW-10	8.609	5.84	8/27/2024	6.69	No	41	MW-15,MW-16	7.225	0.5058	0	None	No	0.005	Param Inter
pH (S.U.)	MW-11	8.609	5.84	8/27/2024	6.23	No	41	MW-15,MW-16	7.225	0.5058	0	None	No	0.005	Param Inter
pH (S.U.)	MW-12	8.609	5.84	8/27/2024	6.72	No	41	MW-15,MW-16	7.225	0.5058	0	None	No	0.005	Param Inter
pH (S.U.)	MW-14	8.609	5.84	8/27/2024	7	No	41	MW-15,MW-16	7.225	0.5058	0	None	No	0.005	Param Inter
pH (S.U.)	MW-7	8.609	5.84	8/27/2024	6.32	No	41	MW-15,MW-16	7.225	0.5058	0	None	No	0.005	Param Inter
Specific Conductance (umhos/cm)	MW-10	2171	n/a	8/27/2024	1449	No	41	MW-15,MW-16	n/a	n/a	0	n/a	n/a	0.02275	NP Inter (normality)
Specific Conductance (umhos/cm)	**MW-11**	**2171**	**n/a**	**8/27/2024**	**2651**	**Yes**	**41**	**MW-15,MW-16**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.02275**	**NP Inter (normality)**
Specific Conductance (umhos/cm)	MW-12	2171	n/a	8/27/2024	1270	No	41	MW-15,MW-16	n/a	n/a	0	n/a	n/a	0.02275	NP Inter (normality)
Specific Conductance (umhos/cm)	MW-14	2171	n/a	8/27/2024	876.6	No	41	MW-15,MW-16	n/a	n/a	0	n/a	n/a	0.02275	NP Inter (normality)
Specific Conductance (umhos/cm)	MW-7	2171	n/a	8/27/2024	1976	No	41	MW-15,MW-16	n/a	n/a	0	n/a	n/a	0.02275	NP Inter (normality)

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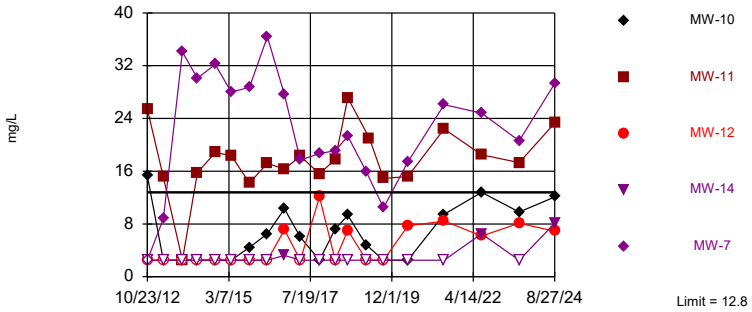
Hollow symbols indicate censored values.

Exceeds Limit: MW-11, MW-7

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 40 background values. 65% NDs. Report alpha = 0.1111. Individual comparison alpha = 0.02328. Most recent point for each compliance well compared to limit.

Constituent: Chemical Oxygen Demand Analysis Run 10/2/2024 2:50 PM View: 2024AWQR - PL-Water
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

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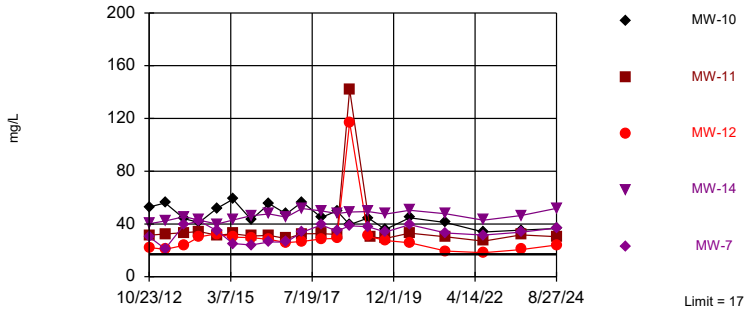
Exceeds Limit: MW-10, MW-11, MW-12, MW-14, MW-7

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 40 background values. Report alpha = 0.1111. Individual comparison alpha = 0.02328. Most recent point for each compliance well compared to limit.

Constituent: Chloride Analysis Run 10/2/2024 2:50 PM View: 2024AWQR - PL-Water
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

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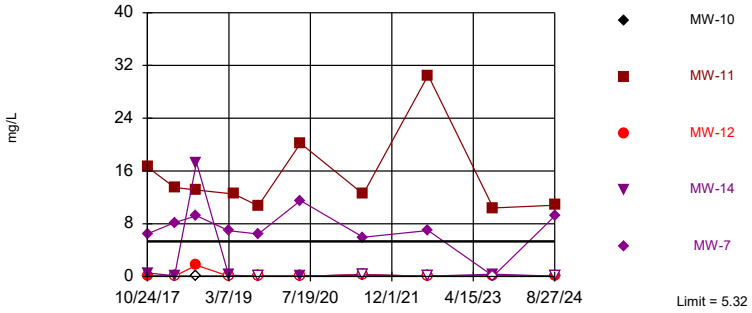
Hollow symbols indicate censored values.

Exceeds Limit: MW-11, MW-7

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 20 background values. 75% NDs. Report alpha = 0.2. Individual comparison alpha = 0.04365. Most recent point for each compliance well compared to limit.

Constituent: Iron Analysis Run 10/2/2024 2:50 PM View: 2024AWQR - PL-Water
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

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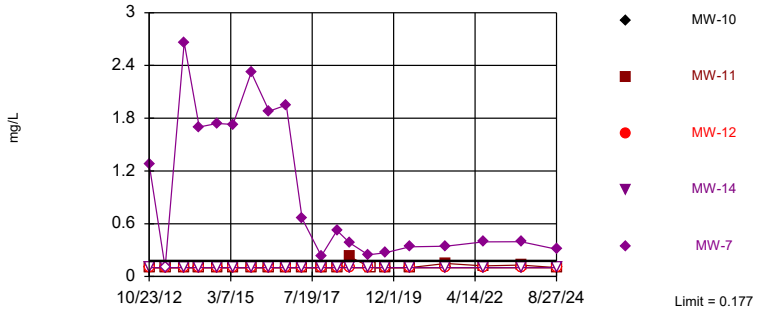
Hollow symbols indicate censored values.

Exceeds Limit: MW-7

Prediction Limit

Interwell Non-parametric



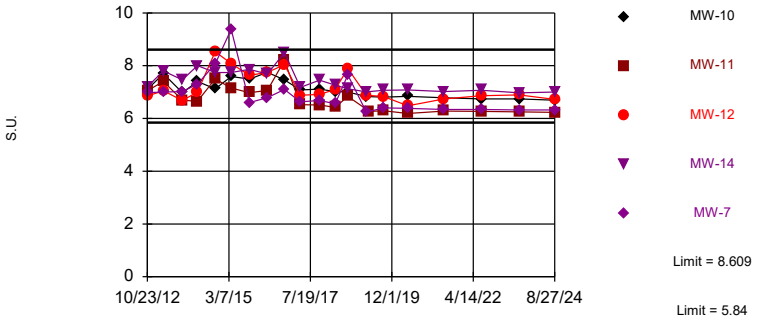
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 40 background values. 95% NDs. Report alpha = 0.1111. Individual comparison alpha = 0.02328. Most recent point for each compliance well compared to limit.

Constituent: Nitrogen, Ammonia Analysis Run 10/2/2024 2:50 PM View: 2024AWQR - PL-Water
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

Within Limits

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=7.225, Std. Dev.=0.5058, n=41. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.95, critical = 0.92. Report alpha = 0.04901. Individual comparison alpha = 0.005. Most recent point for each compliance well compared to limit.

Constituent: pH Analysis Run 10/2/2024 2:50 PM View: 2024AWQR - PL-Water

US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

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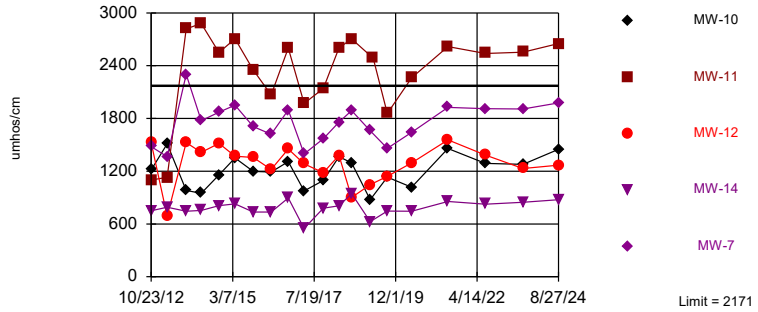
Exceeds Limit: MW-11

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 41 background values. Report alpha = 0.1087. Individual comparison alpha = 0.02275. Most recent point for each compliance well compared to limit.

Constituent: Specific Conductance Analysis Run 10/2/2024 2:50 PM View: 2024AWQR - PL-Water

US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

Uppermost Prediction Limit

US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP Printed 10/2/2024, 2:55 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Wells	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Chemical Oxygen Demand (mg/L)	MW-5	20.7	n/a	8/27/2024	11.8	No	40	MW-13,MW-19	n/a	n/a	65	n/a	n/a	0.02328	NP Inter (NDs)
Chemical Oxygen Demand (mg/L)	MW-6	20.7	n/a	8/27/2024	9.76	No	40	MW-13,MW-19	n/a	n/a	65	n/a	n/a	0.02328	NP Inter (NDs)
Chemical Oxygen Demand (mg/L)	MW-8	20.7	n/a	8/27/2024	2.5ND	No	40	MW-13,MW-19	n/a	n/a	65	n/a	n/a	0.02328	NP Inter (NDs)
Chemical Oxygen Demand (mg/L)	MW-9	20.7	n/a	8/27/2024	5.135	No	40	MW-13,MW-19	n/a	n/a	65	n/a	n/a	0.02328	NP Inter (NDs)
Chloride (mg/L)	**MW-5**	**4.58**	**n/a**	**8/27/2024**	**13.2**	**Yes**	**40**	**MW-19,MW-13**	**n/a**	**n/a**	**50**	**n/a**	**n/a**	**0.02328**	**NP Inter (normality)**
Chloride (mg/L)	MW-6	4.58	n/a	8/27/2024	2.5ND	No	40	MW-19,MW-13	n/a	n/a	50	n/a	n/a	0.02328	NP Inter (normality)
Chloride (mg/L)	MW-8	4.58	n/a	8/27/2024	2.5ND	No	40	MW-19,MW-13	n/a	n/a	50	n/a	n/a	0.02328	NP Inter (normality)
Chloride (mg/L)	MW-9	4.58	n/a	8/27/2024	2.56J	No	40	MW-19,MW-13	n/a	n/a	50	n/a	n/a	0.02328	NP Inter (normality)
Iron (mg/L)	**MW-5**	**2.042**	**n/a**	**8/27/2024**	**8.6**	**Yes**	**20**	**MW-13,MW-19**	**0.57**	**0.3301**	**25**	**Kaplan-Meier**	**sqrt(x)**	**0.01**	**Param Inter**
Iron (mg/L)	MW-6	2.042	n/a	8/27/2024	1.65	No	20	MW-13,MW-19	0.57	0.3301	25	Kaplan-Meier	sqrt(x)	0.01	Param Inter
Iron (mg/L)	MW-8	2.042	n/a	8/27/2024	0.05ND	No	20	MW-13,MW-19	0.57	0.3301	25	Kaplan-Meier	sqrt(x)	0.01	Param Inter
Iron (mg/L)	MW-9	2.042	n/a	8/27/2024	3.382J	No	20	MW-13,MW-19	0.57	0.3301	25	Kaplan-Meier	sqrt(x)	0.01	Param Inter
Nitrogen, Ammonia (mg/L)	MW-5	0.388	n/a	8/27/2024	0.1ND	No	40	MW-19,MW-13	n/a	n/a	42.5	n/a	n/a	0.02328	NP Inter (normality)
Nitrogen, Ammonia (mg/L)	**MW-6**	**0.388**	**n/a**	**8/27/2024**	**0.556**	**Yes**	**40**	**MW-19,MW-13**	**n/a**	**n/a**	**42.5**	**n/a**	**n/a**	**0.02328**	**NP Inter (normality)**
Nitrogen, Ammonia (mg/L)	MW-8	0.388	n/a	8/27/2024	0.249	No	40	MW-19,MW-13	n/a	n/a	42.5	n/a	n/a	0.02328	NP Inter (normality)
Nitrogen, Ammonia (mg/L)	MW-9	0.388	n/a	8/27/2024	0.2615	No	40	MW-19,MW-13	n/a	n/a	42.5	n/a	n/a	0.02328	NP Inter (normality)
pH (S.U.)	MW-5	8.405	6.503	8/27/2024	6.72	No	40	MW-13,MW-19	2.001	0.04678	0	None	ln(x)	0.005	Param Inter
pH (S.U.)	MW-6	8.405	6.503	8/27/2024	7.3	No	40	MW-13,MW-19	2.001	0.04678	0	None	ln(x)	0.005	Param Inter
pH (S.U.)	MW-8	8.405	6.503	8/27/2024	7.01	No	40	MW-13,MW-19	2.001	0.04678	0	None	ln(x)	0.005	Param Inter
pH (S.U.)	MW-9	8.405	6.503	8/27/2024	7.1	No	40	MW-13,MW-19	2.001	0.04678	0	None	ln(x)	0.005	Param Inter
Specific Conductance (umhos/cm)	MW-5	1205	n/a	8/27/2024	1146	No	40	MW-13,MW-19	n/a	n/a	0	n/a	n/a	0.02328	NP Inter (normality)
Specific Conductance (umhos/cm)	MW-6	1205	n/a	8/27/2024	723.6	No	40	MW-13,MW-19	n/a	n/a	0	n/a	n/a	0.02328	NP Inter (normality)
Specific Conductance (umhos/cm)	MW-8	1205	n/a	8/27/2024	696.6	No	40	MW-13,MW-19	n/a	n/a	0	n/a	n/a	0.02328	NP Inter (normality)
Specific Conductance (umhos/cm)	MW-9	1205	n/a	8/27/2024	712.8	No	40	MW-13,MW-19	n/a	n/a	0	n/a	n/a	0.02328	NP Inter (normality)

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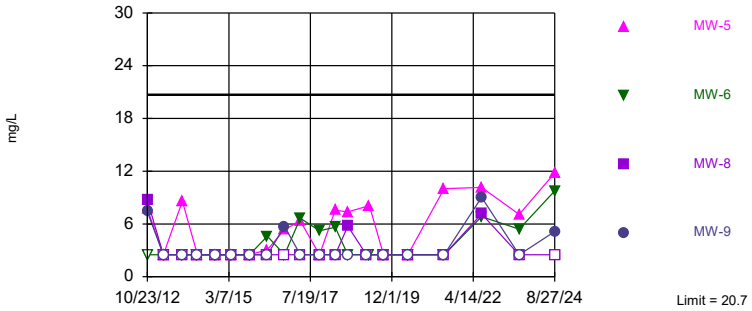
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 40 background values. 65% NDs. Report alpha = 0.1111. Individual comparison alpha = 0.02328. Based on user-set k of 5 (assumes 1 future value).

Constituent: Chemical Oxygen Demand Analysis Run 10/2/2024 2:54 PM View: 2024AWQR - PL - Upper
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

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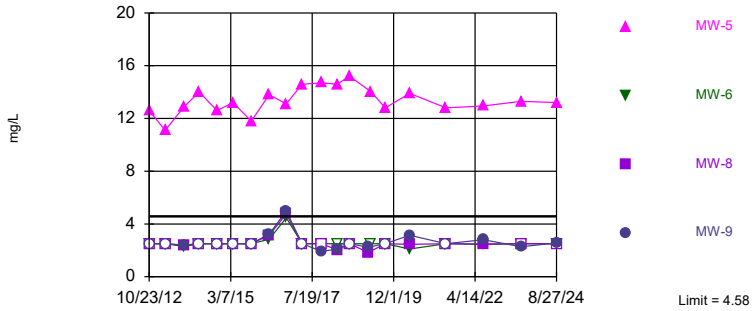
Exceeds Limit: MW-5

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 40 background values. 50% NDs. Report alpha = 0.1111. Individual comparison alpha = 0.02328. Based on user-set k of 5 (assumes 1 future value).

Constituent: Chloride Analysis Run 10/2/2024 2:54 PM View: 2024AWQR - PL - Upper
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

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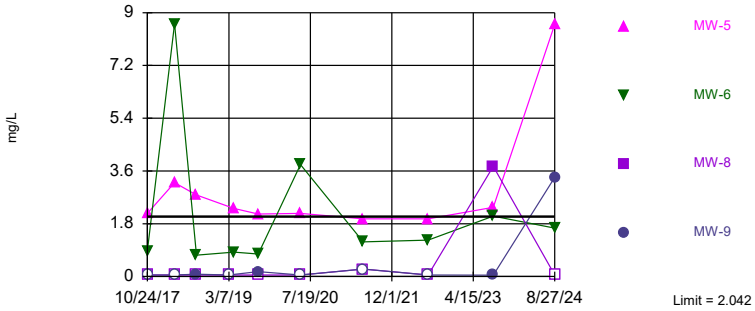
Hollow symbols indicate censored values.

Exceeds Limit: MW-5

Prediction Limit

Interwell Parametric



Background Data Summary (based on square root transformation) (after Kaplan-Meier Adjustment): Mean=0.57, Std. Dev.=0.3301, n=20, 25% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8692, critical = 0.868. Report alpha = 0.04901. Individual comparison alpha = 0.01. Based on user-set k of 5 (assumes 1 future value).

Constituent: Iron Analysis Run 10/2/2024 2:54 PM View: 2024AWQR - PL - Upper
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

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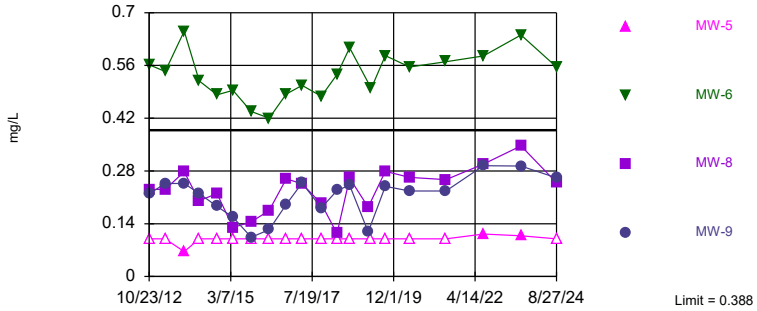
Hollow symbols indicate censored values.

Exceeds Limit: MW-6

Prediction Limit

Interwell Non-parametric



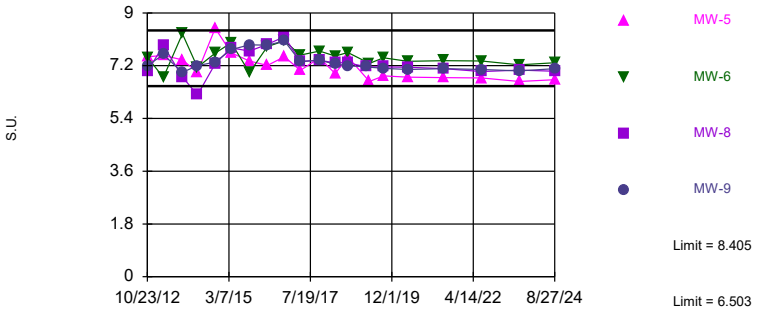
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 40 background values. 42.5% NDs. Report alpha = 0.1111. Individual comparison alpha = 0.02328. Based on user-set k of 5 (assumes 1 future value).

Constituent: Nitrogen, Ammonia Analysis Run 10/2/2024 2:54 PM View: 2024AWQR - PL - Upper
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

Within Limits

Prediction Limit

Interwell Parametric



Background Data Summary (based on natural log transformation): Mean=2.001, Std. Dev.=0.04678, n=40. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9204, critical = 0.919. Report alpha = 0.04901. Individual comparison alpha = 0.005. Based on user-set k of 5 (assumes 1 future value).

Constituent: pH Analysis Run 10/2/2024 2:54 PM View: 2024AWQR - PL - Upper

US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

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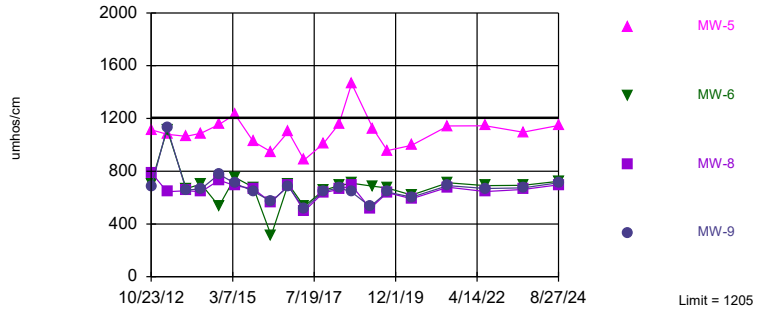
Within Limit

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 40 background values. Report alpha = 0.1111. Individual comparison alpha = 0.02328. Based on user-set k of 5 (assumes 1 future value).

Constituent: Specific Conductance Analysis Run 10/2/2024 2:54 PM View: 2024AWQR - PL - Upper

US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP HMSP

Attachment D

Trend Test (α=0.01)

Trend Test

US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM Printed 10/1/2024, 1:01 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Alpha	Method
Arsenic (mg/L)	MW-7	-0.001204	-4	-21	No	8	12.5	0.01	NP
Chemical Oxygen Demand (mg/L)	MW-5	0.7249	11	21	No	8	25	0.01	NP
Chemical Oxygen Demand (mg/L)	MW-6	0.8144	16	21	No	8	62.5	0.01	NP
Chemical Oxygen Demand (mg/L)	MW-7	1.521	12	21	No	8	0	0.01	NP
Chemical Oxygen Demand (mg/L)	MW-8	0	-3	-21	No	8	75	0.01	NP
Chemical Oxygen Demand (mg/L)	MW-9	0	9	21	No	8	75	0.01	NP
Chemical Oxygen Demand (mg/L)	MW-10	1.01	13	21	No	8	25	0.01	NP
Chemical Oxygen Demand (mg/L)	MW-11	-0.1757	0	21	No	8	0	0.01	NP
Chemical Oxygen Demand (mg/L)	MW-12	0.3527	7	21	No	8	25	0.01	NP
Chemical Oxygen Demand (mg/L)	MW-13 (bg)	0	4	21	No	8	62.5	0.01	NP
Chemical Oxygen Demand (mg/L)	MW-14	0	11	21	No	8	75	0.01	NP
Chemical Oxygen Demand (mg/L)	MW-15 (bg)	0.3979	5	21	No	8	37.5	0.01	NP
Chemical Oxygen Demand (mg/L)	MW-16 (bg)	0.07326	6	21	No	8	62.5	0.01	NP
Chemical Oxygen Demand (mg/L)	MW-19 (bg)	0.6117	7	21	No	8	37.5	0.01	NP
Chloride (mg/L)	MW-5	-0.1622	-9	-21	No	8	0	0.01	NP
Chloride (mg/L)	MW-7	-0.6953	-10	-21	No	8	0	0.01	NP
Chloride (mg/L)	MW-8	0	6	21	No	8	62.5	0.01	NP
Chloride (mg/L)	MW-9	0.008353	5	21	No	8	37.5	0.01	NP
Chloride (mg/L)	MW-10	-1.104	-8	-21	No	8	0	0.01	NP
Chloride (mg/L)	MW-11	-0.6662	-4	-21	No	8	0	0.01	NP
Chloride (mg/L)	MW-12	-3.4	-18	-21	No	8	0	0.01	NP
Chloride (mg/L)	MW-13 (bg)	0	5	21	No	8	75	0.01	NP
Chloride (mg/L)	MW-14	-0.3711	-2	-21	No	8	0	0.01	NP
Chloride (mg/L)	MW-15 (bg)	-0.4616	-12	-21	No	8	0	0.01	NP
Chloride (mg/L)	MW-16 (bg)	0.03221	2	21	No	8	0	0.01	NP
Chloride (mg/L)	MW-19 (bg)	0.05906	5	21	No	8	25	0.01	NP
Iron (mg/L)	MW-5	-0.0289	-1	-21	No	8	0	0.01	NP
Iron (mg/L)	MW-6	0.1613	16	21	No	8	0	0.01	NP
Iron (mg/L)	MW-7	-0.4969	-6	-21	No	8	12.5	0.01	NP
Iron (mg/L)	MW-8	0	7	21	No	8	87.5	0.01	NP
Iron (mg/L)	MW-9	0	1	21	No	8	50	0.01	NP
Iron (mg/L)	MW-11	-0.2647	-5	-21	No	8	0	0.01	NP
Iron (mg/L)	MW-12	0	0	21	No	8	62.5	0.01	NP
Iron (mg/L)	MW-13 (bg)	-0.007107	-8	-21	No	8	62.5	0.01	NP
Iron (mg/L)	MW-14	-0.01406	-7	-21	No	8	50	0.01	NP
Iron (mg/L)	MW-16 (bg)	0.002903	3	21	No	8	50	0.01	NP
Iron (mg/L)	MW-19 (bg)	-0.06181	-6	-21	No	8	0	0.01	NP
Nitrogen, Ammonia (mg/L)	MW-6	0.003407	1	21	No	8	0	0.01	NP
Nitrogen, Ammonia (mg/L)	MW-7	0.009859	10	21	No	8	0	0.01	NP
Nitrogen, Ammonia (mg/L)	MW-8	0.01068	6	21	No	8	0	0.01	NP
Nitrogen, Ammonia (mg/L)	MW-9	0.01047	9	21	No	8	0	0.01	NP
Nitrogen, Ammonia (mg/L)	MW-11	0	-2	-21	No	8	50	0.01	NP
Nitrogen, Ammonia (mg/L)	**MW-13 (bg)**	**0.04304**	**26**	**21**	**Yes**	**8**	**12.5**	**0.01**	**NP**
pH (S.U.)	MW-5	-0.02714	-15	-21	No	8	0	0.01	NP
pH (S.U.)	MW-6	-0.03557	-12	-21	No	8	0	0.01	NP
pH (S.U.)	MW-7	-0.01838	-14	-21	No	8	0	0.01	NP
pH (S.U.)	**MW-8**	**-0.03338**	**-23**	**-21**	**Yes**	**8**	**0**	**0.01**	**NP**
pH (S.U.)	MW-9	-0.02668	-18	-21	No	8	0	0.01	NP
pH (S.U.)	**MW-10**	**-0.02941**	**-23**	**-21**	**Yes**	**8**	**0**	**0.01**	**NP**
pH (S.U.)	MW-11	-0.01288	-15	-21	No	8	0	0.01	NP

Trend Test

US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM Printed 10/1/2024, 1:01 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Alpha	Method
pH (S.U.)	MW-12	-0.0401	-8	-21	No	8	0	0.01	NP
pH (S.U.)	MW-13 (bg)	-0.02056	-13	-21	No	8	0	0.01	NP
pH (S.U.)	MW-14	-0.01638	-13	-21	No	8	0	0.01	NP
pH (S.U.)	MW-15 (bg)	-0.05455	-20	-21	No	8	0	0.01	NP
pH (S.U.)	MW-16 (bg)	-0.02484	-12	-21	No	8	0	0.01	NP
pH (S.U.)	MW-19 (bg)	-0.02429	-13	-21	No	8	0	0.01	NP
Specific Conductance (umhos/cm)	MW-5	1.415	4	21	No	8	0	0.01	NP
Specific Conductance (umhos/cm)	MW-6	2.444	8	21	No	8	0	0.01	NP
Specific Conductance (umhos/cm)	MW-7	42.96	12	21	No	8	0	0.01	NP
Specific Conductance (umhos/cm)	MW-8	13.36	10	21	No	8	0	0.01	NP
Specific Conductance (umhos/cm)	MW-9	15.7	18	21	No	8	0	0.01	NP
Specific Conductance (umhos/cm)	MW-10	61.04	8	21	No	8	0	0.01	NP
Specific Conductance (umhos/cm)	MW-11	16.55	6	21	No	8	0	0.01	NP
Specific Conductance (umhos/cm)	MW-12	63.72	14	21	No	8	0	0.01	NP
Specific Conductance (umhos/cm)	MW-13 (bg)	13.1	10	21	No	8	0	0.01	NP
Specific Conductance (umhos/cm)	MW-14	25.72	8	21	No	8	0	0.01	NP
Specific Conductance (umhos/cm)	MW-15 (bg)	97.21	18	21	No	8	0	0.01	NP
Specific Conductance (umhos/cm)	MW-16 (bg)	25.01	18	21	No	8	0	0.01	NP
Specific Conductance (umhos/cm)	MW-19 (bg)	-1.797	0	21	No	8	0	0.01	NP
Sulfate (mg/L)	MW-11	-13.39	-16	-21	No	8	0	0.01	NP
Sulfate (mg/L)	MW-12	-12.73	-10	-21	No	8	0	0.01	NP
Sulfate (mg/L)	MW-15 (bg)	43.72	18	21	No	8	0	0.01	NP

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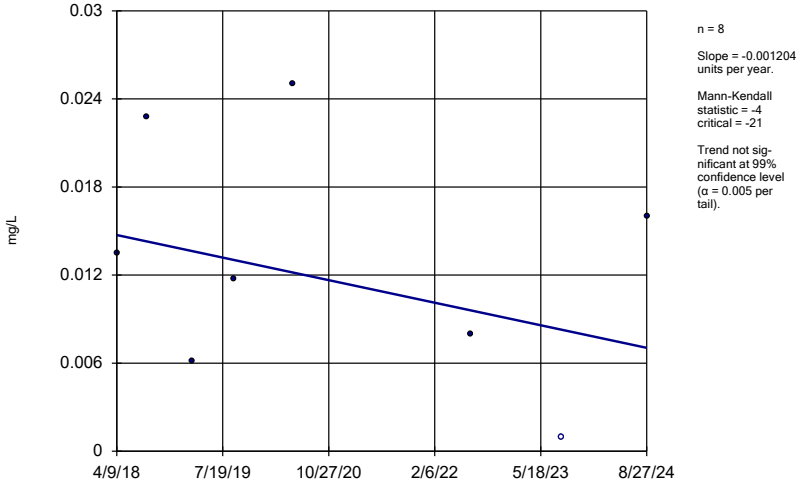
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-7



n = 8

Slope = -0.001204 units per year.

Mann-Kendall statistic = -4
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Arsenic Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

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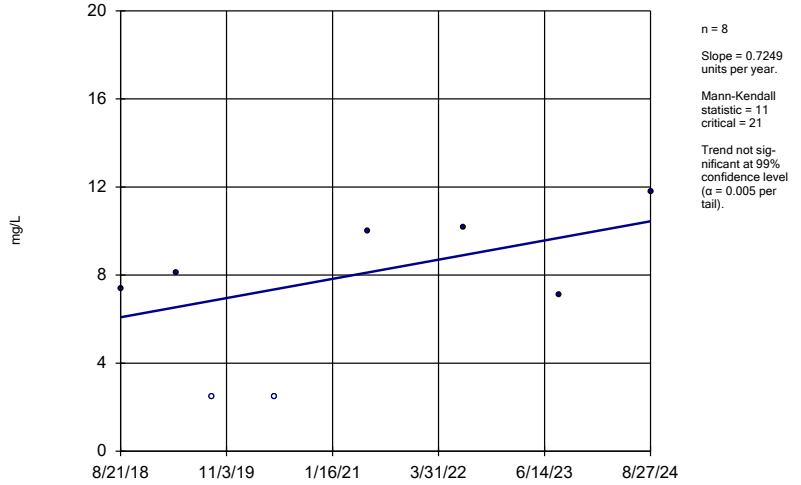
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-5



n = 8

Slope = 0.7249 units per year.

Mann-Kendall statistic = 11
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chemical Oxygen Demand Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Ken
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

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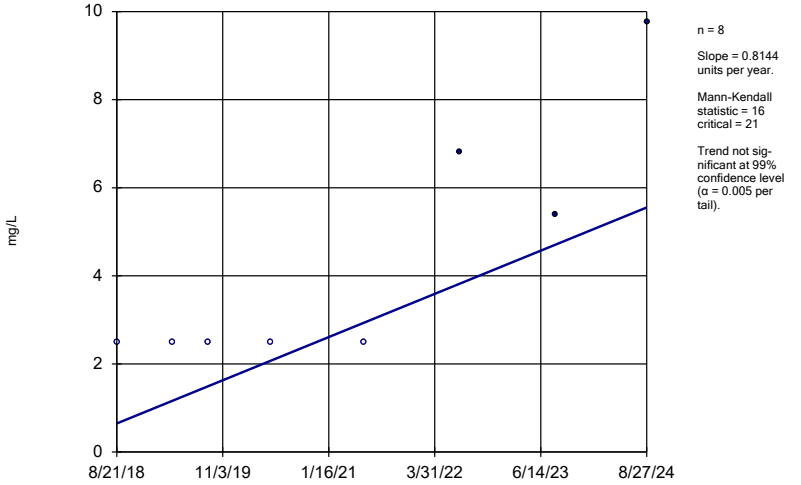
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-6



n = 8

Slope = 0.8144 units per year.

Mann-Kendall statistic = 16
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chemical Oxygen Demand Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Ken
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

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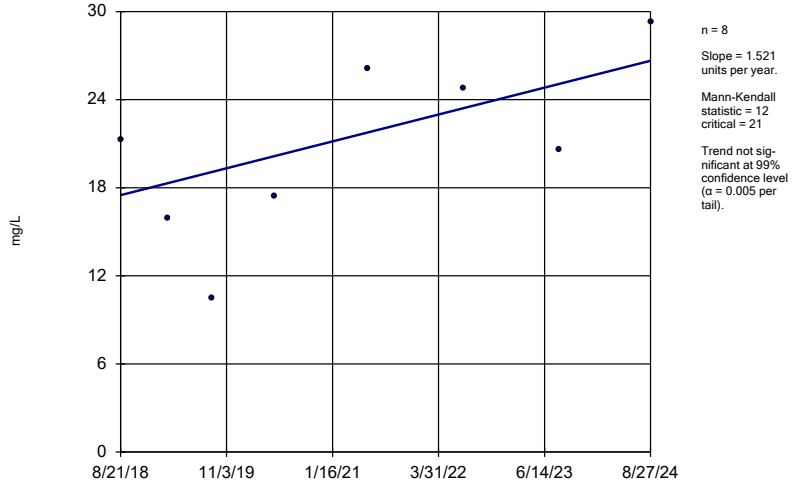
Sen's Slope Estimator

MW-7



n = 8

Slope = 1.521 units per year.

Mann-Kendall statistic = 12
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chemical Oxygen Demand Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Ken
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

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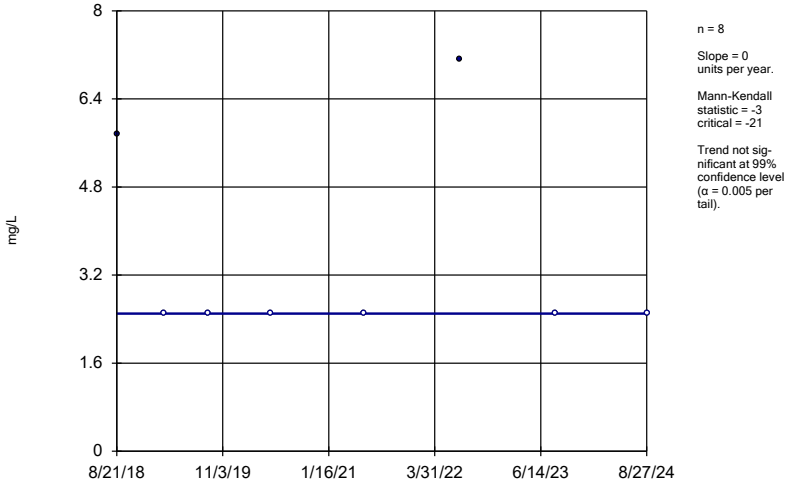
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-8



n = 8

Slope = 0 units per year.

Mann-Kendall statistic = -3
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chemical Oxygen Demand Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Ken
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

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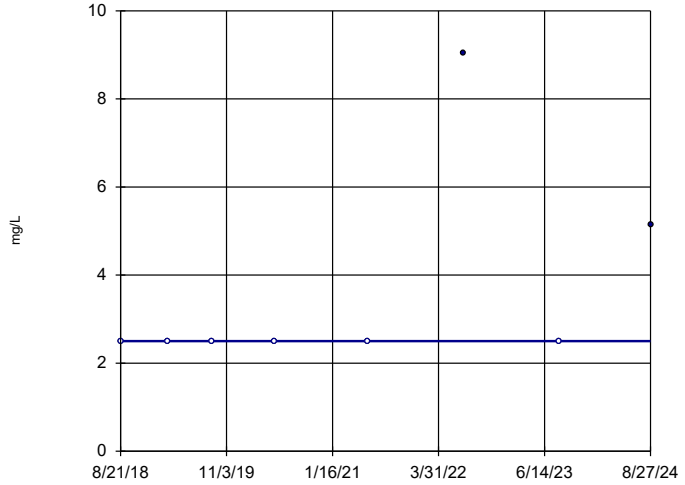
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-9



n = 8

Slope = 0 units per year.

Mann-Kendall statistic = 9
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chemical Oxygen Demand Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Ken
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

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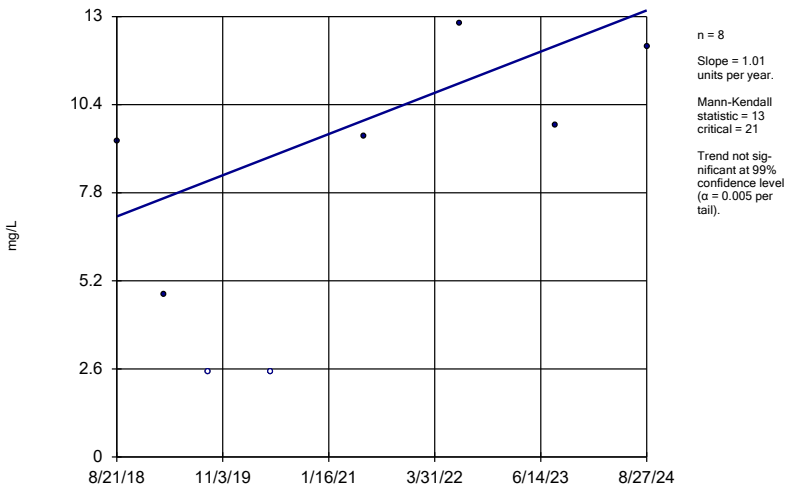
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-10



n = 8

Slope = 1.01 units per year.

Mann-Kendall statistic = 13
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chemical Oxygen Demand Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Ken
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

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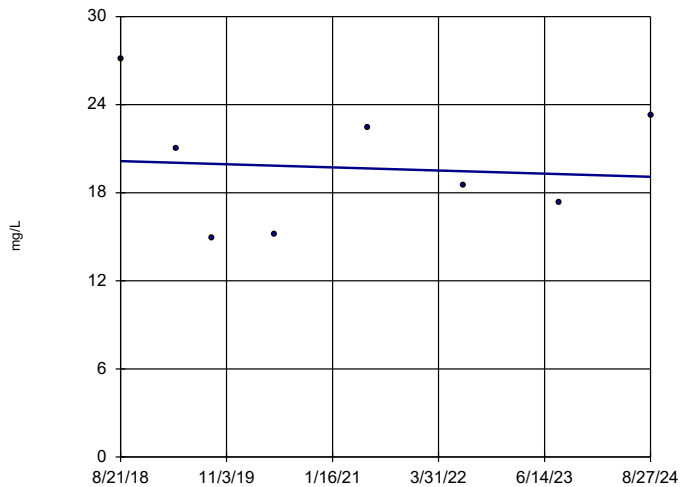
Sen's Slope Estimator

MW-11



n = 8

Slope = -0.1757 units per year.

Mann-Kendall statistic = 0
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chemical Oxygen Demand Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Ken
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

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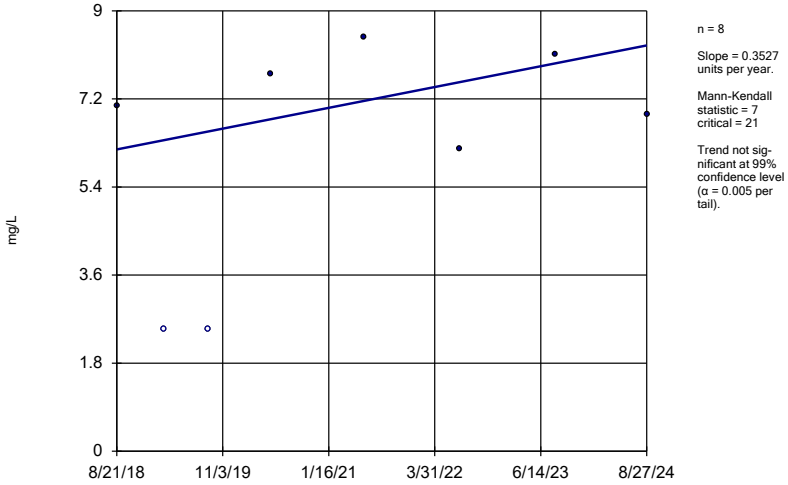
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-12



n = 8

Slope = 0.3527 units per year.

Mann-Kendall statistic = 7
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chemical Oxygen Demand Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Ken
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

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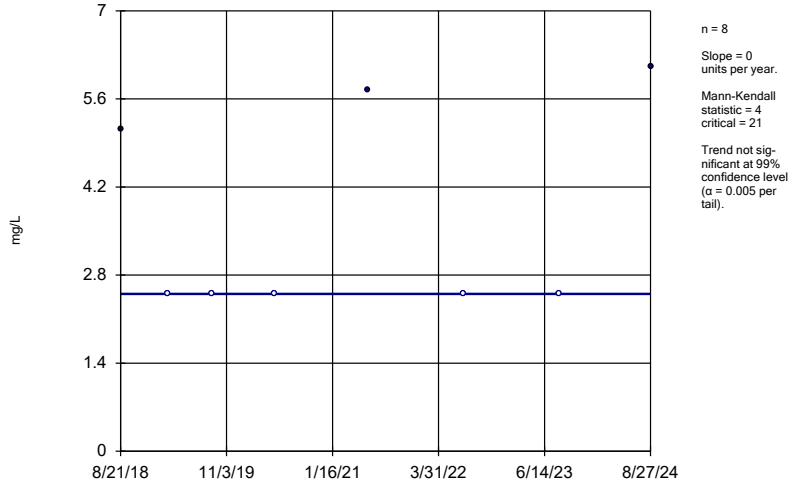
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-13 (bg)



n = 8

Slope = 0 units per year.

Mann-Kendall statistic = 4
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chemical Oxygen Demand Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Ken
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

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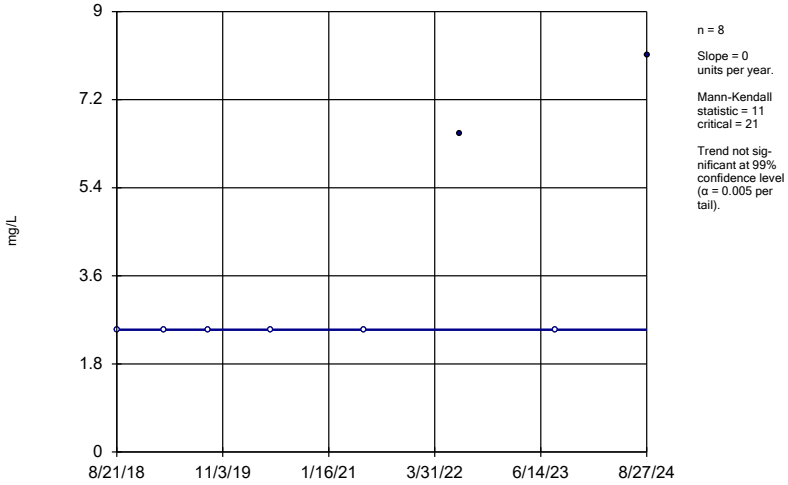
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-14



n = 8

Slope = 0 units per year.

Mann-Kendall statistic = 11
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chemical Oxygen Demand Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Ken
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

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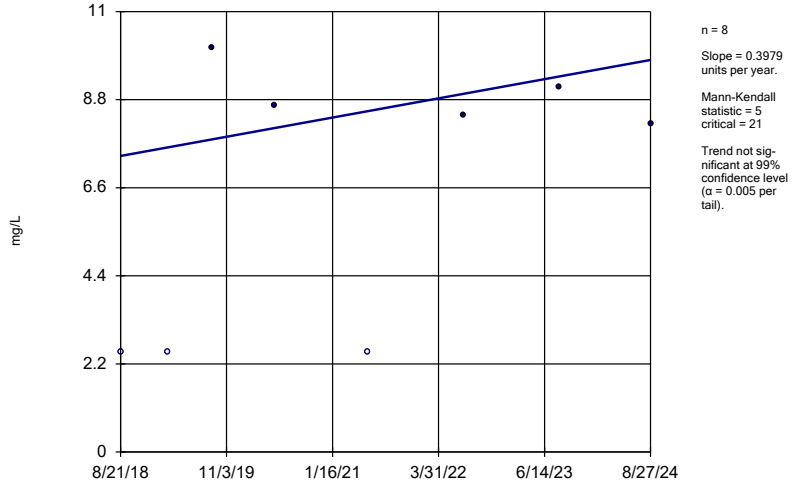
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-15 (bg)



n = 8

Slope = 0.3979 units per year.

Mann-Kendall statistic = 5
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chemical Oxygen Demand Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Ken
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

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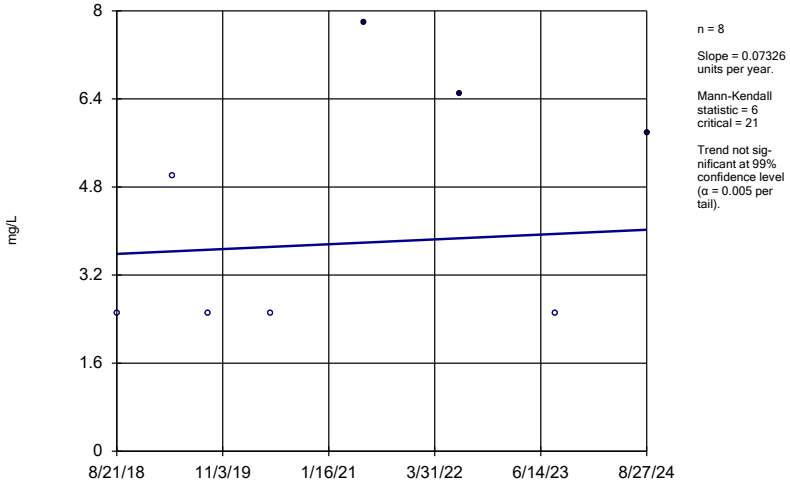
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-16 (bg)



n = 8

Slope = 0.07326 units per year.

Mann-Kendall statistic = 6
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chemical Oxygen Demand Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Ken
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

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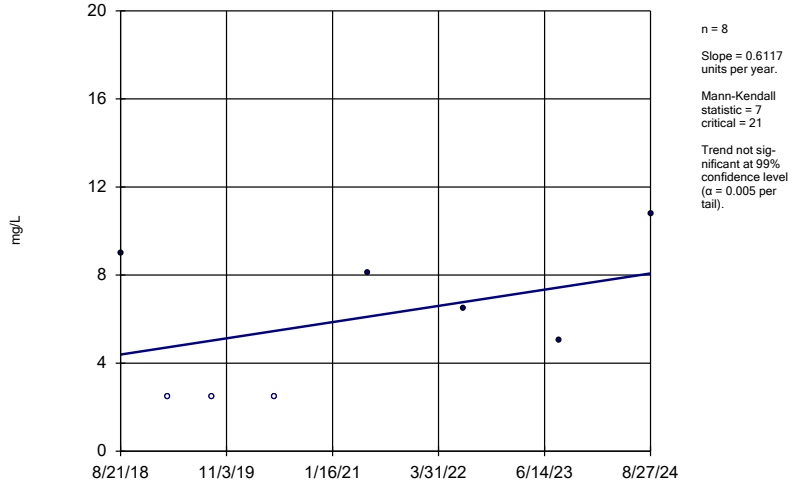
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-19 (bg)



n = 8

Slope = 0.6117 units per year.

Mann-Kendall statistic = 7
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chemical Oxygen Demand Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Ken
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

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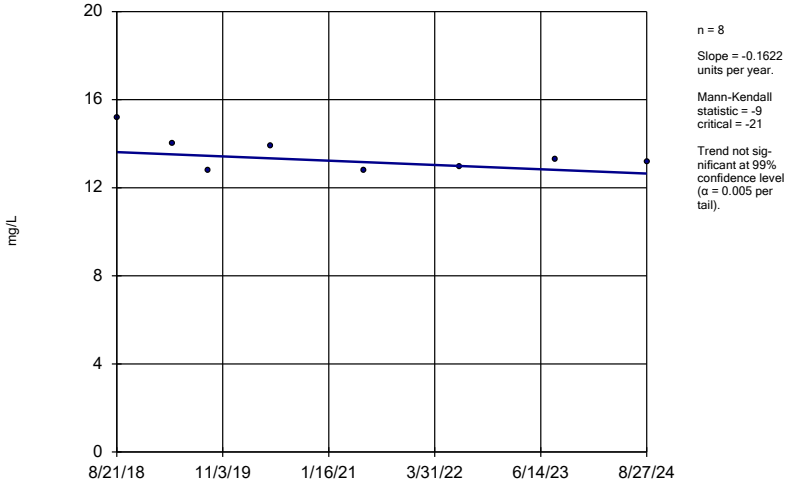
Sen's Slope Estimator

MW-5



n = 8

Slope = -0.1622 units per year.

Mann-Kendall statistic = -9
critical = -21

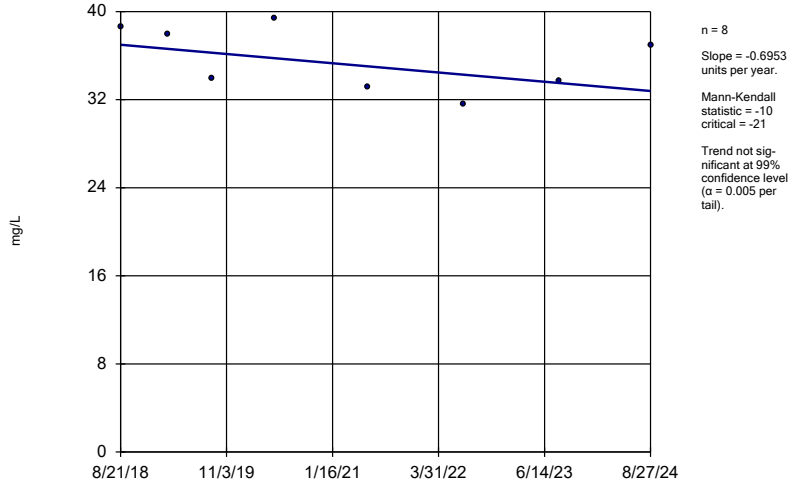
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chloride Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sanitas™ v.10.0.22 Software licensed to SCS Engineers. UG

Sen's Slope Estimator

MW-7



n = 8

Slope = -0.6953 units per year.

Mann-Kendall statistic = -10
critical = -21

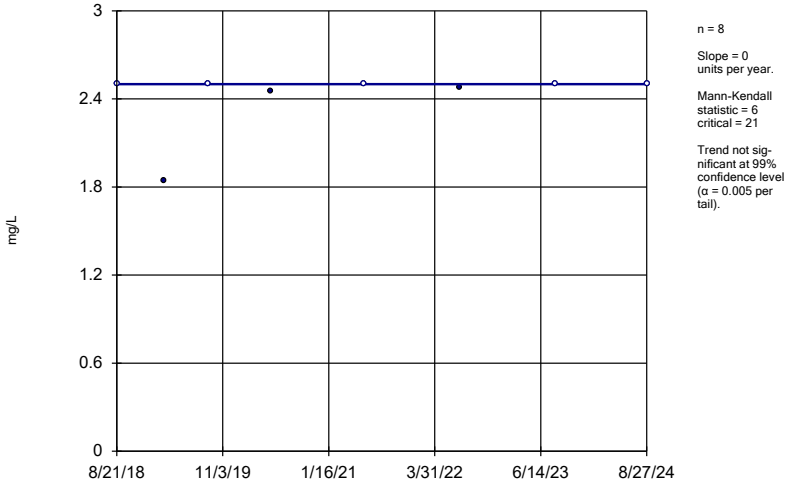
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chloride Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sanitas™ v.10.0.22 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-8



n = 8

Slope = 0 units per year.

Mann-Kendall statistic = 6
critical = 21

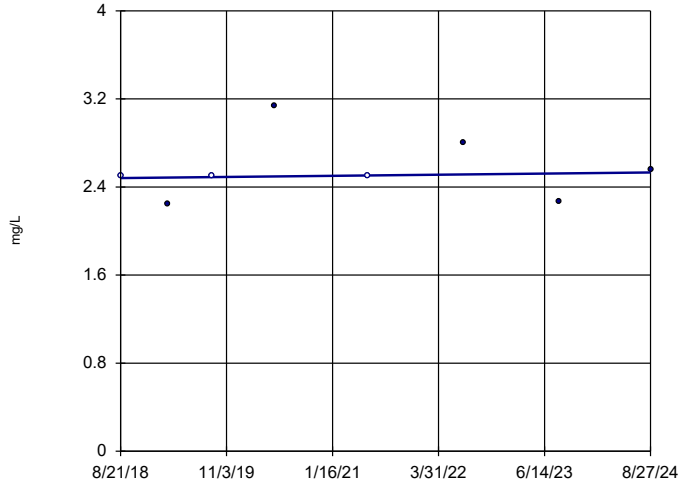
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chloride Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sanitas™ v.10.0.22 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-9



n = 8

Slope = 0.008353 units per year.

Mann-Kendall statistic = 5
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chloride Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

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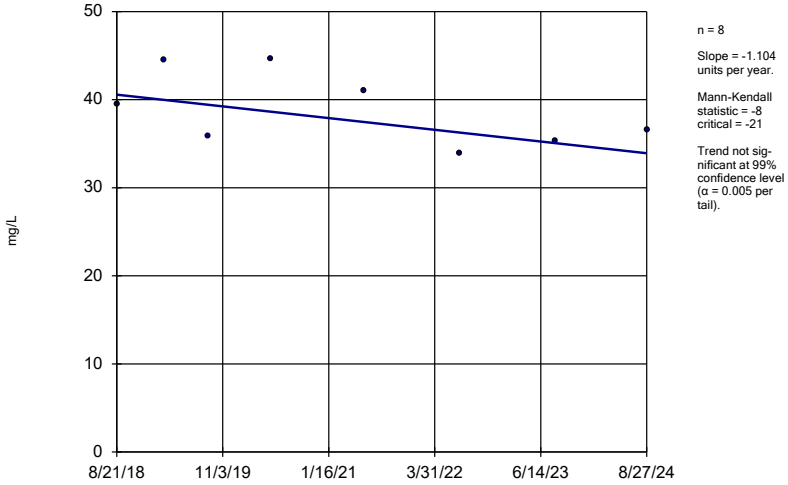
Sen's Slope Estimator

MW-10



n = 8

Slope = -1.104 units per year.

Mann-Kendall statistic = -8
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chloride Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

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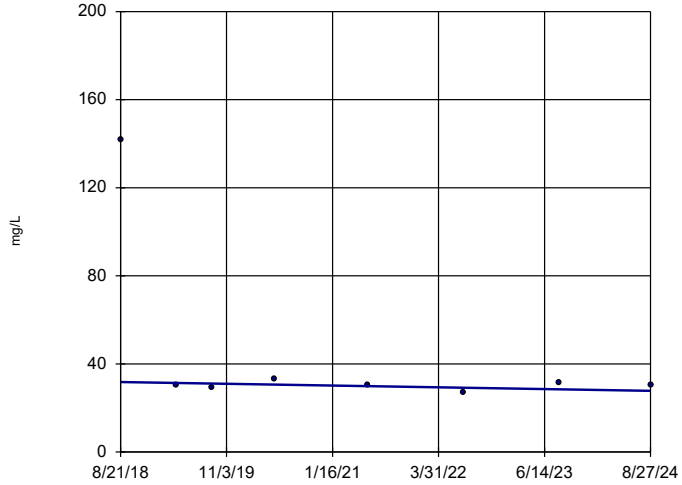
Sen's Slope Estimator

MW-11



n = 8

Slope = -0.6662 units per year.

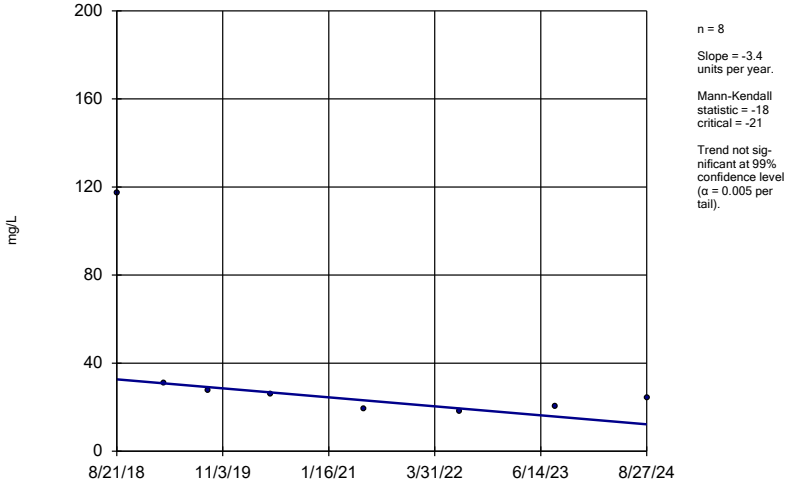
Mann-Kendall statistic = -4
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chloride Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sen's Slope Estimator

MW-12

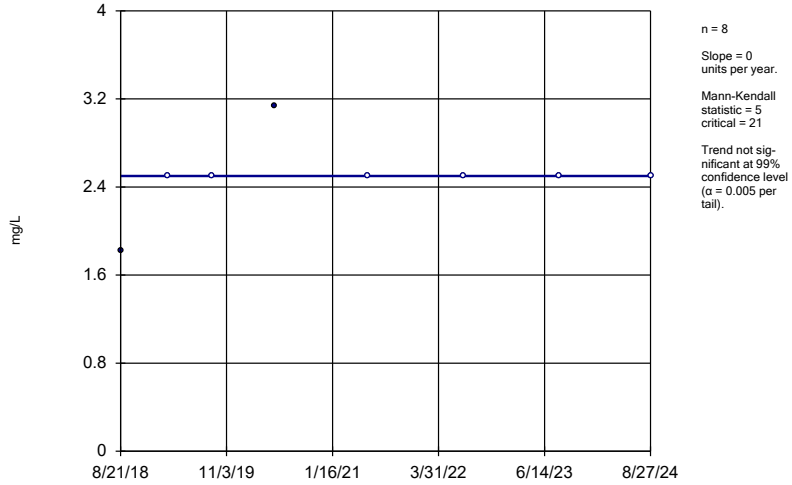


Constituent: Chloride Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Hollow symbols indicate censored values.

Sen's Slope Estimator

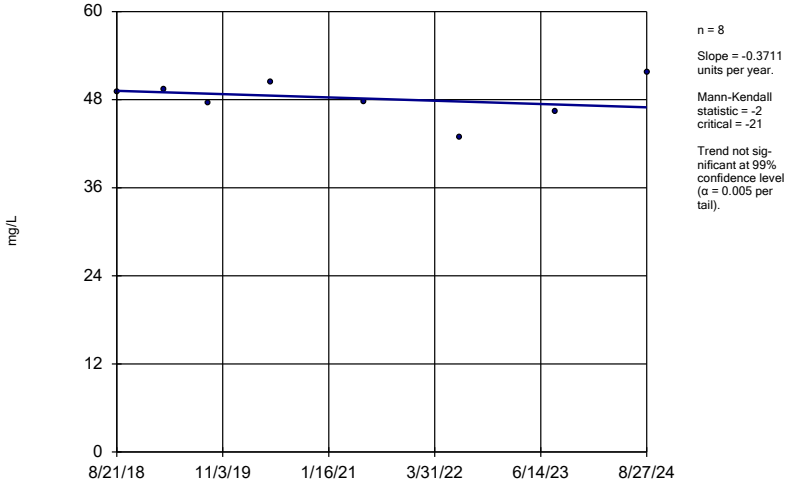
MW-13 (bg)



Constituent: Chloride Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sen's Slope Estimator

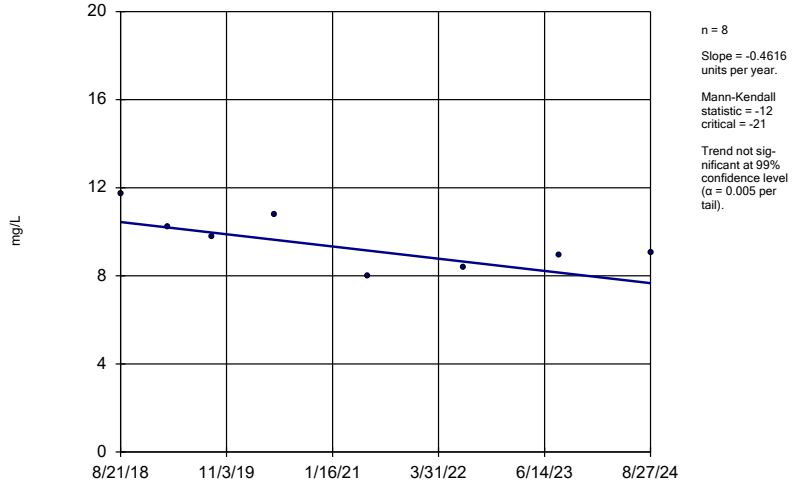
MW-14



Constituent: Chloride Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sen's Slope Estimator

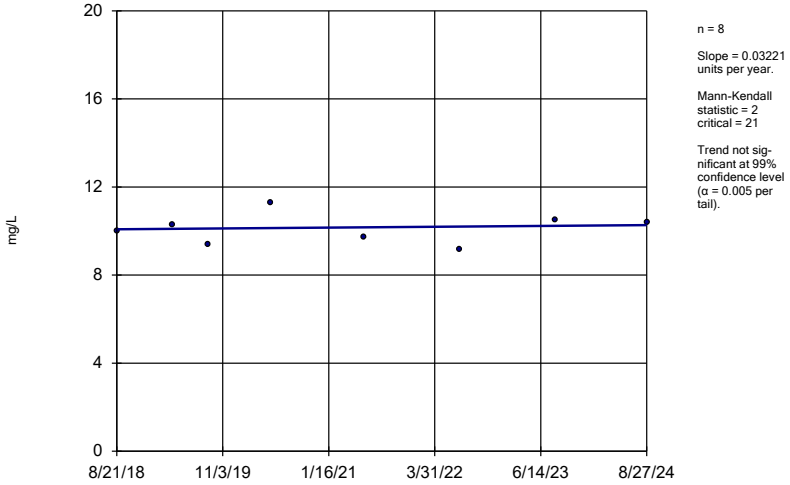
MW-15 (bg)



Constituent: Chloride Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sen's Slope Estimator

MW-16 (bg)



n = 8

Slope = 0.03221 units per year.

Mann-Kendall statistic = 2 critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

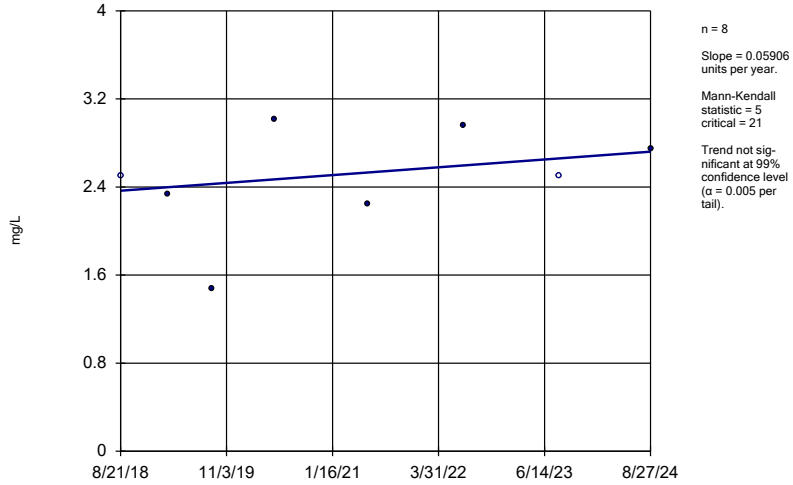
Constituent: Chloride Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Kendall

US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-19 (bg)



n = 8

Slope = 0.05906 units per year.

Mann-Kendall statistic = 5 critical = 21

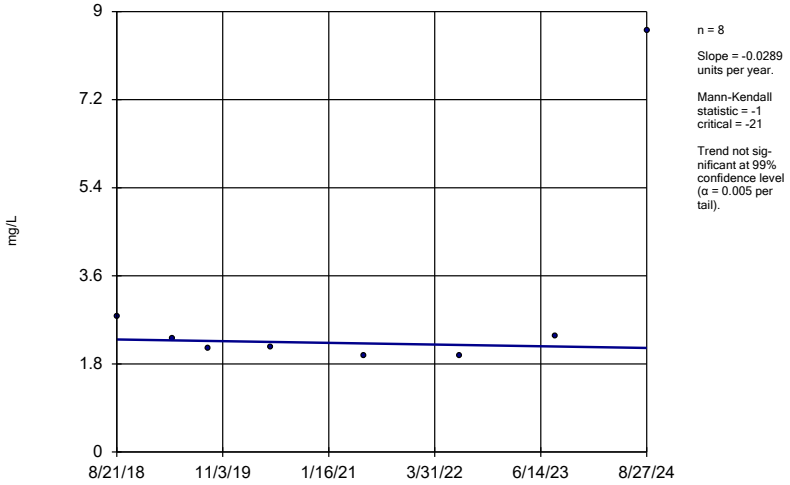
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chloride Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Kendall

US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sen's Slope Estimator

MW-5



n = 8

Slope = -0.0289 units per year.

Mann-Kendall statistic = -1 critical = -21

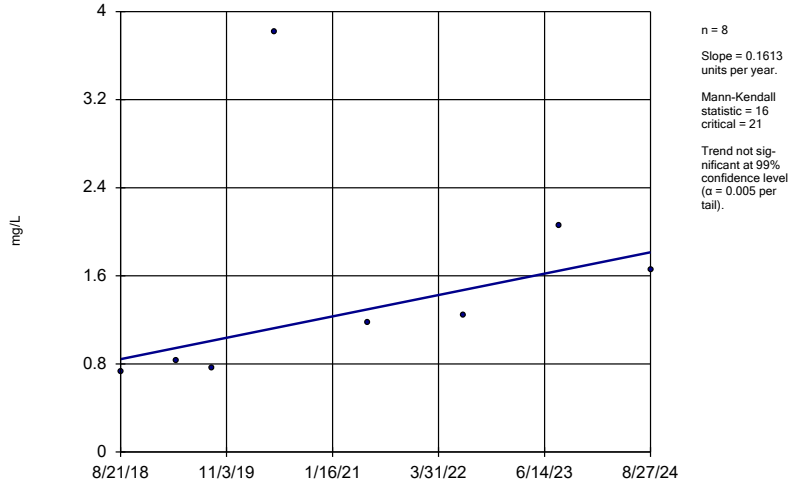
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Iron Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Kendall

US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sen's Slope Estimator

MW-6



n = 8

Slope = 0.1613 units per year.

Mann-Kendall statistic = 16 critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

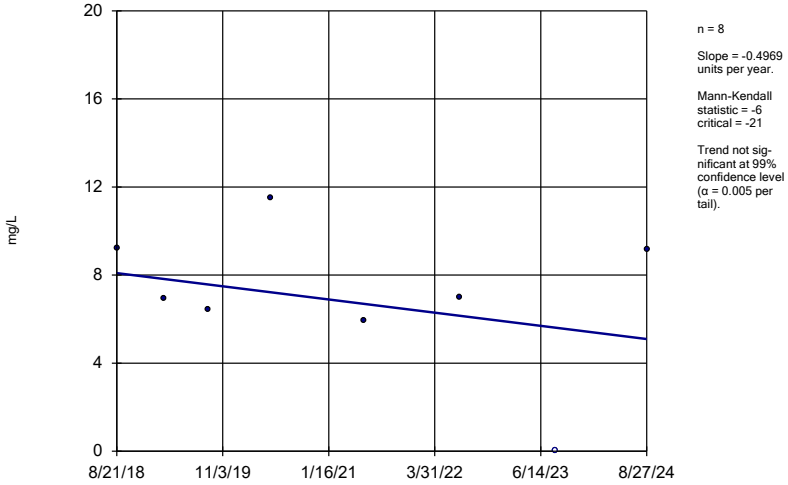
Constituent: Iron Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Kendall

US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sanitas™ v.10.0.22 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-7



n = 8

Slope = -0.4969 units per year.

Mann-Kendall statistic = -6
critical = -21

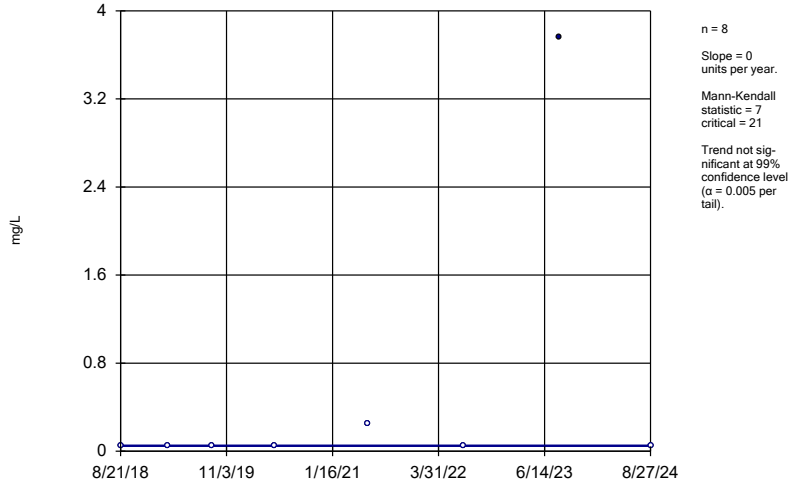
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Iron Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sanitas™ v.10.0.22 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-8



n = 8

Slope = 0 units per year.

Mann-Kendall statistic = 7
critical = 21

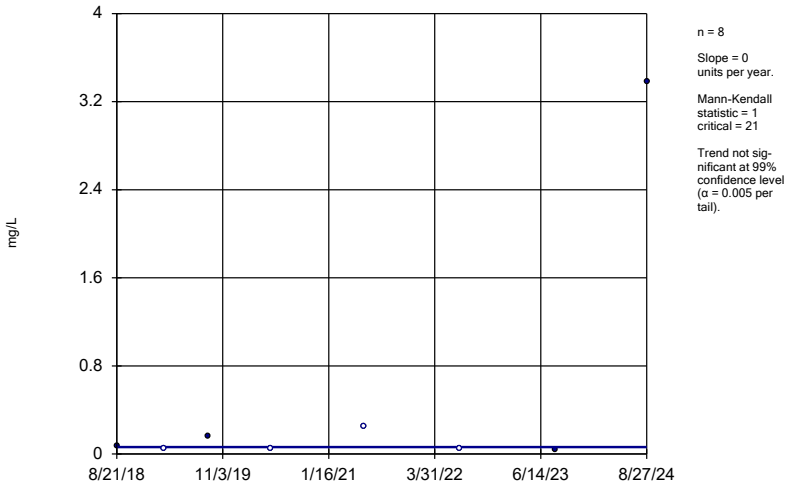
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Iron Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sanitas™ v.10.0.22 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-9



n = 8

Slope = 0 units per year.

Mann-Kendall statistic = 1
critical = 21

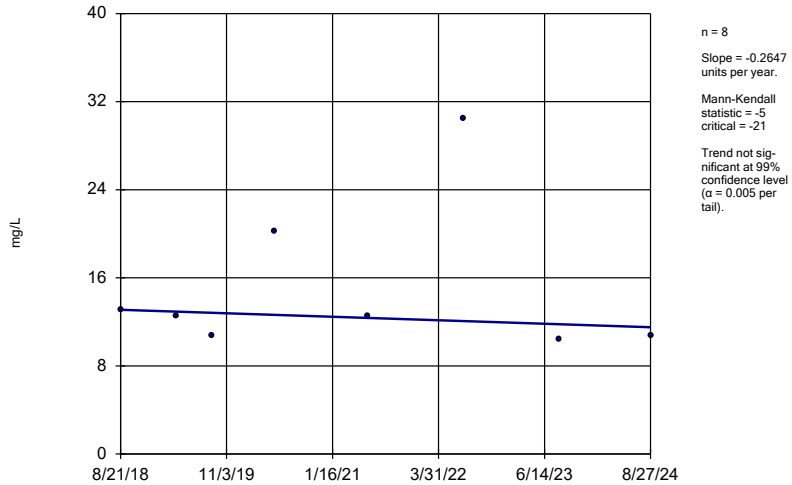
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Iron Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sanitas™ v.10.0.22 Software licensed to SCS Engineers. UG

Sen's Slope Estimator

MW-11



n = 8

Slope = -0.2647 units per year.

Mann-Kendall statistic = -5
critical = -21

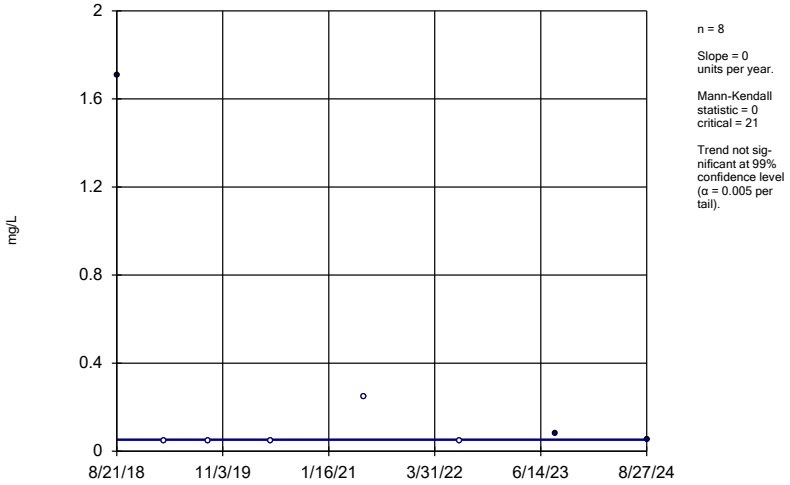
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Iron Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sanitas™ v.10.0.22 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-12



n = 8

Slope = 0 units per year.

Mann-Kendall statistic = 0
critical = 21

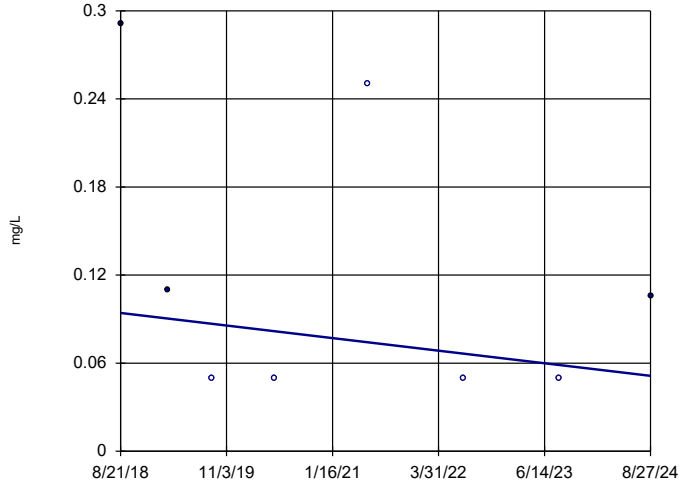
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Iron Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sanitas™ v.10.0.22 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-13 (bg)



n = 8

Slope = -0.007107 units per year.

Mann-Kendall statistic = -8
critical = -21

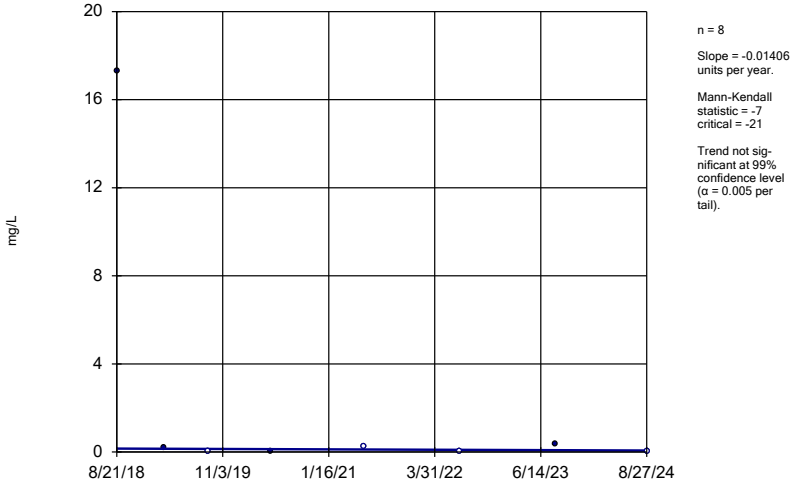
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Iron Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sanitas™ v.10.0.22 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-14



n = 8

Slope = -0.01406 units per year.

Mann-Kendall statistic = -7
critical = -21

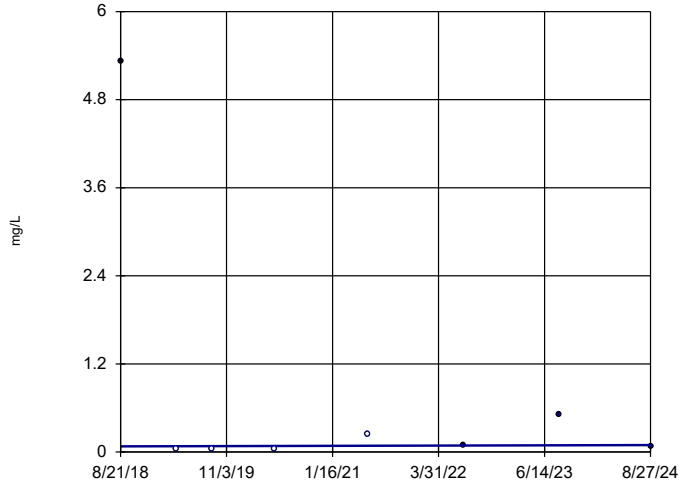
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Iron Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sanitas™ v.10.0.22 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-16 (bg)



n = 8

Slope = 0.002903 units per year.

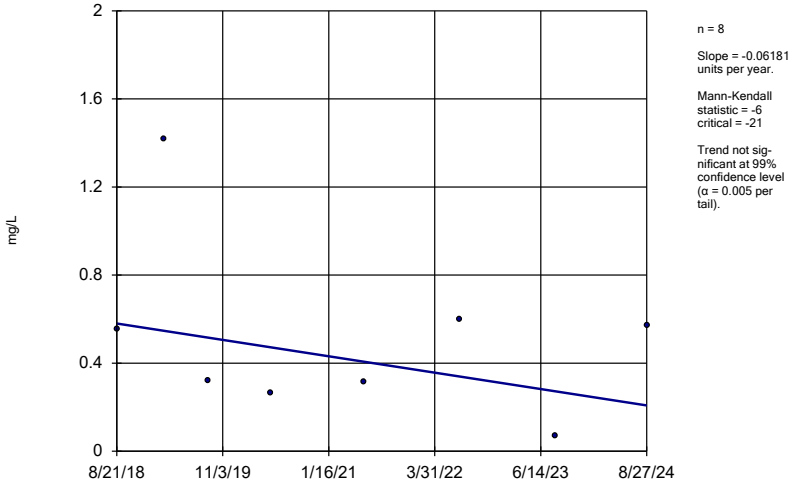
Mann-Kendall statistic = 3
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Iron Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sen's Slope Estimator

MW-19 (bg)



n = 8

Slope = -0.06181 units per year.

Mann-Kendall statistic = -6
critical = -21

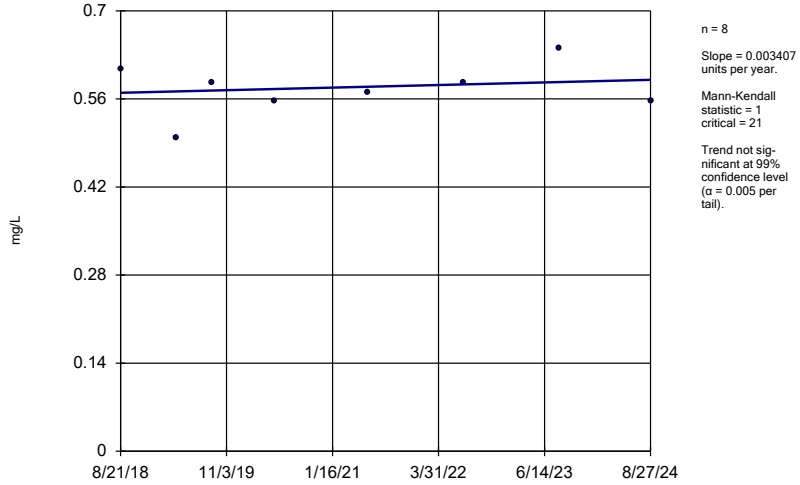
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Iron Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sanitas™ v.10.0.22 Software licensed to SCS Engineers. UG

Sen's Slope Estimator

MW-6



n = 8

Slope = 0.003407 units per year.

Mann-Kendall statistic = 1
critical = 21

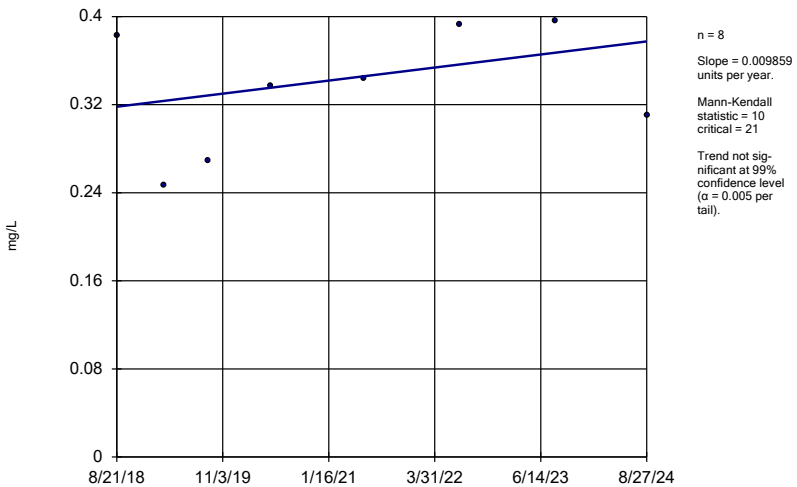
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Nitrogen, Ammonia Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sanitas™ v.10.0.22 Software licensed to SCS Engineers. UG

Sen's Slope Estimator

MW-7



n = 8

Slope = 0.009859 units per year.

Mann-Kendall statistic = 10
critical = 21

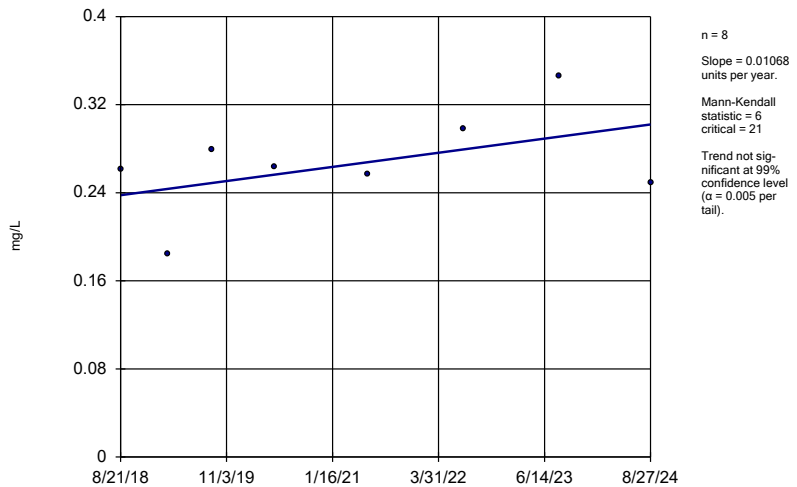
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Nitrogen, Ammonia Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sanitas™ v.10.0.22 Software licensed to SCS Engineers. UG

Sen's Slope Estimator

MW-8



n = 8

Slope = 0.01068 units per year.

Mann-Kendall statistic = 6
critical = 21

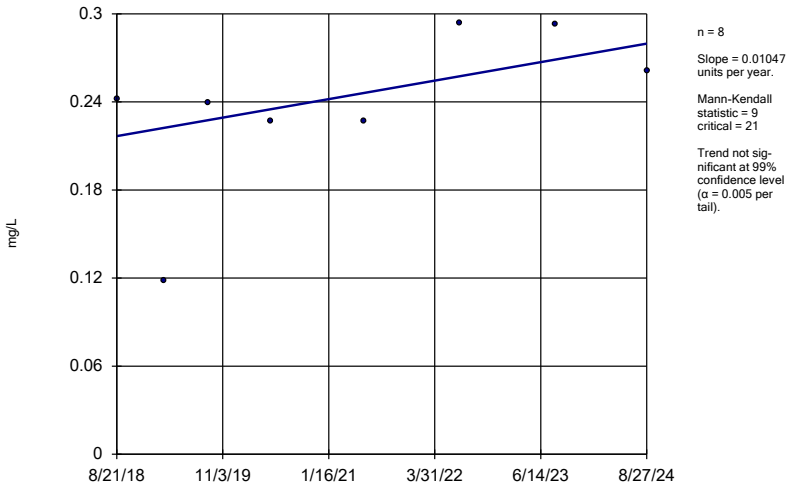
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Nitrogen, Ammonia Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sanitas™ v.10.0.22 Software licensed to SCS Engineers. UG

Sen's Slope Estimator

MW-9



Constituent: Nitrogen, Ammonia Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Kendall

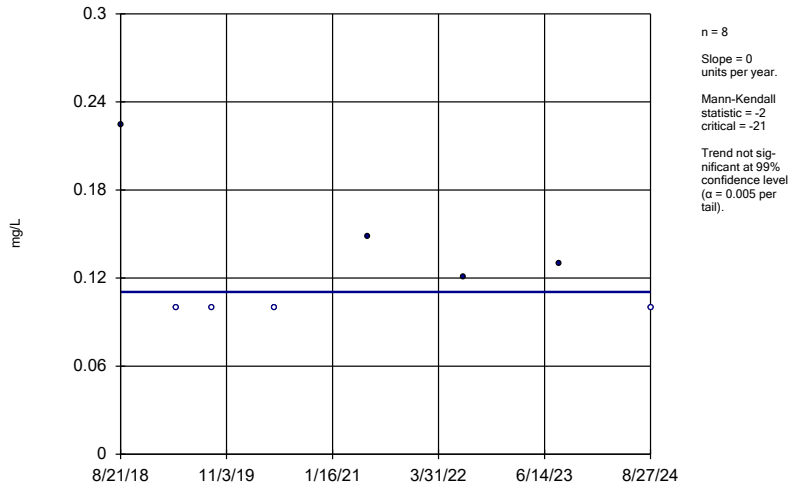
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sanitas™ v.10.0.22 Software licensed to SCS Engineers. UG

Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-11



Constituent: Nitrogen, Ammonia Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Kendall

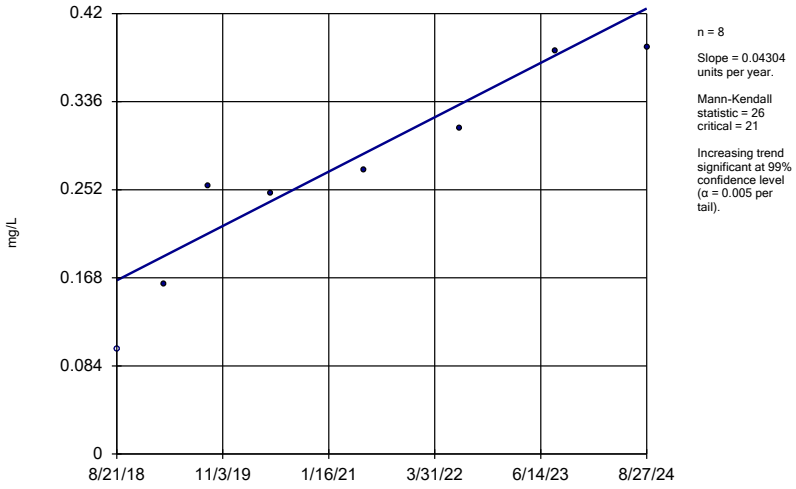
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sanitas™ v.10.0.22 Software licensed to SCS Engineers. UG

Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-13 (bg)



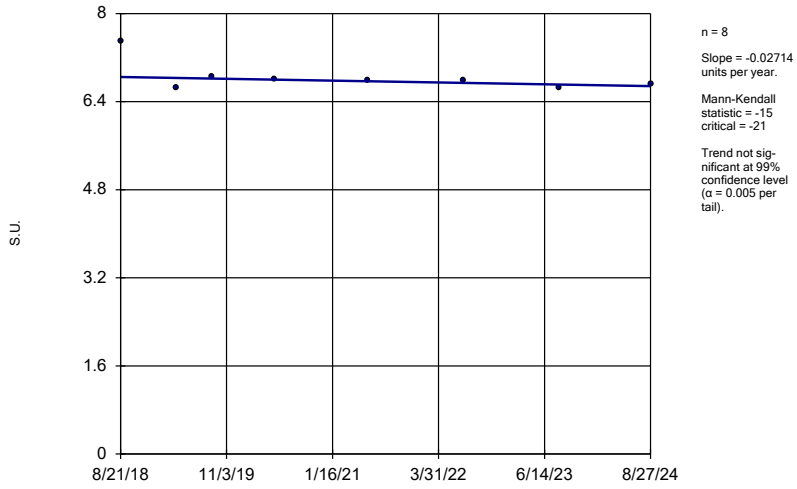
Constituent: Nitrogen, Ammonia Analysis Run 10/1/2024 12:59 PM View: 2024AWQR - Mann Kendall

US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sanitas™ v.10.0.22 Software licensed to SCS Engineers. UG

Sen's Slope Estimator

MW-5

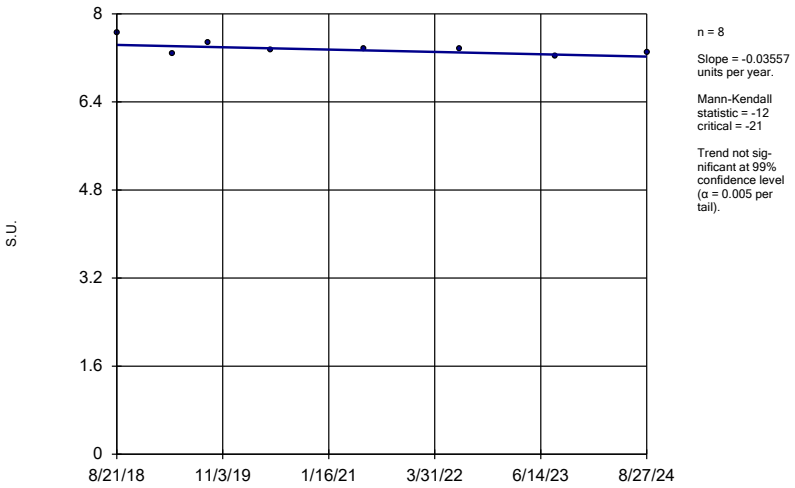


Constituent: pH Analysis Run 10/1/2024 1:00 PM View: 2024AWQR - Mann Kendall

US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sen's Slope Estimator

MW-6

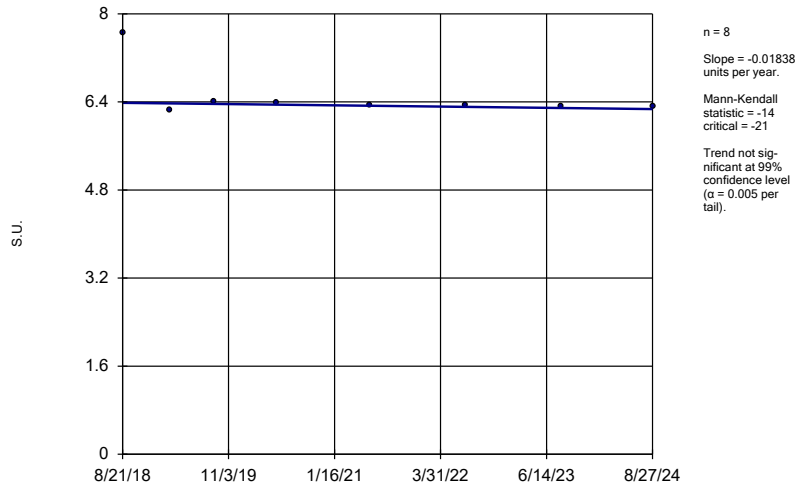


Constituent: pH Analysis Run 10/1/2024 1:00 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sanitas™ v.10.0.22 Software licensed to SCS Engineers. UG

Sen's Slope Estimator

MW-7

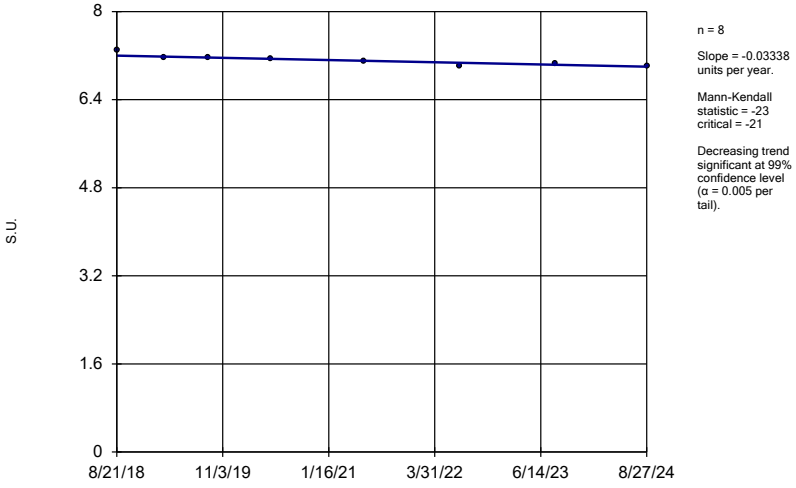


Constituent: pH Analysis Run 10/1/2024 1:00 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sanitas™ v.10.0.22 Software licensed to SCS Engineers. UG

Sen's Slope Estimator

MW-8

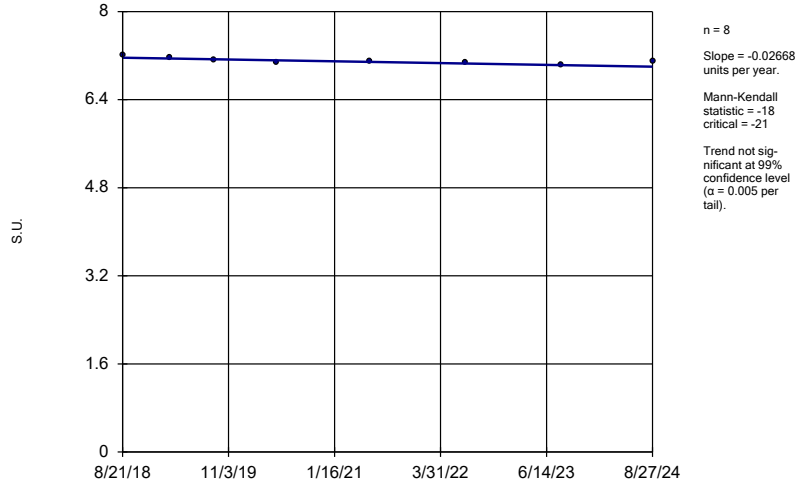


Constituent: pH Analysis Run 10/1/2024 1:00 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sanitas™ v.10.0.22 Software licensed to SCS Engineers. UG

Sen's Slope Estimator

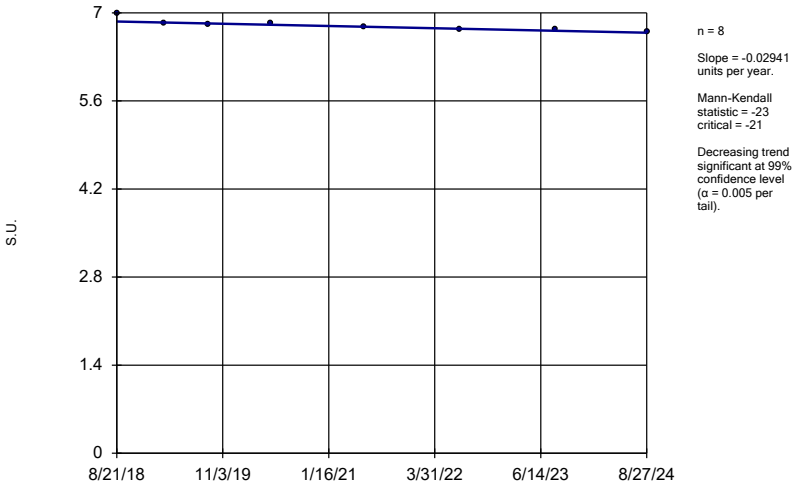
MW-9



Constituent: pH Analysis Run 10/1/2024 1:00 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sen's Slope Estimator

MW-10



n = 8

Slope = -0.02941 units per year.

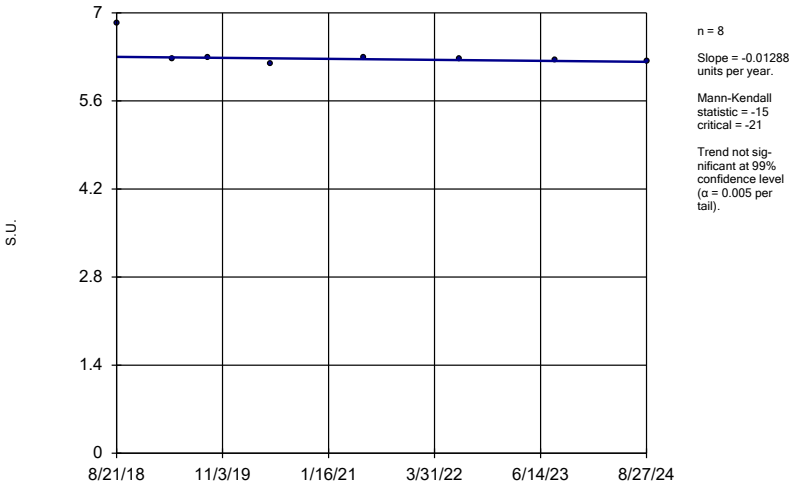
Mann-Kendall statistic = -23
critical = -21

Decreasing trend significant at 99% confidence level (α = 0.005 per tail).

Constituent: pH Analysis Run 10/1/2024 1:00 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sen's Slope Estimator

MW-11



n = 8

Slope = -0.01288 units per year.

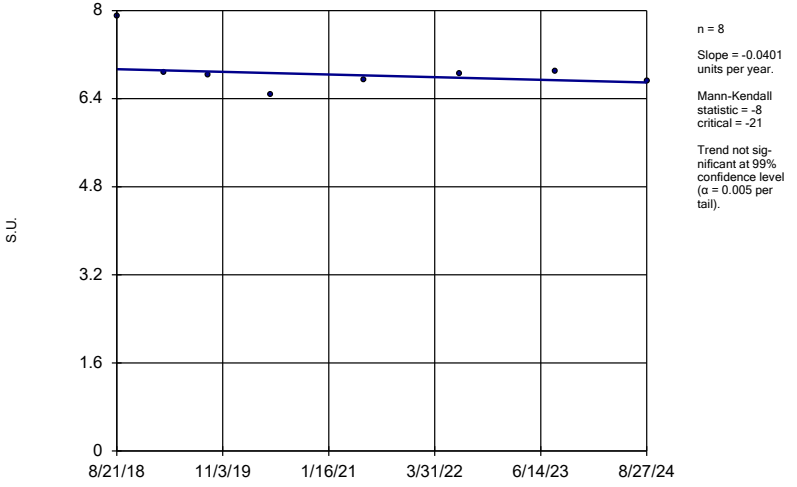
Mann-Kendall statistic = -15
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: pH Analysis Run 10/1/2024 1:00 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sen's Slope Estimator

MW-12



n = 8

Slope = -0.0401 units per year.

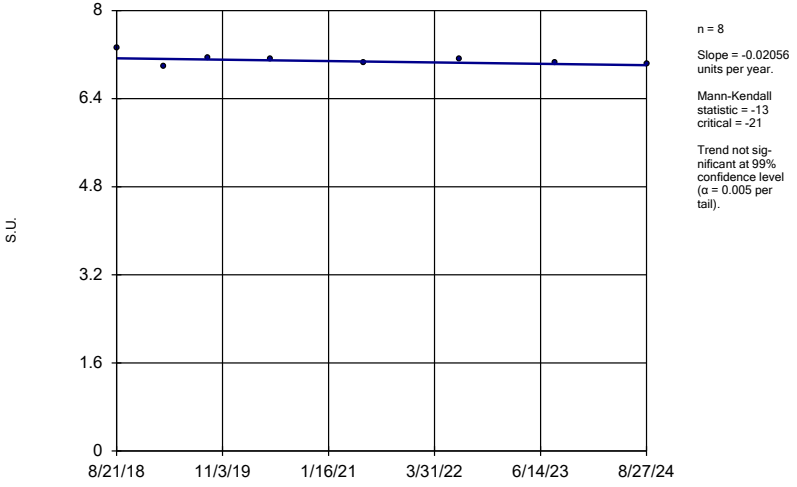
Mann-Kendall statistic = -8
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: pH Analysis Run 10/1/2024 1:00 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sen's Slope Estimator

MW-13 (bg)



n = 8

Slope = -0.02056 units per year.

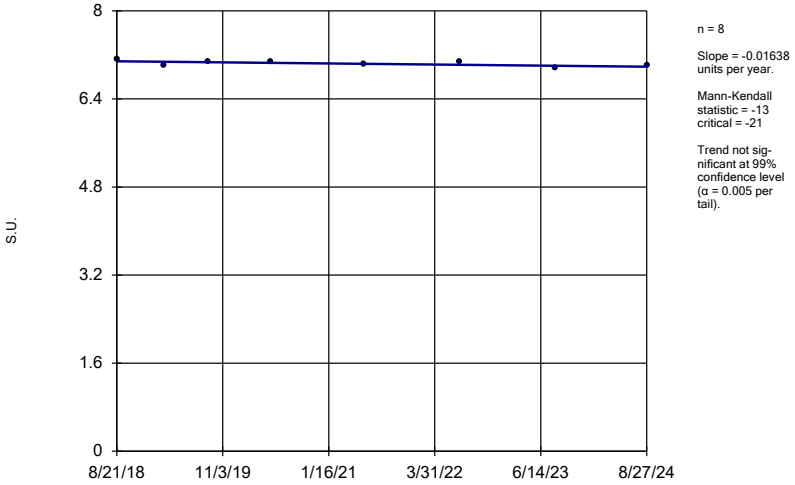
Mann-Kendall statistic = -13
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: pH Analysis Run 10/1/2024 1:00 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sen's Slope Estimator

MW-14



n = 8

Slope = -0.01638 units per year.

Mann-Kendall statistic = -13
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: pH Analysis Run 10/1/2024 1:00 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

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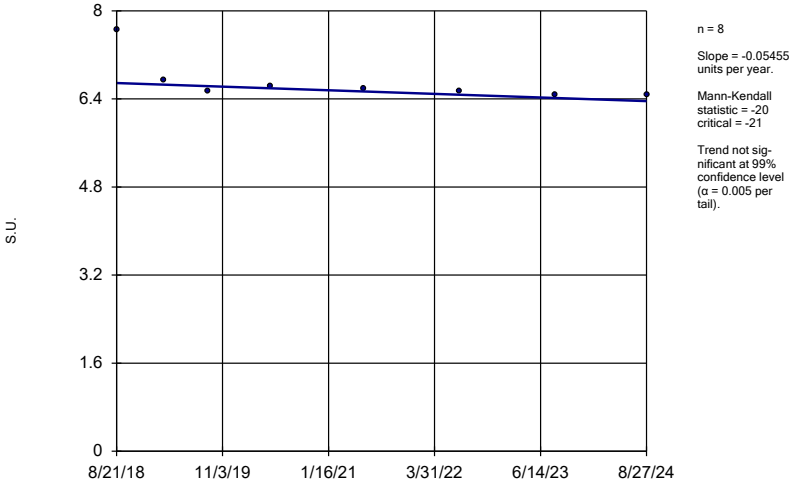
Sen's Slope Estimator

MW-15 (bg)



n = 8

Slope = -0.05455 units per year.

Mann-Kendall statistic = -20
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: pH Analysis Run 10/1/2024 1:00 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

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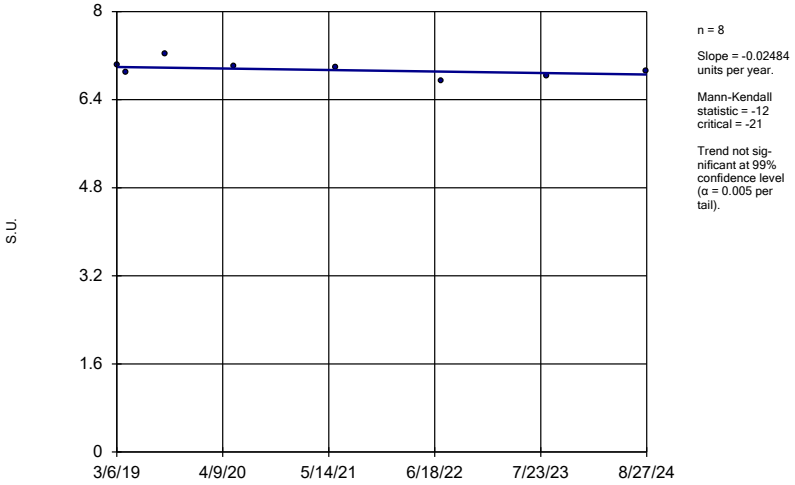
Sen's Slope Estimator

MW-16 (bg)



n = 8

Slope = -0.02484 units per year.

Mann-Kendall statistic = -12
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: pH Analysis Run 10/1/2024 1:00 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

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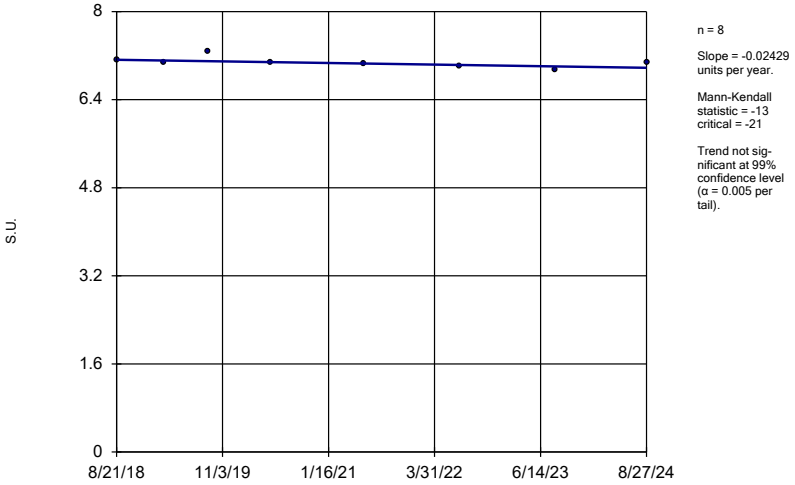
Sen's Slope Estimator

MW-19 (bg)



n = 8

Slope = -0.02429 units per year.

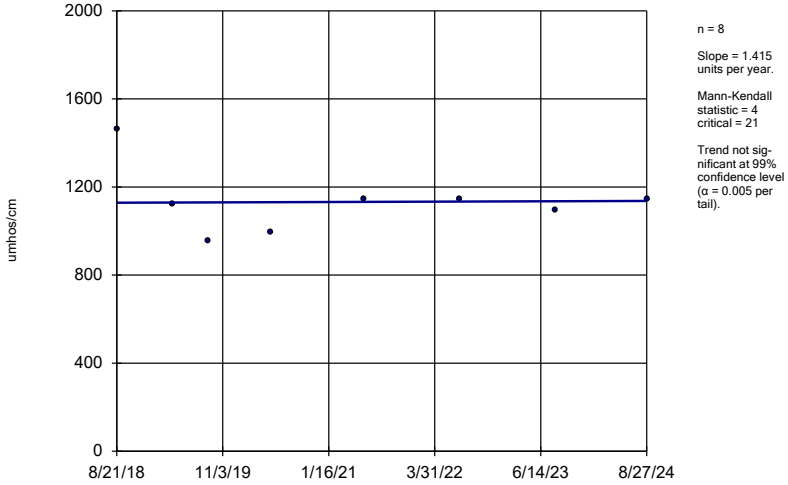
Mann-Kendall statistic = -13
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: pH Analysis Run 10/1/2024 1:00 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sen's Slope Estimator

MW-5



Constituent: Specific Conductance Analysis Run 10/1/2024 1:00 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

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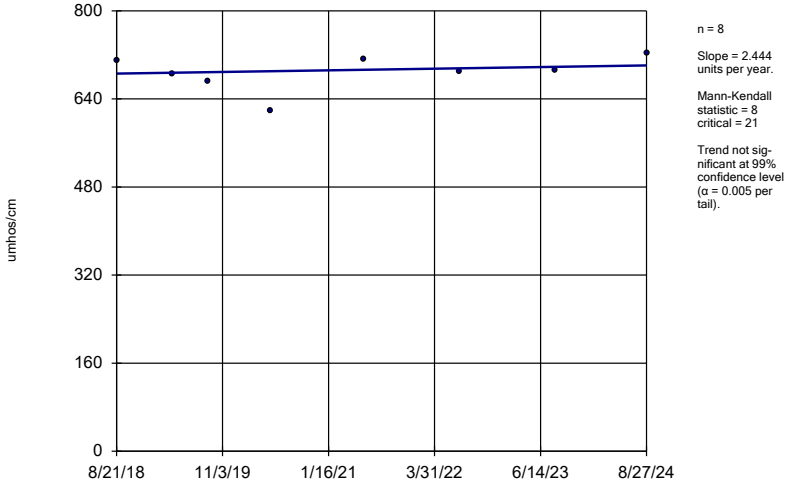
Sen's Slope Estimator

MW-6



Constituent: Specific Conductance Analysis Run 10/1/2024 1:00 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

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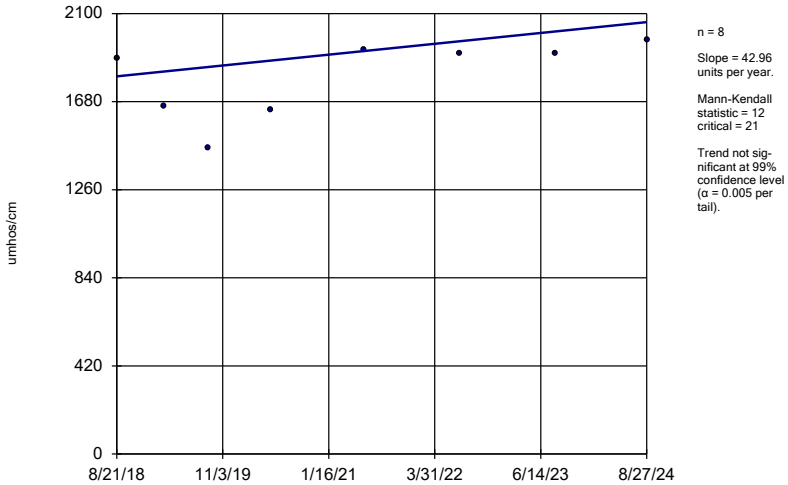
Sen's Slope Estimator

MW-7



Constituent: Specific Conductance Analysis Run 10/1/2024 1:00 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

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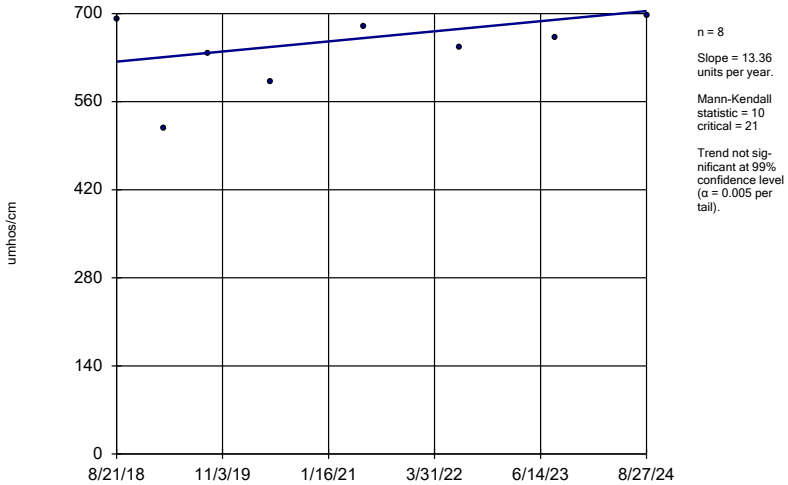
Sen's Slope Estimator

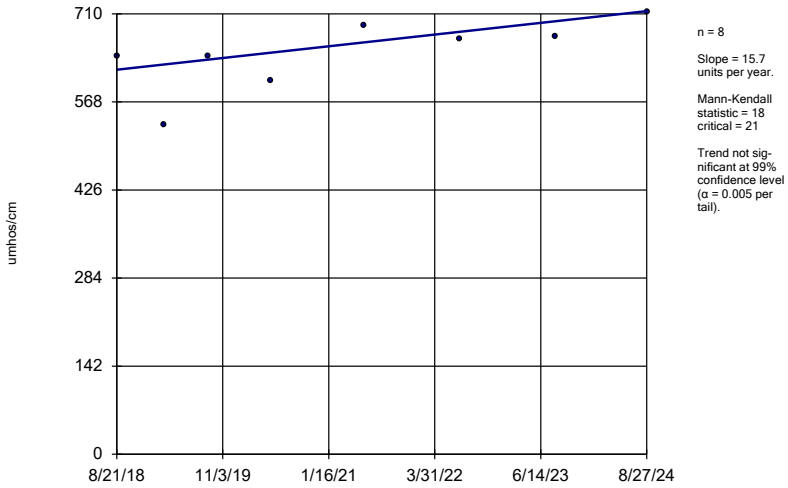
MW-8



Constituent: Specific Conductance Analysis Run 10/1/2024 1:00 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sen's Slope Estimator

MW-9



Constituent: Specific Conductance Analysis Run 10/1/2024 1:00 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

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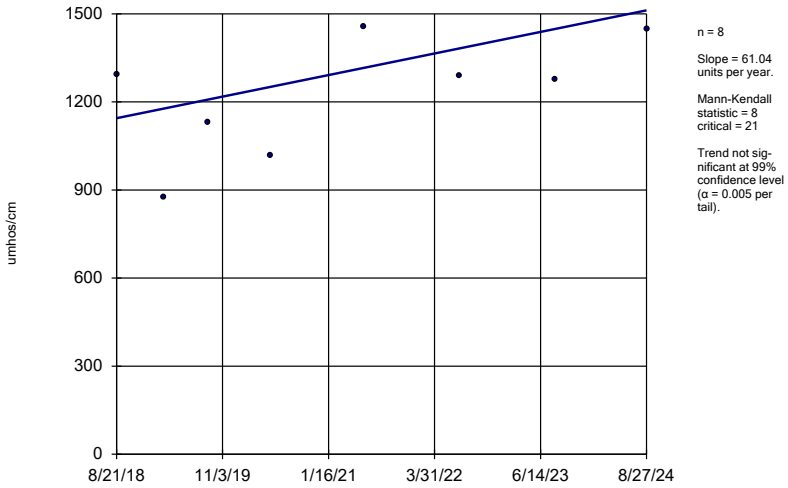
Sen's Slope Estimator

MW-10



Constituent: Specific Conductance Analysis Run 10/1/2024 1:00 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

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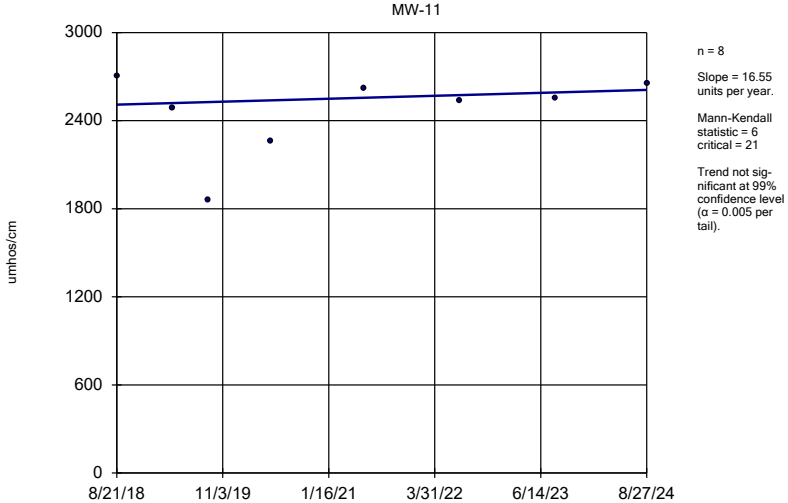
Sen's Slope Estimator

MW-11



Constituent: Specific Conductance Analysis Run 10/1/2024 1:00 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

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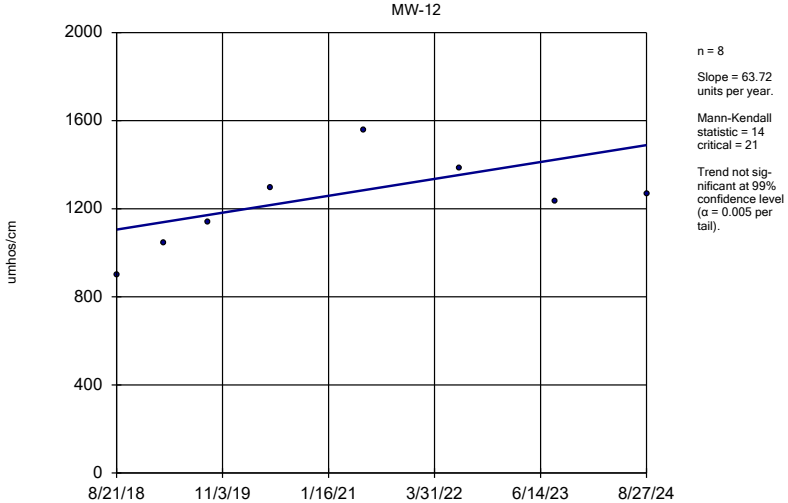
Sen's Slope Estimator

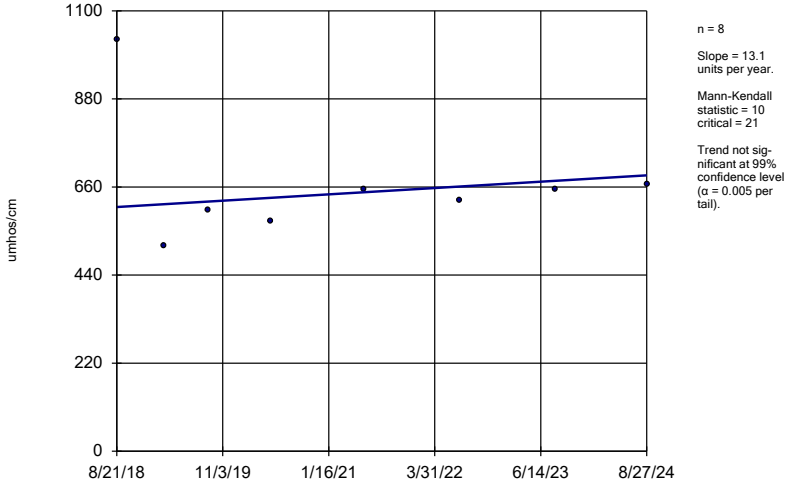
MW-12



Constituent: Specific Conductance Analysis Run 10/1/2024 1:00 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sen's Slope Estimator

MW-13 (bg)



n = 8

Slope = 13.1 units per year.

Mann-Kendall statistic = 10 critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Specific Conductance Analysis Run 10/1/2024 1:00 PM View: 2024AWQR - Mann Kendall

US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

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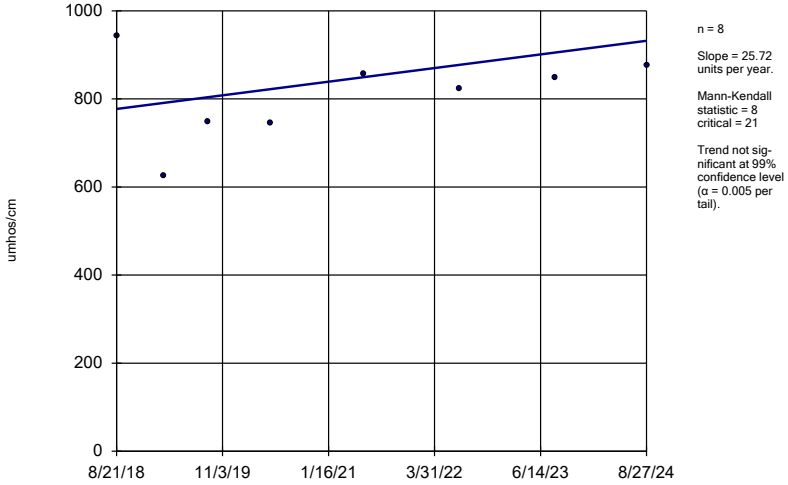
Sen's Slope Estimator

MW-14



n = 8

Slope = 25.72 units per year.

Mann-Kendall statistic = 8 critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Specific Conductance Analysis Run 10/1/2024 1:00 PM View: 2024AWQR - Mann Kendall

US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

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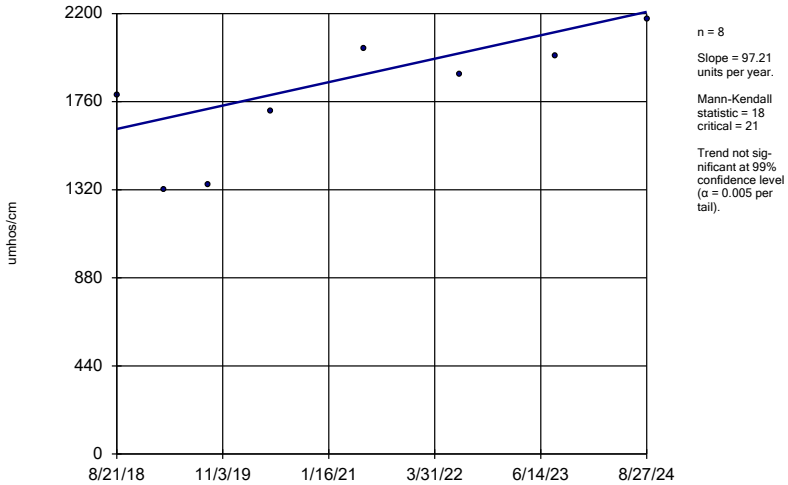
Sen's Slope Estimator

MW-15 (bg)



n = 8

Slope = 97.21 units per year.

Mann-Kendall statistic = 18 critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Specific Conductance Analysis Run 10/1/2024 1:00 PM View: 2024AWQR - Mann Kendall

US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

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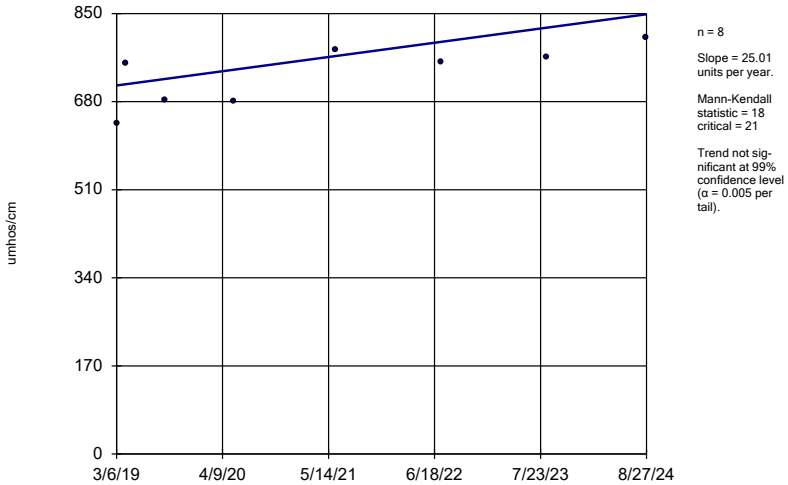
Sen's Slope Estimator

MW-16 (bg)



n = 8

Slope = 25.01 units per year.

Mann-Kendall statistic = 18 critical = 21

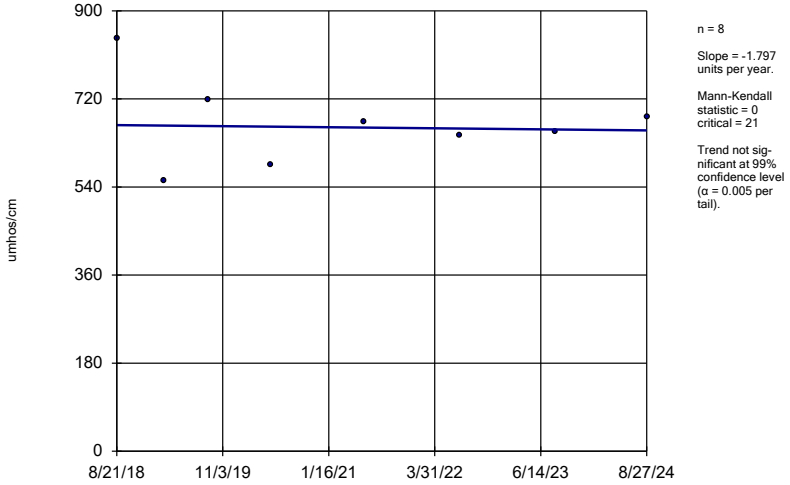
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Specific Conductance Analysis Run 10/1/2024 1:00 PM View: 2024AWQR - Mann Kendall

US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sen's Slope Estimator

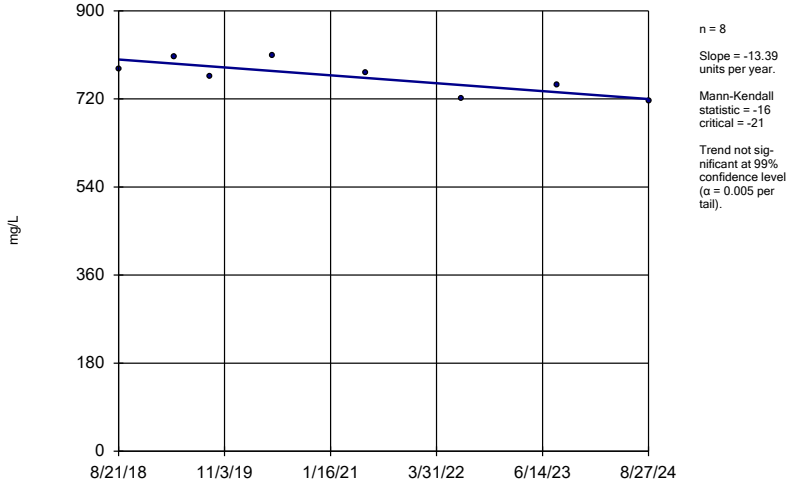
MW-19 (bg)



Constituent: Specific Conductance Analysis Run 10/1/2024 1:00 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sen's Slope Estimator

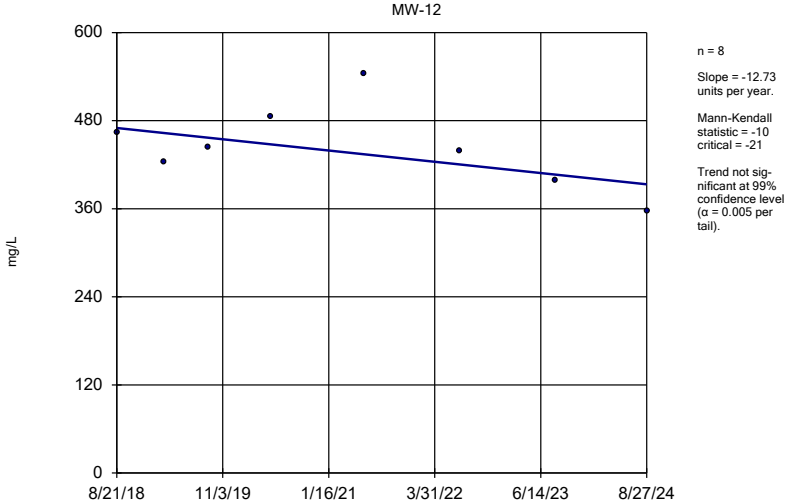
MW-11



Constituent: Sulfate Analysis Run 10/1/2024 1:00 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sen's Slope Estimator

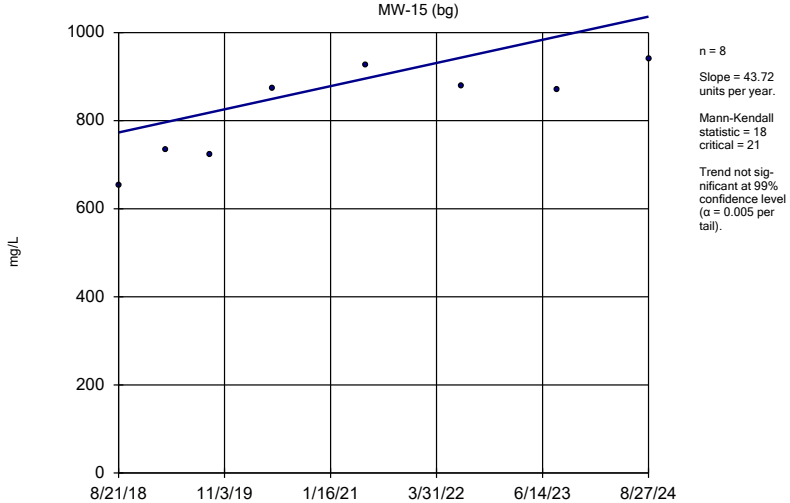
MW-12



Constituent: Sulfate Analysis Run 10/1/2024 1:00 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Sen's Slope Estimator

MW-15 (bg)



Constituent: Sulfate Analysis Run 10/1/2024 1:00 PM View: 2024AWQR - Mann Kendall
US Gypsum Sperry Landfill Client: SCS Engineers Data: USGYP-HMSP-2024AWQR-AM

Appendix E

Mann-Kendall Trend Table

Monitoring Well	Constituent Name	Calculated Statistic		
		Decreasing Trend	Stable Trend	Increasing Trend
MW-5	Chemical Oxygen Demand		11	
	Chloride		-9	
	Iron		-1	
	pH	-15		
	Specific Conductance		4	
MW-6	Chemical Oxygen Demand			16
	Iron			16
	Nitrogen, Ammonia		1	
	pH		-12	
	Specific Conductance		8	
MW-7	Arsenic		-4	
	Chemical Oxygen Demand		12	
	Chloride		-10	
	Iron		-6	
	Nitrogen, Ammonia		10	
	pH	-14		
	Specific Conductance		12	
MW-8	Chemical Oxygen Demand		-3	
	Chloride		6	
	Iron		7	
	Nitrogen, Ammonia		6	
	pH	-23		
	Specific Conductance		10	
MW-9	Chemical Oxygen Demand		9	
	Chloride		5	
	Iron		1	
	Nitrogen, Ammonia		9	
	pH	-18		
	Specific Conductance			18
MW-10	Chemical Oxygen Demand			13
	Chloride		-8	
	pH	-23		
	Specific Conductance		8	
MW-11	Chemical Oxygen Demand		0	
	Chloride		-4	
	Iron		-5	
	Nitrogen, Ammonia		-2	
	pH	-15		
	Specific Conductance		6	
	Sulfate	-16		
MW-12	Chemical Oxygen Demand		7	
	Chloride	-18		
	Iron		0	
	pH		-8	
	Specific Conductance			14
	Sulfate		-10	
MW-13	Chemical Oxygen Demand		4	
	Chloride		5	
	Iron		-8	
	Nitrogen, Ammonia			26
	pH	-13		
	Specific Conductance		10	
MW-14	Chemical Oxygen Demand		11	
	Chloride		-2	
	Iron		-7	
	pH	-13		
	Specific Conductance		8	

Monitoring Well	Constituent Name	Calculated Statistic		
		Decreasing Trend	Stable Trend	Increasing Trend
MW-15	Chemical Oxygen Demand		5	
	Chloride		-12	
	pH	-20		
	Specific Conductance			18
	Sulfate			18
MW-16	Chemical Oxygen Demand		6	
	Chloride		2	
	Iron		3	
	pH		-12	
	Specific Conductance			18
MW-19	Chemical Oxygen Demand		7	
	Chloride		5	
	Iron		-6	
	pH	-13		
	Specific Conductance		0	