July 23, 2024
File No. 27224260.00

Mr. Mick Leat
Iowa Department of Natural Resources
Land Quality Bureau
Wallace State Office Building
502 East 9th Street
Des Moines, Iowa 50319-0034

Subject: 2024 Annual Water Quality Report & Landfill Gas Report
City of Council Bluffs Alter Trading Corporation ASR Monofill
Permit No. 78-SDP-19-98C

Dear Mick,

SCS Engineers (SCS) has completed the annual water quality monitoring and data evaluation for the closed Alter Trading Corporation Monofill, managed by the City of Council Bluffs, for the year 2024. Our services were performed in general accordance with 1998 Iowa Administrative Code (IAC) 567-103, the landfill closure permit, and subsequent permit amendment requirements for implementation of the Hydrologic Monitoring System Plan (HMSP).

Please find enclosed a copy of the 2024 Annual Water Quality Report for the Alter Trading Corporation Monofill including a summary of the landfill gas monitoring results for 2024. If you have any questions about this report, please contact us as noted below.

Sincerely,

Kevin Jensen
Project Manager
SCS Engineers
kjensen@scsengineers.com
(515) 368-3155

Timothy C. Buelow, P.E.
Senior Project Advisor
SCS Engineers
tbuelow@scsengineers.com
(515) 681-5455

KAJ/TCB

cc: Jeff Krist - City of Council Bluffs

2024 Annual Water Quality Report

City of Council Bluffs Alter Trading Corporation ASR Monofill
Solid Waste Permit No. 78-SDP-19-98C

Prepared for:

City of Council Bluffs

SCS ENGINEERS

27224260.00 | July 23, 2024

1690 All-State Court, Suite 100
West Des Moines, Iowa 50265
515-631-6160

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CERTIFICATION

Prepared by: _____ Date: 7-23-2024

Typed: Kevin Jensen

Reviewed by: _____ Date: 7-23-2024

Typed: Nathan Ohrt

Certification page (113.10(1)"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. _____ Date: 7/23/2024 Timothy C. Buelow, P.E. License No. 14445 My license renewal date is December 31, 2025. Pages or sheets covered by this seal: All except Appendix B-1.

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EXECUTIVE SUMMARY

ES.1 PERIOD OF REPORT COVERAGE

SCS Engineers (SCS), on behalf of the City of Council Bluffs, has completed the required groundwater sampling of the Alter Trading Corporation Monofill (Monofill) in Council Bluffs, IA. 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 April 2024 annual sampling event. This AWQR was prepared in accordance with the requirements of the 1998 Iowa Administrative Code (IAC) 567-103, 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 Monofill:

- 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: None.

ES.3 SITE STATUS AND APPLICABLE RULES

- Monofill Status: Closed, Closure Permit.
- Types of waste accepted: Auto Shredder Residue (ASR).
- Applicable IAC rules: 1998 Iowa Administrative Code 567-103.

ES.4 COMMENTS

The following summarizes points of special emphasis: Elevated arsenic concentrations measured in multiple site monitoring wells have been documented and the source investigated. The DNR has concluded that since these elevated concentrations are stable, no drinking water wells exist near the site, and the City of Council Bluffs has enacted a water well ordinance that prohibits the construction of drinking water wells within the city limits, the human health risk posed by groundwater exposure at the site is low (Doc #98623).

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1.0 ACRONYMS/ABBREVIATIONS

AL = Action Level
CCV = Continuing Calibration Verification
CL = Control Limit - Mean plus Two Standard Deviations
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

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2.0 SITE BACKGROUND

2.1 SITE LOCATION

The Monofill property is depicted on Figure 1, Approved Monitoring Network, and summarized on Table 1. The Monofill is located on an approximately 42-acre plot of land on the north side of I-80 and north of 23rd Avenue in Council Bluffs, Iowa. The Monofill is situated in the NE ¼ of Section 3, T74N, R44W, in Pottawattamie County, Iowa.

2.2 GEOLOGY OF THE SITE

The following information pertaining to this section was obtained from the Engineering Design Report dated September 1994, prepared by GBB Engineering Inc.:

> *Based on borings drilled on-site, the geology beneath the 23rd Avenue Monofill consists of 90 to 130 feet of alluvial sediments overlying Pennsylvanian-age limestone. The alluvial sediments are predominantly stratified sand and gravel deposits. The sand units vary in grain size from a silty fine-grained sand to a well-graded sand. Isolated silt and sandy clay lenses occur throughout the alluvium. In general, the sediments become coarser with depth.*

2.3 HYDROLOGY OF THE SITE

According to the above-referenced 1994 Engineering Design Report:

> *Based on four rounds of water level measurements taken at the site, local groundwater is flowing in a southwesterly direction. The horizontal hydraulic gradient at the site is relatively flat (0.0001 to 0.001), which corresponds to an average groundwater flow velocity of approximately 14 feet/year.*

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3.0 FIGURES DISCUSSION

The following figures are attached.

3.1 FIGURE 1 – APPROVED MONITORING NETWORK

The Monofill property and hydrological monitoring system plan (HMSP) network is depicted in **Figure 1**. **Figure 1** indicates the locations of each monitoring well and its respective monitoring program as of the beginning of this reporting period.

3.2 FIGURE 2 – GROUNDWATER CONTOURS – SHALLOW FLOW

A groundwater contour map for the shallower wells based on groundwater levels measured in April 2024 is included as **Figure 2**. Review of the groundwater flow pattern indicates that a generally convergent flow direction exists toward the wetland area in the west-central portion of the site.

3.3 FIGURE 3 – GROUNDWATER CONTOURS – DEEP FLOW

A groundwater contour map for the deeper wells based on groundwater levels measured in April 2024 is included as **Figure 3**. Review of the groundwater flow pattern indicates that the general flow direction is to the west, which is generally consistent with historical groundwater measurements.

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4.0 QA/QC SUMMARY

Date indicates the date(s) of sampling.

4.1 APRIL 17-18, 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.

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5.0 DATA EVALUATION

The historical analytical results of the groundwater monitoring wells for the Monofill are presented in **Appendix C** (Summary of Groundwater Chemistry). The statistical evaluation for samples collected during the 2024 annual sampling event is located in **Appendix D** of this report.

5.1 DATA EVALUATION

Groundwater monitoring for the Monofill consists of sampling from the shallow flow and deep flow portions of the alluvial aquifer. The shallow flow contains an upgradient monitoring well located on the northwest corner of the site and ten downgradient monitoring wells; two located on the north side, three located on the east side, three located along the south side, and two located on the west side of the Monofill within the wetland area. The deep flow contains an upgradient monitoring well located on the northwest corner of the site and three downgradient monitoring wells; one located on the northeast side, one located on the southeast side, and one located on the southwest side of the Monofill.

There were 12 control limit exceedances detected based on 2024 sampling results as listed in **Table 1** compared to 16 control limit exceedances detected based on 2023 sampling results reported in the 2023 AWQR. Most of the control limit exceedances detected based on 2024 sampling results were attributed to monitoring wells MW-2, MW-3, and MW-14R.

Exceedances of action or advisory levels were largely associated with arsenic in monitoring wells MW-2 and MW-3 as shown in **Table 9**. These monitoring well/constituent pairs were calculated as having stable trending as shown in **Table 10**. The monitoring results continue to demonstrate that the elevated arsenic concentrations remain stable and human health risks posed by groundwater exposure at the site remain low.

5.2 TRENDING IN MONITORING WELLS

Statistically significant decreasing trends at a 99% confidence level (α=0.01) were identified in three 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 A of Appendix D of this report. The statistically significant trends were as follows:

Monitoring Point	Constituent	Trend
MW-8	Chloride	Decreasing
MW-15R	Arsenic	Decreasing
MW-15R	Chloride	Increasing
MW-15R	Nickel	Decreasing

As indicated in the above table, the majority of the statistically significant trends at a 99% confidence level (α=0.01) were found to be decreasing.

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6.0 RECOMMENDATIONS

6.1 SITE IMPACT ON GROUNDWATER

Elevated arsenic concentrations measured in multiple site monitoring wells have been documented and the source investigated. The DNR has concluded that since these elevated concentrations are stable, no drinking water wells exist near the site, and the City of Council Bluffs has enacted a water well ordinance that prohibits the construction of drinking water wells within the city limits, the human health risk posed by groundwater exposure at the site is low (Doc #98623).

Routine groundwater sampling and gas monitoring in accordance with the permit and DNR correspondence will continue at the site until scheduled permit expiration in 2029 due to the persistence of multiple contaminants and its current usage as communicated by DNR (Doc # 101984).

6.2 PROPOSED MONITORING

The groundwater monitoring program is summarized in Table 2. No changes to the HMSP monitoring program are recommended at this time.

6.3 PROPOSED MONITORING WELL CHANGES

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

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Tables

Table 1
Monitoring Program Summary
2024 Annual Water Quality Report
Alter Trading Corporation Monofill
Permit No. 78-SDP-19-98C

Monitoring Well	Formation	Current Monitoring Program	Change for Next Sampling Event	Control Limit Exceedances	Total Number of Samples in Each Monitoring Program Since January 1, 2018		
					Routine	Supplemental	Remedial Action
Shallow Flow							
MW-5 (u)	Alluvium	Background	None	None	6	0	0
EPA-1AR	Alluvium	Detection	None	None	7	0	0
MW-2	Alluvium	Detection	None	Arsenic, COD, Iron	7	0	0
EPA-2A	Alluvium	Detection	None	None	7	0	0
MW-3	Alluvium	Detection	None	Arsenic, Iron	7	0	0
MW-9	Alluvium	Detection	None	COD	7	0	0
MW-11	Alluvium	Detection	None	None	7	0	0
MW-12	Alluvium	Detection	None	None	7	0	0
MW-13	Alluvium	Detection	None	None	7	0	0
MW-14R	Alluvium	Detection	None	Ammonia as N, Barium, Nickel, Zinc	6	0	0
MW-15R	Alluvium	Detection	None	None	6	0	0
Deep Flow							
MW-4 (u)	Alluvium	Background	None	None	6	0	0
MW-1	Alluvium	Detection	None	Ammonia as N	7	0	0
MW-8	Alluvium	Detection	None	COD	7	0	0
MW-10	Alluvium	Detection	None	None	7	0	0

Table 2
Monitoring Program Implementation Schedule
2024 Annual Water Quality Report
Alter Trading Corporation Monofill
Permit No. 78-SDP-19-98C

Monitoring Well	Recent Sampling Dates and Constituents 4/17-18/2024	Upcoming Sampling Dates and Constituents 2025 Annual Event
Shallow Flow		
MW-5 (u)	Ammonia-Nitrogen, COD, Chloride, pH, Specific Conductance, Iron, Arsenic, Barium, Lead, Nickel, Zinc, TEH	Ammonia-Nitrogen, COD, Chloride, pH, Specific Conductance, Iron, Arsenic, Barium, Lead, Nickel, Zinc, TEH
EPA-1AR	Ammonia-Nitrogen, COD, Chloride, pH, Specific Conductance, Iron, TEH	Ammonia-Nitrogen, COD, Chloride, pH, Specific Conductance, Iron, TEH
MW-2	Ammonia-Nitrogen, COD, Chloride, pH, Specific Conductance, Iron, Arsenic, TEH, TSS	Ammonia-Nitrogen, COD, Chloride, pH, Specific Conductance, Iron, Arsenic, TEH, TSS
EPA-2A	Ammonia-Nitrogen, COD, Chloride, pH, Specific Conductance, Iron, Arsenic, TEH, TSS	Ammonia-Nitrogen, COD, Chloride, pH, Specific Conductance, Iron, Arsenic, TEH, TSS
MW-3	Ammonia-Nitrogen, COD, Chloride, pH, Specific Conductance, Iron, Arsenic, TEH, TSS	Ammonia-Nitrogen, COD, Chloride, pH, Specific Conductance, Iron, Arsenic, TEH, TSS
MW-9	Ammonia-Nitrogen, COD, Chloride, pH, Specific Conductance, Iron, TEH	Ammonia-Nitrogen, COD, Chloride, pH, Specific Conductance, Iron, TEH
MW-11	Ammonia-Nitrogen, COD, Chloride, pH, Specific Conductance, Iron, TEH	Ammonia-Nitrogen, COD, Chloride, pH, Specific Conductance, Iron, TEH
MW-12	Ammonia-Nitrogen, COD, Chloride, pH, Specific Conductance, Iron, Lead, TEH, TSS	Ammonia-Nitrogen, COD, Chloride, pH, Specific Conductance, Iron, Lead, TEH, TSS
MW-13	Ammonia-Nitrogen, COD, Chloride, pH, Specific Conductance, Iron, Arsenic, Lead, TEH, TSS	Ammonia-Nitrogen, COD, Chloride, pH, Specific Conductance, Iron, Arsenic, Lead, TEH, TSS
MW-14R	Ammonia-Nitrogen, COD, Chloride, pH, Specific Conductance, Iron, Arsenic, Barium, Lead, Nickel, Zinc, TEH, TSS	Ammonia-Nitrogen, COD, Chloride, pH, Specific Conductance, Iron, Arsenic, Barium, Lead, Nickel, Zinc, TEH, TSS
MW-15R	Ammonia-Nitrogen, COD, Chloride, pH, Specific Conductance, Iron, Arsenic, Barium, Lead, Nickel, TEH, TSS	Ammonia-Nitrogen, COD, Chloride, pH, Specific Conductance, Iron, Arsenic, Barium, Lead, Nickel, TEH, TSS
Deep Flow		
MW-4 (u)	Ammonia-Nitrogen, COD, Chloride, pH, Specific Conductance, Iron, Arsenic, Barium, Lead, Nickel, Zinc, TEH, TSS	Ammonia-Nitrogen, COD, Chloride, pH, Specific Conductance, Iron, Arsenic, Barium, Lead, Nickel, Zinc, TEH, TSS
MW-1	Ammonia-Nitrogen, COD, Chloride, pH, Specific Conductance, Iron, TEH	Ammonia-Nitrogen, COD, Chloride, pH, Specific Conductance, Iron, TEH
MW-8	Ammonia-Nitrogen, COD, Chloride, pH, Specific Conductance, Iron, TEH	Ammonia-Nitrogen, COD, Chloride, pH, Specific Conductance, Iron, TEH
MW-10	Ammonia-Nitrogen, COD, Chloride, pH, Specific Conductance, Iron, Arsenic, TEH, TSS	Ammonia-Nitrogen, COD, Chloride, pH, Specific Conductance, Iron, Arsenic, TEH, TSS

Notes: (u) denotes upgradient monitoring point
Metals listed are for total concentrations
COD – Chemical Oxygen Demand
TSS – Total Suspended Solids
TEH – Total Extractable Hydrocarbons (Iowa Method OA-2)

Table 3
Monitoring Well Maintenance and Performance Re-Evaluation Schedule
2024 Annual Water Quality Report
Alter Trading Corporation Monofill
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Compliance with:	2022	2023	2024	2025
567 IAC 114.21(2)"a" high and low water levels (annually)	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" well recharge rates [1]		Completed		Scheduled

Notes:

[1] In-situ permeability testing was replaced with biennial well recharge rate evaluation in DNR correspondence dated May 30, 2013 (Doc #77045).

Table 4
Monitoring Well Performance and Maintenance Summary
2024 Annual Water Quality Report
Alter Trading Corporation Monofill
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Well	Top of Casing	Top of Screen	Total Depth	Measurement Description	Date of Measurements	Maximum Depth Discrepancy [1] (ft)	Initial Flow Rate [2] (L/min)	Recent Flow Rate (L/min)	
					4/17-18/2024		3/7/2017	4/17-18/2024	% Change
Shallow Flow									
MW-5	977.52	NA	25.0	Groundwater Level (ft)	13.16	-4.0	0.275	0.175	-36%
				Groundwater Elevation (Ft MSL)	964.36				
				Measured Well Depth (ft)	21.0				
				Submerged screen	NA				
EPA-1AR	978.13	968.13	20.0	Groundwater Level (ft)	13.90	2.7	0.145	0.166	14%
				Groundwater Elevation (Ft MSL)	964.23				
				Measured Well Depth (ft)	22.7				
				Submerged screen	N				
MW-2	982.26	NA	35.0	Groundwater Level (ft)	17.79	1.5	0.225	0.150	-33%
				Groundwater Elevation (Ft MSL)	964.47				
				Measured Well Depth (ft)	36.5				
				Submerged screen	NA				
EPA-2A	980.92	NA	NA	Groundwater Level (ft)	16.67	NA	0.125	0.158	26%
				Groundwater Elevation (Ft MSL)	964.25				
				Measured Well Depth (ft)	24.5				
				Submerged screen	NA				
MW-3	978.82	967.90	25.0	Groundwater Level (ft)	14.41	-8.3	0.285	0.166	-42%
				Groundwater Elevation (Ft MSL)	964.41				
				Measured Well Depth (ft)	16.7				
				Submerged screen	N				
MW-9	976.77	961.77	25.0	Groundwater Level (ft)	12.42	-0.1	0.194	0.166	-14%
				Groundwater Elevation (Ft MSL)	964.35				
				Measured Well Depth (ft)	24.9				
				Submerged screen	Y				
MW-11	982.53	NA	30.0	Groundwater Level (ft)	18.09	-4.6	0.156	0.175	12%
				Groundwater Elevation (Ft MSL)	964.44				
				Measured Well Depth (ft)	25.4				
				Submerged screen	NA				
MW-12	982.28	972.28	20.0	Groundwater Level (ft)	17.68	2.5	0.255	0.175	-31%
				Groundwater Elevation (Ft MSL)	964.60				
				Measured Well Depth (ft)	22.5				
				Submerged screen	N				
MW-13	976.69	971.69	15.0	Groundwater Level (ft)	12.31	2.3	0.275	0.175	-36%
				Groundwater Elevation (Ft MSL)	964.38				
				Measured Well Depth (ft)	17.3				
				Submerged screen	N				
MW-14R	972.58	965.38	17.2	Groundwater Level (ft)	8.37	-2.2	0.295	0.175	-41%
				Groundwater Elevation (Ft MSL)	964.21				
				Measured Well Depth (ft)	15.0				
				Submerged screen	N				
MW-15R	972.50	964.80	17.7	Groundwater Level (ft)	8.30	-2.0	0.285	0.175	-39%
				Groundwater Elevation (Ft MSL)	964.20				
				Measured Well Depth (ft)	15.7				
				Submerged screen	N				
Deep Flow									
MW-4	976.03	NA	80.0	Groundwater Level (ft)	11.73	1.5	0.245	0.150	-39%
				Groundwater Elevation (Ft MSL)	964.30				
				Measured Well Depth (ft)	81.5				
				Submerged screen	NA				
MW-1	981.04	NA	80.0	Groundwater Level (ft)	16.57	1.1	0.235	0.141	-40%
				Groundwater Elevation (Ft MSL)	964.47				
				Measured Well Depth (ft)	81.1				
				Submerged screen	NA				
MW-8	976.53	905.70	80.0	Groundwater Level (ft)	12.15	1.0	0.235	0.166	-29%
				Groundwater Elevation (Ft MSL)	964.38				
				Measured Well Depth (ft)	81.0				
				Submerged screen	Y				
MW-10	980.58	NA	70.0	Groundwater Level (ft)	16.21	-1.2	0.240	0.133	-45%
				Groundwater Elevation (Ft MSL)	964.37				
				Measured Well Depth (ft)	68.8				
				Submerged screen	NA				

NA - Not Available.

Comments:

1) Measured well depths were within 3.0 feet of the installed depths where measured with the following exceptions:
   MW-5, MW-3 and MW-11: These monitoring wells have consistently measured shallower than the installed depth; however, since the monitoring wells produce sufficient groundwater for sampling it is likely that the wells are functioning adequately.
2) It should be noted that baseline recharge rates were calculated from the first semi-annual sampling event utilizing low-flow sampling apparatuses and should not be considered necessarily representative of a monitoring well's recharge rate under all water level conditions.

Table 5
Background and GWPS Summary
2024 Annual Water Quality Report
Alter Trading Company Monofill
Permit No. 78-SDP-19-98C

Interwell Background/Control Limit (MW-4 & MW-5)

Constituent	Units	Samples	Detections	Background Level	Statistical Test	Action Level	Source
Ammonia as N	mg/L	58	29	1.208	M+2SD	30 mg/L	HAL
Arsenic	mg/L	26	24	0.005298	M+2SD	0.01 mg/L	MCL
Barium	mg/L	26	26	0.4104	M+2SD	2 mg/L	MCL
Chemical Oxygen Demand	mg/L	58	56	37.45	M+2SD	-	-
Chloride	mg/L	58	58	370	M+2SD	-	-
Iron	mg/L	14	12	17.35	M+2SD	-	-
Lead	mg/L	26	15	0.008244	M+2SD	0.015 mg/L	MCL
Nickel	mg/L	26	22	0.03	M+2SD	0.1 mg/L	HAL
pH	S.U.	54	54	6.522 - 8.214	M+/-2SD	-	-
Specific Conductance	µS/cm	56	56	2416	M+2SD	-	-
Total Extractable Hydrocarbons	µg/L	32	11	506.1	M+2SD	-	-
Zinc	mg/L	26	8	0.03138	M+2SD	2 mg/L	HAL

Notes:

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

Acronyms/Abbreviations:

RL = Reporting Limit
GWPS = Groundwater Protection Standard
SSS = Site-Specific GWPS
SWS = Statewide Standard
SD = Standard Deviation
MCL = EPA Maximum Contaminant Level
HAL = Health Advisory Level
DWA = Drinking Water Advisory

Comments:

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

Table 6
Summary of Well/Detected Constituent Pairs With No Immediately Preceding Control Limit Exceedances
2024 Annual Water Quality Report
Alter Trading Corporation Monofill
Permit No. 78-SDP-19-98C

Well	Constituent	Units	Most recent result	Background Standard
Shallow Flow				
MW-2	Iron	mg/L	19.5	17.35
Deep Flow				
None				

Notes: Table includes control limit exceedances identified during the 2024 sampling event that were not identified as control limit exceedances in the previous year.

Table 7
Summary Table of Ongoing and Newly Identified Control Limit Exceedances
2024 Annual Water Quality Report
Alter Trading Corporation Monofill
Permit No.78-SDP-19-98C

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 current reporting period. Newly identified is defined as occuring at least once in the current reporting period but not in the immediately preceeding reporting period.

Well	Constituent	Units	Most recent result	Background Standard	Action Level/ Statewide Standard
Shallow Flow					
MW-2	Arsenic	mg/L	0.2	0.005298	0.01
	Chemical Oxygen Demand	mg/L	50.3	37.45	-
	Iron	mg/L	19.5	17.35	-
MW-3	Arsenic	mg/L	0.169	0.005298	0.01
	Iron	mg/L	22.5	17.35	-
MW-9	Chemical Oxygen Demand	mg/L	48.7	37.5	-
MW-14R	Ammonia as N	mg/L	1.99	1.208	30
	Barium	mg/L	0.597	0.4104	2
	Nickel	mg/L	0.0684	0.0273	0.1
	Zinc	mg/L	1.28	0.03138	2
Deep Flow					
MW-1	Ammonia as N	mg/L	1.3	1.208	30
MW-8	Chemical Oxygen Demand	mg/L	66.7	37.45	-

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:** Not Applicable.
5) **Property owner notifications:** Not applicable.

Table 8
Summary of Groundwater Chemistry
2024 Annual Water Quality Report
Alter Trading Corporation Monofill
Permit No. 78-SDP-19-98C

The Summary of Groundwater Chemistry is located in Appendix C.

Table 9
Historical Control and Action Level Exceedances
2024 Annual Water Quality Report
Alter Trading Corporation Monofill
Permit No. 78-SDP-19-98C

Key

	Control Limit Exceedance
X	Action Level Exceedance

Well	Constituent	2021	2022	2023	2024
Shallow Flow					
MW-2	Ammonia as N				
	Arsenic	**X**	**X**	**X**	**X**
	Chemical Oxygen Demand				
	Total Extractable Hydrocarbons				
	Iron				
MW-3	Ammonia as N				
	Arsenic	**X**	**X**	**X**	**X**
	Chemical Oxygen Demand				
	Iron				
MW-9	Chemical Oxygen Demand				
MW-13	Arsenic				
MW-14R	Ammonia as N				
	Arsenic	**X**	**X**		
	Barium				
	Chemical Oxygen Demand				
	Iron				
	Nickel	**X**	**X**	**X**	
	Zinc	**X**	**X**		
MW-15R	Arsenic		**X**		
	Barium				
Deep Flow					
MW-1	Ammonia as N				
MW-8	Chemical Oxygen Demand				
MW-10	Arsenic				

Table 10
Groundwater Quality Assessment Plan Trend Analysis
2024 Annual Water Quality Report
Alter Trading Corporation Monofill
Permit No. 78-SDP-19-98C

Monitoring Well	Constituent Name	Calculated Statistic		
		Decreasing Trend	Stable Trend	Increasing Trend
EPA-1AR	Chemical Oxygen Demand		9	
	Chloride		-4	
	Iron	-13		
	pH		0	
	Specific Conductance		-10	
EPA-2A	Ammonia as N		0	
	Arsenic		-6	
	Chemical Oxygen Demand		3	
	Chloride		9	
	Iron	-15		
	pH		-5	
	Specific Conductance	-20		
MW-1	Ammonia as N		4	
	Chemical Oxygen Demand		7	
	Chloride		-4	
	Iron		4	
	pH		-9	
	Specific Conductance		0	
MW-2	Ammonia as N		-12	
	Arsenic		-2	
	Chemical Oxygen Demand		-10	
	Chloride		-2	
	Iron		12	
	pH		-10	
	Specific Conductance		2	
	Total Extractable Hydrocarbons		10	
MW-3	Ammonia as N		-2	
	Arsenic		2	
	Chemical Oxygen Demand		-6	
	Chloride		-9	
	Iron		6	
	pH		-8	
	Specific Conductance		0	
MW-7	Ammonia as N		6	
	Chemical Oxygen Demand		6	
	Chloride		4	
	pH		2	
	Specific Conductance	-14		
	Total Extractable Hydrocarbons		10	

Table 10
Groundwater Quality Assessment Plan Trend Analysis
2024 Annual Water Quality Report
Alter Trading Corporation Monofill
Permit No. 78-SDP-19-98C

Monitoring Well	Constituent Name	Calculated Statistic		
		Decreasing Trend	Stable Trend	Increasing Trend
MW-8	Ammonia as N		-6	
	Chemical Oxygen Demand	-14		
	Chloride	-22		
	Iron	-16		
	pH		1	
	Specific Conductance	-16		
MW-9	Chemical Oxygen Demand		-6	
	Chloride	-14		
	Iron		12	
	pH		4	
	Specific Conductance		-12	
MW-10	Ammonia as N		-4	
	Arsenic		-9	
	Chemical Oxygen Demand		4	
	Chloride		8	
	Iron	-14		
	pH	-14		
	Specific Conductance		-2	
MW-11	Ammonia as N		7	
	Chemical Oxygen Demand			13
	Chloride		12	
	Iron		6	
	pH	-18		
	Specific Conductance		10	
MW-12	Chemical Oxygen Demand		2	
	Chloride			16
	Iron		-12	
	Lead	-18		
	pH	-14		
	Specific Conductance		4	
MW-13	Arsenic		-4	
	Chemical Oxygen Demand		0	
	Chloride			16
	Iron		-10	
	Lead		-9	
	pH		-12	
	Specific Conductance		8	

Table 10
Groundwater Quality Assessment Plan Trend Analysis
2024 Annual Water Quality Report
Alter Trading Corporation Monofill
Permit No. 78-SDP-19-98C

Monitoring Well	Constituent Name	Calculated Statistic		
		Decreasing Trend	Stable Trend	Increasing Trend
MW-14R	Ammonia as N		2	
	Arsenic	-18		
	Barium		0	
	Chemical Oxygen Demand		-12	
	Chloride		2	
	Iron	-11		
	Lead	-17		
	Nickel		-12	
	pH		-6	
	Specific Conductance		-2	
	Total Extractable Hydrocarbons		5	
	Zinc	-14		
MW-15R	Arsenic	-22		
	Barium	-16		
	Chemical Oxygen Demand		-4	
	Chloride			22
	Iron	-15		
	Lead	-18		
	Nickel	-26		
	pH		-4	
	Specific Conductance		-6	
	Total Extractable Hydrocarbons		4	

Notes:
Trending was evaluated using Mann-Kendall analysis at 80% confidence ($\alpha = 0.2$) for the entire historical dataset.

Figures

Shallow Flow	
MW-5	MW-11
EPA-1AR	MW-12
MW-2	MW-13
EPA-2A	MW-14R
MW-3	MW-15R
MW-9	
Deep Flow	
MW-4	MW-8
MW-1	MW-10

SCS ENGINEERS
environmental consultants and contractors

Approved Monitoring Network

Figure 1

Legend

- Deep Flow
- Shallow Flow
- Approximate Monitoring Well Location
- Delineated Wetland Area
- Approximate Property Line

Alter Trading
Corporation Monofill
Council Bluffs, Iowa
Project No: 27224260.00
Drawing Date: June 2024

N W E S

0 155 310 620 Feet

SCS ENGINEERS
environmental consultants and contractors

Groundwater Contours – Shallow Flow

Figure 2

Legend

- Approximate Groundwater Contours Based on Field Measurments Taken April 18, 2024
- Approximate Monitoring Well Location
- Delineated Wetland Area
- Approximate Property Line

Alter Trading
Corporation Monofill
Council Bluffs, Iowa
Project No: 27224260.00
Drawing Date: June 2024

N
W E
S

0 155 310 620
Feet

SCS ENGINEERS
environmental consultants and contractors

Groundwater Contours – Deep Flow

Figure 3

Legend

- Approximate Groundwater Contours Based on Field Measurments Taken on April 18, 2024
- Approximate Monitoring Well Location
- Delineated Wetland Area
- Approximate Property Line

Alter Trading
Corporation Monofill
Council Bluffs, Iowa
Project No: 27224260.00
Drawing Date: June 2024

N
W E
S

0 155 310 620
Feet

Appendix A

Field Sampling Forms

FORM FOR GROUNDWATER SAMPLING

Project:	**Council Bluffs Alter ASR Monofill**		
Monitoring Well/Piezometer ID:	**EPA-1AR**	Date:	**4/18/2024**
Gradient:	Down	Sampler:	Konner Roth

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):	22.7
Initial Static Water Level (feet):	13.90
Initial Groundwater Elevation (ft-amsl):	964.23
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)	
9:39 AM	Purging start time.						
9:42 AM	11.8	3.4	649.0	7.22	63.8		
9:45 AM	11.9	2.9	655.0	7.21	70.0		
9:48 AM	11.9	2.6	655.2	7.21	74.5		
9:51 AM	11.9	2.3	654.1	7.22	77.8		
	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-Clear Odor-None

FORM FOR GROUNDWATER SAMPLING

Project:	**Council Bluffs Alter ASR Monofill**				
Monitoring Well/Piezometer ID:	**EPA-2A**			Date:	**4/18/2024**
Gradient:	Down		Sampler:	Konner Roth	

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):	24.5
Initial Static Water Level (feet):	16.67
Initial Groundwater Elevation (ft-amsl):	964.25
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)	
10:13 AM	Purging start time.						
10:16 AM	11.8	3.6	588.1	7.48	82.3		
10:19 AM	12.0	3.0	584.0	7.46	82.8		
10:22 AM	12.1	2.8	581.8	7.45	83.4		
10:25 AM	12.1	2.6	581.2	7.44	84.3		
	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-Clear Odor-None

FORM FOR GROUNDWATER SAMPLING

Project:	**Council Bluffs Alter ASR Monofill**		
Monitoring Well/Piezometer ID:	**MW-1**	Date:	**4/17/2024**
Gradient:	Down	Sampler:	Konner Roth

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):	81.1
Initial Static Water Level (feet):	16.57
Initial Groundwater Elevation (ft-amsl):	964.47
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)	
2:31 PM	Purging start time.						
2:34 PM	15.9	0.8	1418.8	7.14	-174.1		
2:37 PM	16.0	0.2	1421.7	7.11	-179.2		
2:40 PM	16.2	0.03	1425.0	7.10	-182.7		
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	1.7
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	141.67

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:	**Council Bluffs Alter ASR Monofill**		
Monitoring Well/Piezometer ID:	**MW-2**	Date:	**4/17/2024**
Gradient:	Down	Sampler:	Konner Roth

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):	36.5
Initial Static Water Level (feet):	17.79
Initial Groundwater Elevation (ft-amsl):	964.47
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)	
1:55 PM	Purging start time.						
1:58 PM	15.5	0.6	1528.1	7.08	-194.1		
2:01 PM	15.5	0.1	1533.1	7.09	-200.2		
2:04 PM	15.5	<0.01	1531.6	7.10	-203.2		
2:07 PM	15.7	<0.01	1526.3	7.10	-205.4		
	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:	**Council Bluffs Alter ASR Monofill**		
Monitoring Well/Piezometer ID:	**MW-3**	Date:	**4/17/2024**
Gradient:	Down	Sampler:	Konner Roth

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):	16.7
Initial Static Water Level (feet):	14.41
Initial Groundwater Elevation (ft-amsl):	964.41
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)	
4:29 PM	Purging start time.						
4:32 PM	15.4	0.7	1225.8	6.92	-168.2		
4:35 PM	15.3	0.1	1228.6	6.94	-176.6		
4:38 PM	15.3	<0.01	1235.0	6.96	-183.3		
4:41 PM	15.1	<0.01	1240.1	7.00	-189.3		
	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:	**Council Bluffs Alter ASR Monofill**		
Monitoring Well/Piezometer ID:	**MW-4**	Date:	**4/18/2024**
Gradient:	Up	Sampler:	Konner Roth

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):	81.5
Initial Static Water Level (feet):	11.73
Initial Groundwater Elevation (ft-amsl):	964.30
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)	
11:53 AM	Purging start time.						
11:56 AM	11.0	0.9	1946.9	7.06	-132.7		
11:59 AM	11.1	0.1	1964.0	7.07	-138.2		
12:02 PM	11.1	<0.01	1966.2	7.08	-141.7		
12:05 PM	11.1	<0.01	1968.8	7.09	-144.1		
	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:	**Council Bluffs Alter ASR Monofill**		
Monitoring Well/Piezometer ID:	**MW-5**	Date:	**4/18/2024**
Gradient:	Up	Sampler:	Konner Roth

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):	21.0
Initial Static Water Level (feet):	13.16
Initial Groundwater Elevation (ft-amsl):	964.36
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)	
12:23 PM	Purging start time.						
12:26 PM	10.5	1.6	1126.6	7.48	-66.4		
12:29 PM	10.5	1.0	1122.0	7.42	-51.6		
12:32 PM	10.6	0.6	1131.8	7.39	-40.4		
12:35 PM	10.5	0.5	1134.0	7.38	-32.2		
	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?	No	
If yes, explain:		

Additional Comments:	Color-Clear Odor-None

FORM FOR GROUNDWATER SAMPLING

Project:	**Council Bluffs Alter ASR Monofill**		
Monitoring Well/Piezometer ID:	**MW-8**	Date:	**4/18/2024**
Gradient:	Down	Sampler:	Konner Roth

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):	81.0
Initial Static Water Level (feet):	12.15
Initial Groundwater Elevation (ft-amsl):	964.38
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)	
11:15 AM	Purging start time.						
11:18 AM	12.5	0.6	1193.8	7.73	-185.8		
11:21 AM	12.4	0.1	1198.4	7.71	-199.9		
11:24 AM	12.3	<0.01	1200.7	7.71	-205.0		
11:27 AM	12.4	<0.01	1198.3	7.70	-207.7		
	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-Yellow Tint Odor-None

FORM FOR GROUNDWATER SAMPLING

Project:	**Council Bluffs Alter ASR Monofill**		
Monitoring Well/Piezometer ID:	**MW-9**	Date:	**4/18/2024**
Gradient:	Down	Sampler:	Konner Roth

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):	24.9
Initial Static Water Level (feet):	12.42
Initial Groundwater Elevation (ft-amsl):	964.35
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)	
10:49 AM	Purging start time.						
10:52 AM	12.4	0.5	1321.9	7.13	-91.0		
10:55 AM	12.5	0.1	1350.3	7.13	-108.5		
10:58 AM	12.4	<0.01	1360.8	7.14	-121.7		
11:01 AM	12.4	<0.01	1362.5	7.15	-127.6		
	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-Yellow Tint Odor-None

FORM FOR GROUNDWATER SAMPLING

Project:	**Council Bluffs Alter ASR Monofill**		
Monitoring Well/Piezometer ID:	**MW-10**	Date:	**4/17/2024**
Gradient:	Down	Sampler:	Konner Roth

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):	68.8
Initial Static Water Level (feet):	16.21
Initial Groundwater Elevation (ft-amsl):	964.37
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)	
12:35 PM	Purging start time.						
12:38 PM	15.5	1.7	508.9	8.27	-119.9		
12:41 PM	15.4	0.4	562.2	7.69	-218.1		
12:44 PM	15.4	0.1	650.3	7.48	-219.2		
12:47 PM	15.2	0.02	659.8	7.48	-221.5		
12:50 PM	15.4	<0.01	662.2	7.48	-222.9		
	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):	15:00
Average Purge Rate (mL/min):	133.33

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:	**Council Bluffs Alter ASR Monofill**		
Monitoring Well/Piezometer ID:	**MW-11**	Date:	**4/17/2024**
Gradient:	Down	Sampler:	Konner Roth

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):	25.4
Initial Static Water Level (feet):	18.09
Initial Groundwater Elevation (ft-amsl):	964.44
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)	
12:02 PM	Purging start time.						
12:05 PM	14.9	3.1	731.3	7.12	112.3		
12:08 PM	14.9	2.7	732.4	7.15	109.0		
12:11 PM	14.9	2.5	732.0	7.17	105.7		
12:14 PM	14.9	2.2	730.6	7.18	103.2		
	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?	No	
If yes, explain:		

Additional Comments:	Color-Clear Odor-None

FORM FOR GROUNDWATER SAMPLING

Project:	**Council Bluffs Alter ASR Monofill**		
Monitoring Well/Piezometer ID:	**MW-12**	Date:	**4/17/2024**
Gradient:	Down	Sampler:	Konner Roth

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):	22.5
Initial Static Water Level (feet):	17.68
Initial Groundwater Elevation (ft-amsl):	964.60
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)	
1:11 PM	Purging start time.						
1:14 PM	15.1	1.7	864.8	6.49	75.0		
1:17 PM	14.9	0.8	855.7	6.59	80.5		
1:20 PM	14.9	0.5	850.8	6.66	81.2		
1:23 PM	14.9	0.3	848.8	6.69	81.8		
	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:	**Council Bluffs Alter ASR Monofill**		
Monitoring Well/Piezometer ID:	**MW-13**	Date:	**4/17/2024**
Gradient:	Down	Sampler:	Konner Roth

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):	17.3
Initial Static Water Level (feet):	12.31
Initial Groundwater Elevation (ft-amsl):	964.38
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)	
2:43 PM	Purging start time.						
3:43 PM	26.6	7.0	1349.0	7.43	32.9		
3:46 PM	13.2	5.2	926.7	7.17	41.5		
3:49 PM	13.0	4.5	919.8	7.18	50.1		
3:52 PM	13.0	3.9	919.0	7.17	56.4		
3:55 PM	13.0	3.4	920.4	7.16	60.5		
	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:	**Council Bluffs Alter ASR Monofill**		
Monitoring Well/Piezometer ID:	**MW-14R**	Date:	**4/17/2024**
Gradient:	Down	Sampler:	Konner Roth

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):	15.0
Initial Static Water Level (feet):	8.37
Initial Groundwater Elevation (ft-amsl):	964.21
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)	
5:08 PM	Purging start time.						
5:11 PM	11.4	0.5	1075.6	7.01	-30.0		
5:14 PM	11.5	<0.01	1081.6	7.02	-25.7		
5:17 PM	11.4	<0.01	1092.7	7.01	-37.7		
5:20 PM	11.4	<0.01	1102.0	7.00	-48.8		
	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:	**Council Bluffs Alter ASR Monofill**		
Monitoring Well/Piezometer ID:	**MW-15R**	Date:	**4/17/2024**
Gradient:	Down	Sampler:	Konner Roth

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):	15.7
Initial Static Water Level (feet):	8.30
Initial Groundwater Elevation (ft-amsl):	964.20
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)	
5:45 PM	Purging start time.						
5:48 PM	11.3	2.7	760.3	7.10	36.7		
5:51 PM	11.0	1.8	756.6	7.07	43.6		
5:54 PM	10.9	1.4	754.6	7.01	49.8		
5:57 PM	10.6	1.1	757.7	6.97	51.8		
	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

Appendix B1

Laboratory Analytical Data Sheets

eurofins | Environment Testing

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

ANALYTICAL REPORT

PREPARED FOR

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

Generated 5/21/2024 10:49:30 AM Revision 1

JOB DESCRIPTION

Council Bluffs ASR Monofill 2024
Council Bluffs ASR Monofill 2024

JOB NUMBER

310-279511-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

myEOL

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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Revision 1

Authorized for release by
Mary Yang, Project Management Assistant I
Mary.Yang@ET.EurofinsUS.com
(319)277-2401

Table of Contents

Job Narrative
310-279511-1

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 are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample 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 4/22/2024 6:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 1.6°C, 2.3°C and 4.0°C.

Diesel Range Organics
Method OA2: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 310-419729. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

Method OA2: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 310-419809. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

Method OA2: The method blank for preparation batch 310-419729 and analytical batch 310-420178 contained Total Extractable Hydrocarbons above the method detection limit. This target analyte concentration was less than the reporting limit (RL) in the method blank; therefore, re-extraction and/or re-analysis of samples was not performed.

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

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

Metals
Method 6020B: The reference method requires samples to be preserved to a pH of <2. The following sample was received with insufficient preservation at a pH of >2: EPA-1AR (310-279511-2). The sample(s) was preserved to the appropriate pH in the laboratory.

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

General Chemistry
Method I_3765_85: The method blank for preparation batch 310-419776 contained TSS above the reporting limit (RL). There was insufficient sample to perform a re-extraction and/or re-analysis; therefore, the data have been reported.

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

Sample Summary

Client: SCS Engineers
Project/Site: Council Bluffs ASR Monofill 2024

Job ID: 310-279511-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-279511-1	MW-1	Groundwater	04/17/24 15:28	04/22/24 06:00
310-279511-2	EPA-1AR	Groundwater	04/18/24 10:01	04/22/24 06:00
310-279511-3	MW-2	Groundwater	04/17/24 14:27	04/22/24 06:00
310-279511-4	EPA-2A	Groundwater	04/18/24 10:38	04/22/24 06:00
310-279511-5	MW-3	Groundwater	04/17/24 16:54	04/22/24 06:00
310-279511-6	MW-4	Groundwater	04/18/24 12:21	04/22/24 06:00
310-279511-7	MW-5	Groundwater	04/18/24 12:51	04/22/24 06:00
310-279511-8	MW-8	Groundwater	04/18/24 11:34	04/22/24 06:00
310-279511-9	MW-9	Groundwater	04/18/24 11:13	04/22/24 06:00
310-279511-10	MW-10	Groundwater	04/17/24 13:01	04/22/24 06:00
310-279511-11	MW-11	Groundwater	04/17/24 12:31	04/22/24 06:00
310-279511-12	MW-12	Groundwater	04/17/24 13:39	04/22/24 06:00
310-279511-13	MW-13	Groundwater	04/17/24 16:09	04/22/24 06:00
310-279511-14	MW-14R	Groundwater	04/17/24 17:32	04/22/24 06:00
310-279511-15	MW-15R	Groundwater	04/17/24 18:10	04/22/24 06:00
310-279511-16	MW-D	Groundwater	04/17/24 15:28	04/22/24 06:00

Detection Summary

Client: SCS Engineers
Project/Site: Council Bluffs ASR Monofill 2024

Job ID: 310-279511-1

Client Sample ID: MW-1 — Lab Sample ID: 310-279511-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	53.5		5.00	2.25	mg/L	5		9056A	Total/NA
Iron	12.8		0.100	0.0360	mg/L	1		6020B	Total/NA
Ammonia as N	1.40		0.500	0.210	mg/L	1		350.1	Total/NA
Chemical Oxygen Demand	32.3		25.0	24.0	mg/L	5		SM 5220D	Total/NA

Client Sample ID: EPA-1AR — Lab Sample ID: 310-279511-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	6.38		5.00	2.25	mg/L	5		9056A	Total/NA
Iron	0.0526	J	0.100	0.0360	mg/L	1		6020B	Total/NA

Client Sample ID: MW-2 — Lab Sample ID: 310-279511-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Motor Oil	494		300	80.3	ug/L	1		OA-2	Total/NA
Chloride	16.7		5.00	2.25	mg/L	5		9056A	Total/NA
Arsenic	0.200		0.00200	0.000530	mg/L	1		6020B	Total/NA
Iron	19.5		0.100	0.0360	mg/L	1		6020B	Total/NA
Ammonia as N	1.19		0.500	0.210	mg/L	1		350.1	Total/NA
Total Suspended Solids	52.0		5.00	3.70	mg/L	1		I-3765-85	Total/NA
Chemical Oxygen Demand	50.3		25.0	24.0	mg/L	5		SM 5220D	Total/NA

Client Sample ID: EPA-2A — Lab Sample ID: 310-279511-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	11.3		5.00	2.25	mg/L	5		9056A	Total/NA
Arsenic	0.00198	J	0.00200	0.000530	mg/L	1		6020B	Total/NA
Total Suspended Solids	3.63	B	1.88	1.39	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-3 — Lab Sample ID: 310-279511-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	25.3		5.00	2.25	mg/L	5		9056A	Total/NA
Arsenic	0.169		0.00200	0.000530	mg/L	1		6020B	Total/NA
Iron	22.5		0.100	0.0360	mg/L	1		6020B	Total/NA
Ammonia as N	1.09		0.500	0.210	mg/L	1		350.1	Total/NA
Total Suspended Solids	51.0		5.00	3.70	mg/L	1		I-3765-85	Total/NA
Chemical Oxygen Demand	24.1	J	25.0	24.0	mg/L	5		SM 5220D	Total/NA

Client Sample ID: MW-4 — Lab Sample ID: 310-279511-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	158		5.00	2.25	mg/L	5		9056A	Total/NA
Arsenic	0.00146	J	0.00200	0.000530	mg/L	1		6020B	Total/NA
Barium	0.251		0.00200	0.000660	mg/L	1		6020B	Total/NA
Iron	9.85		0.100	0.0360	mg/L	1		6020B	Total/NA
Lead	0.000315	J	0.000500	0.000260	mg/L	1		6020B	Total/NA
Nickel	0.00307	J	0.00500	0.00210	mg/L	1		6020B	Total/NA
Ammonia as N	0.779		0.500	0.210	mg/L	1		350.1	Total/NA
Total Suspended Solids	27.0		5.00	3.70	mg/L	1		I-3765-85	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: SCS Engineers
Project/Site: Council Bluffs ASR Monofill 2024

Job ID: 310-279511-1

Client Sample ID: MW-5 — Lab Sample ID: 310-279511-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	88.0		10.0	4.50	mg/L	10		9056A	Total/NA
Arsenic	0.000872	J	0.00200	0.000530	mg/L	1		6020B	Total/NA
Barium	0.0593		0.00200	0.000660	mg/L	1		6020B	Total/NA
Nickel	0.00388	J	0.00500	0.00210	mg/L	1		6020B	Total/NA
Total Suspended Solids	2.25		1.88	1.39	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-8 — Lab Sample ID: 310-279511-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	31.4		5.00	2.25	mg/L	5		9056A	Total/NA
Iron	1.85		0.100	0.0360	mg/L	1		6020B	Total/NA
Ammonia as N	0.501		0.500	0.210	mg/L	1		350.1	Total/NA
Chemical Oxygen Demand	66.7		25.0	24.0	mg/L	5		SM 5220D	Total/NA

Client Sample ID: MW-9 — Lab Sample ID: 310-279511-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Motor Oil	653		300	80.3	ug/L	1		OA-2	Total/NA
Chloride	26.3		20.0	9.00	mg/L	20		9056A	Total/NA
Iron	3.15		0.100	0.0360	mg/L	1		6020B	Total/NA
Chemical Oxygen Demand	48.7		25.0	24.0	mg/L	5		SM 5220D	Total/NA

Client Sample ID: MW-10 — Lab Sample ID: 310-279511-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	45.9		5.00	2.25	mg/L	5		9056A	Total/NA
Arsenic	0.000609	J	0.00200	0.000530	mg/L	1		6020B	Total/NA
Total Suspended Solids	6.25	B	1.88	1.39	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-11 — Lab Sample ID: 310-279511-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Motor Oil	274	J	300	80.3	ug/L	1		OA-2	Total/NA
Chloride	32.5		5.00	2.25	mg/L	5		9056A	Total/NA
Iron	3.40		0.100	0.0360	mg/L	1		6020B	Total/NA
Ammonia as N	0.577		0.500	0.210	mg/L	1		350.1	Total/NA

Client Sample ID: MW-12 — Lab Sample ID: 310-279511-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	58.1		5.00	2.25	mg/L	5		9056A	Total/NA
Lead	0.000925		0.000500	0.000260	mg/L	1		6020B	Total/NA

Client Sample ID: MW-13 — Lab Sample ID: 310-279511-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	25.2		5.00	2.25	mg/L	5		9056A	Total/NA
Arsenic	0.00175	J	0.00200	0.000530	mg/L	1		6020B	Total/NA
Iron	0.427		0.100	0.0360	mg/L	1		6020B	Total/NA
Total Suspended Solids	75.7		5.00	3.70	mg/L	1		I-3765-85	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: SCS Engineers
Project/Site: Council Bluffs ASR Monofill 2024

Job ID: 310-279511-1

Client Sample ID: MW-14R — Lab Sample ID: 310-279511-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Motor Oil	285	J	300	80.3	ug/L	1		OA-2	Total/NA
Chloride	22.0		5.00	2.25	mg/L	5		9056A	Total/NA
Arsenic	0.00365		0.00200	0.000530	mg/L	1		6020B	Total/NA
Barium	0.597		0.00200	0.000660	mg/L	1		6020B	Total/NA
Iron	1.22		0.100	0.0360	mg/L	1		6020B	Total/NA
Nickel	0.0684		0.00500	0.00210	mg/L	1		6020B	Total/NA
Zinc	1.28		0.0200	0.00970	mg/L	1		6020B	Total/NA
Ammonia as N	1.99		0.500	0.210	mg/L	1		350.1	Total/NA
Total Suspended Solids	8.50	B	3.75	2.78	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-15R — Lab Sample ID: 310-279511-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	41.6		5.00	2.25	mg/L	5		9056A	Total/NA
Arsenic	0.00325		0.00200	0.000530	mg/L	1		6020B	Total/NA
Barium	0.358		0.00200	0.000660	mg/L	1		6020B	Total/NA
Iron	1.40		0.100	0.0360	mg/L	1		6020B	Total/NA
Nickel	0.00396	J	0.00500	0.00210	mg/L	1		6020B	Total/NA
Total Suspended Solids	71.0		5.00	3.70	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-D — Lab Sample ID: 310-279511-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	57.4		5.00	2.25	mg/L	5		9056A	Total/NA
Iron	12.3		0.100	0.0360	mg/L	1		6020B	Total/NA
Ammonia as N	1.20		0.500	0.210	mg/L	1		350.1	Total/NA

This Detection Summary does not include radiochemical test results.

Client: SCS Engineers
Project/Site: Council Bluffs ASR Monofill 2024

Job ID: 310-279511-1

Client Sample ID: MW-1

Date Collected: 04/17/24 15:28
Date Received: 04/22/24 06:00

Lab Sample ID: 310-279511-1

Matrix: Groundwater

Method: Iowa DNR OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<300		300	172	ug/L		04/24/24 11:57	04/30/24 13:31	1
Diesel	<300		300	76.1	ug/L		04/24/24 11:57	04/30/24 13:31	1
Motor Oil	<300		300	80.3	ug/L		04/24/24 11:57	04/30/24 13:31	1
Total Extractable Hydrocarbons	<500		500	76.1	ug/L		04/24/24 11:57	04/30/24 13:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane	*79*		*17 - 120*	*04/24/24 11:57*	*04/30/24 13:31*	*1*

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**53.5**		5.00	2.25	mg/L			04/29/24 13:28	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**12.8**		0.100	0.0360	mg/L		04/23/24 09:00	04/25/24 20:18	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	**1.40**		0.500	0.210	mg/L		04/30/24 11:59	04/30/24 21:21	1
Chemical Oxygen Demand (SM 5220D)	**32.3**		25.0	24.0	mg/L			04/29/24 10:06	5

Client: SCS Engineers
Project/Site: Council Bluffs ASR Monofill 2024

Job ID: 310-279511-1

Client Sample ID: EPA-1AR

Date Collected: 04/18/24 10:01
Date Received: 04/22/24 06:00

Lab Sample ID: 310-279511-2

Matrix: Groundwater

Method: Iowa DNR OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<300		300	172	ug/L		04/24/24 11:57	04/30/24 13:46	1
Diesel	<300		300	76.1	ug/L		04/24/24 11:57	04/30/24 13:46	1
Motor Oil	<300		300	80.3	ug/L		04/24/24 11:57	04/30/24 13:46	1
Total Extractable Hydrocarbons	<500		500	76.1	ug/L		04/24/24 11:57	04/30/24 13:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane	*63*		*17 - 120*	*04/24/24 11:57*	*04/30/24 13:46*	*1*

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**6.38**		5.00	2.25	mg/L			04/29/24 13:40	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**0.0526**	**J**	0.100	0.0360	mg/L		04/23/24 09:00	04/25/24 20:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	<0.500		0.500	0.210	mg/L		04/30/24 11:59	04/30/24 21:24	1
Chemical Oxygen Demand (SM 5220D)	<25.0		25.0	24.0	mg/L			04/29/24 10:06	5

Client: SCS Engineers
Project/Site: Council Bluffs ASR Monofill 2024

Job ID: 310-279511-1

Client Sample ID: MW-2

Date Collected: 04/17/24 14:27
Date Received: 04/22/24 06:00

Lab Sample ID: 310-279511-3

Matrix: Groundwater

Method: Iowa DNR OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<300		300	172	ug/L		04/24/24 11:57	04/30/24 14:01	1
Diesel	<300		300	76.1	ug/L		04/24/24 11:57	04/30/24 14:01	1
Motor Oil	**494**		300	80.3	ug/L		04/24/24 11:57	04/30/24 14:01	1
Total Extractable Hydrocarbons	<500		500	76.1	ug/L		04/24/24 11:57	04/30/24 14:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane	*74*		*17 - 120*	*04/24/24 11:57*	*04/30/24 14:01*	*1*

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**16.7**		5.00	2.25	mg/L			04/29/24 13:52	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.200**		0.00200	0.000530	mg/L		04/23/24 09:00	04/25/24 20:22	1
Iron	**19.5**		0.100	0.0360	mg/L		04/23/24 09:00	04/25/24 20:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	**1.19**		0.500	0.210	mg/L		04/30/24 11:59	04/30/24 21:24	1
Total Suspended Solids (USGS I-3765-85)	**52.0**		5.00	3.70	mg/L			04/25/24 16:35	1
Chemical Oxygen Demand (SM 5220D)	**50.3**		25.0	24.0	mg/L			04/29/24 10:06	5

Client: SCS Engineers
Project/Site: Council Bluffs ASR Monofill 2024

Job ID: 310-279511-1

Client Sample ID: EPA-2A

Date Collected: 04/18/24 10:38
Date Received: 04/22/24 06:00

Lab Sample ID: 310-279511-4

Matrix: Groundwater

Method: Iowa DNR OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<300		300	172	ug/L		04/24/24 11:57	04/30/24 14:16	1
Diesel	<300		300	76.1	ug/L		04/24/24 11:57	04/30/24 14:16	1
Motor Oil	<300		300	80.3	ug/L		04/24/24 11:57	04/30/24 14:16	1
Total Extractable Hydrocarbons	<500		500	76.1	ug/L		04/24/24 11:57	04/30/24 14:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane	*64*		*17 - 120*	*04/24/24 11:57*	*04/30/24 14:16*	*1*

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**11.3**		5.00	2.25	mg/L			04/29/24 14:44	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.00198**	**J**	0.00200	0.000530	mg/L		04/23/24 09:00	04/25/24 20:33	1
Iron	<0.100		0.100	0.0360	mg/L		04/23/24 09:00	04/25/24 20:33	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	<0.500		0.500	0.210	mg/L		04/30/24 11:59	04/30/24 21:09	1
Total Suspended Solids (USGS I-3765-85)	**3.63**	**B**	1.88	1.39	mg/L			04/24/24 16:47	1
Chemical Oxygen Demand (SM 5220D)	<25.0		25.0	24.0	mg/L			04/29/24 10:06	5

Client: SCS Engineers
Project/Site: Council Bluffs ASR Monofill 2024

Job ID: 310-279511-1

Client Sample ID: MW-3

Date Collected: 04/17/24 16:54
Date Received: 04/22/24 06:00

Lab Sample ID: 310-279511-5

Matrix: Groundwater

Method: Iowa DNR OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<300		300	172	ug/L		04/24/24 11:57	04/30/24 14:31	1
Diesel	<300		300	76.1	ug/L		04/24/24 11:57	04/30/24 14:31	1
Motor Oil	<300		300	80.3	ug/L		04/24/24 11:57	04/30/24 14:31	1
Total Extractable Hydrocarbons	<500		500	76.1	ug/L		04/24/24 11:57	04/30/24 14:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane	*70*		*17 - 120*	*04/24/24 11:57*	*04/30/24 14:31*	*1*

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**25.3**		5.00	2.25	mg/L			04/29/24 14:56	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.169**		0.00200	0.000530	mg/L		04/23/24 09:00	04/25/24 21:00	1
Iron	**22.5**		0.100	0.0360	mg/L		04/23/24 09:00	04/25/24 21:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	**1.09**		0.500	0.210	mg/L		05/01/24 08:53	05/01/24 17:08	1
Total Suspended Solids (USGS I-3765-85)	**51.0**		5.00	3.70	mg/L			04/25/24 16:35	1
Chemical Oxygen Demand (SM 5220D)	**24.1**	**J**	25.0	24.0	mg/L			04/29/24 10:06	5

Client: SCS Engineers
Project/Site: Council Bluffs ASR Monofill 2024

Job ID: 310-279511-1

Client Sample ID: MW-4

Date Collected: 04/18/24 12:21
Date Received: 04/22/24 06:00

Lab Sample ID: 310-279511-6

Matrix: Groundwater

Method: Iowa DNR OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<300		300	172	ug/L		04/24/24 11:57	04/30/24 14:46	1
Diesel	<300		300	76.1	ug/L		04/24/24 11:57	04/30/24 14:46	1
Motor Oil	<300		300	80.3	ug/L		04/24/24 11:57	04/30/24 14:46	1
Total Extractable Hydrocarbons	<500		500	76.1	ug/L		04/24/24 11:57	04/30/24 14:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane	*73*		*17 - 120*	*04/24/24 11:57*	*04/30/24 14:46*	*1*

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**158**		5.00	2.25	mg/L			04/29/24 15:08	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.00146**	**J**	0.00200	0.000530	mg/L		04/23/24 09:00	04/25/24 21:17	1
Barium	**0.251**		0.00200	0.000660	mg/L		04/23/24 09:00	04/25/24 21:17	1
Iron	**9.85**		0.100	0.0360	mg/L		04/23/24 09:00	04/25/24 21:17	1
Lead	**0.000315**	**J**	0.000500	0.000260	mg/L		04/23/24 09:00	04/25/24 21:17	1
Nickel	**0.00307**	**J**	0.00500	0.00210	mg/L		04/23/24 09:00	04/25/24 21:17	1
Zinc	<0.0200		0.0200	0.00970	mg/L		04/23/24 09:00	04/25/24 21:17	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	**0.779**		0.500	0.210	mg/L		05/01/24 08:53	05/01/24 17:09	1
Total Suspended Solids (USGS I-3765-85)	**27.0**		5.00	3.70	mg/L			04/25/24 16:35	1
Chemical Oxygen Demand (SM 5220D)	<25.0		25.0	24.0	mg/L			04/29/24 10:06	5

Client: SCS Engineers
Project/Site: Council Bluffs ASR Monofill 2024

Job ID: 310-279511-1

Client Sample ID: MW-5

Date Collected: 04/18/24 12:51
Date Received: 04/22/24 06:00

Lab Sample ID: 310-279511-7

Matrix: Groundwater

Method: Iowa DNR OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<300		300	172	ug/L		04/24/24 11:57	04/30/24 15:01	1
Diesel	<300		300	76.1	ug/L		04/24/24 11:57	04/30/24 15:01	1
Motor Oil	<300		300	80.3	ug/L		04/24/24 11:57	04/30/24 15:01	1
Total Extractable Hydrocarbons	<500		500	76.1	ug/L		04/24/24 11:57	04/30/24 15:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane	*66*		*17 - 120*	*04/24/24 11:57*	*04/30/24 15:01*	*1*

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**88.0**		10.0	4.50	mg/L			04/29/24 15:20	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.000872**	**J**	0.00200	0.000530	mg/L		04/23/24 09:00	04/25/24 21:20	1
Barium	**0.0593**		0.00200	0.000660	mg/L		04/23/24 09:00	04/25/24 21:20	1
Iron	<0.100		0.100	0.0360	mg/L		04/23/24 09:00	04/25/24 21:20	1
Lead	<0.000500		0.000500	0.000260	mg/L		04/23/24 09:00	04/25/24 21:20	1
Nickel	**0.00388**	**J**	0.00500	0.00210	mg/L		04/23/24 09:00	04/25/24 21:20	1
Zinc	<0.0200		0.0200	0.00970	mg/L		04/23/24 09:00	04/25/24 21:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	<0.500		0.500	0.210	mg/L		05/01/24 08:53	05/01/24 17:17	1
Total Suspended Solids (USGS I-3765-85)	**2.25**		1.88	1.39	mg/L			04/23/24 18:54	1
Chemical Oxygen Demand (SM 5220D)	<25.0		25.0	24.0	mg/L			04/29/24 10:06	5

Client: SCS Engineers
Project/Site: Council Bluffs ASR Monofill 2024

Job ID: 310-279511-1

Client Sample ID: MW-8

Date Collected: 04/18/24 11:34
Date Received: 04/22/24 06:00

Lab Sample ID: 310-279511-8

Matrix: Groundwater

Method: Iowa DNR OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<300		300	172	ug/L		04/24/24 11:57	04/30/24 15:16	1
Diesel	<300		300	76.1	ug/L		04/24/24 11:57	04/30/24 15:16	1
Motor Oil	<300		300	80.3	ug/L		04/24/24 11:57	04/30/24 15:16	1
Total Extractable Hydrocarbons	<500		500	76.1	ug/L		04/24/24 11:57	04/30/24 15:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane	*72*		*17 - 120*	*04/24/24 11:57*	*04/30/24 15:16*	*1*

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**31.4**		5.00	2.25	mg/L			04/29/24 15:32	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**1.85**		0.100	0.0360	mg/L		04/23/24 09:00	04/25/24 21:37	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	**0.501**		0.500	0.210	mg/L		05/01/24 08:53	05/01/24 17:20	1
Chemical Oxygen Demand (SM 5220D)	**66.7**		25.0	24.0	mg/L			04/29/24 10:06	5

Client: SCS Engineers
Project/Site: Council Bluffs ASR Monofill 2024

Job ID: 310-279511-1

Client Sample ID: MW-9

Date Collected: 04/18/24 11:13
Date Received: 04/22/24 06:00

Lab Sample ID: 310-279511-9

Matrix: Groundwater

Method: Iowa DNR OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<300		300	172	ug/L		04/24/24 11:57	04/30/24 15:31	1
Diesel	<300		300	76.1	ug/L		04/24/24 11:57	04/30/24 15:31	1
Motor Oil	**653**		300	80.3	ug/L		04/24/24 11:57	04/30/24 15:31	1
Total Extractable Hydrocarbons	<500		500	76.1	ug/L		04/24/24 11:57	04/30/24 15:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane	*72*		*17 - 120*	*04/24/24 11:57*	*04/30/24 15:31*	*1*

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**26.3**		20.0	9.00	mg/L			04/29/24 15:44	20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**3.15**		0.100	0.0360	mg/L		04/23/24 09:00	04/25/24 21:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	<0.500		0.500	0.210	mg/L		05/01/24 08:53	05/01/24 17:18	1
Chemical Oxygen Demand (SM 5220D)	**48.7**		25.0	24.0	mg/L			04/29/24 10:06	5

Client: SCS Engineers
Project/Site: Council Bluffs ASR Monofill 2024

Job ID: 310-279511-1

Client Sample ID: MW-10

Date Collected: 04/17/24 13:01
Date Received: 04/22/24 06:00

Lab Sample ID: 310-279511-10

Matrix: Groundwater

Method: Iowa DNR OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<300		300	172	ug/L		04/24/24 11:57	04/30/24 15:46	1
Diesel	<300		300	76.1	ug/L		04/24/24 11:57	04/30/24 15:46	1
Motor Oil	<300		300	80.3	ug/L		04/24/24 11:57	04/30/24 15:46	1
Total Extractable Hydrocarbons	<500		500	76.1	ug/L		04/24/24 11:57	04/30/24 15:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane	*57*		*17 - 120*	*04/24/24 11:57*	*04/30/24 15:46*	*1*

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**45.9**		5.00	2.25	mg/L			04/29/24 15:56	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.000609**	**J**	0.00200	0.000530	mg/L		04/23/24 09:00	04/25/24 21:44	1
Iron	<0.100		0.100	0.0360	mg/L		04/23/24 09:00	04/25/24 21:44	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	<0.500		0.500	0.210	mg/L		05/01/24 08:53	05/01/24 17:13	1
Total Suspended Solids (USGS I-3765-85)	**6.25**	**B**	1.88	1.39	mg/L			04/24/24 16:47	1
Chemical Oxygen Demand (SM 5220D)	<25.0		25.0	24.0	mg/L			04/29/24 10:06	5

Client: SCS Engineers
Project/Site: Council Bluffs ASR Monofill 2024

Job ID: 310-279511-1

Client Sample ID: MW-11
Date Collected: 04/17/24 12:31
Date Received: 04/22/24 06:00

Lab Sample ID: 310-279511-11
Matrix: Groundwater

Method: Iowa DNR OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<300		300	172	ug/L		04/24/24 11:57	04/30/24 16:01	1
Diesel	<300		300	76.1	ug/L		04/24/24 11:57	04/30/24 16:01	1
Motor Oil	**274**	**J**	300	80.3	ug/L		04/24/24 11:57	04/30/24 16:01	1
Total Extractable Hydrocarbons	<500		500	76.1	ug/L		04/24/24 11:57	04/30/24 16:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane	*70*		*17 - 120*	*04/24/24 11:57*	*04/30/24 16:01*	*1*

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**32.5**		5.00	2.25	mg/L			04/29/24 16:09	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**3.40**		0.100	0.0360	mg/L		04/23/24 09:00	04/25/24 21:48	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	**0.577**		0.500	0.210	mg/L		05/01/24 08:53	05/01/24 17:11	1
Chemical Oxygen Demand (SM 5220D)	<25.0		25.0	24.0	mg/L			04/29/24 10:06	5

Client Sample Results

Client: SCS Engineers
Project/Site: Council Bluffs ASR Monofill 2024

Job ID: 310-279511-1

Client Sample ID: MW-12

Date Collected: 04/17/24 13:39
Date Received: 04/22/24 06:00

Lab Sample ID: 310-279511-12

Matrix: Groundwater

Method: Iowa DNR OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<300		300	172	ug/L		04/24/24 11:57	04/30/24 16:16	1
Diesel	<300		300	76.1	ug/L		04/24/24 11:57	04/30/24 16:16	1
Motor Oil	<300		300	80.3	ug/L		04/24/24 11:57	04/30/24 16:16	1
Total Extractable Hydrocarbons	<500		500	76.1	ug/L		04/24/24 11:57	04/30/24 16:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane	*66*		*17 - 120*	*04/24/24 11:57*	*04/30/24 16:16*	*1*

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**58.1**		5.00	2.25	mg/L			04/29/24 16:20	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		04/23/24 09:00	04/25/24 21:51	1
Lead	**0.000925**		0.000500	0.000260	mg/L		04/23/24 09:00	04/25/24 21:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	<0.500		0.500	0.210	mg/L		05/01/24 08:53	05/01/24 17:08	1
Total Suspended Solids (USGS I-3765-85)	<1.88		1.88	1.39	mg/L			04/24/24 16:47	1
Chemical Oxygen Demand (SM 5220D)	<25.0		25.0	24.0	mg/L			04/29/24 10:06	5

Client: SCS Engineers
Project/Site: Council Bluffs ASR Monofill 2024

Job ID: 310-279511-1

Client Sample ID: MW-13
Date Collected: 04/17/24 16:09
Date Received: 04/22/24 06:00

Lab Sample ID: 310-279511-13
Matrix: Groundwater

Method: Iowa DNR OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<300		300	172	ug/L		04/24/24 11:57	04/30/24 16:31	1
Diesel	<300		300	76.1	ug/L		04/24/24 11:57	04/30/24 16:31	1
Motor Oil	<300		300	80.3	ug/L		04/24/24 11:57	04/30/24 16:31	1
Total Extractable Hydrocarbons	<500		500	76.1	ug/L		04/24/24 11:57	04/30/24 16:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane	*71*		*17 - 120*	*04/24/24 11:57*	*04/30/24 16:31*	*1*

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**25.2**		5.00	2.25	mg/L			04/29/24 16:32	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.00175**	**J**	0.00200	0.000530	mg/L		04/23/24 09:00	04/25/24 21:55	1
Iron	**0.427**		0.100	0.0360	mg/L		04/23/24 09:00	04/25/24 21:55	1
Lead	<0.000500		0.000500	0.000260	mg/L		04/23/24 09:00	04/25/24 21:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	<0.500		0.500	0.210	mg/L		05/01/24 08:53	05/01/24 17:13	1
Total Suspended Solids (USGS I-3765-85)	**75.7**		5.00	3.70	mg/L			04/25/24 16:35	1
Chemical Oxygen Demand (SM 5220D)	<25.0		25.0	24.0	mg/L			04/29/24 10:06	5

Client: SCS Engineers
Project/Site: Council Bluffs ASR Monofill 2024

Job ID: 310-279511-1

Client Sample ID: MW-14R
Date Collected: 04/17/24 17:32
Date Received: 04/22/24 06:00

Lab Sample ID: 310-279511-14
Matrix: Groundwater

Method: Iowa DNR OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<300		300	172	ug/L		04/24/24 11:57	04/30/24 16:46	1
Diesel	<300		300	76.1	ug/L		04/24/24 11:57	04/30/24 16:46	1
Motor Oil	**285**	**J**	300	80.3	ug/L		04/24/24 11:57	04/30/24 16:46	1
Total Extractable Hydrocarbons	<500		500	76.1	ug/L		04/24/24 11:57	04/30/24 16:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane	*68*		*17 - 120*	*04/24/24 11:57*	*04/30/24 16:46*	*1*

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**22.0**		5.00	2.25	mg/L			04/29/24 17:09	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.00365**		0.00200	0.000530	mg/L		04/23/24 09:00	04/25/24 21:58	1
Barium	**0.597**		0.00200	0.000660	mg/L		04/23/24 09:00	04/25/24 21:58	1
Iron	**1.22**		0.100	0.0360	mg/L		04/23/24 09:00	04/25/24 21:58	1
Lead	<0.000500		0.000500	0.000260	mg/L		04/23/24 09:00	04/25/24 21:58	1
Nickel	**0.0684**		0.00500	0.00210	mg/L		04/23/24 09:00	04/25/24 21:58	1
Zinc	**1.28**		0.0200	0.00970	mg/L		04/23/24 09:00	04/25/24 21:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	**1.99**		0.500	0.210	mg/L		05/01/24 08:53	05/01/24 17:11	1
Total Suspended Solids (USGS I-3765-85)	**8.50**	**B**	3.75	2.78	mg/L			04/24/24 16:47	1
Chemical Oxygen Demand (SM 5220D)	<25.0		25.0	24.0	mg/L			04/29/24 10:06	5

Client: SCS Engineers
Project/Site: Council Bluffs ASR Monofill 2024

Job ID: 310-279511-1

Client Sample ID: MW-15R

Date Collected: 04/17/24 18:10
Date Received: 04/22/24 06:00

Lab Sample ID: 310-279511-15

Matrix: Groundwater

Method: Iowa DNR OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<300		300	172	ug/L		04/24/24 11:57	04/30/24 17:01	1
Diesel	<300		300	76.1	ug/L		04/24/24 11:57	04/30/24 17:01	1
Motor Oil	<300		300	80.3	ug/L		04/24/24 11:57	04/30/24 17:01	1
Total Extractable Hydrocarbons	<500		500	76.1	ug/L		04/24/24 11:57	04/30/24 17:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane	*64*		*17 - 120*	*04/24/24 11:57*	*04/30/24 17:01*	*1*

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**41.6**		5.00	2.25	mg/L			04/29/24 17:21	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.00325**		0.00200	0.000530	mg/L		04/23/24 09:00	04/25/24 22:01	1
Barium	**0.358**		0.00200	0.000660	mg/L		04/23/24 09:00	04/25/24 22:01	1
Iron	**1.40**		0.100	0.0360	mg/L		04/23/24 09:00	04/25/24 22:01	1
Lead	<0.000500		0.000500	0.000260	mg/L		04/23/24 09:00	04/25/24 22:01	1
Nickel	**0.00396**	**J**	0.00500	0.00210	mg/L		04/23/24 09:00	04/25/24 22:01	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	<0.500		0.500	0.210	mg/L		05/01/24 08:53	05/01/24 17:05	1
Total Suspended Solids (USGS I-3765-85)	**71.0**		5.00	3.70	mg/L			04/23/24 18:54	1
Chemical Oxygen Demand (SM 5220D)	<25.0		25.0	24.0	mg/L			04/29/24 10:06	5

Client: SCS Engineers
Project/Site: Council Bluffs ASR Monofill 2024

Job ID: 310-279511-1

Client Sample ID: MW-D

Date Collected: 04/17/24 15:28
Date Received: 04/22/24 06:00

Lab Sample ID: 310-279511-16

Matrix: Groundwater

Method: Iowa DNR OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<278		278	159	ug/L		04/25/24 08:36	04/30/24 10:21	1
Diesel	<278		278	70.5	ug/L		04/25/24 08:36	04/30/24 10:21	1
Motor Oil	<278		278	74.4	ug/L		04/25/24 08:36	04/30/24 10:21	1
Total Extractable Hydrocarbons	<463		463	70.5	ug/L		04/25/24 08:36	04/30/24 10:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane	*73*		*17 - 120*	*04/25/24 08:36*	*04/30/24 10:21*	*1*

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**57.4**		5.00	2.25	mg/L			04/29/24 17:33	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**12.3**		0.100	0.0360	mg/L		04/23/24 09:00	04/25/24 22:08	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	**1.20**		0.500	0.210	mg/L		05/01/24 08:53	05/01/24 17:10	1
Chemical Oxygen Demand (SM 5220D)	<25.0		25.0	24.0	mg/L			04/29/24 10:06	5

Definitions/Glossary

Client: SCS Engineers
Job ID: 310-279511-1
Project/Site: Council Bluffs ASR Monofill 2024

Qualifiers

GC Semi VOA

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.

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
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

Surrogate Summary

Client: SCS Engineers
Project/Site: Council Bluffs ASR Monofill 2024

Job ID: 310-279511-1

Method: OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Matrix: Groundwater **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	OTCN (17-120)
310-279511-1	MW-1	79
310-279511-2	EPA-1AR	63
310-279511-3	MW-2	74
310-279511-4	EPA-2A	64
310-279511-5	MW-3	70
310-279511-6	MW-4	73
310-279511-7	MW-5	66
310-279511-8	MW-8	72
310-279511-9	MW-9	72
310-279511-10	MW-10	57
310-279511-11	MW-11	70
310-279511-12	MW-12	66
310-279511-13	MW-13	71
310-279511-14	MW-14R	68
310-279511-15	MW-15R	64
310-279511-16	MW-D	73

Surrogate Legend

OTCN = n-Octacosane

Method: OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	OTCN (17-120)
LCS 310-419729/2-A	Lab Control Sample	100
LCS 310-419809/2-A	Lab Control Sample	73
LCSD 310-419729/3-A	Lab Control Sample Dup	90
LCSD 310-419809/3-A	Lab Control Sample Dup	79
MB 310-419729/1-A	Method Blank	82
MB 310-419809/1-A	Method Blank	70

Surrogate Legend

OTCN = n-Octacosane

Method: OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 310-419729/1-A
Matrix: Water
Analysis Batch: 420178

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 419729

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<300		300	172	ug/L		04/24/24 11:57	04/30/24 11:30	1
Diesel	<300		300	76.1	ug/L		04/24/24 11:57	04/30/24 11:30	1
Motor Oil	<300		300	80.3	ug/L		04/24/24 11:57	04/30/24 11:30	1
Total Extractable Hydrocarbons	123.6	J	500	76.1	ug/L		04/24/24 11:57	04/30/24 11:30	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane	*82*		*17 - 120*	*04/24/24 11:57*	*04/30/24 11:30*	*1*

Lab Sample ID: LCS 310-419729/2-A
Matrix: Water
Analysis Batch: 420178

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 419729

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Diesel	4000	3101		ug/L		78	22 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
n-Octacosane	*100*		*17 - 120*

Lab Sample ID: LCSD 310-419729/3-A
Matrix: Water
Analysis Batch: 420178

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 419729

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel	4000	2876		ug/L		72	22 - 120	8	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
n-Octacosane	*90*		*17 - 120*

Lab Sample ID: MB 310-419809/1-A
Matrix: Water
Analysis Batch: 420176

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 419809

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<300		300	172	ug/L		04/25/24 08:36	04/30/24 09:35	1
Diesel	<300		300	76.1	ug/L		04/25/24 08:36	04/30/24 09:35	1
Motor Oil	<300		300	80.3	ug/L		04/25/24 08:36	04/30/24 09:35	1
Total Extractable Hydrocarbons	<500		500	76.1	ug/L		04/25/24 08:36	04/30/24 09:35	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane	*70*		*17 - 120*	*04/25/24 08:36*	*04/30/24 09:35*	*1*

Lab Sample ID: LCS 310-419809/2-A
Matrix: Water
Analysis Batch: 420176

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 419809

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Diesel	4000	2551		ug/L		64	22 - 120

Method: OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCS 310-419809/2-A
Matrix: Water
Analysis Batch: 420176

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 419809

Surrogate	LCS %Recovery	LCS Qualifier	Limits
n-Octacosane	73		17 - 120

Lab Sample ID: LCSD 310-419809/3-A
Matrix: Water
Analysis Batch: 420176

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 419809

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel			4000	2794		ug/L		70	22 - 120	9	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
n-Octacosane	79		17 - 120

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-420221/3
Matrix: Water
Analysis Batch: 420221

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			04/29/24 11:27	1

Lab Sample ID: LCS 310-420221/6
Matrix: Water
Analysis Batch: 420221

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	9.770		mg/L		98	90 - 110

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-419477/1-A
Matrix: Water
Analysis Batch: 419931

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 419477

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200	0.000530	mg/L		04/23/24 09:00	04/25/24 19:13	1
Iron	<0.100		0.100	0.0360	mg/L		04/23/24 09:00	04/25/24 19:13	1

Lab Sample ID: LCS 310-419477/2-A
Matrix: Water
Analysis Batch: 419931

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 419477

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	0.200	0.2171		mg/L		109	80 - 120
Iron	0.200	0.2338		mg/L		117	80 - 120

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

Lab Sample ID: MB 310-419479/1-A
Matrix: Water
Analysis Batch: 419932

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 419479

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200	0.000530	mg/L		04/23/24 09:00	04/25/24 20:54	1
Barium	<0.00200		0.00200	0.000660	mg/L		04/23/24 09:00	04/25/24 20:54	1
Iron	<0.100		0.100	0.0360	mg/L		04/23/24 09:00	04/25/24 20:54	1
Lead	<0.000500		0.000500	0.000260	mg/L		04/23/24 09:00	04/25/24 20:54	1
Nickel	<0.00500		0.00500	0.00210	mg/L		04/23/24 09:00	04/25/24 20:54	1
Zinc	<0.0200		0.0200	0.00970	mg/L		04/23/24 09:00	04/25/24 20:54	1

Lab Sample ID: LCS 310-419479/2-A
Matrix: Water
Analysis Batch: 419932

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 419479

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	0.200	0.2027		mg/L		101	80 - 120
Barium	0.100	0.1009		mg/L		101	80 - 120
Iron	0.200	0.2241		mg/L		112	80 - 120
Lead	0.200	0.2057		mg/L		103	80 - 120
Nickel	0.200	0.2045		mg/L		102	80 - 120
Zinc	0.200	0.1888		mg/L		94	80 - 120

Lab Sample ID: 310-279511-5 MS
Matrix: Groundwater
Analysis Batch: 419932

Client Sample ID: MW-3
Prep Type: Total/NA
Prep Batch: 419479

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	0.169		0.200	0.3853		mg/L		108	75 - 125
Barium	0.563		0.100	0.6647	4	mg/L		102	75 - 125
Iron	22.5		0.200	22.13	4	mg/L		-202	75 - 125
Lead	0.000416	J	0.200	0.2036		mg/L		102	75 - 125
Nickel	0.00268	J	0.200	0.2039		mg/L		101	75 - 125
Zinc	<0.0200		0.200	0.1896		mg/L		95	75 - 125

Lab Sample ID: 310-279511-5 MSD
Matrix: Groundwater
Analysis Batch: 419932

Client Sample ID: MW-3
Prep Type: Total/NA
Prep Batch: 419479

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	0.169		0.200	0.3871		mg/L		109	75 - 125	0	20
Barium	0.563		0.100	0.6818	4	mg/L		119	75 - 125	3	20
Iron	22.5		0.200	22.89	4	mg/L		180	75 - 125	3	20
Lead	0.000416	J	0.200	0.2047		mg/L		102	75 - 125	1	20
Nickel	0.00268	J	0.200	0.2035		mg/L		100	75 - 125	0	20
Zinc	<0.0200		0.200	0.1906		mg/L		95	75 - 125	1	20

Lab Sample ID: 310-279511-15 DU
Matrix: Groundwater
Analysis Batch: 419932

Client Sample ID: MW-15R
Prep Type: Total/NA
Prep Batch: 419479

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	0.00325		0.003787		mg/L		15	20

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

Lab Sample ID: 310-279511-15 DU
Matrix: Groundwater
Analysis Batch: 419932

Client Sample ID: MW-15R
Prep Type: Total/NA
Prep Batch: 419479

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Barium	0.358		0.3464		mg/L		3	20
Iron	1.40		1.508		mg/L		8	20
Lead	<0.000500		<0.000500		mg/L		NC	20
Nickel	0.00396	J	0.004020	J	mg/L		1	20
Zinc	<0.0200		<0.0200		mg/L		NC	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 310-420239/1-A
Matrix: Water
Analysis Batch: 420286

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 420239

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	<0.500		0.500	0.210	mg/L		04/30/24 11:59	04/30/24 21:07	1

Lab Sample ID: LCS 310-420239/2-A
Matrix: Water
Analysis Batch: 420286

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 420239

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia as N	4.00	4.060		mg/L		101	90 - 110

Lab Sample ID: 310-279511-4 MS
Matrix: Groundwater
Analysis Batch: 420286

Client Sample ID: EPA-2A
Prep Type: Total/NA
Prep Batch: 420239

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia as N	<0.500		4.00	4.084		mg/L		102	90 - 110

Lab Sample ID: 310-279511-4 MSD
Matrix: Groundwater
Analysis Batch: 420286

Client Sample ID: EPA-2A
Prep Type: Total/NA
Prep Batch: 420239

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia as N	<0.500		4.00	4.158		mg/L		104	90 - 110	2	10

Lab Sample ID: MB 310-420322/1-A
Matrix: Water
Analysis Batch: 420418

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 420322

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	<0.500		0.500	0.210	mg/L		05/01/24 08:53	05/01/24 16:59	1

Lab Sample ID: LCS 310-420322/2-A
Matrix: Water
Analysis Batch: 420418

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 420322

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia as N	4.00	3.873		mg/L		97	90 - 110

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

Lab Sample ID: MB 310-419633/1
Matrix: Water
Analysis Batch: 419633

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.00		5.00	3.70	mg/L			04/23/24 18:54	1

Lab Sample ID: LCS 310-419633/2
Matrix: Water
Analysis Batch: 419633

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	100.0		mg/L		100	75 - 116

Lab Sample ID: MB 310-419776/1
Matrix: Water
Analysis Batch: 419776

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	17.67		5.00	3.70	mg/L			04/24/24 16:47	1

Lab Sample ID: LCS 310-419776/2
Matrix: Water
Analysis Batch: 419776

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	106.0		mg/L		106	75 - 116

Lab Sample ID: MB 310-419903/1
Matrix: Water
Analysis Batch: 419903

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.00		5.00	3.70	mg/L			04/25/24 16:35	1

Lab Sample ID: LCS 310-419903/2
Matrix: Water
Analysis Batch: 419903

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	107.0		mg/L		107	75 - 116

Method: SM 5220D - COD

Lab Sample ID: MB 310-420108/32
Matrix: Water
Analysis Batch: 420108

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			04/29/24 10:06	1

Method: SM 5220D - COD (Continued)

Lab Sample ID: MB 310-420108/60
Matrix: Water
Analysis Batch: 420108

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			04/29/24 10:06	1

Lab Sample ID: LCS 310-420108/33
Matrix: Water
Analysis Batch: 420108

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	120.9		mg/L		96	85 - 115		

Lab Sample ID: LCS 310-420108/63
Matrix: Water
Analysis Batch: 420108

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	117.6		mg/L		94	85 - 115		

Lab Sample ID: 310-279511-13 MS
Matrix: Groundwater
Analysis Batch: 420108

Client Sample ID: MW-13
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chemical Oxygen Demand	<25.0		250	293.0		mg/L		117	81 - 144		

Lab Sample ID: 310-279511-13 MSD
Matrix: Groundwater
Analysis Batch: 420108

Client Sample ID: MW-13
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	<25.0		250	289.7		mg/L		116	81 - 144	1	15

GC Semi VOA

Prep Batch: 419729

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279511-1	MW-1	Total/NA	Groundwater	3510C	
310-279511-2	EPA-1AR	Total/NA	Groundwater	3510C	
310-279511-3	MW-2	Total/NA	Groundwater	3510C	
310-279511-4	EPA-2A	Total/NA	Groundwater	3510C	
310-279511-5	MW-3	Total/NA	Groundwater	3510C	
310-279511-6	MW-4	Total/NA	Groundwater	3510C	
310-279511-7	MW-5	Total/NA	Groundwater	3510C	
310-279511-8	MW-8	Total/NA	Groundwater	3510C	
310-279511-9	MW-9	Total/NA	Groundwater	3510C	
310-279511-10	MW-10	Total/NA	Groundwater	3510C	
310-279511-11	MW-11	Total/NA	Groundwater	3510C	
310-279511-12	MW-12	Total/NA	Groundwater	3510C	
310-279511-13	MW-13	Total/NA	Groundwater	3510C	
310-279511-14	MW-14R	Total/NA	Groundwater	3510C	
310-279511-15	MW-15R	Total/NA	Groundwater	3510C	
MB 310-419729/1-A	Method Blank	Total/NA	Water	3510C	
LCS 310-419729/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 310-419729/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Prep Batch: 419809

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279511-16	MW-D	Total/NA	Groundwater	3510C	
MB 310-419809/1-A	Method Blank	Total/NA	Water	3510C	
LCS 310-419809/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 310-419809/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 420176

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279511-16	MW-D	Total/NA	Groundwater	OA-2	419809
MB 310-419809/1-A	Method Blank	Total/NA	Water	OA-2	419809
LCS 310-419809/2-A	Lab Control Sample	Total/NA	Water	OA-2	419809
LCSD 310-419809/3-A	Lab Control Sample Dup	Total/NA	Water	OA-2	419809

Analysis Batch: 420178

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279511-1	MW-1	Total/NA	Groundwater	OA-2	419729
310-279511-2	EPA-1AR	Total/NA	Groundwater	OA-2	419729
310-279511-3	MW-2	Total/NA	Groundwater	OA-2	419729
310-279511-4	EPA-2A	Total/NA	Groundwater	OA-2	419729
310-279511-5	MW-3	Total/NA	Groundwater	OA-2	419729
310-279511-6	MW-4	Total/NA	Groundwater	OA-2	419729
310-279511-7	MW-5	Total/NA	Groundwater	OA-2	419729
310-279511-8	MW-8	Total/NA	Groundwater	OA-2	419729
310-279511-9	MW-9	Total/NA	Groundwater	OA-2	419729
310-279511-10	MW-10	Total/NA	Groundwater	OA-2	419729
310-279511-11	MW-11	Total/NA	Groundwater	OA-2	419729
310-279511-12	MW-12	Total/NA	Groundwater	OA-2	419729
310-279511-13	MW-13	Total/NA	Groundwater	OA-2	419729
310-279511-14	MW-14R	Total/NA	Groundwater	OA-2	419729
310-279511-15	MW-15R	Total/NA	Groundwater	OA-2	419729
MB 310-419729/1-A	Method Blank	Total/NA	Water	OA-2	419729

GC Semi VOA (Continued)

Analysis Batch: 420178 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-419729/2-A	Lab Control Sample	Total/NA	Water	OA-2	419729
LCSD 310-419729/3-A	Lab Control Sample Dup	Total/NA	Water	OA-2	419729

HPLC/IC

Analysis Batch: 420221

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279511-1	MW-1	Total/NA	Groundwater	9056A	
310-279511-2	EPA-1AR	Total/NA	Groundwater	9056A	
310-279511-3	MW-2	Total/NA	Groundwater	9056A	
310-279511-4	EPA-2A	Total/NA	Groundwater	9056A	
310-279511-5	MW-3	Total/NA	Groundwater	9056A	
310-279511-6	MW-4	Total/NA	Groundwater	9056A	
310-279511-7	MW-5	Total/NA	Groundwater	9056A	
310-279511-8	MW-8	Total/NA	Groundwater	9056A	
310-279511-9	MW-9	Total/NA	Groundwater	9056A	
310-279511-10	MW-10	Total/NA	Groundwater	9056A	
310-279511-11	MW-11	Total/NA	Groundwater	9056A	
310-279511-12	MW-12	Total/NA	Groundwater	9056A	
310-279511-13	MW-13	Total/NA	Groundwater	9056A	
310-279511-14	MW-14R	Total/NA	Groundwater	9056A	
310-279511-15	MW-15R	Total/NA	Groundwater	9056A	
310-279511-16	MW-D	Total/NA	Groundwater	9056A	
MB 310-420221/3	Method Blank	Total/NA	Water	9056A	
LCS 310-420221/6	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 419477

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279511-1	MW-1	Total/NA	Groundwater	3005A	
310-279511-2	EPA-1AR	Total/NA	Groundwater	3005A	
310-279511-3	MW-2	Total/NA	Groundwater	3005A	
310-279511-4	EPA-2A	Total/NA	Groundwater	3005A	
MB 310-419477/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-419477/2-A	Lab Control Sample	Total/NA	Water	3005A	

Prep Batch: 419479

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279511-5	MW-3	Total/NA	Groundwater	3005A	
310-279511-6	MW-4	Total/NA	Groundwater	3005A	
310-279511-7	MW-5	Total/NA	Groundwater	3005A	
310-279511-8	MW-8	Total/NA	Groundwater	3005A	
310-279511-9	MW-9	Total/NA	Groundwater	3005A	
310-279511-10	MW-10	Total/NA	Groundwater	3005A	
310-279511-11	MW-11	Total/NA	Groundwater	3005A	
310-279511-12	MW-12	Total/NA	Groundwater	3005A	
310-279511-13	MW-13	Total/NA	Groundwater	3005A	
310-279511-14	MW-14R	Total/NA	Groundwater	3005A	
310-279511-15	MW-15R	Total/NA	Groundwater	3005A	
310-279511-16	MW-D	Total/NA	Groundwater	3005A	
MB 310-419479/1-A	Method Blank	Total/NA	Water	3005A	

Metals (Continued)

Prep Batch: 419479 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-419479/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-279511-5 MS	MW-3	Total/NA	Groundwater	3005A	
310-279511-5 MSD	MW-3	Total/NA	Groundwater	3005A	
310-279511-15 DU	MW-15R	Total/NA	Groundwater	3005A	

Analysis Batch: 419931

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279511-1	MW-1	Total/NA	Groundwater	6020B	419477
310-279511-2	EPA-1AR	Total/NA	Groundwater	6020B	419477
310-279511-3	MW-2	Total/NA	Groundwater	6020B	419477
310-279511-4	EPA-2A	Total/NA	Groundwater	6020B	419477
MB 310-419477/1-A	Method Blank	Total/NA	Water	6020B	419477
LCS 310-419477/2-A	Lab Control Sample	Total/NA	Water	6020B	419477

Analysis Batch: 419932

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279511-5	MW-3	Total/NA	Groundwater	6020B	419479
310-279511-6	MW-4	Total/NA	Groundwater	6020B	419479
310-279511-7	MW-5	Total/NA	Groundwater	6020B	419479
310-279511-8	MW-8	Total/NA	Groundwater	6020B	419479
310-279511-9	MW-9	Total/NA	Groundwater	6020B	419479
310-279511-10	MW-10	Total/NA	Groundwater	6020B	419479
310-279511-11	MW-11	Total/NA	Groundwater	6020B	419479
310-279511-12	MW-12	Total/NA	Groundwater	6020B	419479
310-279511-13	MW-13	Total/NA	Groundwater	6020B	419479
310-279511-14	MW-14R	Total/NA	Groundwater	6020B	419479
310-279511-15	MW-15R	Total/NA	Groundwater	6020B	419479
310-279511-16	MW-D	Total/NA	Groundwater	6020B	419479
MB 310-419479/1-A	Method Blank	Total/NA	Water	6020B	419479
LCS 310-419479/2-A	Lab Control Sample	Total/NA	Water	6020B	419479
310-279511-5 MS	MW-3	Total/NA	Groundwater	6020B	419479
310-279511-5 MSD	MW-3	Total/NA	Groundwater	6020B	419479
310-279511-15 DU	MW-15R	Total/NA	Groundwater	6020B	419479

General Chemistry

Analysis Batch: 419633

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279511-7	MW-5	Total/NA	Groundwater	I-3765-85	
310-279511-15	MW-15R	Total/NA	Groundwater	I-3765-85	
MB 310-419633/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-419633/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Analysis Batch: 419776

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279511-4	EPA-2A	Total/NA	Groundwater	I-3765-85	
310-279511-10	MW-10	Total/NA	Groundwater	I-3765-85	
310-279511-12	MW-12	Total/NA	Groundwater	I-3765-85	
310-279511-14	MW-14R	Total/NA	Groundwater	I-3765-85	
MB 310-419776/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-419776/2	Lab Control Sample	Total/NA	Water	I-3765-85	

General Chemistry

Analysis Batch: 419903

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279511-3	MW-2	Total/NA	Groundwater	I-3765-85	
310-279511-5	MW-3	Total/NA	Groundwater	I-3765-85	
310-279511-6	MW-4	Total/NA	Groundwater	I-3765-85	
310-279511-13	MW-13	Total/NA	Groundwater	I-3765-85	
MB 310-419903/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-419903/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Analysis Batch: 420108

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279511-1	MW-1	Total/NA	Groundwater	SM 5220D	
310-279511-2	EPA-1AR	Total/NA	Groundwater	SM 5220D	
310-279511-3	MW-2	Total/NA	Groundwater	SM 5220D	
310-279511-4	EPA-2A	Total/NA	Groundwater	SM 5220D	
310-279511-5	MW-3	Total/NA	Groundwater	SM 5220D	
310-279511-6	MW-4	Total/NA	Groundwater	SM 5220D	
310-279511-7	MW-5	Total/NA	Groundwater	SM 5220D	
310-279511-8	MW-8	Total/NA	Groundwater	SM 5220D	
310-279511-9	MW-9	Total/NA	Groundwater	SM 5220D	
310-279511-10	MW-10	Total/NA	Groundwater	SM 5220D	
310-279511-11	MW-11	Total/NA	Groundwater	SM 5220D	
310-279511-12	MW-12	Total/NA	Groundwater	SM 5220D	
310-279511-13	MW-13	Total/NA	Groundwater	SM 5220D	
310-279511-14	MW-14R	Total/NA	Groundwater	SM 5220D	
310-279511-15	MW-15R	Total/NA	Groundwater	SM 5220D	
310-279511-16	MW-D	Total/NA	Groundwater	SM 5220D	
MB 310-420108/32	Method Blank	Total/NA	Water	SM 5220D	
MB 310-420108/60	Method Blank	Total/NA	Water	SM 5220D	
LCS 310-420108/33	Lab Control Sample	Total/NA	Water	SM 5220D	
LCS 310-420108/63	Lab Control Sample	Total/NA	Water	SM 5220D	
310-279511-13 MS	MW-13	Total/NA	Groundwater	SM 5220D	
310-279511-13 MSD	MW-13	Total/NA	Groundwater	SM 5220D	

Prep Batch: 420239

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279511-1	MW-1	Total/NA	Groundwater	350.1	
310-279511-2	EPA-1AR	Total/NA	Groundwater	350.1	
310-279511-3	MW-2	Total/NA	Groundwater	350.1	
310-279511-4	EPA-2A	Total/NA	Groundwater	350.1	
MB 310-420239/1-A	Method Blank	Total/NA	Water	350.1	
LCS 310-420239/2-A	Lab Control Sample	Total/NA	Water	350.1	
310-279511-4 MS	EPA-2A	Total/NA	Groundwater	350.1	
310-279511-4 MSD	EPA-2A	Total/NA	Groundwater	350.1	

Analysis Batch: 420286

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279511-1	MW-1	Total/NA	Groundwater	350.1	420239
310-279511-2	EPA-1AR	Total/NA	Groundwater	350.1	420239
310-279511-3	MW-2	Total/NA	Groundwater	350.1	420239
310-279511-4	EPA-2A	Total/NA	Groundwater	350.1	420239
MB 310-420239/1-A	Method Blank	Total/NA	Water	350.1	420239
LCS 310-420239/2-A	Lab Control Sample	Total/NA	Water	350.1	420239

General Chemistry (Continued)

Analysis Batch: 420286 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279511-4 MS	EPA-2A	Total/NA	Groundwater	350.1	420239
310-279511-4 MSD	EPA-2A	Total/NA	Groundwater	350.1	420239

Prep Batch: 420322

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279511-5	MW-3	Total/NA	Groundwater	350.1	
310-279511-6	MW-4	Total/NA	Groundwater	350.1	
310-279511-7	MW-5	Total/NA	Groundwater	350.1	
310-279511-8	MW-8	Total/NA	Groundwater	350.1	
310-279511-9	MW-9	Total/NA	Groundwater	350.1	
310-279511-10	MW-10	Total/NA	Groundwater	350.1	
310-279511-11	MW-11	Total/NA	Groundwater	350.1	
310-279511-12	MW-12	Total/NA	Groundwater	350.1	
310-279511-13	MW-13	Total/NA	Groundwater	350.1	
310-279511-14	MW-14R	Total/NA	Groundwater	350.1	
310-279511-15	MW-15R	Total/NA	Groundwater	350.1	
310-279511-16	MW-D	Total/NA	Groundwater	350.1	
MB 310-420322/1-A	Method Blank	Total/NA	Water	350.1	
LCS 310-420322/2-A	Lab Control Sample	Total/NA	Water	350.1	

Analysis Batch: 420418

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279511-5	MW-3	Total/NA	Groundwater	350.1	420322
310-279511-6	MW-4	Total/NA	Groundwater	350.1	420322
310-279511-7	MW-5	Total/NA	Groundwater	350.1	420322
310-279511-8	MW-8	Total/NA	Groundwater	350.1	420322
310-279511-9	MW-9	Total/NA	Groundwater	350.1	420322
310-279511-10	MW-10	Total/NA	Groundwater	350.1	420322
310-279511-11	MW-11	Total/NA	Groundwater	350.1	420322
310-279511-12	MW-12	Total/NA	Groundwater	350.1	420322
310-279511-13	MW-13	Total/NA	Groundwater	350.1	420322
310-279511-14	MW-14R	Total/NA	Groundwater	350.1	420322
310-279511-15	MW-15R	Total/NA	Groundwater	350.1	420322
310-279511-16	MW-D	Total/NA	Groundwater	350.1	420322
MB 310-420322/1-A	Method Blank	Total/NA	Water	350.1	420322
LCS 310-420322/2-A	Lab Control Sample	Total/NA	Water	350.1	420322

Lab Chronicle

Client: SCS Engineers
Project/Site: Council Bluffs ASR Monofill 2024

Job ID: 310-279511-1

Client Sample ID: MW-1

Date Collected: 04/17/24 15:28
Date Received: 04/22/24 06:00

Lab Sample ID: 310-279511-1

Matrix: Groundwater

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			419729	JT8P	EET CF	04/24/24 11:57
Total/NA	Analysis	OA-2		1	420178	C3AA	EET CF	04/30/24 13:31
Total/NA	Analysis	9056A		5	420221	QTZ5	EET CF	04/29/24 13:28
Total/NA	Prep	3005A			419477	QTZ5	EET CF	04/23/24 09:00
Total/NA	Analysis	6020B		1	419931	NFT2	EET CF	04/25/24 20:18
Total/NA	Prep	350.1			420239	MQ8M	EET CF	04/30/24 11:59
Total/NA	Analysis	350.1		1	420286	ZJX4	EET CF	04/30/24 21:21
Total/NA	Analysis	SM 5220D		5	420108	ENB7	EET CF	04/29/24 10:06

Client Sample ID: EPA-1AR

Date Collected: 04/18/24 10:01
Date Received: 04/22/24 06:00

Lab Sample ID: 310-279511-2

Matrix: Groundwater

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			419729	JT8P	EET CF	04/24/24 11:57
Total/NA	Analysis	OA-2		1	420178	C3AA	EET CF	04/30/24 13:46
Total/NA	Analysis	9056A		5	420221	QTZ5	EET CF	04/29/24 13:40
Total/NA	Prep	3005A			419477	QTZ5	EET CF	04/23/24 09:00
Total/NA	Analysis	6020B		1	419931	NFT2	EET CF	04/25/24 20:20
Total/NA	Prep	350.1			420239	MQ8M	EET CF	04/30/24 11:59
Total/NA	Analysis	350.1		1	420286	ZJX4	EET CF	04/30/24 21:24
Total/NA	Analysis	SM 5220D		5	420108	ENB7	EET CF	04/29/24 10:06

Client Sample ID: MW-2

Date Collected: 04/17/24 14:27
Date Received: 04/22/24 06:00

Lab Sample ID: 310-279511-3

Matrix: Groundwater

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			419729	JT8P	EET CF	04/24/24 11:57
Total/NA	Analysis	OA-2		1	420178	C3AA	EET CF	04/30/24 14:01
Total/NA	Analysis	9056A		5	420221	QTZ5	EET CF	04/29/24 13:52
Total/NA	Prep	3005A			419477	QTZ5	EET CF	04/23/24 09:00
Total/NA	Analysis	6020B		1	419931	NFT2	EET CF	04/25/24 20:22
Total/NA	Prep	350.1			420239	MQ8M	EET CF	04/30/24 11:59
Total/NA	Analysis	350.1		1	420286	ZJX4	EET CF	04/30/24 21:24
Total/NA	Analysis	I-3765-85		1	419903	A4XP	EET CF	04/25/24 16:35
Total/NA	Analysis	SM 5220D		5	420108	ENB7	EET CF	04/29/24 10:06

Client Sample ID: EPA-2A

Date Collected: 04/18/24 10:38
Date Received: 04/22/24 06:00

Lab Sample ID: 310-279511-4

Matrix: Groundwater

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			419729	JT8P	EET CF	04/24/24 11:57
Total/NA	Analysis	OA-2		1	420178	C3AA	EET CF	04/30/24 14:16

Lab Chronicle

Client: SCS Engineers
Job ID: 310-279511-1
Project/Site: Council Bluffs ASR Monofill 2024

Client Sample ID: EPA-2A
Lab Sample ID: 310-279511-4
Date Collected: 04/18/24 10:38
Matrix: Groundwater
Date Received: 04/22/24 06:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	420221	QTZ5	EET CF	04/29/24 14:44
Total/NA	Prep	3005A			419477	QTZ5	EET CF	04/23/24 09:00
Total/NA	Analysis	6020B		1	419931	NFT2	EET CF	04/25/24 20:33
Total/NA	Prep	350.1			420239	MQ8M	EET CF	04/30/24 11:59
Total/NA	Analysis	350.1		1	420286	ZJX4	EET CF	04/30/24 21:09
Total/NA	Analysis	I-3765-85		1	419776	ENB7	EET CF	04/24/24 16:47
Total/NA	Analysis	SM 5220D		5	420108	ENB7	EET CF	04/29/24 10:06

Client Sample ID: MW-3
Lab Sample ID: 310-279511-5
Date Collected: 04/17/24 16:54
Matrix: Groundwater
Date Received: 04/22/24 06:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			419729	JT8P	EET CF	04/24/24 11:57
Total/NA	Analysis	OA-2		1	420178	C3AA	EET CF	04/30/24 14:31
Total/NA	Analysis	9056A		5	420221	QTZ5	EET CF	04/29/24 14:56
Total/NA	Prep	3005A			419479	QTZ5	EET CF	04/23/24 09:00
Total/NA	Analysis	6020B		1	419932	DHM5	EET CF	04/25/24 21:00
Total/NA	Prep	350.1			420322	A3GU	EET CF	05/01/24 08:53
Total/NA	Analysis	350.1		1	420418	ZJX4	EET CF	05/01/24 17:08
Total/NA	Analysis	I-3765-85		1	419903	A4XP	EET CF	04/25/24 16:35
Total/NA	Analysis	SM 5220D		5	420108	ENB7	EET CF	04/29/24 10:06

Client Sample ID: MW-4
Lab Sample ID: 310-279511-6
Date Collected: 04/18/24 12:21
Matrix: Groundwater
Date Received: 04/22/24 06:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			419729	JT8P	EET CF	04/24/24 11:57
Total/NA	Analysis	OA-2		1	420178	C3AA	EET CF	04/30/24 14:46
Total/NA	Analysis	9056A		5	420221	QTZ5	EET CF	04/29/24 15:08
Total/NA	Prep	3005A			419479	QTZ5	EET CF	04/23/24 09:00
Total/NA	Analysis	6020B		1	419932	DHM5	EET CF	04/25/24 21:17
Total/NA	Prep	350.1			420322	A3GU	EET CF	05/01/24 08:53
Total/NA	Analysis	350.1		1	420418	ZJX4	EET CF	05/01/24 17:09
Total/NA	Analysis	I-3765-85		1	419903	A4XP	EET CF	04/25/24 16:35
Total/NA	Analysis	SM 5220D		5	420108	ENB7	EET CF	04/29/24 10:06

Lab Chronicle

Client: SCS Engineers
Job ID: 310-279511-1
Project/Site: Council Bluffs ASR Monofill 2024

Client Sample ID: MW-5
Lab Sample ID: 310-279511-7
Date Collected: 04/18/24 12:51
Matrix: Groundwater
Date Received: 04/22/24 06:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			419729	JT8P	EET CF	04/24/24 11:57
Total/NA	Analysis	OA-2		1	420178	C3AA	EET CF	04/30/24 15:01
Total/NA	Analysis	9056A		10	420221	QTZ5	EET CF	04/29/24 15:20
Total/NA	Prep	3005A			419479	QTZ5	EET CF	04/23/24 09:00
Total/NA	Analysis	6020B		1	419932	DHM5	EET CF	04/25/24 21:20
Total/NA	Prep	350.1			420322	A3GU	EET CF	05/01/24 08:53
Total/NA	Analysis	350.1		1	420418	ZJX4	EET CF	05/01/24 17:17
Total/NA	Analysis	I-3765-85		1	419633	A4XP	EET CF	04/23/24 18:54
Total/NA	Analysis	SM 5220D		5	420108	ENB7	EET CF	04/29/24 10:06

Client Sample ID: MW-8
Lab Sample ID: 310-279511-8
Date Collected: 04/18/24 11:34
Matrix: Groundwater
Date Received: 04/22/24 06:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			419729	JT8P	EET CF	04/24/24 11:57
Total/NA	Analysis	OA-2		1	420178	C3AA	EET CF	04/30/24 15:16
Total/NA	Analysis	9056A		5	420221	QTZ5	EET CF	04/29/24 15:32
Total/NA	Prep	3005A			419479	QTZ5	EET CF	04/23/24 09:00
Total/NA	Analysis	6020B		1	419932	DHM5	EET CF	04/25/24 21:37
Total/NA	Prep	350.1			420322	A3GU	EET CF	05/01/24 08:53
Total/NA	Analysis	350.1		1	420418	ZJX4	EET CF	05/01/24 17:20
Total/NA	Analysis	SM 5220D		5	420108	ENB7	EET CF	04/29/24 10:06

Client Sample ID: MW-9
Lab Sample ID: 310-279511-9
Date Collected: 04/18/24 11:13
Matrix: Groundwater
Date Received: 04/22/24 06:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			419729	JT8P	EET CF	04/24/24 11:57
Total/NA	Analysis	OA-2		1	420178	C3AA	EET CF	04/30/24 15:31
Total/NA	Analysis	9056A		20	420221	QTZ5	EET CF	04/29/24 15:44
Total/NA	Prep	3005A			419479	QTZ5	EET CF	04/23/24 09:00
Total/NA	Analysis	6020B		1	419932	DHM5	EET CF	04/25/24 21:41
Total/NA	Prep	350.1			420322	A3GU	EET CF	05/01/24 08:53
Total/NA	Analysis	350.1		1	420418	ZJX4	EET CF	05/01/24 17:18
Total/NA	Analysis	SM 5220D		5	420108	ENB7	EET CF	04/29/24 10:06

Client Sample ID: MW-10
Lab Sample ID: 310-279511-10
Date Collected: 04/17/24 13:01
Matrix: Groundwater
Date Received: 04/22/24 06:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			419729	JT8P	EET CF	04/24/24 11:57
Total/NA	Analysis	OA-2		1	420178	C3AA	EET CF	04/30/24 15:46

Lab Chronicle

Client: SCS Engineers
Job ID: 310-279511-1
Project/Site: Council Bluffs ASR Monofill 2024

Client Sample ID: MW-10
Date Collected: 04/17/24 13:01
Date Received: 04/22/24 06:00

Lab Sample ID: 310-279511-10
Matrix: Groundwater

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	420221	QTZ5	EET CF	04/29/24 15:56
Total/NA	Prep	3005A			419479	QTZ5	EET CF	04/23/24 09:00
Total/NA	Analysis	6020B		1	419932	DHM5	EET CF	04/25/24 21:44
Total/NA	Prep	350.1			420322	A3GU	EET CF	05/01/24 08:53
Total/NA	Analysis	350.1		1	420418	ZJX4	EET CF	05/01/24 17:13
Total/NA	Analysis	I-3765-85		1	419776	ENB7	EET CF	04/24/24 16:47
Total/NA	Analysis	SM 5220D		5	420108	ENB7	EET CF	04/29/24 10:06

Client Sample ID: MW-11
Date Collected: 04/17/24 12:31
Date Received: 04/22/24 06:00

Lab Sample ID: 310-279511-11
Matrix: Groundwater

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			419729	JT8P	EET CF	04/24/24 11:57
Total/NA	Analysis	OA-2		1	420178	C3AA	EET CF	04/30/24 16:01
Total/NA	Analysis	9056A		5	420221	QTZ5	EET CF	04/29/24 16:09
Total/NA	Prep	3005A			419479	QTZ5	EET CF	04/23/24 09:00
Total/NA	Analysis	6020B		1	419932	DHM5	EET CF	04/25/24 21:48
Total/NA	Prep	350.1			420322	A3GU	EET CF	05/01/24 08:53
Total/NA	Analysis	350.1		1	420418	ZJX4	EET CF	05/01/24 17:11
Total/NA	Analysis	SM 5220D		5	420108	ENB7	EET CF	04/29/24 10:06

Client Sample ID: MW-12
Date Collected: 04/17/24 13:39
Date Received: 04/22/24 06:00

Lab Sample ID: 310-279511-12
Matrix: Groundwater

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			419729	JT8P	EET CF	04/24/24 11:57
Total/NA	Analysis	OA-2		1	420178	C3AA	EET CF	04/30/24 16:16
Total/NA	Analysis	9056A		5	420221	QTZ5	EET CF	04/29/24 16:20
Total/NA	Prep	3005A			419479	QTZ5	EET CF	04/23/24 09:00
Total/NA	Analysis	6020B		1	419932	DHM5	EET CF	04/25/24 21:51
Total/NA	Prep	350.1			420322	A3GU	EET CF	05/01/24 08:53
Total/NA	Analysis	350.1		1	420418	ZJX4	EET CF	05/01/24 17:08
Total/NA	Analysis	I-3765-85		1	419776	ENB7	EET CF	04/24/24 16:47
Total/NA	Analysis	SM 5220D		5	420108	ENB7	EET CF	04/29/24 10:06

Client Sample ID: MW-13
Date Collected: 04/17/24 16:09
Date Received: 04/22/24 06:00

Lab Sample ID: 310-279511-13
Matrix: Groundwater

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			419729	JT8P	EET CF	04/24/24 11:57
Total/NA	Analysis	OA-2		1	420178	C3AA	EET CF	04/30/24 16:31

Lab Chronicle

Client: SCS Engineers
Job ID: 310-279511-1
Project/Site: Council Bluffs ASR Monofill 2024

Client Sample ID: MW-13
Lab Sample ID: 310-279511-13
Date Collected: 04/17/24 16:09
Matrix: Groundwater
Date Received: 04/22/24 06:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	420221	QTZ5	EET CF	04/29/24 16:32
Total/NA	Prep	3005A			419479	QTZ5	EET CF	04/23/24 09:00
Total/NA	Analysis	6020B		1	419932	DHM5	EET CF	04/25/24 21:55
Total/NA	Prep	350.1			420322	A3GU	EET CF	05/01/24 08:53
Total/NA	Analysis	350.1		1	420418	ZJX4	EET CF	05/01/24 17:13
Total/NA	Analysis	I-3765-85		1	419903	A4XP	EET CF	04/25/24 16:35
Total/NA	Analysis	SM 5220D		5	420108	ENB7	EET CF	04/29/24 10:06

Client Sample ID: MW-14R
Lab Sample ID: 310-279511-14
Date Collected: 04/17/24 17:32
Matrix: Groundwater
Date Received: 04/22/24 06:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			419729	JT8P	EET CF	04/24/24 11:57
Total/NA	Analysis	OA-2		1	420178	C3AA	EET CF	04/30/24 16:46
Total/NA	Analysis	9056A		5	420221	QTZ5	EET CF	04/29/24 17:09
Total/NA	Prep	3005A			419479	QTZ5	EET CF	04/23/24 09:00
Total/NA	Analysis	6020B		1	419932	DHM5	EET CF	04/25/24 21:58
Total/NA	Prep	350.1			420322	A3GU	EET CF	05/01/24 08:53
Total/NA	Analysis	350.1		1	420418	ZJX4	EET CF	05/01/24 17:11
Total/NA	Analysis	I-3765-85		1	419776	ENB7	EET CF	04/24/24 16:47
Total/NA	Analysis	SM 5220D		5	420108	ENB7	EET CF	04/29/24 10:06

Client Sample ID: MW-15R
Lab Sample ID: 310-279511-15
Date Collected: 04/17/24 18:10
Matrix: Groundwater
Date Received: 04/22/24 06:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			419729	JT8P	EET CF	04/24/24 11:57
Total/NA	Analysis	OA-2		1	420178	C3AA	EET CF	04/30/24 17:01
Total/NA	Analysis	9056A		5	420221	QTZ5	EET CF	04/29/24 17:21
Total/NA	Prep	3005A			419479	QTZ5	EET CF	04/23/24 09:00
Total/NA	Analysis	6020B		1	419932	DHM5	EET CF	04/25/24 22:01
Total/NA	Prep	350.1			420322	A3GU	EET CF	05/01/24 08:53
Total/NA	Analysis	350.1		1	420418	ZJX4	EET CF	05/01/24 17:05
Total/NA	Analysis	I-3765-85		1	419633	A4XP	EET CF	04/23/24 18:54
Total/NA	Analysis	SM 5220D		5	420108	ENB7	EET CF	04/29/24 10:06

Lab Chronicle

Client: SCS Engineers
Job ID: 310-279511-1
Project/Site: Council Bluffs ASR Monofill 2024

Client Sample ID: MW-D
Date Collected: 04/17/24 15:28
Date Received: 04/22/24 06:00

Lab Sample ID: 310-279511-16
Matrix: Groundwater

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			419809	JT8P	EET CF	04/25/24 08:36
Total/NA	Analysis	OA-2		1	420176	C3AA	EET CF	04/30/24 10:21
Total/NA	Analysis	9056A		5	420221	QTZ5	EET CF	04/29/24 17:33
Total/NA	Prep	3005A			419479	QTZ5	EET CF	04/23/24 09:00
Total/NA	Analysis	6020B		1	419932	DHM5	EET CF	04/25/24 22:08
Total/NA	Prep	350.1			420322	A3GU	EET CF	05/01/24 08:53
Total/NA	Analysis	350.1		1	420418	ZJX4	EET CF	05/01/24 17:10
Total/NA	Analysis	SM 5220D		5	420108	ENB7	EET CF	04/29/24 10:06

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: 310-279511-1
Project/Site: Council Bluffs ASR Monofill 2024

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
Project/Site: Council Bluffs ASR Monofill 2024

Job ID: 310-279511-1

Method	Method Description	Protocol	Laboratory
OA-2	Iowa - Extractable Petroleum Hydrocarbons (GC)	Iowa DNR	EET CF
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
350.1	Nitrogen, Ammonia	EPA	EET CF
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
SM 5220D	COD	SM	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
350.1	Distillation, Ammonia	EPA	EET CF
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET CF

Protocol References:

EPA = US Environmental Protection Agency
Iowa DNR = Iowa Department of Natural Resources
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.
USGS = "Methods For Analysis Of Water And Fluvial Sediments", USGS, 1989

Laboratory References:

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

eurofins | Environment Testing America

310-279511 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: SSC

City/State: CITY | STATE TA | Project:

Receipt Information

Date/Time Received: DATE 4/22/24 TIME 0600 | Received By: [illegible]

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

Condition of Cooler/Containers

Sample(s) received in Cooler? ☒ Yes ☐ No *If yes:* Cooler ID:

Multiple Coolers? ☒ Yes ☐ No *If yes:* Cooler # 1 of 3

Cooler Custody Seals Present? ☐ Yes ☒ No *If yes:* Cooler custody seals intact? ☐ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☒ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☒ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

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

Thermometer ID: T | Correction Factor (°C): +0.0

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

Uncorrected Temp (°C): 4.0 | Corrected Temp (°C): 4.0

• **Sample Container Temperature**

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

Exceptions Noted

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

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

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

Additional Comments

eurofins | Environment Testing America

Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: ES

City/State: CITY | STATE IA | Project:

Receipt Information

Date/Time Received: DATE 4/22/24 | TIME 0600 | Received By: N

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

Condition of Cooler/Containers

Sample(s) received in Cooler?	☒ Yes	☐ No	*If yes:* Cooler ID:
Multiple Coolers?	☒ Yes	☒ No	*If yes:* Cooler # 2 of 3
Cooler Custody Seals Present? No	☐ Yes	☒ No	*If yes:* Cooler custody seals intact? ☐ Yes ☐ No
Sample Custody Seals Present? No	☐ 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: T | Correction Factor (°C): +0.0

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

Uncorrected Temp (°C): 2.3 | Corrected Temp (°C): 2.3

• 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 | Environment Testing America

Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: SCS

City/State: CITY | STATE TA | Project:

Receipt Information

Date/Time Received: DATE 4/22/24 | TIME 0600 | Received By:

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

Condition of Cooler/Containers

Sample(s) received in Cooler? ☒ Yes ☐ No *If yes:* Cooler ID.

Multiple Coolers? ☒ Yes ☐ No *If yes:* Cooler # 3 of 3

Cooler Custody Seals Present? ☐ Yes ☒ No *If yes:* Cooler custody seals intact? ☐ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☒ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☒ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

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

Thermometer ID: T | Correction Factor (°C): +0.0

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

Uncorrected Temp (°C): 1.4 | Corrected Temp (°C): 1.4

• **Sample Container Temperature**

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

Exceptions Noted

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

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

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

Additional Comments

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
Environment Testing

Client Information	Sampler: Konner	Lab PM: Yang Mary E	Carrier Tracking No(s)	COC No: 310-91680-25243 1
Client Contact: Kevin Jensen	Phone:	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: 515-327-4933(Tel)	PO #: Purchase Order not required			
Email kjensen@scsengineers.com	WO #:			
Project Name: Council Bluffs ASR Monofill 2024 Event Desc. Council Bluffs ASR	Project #: 31002934			
Site: Iowa	SSOW#:			

Analysis Requested

Preservation Codes

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

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	OA2 THE	350.1, 5220D Ammonia, COD	9056A_ORGFM_28D Chloride	I_3765_85 Total Suspended Solids	6020B Iron	6020B (MOD) Arsenic, Iron	6020B (MOD) As, Pb, Fe	6020B (MOD) Lead, Iron	6020B (MOD) As, Ba, Pb, Ni, Zn, Fe	6020B (MOD) As, Ba, Pb, Ni, Fe	Total Number of containers	Special Instructions/Note
			Preservation Code:				N	S	N	N	D	D	D	D	D	D		
MW-1			G	Water			X	X	X		X							
EPA-1AR			G	Water			X	X	X		X							
MW-2			G	Water			X	X	X	X		X						
EPA-2A			G	Water			X	X	X	X		X						
MW-3			G	Water			X	X	X	X		X						
MW-4			G	Water			X	X	X	X					X			
MW-5			G	Water			X	X	X	X					X			
MW-8			G	Water			X	X	X		X							
MW-9			G	Water			X	X	X		X							
MW-10			G	Water			X	X	X	X		X						
MW-11			G	Water			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
1	Konner Roth	4-19-24 / 12:30pm	SCS		4-19-24	1235
2		4-20-24 0800				
3					4/22/24 0600	

Custody Seals Intact: Δ Yes Δ No | Custody Seal No

Cooler Temperature(s) °C and Other Remarks.

Ver: 01/16/2019

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 Environment Testing

Client Information	Sampler: Konner	Lab PM: Yang, Mary E	Carrier Tracking No(s)	COC No: 310-91680-25243.2
Client Contact: Kevin Jensen	Phone:	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: 515-327-4933(Tel)	PO #: Purchase Order not required			
Email: kjensen@scsengineers.com	WO #:			
Project Name: Council Bluffs ASR Monofill 2024 Event Desc: Council Bluffs ASR	Project #: 31002934			
Site: Iowa	SSOW#:			

Analysis Requested

Preservation Codes

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

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	OA2 THE	350 1, 5220D	9056A_ORGFM_28D Chloride	I_3765_85 Total Suspended Solids	6020B Iron	6020B (MOD) Arsenic, Iron	6020B (MOD) As, Pb, Fe	6020B (MOD) Lead, Iron	6020B (MOD) As, Ba, Pb, Ni, Zn, Fe	6020B (MOD) As, Ba, Pb, Ni, Fe	Total Number of containers	Special Instructions/Note
			Preservation Code:				N	S	N	N	D	D	D	D	D	D		
MW-12			G	Water			X	X	X	X				X				
MW-13			G	Water			X	X	X	X			X					
MW-14R			G	Water			X	X	X	X					X			
MW-15R			G	Water			X	X	X	X						X		
MW-D			G	Water			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: Konner Roth	Date/Time: 4-19-24 / 12:30	Company: SCS	Received by:	Date/Time: 4-19-24 1235	Company: EF
Relinquished by:	Date/Time: 4-20-24 0900	Company: EF	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 4/22/24 0900	Company

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

Ver 01/16/2019

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 Environment Testing

Client Information	Sampler: Kramer	Lab PM: Yang Mary E	Carrier Tracking No(s):	COC No: 310-91680-25243 1
Client Contact: Kevin Jensen	Phone:	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: 515-327-4933(Tel)	PO #: Purchase Order not required			
Email: kjensen@scsengineers.com	WO #:			
Project Name: Council Bluffs ASR Monofill 2024 Event Desc. Council Bluffs ASR	Project #: 31002934			
Site: Iowa	SSOW#:			

Analysis Requested

Preservation Codes

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

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	OA2 THE	350.1, 5220D Ammonia, COD	9056A_ORGFM_28D Chloride	I_3765_85 Total Suspended Solids	6020B Iron	6020B (MOD) Arsenic, Iron	6020B (MOD) As, Pb, Fe	6020B (MOD) Lead, Iron	6020B (MOD) As, Ba, Pb, Ni, Zn, Fe	6020B (MOD) As, Ba, Pb, Ni, Fe	Total Number of containers	Special Instructions/Note
			Preservation Code:				N	S	N	N	D	D	D	D	D	D		
MW-1	4/17/24	15:28	G	Water			X	X	X		X							
EPA-1AR	4/18/24	10:01	G	Water			X	X	X		X							
MW-2	4/17/24	14:27	G	Water			X	X	X	X		X						
EPA-2A	4/18/24	10:38	G	Water			X	X	X	X		X						
MW-3	4/17/24	16:54	G	Water			X	X	X	X		X						
MW-4	4/18/24	12:21	G	Water			X	X	X	X					X			
MW-5	4/18/24	12:51	G	Water			X	X	X	X					X			
MW-8	4/18/24	11:39	G	Water			X	X	X		X							
MW-9	4/18/24	11:13	G	Water			X	X	X		X							
MW-10	4/17/24	13:01	G	Water			X	X	X	X		X						
MW-11	4/17/24	12:31	G	Water			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: Kramer Ruth	Date/Time: 4-19-24 / 12:30pm	Company: SCS	Received by:	Date/Time: 4-19-24	Company: 1235
Relinquished by:	Date/Time: 4-20-24 0800	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 4/22/24 0600	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No

Cooler Temperature(s) °C and Other Remarks.

Ver 01/16/2019

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
Environment Testing

Client Information	Sampler: Konner	Lab PM: Yang, Mary E	Carrier Tracking No(s):	COC No: 310-91680-25243.2
Client Contact: Kevin Jensen	Phone:	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: 515-327-4933(Tel)	PO #: Purchase Order not required			
Email: kjensen@scsengineers.com	WO #:			
Project Name: Council Bluffs ASR Monofill 2024 Event Desc: Council Bluffs ASR	Project #: 31002934			
Site: Iowa	SSOW#:			

Analysis Requested

Preservation Codes

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

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	OA2 THE	350 1, 5220D	9056A_ORGFM_28D Chloride	L_3765_85 Total Suspended Solids	6020B Iron	6020B (MOD) Arsenic, Iron	6020B (MOD) As, Pb, Fe	6020B (MOD) Lead, Iron	6020B (MOD) As, Ba, Pb, Ni, Zn, Fe	6020B (MOD) As, Ba, Pb, Ni, Fe	Total Number of containers	Special Instructions/Note
			Preservation Code:				N	S	N	N	D	D	D	D	D	D		
MW-12	4/17/24	13:39	G	Water			X	X	X	X				X				
MW-13	4/17/24	16:09	G	Water			X	X	X	X			X					
MW-14R	4/17/24	17:32	G	Water			X	X	X	X					X			
MW-15R	4/17/24	18:10	G	Water			X	X	X	X						X		
MW-D	4/17/24	15:28	G	Water			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: Konner Roth	Date/Time: 4-19-24/12:30	Company: SCS	Received by:	Date/Time: 4-19-24 1235	Company: ET
Relinquished by:	Date/Time: 4-20-24 0900	Company: ET	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 4/22/24 0900	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No

Cooler Temperature(s) °C and Other Remarks:

Ver 01/16/2019

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-279511-1
SDG Number:

Login Number: 279511
List Number: 1
Creator: Homolar, Dana J

List Source: Eurofins Cedar Falls

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	MW-2A on Container and EPA-2A COC logged per container
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.	False	No date or time on COC or sample containers
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 B2

Data Validation

Completed by: Brett Hazen
Lab Report Date: 5/21/2024
Site Name: Council Bluffs-Alter ASR Monofill
Lab Report Number: 310-279511-1

	OK	NO	N/A	NOTES
Sample Collection and Sample Handling				
Chain of Custody	X			
Temperature	X			
Preservation	X			Method 6020B: The reference method requires samples to be preserved to a pH of <2. The following sample was received with insufficient preservation at a pH of >2: EPA-1AR (310-279511-2). The sample(s) was preserved to the appropriate pH in the laboratory.
Condition	X			
Reporting Limits	X			
Case Narrative	X			
Holding Times	X			
Analytical Sensitivty and Blanks				
Method Blank Detections		X		Method OA2: The method blank for preparation batch 310-419729 and analytical batch 310-420178 contained Total Extractable Hydrocarbons above the method detection limit. This target analyte concentration was less than the reporting limit (RL) in the method blank; therefore, re-extraction and/or re-analysis of samples was not performed. Method I_3765_85: The method blank for preparation batch 310-419776 contained TSS above the reporting limit (RL). There was insufficient sample to preform a re-extraction and/or re-analysis; therefore, the data have been reported.
Trip Blank Detections			X	
Accuracy				
ICV/CCV	X			
LCS/LCSD	X			
MS/MSD	X			Method OA2: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 310-419729 and 310-419809. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.
Surrogates (organics only)			X	
Precision				
QA/QC Sample RPDs	X			
Field Duplicates	X			The duplicate sample was collected from MW-1 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

SCS ENGINEERS

Summary of Groundwater Chemistry

Alter Trading Corporation Waste Monofill Site (Closed) - 78-SDP-19-98C

Total Metals Constituents	Sample Date	MW-4 UPG	MW-5 UPG	EPA-1AR DNG	EPA-2A DNG	MW-1 DNG	MW-2 DNG	MW-3 DNG	MW-8 DNG	MW-9 DNG	MW-10 DNG	MW-11 DNG	MW-12 DNG	MW-13 DNG	MW-14R DNG	MW-15R DNG
Arsenic, mg/L (CAS NO - 7440-38-2)	4/19/2012	< 0.004	0.0061	N/A	N/A	N/A	0.159	N/A	N/A	N/A	0.0077	N/A	N/A	0.0484	0.0719	0.0965
	9/12/2012	N/A	N/A	N/A	0.0284	N/A	0.383	0.177	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/19/2013	N/A	N/A	N/A	0.0211	N/A	0.178	N/A	N/A	N/A	0.00879	N/A	N/A	0.0159	0.0258	0.0292
	9/18/2013	N/A	N/A	N/A	0.0206	N/A	0.194	0.153	N/A	N/A	0.00775	N/A	N/A	0.0078	0.024	0.0385
	3/18/2014	N/A	N/A	N/A	0.0246	N/A	0.139	0.261	N/A	N/A	0.00703	N/A	N/A	0.00691	0.0177	0.0205
	9/9/2014	< 0.001	0.00275	N/A	0.0159	N/A	0.215	0.155	N/A	N/A	< 0.001	N/A	N/A	0.0101	N/A	N/A
	3/16/2015	0.00136	0.00396	N/A	0.012	N/A	0.162	0.154	N/A	N/A	0.00773	N/A	N/A	0.00898	0.0168	0.027
	9/1/2015	0.00159	0.00442	N/A	0.0111	N/A	0.171	0.218	N/A	N/A	0.00875	N/A	N/A	0.0121	0.017	0.0348
	4/14/2016	0.00201	0.00689	N/A	0.0103	N/A	0.149	0.207	N/A	N/A	0.00889	N/A	N/A	0.0216	0.0191	0.0401
	9/1/2016	0.00084*	0.00344	N/A	0.0104	N/A	0.152	0.155	N/A	N/A	0.00743	N/A	N/A	0.00954	0.0206	0.0415
	3/7/2017	0.00127*	0.00155*	N/A	0.0117	N/A	0.142	0.162	N/A	N/A	0.00837	N/A	N/A	0.00384	0.0182	0.119
	4/3/2018	0.000836*	0.00123*	N/A	0.00502	N/A	0.19	0.136	N/A	N/A	0.0096	N/A	N/A	0.0028	0.00977	0.0168
	6/20/2019	0.0015*	0.0012*	N/A	0.00185*	N/A	0.188	0.172	N/A	N/A	N/A	N/A	N/A	0.00675	N/A	N/A
	10/8/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0127	N/A	N/A	N/A	N/A	N/A
	4/1/2020	0.00132*	0.00124*	N/A	0.00195*	N/A	0.159	0.11	N/A	N/A	0.0133	N/A	N/A	0.004	0.00653	0.0194
	6/16/2021	0.000892*	0.000878*	N/A	0.00344	N/A	0.141	0.176	N/A	N/A	0.00942	N/A	N/A	0.00174*	0.019	0.00778
	8/30/2022	0.00134*	0.0013*	N/A	0.00528	N/A	0.168	0.15	N/A	N/A	0.00837	N/A	N/A	0.00258	0.0121	0.0115
	6/28/2023	N/A	N/A	N/A	0.00186*	N/A	0.112	0.139	N/A	N/A	0.00931	N/A	N/A	0.00856	0.00451	0.00511
	4/17/2024	0.00146*	0.000872*	N/A	0.00198*	N/A	0.2	0.169	N/A	N/A	0.000609*	N/A	N/A	0.00175*	0.00365	0.00325
Barium, mg/L (CAS NO - 7440-39-3)	4/19/2012	0.254	0.353	N/A	N/A	N/A	0.845	N/A	N/A	N/A	0.226	N/A	N/A	0.665	2.96	2.93
	9/12/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.699	0.618
	3/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.765	0.902
	9/18/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.17	0.867
	3/18/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.831	0.864
	9/9/2014	0.275	0.151	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/16/2015	0.296	0.149	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.551	0.904
	9/1/2015	0.338	0.154	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.524	0.598
	4/14/2016	0.357	0.122	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.565	0.891
	9/1/2016	0.298	0.13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.773	0.913
	3/7/2017	0.276	0.0966	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.628	1.48
	4/3/2018	0.279	0.0557	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.49	0.99
	6/20/2019	0.294	0.0499	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2020	0.256	0.0444	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.69	0.385
	6/16/2021	0.245	0.0798	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.986	0.689
	8/30/2022	0.277	0.0755	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.913	0.741
	6/28/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.703	0.498
	4/17/2024	0.251	0.0593	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.597	0.358
Lead, mg/L (CAS NO - 7439-92-1)	4/19/2012	< 0.004	0.0059	N/A	N/A	N/A	0.0052	N/A	N/A	N/A	< 0.004	N/A	N/A	0.0523	0.203	0.179
	9/12/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.102	0.00563	0.121	0.0221
	3/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.381	< 0.004	0.0325	0.0129
	9/18/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.125	0.0129	0.136	0.0538
	3/18/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0237	< 0.004	0.0329	0.0372
	9/9/2014	< 0.004	< 0.004	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.78	0.0398	N/A	N/A
	3/16/2015	0.00221	0.00672	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.116	0.0118	0.0537	0.0462
	9/1/2015	0.00158	0.00834	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.553	0.0304	0.0133	0.0108
	4/14/2016	0.00202	0.0114	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.18	0.0103	0.0241	0.029
	9/1/2016	0.000296*	0.00689	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.649	0.013	0.0246	0.019
	3/7/2017	< 0.0005	0.000876	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0416	0.000829	0.00304	0.00324
	4/3/2018	< 0.0005	< 0.0005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00294	0.00314	0.000297*	< 0.0005
	6/20/2019	0.000433*	< 0.0005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00527	0.000346*	N/A	N/A
	4/1/2020	< 0.0005	< 0.0005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00389	< 0.0005	< 0.0005	0.00219
	6/16/2021	< 0.0005	0.000219*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00381	< 0.0005	0.00162	0.000359*
	8/30/2022	0.000333*	0.000524	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00174	0.000269*	0.00119	< 0.0005
	6/28/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00304	0.00169	< 0.0005	< 0.0005
	4/17/2024	0.000315*	< 0.0005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000925	< 0.0005	< 0.0005	< 0.0005

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Summary of Groundwater Chemistry

Alter Trading Corporation Waste Monofill Site (Closed) - 78-SDP-19-98C

Total Metals Constituents	Sample Date	MW-4 UPG	MW-5 UPG	EPA-1AR DNG	EPA-2A DNG	MW-1 DNG	MW-2 DNG	MW-3 DNG	MW-8 DNG	MW-9 DNG	MW-10 DNG	MW-11 DNG	MW-12 DNG	MW-13 DNG	MW-14R DNG	MW-15R DNG
Nickel, mg/L (CAS NO - 7440-02-0)	4/19/2012	< 0.05	< 0.05	N/A	N/A	N/A	< 0.05	N/A	N/A	N/A	< 0.05	N/A	N/A	< 0.05	**0.659**	**0.134**
	9/12/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.153**	**0.0126**
	3/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.0924**	< 0.05
	9/18/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.321**	**0.0371**
	3/18/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.147**	**0.0255**
	9/9/2014	**0.0127**	**0.0264**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/16/2015	**0.00159**	**0.0221**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.394**	**0.0245**
	9/1/2015	**0.00146**	**0.0169**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.168**	**0.0175**
	4/14/2016	0.00185*	**0.0283**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.376**	**0.0276**
	9/1/2016	< 0.005	**0.015**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.114**	**0.0184**
	3/7/2017	0.00118*	**0.00976**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.539**	**0.018**
	4/3/2018	0.00131*	**0.00538**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.116**	**0.0118**
	6/20/2019	0.00448*	**0.00734**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2020	< 0.005	0.00199*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.391**	**0.0084**
	6/16/2021	0.00375*	0.00474*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.244**	**0.0104**
	8/30/2022	0.00323*	**0.00517**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.172**	**0.00748**
	6/28/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.109**	**0.0068**
	4/17/2024	0.00307*	0.00388*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.0684**	0.00396*
Zinc, mg/L (CAS NO - 7440-66-6)	4/19/2012	< 0.02	**0.0306**	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A	< 0.02	N/A	N/A	**0.112**	**10.5**	**0.677**
	9/12/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**4.93**	N/A
	3/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**2.86**	N/A
	9/18/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**7.36**	N/A
	3/18/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**3.2**	N/A
	9/9/2014	< 0.02	**0.0208**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/16/2015	**0.00941**	**0.0402**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**6.71**	N/A
	9/1/2015	< 0.01	**0.0245**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**2.89**	N/A
	4/14/2016	0.00695*	**0.0333**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**6.35**	N/A
	9/1/2016	< 0.01	**0.0169**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**3.24**	N/A
	3/7/2017	< 0.02	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**6.44**	N/A
	4/3/2018	< 0.02	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**1.7**	N/A
	6/20/2019	< 0.02	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2020	< 0.02	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**5.68**	N/A
	6/16/2021	< 0.02	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**3.8**	N/A
	8/30/2022	< 0.02	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**2.54**	N/A
	6/28/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**1.98**	N/A
	4/17/2024	< 0.02	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**1.28**	N/A
Total Suspended Solids, mg/L (CAS NO - TSS)	3/18/2014	N/A	N/A	N/A	**95**	N/A	**57**	**224**	N/A	N/A	**24**	N/A	**237**	**162**	**860**	**1280**
	9/9/2014	**43.3**	**636**	N/A	**107**	N/A	**73.5**	**864**	N/A	N/A	**26.4**	N/A	**473**	**714**	N/A	N/A
	3/16/2015	**109**	**1420**	N/A	**72**	N/A	**59.3**	**720**	N/A	N/A	**27.3**	N/A	**305**	**724**	**1040**	**1550**
	9/1/2015	**63.3**	**510**	N/A	**36.3**	N/A	**70.4**	**415**	N/A	N/A	**31.4**	N/A	**347**	**549**	**215**	**288**
	4/14/2016	**91.2**	**943**	N/A	**29.8**	N/A	**77.4**	**597**	N/A	N/A	**20.5**	N/A	**828**	**265**	**402**	**803**
	9/1/2016	**38**	**327**	N/A	**32.6**	N/A	**56**	**591**	N/A	N/A	**13.5**	N/A	**498**	**371**	**590**	**537**
	3/7/2017	**26.3**	**71.4**	N/A	**17.6**	N/A	**6.5**	**54.5**	N/A	N/A	**12.9**	N/A	**39.5**	**46.9**	**82.4**	**138**
	4/3/2018	**7.13**	1*	N/A	**3.87**	N/A	**18.5**	**34.6**	N/A	N/A	**13.3**	N/A	**3.38**	**22.3**	**29.8**	**36.8**
	6/20/2019	**29.1**	1.75*	N/A	1.38*	N/A	**45.2**	**42.9**	N/A	N/A	N/A	N/A	**3.5**	**12.8**	N/A	N/A
	10/8/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**14.3**	N/A	N/A	N/A	N/A	N/A
	4/1/2020	**32.5**	**7**	N/A	< 1.88	N/A	**2.5**	**35**	N/A	N/A	2.33*	N/A	1*	**4.13**	**14**	**20**
	6/16/2021	**29.6**	**3.75**	N/A	**2.63**	N/A	**48.7**	**48.1**	N/A	N/A	**6.38**	N/A	**3**	**4.25**	**41.7**	**13.5**
	8/30/2022	**36.5**	**91.6**	N/A	**2.63**	N/A	**48**	**43**	N/A	N/A	**45.4**	N/A	**19**	**14.9**	**32**	**28**
	6/28/2023	N/A	N/A	N/A	< 5	N/A	**41**	**42**	N/A	N/A	**24.3**	N/A	1.5*	**213**	**15**	**6**
	4/17/2024	**27**	**2.25**	N/A	**3.63**	N/A	**52**	**51**	N/A	N/A	**6.25**	N/A	< 1.88	**75.7**	**8.5**	**71**

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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Summary of Groundwater Chemistry

Alter Trading Corporation Waste Monofill Site (Closed) - 78-SDP-19-98C

Other Constituents	Sample Date	MW-4 UPG	MW-5 UPG	EPA-1AR DNG	EPA-2A DNG	MW-1 DNG	MW-2 DNG	MW-3 DNG	MW-8 DNG	MW-9 DNG	MW-10 DNG	MW-11 DNG	MW-12 DNG	MW-13 DNG	MW-14R DNG	MW-15R DNG
Ammonia as N, mg/L (CAS NO - 7664-41-7)	1/18/1991	N/A	N/A	N/A	0.5	1.5	20	1.3	0.5	< 0.2	N/A	N/A	N/A	N/A	N/A	N/A
	5/23/1991	N/A	N/A	0.5	0.94	1.1	84	1.6	1.4	0.5	N/A	N/A	N/A	N/A	N/A	N/A
	9/27/1991	N/A	N/A	0.5	N/A	1.2	1.9	2.3	0.5	0.5	N/A	N/A	N/A	N/A	N/A	N/A
	12/19/1991	N/A	N/A	0.5	0.8	1.2	110	1.8	1.3	0.5	1	0.5	N/A	N/A	N/A	N/A
	10/14/1992	N/A	N/A	< 0.2	0.5	1.2	110	2.2	1.2	< 0.2	1.1	< 0.2	N/A	N/A	N/A	N/A
	1/15/1993	N/A	N/A	< 0.2	N/A	N/A	N/A	N/A	N/A	N/A	0.98	< 0.2	N/A	N/A	N/A	N/A
	4/27/1993	N/A	N/A	< 0.2	0.68	1.1	120	13	1.1	0.54	1.7	0.41	N/A	N/A	N/A	N/A
	10/20/1993	N/A	N/A	< 0.2	0.74	1.5	94	1.8	1.2	< 0.2	1.4	< 0.2	N/A	N/A	N/A	N/A
	4/12/1994	N/A	N/A	< 0.2	0.91	< 0.2	130	2	0.36	< 0.2	0.75	< 0.2	N/A	N/A	N/A	N/A
	10/21/1994	N/A	N/A	< 0.2	0.72	0.61	140	1.8	1.2	< 0.2	0.92	< 0.2	N/A	N/A	N/A	N/A
	5/28/1995	N/A	N/A	< 0.2	0.37	1.1	90	1.4	1.2	< 0.2	1.3	< 0.2	N/A	N/A	N/A	N/A
	9/18/1995	N/A	N/A	0.23	0.9	2.2	90	3.3	1.8	0.46	1.5	0.43	N/A	N/A	N/A	N/A
	10/22/2002	N/A	N/A	N/A	6.6	< 1	15.6	N/A	< 1	< 1	< 1	< 1	< 1	1.1	N/A	N/A
	2/12/2003	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.42	1.37	N/A	N/A
	3/25/2003	N/A	N/A	N/A	3.97	1.27	20.2	N/A	0.34	< 0.2	0.34	< 0.2	< 0.2	1.4	N/A	N/A
	8/19/2003	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.2	0.82	N/A	N/A
	12/30/2003	N/A	N/A	N/A	5.28	< 0.2	57.6	1.84	0.94	< 0.2	0.49	< 0.2	< 0.2	2.17	N/A	N/A
	3/11/2004	N/A	N/A	< 0.2	0.43	0.53	58.9	N/A	< 0.2	1.04	0.39	< 0.2	< 0.2	2.05	N/A	N/A
	3/28/2005	N/A	N/A	< 0.2	4.98	1.1	37.5	1.58	0.94	< 0.2	0.58	< 0.2	< 0.2	1.85	N/A	N/A
	6/21/2005	N/A	N/A	< 0.2	10	1.14	16.7	1.32	0.88	< 0.2	0.58	< 0.2	N/A	N/A	N/A	N/A
	9/14/2005	N/A	N/A	< 0.2	< 0.2	1.09	1.6	1.57	1.03	< 0.2	0.81	< 0.2	< 0.2	2.3	5.94	0.6
	12/12/2005	N/A	N/A	< 0.2	0.713	0.871	61.5	1.57	0.834	< 0.2	0.5	< 0.2	< 0.2	2.16	6.84	0.633
	3/13/2006	N/A	N/A	< 0.059	1.49	1.12	53.4	1.72	0.0993	0.123	0.691	0.139	0.103	< 0.059	6.66	0.643
	6/27/2006	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.91	1.12
	9/21/2006	N/A	N/A	0.103	4.21	0.117	8.27	1.43	0.756	0.0666	0.542	0.168	0.0716	0.279	5.81	1.52
	3/28/2007	0.0412	0.0412	0.0412	0.0737	0.0689	64	0.103	0.0412	0.0412	0.3	0.0412	0.0412	0.177	1.74	0.394
	6/22/2007	0.131	0.331	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2007	0.0355	0.114	0.0355	2.62	0.206	92.9	1.36	0.0355	0.0355	0.664	0.0355	0.0355	0.156	2.16	1.16
	12/13/2007	0.246	< 0.021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/26/2008	< 0.037	< 0.037	0.0582	2.34	0.122	78.5	2.29	< 0.037	0.0435	< 0.037	< 0.037	< 0.037	< 0.037	0.282	0.148
	9/16/2008	< 0.2	< 0.2	< 0.2	4.96	0.515	96.1	1.16	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.241	1.69
	3/10/2009	< 0.037	< 0.037	< 0.037	0.0632	< 0.037	155	1.38	< 0.037	< 0.037	< 0.037	< 0.037	< 0.037	< 0.037	0.561	0.35
	9/10/2009	< 0.037	0.167	< 0.037	1.12	1.15	22.2	1.26	0.919	< 0.037	0.649	< 0.037	< 0.037	< 0.037	1.9	1.36
	3/25/2010	1.1	< 0.016	< 0.016	0.913	0.891	35.3	1.49	0.293	< 0.016	0.634	< 0.016	< 0.016	< 0.016	0.581	0.497
	9/29/2010	0.446	< 0.016	N/A	0.0722	7.62	13.6	1.07	0.814	< 0.016	0.0865	< 0.016	< 0.016	< 0.016	0.18	0.0471
	3/22/2011	< 0.016	< 0.016	< 0.016	< 0.016	1.2	23.2	1.52	0.223	< 0.016	0.602	< 0.016	< 0.016	< 0.016	0.793	0.0986
	9/27/2011	0.0343	< 0.016	< 0.016	0.0285	1.56	7.75	0.55	0.417	< 0.016	0.134	< 0.016	0.0596	N/A	N/A	N/A
	4/19/2012	< 1	< 1	< 1	< 1	12.6	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
	9/12/2012	0.216	0.127	< 0.0219	0.0257	0.545	76.8	1.32	0.137	< 0.0219	0.478	< 0.0219	< 0.0219	< 0.0219	5.2	0.86
	3/19/2013	1.06	< 0.2	< 0.2	0.72	1.13	30.5	N/A	0.735	< 0.2	0.606	< 0.2	< 0.2	< 0.2	3.2	0.519
	9/18/2013	0.128	0.072	< 0.2	0.105	0.203	29.1	1.1	0.472	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	5.17	0.815
	3/18/2014	< 0.2	< 0.2	< 0.2	< 0.2	0.598	61.4	0.951	0.185	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	2.35	0.321
	9/9/2014	0.902	0.19	< 0.2	< 0.2	1.17	1.76	0.979	0.772	< 0.2	0.623	< 0.2	< 0.2	< 0.2	N/A	N/A
	3/16/2015	1.09	< 0.2	< 0.2	< 0.2	1.13	22.6	0.991	0.842	< 0.2	0.593	< 0.2	< 0.2	< 0.2	1.11	0.163
	9/1/2015	1.12	< 0.2	< 0.2	0.159	1.22	11.1	0.952	0.768	< 0.2	0.601	< 0.2	< 0.2	< 0.2	3.5	0.747
	4/14/2016	1.12	< 0.2	< 0.2	0.147*	1.15	20.5	0.855	0.777	< 0.2	0.469	< 0.2	< 0.2	< 0.2	2.06	< 0.2
	9/1/2016	1.24	< 0.2	1.36	1.22	1.23	15.6	1.07	0.783	< 0.2	0.611	< 0.2	< 0.2	< 0.2	6.94	0.136*
	3/7/2017	1.21	< 0.2	< 0.2	0.166*	1.18	23.6	1.23	0.742	< 0.2	0.616	< 0.2	< 0.2	< 0.2	1.43	0.0989*
	4/3/2018	0.626	< 0.2	< 0.2	0.682	1.11	24	1.13	0.622	< 0.2	0.573	< 0.2	< 0.2	< 0.2	1.45	0.0957*
	6/20/2019	1.12	< 0.2	< 0.2	0.644	1.16	3.5	1.19	< 0.2	< 0.2	N/A	N/A	< 0.2	< 0.2	N/A	N/A
	10/8/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.477	< 0.2	N/A	N/A	N/A	N/A
	4/1/2020	1.18	< 0.2	< 0.2	< 0.2	0.8	27.2	0.864	0.418	< 0.2	0.507	< 0.2	< 0.2	< 0.2	2.54	0.0795*
	4/1/2020	1.16	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/16/2021	1.15	< 0.2	< 0.2	0.703	0.711	10.8	0.76	0.523	< 0.2	0.521	< 0.2	< 0.2	< 0.2	3.68	0.133*
	6/16/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.52	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/30/2022	1.22	< 0.2	< 0.2	0.191*	0.816	6.08	1.22	0.377	< 0.2	0.563	< 0.2	< 0.2	< 0.2	4.97	0.11*
	8/30/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.2	N/A	N/A	N/A	N/A	N/A	N/A
	6/28/2023	N/A	N/A	< 0.2	0.257	1.27	7.21	1.3	0.537	< 0.2	0.666	< 0.2	< 0.2	< 0.2	3.66	< 0.2
	6/28/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.2	N/A	N/A	N/A	N/A
	4/17/2024	0.779	< 0.5	< 0.5	< 0.5	1.2	1.19	1.09	0.501	< 0.5	< 0.5	0.577	< 0.5	< 0.5	1.99	< 0.5
	4/17/2024	N/A	N/A	N/A	N/A	1.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Alter Trading Corporation Waste Monofill Site (Closed) - 78-SDP-19-98C

Other Constituents	Sample Date	MW-4 UPG	MW-5 UPG	EPA-1AR DNG	EPA-2A DNG	MW-1 DNG	MW-2 DNG	MW-3 DNG	MW-8 DNG	MW-9 DNG	MW-10 DNG	MW-11 DNG	MW-12 DNG	MW-13 DNG	MW-14R DNG	MW-15R DNG
Chemical Oxygen Demand, mg/L (CAS NO - COD)	1/18/1991	N/A	N/A	N/A	120	34	420	47	68	120	N/A	N/A	N/A	N/A	N/A	N/A
	5/23/1991	N/A	N/A	21	130	21	640	44	84	120	N/A	N/A	N/A	N/A	N/A	N/A
	9/27/1991	N/A	N/A	16	N/A	22	550	16	85	76	N/A	N/A	N/A	N/A	N/A	N/A
	12/19/1991	N/A	N/A	20	170	18	480	8	76	68	30	170	N/A	N/A	N/A	N/A
	10/14/1992	N/A	N/A	22	270	16	520	70	87	57	38	53	N/A	N/A	N/A	N/A
	1/15/1993	N/A	N/A	24	N/A	N/A	N/A	N/A	N/A	N/A	38	35	N/A	N/A	N/A	N/A
	4/27/1993	N/A	N/A	21	250	11	680	70	59	< 5	19	27	N/A	N/A	N/A	N/A
	10/20/1993	N/A	N/A	11	350	24	550	42	87	24	26	45	N/A	N/A	N/A	N/A
	4/12/1994	N/A	N/A	18	240	26	910	54	58	28	40	53	N/A	N/A	N/A	N/A
	10/21/1994	N/A	N/A	22	450	23	1800	38	99	27	46	47	N/A	N/A	N/A	N/A
	5/28/1995	N/A	N/A	13	470	31	170	61	96	24	82	50	N/A	N/A	N/A	N/A
	9/18/1995	N/A	N/A	6.7	270	27	460	61	71	14	73	26	N/A	N/A	N/A	N/A
	10/22/2002	N/A	N/A	N/A	127	30	54	N/A	145	< 10	44	26	14	48	N/A	N/A
	2/12/2003	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	13	53	N/A	N/A
	3/25/2003	N/A	N/A	N/A	78	32	140	N/A	140	7.2	33	15	15	52	N/A	N/A
	8/19/2003	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	16	28	N/A	N/A
	12/30/2003	N/A	N/A	N/A	81	25	100	38	200	11	43	24	17	60	N/A	N/A
	3/11/2004	N/A	N/A	11	8.7	22	97	N/A	< 5	170	33	22	8.1	65	N/A	N/A
	3/28/2005	N/A	N/A	10	39	24	41	65	160	15	45	28	13	44	N/A	N/A
	6/21/2005	N/A	N/A	10	79	26	52	76	160	11	56	29	N/A	N/A	N/A	N/A
	9/14/2005	N/A	N/A	5.9	9.7	28	30	63	160	5.2	50	19	12	42	63	45
	12/12/2005	N/A	N/A	12.6	12.2	31	78.7	38.2	152	15	42.4	21.2	21.5	46	68.1	33.3
	3/13/2006	N/A	N/A	8.2	21.4	34.4	59	35.8	147	13.7	43.5	23.2	24.8	31.6	65.7	43.2
	6/27/2006	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	66.3	62.1
	9/21/2006	N/A	N/A	12.7	38.8	26.5	56.4	29.5	109	10.1	55.2	24	19.5	18.1	18.9	55.6
	3/28/2007	17.3	28	15.9	14.8	30.1	51.4	38	88.3	15.1	57.1	26.2	20.3	39.6	13.6	55.6
	6/22/2007	27.9	25.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2007	14.5	20.7	11	11.7	23.5	44.7	45.1	89.9	10.9	49.1	19.1	14.2	27.1	38.8	42.7
	12/13/2007	17.8	25.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/26/2008	17.6	9.5	10.4	< 1.2	5.9	45.2	52.2	78	12.3	24.7	24.9	< 1.2	< 1.2	23.2	< 1.2
	9/16/2008	15.5	23.4	20	13	30.2	44.2	66.2	79.4	11.9	33.4	18	8.4	26	22.8	33.7
	3/10/2009	18.3	26	5.9	3.3	24.2	52.6	47.9	72.8	13	30	15.5	14.8	39.3	16.2	15.8
	9/10/2009	2.4	12.8	< 2.4	147	31.2	40.8	47.1	173	5.1	30.5	< 2.4	6.4	252	< 2.4	< 2.4
	3/25/2010	14.6	14.3	14.6	< 25	24.2	35.1	32.7	117	7.8	29.3	15.7	11.2	12.2	15.7	18.4
	9/29/2010	11.1	26.7	N/A	7.9	34.5	44.8	44.4	126	19.6	33.4	43.9	< 2.13	19.9	24.9	32.7
	3/22/2011	6.1	17.3	4.7	3.4	21.9	32.8	37.4	93.9	12	11.7	< 2.13	6.1	28.5	27.8	23.2
	9/27/2011	10.8	14.1	2.3	< 2.13	25.3	31	22.2	95.2	11.8	23.6	10.8	14.8	N/A	N/A	N/A
	4/19/2012	47	52	33	25	41	60	65	105	45	39	20	48	95	358	58
	9/12/2012	4.5	7.5	< 3.25	< 3.25	20.8	102	16.6	65.1	< 3.25	22.5	< 3.25	< 3.25	36.8	44.6	16.6
	3/19/2013	15.9	25.4	< 5	5	18.1	58.3	N/A	122	11.7	27.3	13.3	10.4	40.1	35.6	19.1
	9/18/2013	18.7	16	5.8	< 5	21.6	84.2	24.6	116	< 5	17.7	< 5	20.3	23.6	60.5	69
	3/18/2014	19.4	21.4	9.3	6.4	19.4	193	24.6	105	15.5	23	16.5	15.5	17.8	33.1	20.3
	9/9/2014	12.6	34.6	65.9	4.3	31.6	44.2	80.2	127	17.9	24.6	11.9	45.6	42.9	N/A	N/A
	3/16/2015	18.9	17.5	5.63	6.65	45.8	107	43.4	172	16.9	31.2	9.38	10.1	16.2	23.3	17.5
	9/1/2015	19.1	16	8.7	< 5	23.1	< 5	38.8	124	23.1	29.7	6.31	< 5	9.04	25.5	17.6
	4/14/2016	14.6	39.4	17.8	10.4	38.1	61.7	25.3	144	12.3	31.3	2.82*	12.9	18.8	35.7	22.9
	9/1/2016	17.6	21.7	14.1	< 5	39.8	67.6	51.1	114	17.2*	24.8	9.49	15.3	14.7	49.9	11.9
	3/7/2017	7.03	17.3	< 5	< 5	14.3	95.1	22.9	108	10	15.9	< 5	< 5	9.01	26.2	28.8
	4/3/2018	14	16.9	5.96	10.1	21.7	86.2	32.3	128	70.8	22	9.81	10.1	11.7	32.6	24.9
	6/20/2019	25.2	19.9	13.2	14.6	24.9	45.1	29.5	116	97.9	N/A	N/A	15.3	15	N/A	N/A
	10/8/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	18.2	< 5	N/A	N/A	N/A	N/A
	4/1/2020	17.6	13.4	< 5	< 5	15	105	25.6	76.6	107	17.9	< 5	16.3	28.5	22.7	20.4
	4/1/2020	16.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/16/2021	27.2	31.1	21.9	9.23	25.6	60.9	46.6	84.8	74.9	20.4	6.04	12.9	13.9	48.7	29.6
	6/16/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	87.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/30/2022	20.7	8.82	5.47	7.9	22.8	56.3	21.3	94.3	64.5	21.6	5.47	6.69	10.3	36.2	23.4
	8/30/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	59.1	N/A	N/A	N/A	N/A	N/A	N/A
	6/28/2023	N/A	N/A	6.9	6.9	22.8	69.7	21.4	92.5	61.1	23.1	5.86	8.97	10	25.9	21.4
	6/28/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.24	N/A	N/A	N/A	N/A
	4/17/2024	< 25	< 25	< 25	< 25	< 25	50.3	24.1*	66.7	48.7	< 25	< 25	< 25	< 25	< 25	< 25
	4/17/2024	N/A	N/A	N/A	N/A	32.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Alter Trading Corporation Waste Monofill Site (Closed) - 78-SDP-19-98C

Other Constituents	Sample Date	MW-4 UPG	MW-5 UPG	EPA-1AR DNG	EPA-2A DNG	MW-1 DNG	MW-2 DNG	MW-3 DNG	MW-8 DNG	MW-9 DNG	MW-10 DNG	MW-11 DNG	MW-12 DNG	MW-13 DNG	MW-14R DNG	MW-15R DNG
Chloride, mg/L (CAS NO - 16887-00-6)	1/18/1991	N/A	N/A	N/A	300	61	200	51	500	310	N/A	N/A	N/A	N/A	N/A	N/A
	5/23/1991	N/A	N/A	30	320	59	220	43	510	240	N/A	N/A	N/A	N/A	N/A	N/A
	9/27/1991	N/A	N/A	34	N/A	50	180	51	500	170	N/A	N/A	N/A	N/A	N/A	N/A
	12/19/1991	N/A	N/A	29	310	51	190	29	550	220	240	28	N/A	N/A	N/A	N/A
	10/14/1992	N/A	N/A	27	350	49	180	110	500	170	210	32	N/A	N/A	N/A	N/A
	1/15/1993	N/A	N/A	20	N/A	N/A	N/A	N/A	N/A	N/A	210	28	N/A	N/A	N/A	N/A
	4/27/1993	N/A	N/A	25	410	48	120	61	560	64	110	35	N/A	N/A	N/A	N/A
	10/20/1993	N/A	N/A	19	430	53	120	110	480	22	180	34	N/A	N/A	N/A	N/A
	4/12/1994	N/A	N/A	16	450	51	210	150	510	14	190	35	N/A	N/A	N/A	N/A
	10/21/1994	N/A	N/A	17	460	57	220	98	540	26	180	39	N/A	N/A	N/A	N/A
	5/28/1995	N/A	N/A	29	440	55	60	230	550	35	190	30	N/A	N/A	N/A	N/A
	9/18/1995	N/A	N/A	13	430	63	82	160	550	28	110	32	N/A	N/A	N/A	N/A
	10/22/2002	N/A	N/A	N/A	50	53	10	N/A	240	33	49	18	13	12	N/A	N/A
	2/12/2003	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9.3	13.7	N/A	N/A
	3/25/2003	N/A	N/A	N/A	24.3	58.6	11.8	N/A	256	53.4	51.8	18.1	11.4	16.6	N/A	N/A
	8/19/2003	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10.7	10.3	N/A	N/A
	12/30/2003	N/A	N/A	N/A	34	57.2	25.4	107	233	101	34.3	19.3	18.3	20.1	N/A	N/A
	3/11/2004	N/A	N/A	26.3	21.8	55.6	23.2	N/A	104	220	34.7	12.4	13.4	38.7	N/A	N/A
	3/28/2005	N/A	N/A	11.1	50.9	63.9	10.9	165	194	122	42.9	23.3	14	100	N/A	N/A
	6/21/2005	N/A	N/A	11.3	42.3	57.1	10	170	182	99.1	36.4	36.5	N/A	N/A	N/A	N/A
	9/14/2005	N/A	N/A	6.1	5.5	60.9	21.4	178	193	122	25.9	37.2	19	80.9	36.2	48.6
	12/12/2005	N/A	N/A	6.28	18.2	59.3	21.3	125	187	238	31.5	30.4	17.6	67.5	38.3	28.4
	3/13/2006	N/A	N/A	5.72	27.3	54.8	17.1	93.1	182	97.9	37.3	27.5	28.5	20	36.3	32.5
	6/27/2006	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	34.1	40.7
	9/21/2006	N/A	N/A	7.62	42.7	52.6	10.7	88.1	126	111	26.9	30.1	19.4	16.4	10.7	53
	3/28/2007	204	518	7.16	14.6	54.7	8.59	89.4	123	302	25.5	29.3	6.41	40	7.14	24.7
	6/22/2007	307	199	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2007	200	393	9.24	25.7	56	9.49	126	125	198	28.1	15.7	11.7	13.6	11.5	37
	12/13/2007	200	384	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/26/2008	196	349	8.62	12.3	55	8.77	97	126	114	28.1	23.5	6.82	31.4	6.3	10.1
	9/16/2008	232	334	13.8	< 5	49.1	7.83	116	121	107	28.7	15.7	5.67	12	12.7	30.8
	3/10/2009	249	265	3.38	9.91	55.5	13.8	71.4	127	145	32	12.6	13.2	23.8	10.4	10.8
	9/10/2009	220	316	9.57	12.5	73.5	9.79	122	160	140	34.9	18.4	12	15.4	12.1	26.9
	3/25/2010	176	251	17.4	9.5	55.5	8.95	43.3	162	164	31.6	41.3	9.57	9.83	10.3	12.8
	9/29/2010	178	298	N/A	3.91	52.2	9.1	46.3	161	118	27.5	22.4	15.9	13.8	44.1	44.7
	3/22/2011	146	300	5.56	6.73	52.9	7.88	25.6	148	131	712	28.9	8.04	16.8	49.8	74.7
	9/27/2011	155	232	4.09	3.53	55	7.32	26.3	143	144	42.6	22.2	14	N/A	N/A	N/A
	4/19/2012	150	239	< 10	< 10	52	12	32	138	150	34	28	16	32	58	54
	9/12/2012	166	294	4.85	3.82	53.1	27.7	24.7	131	175	34.7	12.3	10.5	30.3	43.2	53.9
	3/19/2013	150	259	5.16	5.77	54.5	12.8	N/A	131	161	40.5	20.4	6.32	30.2	50.7	64.9
	9/18/2013	152	275	22.6	4.93	63.3	23.6	27.5	134	162	47.4	18.2	17.2	12.8	84.9	49.9
	3/18/2014	155	242	7.94	12.7	57.9	35.1	24.5	142	156	41.9	15.9	21.6	11.8	52.7	47.5
	9/9/2014	162	193	27	11.3	74.3	11.1	36.2	124	141	34.3	14	17.8	6	N/A	N/A
	3/16/2015	181	169	7.76	3.01	84.7	25.8	33.9	136	125	37	9.88	12.9	5.54	39.8	12.2
	9/1/2015	169	205	7.54	9.65	67	11.3	34.9	110	164	38.9	11.1	11.4	7.74	47.5	13.7
	4/14/2016	179	247	10.6	5.78	84.7	16.3	13.2	127	164	29.8	6.46	15.1	7.2	34.5	19.3
	9/1/2016	198	192	4.92*	7.36	76.9	15.8	21.8	97.1	233	27.7	7.04	8.7	5.84	36.1	19.2
	3/7/2017	172	167	3.86*	6.55	50.6	22.6	35.7	93.5	134	29.2	7.47	8.37	4.07*	17.6	17.8
	4/3/2018	179	166	11.1	6.55	55.5	49.8	26.4	74.6	47.7	29.3	22.2	11.8	13.8	14.5	20.9
	6/20/2019	153	171	39.7	10.9	46.2	11.4	13.3	55.7	48.6	N/A	N/A	26.6	8.52	N/A	N/A
	10/8/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	16.5	39.9	N/A	N/A	N/A	N/A
	4/1/2020	154	105	8.01	9.7	43.8	22.9	13.5	38.5	112	17.6	27	20.3	13.1	20.9	34.6
	4/1/2020	151	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/16/2021	118	143	33.5	7.62	44.3	11.6	24.5	36.4	51.5	19.8	26.3	6.71	11.8	36.7	25.1
	6/16/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	36.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/30/2022	174	123	8.73	4.76*	42.5	13	13.4	29.5	25.4	20.3	58.1	46.3	34.3	31.8	39.3
	8/30/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	24.8	N/A	N/A	N/A	N/A	N/A	N/A
	6/28/2023	N/A	N/A	5.76	10.4	49.2	13.6	13.3	30.9	23.7	26.2	41.4	33	22.2	27.9	43.4
	6/28/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	38.3	N/A	N/A	N/A	N/A
	4/17/2024	158	88	6.38	11.3	57.4	16.7	25.3	31.4	26.3	45.9	32.5	58.1	25.2	22	41.6
	4/17/2024	N/A	N/A	N/A	N/A	53.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Alter Trading Corporation Waste Monofill Site (Closed) - 78-SDP-19-98C

Other Constituents	Sample Date	MW-4 UPG	MW-5 UPG	EPA-1AR DNG	EPA-2A DNG	MW-1 DNG	MW-2 DNG	MW-3 DNG	MW-8 DNG	MW-9 DNG	MW-10 DNG	MW-11 DNG	MW-12 DNG	MW-13 DNG	MW-14R DNG	MW-15R DNG
Iron, Total, mg/L (CAS NO - 7439-89-6)	3/7/2017	**10.7**	**1.02**	**3.86**	**1.92**	**11.7**	**2.54**	**20**	**3.53**	0.326*	**4.49**	**0.576**	**0.638**	**1.94**	**19.1**	**42**
	4/3/2018	**3.26**	< 0.5	< 0.5	**0.53**	**12.4**	**5.61**	**13.7**	**3.08**	< 0.5	**4.78**	0.165*	< 0.5	**1.86**	**11.5**	**14.7**
	6/20/2019	**12.7**	0.145*	< 0.5	< 0.5	**13.3**	**18.8**	**19.7**	**3.25**	**0.53**	N/A	N/A	< 0.5	**3.66**	N/A	N/A
	10/8/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**4.68**	< 0.5	N/A	N/A	N/A	N/A
	4/1/2020	**13**	**0.15**	**1.67**	< 0.5	**12.5**	**2.76**	**15.6**	**1.51**	**0.742**	**3.4**	< 0.5	< 0.5	**1.48**	**4.32**	**6.67**
	4/1/2020	**12.9**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/16/2021	**12.1**	0.313*	**0.824**	**0.725**	**11.3**	**15.2**	**25.8**	**2.42**	**1.65**	**3.18**	< 0.5	0.321*	**0.691**	**22.2**	**7.31**
	6/16/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**2.45**	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/30/2022	**13.5**	0.248*	**1.11**	0.375*	**10.2**	**13.8**	**17.9**	**1.32**	0.459*	**3.61**	< 0.5	< 0.5	**0.906**	**9.58**	**10.1**
	8/30/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.869**	N/A	N/A	N/A	N/A	N/A	N/A
	6/28/2023	N/A	N/A	0.147*	< 0.5	**15.5**	**10.9**	**19**	**1.9**	0.258*	**4.08**	< 0.5	< 0.5	**7.18**	**4.96**	**3.14**
	6/28/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A
	4/17/2024	**9.85**	< 0.1	0.0526*	< 0.1	**12.8**	**19.5**	**22.5**	**1.85**	**3.15**	< 0.1	**3.4**	< 0.1	**0.427**	**1.22**	**1.4**
	4/17/2024	N/A	N/A	N/A	N/A	**12.3**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Alter Trading Corporation Waste Monofill Site (Closed) - 78-SDP-19-98C

Other Constituents	Sample Date	MW-4 UPG	MW-5 UPG	EPA-1AR DNG	EPA-2A DNG	MW-1 DNG	MW-2 DNG	MW-3 DNG	MW-8 DNG	MW-9 DNG	MW-10 DNG	MW-11 DNG	MW-12 DNG	MW-13 DNG	MW-14R DNG	MW-15R DNG
pH, S.U. (CAS NO - PH)	1/18/1991	N/A	N/A	N/A	7.1	7.3	7.8	7.2	7.3	7.1	N/A	N/A	N/A	N/A	N/A	N/A
	5/23/1991	N/A	N/A	7.3	7.1	7.5	8.9	7	7.3	7.2	N/A	N/A	N/A	N/A	N/A	N/A
	9/27/1991	N/A	N/A	7.5	N/A	7.5	9.1	7.5	7.4	7.6	N/A	N/A	N/A	N/A	N/A	N/A
	12/19/1991	N/A	N/A	7.5	N/A	7.5	9.1	7.5	7.4	7.6	7.6	7.6	N/A	N/A	N/A	N/A
	10/14/1992	N/A	N/A	8.6	7.6	8.1	8.7	8.3	8	8	8.3	7.6	N/A	N/A	N/A	N/A
	1/15/1993	N/A	N/A	7.4	N/A	N/A	N/A	N/A	N/A	N/A	8.2	7.6	N/A	N/A	N/A	N/A
	4/27/1993	N/A	N/A	7.6	7.5	7.6	8.8	8.1	7.5	7.7	8.2	7.6	N/A	N/A	N/A	N/A
	10/20/1993	N/A	N/A	N/A	N/A	8.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/12/1994	N/A	N/A	7.8	7.4	9.6	9.8	7.3	7.8	7.8	7.6	7.6	N/A	N/A	N/A	N/A
	10/21/1994	N/A	N/A	7.5	7.1	8.7	9	7.3	7.3	7.4	7.6	7.4	N/A	N/A	N/A	N/A
	5/28/1995	N/A	N/A	8.2	7.9	8.7	8.5	7.3	7.6	8.3	8.4	7.9	N/A	N/A	N/A	N/A
	9/18/1995	N/A	N/A	7.1	7.2	7.7	8.2	7.7	7.5	7.5	7.3	7.5	N/A	N/A	N/A	N/A
	10/22/2002	N/A	N/A	N/A	6.8	7.28	6.93	N/A	7.28	7.22	7.61	7.37	7.12	6.63	N/A	N/A
	2/12/2003	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.65	6.72	N/A	N/A
	3/25/2003	N/A	N/A	N/A	7.32	7.03	7.05	N/A	7.56	7.05	7.44	6.88	6.71	6.87	N/A	N/A
	8/19/2003	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.68	6.84	N/A	N/A
	12/30/2003	N/A	N/A	N/A	7.75	7.38	8.81	7.1	7.55	7.34	8.06	7.32	7.18	6.92	N/A	N/A
	3/11/2004	N/A	N/A	7.41	7.44	8.17	8.1	N/A	6.97	7.5	7.86	7.35	8.33	7.05	N/A	N/A
	3/28/2005	N/A	N/A	7.48	7.61	7.22	7.57	7	7.56	7.45	7.45	7.24	6.9	7.34	N/A	N/A
	6/21/2005	N/A	N/A	7.36	7.86	7.4	7.43	7.14	7.67	7.41	7.71	7.27	N/A	N/A	N/A	N/A
	9/14/2005	N/A	N/A	7.18	7.17	7.3	7.5	7.31	7.55	7.14	7.34	7.16	6.69	7	7.59	7.18
	12/12/2005	N/A	N/A	7.6	7.55	7.67	7.48	6.62	7.89	7.35	7.35	7.6	7	7.1	8.16	7.6
	3/13/2006	N/A	N/A	7.56	7.35	7.12	8.82	7.07	7.8	7.56	7.66	7.26	7.08	7.21	7.5	7.32
	6/27/2006	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.42	7.3
	9/21/2006	N/A	N/A	7.24	7.37	7.55	7.56	6.64	7.63	7.18	7.56	7.15	7.56	7.42	7.01	7.05
	3/28/2007	7.52	7.25	7.42	7.4	7.77	7.58	7.11	7.7	7.43	7.75	7	7.13	7.2	7.44	7.3
	6/22/2007	7.5	7.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2007	7.84	7.32	7.37	7.68	7.61	8.25	7.24	7.83	7.15	7.83	7.33	7.05	7.18	7.51	7.55
	3/26/2008	7.8	7.85	7.5	7.39	7.72	8.15	7.17	7.8	7.66	8.25	7.56	7.06	7.35	7.69	7.68
	9/16/2008	7.11	6.51	8.8	7.67	5.16	8.83	4.92	6.52	5.89	7.29	6.07	7.92	4.65	5.32	6.19
	3/10/2009	8.03	7.65	7.29	7.55	8.06	8.32	7.25	8.28	7.29	8.13	7.28	6.99	7.15	7.32	7.4
	9/10/2009	7.55	7.33	7.29	7.41	7.14	7.16	6.96	7.55	7.37	7.36	7.18	6.81	6.96	7.06	7.32
	9/29/2010	7.32	6.91	N/A	7.42	7.36	6.74	7.36	7.04	6.84	7.14	7.54	7.17	6.96	7.13	7.02
	3/22/2011	6.53	6.66	7.37	7.15	7.01	7.29	7.18	7.1	7.2	7.55	7.41	8.77	6.52	7.1	7.13
	9/27/2011	6.67	7.1	7.43	7.2	7.6	7.35	7.16	7.6	7.3	7.65	7.35	6.9	N/A	N/A	N/A
	4/19/2012	8.2	6.5	6.65	7.4	6.7	7.35	7	8.41	8.2	8	8.7	7.59	8.55	6.73	6.31
	9/12/2012	7.15	6.75	7.33	7.25	7.3	7.35	6.39	6.57	7.05	7.5	7.55	7	6.95	6.95	7
	3/19/2013	7.34	7.65	7.71	7.97	7.16	7.35	N/A	7.4	7.64	7.62	8.04	7.2	7.42	7.84	7.68
	9/18/2013	7.77	7.4	7.6	7.37	7.43	7.05	7.25	7.3	7.1	7.5	7.65	6.75	7.3	7.15	7
	3/18/2014	7.72	7.53	7.55	7.8	7.62	8.15	7.24	7.57	7.55	7.62	7.49	7.42	7.49	7.44	7.52
	9/9/2014	7.47	7.9	7.45	7.9	7.75	8.26	7.5	7.37	8	7.85	7.73	7.65	7.6	N/A	N/A
	3/16/2015	7.77	8.27	7.92	8.27	7.7	8.18	7.65	7.98	7.96	8.32	8.04	8.03	7.97	7.81	8.06
	9/1/2015	7.11	8.18	7.49	8.05	7.28	7.24	7.36	7.86	7.53	7.98	8.38	7.37	7.57	7.49	7.57
	4/14/2016	7.7	7.89	7.59	7.77	7.55	7.9	7.66	7.89	7.68	8.1	8.01	7.28	7.71	7.37	7.47
	9/1/2016	7.16	7.32	7.33	7.74	7.16	7.47	6.85	8.01	6.65	7.47	7.47	6.98	7.08	7.01	6.98
	3/7/2017	7.28	7.46	7.29	7.49	7.23	8.25	7.23	7.68	7.22	7.92	7.57	6.8	7.24	6.93	7.02
	4/3/2018	7.35	7.6	7.46	7.57	7.36	8.26	7.36	7.79	7.28	7.71	7.82	7.25	7.36	7.08	7.18
	6/20/2019	6.89	7.23	6.87	7.21	6.94	7.02	6.98	7.5	6.79	N/A	N/A	6.75	7.08	N/A	N/A
	10/8/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.44	7.35	N/A	N/A	N/A	N/A
	4/1/2020	7.09	7.45	7.03	7.44	7.1	7.93	6.95	7.63	6.87	7.53	7.36	6.84	6.94	6.92	6.9
	6/16/2021	7.01	7.26	7.15	7.25	7.08	7.12	6.83	7.55	6.88	7.43	7.38	6.61	7.03	6.83	6.71
	8/30/2022	7	7.25	7.11	7.36	7.1	7.18	7.09	7.7	6.96	7.45	7.23	6.57	6.87	6.81	6.81
	6/28/2023	N/A	N/A	7.24	7.31	6.93	7.22	7.03	7.61	7.09	7.42	7.1	6.72	6.92	6.98	7.03
	4/17/2024	7.09	7.38	7.22	7.44	7.1	7.1	7	7.7	7.15	7.48	7.18	6.69	7.16	7	6.97

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Summary of Groundwater Chemistry

Alter Trading Corporation Waste Monofill Site (Closed) - 78-SDP-19-98C

Other Constituents	Sample Date	MW-4 UPG	MW-5 UPG	EPA-1AR DNG	EPA-2A DNG	MW-1 DNG	MW-2 DNG	MW-3 DNG	MW-8 DNG	MW-9 DNG	MW-10 DNG	MW-11 DNG	MW-12 DNG	MW-13 DNG	MW-14R DNG	MW-15R DNG
Specific Conductance, uS/cm (CAS NO - SPECCON)	1/18/1991	N/A	N/A	N/A	1800	1400	2000	1200	1160	2000	N/A	N/A	N/A	N/A	N/A	N/A
	5/23/1991	N/A	N/A	952	1914	1265	2632	990	2166	1972	N/A	N/A	N/A	N/A	N/A	N/A
	9/27/1991	N/A	N/A	800	N/A	1300	3600	1000	3050	1900	N/A	N/A	N/A	N/A	N/A	N/A
	12/19/1991	N/A	N/A	800	1914	1300	3600	1000	3050	1900	1900	1900	N/A	N/A	N/A	N/A
	10/14/1992	N/A	N/A	1200	2600	1600	3700	1700	2900	1800	2200	1700	N/A	N/A	N/A	N/A
	1/15/1993	N/A	N/A	900	N/A	N/A	N/A	N/A	N/A	N/A	2200	1700	N/A	N/A	N/A	N/A
	4/27/1993	N/A	N/A	900	2500	1400	3500	1600	3000	1800	2200	1700	N/A	N/A	N/A	N/A
	4/12/1994	N/A	N/A	800	2400	2500	4000	1400	2300	2300	1400	1500	N/A	N/A	N/A	N/A
	10/21/1994	N/A	N/A	700	2200	1100	2300	1200	1900	800	1200	1000	N/A	N/A	N/A	N/A
	5/28/1995	N/A	N/A	800	2200	1300	2000	1900	1700	600	110	1100	N/A	N/A	N/A	N/A
	9/18/1995	N/A	N/A	440	1060	660	960	750	940	510	680	500	N/A	N/A	N/A	N/A
	10/22/2002	N/A	N/A	N/A	756	749	744	N/A	1169	585	452	537	692	723	N/A	N/A
	2/12/2003	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	667	809	N/A	N/A
	3/25/2003	N/A	N/A	N/A	934	1331	1353	N/A	1928	942	769	772	763	1206	N/A	N/A
	8/19/2003	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	492	648	N/A	N/A
	12/30/2003	N/A	N/A	N/A	1309	1414	1741	1553	2206	1105	699	690	651	780	N/A	N/A
	3/11/2004	N/A	N/A	666	568	945	1136	N/A	1747	1947	560	635	722	1017	N/A	N/A
	3/28/2005	N/A	N/A	687	848	1225	1282	1936	1778	1175	723	714	1020	1418	N/A	N/A
	6/21/2005	N/A	N/A	750	1162	1445	1398	1740	2040	1265	815	815	N/A	N/A	N/A	N/A
	9/14/2005	N/A	N/A	504	450	1280	1366	1900	1208	943	505	534	642	1400	700	600
	12/12/2005	N/A	N/A	686	677	1285	1541	1533	1783	1587	655	686	799	1293	767	700
	3/13/2006	N/A	N/A	675	785	1329	1530	1373	1805	1007	640	675	847	1488	727	758
	6/27/2006	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	780	795
	9/21/2006	N/A	N/A	798	903	1358	1370	1570	1622	1188	692	681	906	1004	888	946
	3/28/2007	1653	1611	500	770	1300	1400	1447	1701	1019	700	875	386	1455	530	957
	6/22/2007	1605	1700	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2007	1675	2553	800	655	1300	1525	1681	1691	1495	583	1002	1135	1000	719	821
	9/13/2007	1650	2800	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/26/2008	1003	985	700	728	1291	1422	1445	1307	1020	602	706	1116	1713	748	593
	9/16/2008	1435	1702	745	459	1016	1191	1278	1215	961	516	646	848	1128	625	566
	3/10/2009	2230	2350	793	611	1398	1627	1420	1635	1422	663	975	1090	1939	1047	800
	9/10/2009	1864	2330	751	628	1531	1309	1686	1957	1390	686	644	1072	1131	1010	868
	3/25/2010	1814	1899	768	588	1320	1298	1191	1757	1445	644	752	781	1054	981	768
	9/29/2010	1701	1930	N/A	678	1302	1141	1284	1967	1204	656	678	924	1002	1061	698
	3/22/2011	1400	1395	889	1249	1320	1309	1220	1420	1475	1049	790	1015	1215	1161	1065
	9/27/2011	1375	1445	690	1275	1225	1410	1231	1524	1290	685	783	995	N/A	N/A	N/A
	4/19/2012	970	1225	1125	515	1050	1120	1000	1135	1230	1050	970	1173	1200	1106	748
	9/12/2012	1025	1020	740	750	1265	1420	1124	1005	990	546	636	1000	1605	1020	980
	3/19/2013	1970	2430	823	516	1462	1396	N/A	1852	1630	680	643	1243	1676	1332	907
	9/18/2013	1745	1755	745	449	1345	1330	1124	1740	1542	754	620	1233	957	791	787
	3/18/2014	1792	1880	756	483	1383	1587	1102	1624	1804	618	859	795	1078	1241	848
	9/9/2014	1500	1310	838	465	1275	1230	1235	950	1000	605	649	1091	1010	N/A	N/A
	3/16/2015	1928	1640	870	523	1684	1406	1218	2106	1512	589	623	925	968	1145	734
	9/1/2015	1837	1668	749	432	1473	1211	1230	1672	1542	575	504	1058	828	1099	702
	4/14/2016	1599	1985	786	480	1354	1155	810	1578	1397	488	454	976	759	1040	626
	9/1/2016	1945	1744	748	584	1534	1325	1134	1624	1920	557	460	1004	721	1150	776
	3/7/2017	1498	1298	601	4251	1193	1164	987	1332	1410	3821	3802	802	617	920	795
	4/3/2018	2100	1660	798	708	1566	1676	1291	1715	2048	689	516	628	896	1264	1168
	6/20/2019	1793.4	1345.8	740.2	621.7	1327.3	1350.4	1179.6	1315.7	1766	N/A	N/A	920.3	585.7	N/A	N/A
	10/8/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	493.9	560.4	N/A	N/A	N/A	N/A
	4/1/2020	1853.2	1070.6	766	607.4	1279.8	1576.8	1221	1193.9	2112.7	474.3	557.3	1117.8	985.9	1299.8	631.9
	6/16/2021	1635.1	1219	667	524.2	1210.1	1249.8	1231.5	1102.5	1669.4	476.8	568.9	841	649.4	1083.3	760.6
	8/30/2022	1886.8	1213.9	613	465.9	1270.8	1363.9	1072.7	1115.3	1511.8	540.7	705.9	703.3	818	1184.2	887.7
	6/28/2023	N/A	N/A	561.2	507.1	1233.5	1303.7	977.3	1040.6	1201.5	546.3	794.7	857.5	761.3	1070.8	773
	4/17/2024	1968.8	1134	654.1	581.2	1425	1526.3	1240.1	1198.3	1362.5	662.2	730.6	848.8	920.4	1102	757.7

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Summary of Groundwater Chemistry

Alter Trading Corporation Waste Monofill Site (Closed) - 78-SDP-19-98C

Other Constituents	Sample Date	MW-4 UPG	MW-5 UPG	EPA-1AR DNG	EPA-2A DNG	MW-1 DNG	MW-2 DNG	MW-3 DNG	MW-8 DNG	MW-9 DNG	MW-10 DNG	MW-11 DNG	MW-12 DNG	MW-13 DNG	MW-14R DNG	MW-15R DNG
Total Extractable Hydrocarbons, ug/L (CAS NO - TEHH)	10/22/2002	N/A	N/A	N/A	**1400**	< 100	**500**	N/A	**100**	< 100	**300**	**300**	**100**	**200**	N/A	N/A
	12/30/2003	N/A	N/A	N/A	**1600**	< 380	**1130**	< 380	< 380	< 380	**475**	< 380	< 380	**688**	N/A	N/A
	9/21/2005	N/A	N/A	< 380	< 380	< 380	**505**	< 380	< 380	< 380	**490**	< 380	< 380	**553**	**475**	**957**
	9/21/2006	N/A	N/A	< 300	**1020**	< 300	**774**	< 300	< 300	< 300	**544**	< 300	< 300	< 300	< 300	**835**
	3/28/2007	N/A	N/A	N/A	< 300	N/A	**1250**	N/A	N/A	N/A	N/A	N/A	N/A	< 300	< 300	< 300
	6/22/2007	< 300	< 300	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2007	< 345	< 300	**333**	< 300	< 300	**1430**	**777**	< 300	< 341	**1280**	< 300	**343**	**381**	**405**	**923**
	3/26/2008	N/A	N/A	N/A	< 300	N/A	**960**	**307**	N/A	N/A	< 361	N/A	N/A	< 300	< 300	< 300
	9/16/2008	< 300	< 300	< 300	< 300	< 300	**891**	**810**	< 300	< 300	**468**	**381**	< 300	**399**	**459**	**480**
	3/10/2009	N/A	N/A	N/A	< 300	N/A	**760**	N/A	N/A	N/A	N/A	N/A	N/A	**315**	< 300	< 300
	9/10/2009	< 300	< 300	< 300	< 300	< 300	**670**	**736**	< 300	< 300	**554**	< 300	**342**	**302**	**679**	**455**
	3/25/2010	N/A	N/A	N/A	< 300	N/A	**818**	N/A	N/A	N/A	N/A	N/A	N/A	< 300	< 300	< 300
	9/29/2010	< 349	< 300	N/A	< 300	< 300	**742**	< 300	< 300	< 300	N/A	< 300	< 300	< 300	< 300	< 300
	3/22/2011	< 300	< 300	< 300	< 300	< 300	**746**	< 300	< 300	< 300	**1100**	< 300	< 300	**302**	**714**	< 300
	9/27/2011	N/A	N/A	N/A	< 300	N/A	**501**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/19/2012	N/A	N/A	N/A	< 100	N/A	**200**	N/A	N/A	N/A	N/A	N/A	N/A	**100**	**100**	< 100
	9/18/2013	**281**	**294**	**298**	**477**	**282**	**2340**	**722**	**872**	**287**	**828**	**305**	**738**	**443**	**1120**	**702**
	9/9/2014	**420**	**290**	**268**	**231**	**394**	**926**	**478**	**515**	**277**	< 463	< 463	< 463	**439**	N/A	N/A
	9/1/2015	**310**	**849**	**182**	**216**	**142**	**685**	**1300**	**897**	**206**	**1140**	**1580**	**338**	**226**	**806**	**229**
	9/1/2016	93.1*	< 391	< 379	< 368	< 379	< 379	177*	< 379	< 379	< 403	< 446	< 379	< 379	< 391	97.4*
	4/3/2018	< 481	< 481	< 481	< 481	100*	< 481	139*	< 463	< 481	< 481	76.3*	< 481	86.7*	< 481	116*
	6/20/2019	105*	139*	120*	170*	123*	< 500	176*	369*	< 481	N/A	N/A	146*	< 500	N/A	N/A
	10/8/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 500	167*	N/A	N/A	N/A	N/A
	4/1/2020	< 500	< 481	118*	< 500	139*	**2430**	< 500	160*	< 521	< 543	< 500	79*	106*	< 500	107*
	4/1/2020	< 481	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/16/2021	348*	331*	412*	353*	401*	< 500	< 500	315*	< 500	< 500	341*	360*	280*	< 500	294*
	6/16/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	388*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/30/2022	< 490	< 500	< 490	< 490	< 568	< 521	< 532	155*	< 521	< 556	< 500	< 521	< 481	< 490	122*
	8/30/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 521	N/A	N/A	N/A	N/A	N/A	N/A
	6/28/2023	N/A	N/A	113*	< 500	104*	< 500	81.7*	181*	< 556	< 500	82*	< 500	< 500	< 532	103*
	6/28/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 532	N/A	N/A	N/A	N/A
	4/17/2024	< 500	< 500	< 500	< 500	< 463	< 500	< 500	< 500	< 500	< 500	< 500	< 500	< 500	< 500	< 500
	4/17/2024	N/A	N/A	N/A	N/A	< 500	N/A	N/A	N/A	N/A	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

Attachment A

Trend Test (α=0.01)

Trend Test

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR Printed 5/22/2024, 5:54 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Alpha	Method
Ammonia as N (mg/L)	EPA-2A	-0.002066	0	21	No	8	25	0.01	NP
Ammonia as N (mg/L)	MW-1	0.01556	4	21	No	8	0	0.01	NP
Ammonia as N (mg/L)	MW-10	-0.01294	-4	-21	No	8	12.5	0.01	NP
Ammonia as N (mg/L)	MW-11	0	7	21	No	8	87.5	0.01	NP
Ammonia as N (mg/L)	MW-14R	0.04865	2	21	No	8	0	0.01	NP
Ammonia as N (mg/L)	MW-2	-3.171	-12	-21	No	8	0	0.01	NP
Ammonia as N (mg/L)	MW-3	-0.004221	-2	-21	No	8	0	0.01	NP
Ammonia as N (mg/L)	MW-7	0	6	21	No	8	87.5	0.01	NP
Ammonia as N (mg/L)	MW-8	-0.0185	-6	-21	No	8	12.5	0.01	NP
Arsenic (mg/L)	EPA-2A	-0.0005087	-6	-21	No	8	0	0.01	NP
Arsenic (mg/L)	MW-10	-0.0005749	-9	-21	No	8	0	0.01	NP
Arsenic (mg/L)	MW-13	-0.0002017	-4	-21	No	8	0	0.01	NP
Arsenic (mg/L)	MW-14R	-0.001833	-18	-21	No	8	0	0.01	NP
Arsenic (mg/L)	**MW-15R**	**-0.005008**	**-22**	**-21**	**Yes**	**8**	**0**	**0.01**	**NP**
Arsenic (mg/L)	MW-2	-0.0009408	-2	-21	No	8	0	0.01	NP
Arsenic (mg/L)	MW-3	0.0007781	2	21	No	8	0	0.01	NP
Barium (mg/L)	MW-14R	-0.0001721	0	21	No	8	0	0.01	NP
Barium (mg/L)	MW-15R	-0.09394	-16	-21	No	8	0	0.01	NP
Chemical Oxygen Demand (mg/L)	EPA-1AR	1.156	9	21	No	8	37.5	0.01	NP
Chemical Oxygen Demand (mg/L)	EPA-2A	0.5471	3	21	No	8	37.5	0.01	NP
Chemical Oxygen Demand (mg/L)	MW-1	0.2387	7	21	No	8	0	0.01	NP
Chemical Oxygen Demand (mg/L)	MW-10	0.7698	4	21	No	8	12.5	0.01	NP
Chemical Oxygen Demand (mg/L)	MW-11	0.9264	13	21	No	8	50	0.01	NP
Chemical Oxygen Demand (mg/L)	MW-12	0.5805	2	21	No	8	25	0.01	NP
Chemical Oxygen Demand (mg/L)	MW-13	-0.09251	0	21	No	8	12.5	0.01	NP
Chemical Oxygen Demand (mg/L)	MW-14R	-2.403	-12	-21	No	8	12.5	0.01	NP
Chemical Oxygen Demand (mg/L)	MW-15R	-0.8263	-4	-21	No	8	12.5	0.01	NP
Chemical Oxygen Demand (mg/L)	MW-2	-4.982	-10	-21	No	8	0	0.01	NP
Chemical Oxygen Demand (mg/L)	MW-3	-0.7443	-6	-21	No	8	0	0.01	NP
Chemical Oxygen Demand (mg/L)	MW-7	2.392	6	21	No	8	0	0.01	NP
Chemical Oxygen Demand (mg/L)	MW-8	-6.308	-14	-21	No	8	0	0.01	NP
Chemical Oxygen Demand (mg/L)	MW-9	-2.848	-6	-21	No	8	0	0.01	NP
Chloride (mg/L)	EPA-1AR	-0.6158	-4	-21	No	8	0	0.01	NP
Chloride (mg/L)	EPA-2A	0.3646	9	21	No	8	0	0.01	NP
Chloride (mg/L)	MW-1	-0.3802	-4	-21	No	8	0	0.01	NP
Chloride (mg/L)	MW-10	1.567	8	21	No	8	0	0.01	NP
Chloride (mg/L)	MW-11	3.443	12	21	No	8	0	0.01	NP
Chloride (mg/L)	MW-12	6.342	16	21	No	8	0	0.01	NP
Chloride (mg/L)	MW-13	2.954	16	21	No	8	0	0.01	NP
Chloride (mg/L)	MW-14R	0.1985	2	21	No	8	0	0.01	NP
Chloride (mg/L)	**MW-15R**	**3.348**	**22**	**21**	**Yes**	**8**	**0**	**0.01**	**NP**
Chloride (mg/L)	MW-2	-1.127	-2	-21	No	8	0	0.01	NP
Chloride (mg/L)	MW-3	-0.3874	-9	-21	No	8	0	0.01	NP
Chloride (mg/L)	MW-7	16.76	4	21	No	8	0	0.01	NP
Chloride (mg/L)	**MW-8**	**-8.268**	**-22**	**-21**	**Yes**	**8**	**0**	**0.01**	**NP**
Chloride (mg/L)	MW-9	-7.257	-14	-21	No	8	0	0.01	NP
Iron (mg/L)	EPA-1AR	-0.2519	-13	-21	No	8	25	0.01	NP
Iron (mg/L)	EPA-2A	-0.1456	-15	-21	No	8	50	0.01	NP
Iron (mg/L)	MW-1	0.03744	4	21	No	8	0	0.01	NP
Iron (mg/L)	MW-10	-0.2857	-14	-21	No	8	12.5	0.01	NP

Trend Test

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR Printed 5/22/2024, 5:54 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Alpha	Method
Iron (mg/L)	MW-11	0	6	21	No	8	62.5	0.01	NP
Iron (mg/L)	MW-12	-0.03401	-12	-21	No	8	75	0.01	NP
Iron (mg/L)	MW-13	-0.2014	-10	-21	No	8	0	0.01	NP
Iron (mg/L)	MW-14R	-2.24	-11	-18	No	7	0	0.01	NP
Iron (mg/L)	MW-15R	-2.207	-15	-18	No	7	0	0.01	NP
Iron (mg/L)	MW-2	1.955	12	21	No	8	0	0.01	NP
Iron (mg/L)	MW-3	0.9517	6	21	No	8	0	0.01	NP
Iron (mg/L)	MW-8	-0.246	-16	-21	No	8	0	0.01	NP
Iron (mg/L)	MW-9	0.1831	12	21	No	8	12.5	0.01	NP
Lead (mg/L)	MW-12	-0.0008119	-18	-21	No	8	0	0.01	NP
Lead (mg/L)	MW-13	-0.00003614	-9	-21	No	8	37.5	0.01	NP
Lead (mg/L)	MW-14R	-0.000417	-17	-21	No	8	37.5	0.01	NP
Lead (mg/L)	MW-15R	-0.0004765	-18	-21	No	8	50	0.01	NP
Nickel (mg/L)	MW-14R	-0.05507	-12	-21	No	8	0	0.01	NP
Nickel (mg/L)	**MW-15R**	**-0.001773**	**-26**	**-21**	**Yes**	**8**	**0**	**0.01**	**NP**
pH (S.U.)	EPA-1AR	0.008371	0	21	No	8	0	0.01	NP
pH (S.U.)	EPA-2A	-0.01889	-5	-21	No	8	0	0.01	NP
pH (S.U.)	MW-1	-0.02098	-9	-21	No	8	0	0.01	NP
pH (S.U.)	MW-10	-0.03716	-14	-21	No	8	0	0.01	NP
pH (S.U.)	MW-11	-0.06776	-18	-21	No	8	0	0.01	NP
pH (S.U.)	MW-12	-0.03705	-14	-21	No	8	0	0.01	NP
pH (S.U.)	MW-13	-0.04441	-12	-21	No	8	0	0.01	NP
pH (S.U.)	MW-14R	-0.008816	-6	-21	No	8	0	0.01	NP
pH (S.U.)	MW-15R	-0.01467	-4	-21	No	8	0	0.01	NP
pH (S.U.)	MW-2	-0.1624	-10	-21	No	8	0	0.01	NP
pH (S.U.)	MW-3	-0.03777	-8	-21	No	8	0	0.01	NP
pH (S.U.)	MW-7	0.08236	2	21	No	8	0	0.01	NP
pH (S.U.)	MW-8	0.001405	1	21	No	8	0	0.01	NP
pH (S.U.)	MW-9	0.04124	4	21	No	8	0	0.01	NP
Specific Conductance (uS/cm)	EPA-1AR	-25.73	-10	-21	No	8	0	0.01	NP
Specific Conductance (uS/cm)	EPA-2A	-48.84	-20	-21	No	8	0	0.01	NP
Specific Conductance (uS/cm)	MW-1	0.1336	0	21	No	8	0	0.01	NP
Specific Conductance (uS/cm)	MW-10	-7.275	-2	-21	No	8	0	0.01	NP
Specific Conductance (uS/cm)	MW-11	24.99	10	21	No	8	0	0.01	NP
Specific Conductance (uS/cm)	MW-12	7.346	4	21	No	8	0	0.01	NP
Specific Conductance (uS/cm)	MW-13	34.31	8	21	No	8	0	0.01	NP
Specific Conductance (uS/cm)	MW-14R	-6.22	-2	-21	No	8	0	0.01	NP
Specific Conductance (uS/cm)	MW-15R	-2.806	-6	-21	No	8	0	0.01	NP
Specific Conductance (uS/cm)	MW-2	12.14	2	21	No	8	0	0.01	NP
Specific Conductance (uS/cm)	MW-3	0.7466	0	21	No	8	0	0.01	NP
Specific Conductance (uS/cm)	MW-7	-96.3	-14	-21	No	8	0	0.01	NP
Specific Conductance (uS/cm)	MW-8	-46.73	-16	-21	No	8	0	0.01	NP
Specific Conductance (uS/cm)	MW-9	-99.78	-12	-21	No	8	0	0.01	NP
Total Extractable Hydrocarbons (ug/L)	MW-14R	1.296	5	21	No	8	87.5	0.01	NP
Total Extractable Hydrocarbons (ug/L)	MW-15R	1.896	4	21	No	8	12.5	0.01	NP
Total Extractable Hydrocarbons (ug/L)	MW-2	2.389	10	21	No	8	87.5	0.01	NP
Total Extractable Hydrocarbons (ug/L)	MW-7	5.111	10	21	No	8	75	0.01	NP
Zinc (mg/L)	MW-14R	-0.6917	-14	-21	No	8	0	0.01	NP

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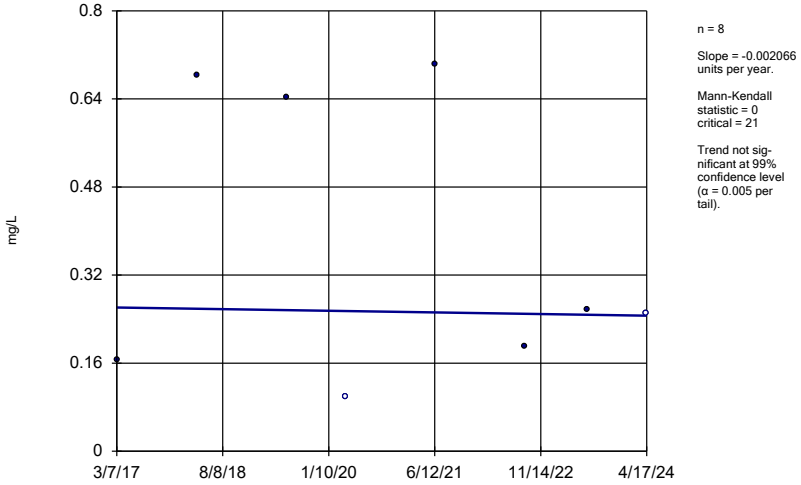
Hollow symbols indicate censored values.

Sen's Slope Estimator

EPA-2A



n = 8

Slope = -0.002066 units per year.

Mann-Kendall statistic = 0
critical = 21

Trend not sig-nificant at 99% confidence level (α = 0.005 per tail).

Constituent: Ammonia as N Analysis Run 5/22/2024 5:50 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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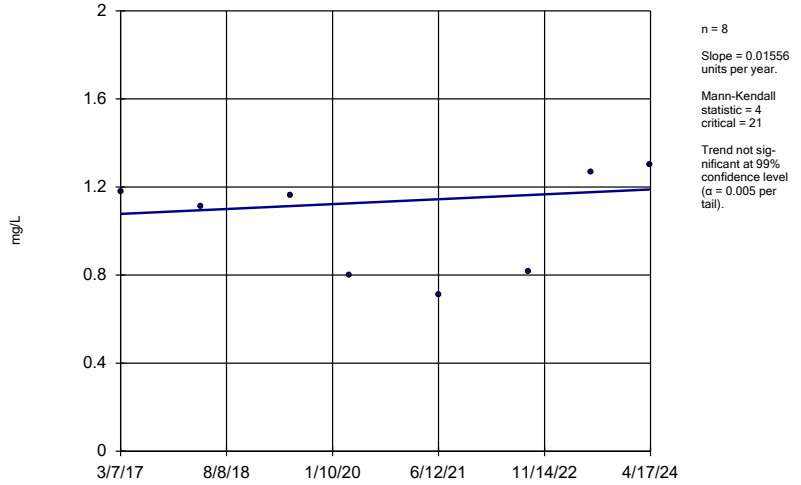
Sen's Slope Estimator

MW-1



n = 8

Slope = 0.01556 units per year.

Mann-Kendall statistic = 4
critical = 21

Trend not sig-nificant at 99% confidence level (α = 0.005 per tail).

Constituent: Ammonia as N Analysis Run 5/22/2024 5:50 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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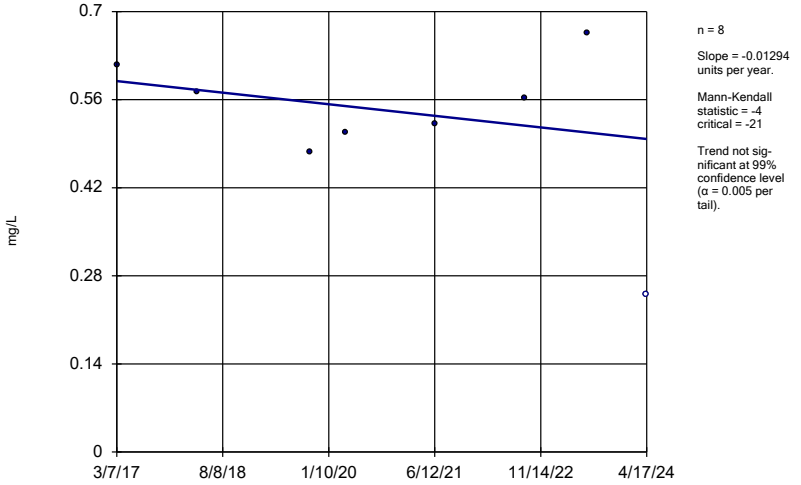
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-10



n = 8

Slope = -0.01294 units per year.

Mann-Kendall statistic = -4
critical = -21

Trend not sig-nificant at 99% confidence level (α = 0.005 per tail).

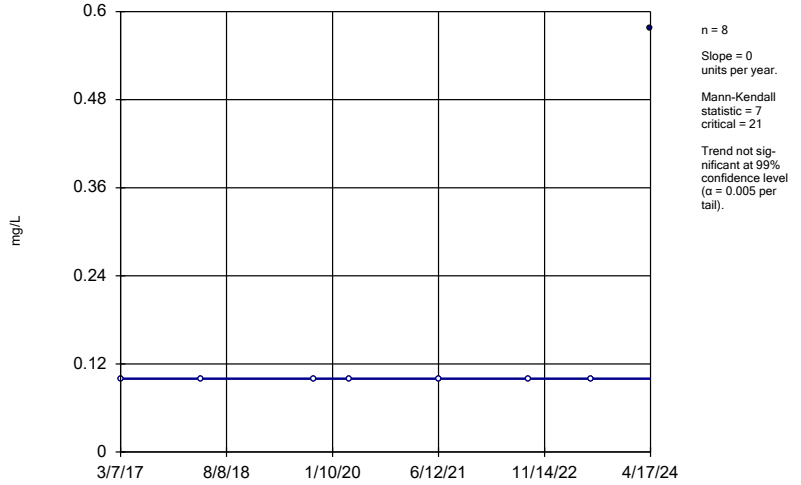
Constituent: Ammonia as N Analysis Run 5/22/2024 5:50 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Sanitas™ v.10.0.16 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-11



n = 8

Slope = 0 units per year.

Mann-Kendall statistic = 7
critical = 21

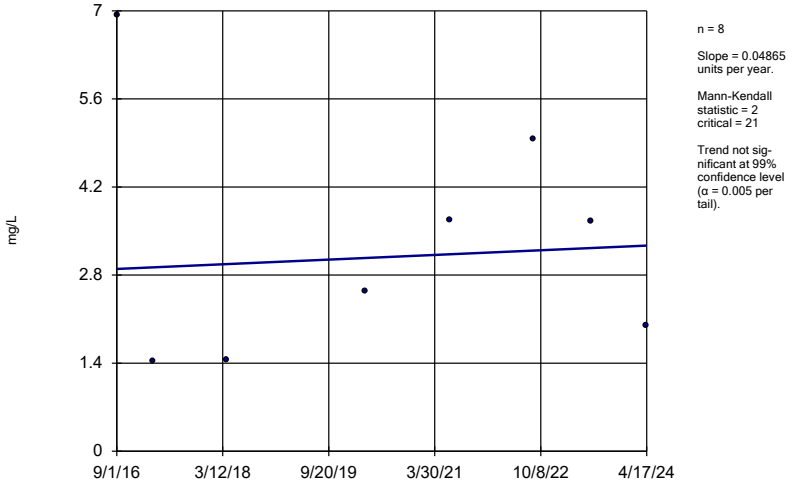
Trend not sig-nificant at 99% confidence level (α = 0.005 per tail).

Constituent: Ammonia as N Analysis Run 5/22/2024 5:50 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Sen's Slope Estimator

MW-14R



n = 8

Slope = 0.04865 units per year.

Mann-Kendall statistic = 2 critical = 21

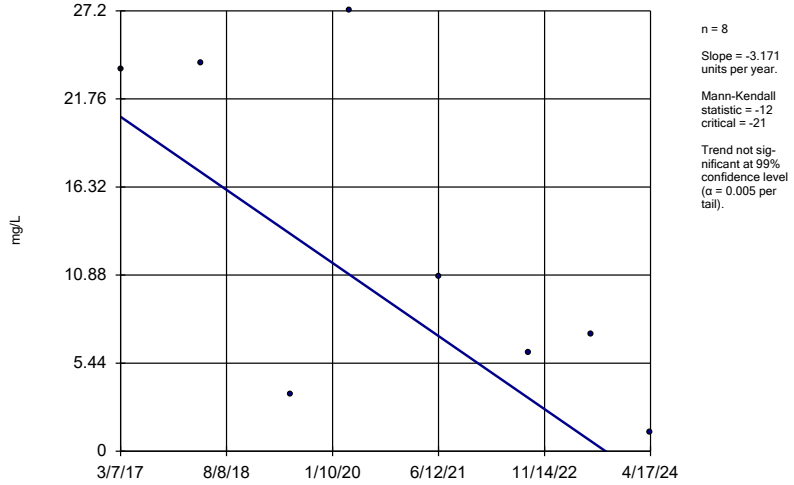
Trend not sig-nificant at 99% confidence level (α = 0.005 per tail).

Constituent: Ammonia as N Analysis Run 5/22/2024 5:50 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Sen's Slope Estimator

MW-2



n = 8

Slope = -3.171 units per year.

Mann-Kendall statistic = -12 critical = -21

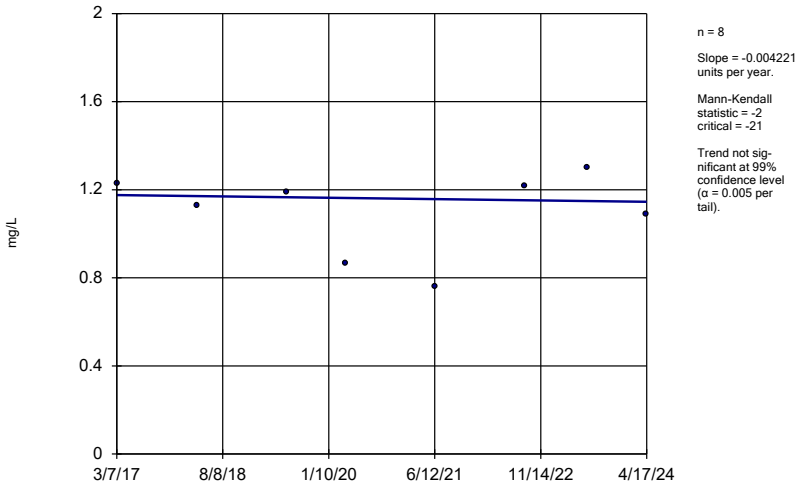
Trend not sig-nificant at 99% confidence level (α = 0.005 per tail).

Constituent: Ammonia as N Analysis Run 5/22/2024 5:50 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Sen's Slope Estimator

MW-3



n = 8

Slope = -0.004221 units per year.

Mann-Kendall statistic = -2 critical = -21

Trend not sig-nificant at 99% confidence level (α = 0.005 per tail).

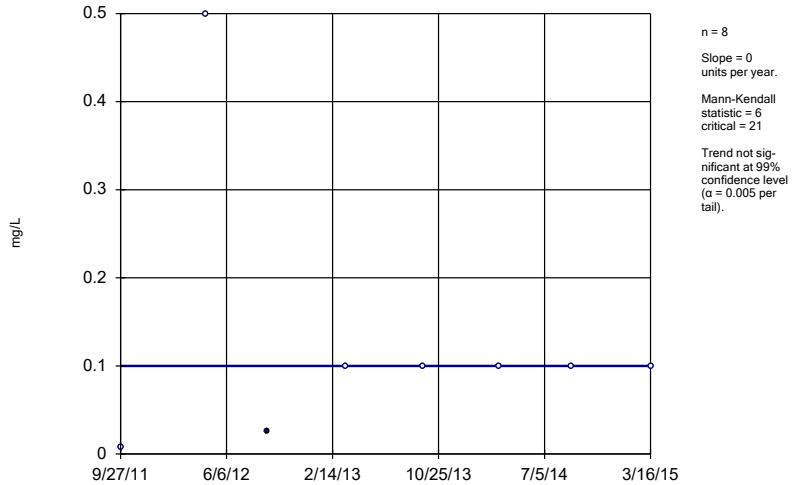
Constituent: Ammonia as N Analysis Run 5/22/2024 5:50 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-7



n = 8

Slope = 0 units per year.

Mann-Kendall statistic = 6 critical = 21

Trend not sig-nificant at 99% confidence level (α = 0.005 per tail).

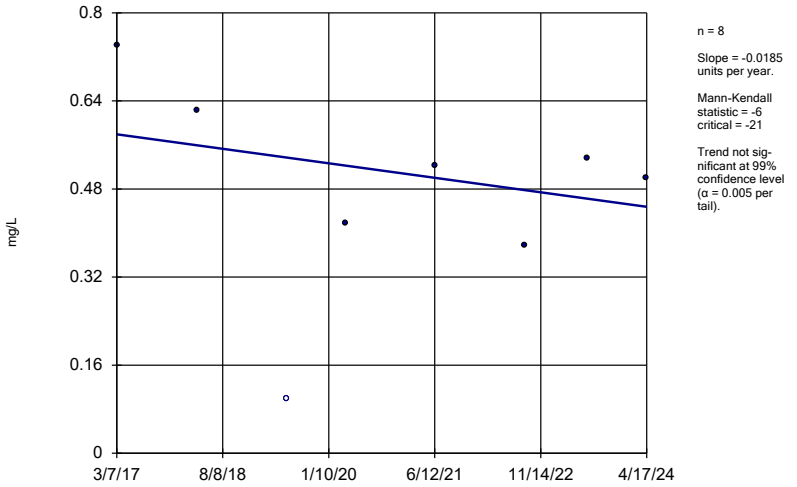
Constituent: Ammonia as N Analysis Run 5/22/2024 5:50 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-8



n = 8

Slope = -0.0185 units per year.

Mann-Kendall statistic = -6
critical = -21

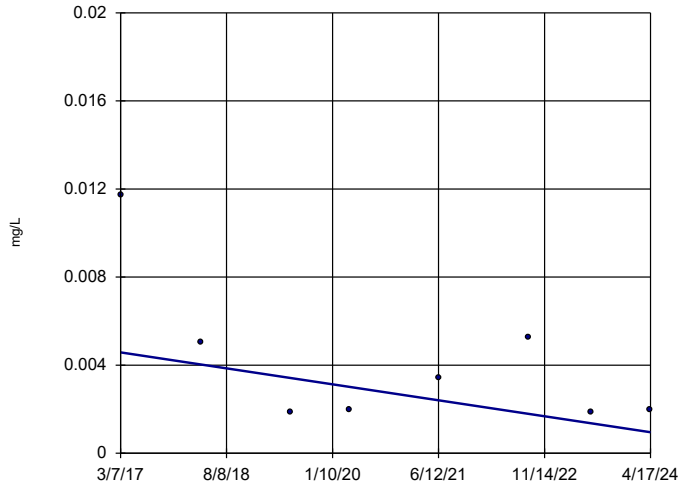
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Ammonia as N Analysis Run 5/22/2024 5:50 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Sen's Slope Estimator

EPA-2A



n = 8

Slope = -0.0005087 units per year.

Mann-Kendall statistic = -6
critical = -21

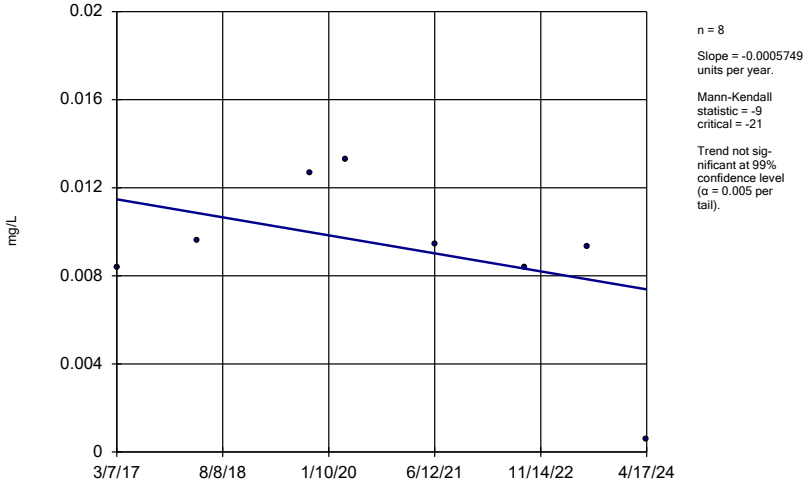
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Arsenic Analysis Run 5/22/2024 5:50 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Sen's Slope Estimator

MW-10



n = 8

Slope = -0.0005749 units per year.

Mann-Kendall statistic = -9
critical = -21

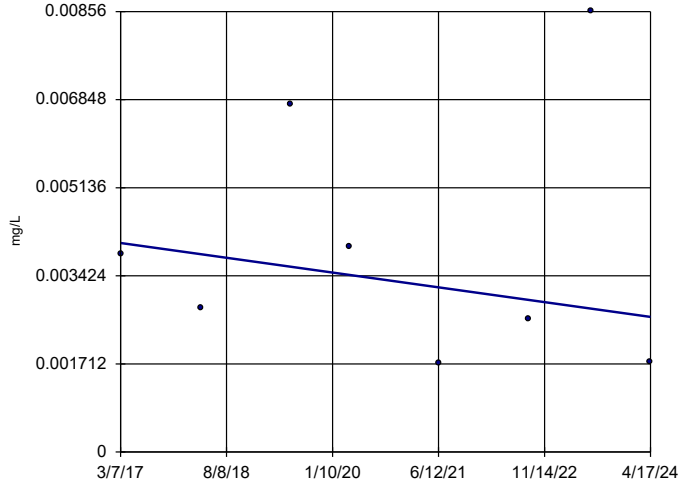
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Arsenic Analysis Run 5/22/2024 5:50 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Sen's Slope Estimator

MW-13



n = 8

Slope = -0.0002017 units per year.

Mann-Kendall statistic = -4
critical = -21

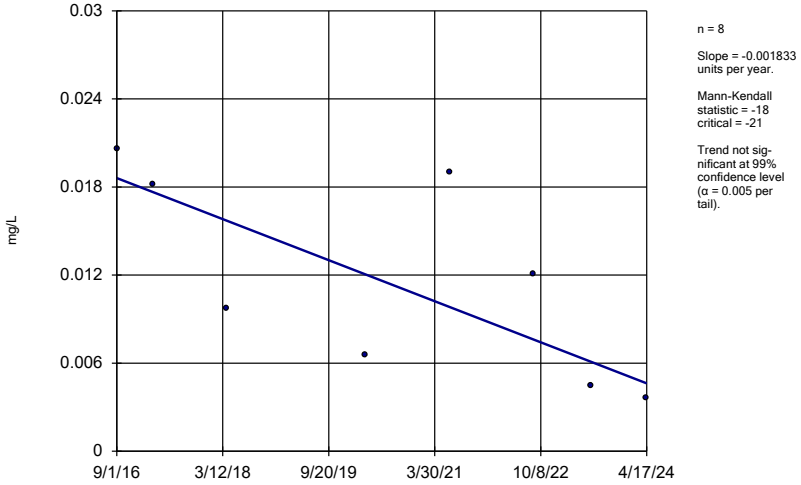
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Arsenic Analysis Run 5/22/2024 5:50 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Sen's Slope Estimator

MW-14R



n = 8

Slope = -0.001833 units per year.

Mann-Kendall statistic = -18
critical = -21

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

Constituent: Arsenic Analysis Run 5/22/2024 5:50 PM View: 2024AWQR - Mann Kendall

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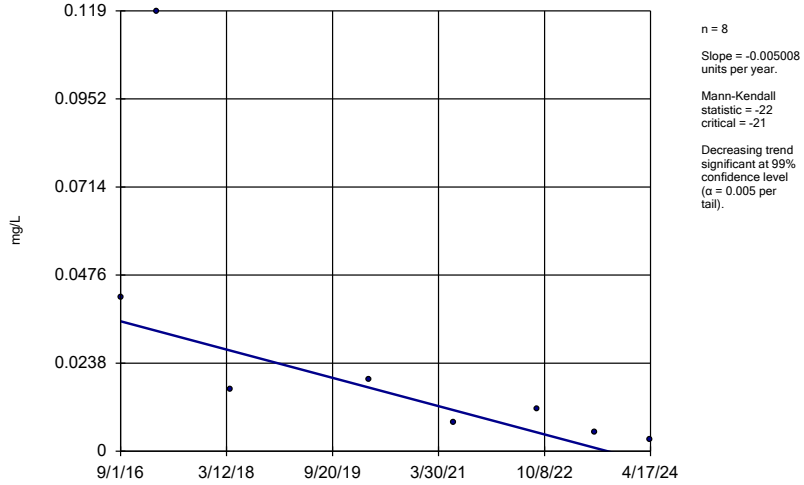
Sen's Slope Estimator

MW-15R



n = 8

Slope = -0.005008 units per year.

Mann-Kendall statistic = -22
critical = -21

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

Constituent: Arsenic Analysis Run 5/22/2024 5:50 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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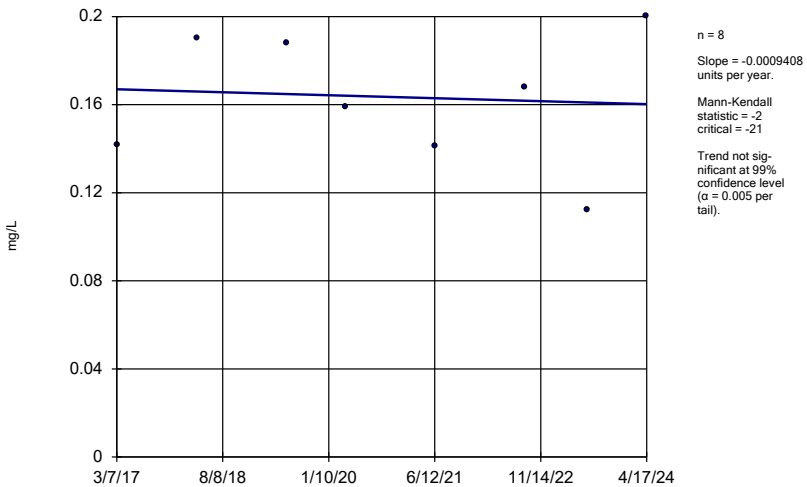
Sen's Slope Estimator

MW-2



n = 8

Slope = -0.0009408 units per year.

Mann-Kendall statistic = -2
critical = -21

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

Constituent: Arsenic Analysis Run 5/22/2024 5:50 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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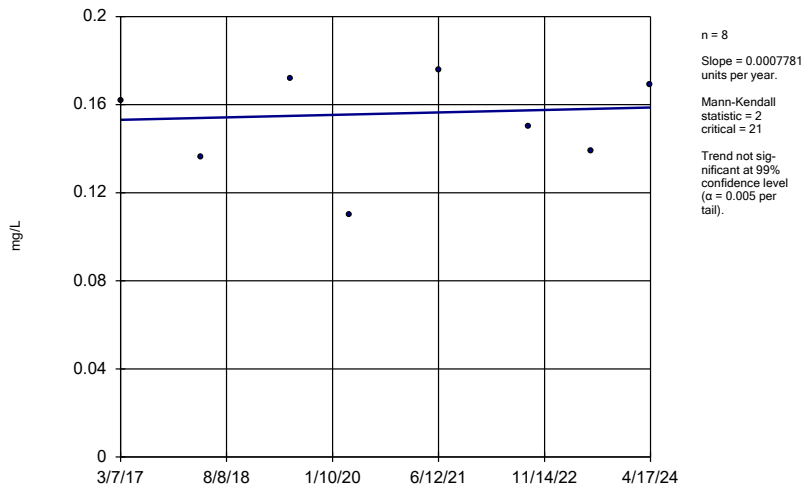
Sen's Slope Estimator

MW-3



n = 8

Slope = 0.0007781 units per year.

Mann-Kendall statistic = 2
critical = 21

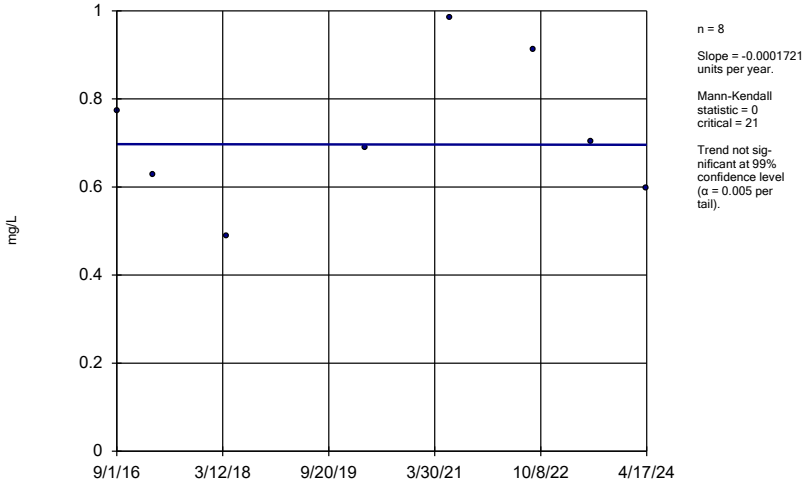
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Arsenic Analysis Run 5/22/2024 5:50 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Sen's Slope Estimator

MW-14R



n = 8

Slope = -0.0001721 units per year.

Mann-Kendall statistic = 0
critical = 21

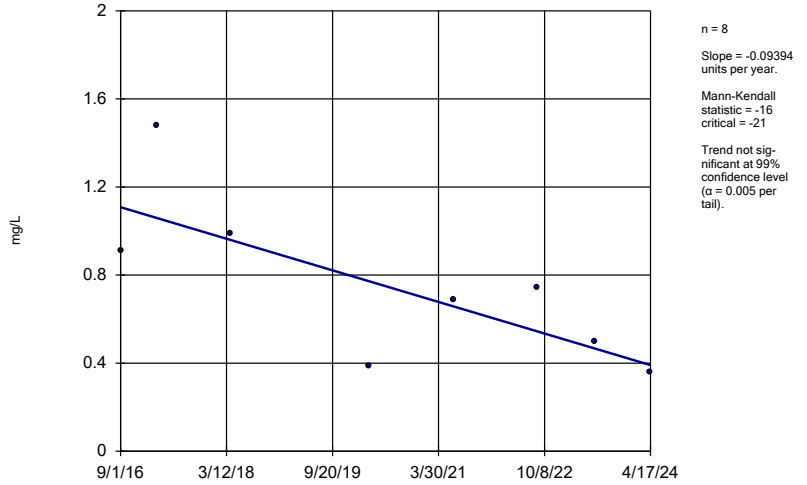
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Barium Analysis Run 5/22/2024 5:50 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Sen's Slope Estimator

MW-15R



n = 8

Slope = -0.09394 units per year.

Mann-Kendall statistic = -16
critical = -21

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

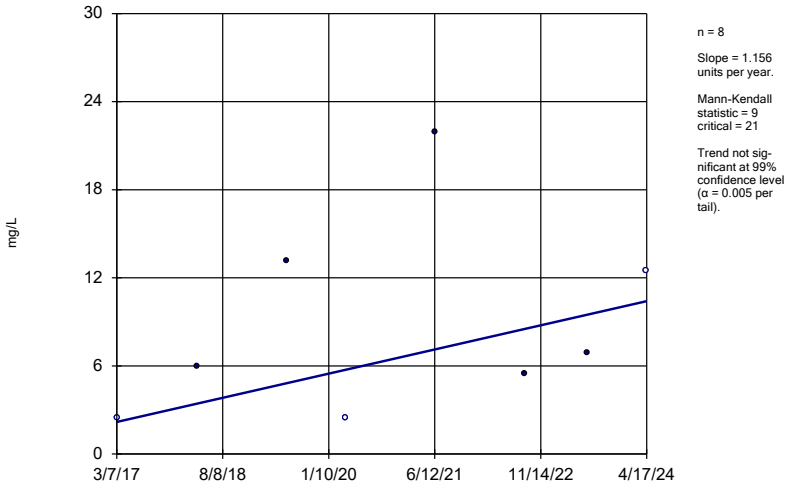
Constituent: Barium Analysis Run 5/22/2024 5:50 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Hollow symbols indicate censored values.

Sen's Slope Estimator

EPA-1AR



n = 8

Slope = 1.156 units per year.

Mann-Kendall statistic = 9
critical = 21

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

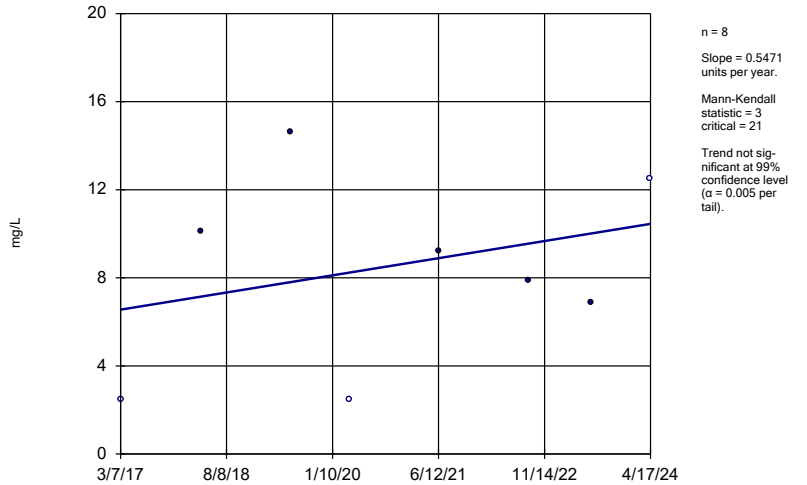
Constituent: Chemical Oxygen Demand Analysis Run 5/22/2024 5:50 PM View: 2024AWQR - Mann Kend

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Hollow symbols indicate censored values.

Sen's Slope Estimator

EPA-2A



n = 8

Slope = 0.5471 units per year.

Mann-Kendall statistic = 3
critical = 21

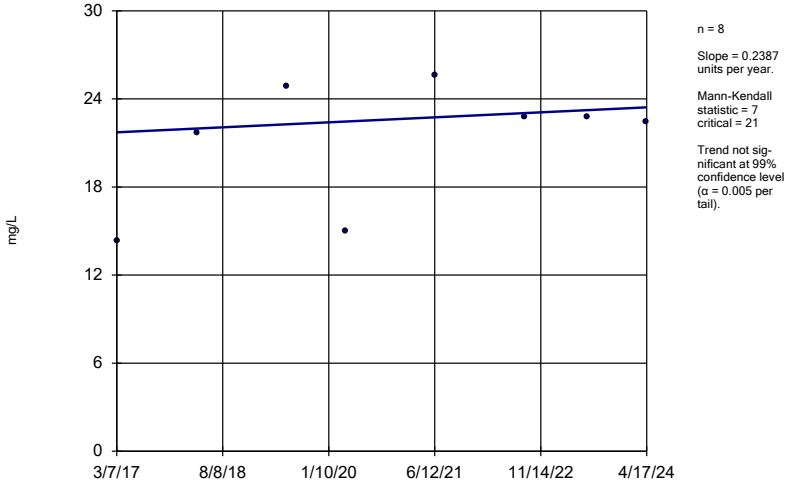
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chemical Oxygen Demand Analysis Run 5/22/2024 5:50 PM View: 2024AWQR - Mann Kend

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Sen's Slope Estimator

MW-1



n = 8

Slope = 0.2387 units per year.

Mann-Kendall statistic = 7 critical = 21

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

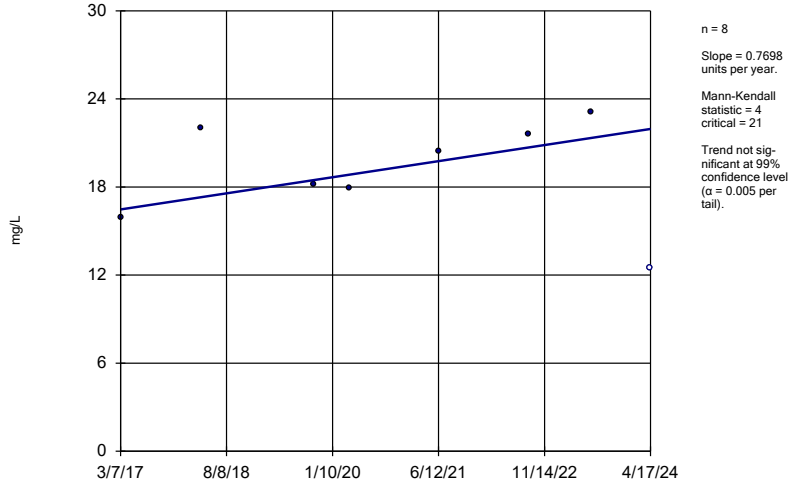
Constituent: Chemical Oxygen Demand Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kend

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-10



n = 8

Slope = 0.7698 units per year.

Mann-Kendall statistic = 4 critical = 21

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

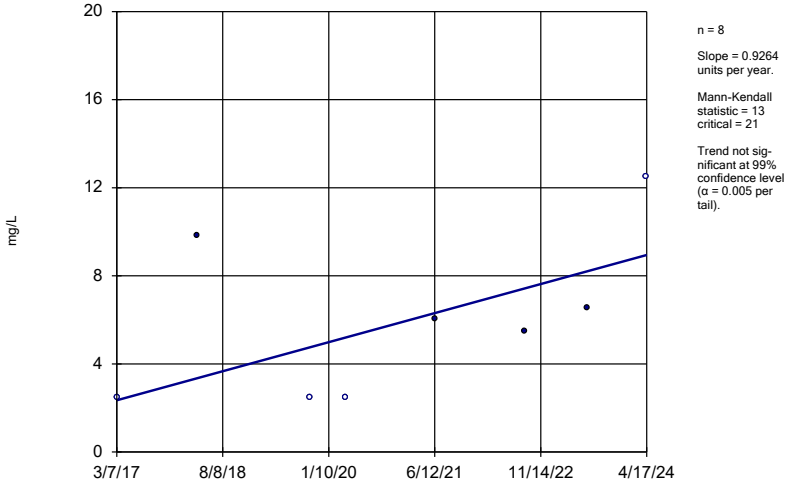
Constituent: Chemical Oxygen Demand Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kend

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-11



n = 8

Slope = 0.9264 units per year.

Mann-Kendall statistic = 13 critical = 21

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

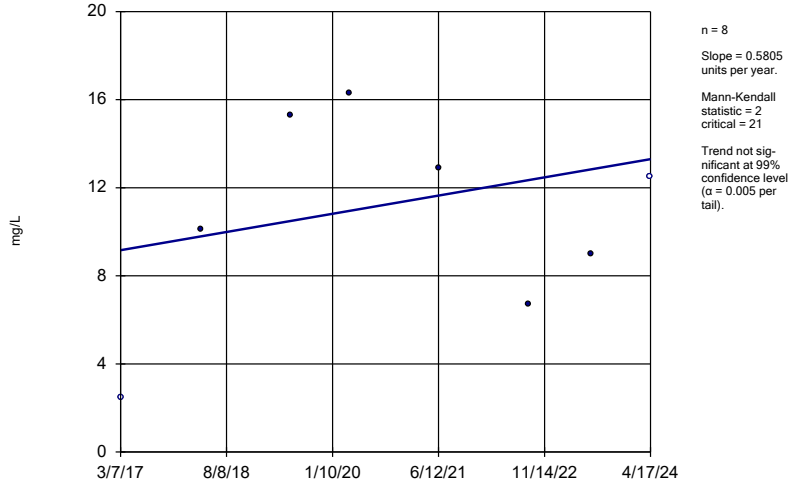
Constituent: Chemical Oxygen Demand Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kend

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-12



n = 8

Slope = 0.5805 units per year.

Mann-Kendall statistic = 2 critical = 21

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

Constituent: Chemical Oxygen Demand Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kend

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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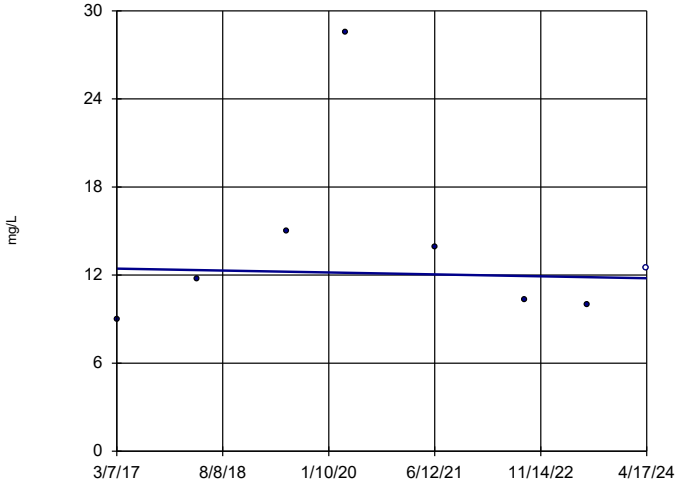
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-13



n = 8

Slope = -0.09251 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 5/22/2024 5:51 PM View: 2024AWQR - Mann Kend

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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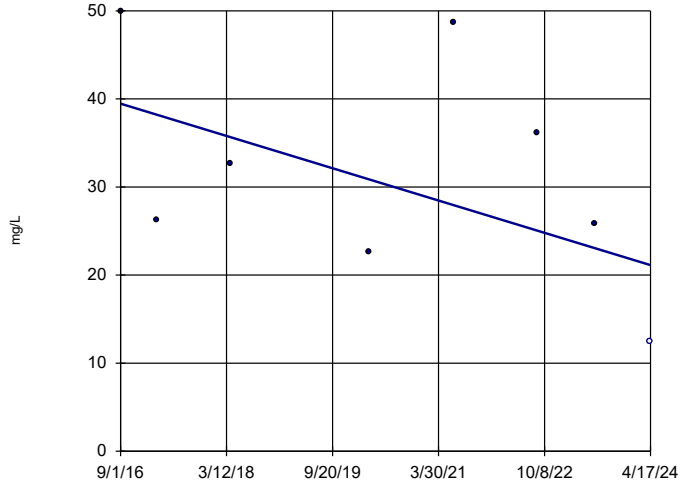
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-14R



n = 8

Slope = -2.403 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 5/22/2024 5:51 PM View: 2024AWQR - Mann Kend

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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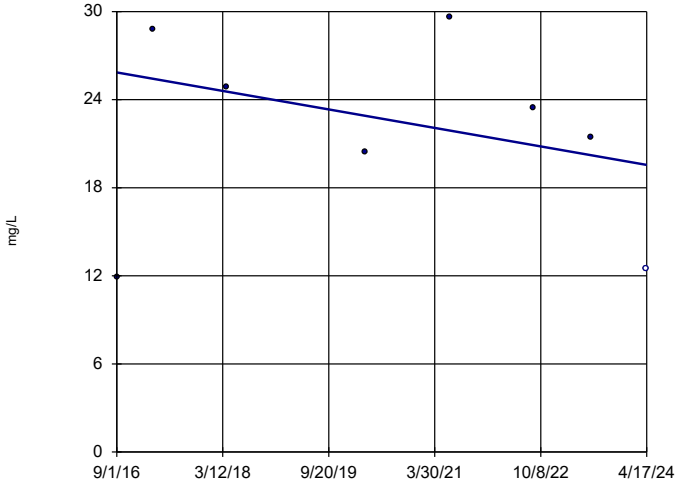
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-15R



n = 8

Slope = -0.8263 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 5/22/2024 5:51 PM View: 2024AWQR - Mann Kend

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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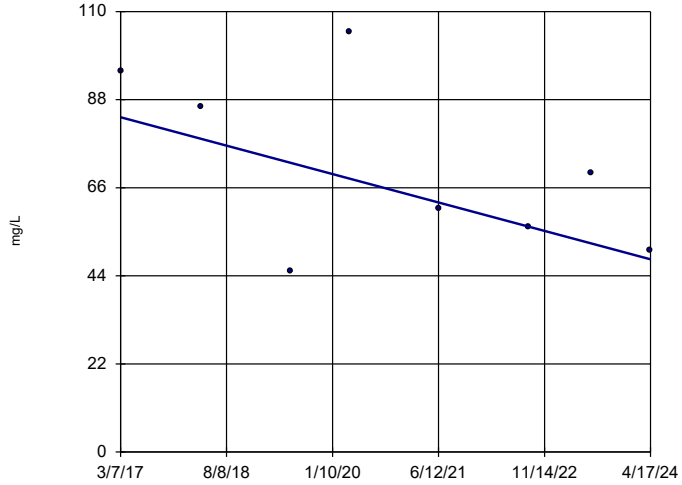
Sen's Slope Estimator

MW-2



n = 8

Slope = -4.982 units per year.

Mann-Kendall statistic = -10
critical = -21

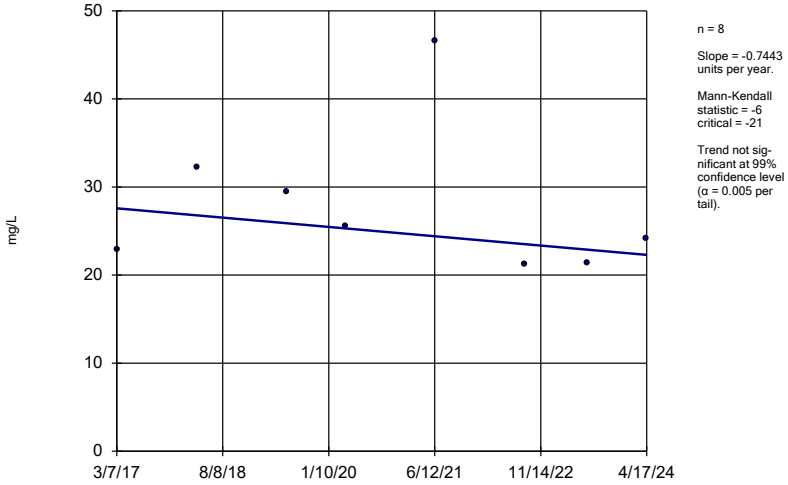
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chemical Oxygen Demand Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kend

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Sen's Slope Estimator

MW-3



n = 8

Slope = -0.7443 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 5/22/2024 5:51 PM View: 2024AWQR - Mann Kend

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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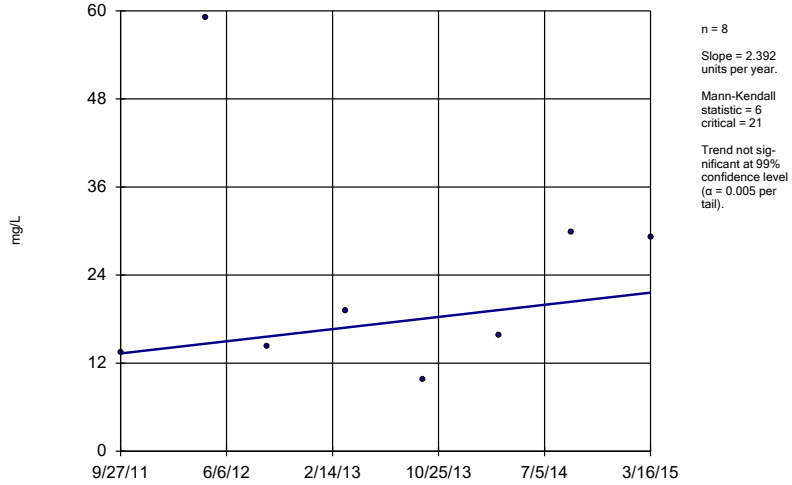
Sen's Slope Estimator

MW-7



n = 8

Slope = 2.392 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 5/22/2024 5:51 PM View: 2024AWQR - Mann Kend

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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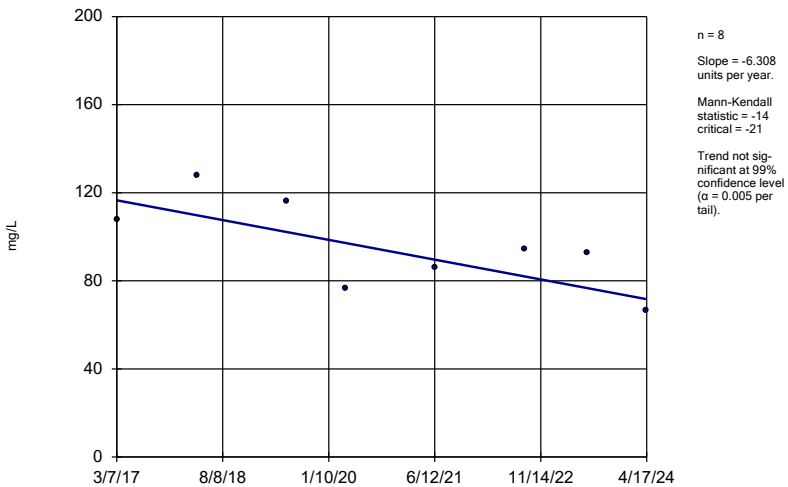
Sen's Slope Estimator

MW-8



n = 8

Slope = -6.308 units per year.

Mann-Kendall statistic = -14
critical = -21

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

Constituent: Chemical Oxygen Demand Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kend

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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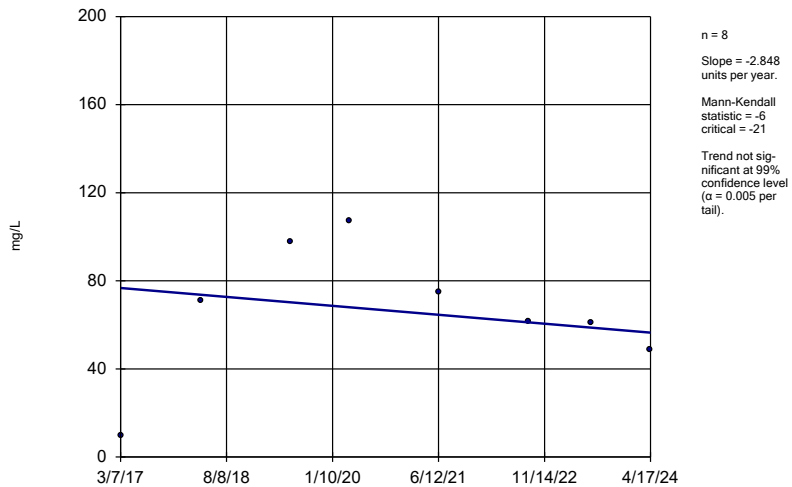
Sen's Slope Estimator

MW-9



n = 8

Slope = -2.848 units per year.

Mann-Kendall statistic = -6
critical = -21

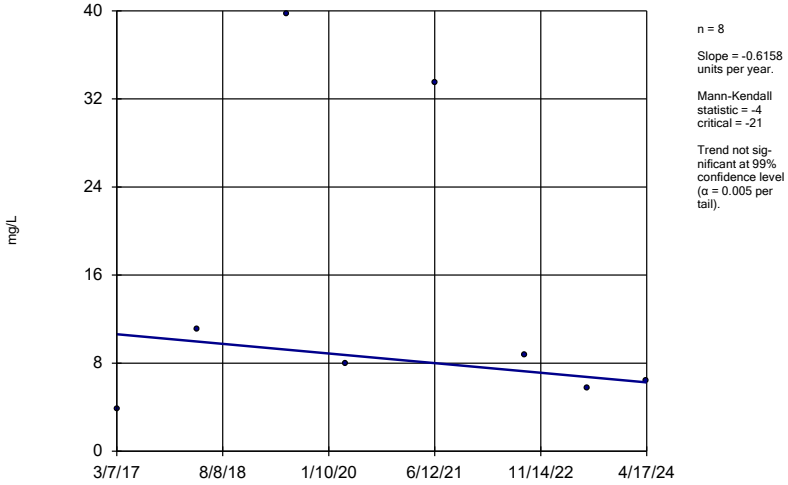
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chemical Oxygen Demand Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kend

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Sen's Slope Estimator

EPA-1AR



n = 8

Slope = -0.6158 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 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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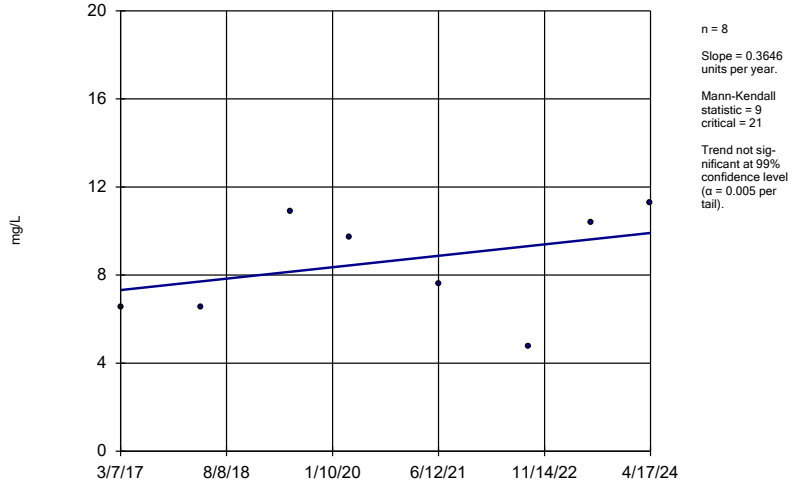
Sen's Slope Estimator

EPA-2A



n = 8

Slope = 0.3646 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 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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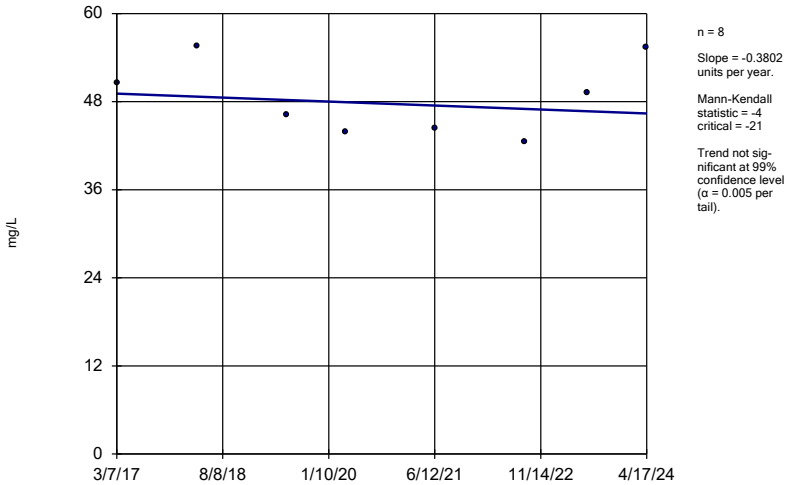
Sen's Slope Estimator

MW-1



n = 8

Slope = -0.3802 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 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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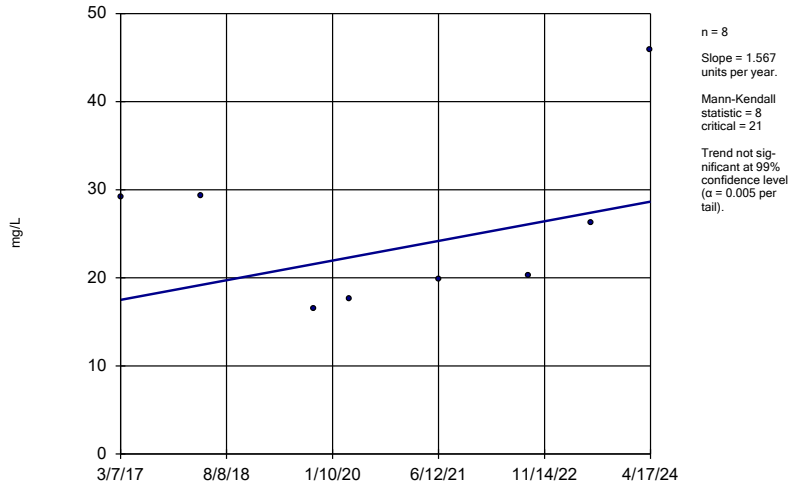
Sen's Slope Estimator

MW-10



n = 8

Slope = 1.567 units per year.

Mann-Kendall statistic = 8
critical = 21

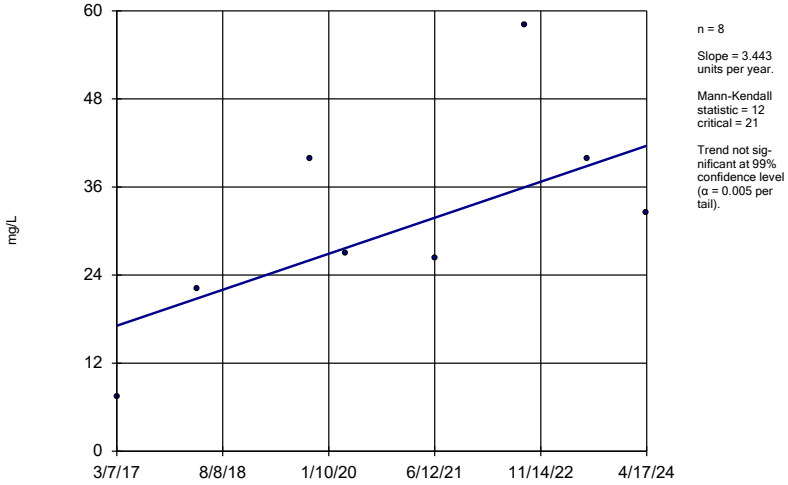
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chloride Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Sen's Slope Estimator

MW-11



n = 8

Slope = 3.443 units per year.

Mann-Kendall statistic = 12 critical = 21

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

Constituent: Chloride Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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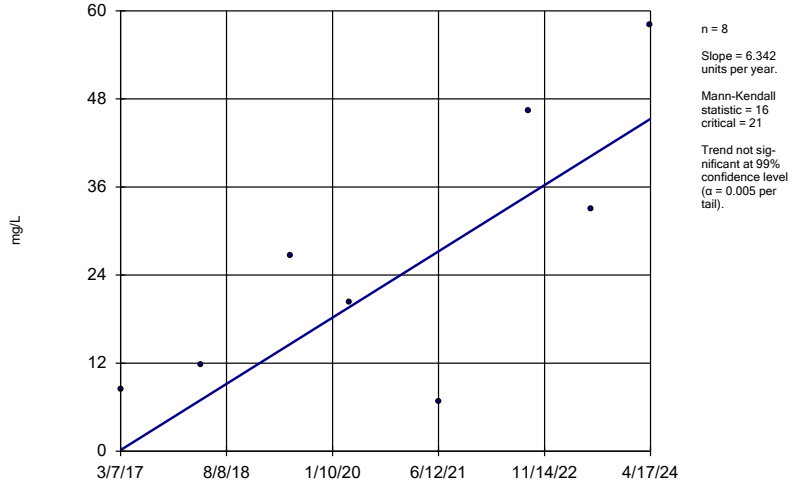
Sen's Slope Estimator

MW-12



n = 8

Slope = 6.342 units per year.

Mann-Kendall statistic = 16 critical = 21

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

Constituent: Chloride Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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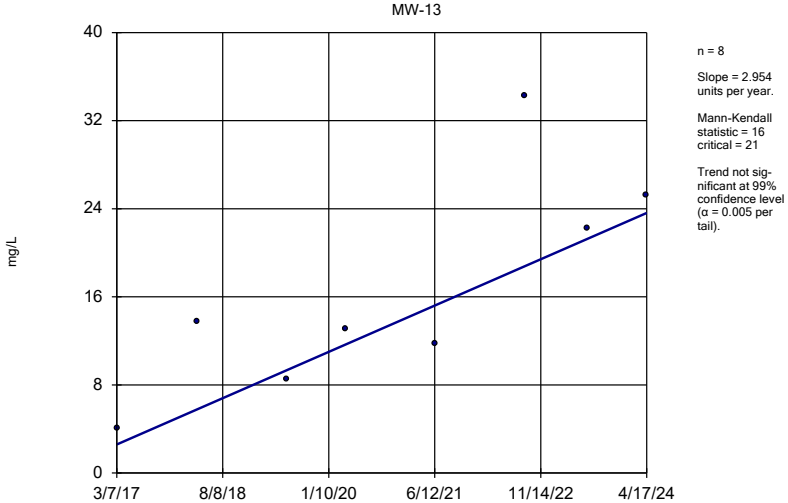
Sen's Slope Estimator

MW-13



n = 8

Slope = 2.954 units per year.

Mann-Kendall statistic = 16 critical = 21

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

Constituent: Chloride Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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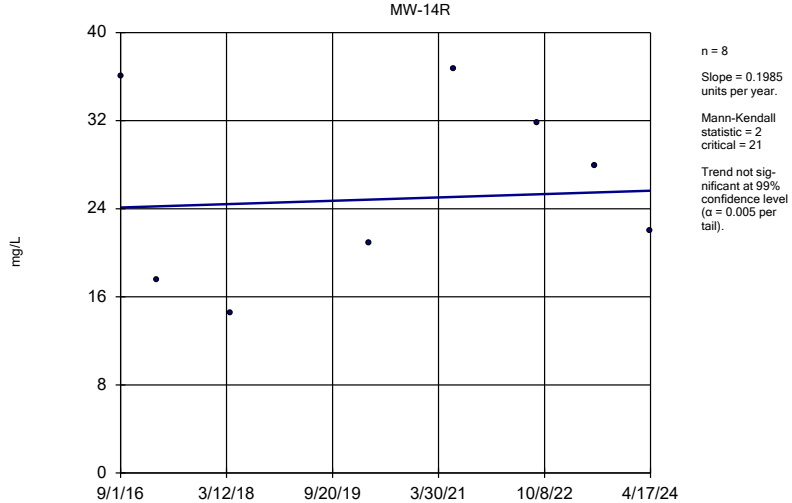
Sen's Slope Estimator

MW-14R



n = 8

Slope = 0.1985 units per year.

Mann-Kendall statistic = 2 critical = 21

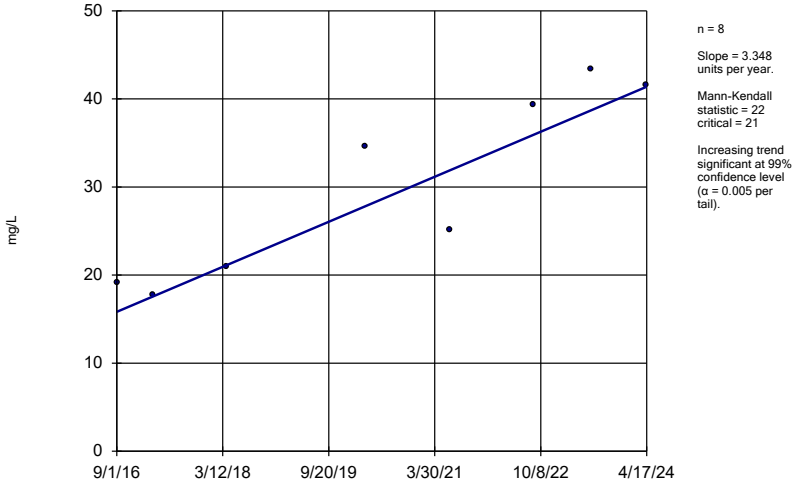
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chloride Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Sen's Slope Estimator

MW-15R



n = 8

Slope = 3.348 units per year.

Mann-Kendall statistic = 22 critical = 21

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

Constituent: Chloride Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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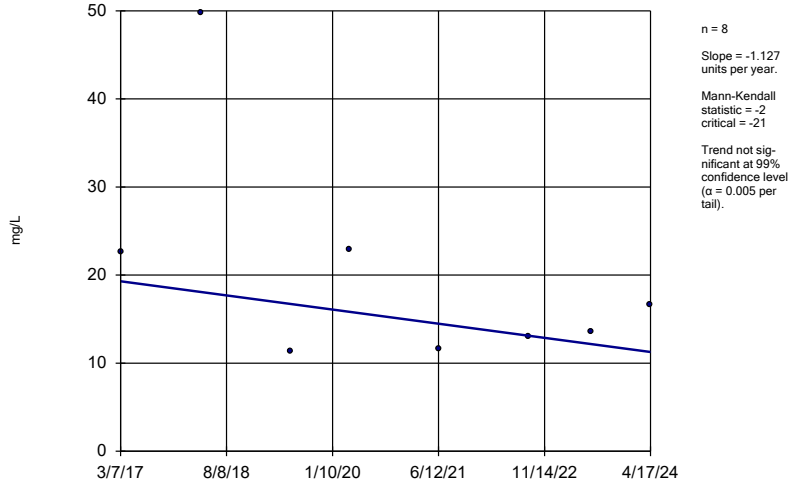
Sen's Slope Estimator

MW-2



n = 8

Slope = -1.127 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 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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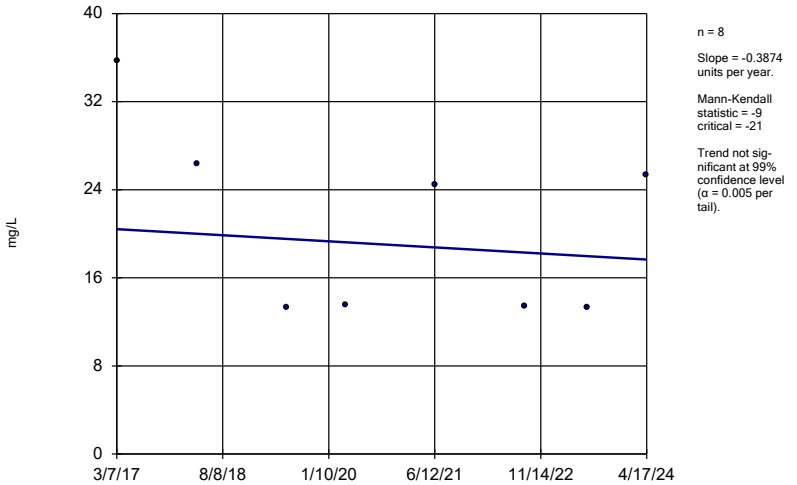
Sen's Slope Estimator

MW-3



n = 8

Slope = -0.3874 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 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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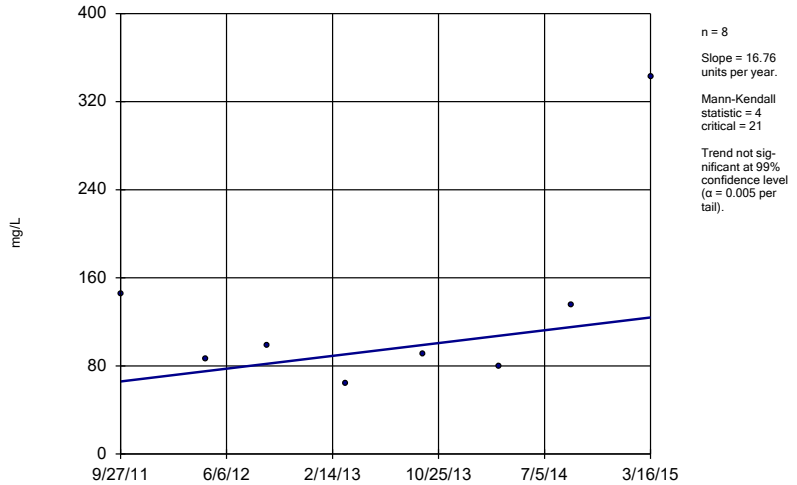
Sen's Slope Estimator

MW-7



n = 8

Slope = 16.76 units per year.

Mann-Kendall statistic = 4 critical = 21

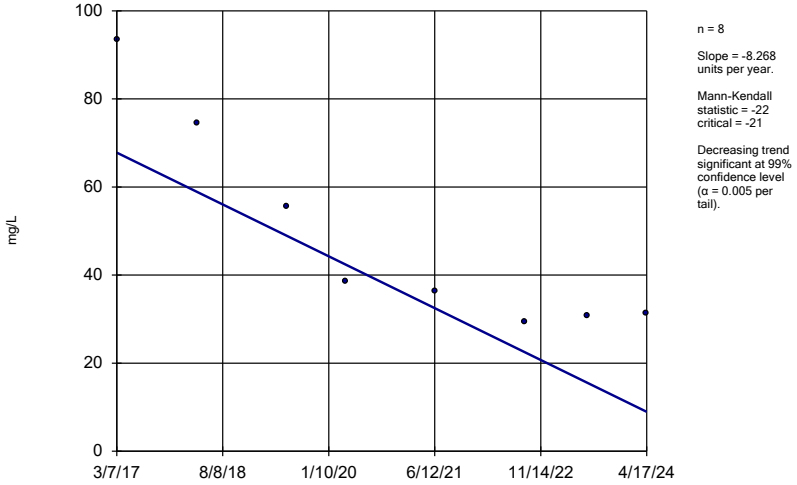
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chloride Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Sen's Slope Estimator

MW-8



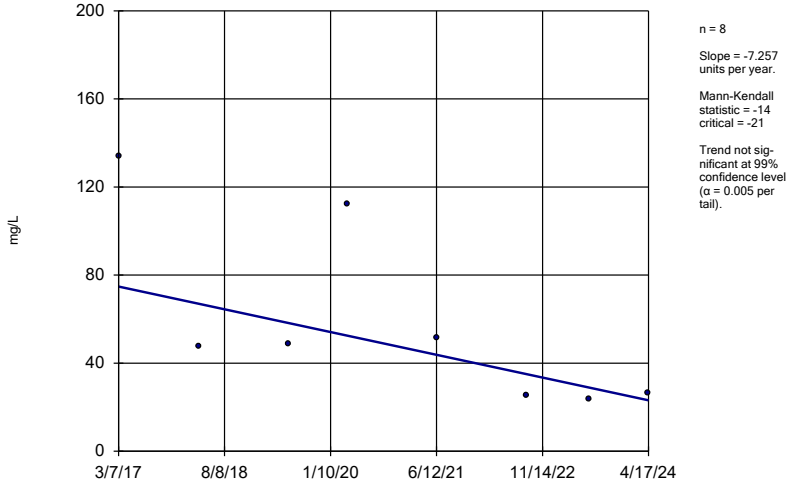
Constituent: Chloride Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Sanitas™ v.10.0.16 Software licensed to SCS Engineers. UG

Sen's Slope Estimator

MW-9



Constituent: Chloride Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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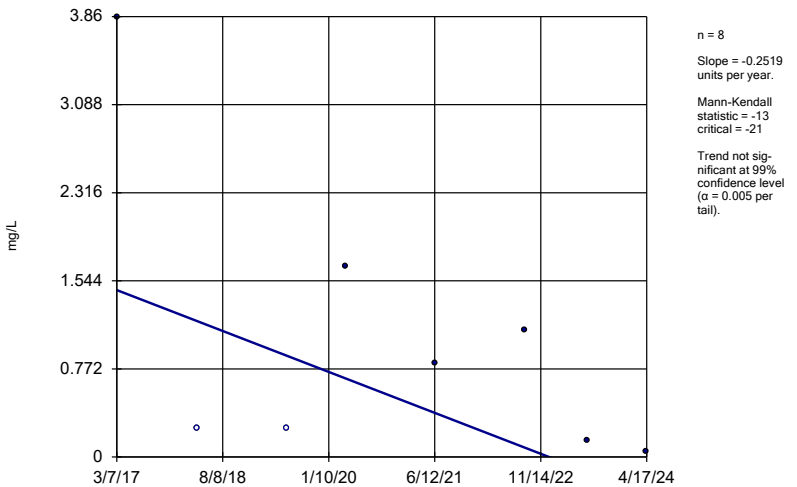
Hollow symbols indicate censored values.

Sen's Slope Estimator

EPA-1AR



Constituent: Iron Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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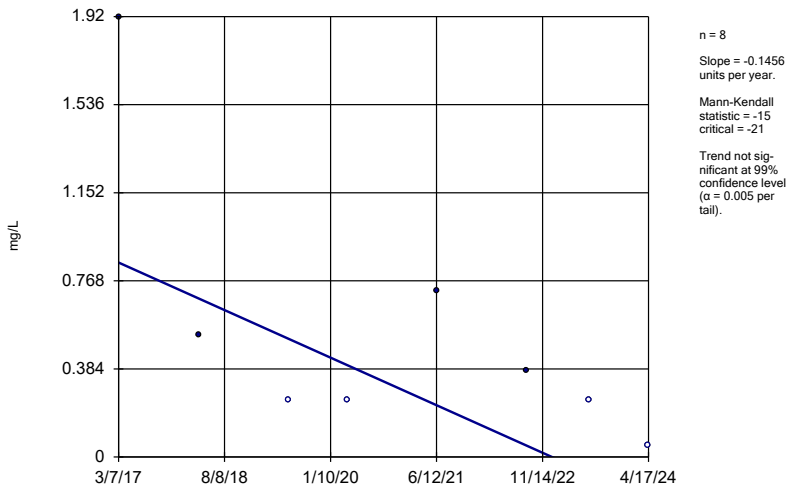
Hollow symbols indicate censored values.

Sen's Slope Estimator

EPA-2A

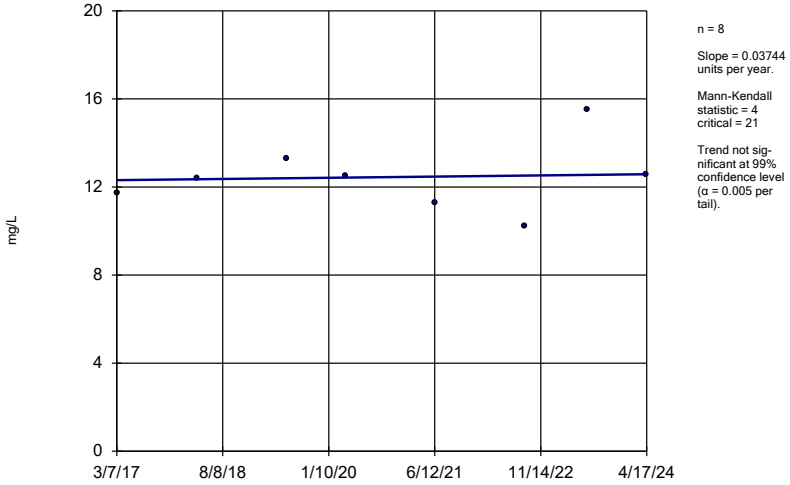


Constituent: Iron Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Sen's Slope Estimator

MW-1



n = 8

Slope = 0.03744 units per year.

Mann-Kendall statistic = 4 critical = 21

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

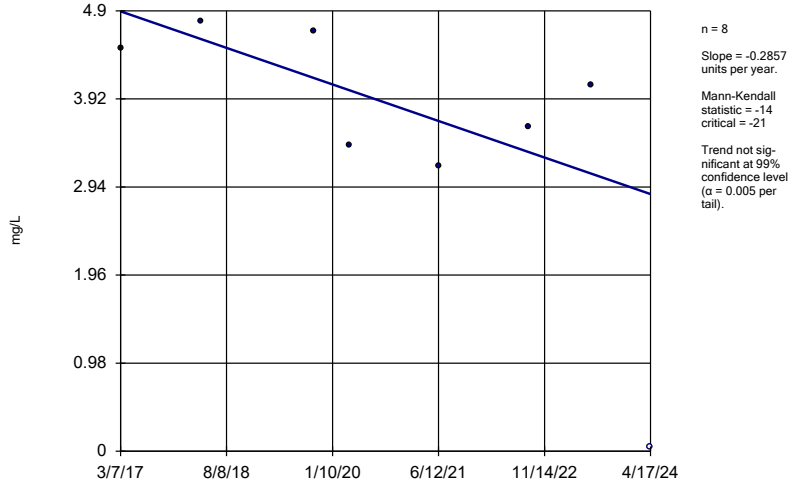
Constituent: Iron Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-10



n = 8

Slope = -0.2857 units per year.

Mann-Kendall statistic = -14 critical = -21

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

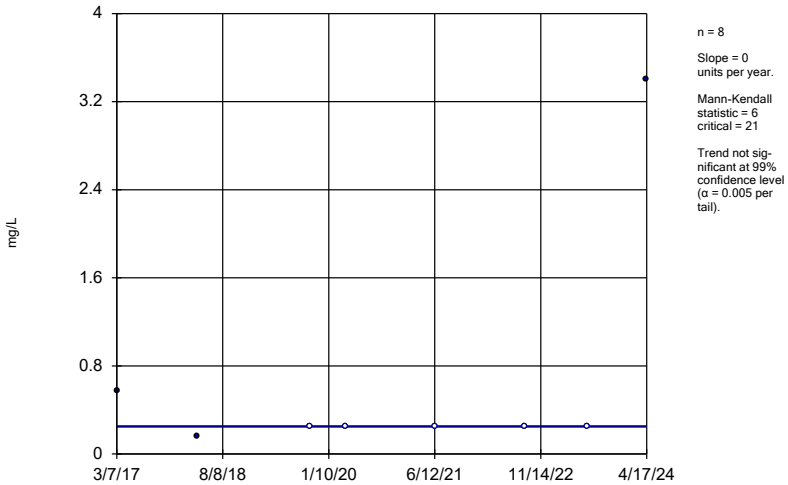
Constituent: Iron Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-11



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).

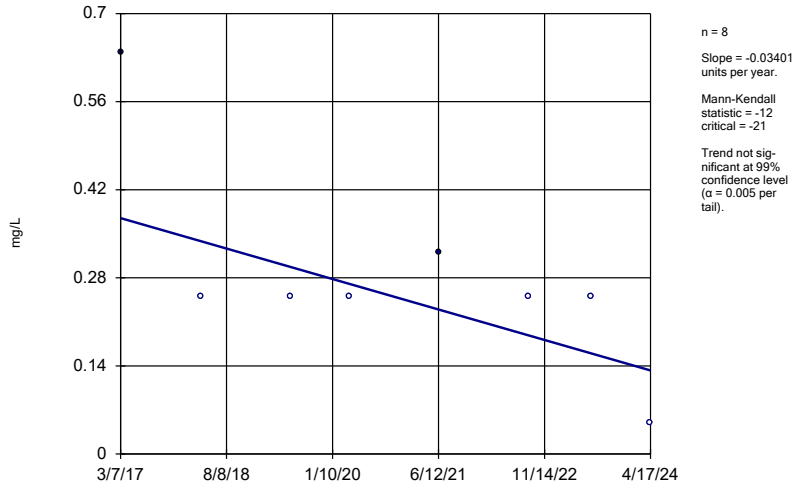
Constituent: Iron Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-12



n = 8

Slope = -0.03401 units per year.

Mann-Kendall statistic = -12 critical = -21

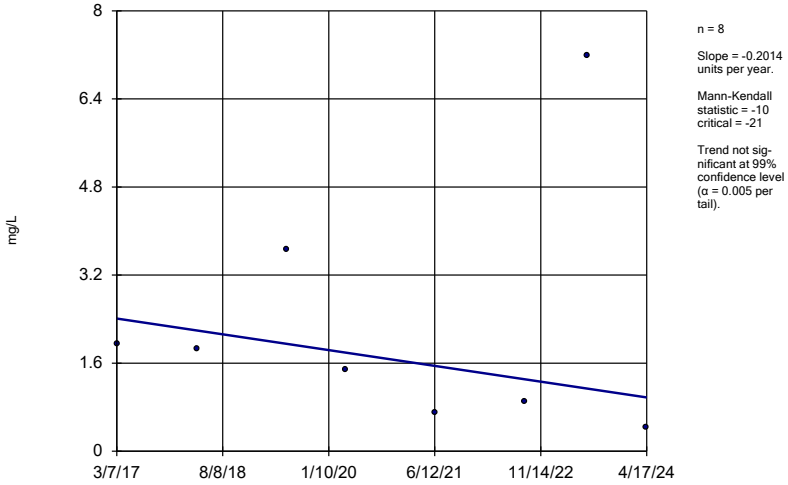
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Iron Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Sen's Slope Estimator

MW-13



n = 8

Slope = -0.2014 units per year.

Mann-Kendall statistic = -10
critical = -21

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

Constituent: Iron Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall
City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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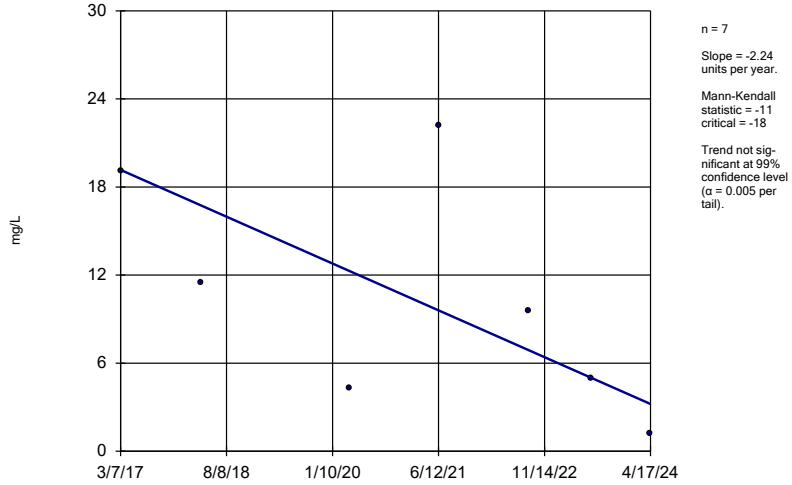
Sen's Slope Estimator

MW-14R



n = 7

Slope = -2.24 units per year.

Mann-Kendall statistic = -11
critical = -18

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

Constituent: Iron Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall
City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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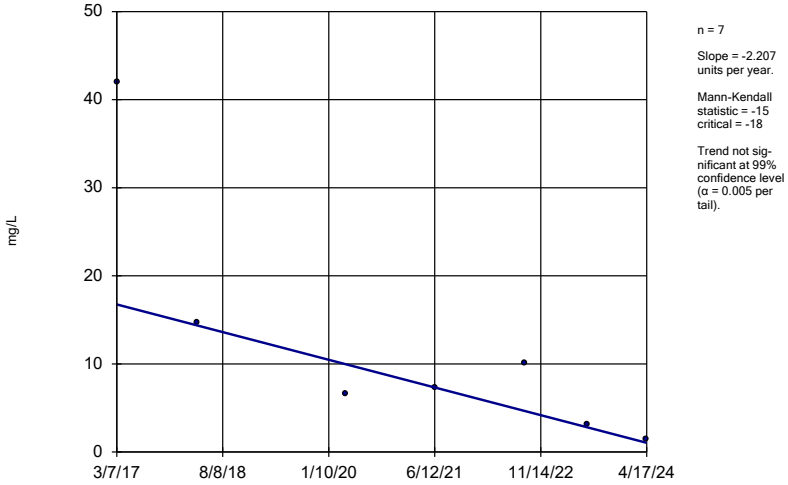
Sen's Slope Estimator

MW-15R



n = 7

Slope = -2.207 units per year.

Mann-Kendall statistic = -15
critical = -18

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

Constituent: Iron Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall
City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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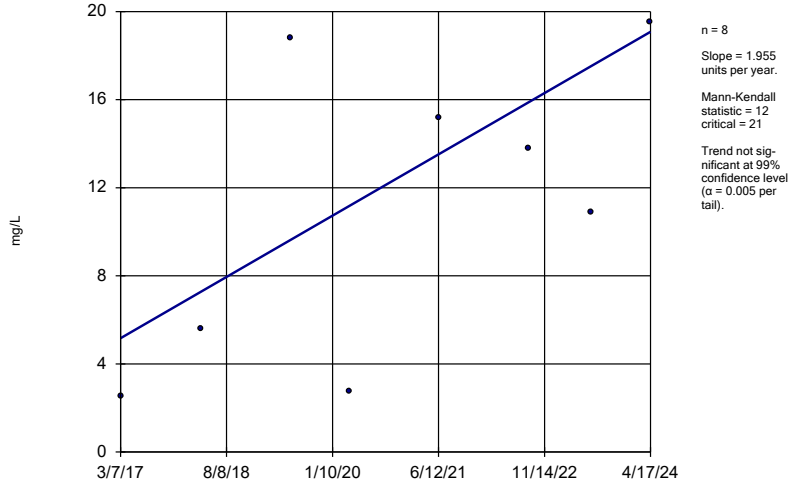
Sen's Slope Estimator

MW-2



n = 8

Slope = 1.955 units per year.

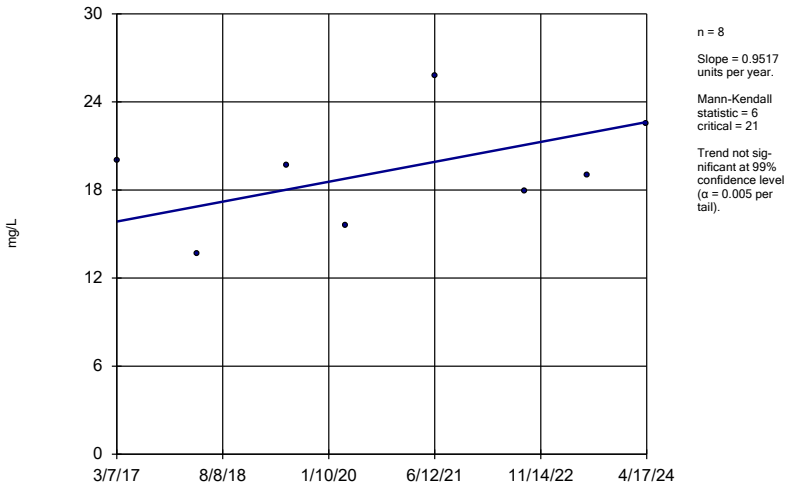
Mann-Kendall statistic = 12
critical = 21

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

Constituent: Iron Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall
City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Sen's Slope Estimator

MW-3



n = 8

Slope = 0.9517 units per year.

Mann-Kendall statistic = 6
critical = 21

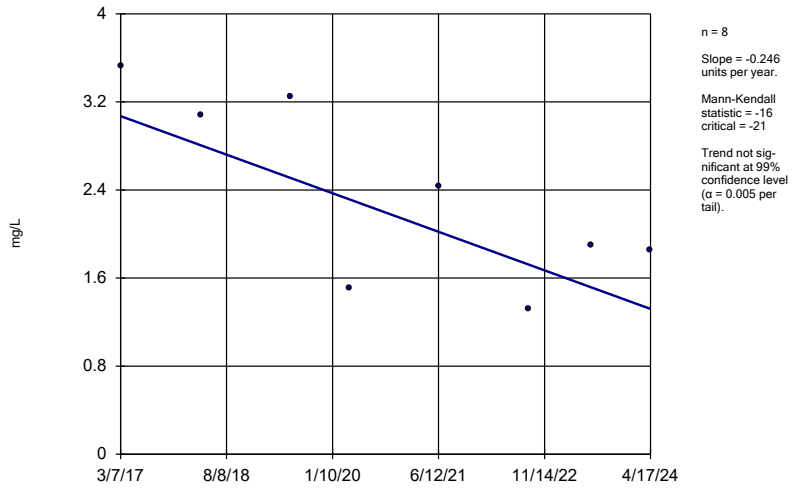
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Iron Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Sen's Slope Estimator

MW-8



n = 8

Slope = -0.246 units per year.

Mann-Kendall statistic = -16
critical = -21

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

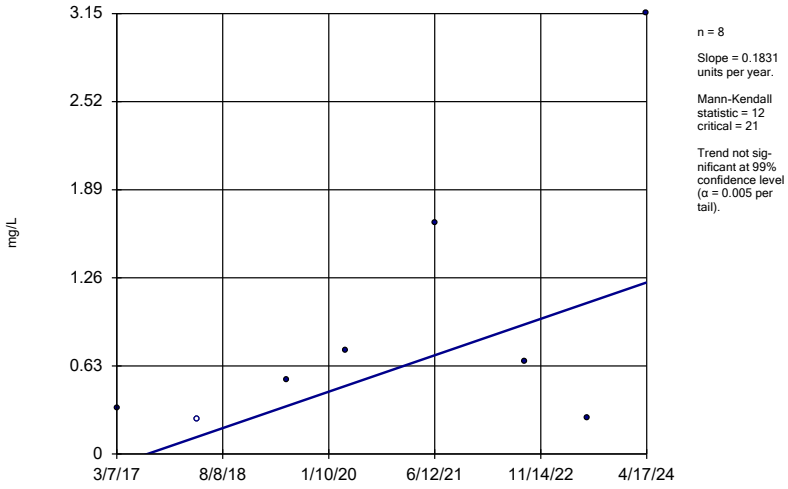
Constituent: Iron Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-9



n = 8

Slope = 0.1831 units per year.

Mann-Kendall statistic = 12
critical = 21

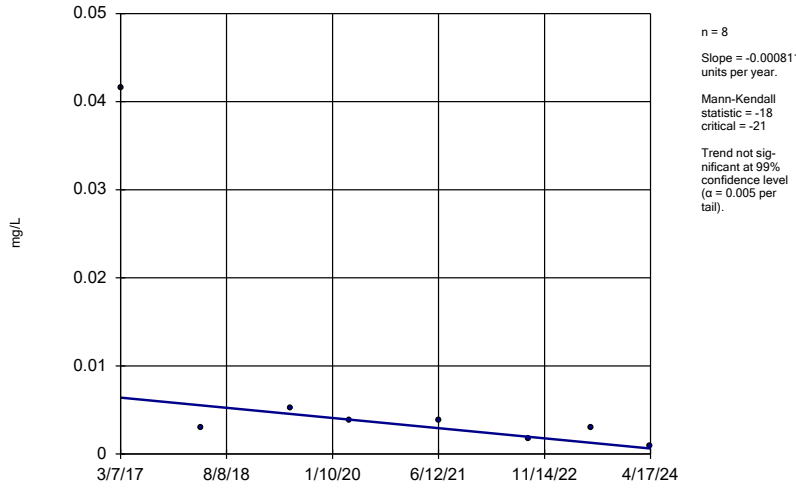
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Iron Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Sen's Slope Estimator

MW-12



n = 8

Slope = -0.0008119 units per year.

Mann-Kendall statistic = -18
critical = -21

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

Constituent: Lead Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall

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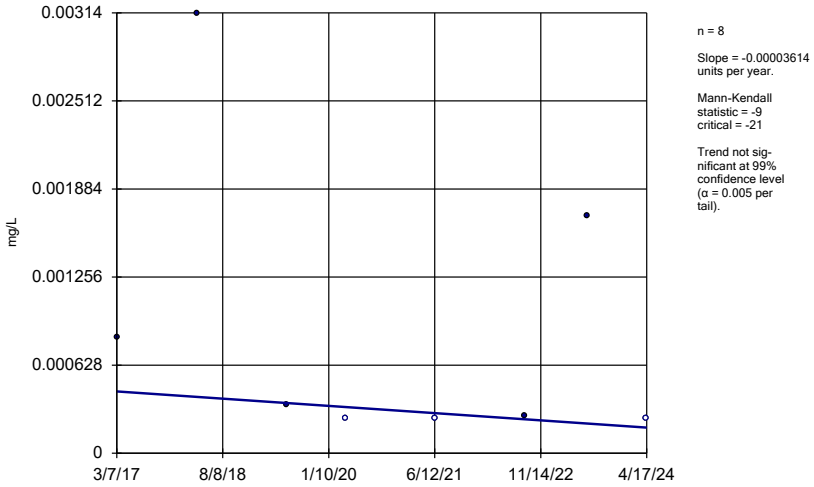
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-13



n = 8

Slope = -0.00003614 units per year.

Mann-Kendall statistic = -9
critical = -21

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

Constituent: Lead Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall
City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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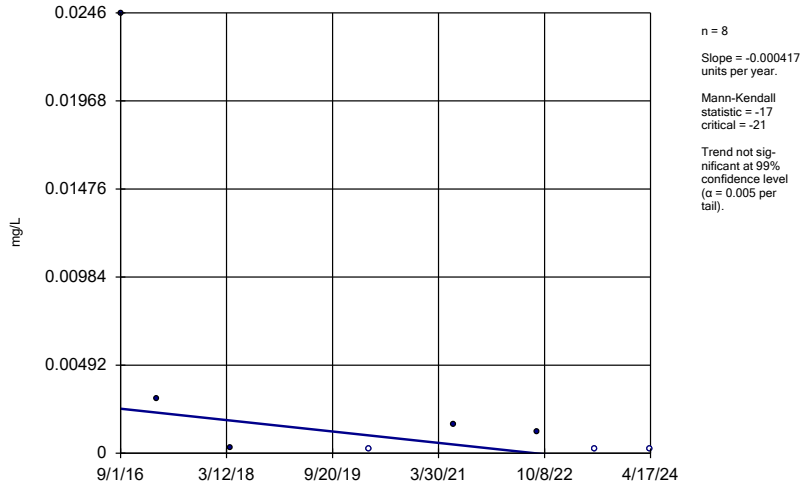
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-14R



n = 8

Slope = -0.000417 units per year.

Mann-Kendall statistic = -17
critical = -21

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

Constituent: Lead Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall
City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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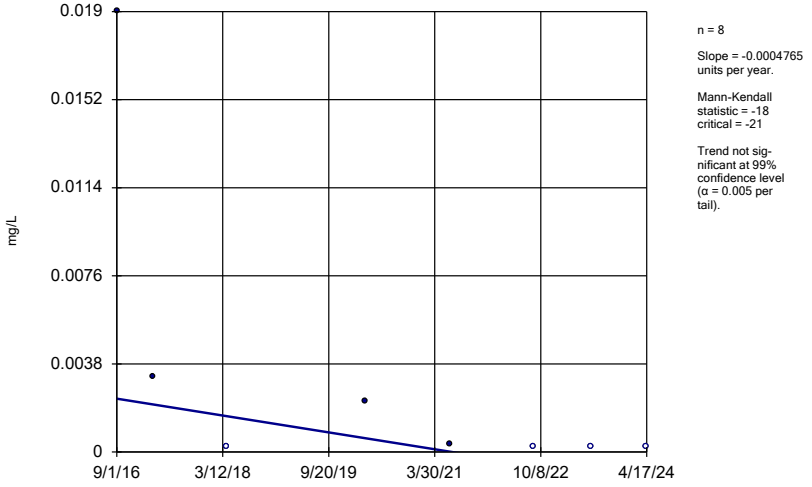
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-15R



n = 8

Slope = -0.0004765 units per year.

Mann-Kendall statistic = -18
critical = -21

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

Constituent: Lead Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall
City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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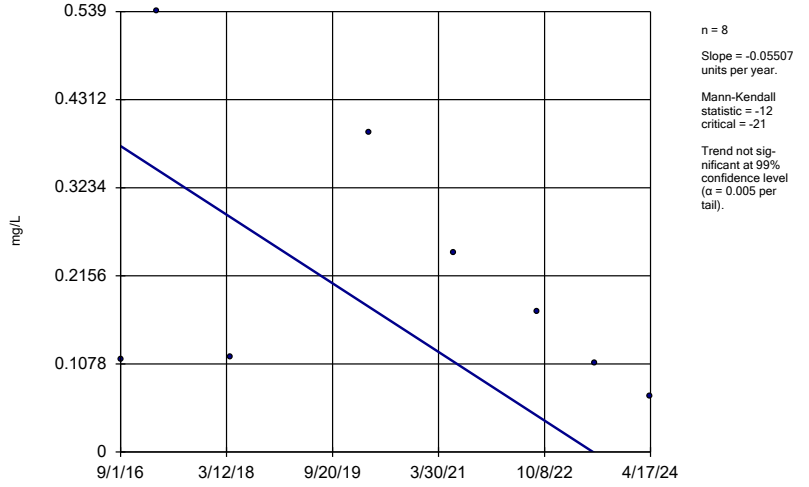
Sen's Slope Estimator

MW-14R



n = 8

Slope = -0.05507 units per year.

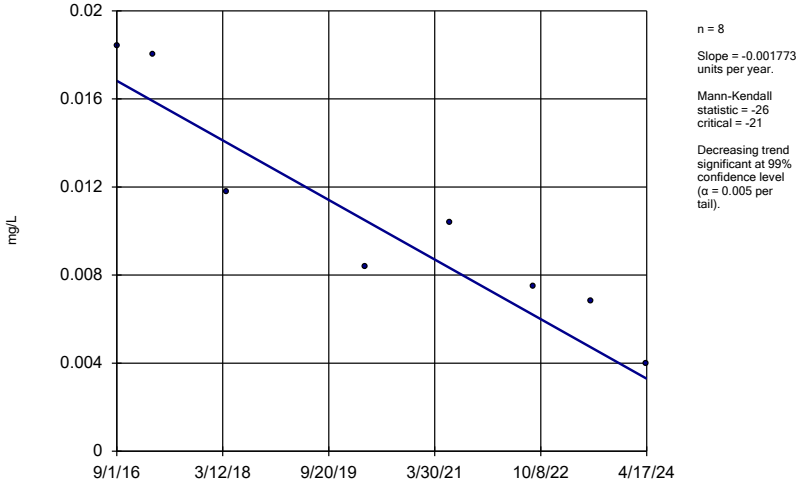
Mann-Kendall statistic = -12
critical = -21

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

Constituent: Nickel Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall
City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Sen's Slope Estimator

MW-15R



n = 8

Slope = -0.001773 units per year.

Mann-Kendall statistic = -26
critical = -21

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

Constituent: Nickel Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall

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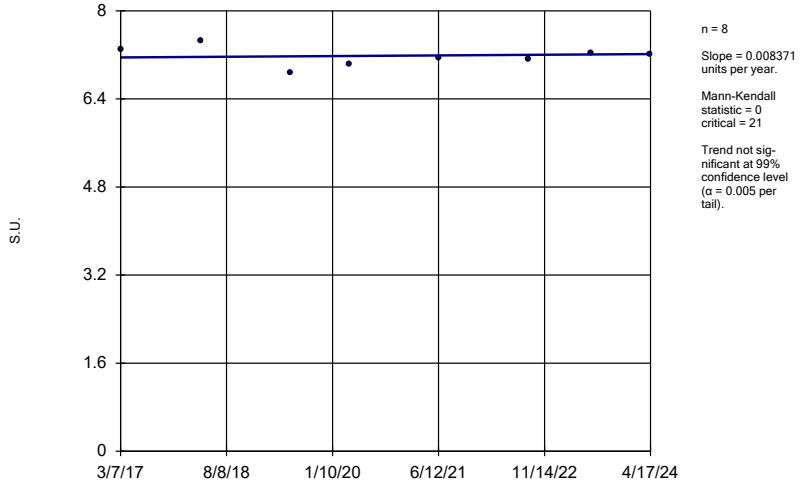
Sen's Slope Estimator

EPA-1AR



n = 8

Slope = 0.008371 units per year.

Mann-Kendall statistic = 0
critical = 21

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

Constituent: pH Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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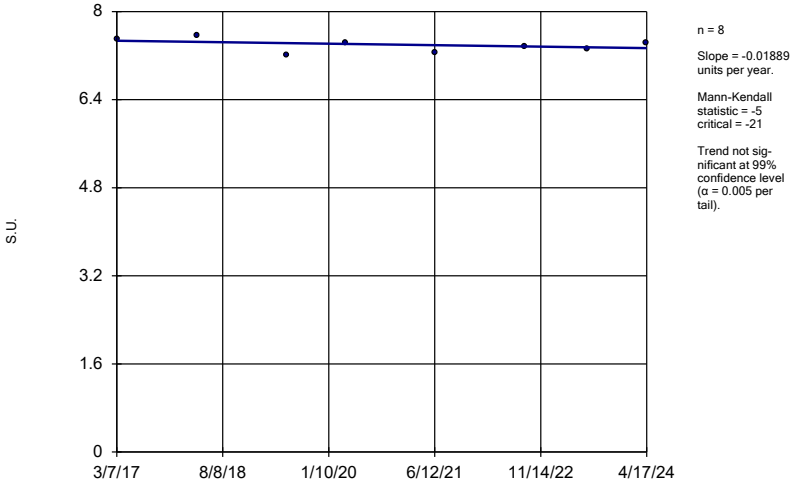
Sen's Slope Estimator

EPA-2A



n = 8

Slope = -0.01889 units per year.

Mann-Kendall statistic = -5
critical = -21

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

Constituent: pH Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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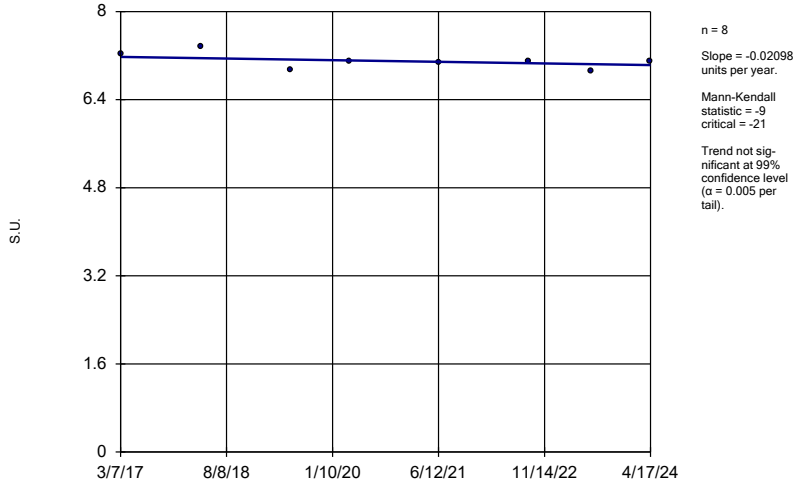
Sen's Slope Estimator

MW-1



n = 8

Slope = -0.02098 units per year.

Mann-Kendall statistic = -9
critical = -21

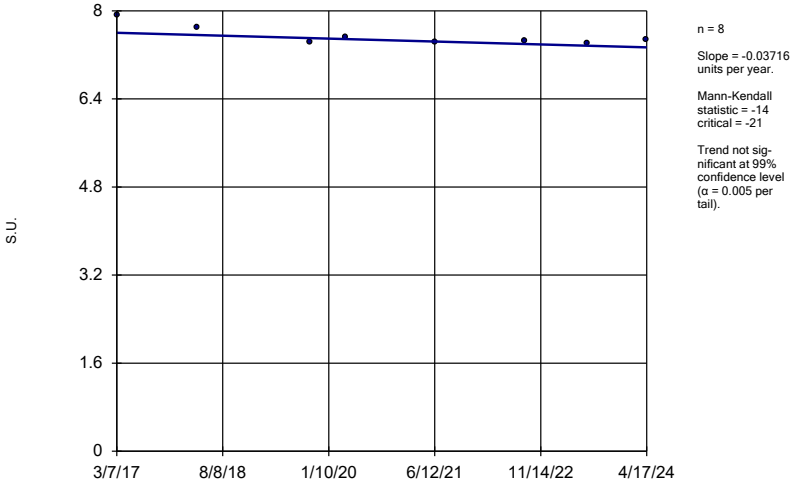
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: pH Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Sen's Slope Estimator

MW-10



Constituent: pH Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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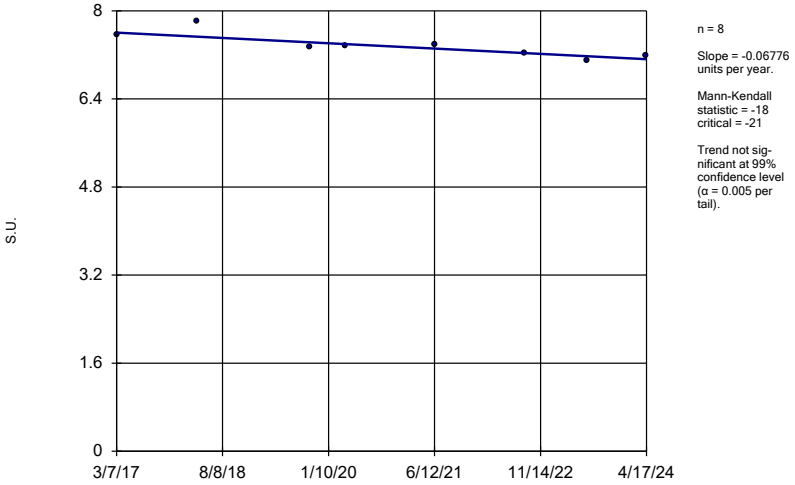
Sen's Slope Estimator

MW-11



Constituent: pH Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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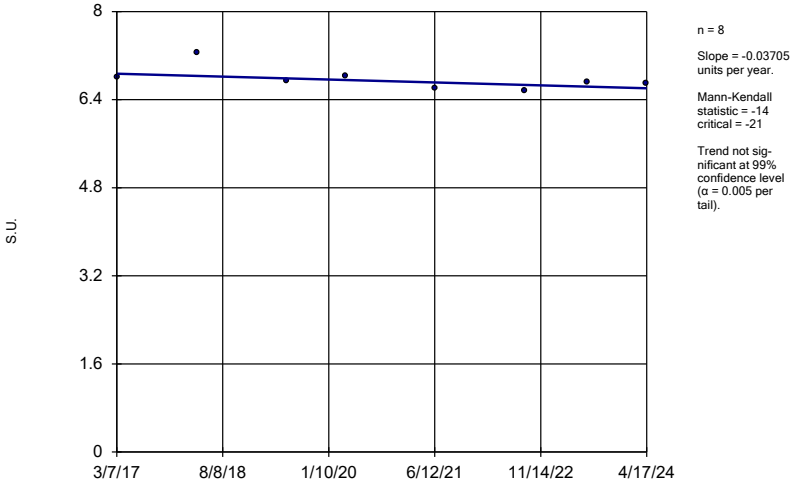
Sen's Slope Estimator

MW-12



Constituent: pH Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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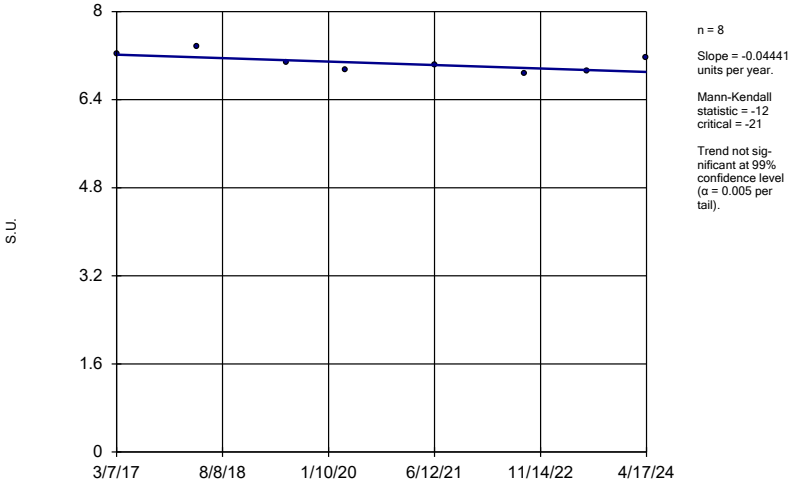
Sen's Slope Estimator

MW-13

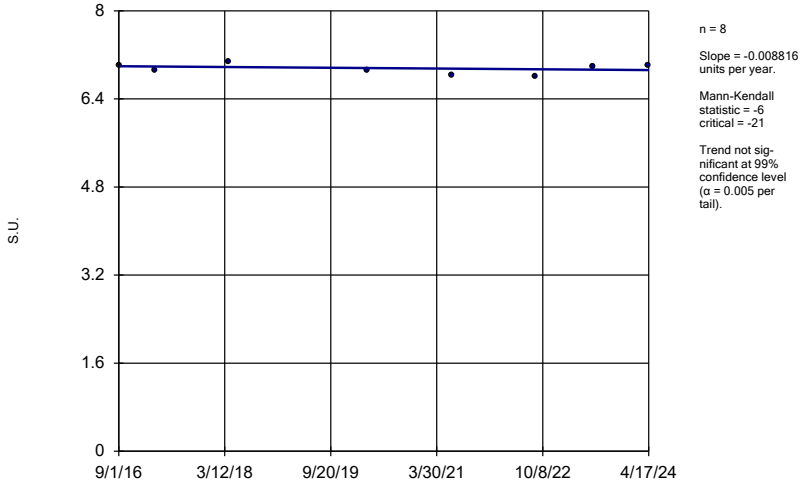


Constituent: pH Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Sen's Slope Estimator

MW-14R



n = 8

Slope = -0.008816 units per year.

Mann-Kendall statistic = -6
critical = -21

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

Constituent: pH Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall
City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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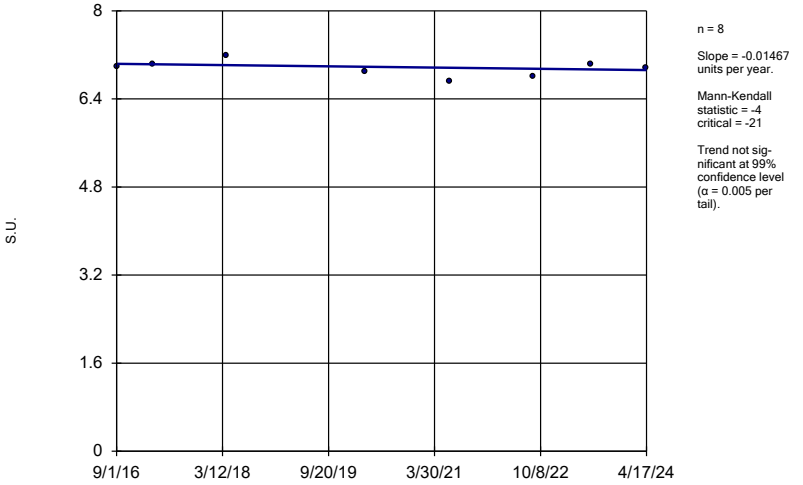
Sen's Slope Estimator

MW-15R



n = 8

Slope = -0.01467 units per year.

Mann-Kendall statistic = -4
critical = -21

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

Constituent: pH Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall
City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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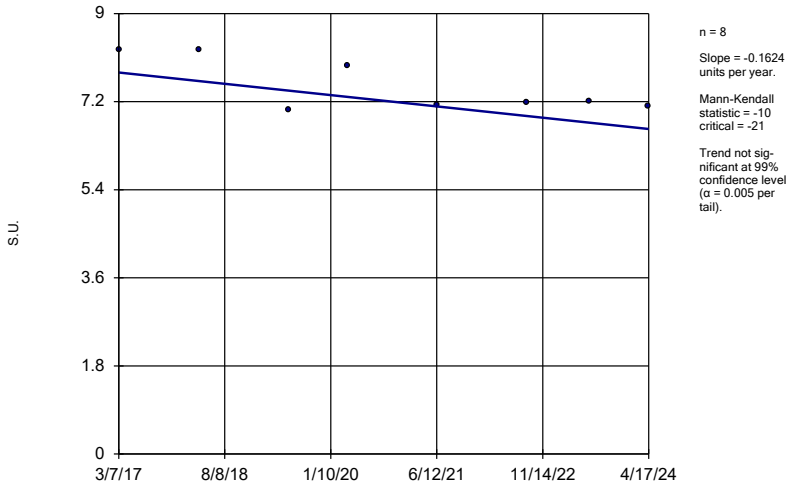
Sen's Slope Estimator

MW-2



n = 8

Slope = -0.1624 units per year.

Mann-Kendall statistic = -10
critical = -21

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

Constituent: pH Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall
City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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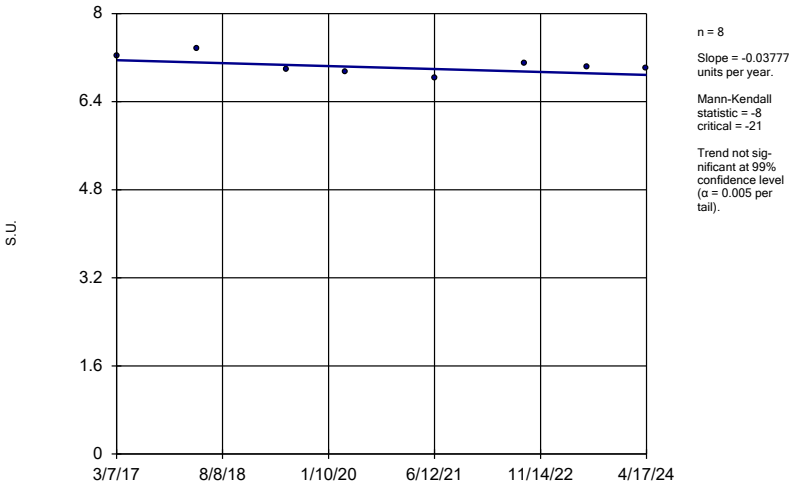
Sen's Slope Estimator

MW-3



n = 8

Slope = -0.03777 units per year.

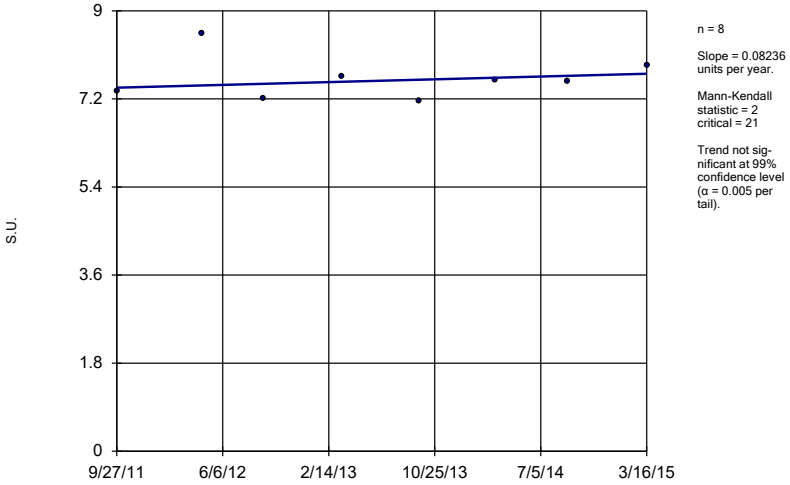
Mann-Kendall statistic = -8
critical = -21

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

Constituent: pH Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall
City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Sen's Slope Estimator

MW-7



n = 8

Slope = 0.08236 units per year.

Mann-Kendall statistic = 2
critical = 21

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

Constituent: pH Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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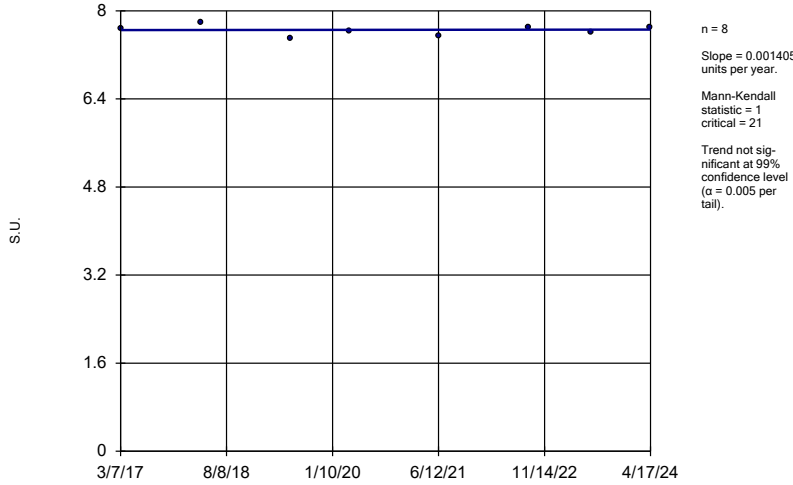
Sen's Slope Estimator

MW-8



n = 8

Slope = 0.001405 units per year.

Mann-Kendall statistic = 1
critical = 21

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

Constituent: pH Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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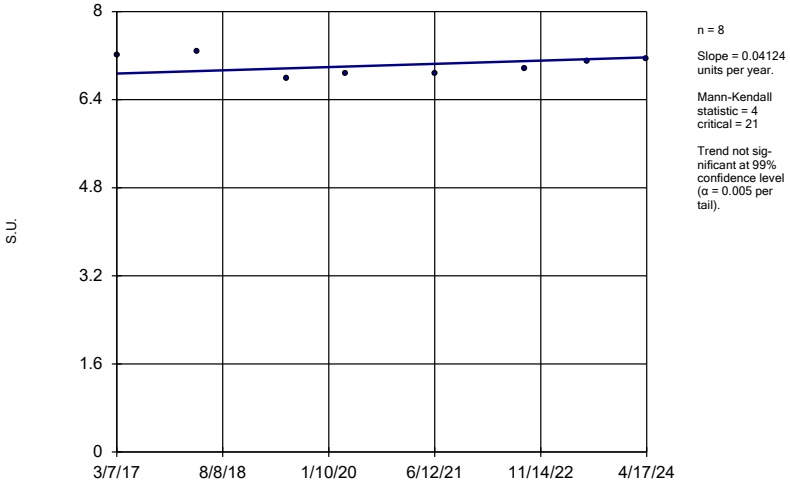
Sen's Slope Estimator

MW-9



n = 8

Slope = 0.04124 units per year.

Mann-Kendall statistic = 4
critical = 21

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

Constituent: pH Analysis Run 5/22/2024 5:51 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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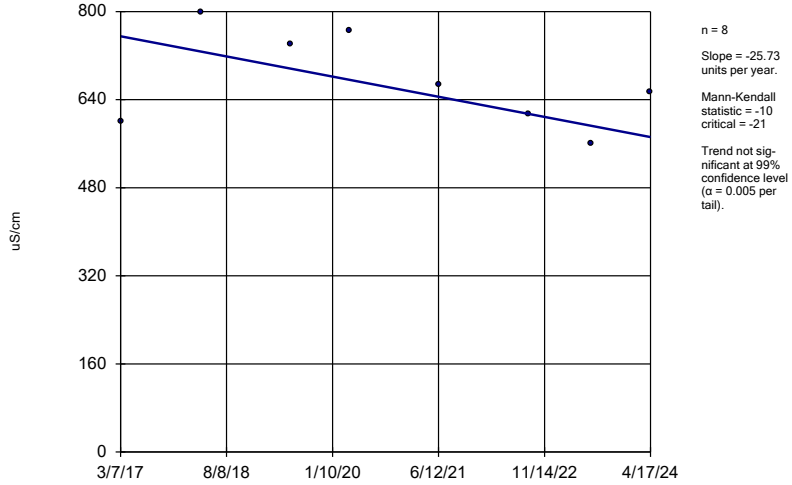
Sen's Slope Estimator

EPA-1AR



n = 8

Slope = -25.73 units per year.

Mann-Kendall statistic = -10
critical = -21

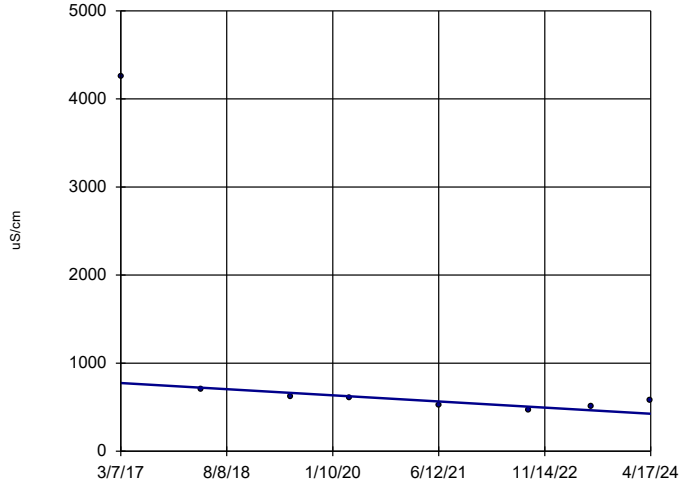
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Specific Conductance Analysis Run 5/22/2024 5:52 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Sen's Slope Estimator

EPA-2A



n = 8

Slope = -48.84 units per year.

Mann-Kendall statistic = -20 critical = -21

Trend not sig-nificant at 99% confidence level (α = 0.005 per tail).

Constituent: Specific Conductance Analysis Run 5/22/2024 5:52 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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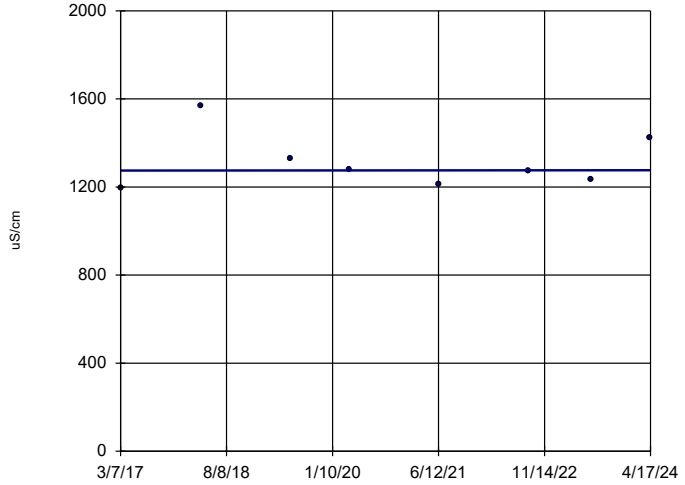
Sen's Slope Estimator

MW-1



n = 8

Slope = 0.1336 units per year.

Mann-Kendall statistic = 0 critical = 21

Trend not sig-nificant at 99% confidence level (α = 0.005 per tail).

Constituent: Specific Conductance Analysis Run 5/22/2024 5:52 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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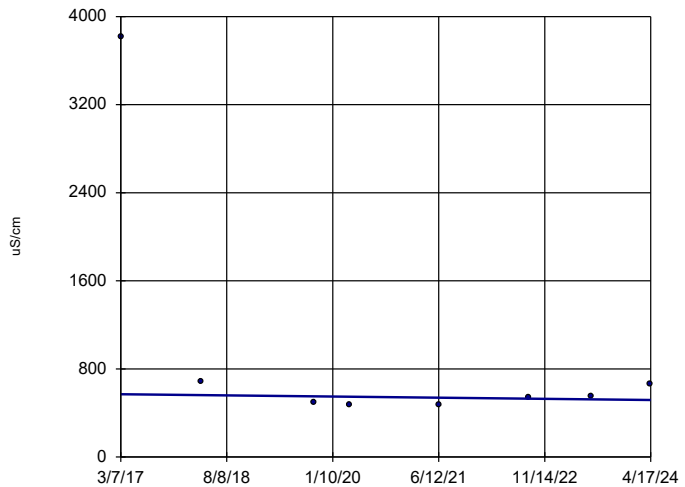
Sen's Slope Estimator

MW-10



n = 8

Slope = -7.275 units per year.

Mann-Kendall statistic = -2 critical = -21

Trend not sig-nificant at 99% confidence level (α = 0.005 per tail).

Constituent: Specific Conductance Analysis Run 5/22/2024 5:52 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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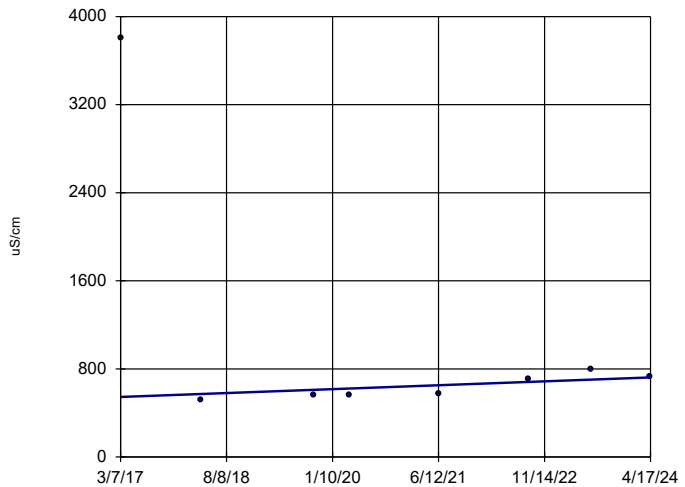
Sen's Slope Estimator

MW-11



n = 8

Slope = 24.99 units per year.

Mann-Kendall statistic = 10 critical = 21

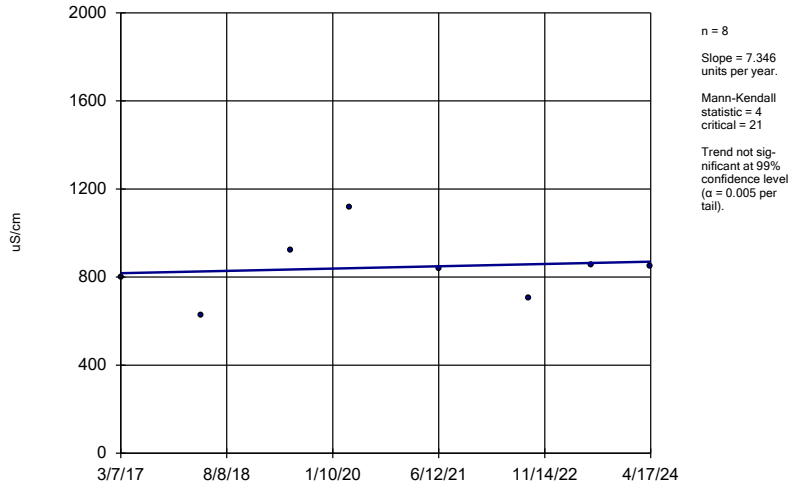
Trend not sig-nificant at 99% confidence level (α = 0.005 per tail).

Constituent: Specific Conductance Analysis Run 5/22/2024 5:52 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Sen's Slope Estimator

MW-12



n = 8

Slope = 7.346 units per year.

Mann-Kendall statistic = 4
critical = 21

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

Constituent: Specific Conductance Analysis Run 5/22/2024 5:52 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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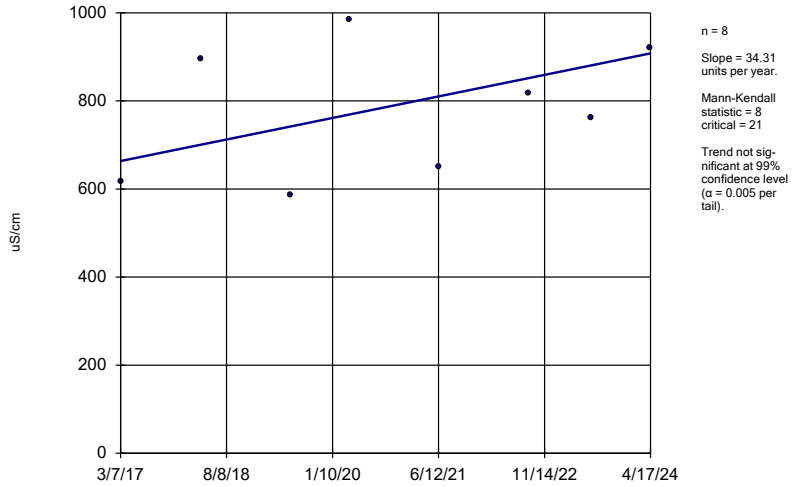
Sen's Slope Estimator

MW-13



n = 8

Slope = 34.31 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 5/22/2024 5:52 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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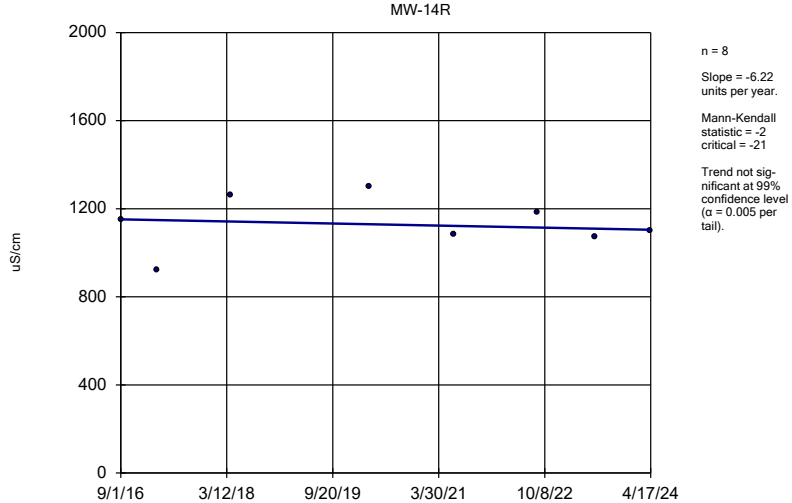
Sen's Slope Estimator

MW-14R



n = 8

Slope = -6.22 units per year.

Mann-Kendall statistic = -2
critical = -21

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

Constituent: Specific Conductance Analysis Run 5/22/2024 5:52 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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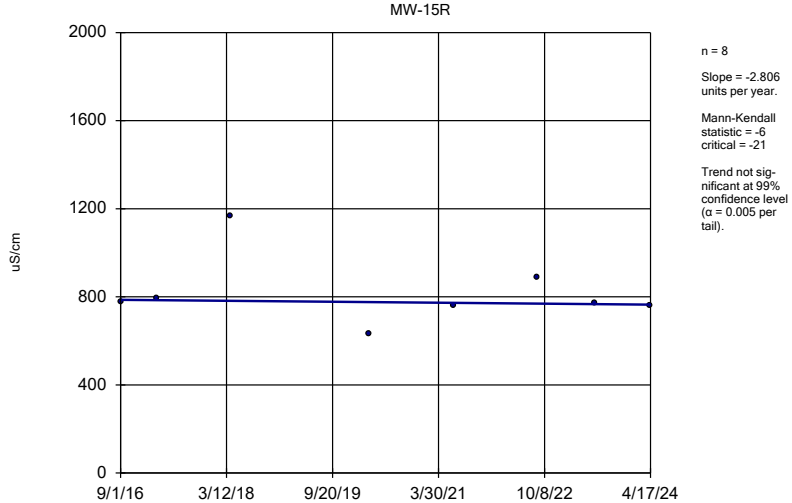
Sen's Slope Estimator

MW-15R



n = 8

Slope = -2.806 units per year.

Mann-Kendall statistic = -6
critical = -21

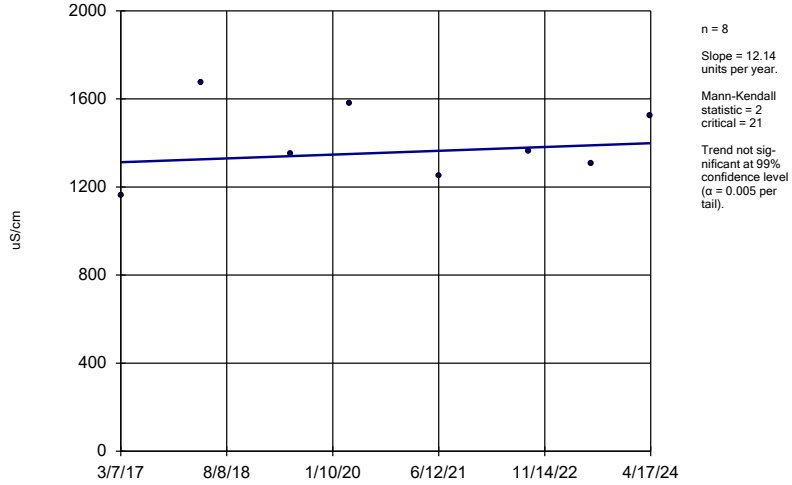
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Specific Conductance Analysis Run 5/22/2024 5:52 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Sen's Slope Estimator

MW-2



n = 8

Slope = 12.14 units per year.

Mann-Kendall statistic = 2 critical = 21

Trend not sig-nificant at 99% confidence level (α = 0.005 per tail).

Constituent: Specific Conductance Analysis Run 5/22/2024 5:52 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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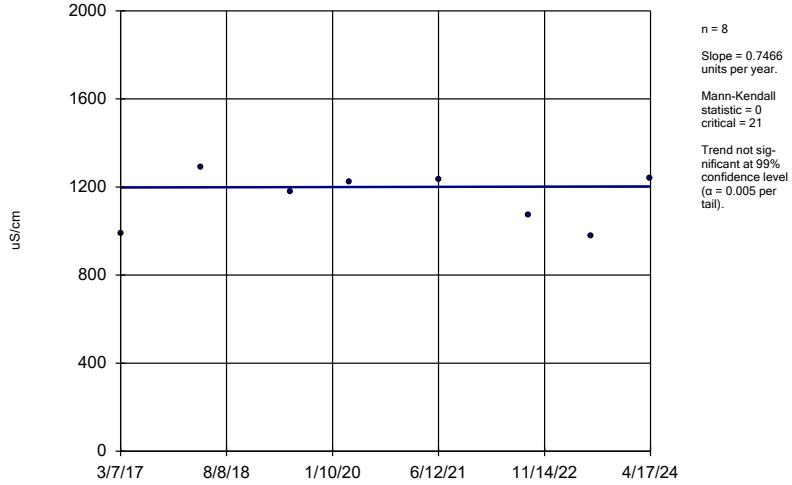
Sen's Slope Estimator

MW-3



n = 8

Slope = 0.7466 units per year.

Mann-Kendall statistic = 0 critical = 21

Trend not sig-nificant at 99% confidence level (α = 0.005 per tail).

Constituent: Specific Conductance Analysis Run 5/22/2024 5:52 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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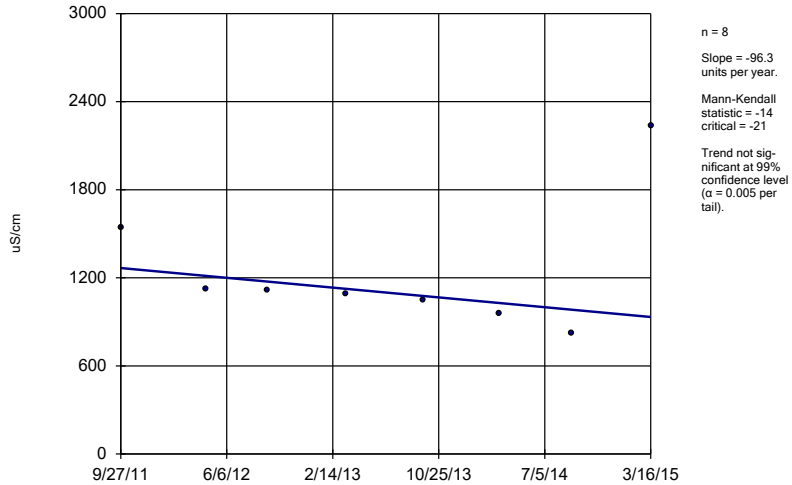
Sen's Slope Estimator

MW-7



n = 8

Slope = -96.3 units per year.

Mann-Kendall statistic = -14 critical = -21

Trend not sig-nificant at 99% confidence level (α = 0.005 per tail).

Constituent: Specific Conductance Analysis Run 5/22/2024 5:52 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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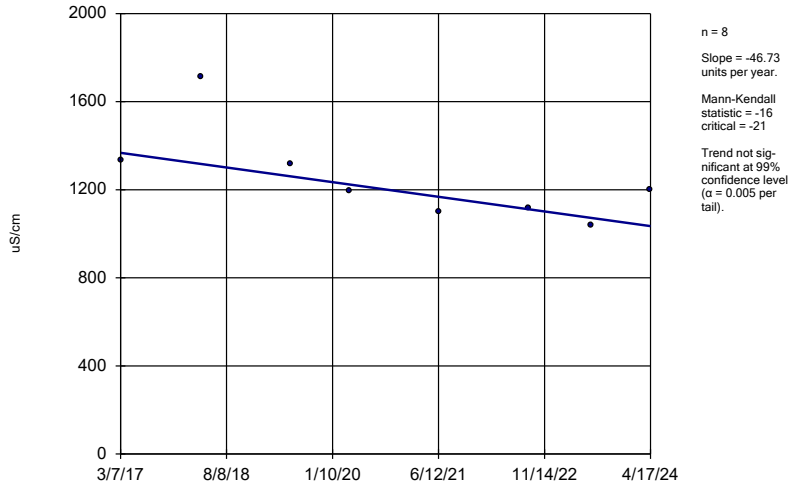
Sen's Slope Estimator

MW-8



n = 8

Slope = -46.73 units per year.

Mann-Kendall statistic = -16 critical = -21

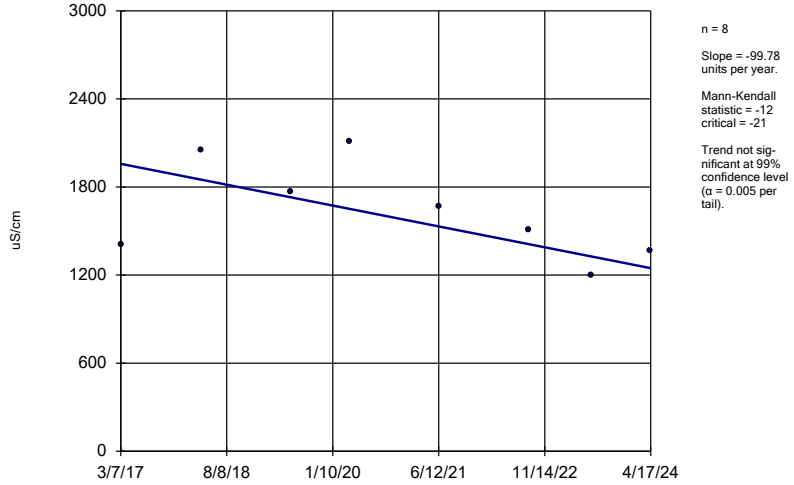
Trend not sig-nificant at 99% confidence level (α = 0.005 per tail).

Constituent: Specific Conductance Analysis Run 5/22/2024 5:52 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Sen's Slope Estimator

MW-9



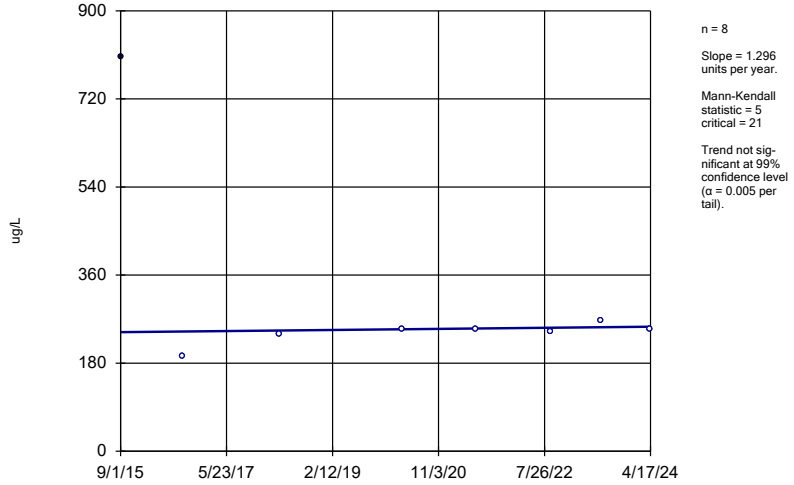
Constituent: Specific Conductance Analysis Run 5/22/2024 5:52 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-14R



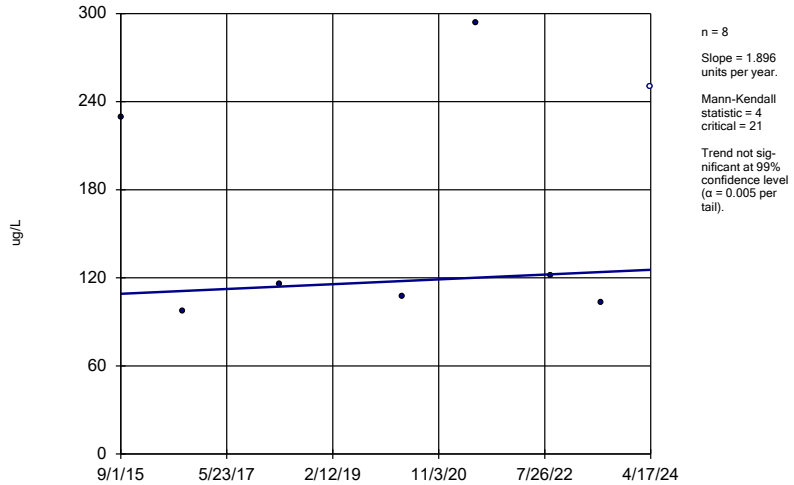
Constituent: Total Extractable Hydrocarbons Analysis Run 5/22/2024 5:52 PM View: 2024AWQR - Mann

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-15R



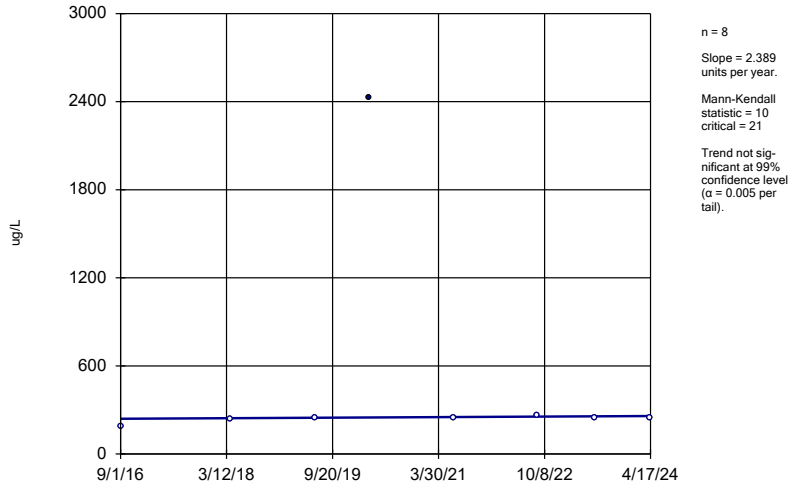
Constituent: Total Extractable Hydrocarbons Analysis Run 5/22/2024 5:52 PM View: 2024AWQR - Mann

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-2



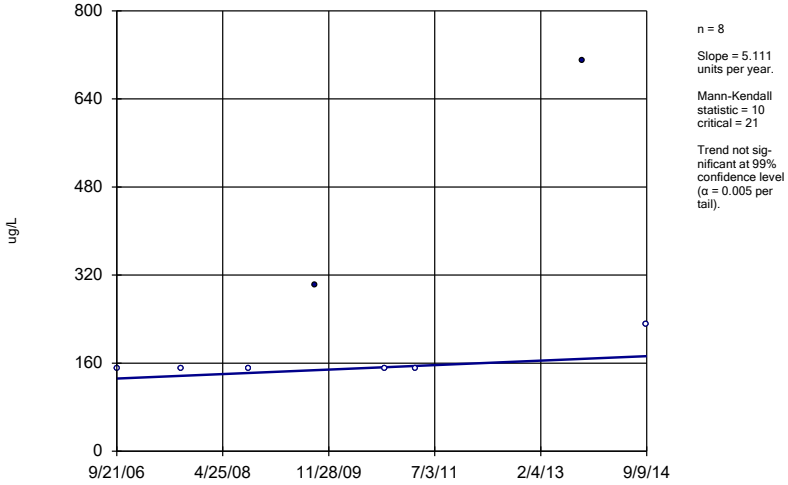
Constituent: Total Extractable Hydrocarbons Analysis Run 5/22/2024 5:52 PM View: 2024AWQR - Mann

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-7



Constituent: Total Extractable Hydrocarbons Analysis Run 5/22/2024 5:52 PM View: 2024AWQR - Mann

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

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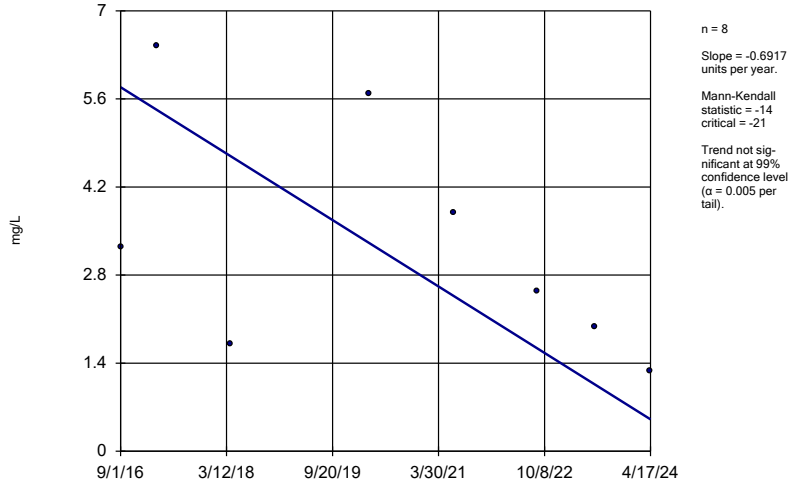
Sen's Slope Estimator

MW-14R



Constituent: Zinc Analysis Run 5/22/2024 5:52 PM View: 2024AWQR - Mann Kendall

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: Council Blufffs-AM 2024AWQR

Attachment B

Control Limits

Control Limits

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master Printed 5/22/2024, 5:27 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Wells	Bg Mean	Std. Dev.	%NDs
Ammonia as N (mg/L)	**MW-1**	**1.208**	**n/a**	**4/17/2024**	**1.3**	**Yes**	**58**	**MW-4,MW-5**	**0.3469**	**0.4306**	**50**
Ammonia as N (mg/L)	MW-2	1.208	n/a	4/17/2024	1.19	No	58	MW-4,MW-5	0.3469	0.4306	50
Ammonia as N (mg/L)	MW-3	1.208	n/a	4/17/2024	1.09	No	58	MW-4,MW-5	0.3469	0.4306	50
Ammonia as N (mg/L)	MW-8	1.208	n/a	4/17/2024	0.501	No	58	MW-4,MW-5	0.3469	0.4306	50
Ammonia as N (mg/L)	MW-11	1.208	n/a	4/17/2024	0.577	No	58	MW-4,MW-5	0.3469	0.4306	50
Ammonia as N (mg/L)	**MW-14R**	**1.208**	**n/a**	**4/17/2024**	**1.99**	**Yes**	**58**	**MW-4,MW-5**	**0.3469**	**0.4306**	**50**
Arsenic (mg/L)	EPA-2A	0.005298	n/a	4/17/2024	0.00198J	No	26	MW-4,MW-5	0.002029	0.001635	7.692
Arsenic (mg/L)	**MW-2**	**0.005298**	**n/a**	**4/17/2024**	**0.2**	**Yes**	**26**	**MW-4,MW-5**	**0.002029**	**0.001635**	**7.692**
Arsenic (mg/L)	**MW-3**	**0.005298**	**n/a**	**4/17/2024**	**0.169**	**Yes**	**26**	**MW-4,MW-5**	**0.002029**	**0.001635**	**7.692**
Arsenic (mg/L)	MW-10	0.005298	n/a	4/17/2024	0.000609J	No	26	MW-4,MW-5	0.002029	0.001635	7.692
Arsenic (mg/L)	MW-13	0.005298	n/a	4/17/2024	0.00175J	No	26	MW-4,MW-5	0.002029	0.001635	7.692
Arsenic (mg/L)	MW-14R	0.005298	n/a	4/17/2024	0.00365	No	26	MW-4,MW-5	0.002029	0.001635	7.692
Arsenic (mg/L)	MW-15R	0.005298	n/a	4/17/2024	0.00325	No	26	MW-4,MW-5	0.002029	0.001635	7.692
Barium (mg/L)	**MW-14R**	**0.4104**	**n/a**	**4/17/2024**	**0.597**	**Yes**	**26**	**MW-4,MW-5**	**0.2006**	**0.1049**	**0**
Barium (mg/L)	MW-15R	0.4104	n/a	4/17/2024	0.358	No	26	MW-4,MW-5	0.2006	0.1049	0
Chemical Oxygen Demand (mg/L)	MW-1	37.45	n/a	4/17/2024	22.4	No	58	MW-4,MW-5	18.98	9.232	3.448
Chemical Oxygen Demand (mg/L)	**MW-2**	**37.45**	**n/a**	**4/17/2024**	**50.3**	**Yes**	**58**	**MW-4,MW-5**	**18.98**	**9.232**	**3.448**
Chemical Oxygen Demand (mg/L)	MW-3	37.45	n/a	4/17/2024	24.1J	No	58	MW-4,MW-5	18.98	9.232	3.448
Chemical Oxygen Demand (mg/L)	**MW-8**	**37.45**	**n/a**	**4/17/2024**	**66.7**	**Yes**	**58**	**MW-4,MW-5**	**18.98**	**9.232**	**3.448**
Chemical Oxygen Demand (mg/L)	**MW-9**	**37.45**	**n/a**	**4/17/2024**	**48.7**	**Yes**	**58**	**MW-4,MW-5**	**18.98**	**9.232**	**3.448**
Chloride (mg/L)	EPA-2A	370	n/a	4/17/2024	11.3	No	58	MW-4,MW-5	212.9	78.57	0
Chloride (mg/L)	MW-1	370	n/a	4/17/2024	55.45	No	58	MW-4,MW-5	212.9	78.57	0
Chloride (mg/L)	MW-2	370	n/a	4/17/2024	16.7	No	58	MW-4,MW-5	212.9	78.57	0
Chloride (mg/L)	MW-3	370	n/a	4/17/2024	25.3	No	58	MW-4,MW-5	212.9	78.57	0
Chloride (mg/L)	MW-8	370	n/a	4/17/2024	31.4	No	58	MW-4,MW-5	212.9	78.57	0
Chloride (mg/L)	MW-9	370	n/a	4/17/2024	26.3	No	58	MW-4,MW-5	212.9	78.57	0
Chloride (mg/L)	EPA-1AR	370	n/a	4/17/2024	6.38	No	58	MW-4,MW-5	212.9	78.57	0
Chloride (mg/L)	MW-10	370	n/a	4/17/2024	45.9	No	58	MW-4,MW-5	212.9	78.57	0
Chloride (mg/L)	MW-11	370	n/a	4/17/2024	32.5	No	58	MW-4,MW-5	212.9	78.57	0
Chloride (mg/L)	MW-12	370	n/a	4/17/2024	58.1	No	58	MW-4,MW-5	212.9	78.57	0
Chloride (mg/L)	MW-13	370	n/a	4/17/2024	25.2	No	58	MW-4,MW-5	212.9	78.57	0
Chloride (mg/L)	MW-14R	370	n/a	4/17/2024	22	No	58	MW-4,MW-5	212.9	78.57	0
Chloride (mg/L)	MW-15R	370	n/a	4/17/2024	41.6	No	58	MW-4,MW-5	212.9	78.57	0
Iron (mg/L)	MW-1	17.35	n/a	4/17/2024	12.55	No	14	MW-4,MW-5	5.517	5.916	14.29
Iron (mg/L)	**MW-2**	**17.35**	**n/a**	**4/17/2024**	**19.5**	**Yes**	**14**	**MW-4,MW-5**	**5.517**	**5.916**	**14.29**
Iron (mg/L)	**MW-3**	**17.35**	**n/a**	**4/17/2024**	**22.5**	**Yes**	**14**	**MW-4,MW-5**	**5.517**	**5.916**	**14.29**
Iron (mg/L)	MW-8	17.35	n/a	4/17/2024	1.85	No	14	MW-4,MW-5	5.517	5.916	14.29
Iron (mg/L)	MW-9	17.35	n/a	4/17/2024	3.15	No	14	MW-4,MW-5	5.517	5.916	14.29
Iron (mg/L)	EPA-1AR	17.35	n/a	4/17/2024	0.0526J	No	14	MW-4,MW-5	5.517	5.916	14.29
Iron (mg/L)	MW-11	17.35	n/a	4/17/2024	3.4	No	14	MW-4,MW-5	5.517	5.916	14.29
Iron (mg/L)	MW-13	17.35	n/a	4/17/2024	0.427	No	14	MW-4,MW-5	5.517	5.916	14.29
Iron (mg/L)	MW-14R	17.35	n/a	4/17/2024	1.22	No	14	MW-4,MW-5	5.517	5.916	14.29
Iron (mg/L)	MW-15R	17.35	n/a	4/17/2024	1.4	No	14	MW-4,MW-5	5.517	5.916	14.29
Lead (mg/L)	MW-12	0.008244	n/a	4/17/2024	0.000925	No	26	MW-4,MW-5	0.002156	0.003044	42.31
Nickel (mg/L)	**MW-14R**	**0.02734**	**n/a**	**4/17/2024**	**0.0684**	**Yes**	**26**	**MW-4,MW-5**	**0.009099**	**0.00912**	**15.38**
Nickel (mg/L)	MW-15R	0.02734	n/a	4/17/2024	0.00396J	No	26	MW-4,MW-5	0.009099	0.00912	15.38
pH (S.U.)	EPA-2A	8.214	6.522	4/17/2024	7.44	No	54	MW-4,MW-5	7.368	0.4232	0
pH (S.U.)	MW-1	8.214	6.522	4/17/2024	7.1	No	54	MW-4,MW-5	7.368	0.4232	0
pH (S.U.)	MW-2	8.214	6.522	4/17/2024	7.1	No	54	MW-4,MW-5	7.368	0.4232	0
pH (S.U.)	MW-3	8.214	6.522	4/17/2024	7	No	54	MW-4,MW-5	7.368	0.4232	0

Control Limits

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master Printed 5/22/2024, 5:27 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Wells	Bg Mean	Std. Dev.	%NDs
pH (S.U.)	MW-8	8.214	6.522	4/17/2024	7.7	No	54	MW-4,MW-5	7.368	0.4232	0
pH (S.U.)	MW-9	8.214	6.522	4/17/2024	7.15	No	54	MW-4,MW-5	7.368	0.4232	0
pH (S.U.)	EPA-1AR	8.214	6.522	4/17/2024	7.22	No	54	MW-4,MW-5	7.368	0.4232	0
pH (S.U.)	MW-10	8.214	6.522	4/17/2024	7.48	No	54	MW-4,MW-5	7.368	0.4232	0
pH (S.U.)	MW-11	8.214	6.522	4/17/2024	7.18	No	54	MW-4,MW-5	7.368	0.4232	0
pH (S.U.)	MW-12	8.214	6.522	4/17/2024	6.69	No	54	MW-4,MW-5	7.368	0.4232	0
pH (S.U.)	MW-13	8.214	6.522	4/17/2024	7.16	No	54	MW-4,MW-5	7.368	0.4232	0
pH (S.U.)	MW-14R	8.214	6.522	4/17/2024	7	No	54	MW-4,MW-5	7.368	0.4232	0
pH (S.U.)	MW-15R	8.214	6.522	4/17/2024	6.97	No	54	MW-4,MW-5	7.368	0.4232	0
Specific Conductance (uS/cm)	EPA-2A	2416	n/a	4/17/2024	581.2	No	56	MW-4,MW-5	1650	382.7	0
Specific Conductance (uS/cm)	MW-1	2416	n/a	4/17/2024	1425	No	56	MW-4,MW-5	1650	382.7	0
Specific Conductance (uS/cm)	MW-2	2416	n/a	4/17/2024	1526	No	56	MW-4,MW-5	1650	382.7	0
Specific Conductance (uS/cm)	MW-3	2416	n/a	4/17/2024	1240	No	56	MW-4,MW-5	1650	382.7	0
Specific Conductance (uS/cm)	MW-8	2416	n/a	4/17/2024	1198	No	56	MW-4,MW-5	1650	382.7	0
Specific Conductance (uS/cm)	MW-9	2416	n/a	4/17/2024	1363	No	56	MW-4,MW-5	1650	382.7	0
Specific Conductance (uS/cm)	EPA-1AR	2416	n/a	4/17/2024	654.1	No	56	MW-4,MW-5	1650	382.7	0
Specific Conductance (uS/cm)	MW-10	2416	n/a	4/17/2024	662.2	No	56	MW-4,MW-5	1650	382.7	0
Specific Conductance (uS/cm)	MW-11	2416	n/a	4/17/2024	730.6	No	56	MW-4,MW-5	1650	382.7	0
Specific Conductance (uS/cm)	MW-12	2416	n/a	4/17/2024	848.8	No	56	MW-4,MW-5	1650	382.7	0
Specific Conductance (uS/cm)	MW-13	2416	n/a	4/17/2024	920.4	No	56	MW-4,MW-5	1650	382.7	0
Specific Conductance (uS/cm)	MW-14R	2416	n/a	4/17/2024	1102	No	56	MW-4,MW-5	1650	382.7	0
Specific Conductance (uS/cm)	MW-15R	2416	n/a	4/17/2024	757.7	No	56	MW-4,MW-5	1650	382.7	0
Zinc (mg/L)	**MW-14R**	**0.03138**	**n/a**	**4/17/2024**	**1.28**	**Yes**	**26**	**MW-4,MW-5**	**0.01356**	**0.008907**	**69.23**

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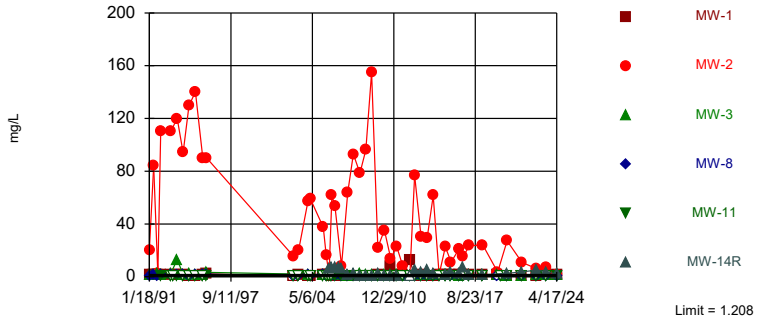
Exceeds Limit: MW-1, MW-14R

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=0.3469, Std. Dev.=0.4306, n=58, 50% NDs. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 6 points to limit. Assumes 7 future values. Kappa overridden to 2.

Constituent: Ammonia as N Analysis Run 5/22/2024 5:23 PM View: 2024AWQR - Control Limits

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

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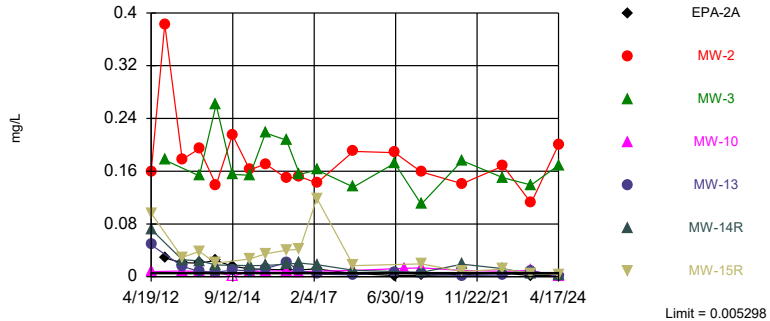
Hollow symbols indicate censored values.

Exceeds Limit: MW-2, MW-3

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=0.002029, Std. Dev.=0.001635, n=26, 7.692% NDs. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 7 points to limit. Assumes 6 future values. Kappa overridden to 2.

Constituent: Arsenic Analysis Run 5/22/2024 5:23 PM View: 2024AWQR - Control Limits

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

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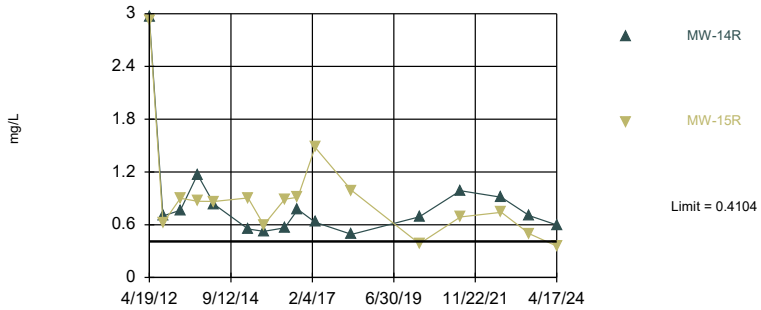
Exceeds Limit: MW-14R

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=0.2006, Std. Dev.=0.1049, n=26. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 2 points to limit. Assumes 11 future values. Kappa overridden to 2.

Constituent: Barium Analysis Run 5/22/2024 5:23 PM View: 2024AWQR - Control Limits

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

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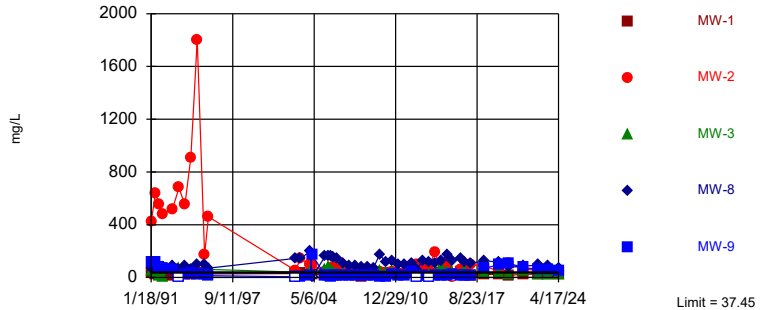
Hollow symbols indicate censored values.

Exceeds Limit: MW-2, MW-8, MW-9

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=18.98, Std. Dev.=9.232, n=58, 3.448% NDs. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 5 points to limit. Assumes 8 future values. Kappa overridden to 2.

Constituent: Chemical Oxygen Demand Analysis Run 5/22/2024 5:23 PM View: 2024AWQR - Control Limi

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

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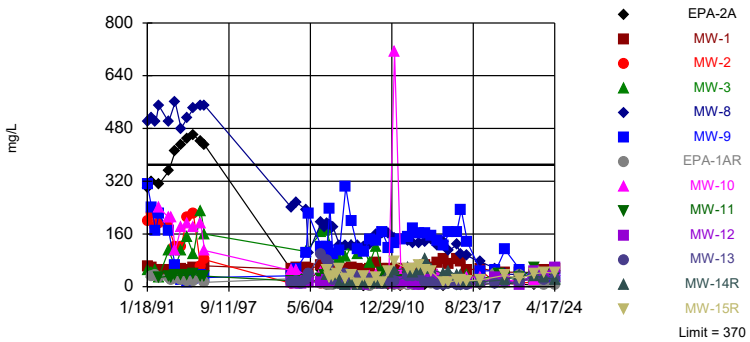
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=212.9, Std. Dev.=78.57, n=58. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 13 points to limit. Kappa overridden to 2.

Constituent: Chloride Analysis Run 5/22/2024 5:23 PM View: 2024AWQR - Control Limits

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

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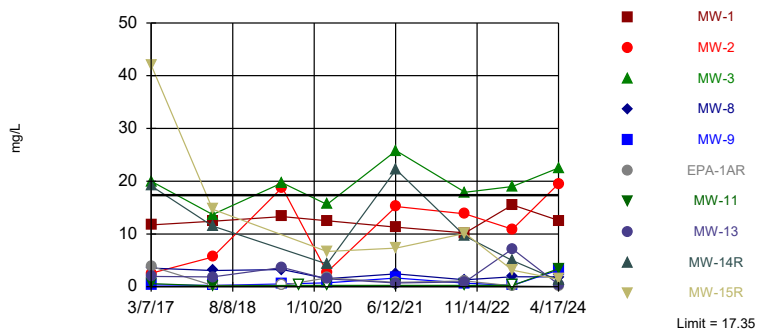
Hollow symbols indicate censored values.

Exceeds Limit: MW-2, MW-3

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=5.517, Std. Dev.=5.916, n=14, 14.29% NDs. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 10 points to limit. Assumes 3 future values. Kappa overridden to 2.

Constituent: Iron Analysis Run 5/22/2024 5:23 PM View: 2024AWQR - Control Limits

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

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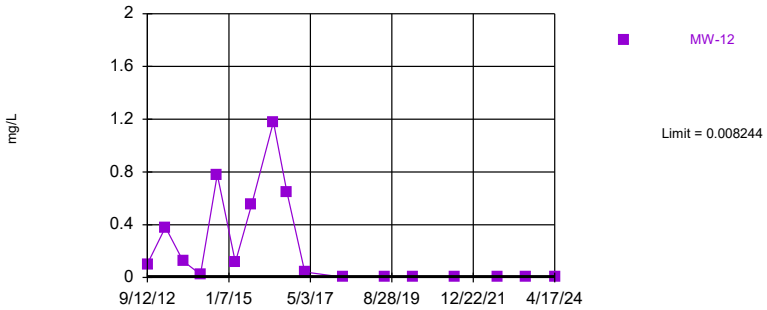
Within Limit

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=0.002156, Std. Dev.=0.003044, n=26, 42.31% NDs. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Assumes 12 future values. Kappa overridden to 2.

Constituent: Lead Analysis Run 5/22/2024 5:23 PM View: 2024AWQR - Control Limits

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

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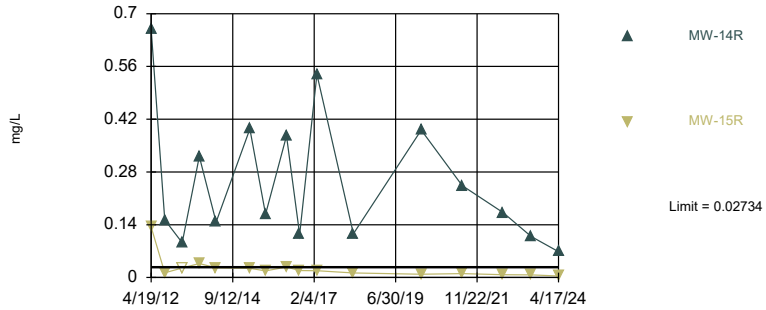
Hollow symbols indicate censored values.

Exceeds Limit: MW-14R

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=0.009099, Std. Dev.=0.00912, n=26, 15.38% NDs. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 2 points to limit. Assumes 11 future values. Kappa overridden to 2.

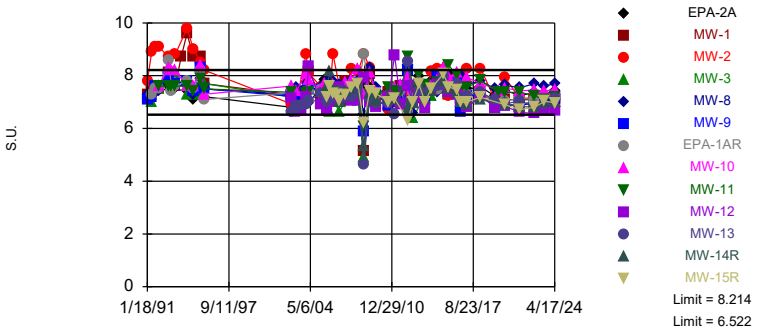
Constituent: Nickel Analysis Run 5/22/2024 5:23 PM View: 2024AWQR - Control Limits

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

Within Limits

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=7.368, Std. Dev.=0.4232, n=54. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 13 points to limit. Kappa overridden to 2.

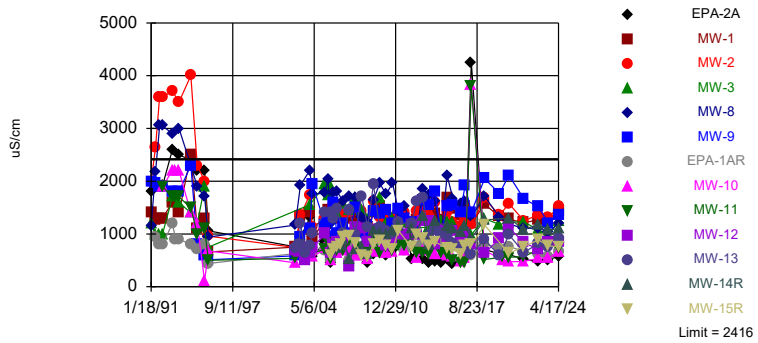
Constituent: pH Analysis Run 5/22/2024 5:23 PM View: 2024AWQR - Control Limits

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

Within Limit

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=1650, Std. Dev.=382.7, n=56. Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Comparing 13 points to limit. Kappa overridden to 2.

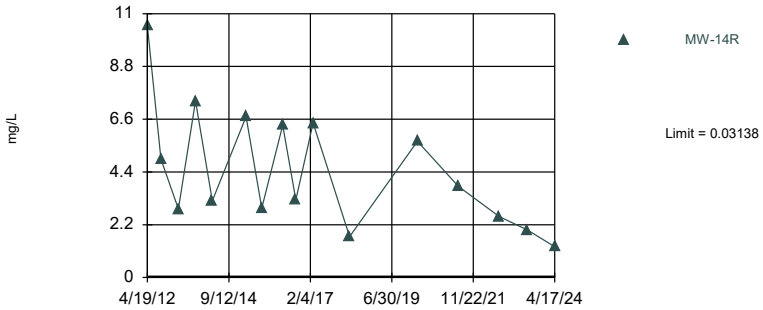
Constituent: Specific Conductance Analysis Run 5/22/2024 5:23 PM View: 2024AWQR - Control Limits

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

Exceeds Limit: MW-14R

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=0.01356, Std. Dev.=0.008907, n=26, 69.23% NDs (user selected parametric test despite non-detects). Insufficient data to test for seasonality; not deseasonalized. Normality test was disabled. Assumes 12 future values. Kappa overridden to 2.

Constituent: Zinc Analysis Run 5/22/2024 5:23 PM View: 2024AWQR - Control Limits

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

Attachment C

Time Series Graphs

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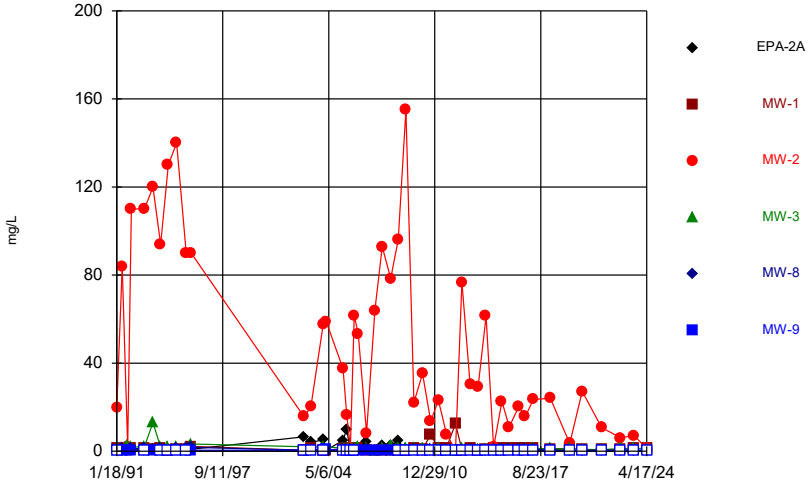
Hollow symbols indicate censored values.

Time Series



Constituent: Ammonia as N Analysis Run 5/22/2024 9:06 AM View: 2024AWQR - Time Series
City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

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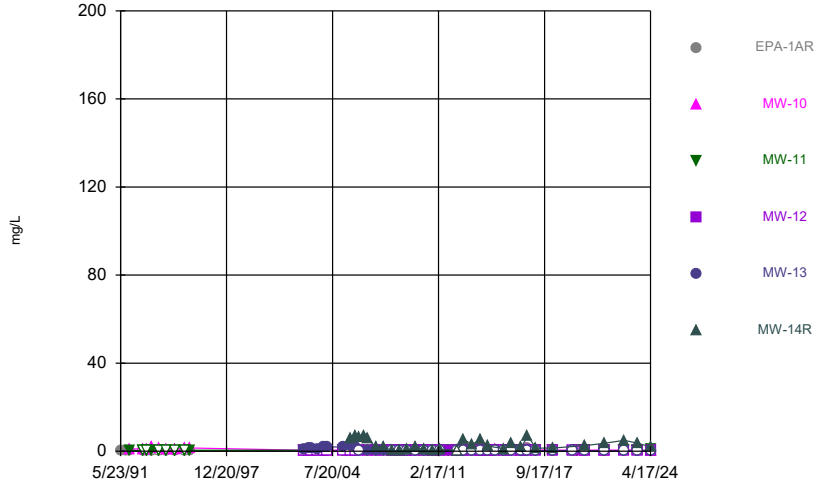
Hollow symbols indicate censored values.

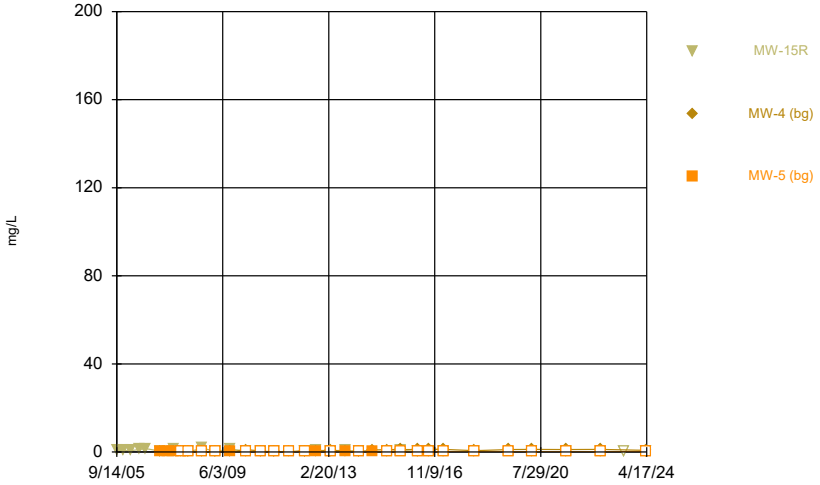
Time Series



Constituent: Ammonia as N Analysis Run 5/22/2024 9:06 AM View: 2024AWQR - Time Series
City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

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

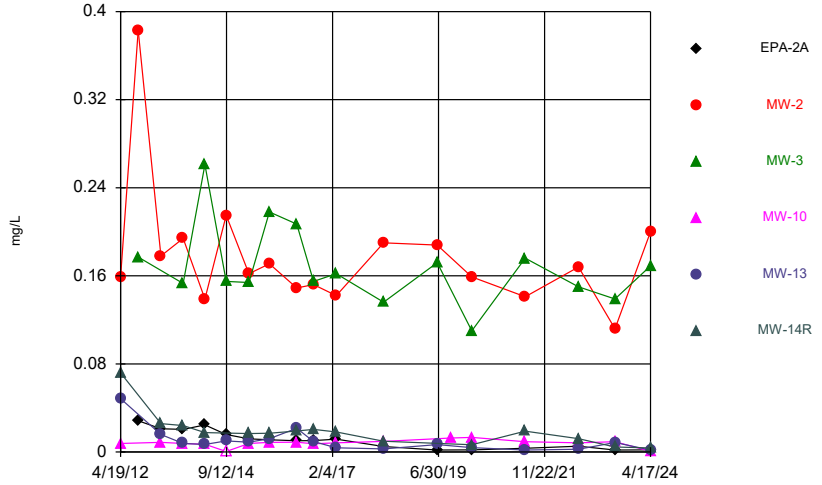
Time Series



Constituent: Ammonia as N Analysis Run 5/22/2024 9:07 AM View: 2024AWQR - Time Series
City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

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

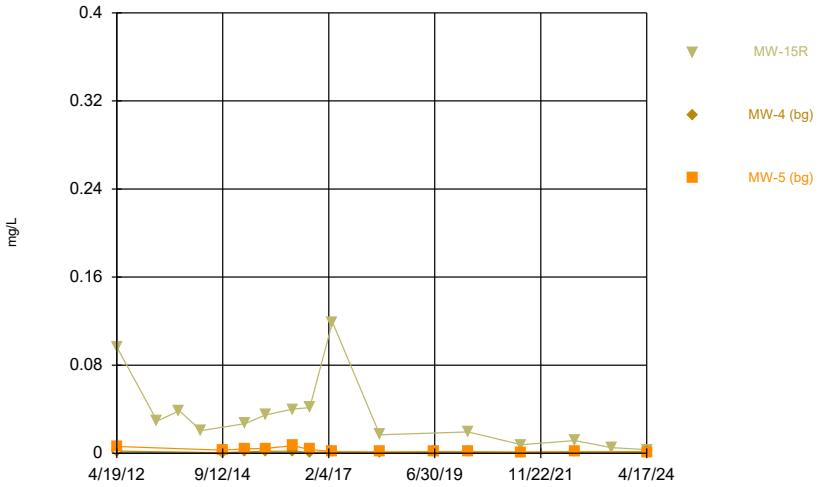
Time Series



Constituent: Arsenic Analysis Run 5/22/2024 9:07 AM View: 2024AWQR - Time Series
City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

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

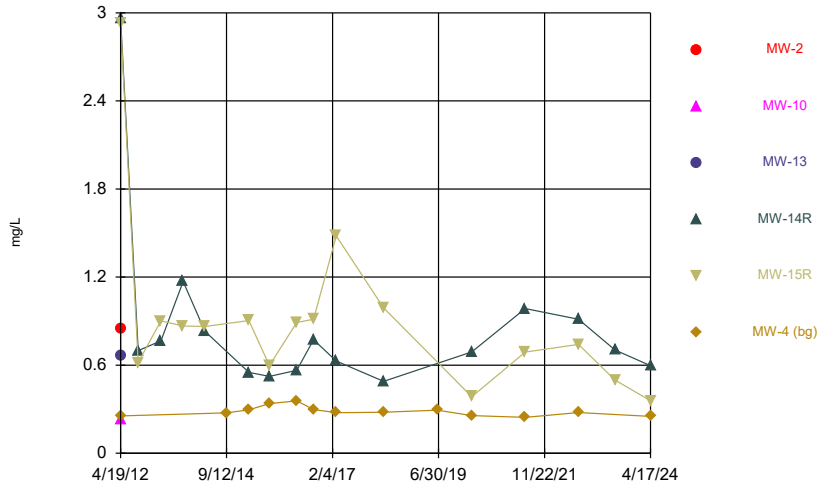
Time Series



Constituent: Arsenic Analysis Run 5/22/2024 9:07 AM View: 2024AWQR - Time Series
City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

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

Time Series



Constituent: Barium Analysis Run 5/22/2024 9:07 AM View: 2024AWQR - Time Series
City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

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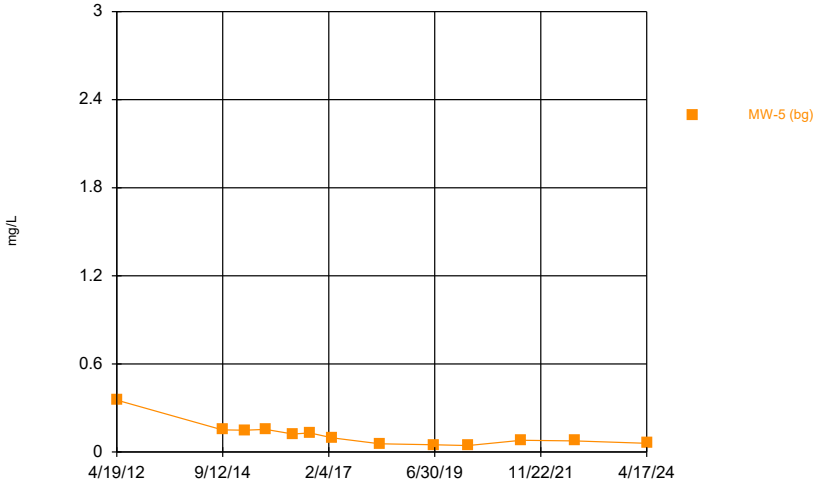
Time Series



Constituent: Barium Analysis Run 5/22/2024 9:07 AM View: 2024AWQR - Time Series
City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

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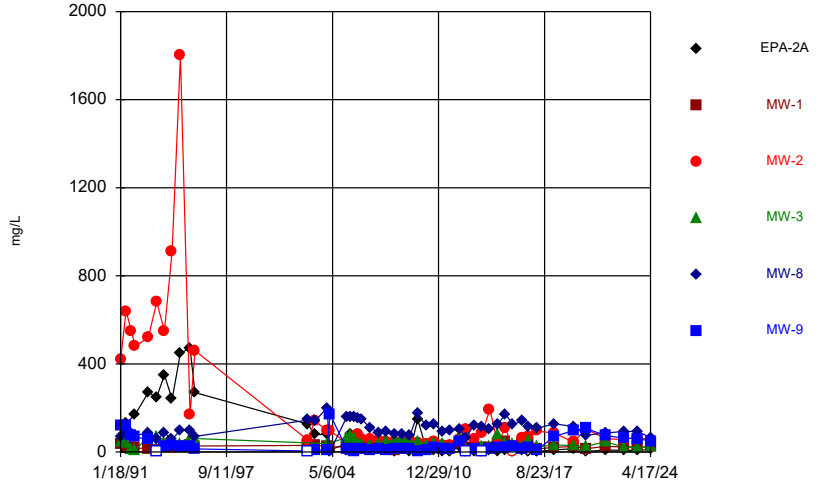
Time Series



Constituent: Chemical Oxygen Demand Analysis Run 5/22/2024 9:07 AM View: 2024AWQR - Time Series
City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

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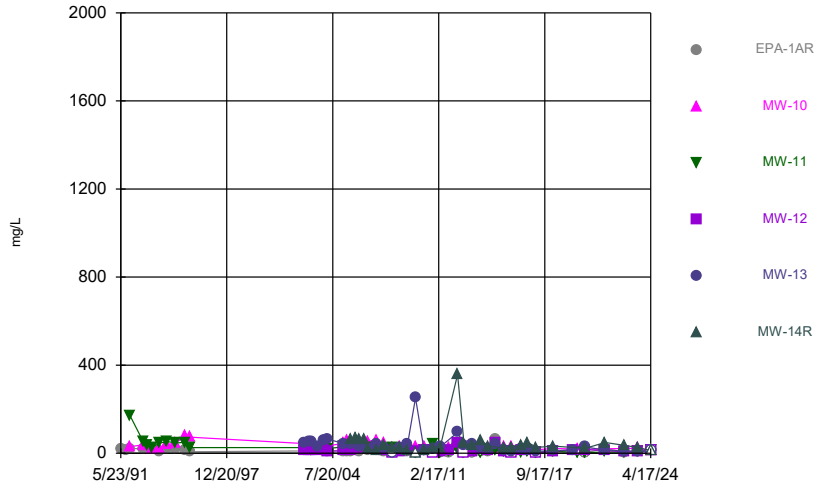
Hollow symbols indicate censored values.

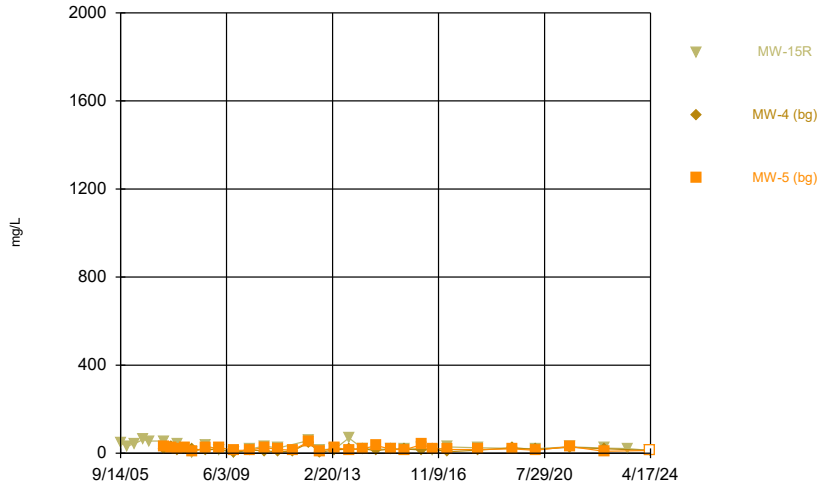
Time Series



Constituent: Chemical Oxygen Demand Analysis Run 5/22/2024 9:07 AM View: 2024AWQR - Time Series
City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

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

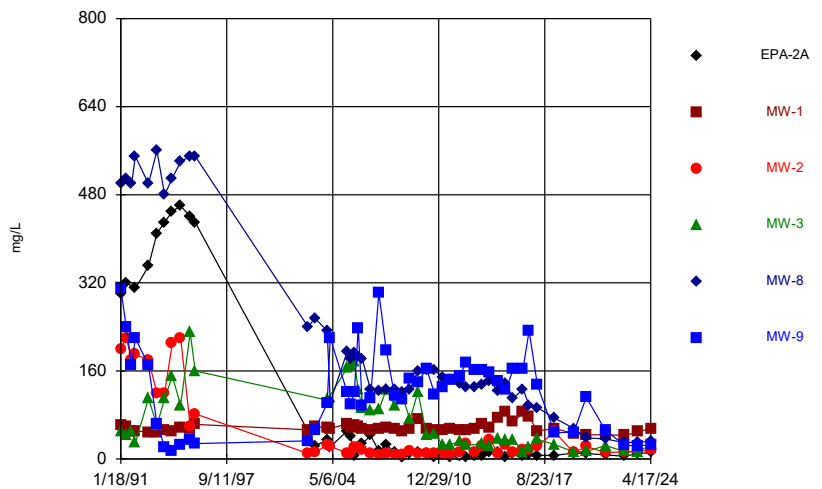
Time Series



Constituent: Chemical Oxygen Demand Analysis Run 5/22/2024 9:07 AM View: 2024AWQR - Time Series
City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

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

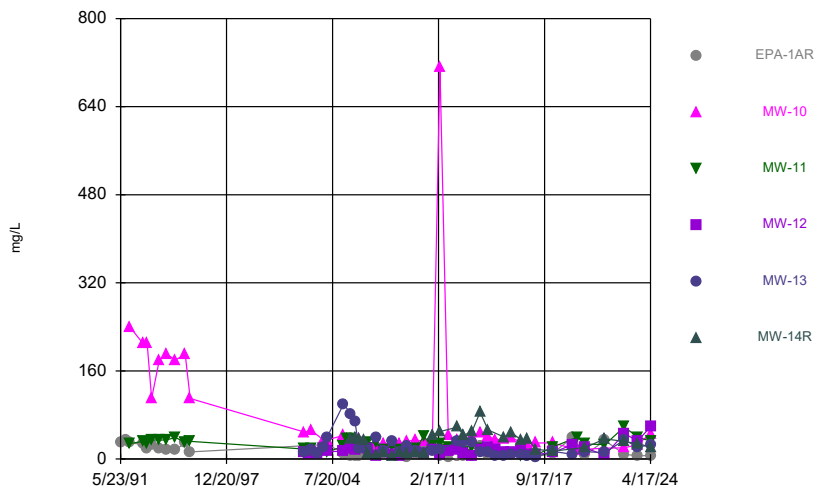
Time Series



Constituent: Chloride Analysis Run 5/22/2024 9:07 AM View: 2024AWQR - Time Series
City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

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

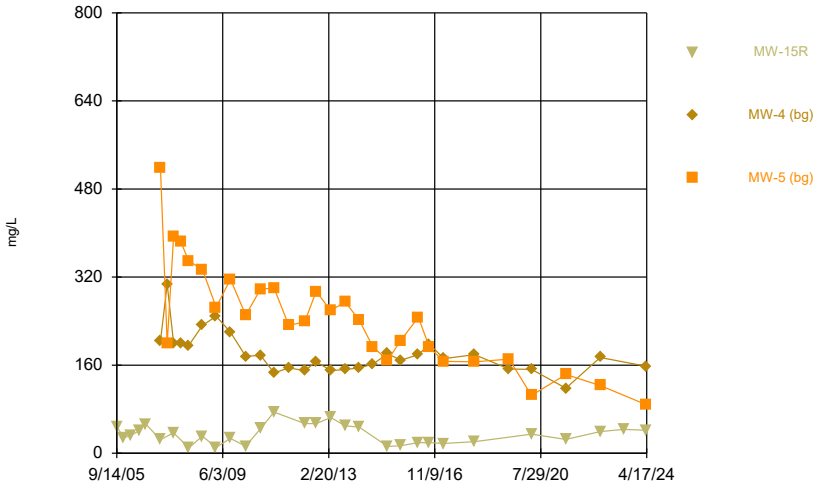
Time Series



Constituent: Chloride Analysis Run 5/22/2024 9:07 AM View: 2024AWQR - Time Series
City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

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

Time Series



Constituent: Chloride Analysis Run 5/22/2024 9:07 AM View: 2024AWQR - Time Series

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

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

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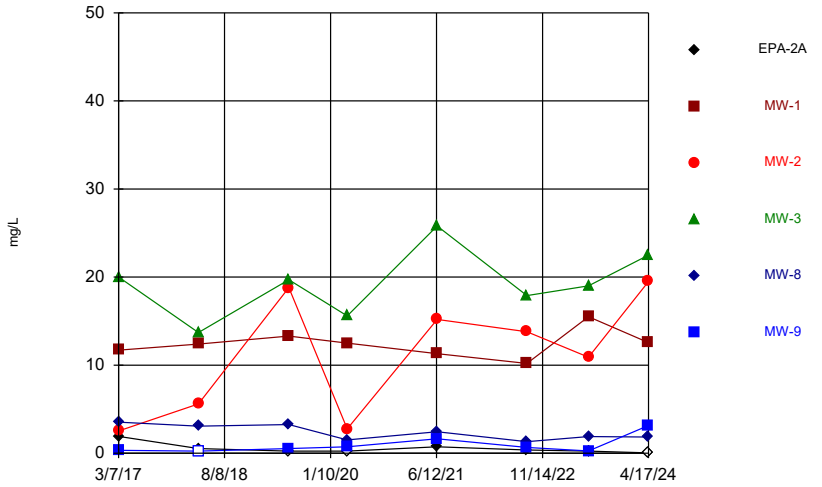
Time Series



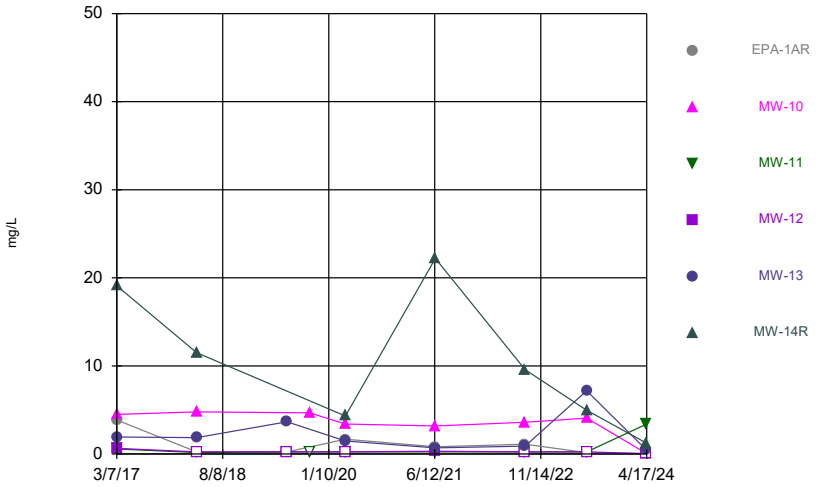
Constituent: Iron Analysis Run 5/22/2024 9:07 AM View: 2024AWQR - Time Series

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

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

Hollow symbols indicate censored values.

Time Series



Constituent: Iron Analysis Run 5/22/2024 9:07 AM View: 2024AWQR - Time Series

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

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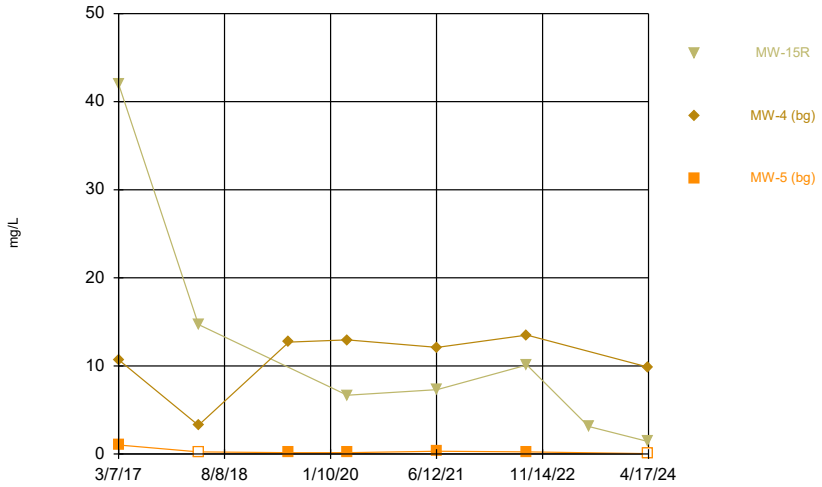
Hollow symbols indicate censored values.

Time Series



Constituent: Iron Analysis Run 5/22/2024 9:07 AM View: 2024AWQR - Time Series

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

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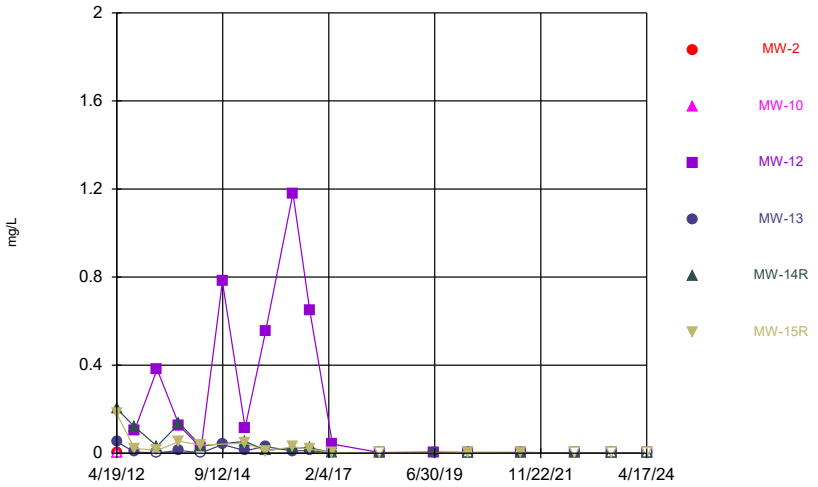
Hollow symbols indicate censored values.

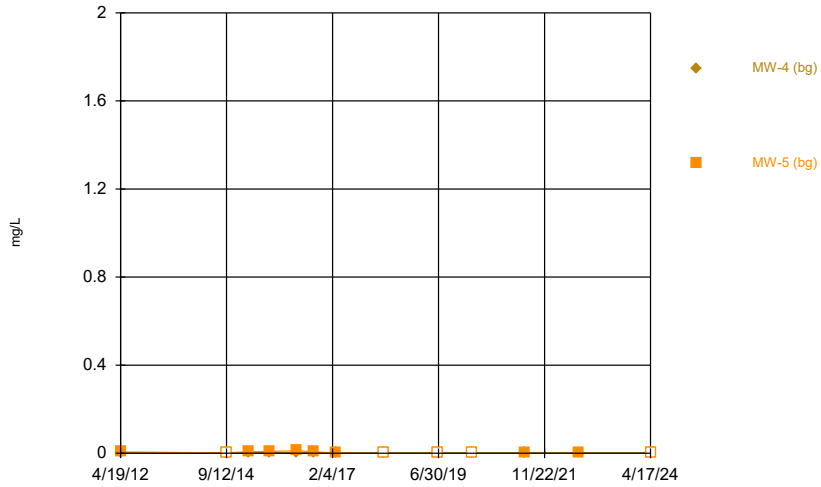
Time Series



Constituent: Lead Analysis Run 5/22/2024 9:07 AM View: 2024AWQR - Time Series
City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

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

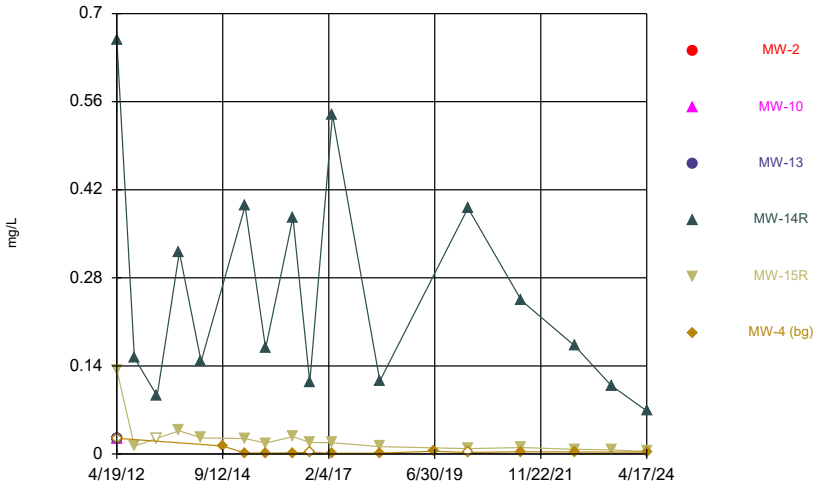
Time Series



Constituent: Lead Analysis Run 5/22/2024 9:07 AM View: 2024AWQR - Time Series
City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

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

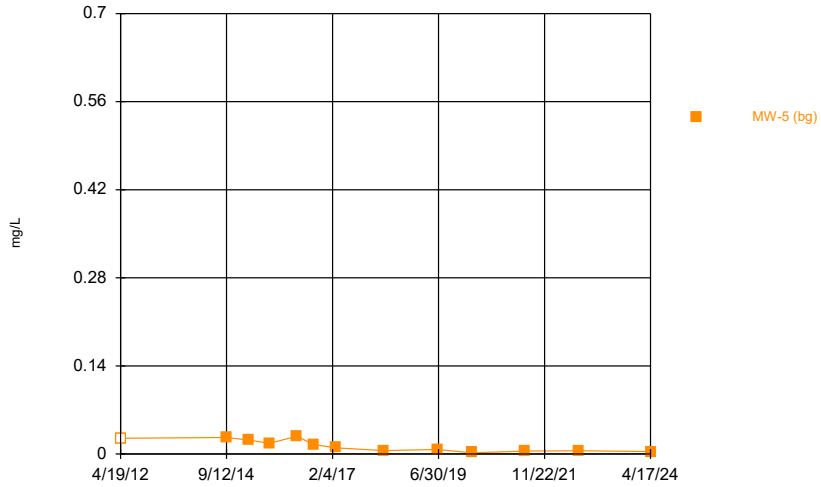
Time Series



Constituent: Nickel Analysis Run 5/22/2024 9:07 AM View: 2024AWQR - Time Series
City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

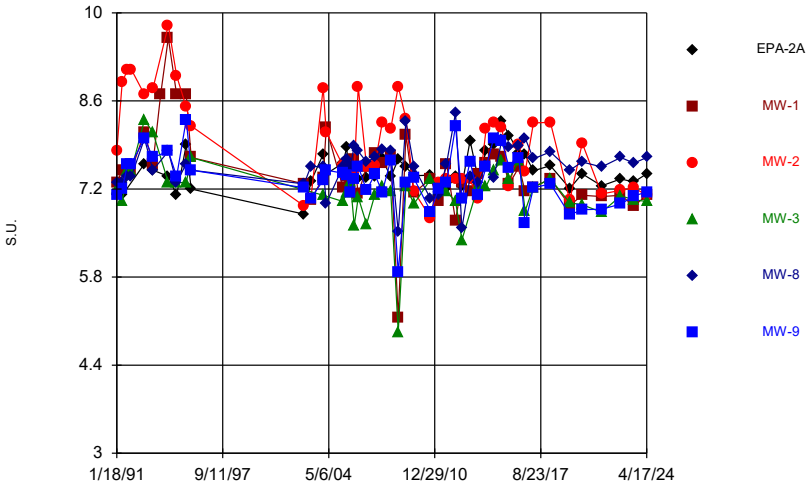
Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: Nickel Analysis Run 5/22/2024 9:07 AM View: 2024AWQR - Time Series
City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

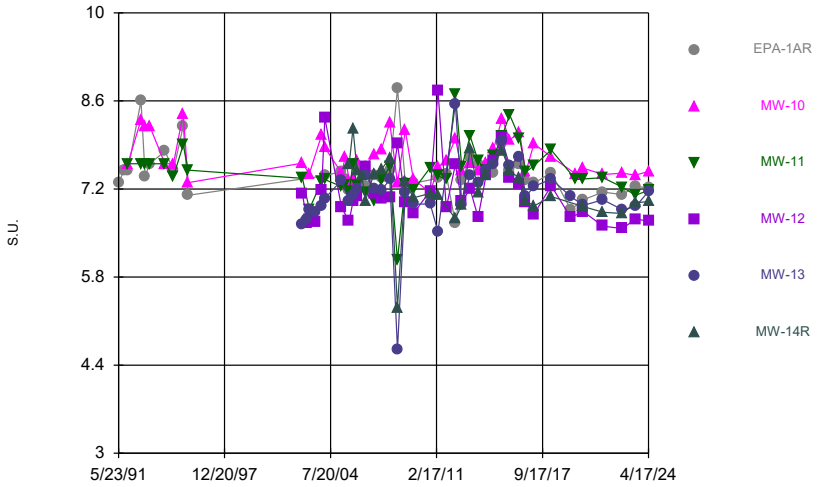
Time Series



Constituent: pH Analysis Run 5/22/2024 9:07 AM View: 2024AWQR - Time Series
City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

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

Time Series



Constituent: pH Analysis Run 5/22/2024 9:07 AM View: 2024AWQR - Time Series
City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

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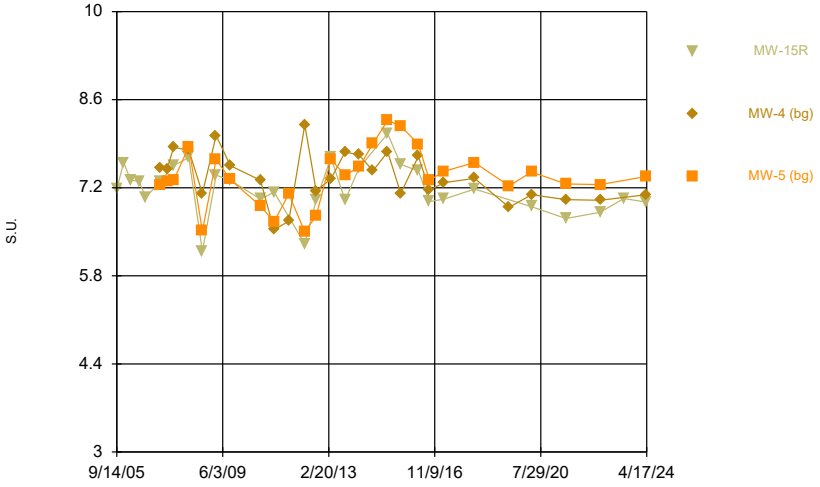
Time Series



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City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

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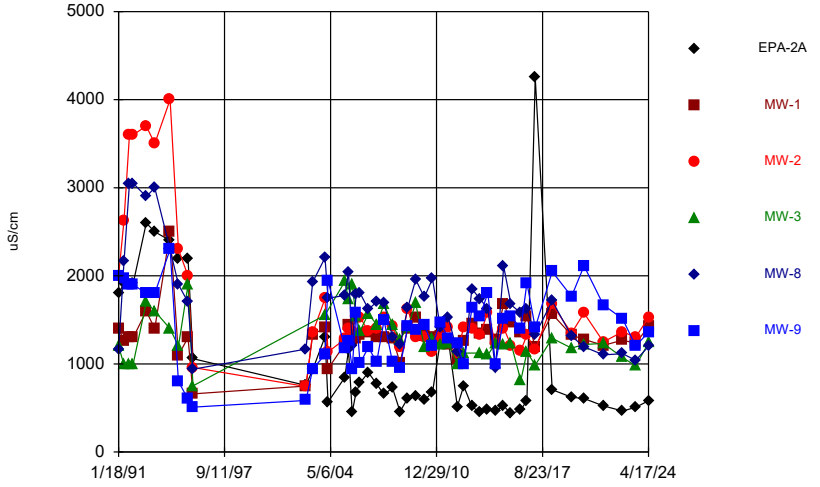

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City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

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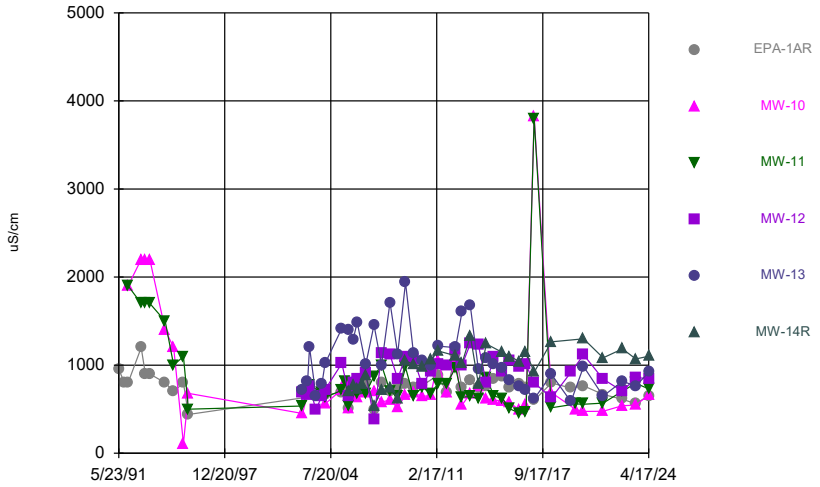

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City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

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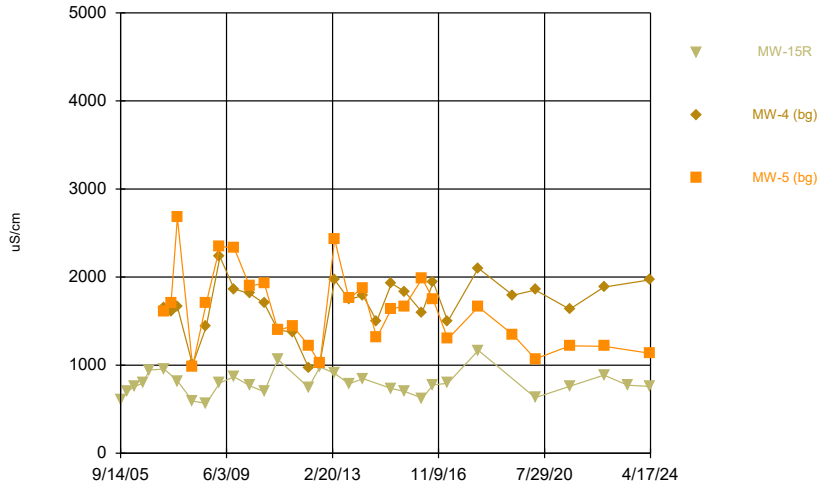

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City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

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Hollow symbols indicate censored values.

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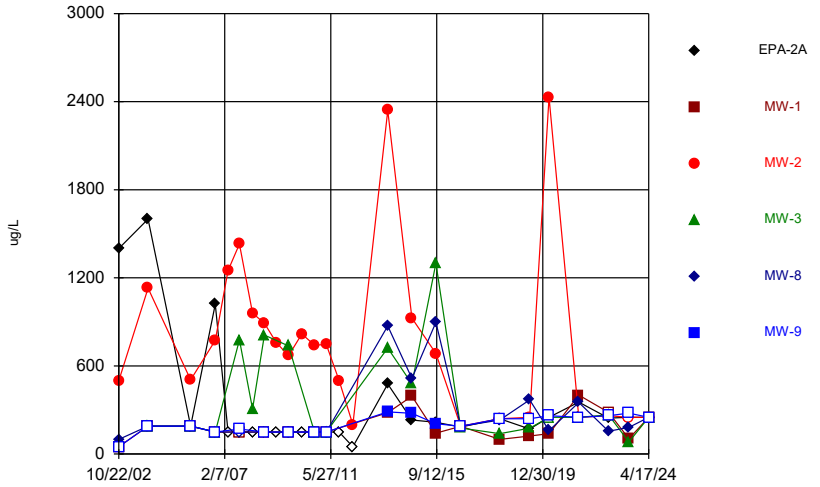

Constituent: Total Extractable Hydrocarbons Analysis Run 5/22/2024 9:07 AM View: 2024AWQR - Time S

City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

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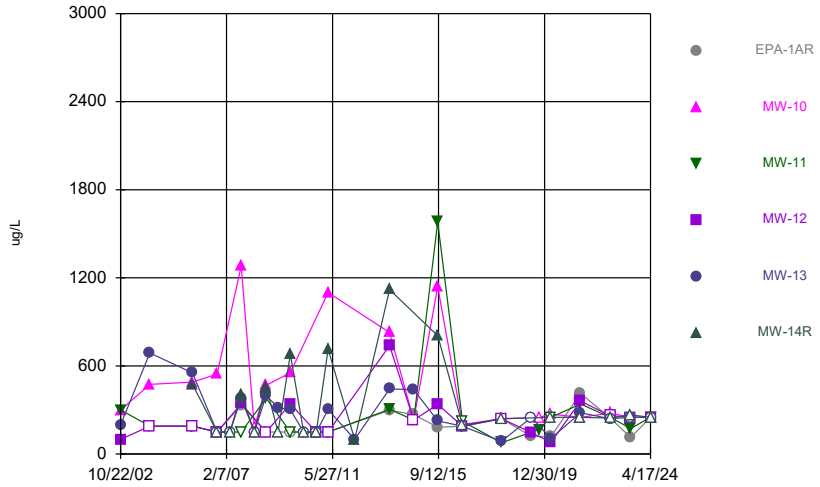
Hollow symbols indicate censored values.

Time Series



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City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

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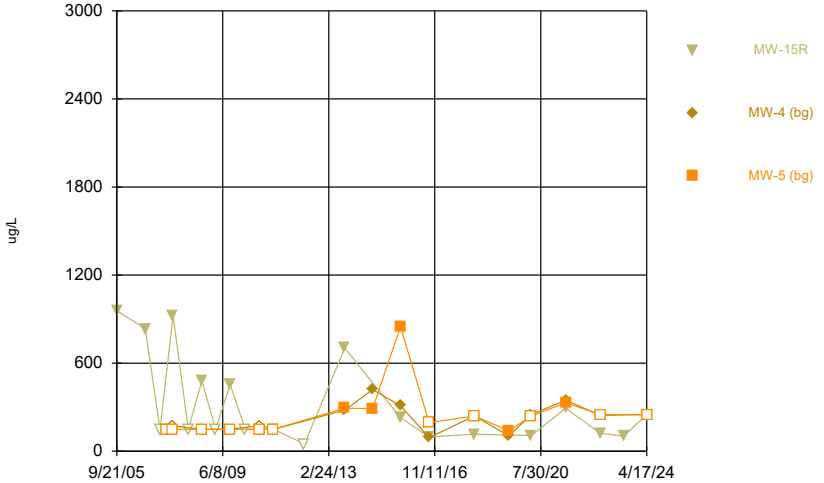

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Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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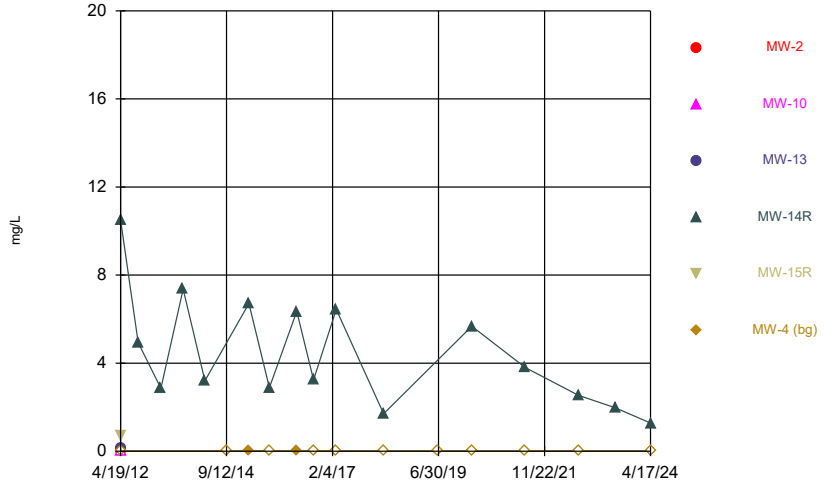

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City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

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Hollow symbols indicate censored values.

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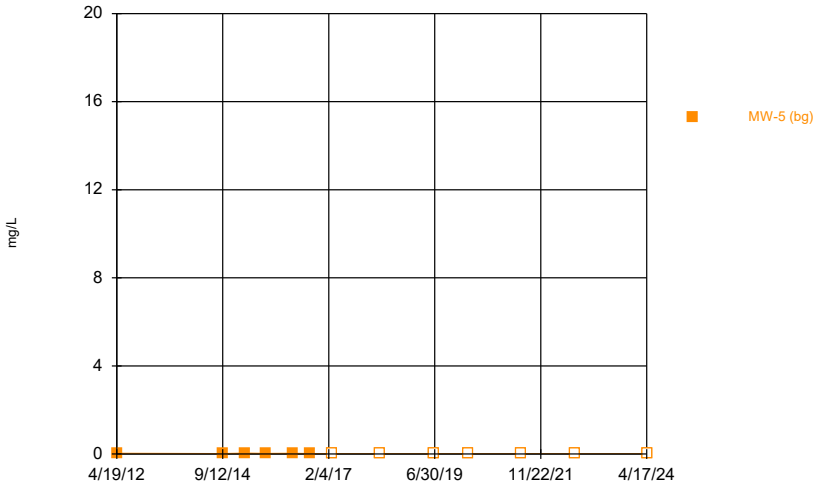

Constituent: Zinc Analysis Run 5/22/2024 9:07 AM View: 2024AWQR - Time Series
City of Council Bluffs - Alter Landfill Client: SCS Engineers Data: CTYCB Sanitas Master

Appendix E

Landfill Gas Annual Report

Table E1
Landfill Gas Monitoring Summary
2024 Landfill Gas Monitoring Report
Alter Trading Corporation Monofill
Permit No. 78-SDP-19-98C

Monitoring Points				Methane (% LEL)	
Point #	**Name**	**Type**	**Description**	**4/17-18/2024**	**S (Y/N)**
1	NE Corner	Ambient	NE corner of site	0	
2	SE Corner	Ambient	SE corner of site	0	
3	SW Corner	Ambient	SW corner of site	0	
4	NW Corner	Ambient	NW corner of site	0	
5	Center Location of Site	Ambient	Center of site	0	
6	Long Storage Building	Indoor	Inside building	Removed	
7	SE Garage	Indoor	Inside building	0	
8	SE Ticket Building	Indoor	Inside building	0	

S(Y/N) - Was screen submerged, yes or no.

Point No.	Monitoring Point	Description
#1	NE Corner	Northeast corner of facility property
#2	SE Corner	Southeast corner of facility property
#3	SW Corner	Southwest corner of facility property
#4	NW Corener	Northwest corner of facility property
#5	Central	Approximate center of facility property
#7	Long Storage Building	Tan Conex Unit east of MW-14R
#8	SE Garage	SE of Parking lot
#9	SE Ticket Building	SE of Parking lot

SCS ENGINEERS
environmental consultants and contractors

Methane Monitoring Network

Legend

- Methane Monitoring Location
- Approximate Monitoring Well Location
- Delineated Wetland Area
- Approximate Property Line

Alter Trading
Corporation Monofill
Council Bluffs, Iowa
Project No: 27224260.00
Drawing Date: June 2024

Figure 1

N
W E
S

0 155 310 620
Feet