SCS ENGINEERS

Transmittal

West Des Moines, IA

PROJECT:	Anderson Ex Co.,CY24 Env Comp,CB,IA 27224173.01	DATE:	11/27/2024
SUBJECT:	Anderson Excavating Council Bluffs C&D Landfill - 78-SDP-04-89C - 2024 Annual Water Quality Report	TRANSMITTAL ID:	00003
PURPOSE:	For your approval	VIA:	Info Exchange

FROM

NAME	COMPANY	EMAIL	PHONE
Semir Omerovic West Des Moines, IA	SCS Engineers	SOmerovic@scsengineers.com	+1-515-415-9224

TO

NAME	COMPANY	EMAIL	PHONE
Mick Leat United States		mick.leat@dnr.iowa.gov	

REMARKS:

Mick -

Please find for your download the Anderson Excavating Council Bluffs C&D Landfill 2024 Annual Water Quality Report. Let us know if you have any questions or comments.

Thank you,

Semir Omerovic
Technical Associate
SCS Engineers
1690 All-State Court, Suite 100
West Des Moines, Iowa 50265
515-988-3237 (C)
somerovic@scsengineers.com

Transmittal

DATE: 11/27/2024
TRANSMITTAL ID: 00003

DESCRIPTION OF CONTENTS

QTY	DATED	TITLE	NOTES
1	11/27/2024	Anderson Excavating Council Bluffs Landfill - 78-SDP-04-89C - 2024 Annual Water Quality Report 11.27.2024.pdf	

COPIES:

Becky Jolly	
Virginia Anderson	(Anderson Excavating Company)
Semir Omerovic	(SCS Engineers)
Sean Marczewski	(SCS Engineers)
Tim Buelow	(SCS Engineers)

November 27, 2024
File No. 27224173.01

Mr. Mick Leat
Iowa Department of Natural Resources
Land Quality Bureau
6200 Park Avenue
Des Moines, Iowa 50321

Subject: 2024 Annual Water Quality Report, Leachate Control System Performance Evaluation Report, and Landfill Gas Annual Report
Anderson Excavating Council Bluffs C&D Landfill
Permit No. 78-SDP-04-89C

Dear Mick:

SCS Engineers has completed the Annual Water Quality Report, Leachate Control System Performance Evaluation Report, and Landfill Gas Annual Report for the Anderson Excavating Council Bluffs C&D Landfill for the year 2024. Our services were performed in general accordance with Iowa Administrative Code (IAC) 567-114 and the closure permit. Please find enclosed a copy of the 2024 Annual Water Quality Report, 2024 Leachate Control System Performance Evaluation Report, and 2024 Landfill Gas Annual Report for the Anderson Excavating Council Bluffs C&D Landfill.

If you have any questions regarding these reports, please contact Semir Omerovic at (515) 988-3237.

Sincerely,

Semir Omerovic
Technical Associate
SCS Engineers

Timothy C. Buelow, P.E.
Senior Project Advisor
SCS Engineers

SO/SAM/TCB

Copies: Ms. Virginia Anderson, Anderson Excavating Company

2024 Annual Water Quality Report, Leachate Control System Performance Evaluation Report, & Landfill Gas Annual Report

Anderson Excavating C&D Landfill
Council Bluffs, Iowa
Solid Waste Permit Number: 78-SDP-04-89C

Prepared for:

Anderson Excavating Company

SCS ENGINEERS

27224173.01 | November 27, 2024

1690 All-State Court, Suite 100
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CERTIFICATION

Prepared by: _____ Date: 11/27/2024

Typed: Semir Omerovic

Reviewed by: _____ Date: 11/27/2024

Typed: Timothy C. Buelow, P.E.

Certification page (114.26(8)"d")

An annual report summarizing the effect of the facility on groundwater and surface water quality shall be submitted to the department each year. The annual report 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: 11/27/2024 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.

EXECUTIVE SUMMARY

ES.1 Period of Report Coverage

SCS Engineers (SCS), on behalf of Anderson Excavating Company, has completed the required groundwater sampling of the closed Council Bluffs Construction and Demolition (C&D) Landfill (Landfill). The purpose of this Annual Water Quality Report (AWQR) is to document and statistically evaluate the groundwater sampling results since the 2023 AWQR up to and including the October 2024 semi-annual sampling event. This AWQR was prepared in accordance with the requirements of Iowa Administrative Code (IAC) 567-114, the closure permit, and current requirements for implementation of the Hydrologic Monitoring System Plan (HMSP).

ES.2 Report Priority

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

- Department review urgency: None.
- Department review impact on rules schedule: None
- Actions or activities on hold pending Department review or comment: None.
- Actions and/or permit amendments needed: None.

ES.3 Site Status and Applicable Rules

- Landfill Status: Closed.
- Types of waste accepted: Formerly C&D.
- Applicable IAC rules: IAC 567-114.

ES.4 Comments

The following summarizes points of special emphasis:

There were no new and three ongoing well/detected constituent pairs with control limit exceedances during this reporting period as summarized in **Table 7**.

Review of the Mann-Kendall trending statistics indicated that approximately 67% of the Mann-Kendall statistics were considered stable or decreasing during the 2024 statistical evaluation.

Implementation of the Leachate Collection System Action Plan (Doc #99014), as approved in Revision #3 to the Closure Permit, issued September 25, 2023 (Doc #107755), began in November 2023 and was completed in December 2023 (Doc #108441). Additional assessment and maintenance of the leachate control system completed in 2024 is documented in the Leachate Control System July 2024 Action Plan Update (Doc #110589).

ACRONYMS/ABBREVIATIONS

AWQR = Annual Water Quality Report

C&D = Construction & Demolition

GWPS = Groundwater Protection Standard

HMSP = Hydrologic Monitoring System Plan

IAC = Iowa Administrative Code

MW = Monitoring Well

QA = Quality Assurance

QC = Quality Control

SCS = SCS Engineers

1.0 SITE BACKGROUND

1.1 SITE LOCATION

The Council Bluffs C&D Landfill (Landfill) property is depicted on Figure 1, Approved Monitoring Network. The Landfill is located at 2520 Kanesville Boulevard, approximately 1.7 miles west of Interstate 80 in Pottawattamie County, Iowa. The legal description is Part of Lot 5, Auditors Subdivision, NE ¼, SW ¼, and parts of NE ¼, NW ¼, and SE ¼, NW ¼, and Parts of Lots 1 and 2 Prosperity Acres SW ¼, NW ¼, all located in Section 20, T75N, R43W, Pottawattamie County, Iowa.

1.2 FACILITY

The Landfill is located within a mining pit that was abandoned in the 1950s after a failed attempt to obtain sand and gravel. The Landfill has been a permitted facility since 1989. The Landfill property covers approximately 80 acres of which approximately 1.9 acres were used for C&D waste disposal. The closure permit was issued April 11, 2016.

1.3 GEOLOGY AND HYDROGEOLOGY OF THE SITE

The 1995 Hydrogeological Investigation Report for Anderson Excavating and Wrecking Company Construction and Demolition Landfill, prepared by Howard R. Green Company Consulting Engineers (Doc #35471), provided the following geological description:

> *The landfill is located in the "Western Loess Hills," which is characterized by thick wind deposited soil (loess) overlying glacial deposits. The unconsolidated sediments at the site consist of up to 200 feet of Pleistocene sediments, primarily clayey silt to silty clay (loess), showing increasing sand and clay content with depth. The thick loess section has been removed over the central portion of the site during a past failed attempt to locate gravel deposits. The Pennsylvanian bedrock beneath the site consists primarily of limestone and shale with thin coal seams. The elevation of the bedrock ranges from 994.2 to 1002.59 feet, amsl.*

According to the above-referenced 1995 Hydrogeological Investigation Report:

> *The uppermost aquifer beneath the site is the water table, which is located within the loess section. The water table elevation ranges from 1086.48 feet on the north side of the site to 1071.32 feet in the southeast corner of the site. Based on in-situ permeability tests, K-values of this loess unit range from 7.2 x 10^{-6} to 3.1 x 10^{-7} cm/sec, while transmissivity values range from 0.106 to 0.398 square feet per day.*
>
> *The water table flow direction is primarily toward the southeast and Mosquito Creek. The primary flow direction of the lower screened interval is toward the southwest.*
>
> *Horizontal flow gradients were found to vary from 0.010 to 0.053 in the water table aquifer and from 0.019 to 0.065 in the lower screened interval. The vertical flow gradients between the water table and the basal sand unit are downward (recharge condition) and varied from 0.027 to 0.251.*

The horizontal flow velocity at the water table varied from 8.0 x 10^{-3} to 9.4 x 10^{-4} ft/day. The horizontal flow velocity in the basal sand unit varied from 9.6 x 10^{-1} to 8.6 x 10^{-6} ft/day. The recharge flux rate between the water table and the basal sand unit varied from 0.0004 ft^3/day per sq. ft. to 0.0024 ft^3/day per sq. ft.

2.0 FIGURES DISCUSSION

The following figures are attached.

2.1 FIGURE 1 – APPROVED MONITORING NETWORK

The Landfill property and hydrologic monitoring system plan (HMSP) network are depicted in **Figure 1**. **Figure 1** indicates the locations of each monitoring well and its respective monitoring program.

2.2 FIGURE 2 – GROUNDWATER CONTOURS

A groundwater contour map based on water levels measured during the October 2024 sampling event is included as **Figure 2**. **Figure 2** indicates a generally southeasterly groundwater flow direction.

3.0 QA/QC SUMMARY

The quality assurance/quality control (QA/QC) program for the Landfill follows similar protocols as included in the HMSP. Data validation procedures were performed on analytical results for laboratory quality control samples and a quality assurance assessment of the data was conducted as the data were generated. The QA review procedure provided documentation of the accuracy and precision of the analytical data and confirmed that the analyses were sufficiently sensitive to detect constituents at levels below regulatory standards when technically feasible with the laboratory method utilized. SCS then conducted QA/QC data validation of the produced data, which included review of sample handling, analytical sensitivity, and blanks, accuracy, and precision. A summary of the laboratory QA/QC and data validation can be found in **Appendices B-1**, Laboratory Data, and **B-2**, Data Validation, respectively. The QA/QC review indicated that the data was acceptable.

4.0 ANALYTICAL DATA EVALUATION

Statistical analyses in accordance with the requirements of IAC 567-114 were conducted for the groundwater analytical data collected during the April and October 2024 semi-annual sampling events. The statistical evaluations for samples collected during the 2024 sampling events are located in **Appendix D**.

4.1 DATA EVALUATION

The downgradient monitoring wells for the Landfill include one monitoring well along the southeast side and two monitoring wells along the east side. Upgradient monitoring well MW-3 is located to the northwest of the Landfill.

Chemical oxygen demand and chloride in monitoring well MW-12 and specific conductance in MW-13 exceeded the upper control limits during the 2024 reporting period as shown in **Table 1**. A

summary of current and historical control limit and action level exceedances are shown in **Table 9**. Time series graphs of the recent and historical data and the control limit evaluations for the 2024 sampling events can be found in **Appendix D**.

As a generalization, water quality in monitoring well MW-2R appears similar to background, with the exception of specific conductance. Parameter concentrations in monitoring wells MW-12 and MW-13 are elevated above background.

4.2 TRENDING IN MONITORING WELLS

There were three statistically significant trends identified by Mann-Kendall analysis at 99% confidence (α=0.01) during this reporting period. The trend analysis is included in the 2024 Statistical Output included in **Appendix D**. The statistically significant trends are summarized in the table below.

Statistically Significant Trends		
Monitoring Point	**Constituent**	**Trend**
MW-12	Chemical Oxygen Demand	Increasing
	Total Organic Halogens	Increasing
MW-13	Total Organic Halogens	Increasing

Although not necessarily statistically significant, the Mann-Kendall statistics can provide an indication of general trending in the data. Trend indications for wells in the monitoring program are shown below. Trends classified as decreasing or increasing exhibited a statistically significant trend with 80% confidence (α=0.20) using the most recent eight data points. Trends classified as stable did not exhibit a statistically significant trend with 80% confidence using the eight most recent data points. A summary of Mann-Kendall statistics by constituent in each monitoring point is included in **Appendix E**.

Trending in Monitoring Wells				
Monitoring Well	**Decreasing Trends**	**Stable Trends**	**Increasing Trends**	**Number of Constituents Analyzed**
MW-2R	0.00%	60.00%	40.00%	5
MW-3 (U)	0.00%	83.33%	16.67%	6
MW-12	0.00%	33.33%	66.67%	6
MW-13	0.00%	85.71%	14.29%	7
Site Wide	**0.00%**	**66.67%**	**33.33%**	**24**

Review of the Mann-Kendall statistics indicated that approximately 67% of the Mann-Kendall statistics were considered stable or decreasing during the 2024 statistical evaluation.

5.0 RECOMMENDATIONS

5.1 SITE IMPACT ON GROUNDWATER

Groundwater sample analytical data from the Landfill HMSP monitoring well network indicates possible limited impact, particularly along the east side of the Landfill. Control limit exceedances were measured during this reporting period for two constituents in monitoring well MW-12 and one constituent in monitoring well MW-13.

5.2 PROPOSED MONITORING

No changes to the monitoring program are recommended at this time.

5.3 PROPOSED MONITORING WELL CHANGES

No changes to the monitoring wells are recommended at this time.

Tables

Table 1
Monitoring Program Summary
2024 Annual Water Quality Report
Council Bluffs C&D Landfill
Permit No. 78-SDP-04-89C

Monitoring Well	Formation[1]	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
MW-3	Clayey silt	Upgradient	None	Not applicable	9	-	-
MW-2R	Silty clay	Routine	None	None	12	-	-
MW-12	Silty clay	Routine	None	Chemical Oxygen Demand, Chloride	12	-	-
MW-13	Silty clay	Routine	None	Specific Conductance	12	-	-

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

Table 2
Monitoring Program Implementation Schedule
2024 Annual Water Quality Report
Council Bluffs C&D Landfill
Permit No. 78-SDP-04-89C

Monitoring Well	Recent Sampling Dates and Constituents		Upcoming Sampling Dates and Constituents	
	April 2024	October 2024	April 2025	October 2025
MW-3	No sample (insufficient water)	No sample (insufficient water)	IAC 567-114.26(4)”e”	IAC 567-114.26(4)”e”&“f”
MW-2R	IAC 567-114.26(4)”e”	IAC 567-114.26(4)”e” & "f"	IAC 567-114.26(4)”e”	IAC 567-114.26(4)”e”&“f”
MW-12	IAC 567-114.26(4)”e”	IAC 567-114.26(4)”e” & "f"	IAC 567-114.26(4)”e”	IAC 567-114.26(4)”e”&“f”
MW-13	IAC 567-114.26(4)”e”	IAC 567-114.26(4)”e” & "f"	IAC 567-114.26(4)”e”	IAC 567-114.26(4)”e”&“f”

Notes: None

Table 3
Monitoring Well Maintenance and Performance Re-Evaluation Schedule
2024 Annual Water Quality Report
Council Bluffs C&D Landfill
Permit No. 78-SDP-04-89C

Compliance with:	2022	2023	2024	2025	2026
567 IAC 114.21(2)"a" high and low water levels	Completed	Completed	Included	Scheduled	Scheduled
567 IAC 114.21(2)"b" changes in the hydrologic setting and flow paths	Completed	Completed	Included	Scheduled	Scheduled
567 IAC 114.21(2)"c" well depths	Completed	Completed	Included	Scheduled	Scheduled
567 IAC 114.21(2)"d" in-situ permeability tests*	Completed		Included		Scheduled

Comments:

* = In accordance with Permint Amendment #7 (Doc #104256), biennial evaluations of well recharge rates measured from groundwater monitoring events will be conducted in lieu of 567 IAC 114.21(2)"d" in-situ permeability tests.

Table 4
Monitoring Well Performance and Maintenance Summary
2024 Annual Water Quality Report
Council Bluffs C&D Landfill
Permit No. 78-SDP-04-89C

Well	Top of Casing	Top of Screen	Total Depth		Date of Measurements	Date of Measurements	Maximum Depth	Initial Flow Rate (L/min)	Recent Flow Rate (L/min)	
					April 2024	October 2024	Discrepancy (ft)	10/26/2017	10/8/2024	% Change
MW-3	1199.7	1088.1	119.0	Groundwater Level (ft)	116.79	Dry	1.0	0.100	Not Sampled	NA
				Groundwater Elevation (Ft MSL)	1082.91	Dry				
				Measured Well Depth (ft)	118.0	118.0				
				Submerged screen	N	N				
MW-2R	1128.1	1069.7	70.0	Groundwater Level (ft)	62.76	62.74	-0.4	0.125	0.175	40%
				Groundwater Elevation (Ft MSL)	1065.33	1065.35				
				Measured Well Depth (ft)	70.4	70.4				
				Submerged screen	N	N				
MW-12	1123.5	1052.4	81.0	Groundwater Level (ft)	50.55	49.62	0.5	0.100	0.192	92%
				Groundwater Elevation (Ft MSL)	1072.91	1073.84				
				Measured Well Depth (ft)	80.5	80.6				
				Submerged screen	Y	Y				
MW-13	1134.0	1055.2	90.0	Groundwater Level (ft)	65.63	65.18	-0.5	0.108	0.200	85%
				Groundwater Elevation (Ft MSL)	1068.37	1068.82				
				Measured Well Depth (ft)	90.4	90.5				
				Submerged screen	Y	Y				

Comments:

1) Measured well depths were within 2.0 feet of the installed depth. It does not appear that siltation is affecting the ability of the monitoring wells to produce samples.
2) It should be noted that initial 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.

NA - Not Applicable

Table 5
Background and GWPS Summary
2024 Annual Water Quality Report
Council Bluffs C&D Landfill
Permit No. 78-SDP-04-89C

Interwell Background/GWPS (MW-3)

Constituent	Units	Samples	Detections	Background Level	Statistical Test	Action Level	Source
Ammonia as N	mg/L	36	0	0.4989	M+/-2SD	30	HAL
Chemical Oxygen Demand	mg/L	36	19	16.73	M+/-2SD	None	None
Chloride	mg/L	36	36	64.23	M+/-2SD	250	Secondary MCL
Iron, Dissolved	mg/L	36	10	1.09	M+/-2SD	None	None
pH	S.U.	35	35	6.468 - 8.474	M+/-2SD	None	None
Specific Conductance	umhos/cm	35	35	1691	M+/-2SD	None	None
Total Organic Halogens	mg/L	18	4	0.303	M+/-2SD	None	None
Total Phenols	mg/L	18	2	0.04738	M+/-2SD	None	None

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
M+/-2SD = Mean Plus/Minus Two Standard Deviations
MCL = EPA Maximum Contaminant Level
HAL = Health Advisory Level

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:** There were no changes to the statistical method during the 2024 reporting period.
3) **Changes to table 5:** There were no changes to table 5 due to insufficient water within upgradient monitoring well MW-3 for sampling.

Table 6
Summary of Well/Detected Constituent Pairs With No Immediately Preceding Control Limit Exceedances
2024 Annual Water Quality Report
Council Bluffs C&D Landfill
Permit No. 78-SDP-04-89C

There were no prediction limit exceedances with no immediately preceeding prediction limit excedances.

Comments:

1) **Problems with the current HMSP network:** None.
2) **Schedule to implement remedies:** Not applicable.
3) **Alternative constituent or sample frequency changes:** None.
4) **Significant changes to control limits:** None.

Table 7
Summary Table of Ongoing and Newly Identified Control Limit Exceedances
2024 Annual Water Quality Report
Council Bluffs C&D Landfill
Permit No. 78-SDP-04-89C

Well	Constituent	Units	Most Recent Result	Background Standard
MW-12	Chemical Oxygen Demand	mg/L	35.35	16.73
	Chloride	mg/L	120	64.23
MW-13	Specific Conductance	umhos/cm	1691	1691

Notes:

(1) Ongoing control limit exceedance is a defined as a well/constituent pair having a control limit exceedance during the current reporting period and during the immediately preceding reporting period.

(2) Indicates a newly identified control limit exceedance during this reporting period.

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
Council Bluffs C&D Landfill
Permit No. 78-SDP-04-89C

The Summary of Groundwater Chemistry is located in Appendix C.

Table 9
Historical Control Limit and Action Level Exceedances
2024 Annual Water Quality Report
Council Bluffs C&D Landfill
Permit No. 78-SDP-04-89C

Key

Control Limit Exceedance

MCL Exceedance

Well	Constituent	Spring 2021	Fall 2021	Spring 2022	Fall 2022	Spring 2023	Fall 2023	Spring 2024	Fall 2024
MW-12	Chemical Oxygen Demand								
	Chloride								
	Total Organic Halogens	NS		NS		NS			
MW-13	Chemical Oxygen Demand								
	Chloride								
	Specific Conductance								
	Total Organic Halogens	NS		NS		NS			

Comments:

NS: Not Sampled - Constituent is sampled annually.

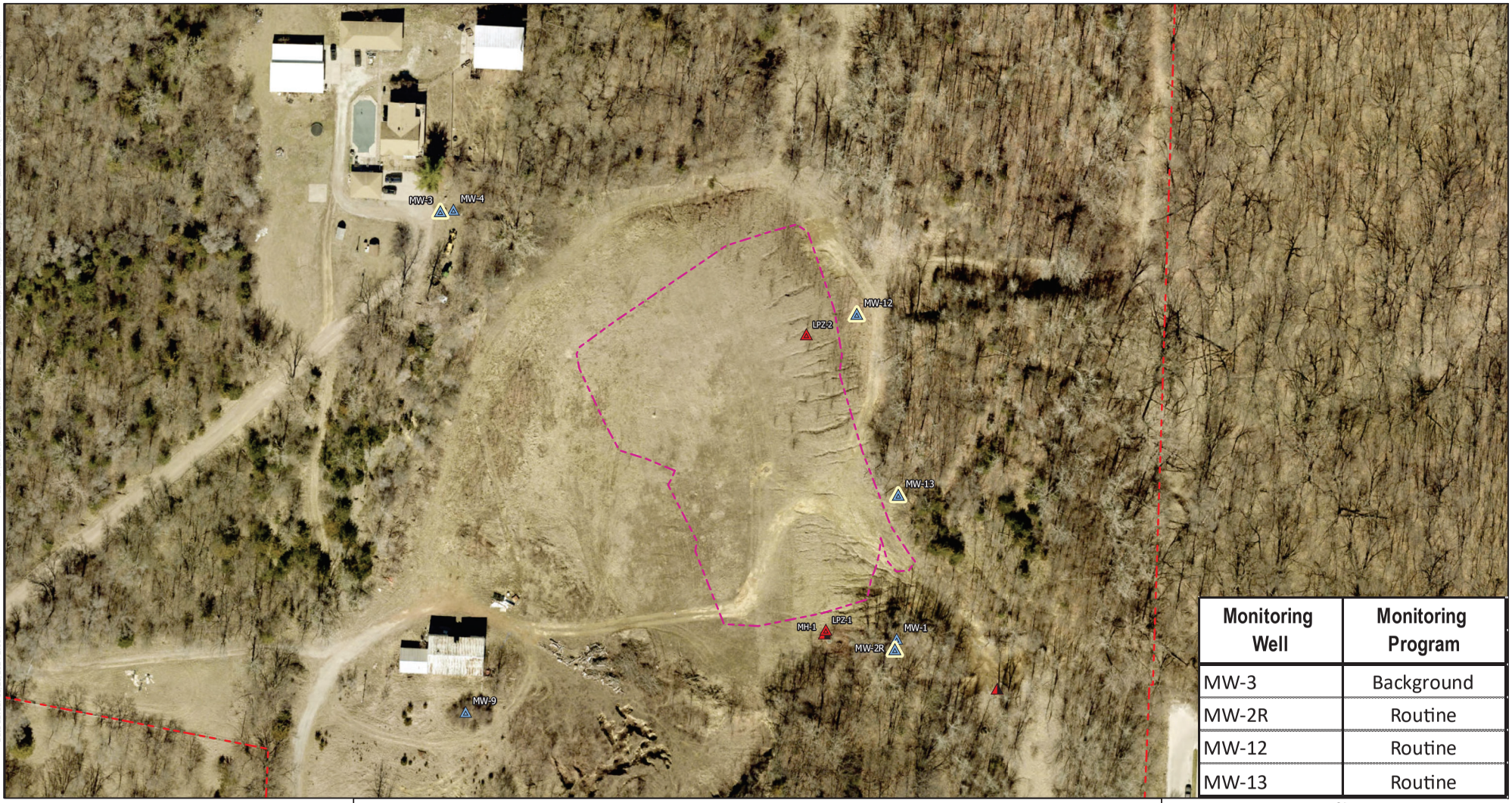
Table 10
Groundwater Quality Assessment Plan Trend Analysis
2024 Annual Water Quality Report
Council Bluffs C&D Landfill
Permit No. 78-SDP-04-89C

Well	Current SSL	Trend
None		

Notes:

There is no Groundwater Quality Asssessment Plan required for this facility.

Figures



Monitoring Well	Monitoring Program
MW-3	Background
MW-2R	Routine
MW-12	Routine
MW-13	Routine

Approved Monitoring Network

Figure 1

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Legend

- HMSP Monitoring Well
- Monitoring Well
- Leachate Monitoring Point
- Approximate Waste Boundary
- Approximate Property Boundary
- Manhole

Anderson Excavating Council Bluffs Landfill
Council Bluffs, Iowa
Project No: 27224173.01
Drawing Date: November 2024

N
W E
S

0 75 150 300
Feet

Groundwater Contours

Figure 2

Legend

- Approximate Groundwater Contours Based On Field Measurments Taken April 16, 2024
- Leachate Monitoring Point
- Monitoring Well
- Approximate Waste Boundary
- Approximate Property Boundary
- Manhole

Anderson Excavating Council Bluffs Landfill
Council Bluffs, Iowa
Project No: 27224173.01
Drawing Date: November 2024

N
W E
S

0 75 150 300 Feet

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Appendix A

Field Sampling Forms

FORM FOR GROUNDWATER SAMPLING

Project:	**Anderson Excavating Council Bluffs C&D Landfill**		
Monitoring Well/Piezometer ID:	**MW-2R**	Date:	**4/19/2024**
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):	70.4
Initial Static Water Level (feet):	62.76
Initial Groundwater Elevation (ft-amsl):	1065.33
Equipment Used:	Non-Dedicated Submersible 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)	
9:22 AM	Purging start time.						
9:25 AM	12.4	6.3	927.2	7.11	78.7	NM	
9:28 AM	14.1	6.7	895.1	7.12	80.9	NM	
9:31 AM	14.0	6.8	857.1	7.15	84.1	NM	
9:34 AM	14.0	6.8	847.9	7.16	87.2	NM	
	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-Cloudy Odor-None Equipment malfunction - turbidity not measured.

FORM FOR GROUNDWATER SAMPLING

Project:	**Anderson Excavating Council Bluffs C&D Landfill**		
Monitoring Well/Piezometer ID:	**MW-3**	Date:	**4/19/2024**
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):	118.0
Initial Static Water Level (feet):	116.79
Initial Groundwater Elevation (ft-amsl):	1082.91
Equipment Used:	Non-Dedicated Submersible 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)	
	Purging start time.						
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	0.0
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	
Average Purge Rate (mL/min):	0.00

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

Additional Comments:	Well did not have sufficient water to sample.

FORM FOR GROUNDWATER SAMPLING

Project:	**Anderson Excavating Council Bluffs C&D Landfill**		
Monitoring Well/Piezometer ID:	**MW-12**	Date:	**4/19/2024**
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):	80.5
Initial Static Water Level (feet):	50.55
Initial Groundwater Elevation (ft-amsl):	1072.91
Equipment Used:	Non-Dedicated Submersible 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)	
10:47 AM	Purging start time.						
10:50 AM	14.0	1.5	1196.3	7.21	-18.0	137.1	
10:53 AM	13.6	0.5	1201.8	7.12	-48.2	330.6	
10:56 AM	14.4	0.3	1198.2	7.11	-54.5	566.4	
10:59 AM	14.3	0.1	1196.3	7.11	-54.8	632.0	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	2.2
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	183.33

D. WELL MAINTENANCE

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

Additional Comments:	Color-Light Brown Odor-None

FORM FOR GROUNDWATER SAMPLING

Project:	**Anderson Excavating Council Bluffs C&D Landfill**		
Monitoring Well/Piezometer ID:	**MW-13**	Date:	**4/19/2024**
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):	90.4
Initial Static Water Level (feet):	65.53
Initial Groundwater Elevation (ft-amsl):	1068.47
Equipment Used:	Non-Dedicated Submersible 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)	
10:00 AM	Purging start time.						
10:03 AM	13.8	0.8	1872.0	6.74	-42.8	157.7	
10:06 AM	13.6	0.3	1883.7	6.76	-58.7	155.6	
10:09 AM	14.3	0.3	1895.1	6.77	-62.2	113.1	
10:12 AM	14.1	5.5	NM	NM	-77.1	NM	
	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-Cloudy Odor-none Equipment malfunction - final readings of specific conductance, pH, and turbidity not measured.

FORM FOR GROUNDWATER SAMPLING

Project:	**Anderson Excavating Council Bluffs C&D Landfill**		
Monitoring Well/Piezometer ID:	**MW-2R**	Date:	**10/8/2024**
Gradient:	Down	Sampler:	Cole Tesar

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

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	70.4
Initial Static Water Level (feet):	62.74
Initial Groundwater Elevation (ft-amsl):	1065.35
Equipment Used:	Non-Dedicated Submersible 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)	
2:55 PM	Purging start time.						
2:58 PM	16.1	4.9	1046.7	7.05	97.3	116.9	
3:01 PM	15.7	5.2	970.8	7.07	98.0	94.2	
3:04 PM	15.5	5.4	954.2	7.06	99.9	124.1	
3:07 PM	15.6	5.5	923.3	7.06	101.2	135.6	
	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: Cloudy Odor: Swampy

FORM FOR GROUNDWATER SAMPLING

Project:	**Anderson Excavating Council Bluffs C&D Landfill**		
Monitoring Well/Piezometer ID:	**MW-3**	Date:	**10/8/2024**
Gradient:	Up	Sampler:	Cole Tesar

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

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	118.0
Initial Static Water Level (feet):	Dry
Initial Groundwater Elevation (ft-amsl):	Dry
Equipment Used:	Non-Dedicated Submersible 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)	
	Purging start time.						
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	0.0
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	
Average Purge Rate (mL/min):	0.00

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

Additional Comments:	Well did not have sufficient water to sample.

FORM FOR GROUNDWATER SAMPLING

Project:	**Anderson Excavating Council Bluffs C&D Landfill**		
Monitoring Well/Piezometer ID:	**MW-13**	Date:	**10/8/2024**
Gradient:	Down	Sampler:	Cole Tesar

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

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	90.5
Initial Static Water Level (feet):	65.18
Initial Groundwater Elevation (ft-amsl):	1068.82
Equipment Used:	Non-Dedicated Submersible 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)	
1:25 PM	Purging start time.						
1:28 PM	19.1	2.4	1684.7	6.75	-65.7	596.2	
1:31 PM	18.6	1.7	1691.9	6.75	-74.8	559.9	
1:34 PM	18.9	1.3	1693.6	6.76	-79.3	526.6	
1:37 PM	17.7	0.9	1690.9	6.76	-83.4	169.9	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	2.4
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	200.00

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

Additional Comments:	Color: Cloudy Odor: Swampy.

FORM FOR GROUNDWATER SAMPLING

Project:	**Anderson Excavating Council Bluffs C&D Landfill**		
Monitoring Well/Piezometer ID:	**MW-12**	Date:	**10/8/2024**
Gradient:	Down	Sampler:	Cole Tesar

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

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	80.6
Initial Static Water Level (feet):	49.62
Initial Groundwater Elevation (ft-amsl):	1073.84
Equipment Used:	Non-Dedicated Submersible 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)	
1:59 PM	Purging start time.						
2:02 PM	17.7	1.5	1122.2	7.06	18.2	7417.4	
2:05 PM	17.6	0.4	1121.1	7.04	-36.7	5963.9	
2:08 PM	17.6	0.3	1111.6	7.04	-56.4	5284.1	
2:11 PM	18.5	0.3	1119.6	7.04	-62.0	3892.3	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	2.3
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	191.67

D. WELL MAINTENANCE

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

Additional Comments:	Color: Light brown/Cloudy Odor: Swampy

Appendix B-1

Laboratory Analytical Data Sheets

eurofins | Environment Testing

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

ANALYTICAL REPORT

PREPARED FOR

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

Generated 11/25/2024 1:05:13 PM Revision 1

JOB DESCRIPTION

Anderson Excavating Council Bluffs C & D

JOB NUMBER

310-279516-1

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
Samuel Miller, Project Management Assistant I
Samuel.Miller@et.eurofinsus.com
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Table of Contents

Job Narrative
310-279516-1

REVISION

The report being provided is a revision of the original report sent on 5/6/2024. The report (revision 1) is being revised due to List of analytes changed per client request..

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

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

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

Receipt
The samples were received on 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 temperature of the cooler at receipt time was 2.7°C.

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

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

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

Sample Summary

Client: SCS Engineers
Job ID: 310-279516-1
Project/Site: Anderson Excavating Council Bluffs C & D

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-279516-1	MW-2R	Ground Water	04/19/24 09:42	04/22/24 06:00
310-279516-2	MW-12	Ground Water	04/19/24 11:08	04/22/24 06:00
310-279516-3	MW-13	Ground Water	04/19/24 10:27	04/22/24 06:00
310-279516-4	MW-D	Ground Water	04/19/24 11:08	04/22/24 06:00

Detection Summary

Client: SCS Engineers
Job ID: 310-279516-1
Project/Site: Anderson Excavating Council Bluffs C & D

Client Sample ID: MW-2R — Lab Sample ID: 310-279516-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	13.8		5.00	2.25	mg/L	5		9056A	Total/NA

Client Sample ID: MW-12 — Lab Sample ID: 310-279516-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	129		5.00	2.25	mg/L	5		9056A	Total/NA
Iron	0.0819	J	0.100	0.0360	mg/L	1		6020B	Dissolved
Chemical Oxygen Demand	24.2		5.00	4.80	mg/L	1		5220D LL	Total/NA

Client Sample ID: MW-13 — Lab Sample ID: 310-279516-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	50.3		5.00	2.25	mg/L	5		9056A	Total/NA
Iron	0.598		0.100	0.0360	mg/L	1		6020B	Dissolved
Chemical Oxygen Demand	6.45		5.00	4.80	mg/L	1		5220D LL	Total/NA

Client Sample ID: MW-D — Lab Sample ID: 310-279516-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	49.9		5.00	2.25	mg/L	5		9056A	Total/NA
Iron	0.568		0.100	0.0360	mg/L	1		6020B	Dissolved
Chemical Oxygen Demand	6.12		5.00	4.80	mg/L	1		5220D LL	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: SCS Engineers
Job ID: 310-279516-1
Project/Site: Anderson Excavating Council Bluffs C & D

Client Sample ID: MW-2R
Lab Sample ID: 310-279516-1
Date Collected: 04/19/24 09:42
Matrix: Ground Water
Date Received: 04/22/24 06:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**13.8**		5.00	2.25	mg/L			04/25/24 16:45	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<0.100		0.100	0.0360	mg/L		04/24/24 09:00	04/25/24 17:11	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	<0.200		0.200	0.100	mg/L			04/30/24 19:58	1
Chemical Oxygen Demand (SM 5220D LL)	<5.00		5.00	4.80	mg/L			04/29/24 10:06	1

Client: SCS Engineers
Job ID: 310-279516-1
Project/Site: Anderson Excavating Council Bluffs C & D

Client Sample ID: MW-12
Lab Sample ID: 310-279516-2
Date Collected: 04/19/24 11:08
Matrix: Ground Water
Date Received: 04/22/24 06:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	129		5.00	2.25	mg/L			04/25/24 17:34	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.0819	J	0.100	0.0360	mg/L		04/24/24 09:00	04/25/24 17:13	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	<0.200		0.200	0.100	mg/L			04/30/24 19:58	1
Chemical Oxygen Demand (SM 5220D LL)	24.2		5.00	4.80	mg/L			04/29/24 10:06	1

Client: SCS Engineers
Job ID: 310-279516-1
Project/Site: Anderson Excavating Council Bluffs C & D

Client Sample ID: MW-13
Lab Sample ID: 310-279516-3
Date Collected: 04/19/24 10:27
Matrix: Ground Water
Date Received: 04/22/24 06:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	50.3		5.00	2.25	mg/L			04/25/24 17:22	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.598		0.100	0.0360	mg/L		04/24/24 09:00	04/25/24 17:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	<0.200		0.200	0.100	mg/L			04/30/24 19:58	1
Chemical Oxygen Demand (SM 5220D LL)	6.45		5.00	4.80	mg/L			04/29/24 10:06	1

Client Sample Results

Client: SCS Engineers
Job ID: 310-279516-1
Project/Site: Anderson Excavating Council Bluffs C & D

Client Sample ID: MW-D
Lab Sample ID: 310-279516-4
Date Collected: 04/19/24 11:08
Matrix: Ground Water
Date Received: 04/22/24 06:00

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	49.9		5.00	2.25	mg/L			04/26/24 10:06	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.568		0.100	0.0360	mg/L		04/24/24 09:00	04/25/24 17:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	<0.200		0.200	0.100	mg/L			04/30/24 20:00	1
Chemical Oxygen Demand (SM 5220D LL)	6.12		5.00	4.80	mg/L			04/29/24 10:06	1

Definitions/Glossary

Client: SCS Engineers
Job ID: 310-279516-1
Project/Site: Anderson Excavating Council Bluffs C & D

Qualifiers

Metals

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

Glossary

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

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-419995/3
Matrix: Water
Analysis Batch: 419995

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			04/25/24 16:09	1

Lab Sample ID: LCS 310-419995/33
Matrix: Water
Analysis Batch: 419995

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			10.0	10.26		mg/L		103	90 - 110		

Lab Sample ID: 310-279516-1 MS
Matrix: Ground Water
Analysis Batch: 419995

Client Sample ID: MW-2R
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	13.8		25.0	37.92		mg/L		96	80 - 120		

Lab Sample ID: 310-279516-1 MSD
Matrix: Ground Water
Analysis Batch: 419995

Client Sample ID: MW-2R
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	13.8		25.0	38.24		mg/L		98	80 - 120	1	15

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-419623/1-A
Matrix: Water
Analysis Batch: 419931

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 419623

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<0.100		0.100	0.0360	mg/L		04/24/24 09:00	04/25/24 16:30	1

Lab Sample ID: LCS 310-419623/2-A
Matrix: Water
Analysis Batch: 419931

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 419623

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Iron			0.200	0.2242		mg/L		112	80 - 120		

Lab Sample ID: 310-279516-2 DU
Matrix: Ground Water
Analysis Batch: 419931

Client Sample ID: MW-12
Prep Type: Dissolved
Prep Batch: 419623

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Iron	0.0819	J		0.08330	J	mg/L				2	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 310-420286/122
Matrix: Water
Analysis Batch: 420286

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	<0.200		0.200	0.100	mg/L			04/30/24 19:44	1

Lab Sample ID: LCS 310-420286/123
Matrix: Water
Analysis Batch: 420286

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	8.55	9.279		mg/L		109	90 - 110

Method: 5220D LL - COD

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 310-420108/63
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

HPLC/IC

Analysis Batch: 419995

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279516-1	MW-2R	Total/NA	Ground Water	9056A	
310-279516-2	MW-12	Total/NA	Ground Water	9056A	
310-279516-3	MW-13	Total/NA	Ground Water	9056A	
310-279516-4	MW-D	Total/NA	Ground Water	9056A	
MB 310-419995/3	Method Blank	Total/NA	Water	9056A	
LCS 310-419995/33	Lab Control Sample	Total/NA	Water	9056A	
310-279516-1 MS	MW-2R	Total/NA	Ground Water	9056A	
310-279516-1 MSD	MW-2R	Total/NA	Ground Water	9056A	

Metals

Prep Batch: 419623

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279516-1	MW-2R	Dissolved	Ground Water	3005A	
310-279516-2	MW-12	Dissolved	Ground Water	3005A	
310-279516-3	MW-13	Dissolved	Ground Water	3005A	
310-279516-4	MW-D	Dissolved	Ground Water	3005A	
MB 310-419623/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-419623/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-279516-2 DU	MW-12	Dissolved	Ground Water	3005A	

Analysis Batch: 419931

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279516-1	MW-2R	Dissolved	Ground Water	6020B	419623
310-279516-2	MW-12	Dissolved	Ground Water	6020B	419623
310-279516-3	MW-13	Dissolved	Ground Water	6020B	419623
310-279516-4	MW-D	Dissolved	Ground Water	6020B	419623
MB 310-419623/1-A	Method Blank	Total/NA	Water	6020B	419623
LCS 310-419623/2-A	Lab Control Sample	Total/NA	Water	6020B	419623
310-279516-2 DU	MW-12	Dissolved	Ground Water	6020B	419623

General Chemistry

Analysis Batch: 420108

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279516-1	MW-2R	Total/NA	Ground Water	5220D LL	
310-279516-2	MW-12	Total/NA	Ground Water	5220D LL	
310-279516-3	MW-13	Total/NA	Ground Water	5220D LL	
310-279516-4	MW-D	Total/NA	Ground Water	5220D LL	
MB 310-420108/60	Method Blank	Total/NA	Water	5220D LL	
LCS 310-420108/63	Lab Control Sample	Total/NA	Water	5220D LL	

Analysis Batch: 420286

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279516-1	MW-2R	Total/NA	Ground Water	350.1	
310-279516-2	MW-12	Total/NA	Ground Water	350.1	
310-279516-3	MW-13	Total/NA	Ground Water	350.1	
310-279516-4	MW-D	Total/NA	Ground Water	350.1	
MB 310-420286/122	Method Blank	Total/NA	Water	350.1	
LCS 310-420286/123	Lab Control Sample	Total/NA	Water	350.1	

Lab Chronicle

Client: SCS Engineers
Job ID: 310-279516-1
Project/Site: Anderson Excavating Council Bluffs C & D

Client Sample ID: MW-2R
Lab Sample ID: 310-279516-1
Date Collected: 04/19/24 09:42
Matrix: Ground Water
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	419995	QTZ5	EET CF	04/25/24 16:45
Dissolved	Prep	3005A			419623	QTZ5	EET CF	04/24/24 09:00
Dissolved	Analysis	6020B		1	419931	NFT2	EET CF	04/25/24 17:11
Total/NA	Analysis	350.1		1	420286	ZJX4	EET CF	04/30/24 19:58
Total/NA	Analysis	5220D LL		1	420108	ENB7	EET CF	04/29/24 10:06

Client Sample ID: MW-12
Lab Sample ID: 310-279516-2
Date Collected: 04/19/24 11:08
Matrix: Ground Water
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	419995	QTZ5	EET CF	04/25/24 17:34
Dissolved	Prep	3005A			419623	QTZ5	EET CF	04/24/24 09:00
Dissolved	Analysis	6020B		1	419931	NFT2	EET CF	04/25/24 17:13
Total/NA	Analysis	350.1		1	420286	ZJX4	EET CF	04/30/24 19:58
Total/NA	Analysis	5220D LL		1	420108	ENB7	EET CF	04/29/24 10:06

Client Sample ID: MW-13
Lab Sample ID: 310-279516-3
Date Collected: 04/19/24 10:27
Matrix: Ground Water
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	419995	QTZ5	EET CF	04/25/24 17:22
Dissolved	Prep	3005A			419623	QTZ5	EET CF	04/24/24 09:00
Dissolved	Analysis	6020B		1	419931	NFT2	EET CF	04/25/24 17:26
Total/NA	Analysis	350.1		1	420286	ZJX4	EET CF	04/30/24 19:58
Total/NA	Analysis	5220D LL		1	420108	ENB7	EET CF	04/29/24 10:06

Client Sample ID: MW-D
Lab Sample ID: 310-279516-4
Date Collected: 04/19/24 11:08
Matrix: Ground Water
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	419995	QTZ5	EET CF	04/26/24 10:06
Dissolved	Prep	3005A			419623	QTZ5	EET CF	04/24/24 09:00
Dissolved	Analysis	6020B		1	419931	NFT2	EET CF	04/25/24 17:28
Total/NA	Analysis	350.1		1	420286	ZJX4	EET CF	04/30/24 20:00
Total/NA	Analysis	5220D LL		1	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: 310-279516-1
Project/Site: Anderson Excavating Council Bluffs C & D

Laboratory: Eurofins Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	05-27-24

Method Summary

Client: SCS Engineers
Job ID: 310-279516-1
Project/Site: Anderson Excavating Council Bluffs C & D

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
350.1	Nitrogen, Ammonia	EPA	EET CF
5220D LL	COD	SM	EET CF
3005A	Preparation, Total Metals	SW846	EET CF

Protocol References:

EPA = US Environmental Protection Agency

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

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

Laboratory References:

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

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310-279516 Chain of Custody

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

No trips

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): 2.7 | Corrected Temp (°C): 2.7

• 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

Missing MW-3

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

Chain of Custody Record

TestAmerica Des Moines SC
214

eurofins
Environment Testing

Client Information	Sampler: Honner	Lab PM: Yang Mary E	Carrier Tracking No(s):	COC No: 310-92444-25419 1
Client Contact: Jamie Lane	Phone:	E-Mail: Mary Yang@ET EurofinsUS com	State of Origin:	Page: Page 1 of 1
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:	PO #: Purchase Order not required
Email:	WO #:
Project Name: 1st 2024 Semi-Annual GW Sampling	Project #: 31004207
Site:	SSOW#:

Analysis Requested

Preservation Codes

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

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	350 1, 5220D_LL	9056A_ORGFM_28D Chloride	6010D (MOD) Custom	6020B Appendix I Metals	Total Number of containers	Special Instructions/Note.
			Preservation Code:		X	X	S	N	D	D	X	
MW-2R			G	Water								
MW-3			G	Water								
MW-12			G	Water								
MW-13			G	Water								
MW-D			G	Water								

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

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

Deliverable Requested I, II III IV Other (specify)

Special Instructions/QC Requirements.

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

Relinquished by: Honner 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 0800	Company: ET	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by: N	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: 06/08/2021

Eurofins TestAmerica, Cedar Falls
3019 Venture Way

Cedar Falls, IA 50613-6907
phone 319.277.2401 fax 319.277.2425

Chain of Custody Record

eurofins

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Client Contact	Project Manager: Ben Madson	Site Contact: Ben Madson	Date:	COC No
SCS Engineers	Email: bmadson@scsengineers.com	Lab Contact: Mary Yang	Carrier:	____ of ____ COCs
1690 All-State Court, Suite 100	Cell 515-776-9255			Sampler:
West Des Moines, IA 50265	**Analysis Turnaround Time**			**For Lab Use Only:**
515-631-6160	☐ CALENDAR DAYS ☐ WORKING DAYS			Walk-in Client:
	Other:_____			Lab Sampling
Project Name 1st 2024 Semi-Annual Groundwater Sampling	☐ 2 weeks			
Site: Anderson Excavating - Council Bluffs	☐ 1 week			Job / SDG No.:
P O # 27224173.01	☐ 2 days			
	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	"e" list	Trip Blank	Sample Specific Notes
MW-2R			G	GW				X		IAC 567-114.26(4)"e" list: Arsenic, Barium, Cobalt, Copper, Lead, Nickel, Selenium, and Zinc.
MW-3			G	GW				X		
MW-12			G	GW				X		
MW-13			G	GW				X		
MW-D			G	GW				X		
Trip Blank									X	Include trip blanks in every cooler containing VOC sample containers.

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No..		Cooler Temp. (°C). Obs'd._____ Corr'd._____		Therm ID No. _____
Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Relinquished by	Company	Date/Time	Received in Laboratory by	Company	Date/Time: 4/22/24 0610

Form No. CA-C-WI-002, Rev. 4.23, dated 4/16/2019

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4/25/2024 (Rev. 1)

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

Chain of Custody Record

TestAmerica Des Moines SC
214

eurofins
Environment Testing

Client Information	Sampler: Honner	Lab PM: Yang Mary E	Carrier Tracking No(s):	COC No: 310-92444-25419 1
Client Contact: ~~Mallory Hall~~ Ben Madson	Phone:	E-Mail: Mary Yang@ET EurofinsUS com	State of Origin:	Page: Page 1 of 1
Company: SCS Engineers	PWSID:	Analysis Requested		Job #:
Address: 1690 All State Court Suite 100	Due Date Requested:			Preservation Codes: A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J DI Water; K - EDTA; L - EDA; M - Hexane; N None; O - AsNaO2; P - Na2O4S; Q Na2SO3; R - Na2S2O3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - pH 4-5; Y - Trizma; Z - other (specify); Other:
City: West Des Moines	TAT Requested (days):			
State, Zip: IA, 50265	Compliance Project: Δ Yes Δ No			
Phone:	PO #: Purchase Order not required			
Email:	WO #:			
Project Name: 1st 2024 Semi-Annual GW Sampling	Project #: 31004207			
Site:	SSOW#:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	350 1, 5220D_LL	9056A_ORGFM_28D Chloride	6010D (MOD) Custom	6020B Appendix I Metals	Total Number of containers	Special Instructions/Note.
			Preservation Code:				S	N	D	D		
MW-2R	4/19/24	09:42	G	Water								
~~MW-3~~	—	—	~~G~~	Water								
MW-12	4/19/24	11:08	G	Water								
MW-13	4/19/24	10:27	G	Water								
MW-D	4/19/24	11:08	G	Water								

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological	☐ 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: Honner Roth	Date/Time: 4-19-24 1230	Company: SCS	Received by:	Date/Time: 4-19-24 1235	Company: ET
Relinquished by:	Date/Time: 4-20-24 0800	Company: ET	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 06/08/2021

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-279516-1

Login Number: 279516
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	Missing sample MW-3
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	

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

ANALYTICAL REPORT

PREPARED FOR

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

Generated 10/27/2024 6:58:43 PM

JOB DESCRIPTION

2nd 2024 Semi-Annual Groundwater Event
Anderson Excavating - Council Bluffs

JOB NUMBER

310-292310-1

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

Generated
10/27/2024 6:58:43 PM

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

Table of Contents

Job ID: 310-292310-1 — Eurofins Cedar Falls

Job Narrative
310-292310-1

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

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

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

Receipt
The samples were received on 10/9/2024 4:35 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.2°C.

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

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

General Chemistry
Method 9020B: Breakthrough exceeded 10% for the following sample:MW-2R (310-292310-1).

Method 9020B: Breakthrough exceeded 10% for the following samples:MW-12 (310-292310-3), MW-13 (310-292310-4) and MW-D (310-292310-5).

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: 2nd 2024 Semi-Annual Groundwater Event

Job ID: 310-292310-1
SDG: Anderson Excavating - Council Bluffs

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-292310-1	MW-2R	Water	10/08/24 14:55	10/09/24 16:35
310-292310-3	MW-12	Water	10/08/24 13:59	10/09/24 16:35
310-292310-4	MW-13	Water	10/08/24 13:25	10/09/24 16:35
310-292310-5	MW-D	Water	10/08/24 13:59	10/09/24 16:35

Detection Summary

Client: SCS Engineers
Project/Site: 2nd 2024 Semi-Annual Groundwater Event

Job ID: 310-292310-1
SDG: Anderson Excavating - Council Bluffs

Client Sample ID: MW-2R — Lab Sample ID: 310-292310-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	17.5		5.00	2.25	mg/L	5		9056A	Total/NA

Client Sample ID: MW-12 — Lab Sample ID: 310-292310-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	121		5.00	2.25	mg/L	5		9056A	Total/NA
Iron	0.0930	J	0.500	0.0790	mg/L	1		6010D	Dissolved
Chemical Oxygen Demand	36.7		10.0	9.60	mg/L	2		5220D LL	Total/NA
Halogens, Total Organic	285		40.0	14.0	ug/L	1		9020B	Total/NA

Client Sample ID: MW-13 — Lab Sample ID: 310-292310-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	37.1		5.00	2.25	mg/L	5		9056A	Total/NA
Iron	0.831		0.500	0.0790	mg/L	1		6010D	Dissolved
Chemical Oxygen Demand	15.0		10.0	9.60	mg/L	2		5220D LL	Total/NA
Halogens, Total Organic	137		50.0	17.5	ug/L	1		9020B	Total/NA

Client Sample ID: MW-D — Lab Sample ID: 310-292310-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	119		5.00	2.25	mg/L	5		9056A	Total/NA
Iron	0.101	J	0.500	0.0790	mg/L	1		6010D	Dissolved
Ammonia	0.336		0.200	0.100	mg/L	1		350.1	Total/NA
Chemical Oxygen Demand	34.0		10.0	9.60	mg/L	2		5220D LL	Total/NA
Halogens, Total Organic	95.6		40.0	14.0	ug/L	1		9020B	Total/NA

This Detection Summary does not include radiochemical test results.

Client: SCS Engineers
Project/Site: 2nd 2024 Semi-Annual Groundwater Event

Job ID: 310-292310-1
SDG: Anderson Excavating - Council Bluffs

Client Sample ID: MW-2R
Date Collected: 10/08/24 14:55
Date Received: 10/09/24 16:35

Lab Sample ID: 310-292310-1
Matrix: Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**17.5**		5.00	2.25	mg/L			10/17/24 16:25	5

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<0.500		0.500	0.0790	mg/L			10/27/24 16:46	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	<0.200		0.200	0.100	mg/L			10/10/24 20:55	1
Chemical Oxygen Demand (SM 5220D LL)	<5.00		5.00	4.80	mg/L			10/16/24 10:09	1
Halogens, Total Organic (SW846 9020B)	<40.0		40.0	14.0	ug/L		10/22/24 10:41	10/23/24 08:18	1
Phenols, Total (SW846 9066)	<0.0200		0.0200	0.0100	mg/L		10/14/24 08:29	10/14/24 23:11	1

Client: SCS Engineers
Project/Site: 2nd 2024 Semi-Annual Groundwater Event

Job ID: 310-292310-1
SDG: Anderson Excavating - Council Bluffs

Client Sample ID: MW-12
Date Collected: 10/08/24 13:59
Date Received: 10/09/24 16:35

Lab Sample ID: 310-292310-3
Matrix: Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	121		5.00	2.25	mg/L			10/17/24 16:37	5

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.0930	J	0.500	0.0790	mg/L			10/27/24 16:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	<0.200		0.200	0.100	mg/L			10/10/24 20:55	1
Chemical Oxygen Demand (SM 5220D LL)	36.7		10.0	9.60	mg/L			10/16/24 10:09	2
Halogens, Total Organic (SW846 9020B)	285		40.0	14.0	ug/L		10/23/24 08:57	10/24/24 11:21	1
Phenols, Total (SW846 9066)	<0.0200		0.0200	0.0100	mg/L		10/14/24 08:29	10/14/24 23:12	1

Client: SCS Engineers
Project/Site: 2nd 2024 Semi-Annual Groundwater Event

Job ID: 310-292310-1
SDG: Anderson Excavating - Council Bluffs

Client Sample ID: MW-13
Date Collected: 10/08/24 13:25
Date Received: 10/09/24 16:35

Lab Sample ID: 310-292310-4
Matrix: Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	37.1		5.00	2.25	mg/L			10/17/24 16:50	5

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.831		0.500	0.0790	mg/L			10/27/24 16:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	<0.200		0.200	0.100	mg/L			10/10/24 20:56	1
Chemical Oxygen Demand (SM 5220D LL)	15.0		10.0	9.60	mg/L			10/16/24 10:09	2
Halogens, Total Organic (SW846 9020B)	137		50.0	17.5	ug/L		10/23/24 08:57	10/23/24 17:20	1
Phenols, Total (SW846 9066)	<0.0200		0.0200	0.0100	mg/L		10/14/24 08:29	10/14/24 23:12	1

Client: SCS Engineers
Project/Site: 2nd 2024 Semi-Annual Groundwater Event

Job ID: 310-292310-1
SDG: Anderson Excavating - Council Bluffs

Client Sample ID: MW-D
Date Collected: 10/08/24 13:59
Date Received: 10/09/24 16:35

Lab Sample ID: 310-292310-5
Matrix: Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	119		5.00	2.25	mg/L			10/17/24 17:26	5

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.101	J	0.500	0.0790	mg/L			10/27/24 16:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (EPA 350.1)	0.336		0.200	0.100	mg/L			10/10/24 20:57	1
Chemical Oxygen Demand (SM 5220D LL)	34.0		10.0	9.60	mg/L			10/16/24 10:09	2
Halogens, Total Organic (SW846 9020B)	95.6		40.0	14.0	ug/L		10/23/24 08:57	10/24/24 09:46	1
Phenols, Total (SW846 9066)	<0.0200		0.0200	0.0100	mg/L		10/14/24 08:29	10/14/24 23:13	1

Qualifiers

Metals

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

Glossary

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

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-436854/3
Matrix: Water
Analysis Batch: 436854

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			10/17/24 15:23	1

Lab Sample ID: LCS 310-436854/4
Matrix: Water
Analysis Batch: 436854

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	9.857		mg/L		99	90 - 110		

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 310-437701/104
Matrix: Water
Analysis Batch: 437701

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<0.500		0.500	0.0790	mg/L			10/27/24 16:41	1

Lab Sample ID: LCS 310-437701/105
Matrix: Water
Analysis Batch: 437701

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Iron			20.0	19.70		mg/L		98	80 - 120		

Lab Sample ID: 310-292310-1 DU
Matrix: Water
Analysis Batch: 437701

Client Sample ID: MW-2R
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Iron	<0.500			<0.500		mg/L				NC	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 310-435888/135
Matrix: Water
Analysis Batch: 435888

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	<0.200		0.200	0.100	mg/L			10/10/24 20:53	1

Lab Sample ID: MB 310-435888/163
Matrix: Water
Analysis Batch: 435888

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	<0.200		0.200	0.100	mg/L			10/10/24 21:15	1

Method: 350.1 - Nitrogen, Ammonia (Continued)

Lab Sample ID: LCS 310-435888/136
Matrix: Water
Analysis Batch: 435888

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	8.55	8.462		mg/L		99	90 - 110

Lab Sample ID: LCS 310-435888/164
Matrix: Water
Analysis Batch: 435888

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	8.55	8.725		mg/L		102	90 - 110

Method: 5220D LL - COD

Lab Sample ID: MB 310-436415/5
Matrix: Water
Analysis Batch: 436415

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			10/16/24 10:09	1

Lab Sample ID: LCS 310-436415/3
Matrix: Water
Analysis Batch: 436415

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	130.4		mg/L		104	85 - 110

Method: 9020B - Organic Halides, Total (TOX)

Lab Sample ID: MB 680-860856/1-A
Matrix: Water
Analysis Batch: 860860

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 860856

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Total Organic	<40.0		40.0	14.0	ug/L		10/22/24 10:41	10/22/24 12:06	1

Lab Sample ID: LCS 680-860856/2-A
Matrix: Water
Analysis Batch: 860860

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 860856

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Halogens, Total Organic	400	377.6		ug/L		94	60 - 140

Lab Sample ID: 310-292310-1 MS
Matrix: Water
Analysis Batch: 860860

Client Sample ID: MW-2R
Prep Type: Total/NA
Prep Batch: 860856

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Halogens, Total Organic	<40.0		400	386.8		ug/L		97	60 - 140

Method: 9020B - Organic Halides, Total (TOX) (Continued)

Lab Sample ID: 310-292310-1 MSD — **Client Sample ID: MW-2R**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 860860 — **Prep Batch: 860856**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Halogens, Total Organic	<40.0		400	460.0		ug/L		115	60 - 140	17	40

Lab Sample ID: MB 680-861047/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 861065 — **Prep Batch: 861047**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Total Organic	<40.0		40.0	14.0	ug/L		10/23/24 08:57	10/23/24 13:14	1

Lab Sample ID: LCS 680-861047/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 861065 — **Prep Batch: 861047**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Halogens, Total Organic	400	395.2		ug/L		99	60 - 140

Lab Sample ID: 310-292310-5 MS — **Client Sample ID: MW-D**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 861065 — **Prep Batch: 861047**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Halogens, Total Organic	95.6		400	542.6		ug/L		112	60 - 140

Lab Sample ID: 310-292310-5 MSD — **Client Sample ID: MW-D**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 861065 — **Prep Batch: 861047**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Halogens, Total Organic	95.6		400	584.4		ug/L		109	60 - 140	7	40

Method: 9066 - Phenolics, Total Recoverable

Lab Sample ID: MB 310-436090/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 436206 — **Prep Batch: 436090**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenols, Total	<0.0200		0.0200	0.0100	mg/L		10/14/24 08:29	10/14/24 23:07	1

Lab Sample ID: LCS 310-436090/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 436206 — **Prep Batch: 436090**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Phenols, Total	0.100	0.09833		mg/L		98	90 - 110

HPLC/IC

Analysis Batch: 436854

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292310-1	MW-2R	Total/NA	Water	9056A	
310-292310-3	MW-12	Total/NA	Water	9056A	
310-292310-4	MW-13	Total/NA	Water	9056A	
310-292310-5	MW-D	Total/NA	Water	9056A	
MB 310-436854/3	Method Blank	Total/NA	Water	9056A	
LCS 310-436854/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Analysis Batch: 437701

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292310-1	MW-2R	Dissolved	Water	6010D	
310-292310-3	MW-12	Dissolved	Water	6010D	
310-292310-4	MW-13	Dissolved	Water	6010D	
310-292310-5	MW-D	Dissolved	Water	6010D	
MB 310-437701/104	Method Blank	Total/NA	Water	6010D	
LCS 310-437701/105	Lab Control Sample	Total/NA	Water	6010D	
310-292310-1 DU	MW-2R	Dissolved	Water	6010D	

General Chemistry

Analysis Batch: 435888

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292310-1	MW-2R	Total/NA	Water	350.1	
310-292310-3	MW-12	Total/NA	Water	350.1	
310-292310-4	MW-13	Total/NA	Water	350.1	
310-292310-5	MW-D	Total/NA	Water	350.1	
MB 310-435888/135	Method Blank	Total/NA	Water	350.1	
MB 310-435888/163	Method Blank	Total/NA	Water	350.1	
LCS 310-435888/136	Lab Control Sample	Total/NA	Water	350.1	
LCS 310-435888/164	Lab Control Sample	Total/NA	Water	350.1	

Prep Batch: 436090

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292310-1	MW-2R	Total/NA	Water	Distill/Phenol	
310-292310-3	MW-12	Total/NA	Water	Distill/Phenol	
310-292310-4	MW-13	Total/NA	Water	Distill/Phenol	
310-292310-5	MW-D	Total/NA	Water	Distill/Phenol	
MB 310-436090/1-A	Method Blank	Total/NA	Water	Distill/Phenol	
LCS 310-436090/2-A	Lab Control Sample	Total/NA	Water	Distill/Phenol	

Analysis Batch: 436206

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292310-1	MW-2R	Total/NA	Water	9066	436090
310-292310-3	MW-12	Total/NA	Water	9066	436090
310-292310-4	MW-13	Total/NA	Water	9066	436090
310-292310-5	MW-D	Total/NA	Water	9066	436090
MB 310-436090/1-A	Method Blank	Total/NA	Water	9066	436090
LCS 310-436090/2-A	Lab Control Sample	Total/NA	Water	9066	436090

General Chemistry

Analysis Batch: 436415

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292310-1	MW-2R	Total/NA	Water	5220D LL	
310-292310-3	MW-12	Total/NA	Water	5220D LL	
310-292310-4	MW-13	Total/NA	Water	5220D LL	
310-292310-5	MW-D	Total/NA	Water	5220D LL	
MB 310-436415/5	Method Blank	Total/NA	Water	5220D LL	
LCS 310-436415/3	Lab Control Sample	Total/NA	Water	5220D LL	

Prep Batch: 860856

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292310-1	MW-2R	Total/NA	Water	Carbon Trap	
MB 680-860856/1-A	Method Blank	Total/NA	Water	Carbon Trap	
LCS 680-860856/2-A	Lab Control Sample	Total/NA	Water	Carbon Trap	
310-292310-1 MS	MW-2R	Total/NA	Water	Carbon Trap	
310-292310-1 MSD	MW-2R	Total/NA	Water	Carbon Trap	

Analysis Batch: 860860

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292310-1	MW-2R	Total/NA	Water	9020B	860856
MB 680-860856/1-A	Method Blank	Total/NA	Water	9020B	860856
LCS 680-860856/2-A	Lab Control Sample	Total/NA	Water	9020B	860856
310-292310-1 MS	MW-2R	Total/NA	Water	9020B	860856
310-292310-1 MSD	MW-2R	Total/NA	Water	9020B	860856

Prep Batch: 861047

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292310-3	MW-12	Total/NA	Water	Carbon Trap	
310-292310-4	MW-13	Total/NA	Water	Carbon Trap	
310-292310-5	MW-D	Total/NA	Water	Carbon Trap	
MB 680-861047/1-A	Method Blank	Total/NA	Water	Carbon Trap	
LCS 680-861047/2-A	Lab Control Sample	Total/NA	Water	Carbon Trap	
310-292310-5 MS	MW-D	Total/NA	Water	Carbon Trap	
310-292310-5 MSD	MW-D	Total/NA	Water	Carbon Trap	

Analysis Batch: 861065

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292310-3	MW-12	Total/NA	Water	9020B	861047
310-292310-4	MW-13	Total/NA	Water	9020B	861047
310-292310-5	MW-D	Total/NA	Water	9020B	861047
MB 680-861047/1-A	Method Blank	Total/NA	Water	9020B	861047
LCS 680-861047/2-A	Lab Control Sample	Total/NA	Water	9020B	861047
310-292310-5 MS	MW-D	Total/NA	Water	9020B	861047
310-292310-5 MSD	MW-D	Total/NA	Water	9020B	861047

Lab Chronicle

Client: SCS Engineers
Project/Site: 2nd 2024 Semi-Annual Groundwater Event

Job ID: 310-292310-1
SDG: Anderson Excavating - Council Bluffs

Client Sample ID: MW-2R
Date Collected: 10/08/24 14:55
Date Received: 10/09/24 16:35

Lab Sample ID: 310-292310-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	436854	HE7K	EET CF	10/17/24 16:25
Dissolved	Analysis	6010D		1	437701	ZRI4	EET CF	10/27/24 16:46
Total/NA	Analysis	350.1		1	435888	ZJX4	EET CF	10/10/24 20:55
Total/NA	Analysis	5220D LL		1	436415	HE7K	EET CF	10/16/24 10:09
Total/NA	Prep	Carbon Trap			860856	CLJ	EET SAV	10/22/24 10:41
Total/NA	Analysis	9020B		1	860860	CLJ	EET SAV	10/23/24 08:18
Total/NA	Prep	Distill/Phenol			436090	HE7K	EET CF	10/14/24 08:29
Total/NA	Analysis	9066		1	436206	ZJX4	EET CF	10/14/24 23:11

Client Sample ID: MW-12
Date Collected: 10/08/24 13:59
Date Received: 10/09/24 16:35

Lab Sample ID: 310-292310-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	436854	HE7K	EET CF	10/17/24 16:37
Dissolved	Analysis	6010D		1	437701	ZRI4	EET CF	10/27/24 16:51
Total/NA	Analysis	350.1		1	435888	ZJX4	EET CF	10/10/24 20:55
Total/NA	Analysis	5220D LL		2	436415	HE7K	EET CF	10/16/24 10:09
Total/NA	Prep	Carbon Trap			861047	CLJ	EET SAV	10/23/24 08:57
Total/NA	Analysis	9020B		1	861065	CLJ	EET SAV	10/24/24 11:21
Total/NA	Prep	Distill/Phenol			436090	HE7K	EET CF	10/14/24 08:29
Total/NA	Analysis	9066		1	436206	ZJX4	EET CF	10/14/24 23:12

Client Sample ID: MW-13
Date Collected: 10/08/24 13:25
Date Received: 10/09/24 16:35

Lab Sample ID: 310-292310-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	436854	HE7K	EET CF	10/17/24 16:50
Dissolved	Analysis	6010D		1	437701	ZRI4	EET CF	10/27/24 16:55
Total/NA	Analysis	350.1		1	435888	ZJX4	EET CF	10/10/24 20:56
Total/NA	Analysis	5220D LL		2	436415	HE7K	EET CF	10/16/24 10:09
Total/NA	Prep	Carbon Trap			861047	CLJ	EET SAV	10/23/24 08:57
Total/NA	Analysis	9020B		1	861065	CLJ	EET SAV	10/23/24 17:20
Total/NA	Prep	Distill/Phenol			436090	HE7K	EET CF	10/14/24 08:29
Total/NA	Analysis	9066		1	436206	ZJX4	EET CF	10/14/24 23:12

Client Sample ID: MW-D
Date Collected: 10/08/24 13:59
Date Received: 10/09/24 16:35

Lab Sample ID: 310-292310-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	436854	HE7K	EET CF	10/17/24 17:26
Dissolved	Analysis	6010D		1	437701	ZRI4	EET CF	10/27/24 16:57

Lab Chronicle

Client: SCS Engineers
Project/Site: 2nd 2024 Semi-Annual Groundwater Event

Job ID: 310-292310-1
SDG: Anderson Excavating - Council Bluffs

Client Sample ID: MW-D

Date Collected: 10/08/24 13:59
Date Received: 10/09/24 16:35

Lab Sample ID: 310-292310-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	350.1		1	435888	ZJX4	EET CF	10/10/24 20:57
Total/NA	Analysis	5220D LL		2	436415	HE7K	EET CF	10/16/24 10:09
Total/NA	Prep	Carbon Trap			861047	CLJ	EET SAV	10/23/24 08:57
Total/NA	Analysis	9020B		1	861065	CLJ	EET SAV	10/24/24 09:46
Total/NA	Prep	Distill/Phenol			436090	HE7K	EET CF	10/14/24 08:29
Total/NA	Analysis	9066		1	436206	ZJX4	EET CF	10/14/24 23:13

Laboratory References:

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

EET SAV = Eurofins Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Accreditation/Certification Summary

Client: SCS Engineers
Job ID: 310-292310-1
Project/Site: 2nd 2024 Semi-Annual Groundwater Event
SDG: Anderson Excavating - Council Bluffs

Laboratory: Eurofins Cedar Falls

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

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

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
350.1		Water	Ammonia

Laboratory: Eurofins Savannah

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	353	07-01-25

Method Summary

Client: SCS Engineers
Project/Site: 2nd 2024 Semi-Annual Groundwater Event

Job ID: 310-292310-1
SDG: Anderson Excavating - Council Bluffs

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	EET CF
6010D	Metals (ICP)	SW846	EET CF
350.1	Nitrogen, Ammonia	EPA	EET CF
5220D LL	COD	SM	EET CF
9020B	Organic Halides, Total (TOX)	SW846	EET SAV
9066	Phenolics, Total Recoverable	SW846	EET CF
Carbon Trap	Carbon Trap Preparation	EPA-17	EET SAV
Distill/Phenol	Distillation, Phenolics	None	EET CF

Protocol References:

EPA = US Environmental Protection Agency

EPA-17 = "Method 1650, Revision A, Adsorbable Organic Halides By Adsorption And Colormetric Titration," EPA, February 1992

None = None

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

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

Laboratory References:

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

EET SAV = Eurofins Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

eurofins | Environment Testing America

310-292310 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: SCS

City/State: CITY | STATE | Project:

Receipt Information

Date/Time Received: DATE 10/9/24 | TIME 1635 | Received By: XB

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

Condition of Cooler/Containers

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

Temperature Record

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

Thermometer ID: Y | Correction Factor (°C): 0

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

Uncorrected Temp (°C): 1.2 | Corrected Temp (°C): 1.2

• Sample Container Temperature

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

Exceptions Noted

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

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

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

Additional Comments

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

Chain of Custody Record

TestAmerica Des Moines SC
214

eurofins

Client Information	Sampler: Cole Tesar	Lab PM: Miller, Samuel	Carrier Tracking No(s):	COC No: 310-98212-26739 1
Client Contact: Ben Madson	Phone: 641-844-4455	E-Mail: Samuel Miller@et.eurofinsus.com	State of Origin:	Page: Page 1 of 1
Company: SCS Engineers	PWSID:	Analysis Requested		Job #:
Address: 1690 All State Court Suite 100	Due Date Requested:			Preservation Codes: S - H2SO4, N - None, D - HNO3
City: West Des Moines	TAT Requested (days):			
State, Zip: IA, 50265	Compliance Project: Δ Yes Δ No			
Phone: 515-776-9255(Tel)	PO #: 27224173 01			
Email: bmadson@scsengineers.com	WO #:			Other:
Project Name: 2nd 2024 Semi-Annual Groundwater Event	Project #: 31002851			
Site: Anderson Excavating - Council Bluffs	SSOW#:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	"6" list	"n" List	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
MW-2R		14:55	G	Water			X	X		
MW-3		NA	—	Water			X	X		
MW-12		13:59	G	Water			X	X		
MW-13		13:25	G	Water			X	X		
MW-D		13:59	G	Water			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	Cole Tesar	10/8/24 16:00	SCS		10-8-24 1610	ET
2		10-9-24 0800	ET			
3					10/9/24 1635	ET

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

Cooler Temperature(s) °C and Other Remarks:

Ver: 05/06/2024

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

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Miller, Samuel	Carrier Tracking No(s):	COC No: 310-77208.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Samuel.Miller@et.eurofinsus.com	State of Origin: Iowa	Page: Page 1 of 1
Company: Eurofins Environment Testing Southeast L		Accreditations Required (See note): State - Iowa; State Program - Iowa		Job #: 310-292310-1
Address: 5102 LaRoche Avenue, ,	Due Date Requested: 10/22/2024	Analysis Requested		Preservation Codes: -
City: Savannah	TAT Requested (days):			
State, Zip: GA, 31404				
Phone: 912-354-7858(Tel) 912-352-0165(Fax)	PO #:			
Email:	WO #:			
Project Name: 2nd 2024 Semi-Annual Groundwater Event	Project #: 31002851			Other:
Site:	SSOW#:			

Sample Identification - Client ID (Lab ID)	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)	9020B/Carbon_Trap	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-2R (310-292310-1)	10/8/24	14:55 Central	G	Water			X	1	
MW-12 (310-292310-3)	10/8/24	13:59 Central	G	Water			X	1	
MW-13 (310-292310-4)	10/8/24	13:25 Central	G	Water			X	1	
MW-D (310-292310-5)	10/8/24	13:59 Central	G	Water			X	1	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC.

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
TC	10/10/24 0940			10/11/24 1005	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:
		1.2 / 1.2

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-292310-1
SDG Number: Anderson Excavating - Council Bluffs

Login Number: 292310
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.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-292310-1
SDG Number: Anderson Excavating - Council Bluffs

Login Number: 292310
List Number: 2
Creator: Lincoln, Alyssa

List Source: Eurofins Savannah
List Creation: 10/11/24 03:39 PM

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.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
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").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Appendix B-2

Data Validation

Completed by: Semir Omerovic
Date of Sampling: 4/19/2024
Lab Report Date: 5/6/2024
Site Name: Anderson Excavating Council Bluffs C&D
Project Type: 1st 2024 Semi-Annual Groundwater Event
Lab Report Number: 310-279516

	OK	NO	N/A	NOTES
Sample Collection and Sample Handling				
Chain of Custody	X			
Temperature	X			
Preservation	X			
Condition	X			
Case Narrative	X			
Holding Times	X			
Analytical Sensitivty and Blanks				
Method Blank Detections	X			
Trip Blank Detections			X	
Accuracy				
ICV/CCV	X			
LCS/LCSD	X			
MS/MSD		X		MS/MSD recovery exceeds control limits for barium associated with sample MW-2R.
Surrogates (organics only)			X	
Precision				
QA/QC Sample RPDs	X			
Field Duplicates	X			MW-12 and duplicate sample MW-D had < 50% RPD for analyzed parameters with the exception of chloride, COD, cobalt, lead, and nickel.

Completed by: Semir Omerovic
Date of Sampling: 10/18/2024
Lab Report Date: 10/27/2024
Site Name: Anderson Excavating Council Bluffs C&D
Project Type: 2nd 2024 Semi-Annual Groundwater Event
Lab Report Number: 310-292310

	OK	NO	N/A	NOTES
Sample Collection and Sample Handling				
Chain of Custody	X			
Temperature	X			
Preservation	X			
Condition	X			
Case Narrative	X			
Holding Times	X			
Analytical Sensitivty and Blanks				
Method Blank Detections	X			
Trip Blank Detections			X	
Accuracy				
ICV/CCV	X			
LCS/LCSD	X			
MS/MSD	X			
Surrogates (organics only)			X	
Precision				
QA/QC Sample RPDs		X		Breakthrough exceeded 10% for samples MW-2R, MW-12, MW-13, and MW-D.
Field Duplicates	X			MW-12 and duplicate sample MW-D had < 50% RPD for analyzed parameters with the exception total organic halogens.

Appendix C

Summary of Groundwater Chemistry

SCS ENGINEERS

Summary of Groundwater Chemistry

Council Bluffs Construction and Demolition Landfill - 78-SDP-04-89

Other Constituents	Sample Date	MW-3 UPG	MW-2R DNG	MW-12 DNG	MW-13 DNG
Ammonia as N, mg/L (CAS NO - 7664-41-7)	2/27/1997	N/A	< 0.2	N/A	N/A
	4/7/1998	N/A	< 0.2	N/A	N/A
	10/16/1998	N/A	< 0.2	N/A	N/A
	4/16/1999	N/A	< 0.2	N/A	N/A
	10/7/1999	N/A	< 0.2	N/A	N/A
	4/5/2000	< 1	< 1	N/A	N/A
	10/12/2000	< 1	< 1	N/A	N/A
	3/27/2001	< 1	< 1	N/A	N/A
	10/3/2001	< 1	< 1	N/A	N/A
	4/23/2002	< 1	< 1	N/A	N/A
	10/3/2002	< 1	< 1	N/A	N/A
	4/17/2003	< 0.2	< 0.2	N/A	N/A
	10/15/2003	< 0.2	< 0.2	N/A	N/A
	4/15/2004	< 0.2	< 0.2	N/A	N/A
	10/4/2004	< 0.2	0.33	N/A	N/A
	4/5/2005	< 0.2	< 0.2	N/A	N/A
	10/10/2005	< 0.2	N/A	N/A	N/A
	4/18/2006	< 0.2	N/A	N/A	N/A
	4/1/2008	N/A	< 0.4	N/A	N/A
	10/24/2008	N/A	< 0.2	N/A	N/A
	4/29/2010	N/A	< 0.2	N/A	N/A
	10/26/2010	< 0.2	< 0.2	N/A	N/A
	4/19/2011	< 0.2	< 0.2	N/A	N/A
	10/4/2011	< 0.2	< 0.2	N/A	N/A
	4/17/2012	< 1	< 1	N/A	N/A
	9/12/2012	< 0.2	< 0.2	N/A	N/A
	4/3/2013	< 0.2	N/A	N/A	N/A
	10/17/2013	< 0.2	N/A	N/A	N/A
	4/29/2014	< 0.2	N/A	N/A	N/A
	10/31/2014	< 0.2	N/A	N/A	N/A
	4/8/2015	< 0.2	N/A	N/A	N/A
	10/27/2015	< 0.2	N/A	N/A	N/A
	10/3/2016	< 0.2	N/A	N/A	N/A
	4/11/2017	< 0.2	< 0.2	< 0.2	< 0.2
	7/17/2017	N/A	< 0.2	< 0.2	< 0.2
	10/26/2017	< 0.2	< 0.2	< 0.2	< 0.2
	12/28/2017	N/A	< 0.2	< 0.2	< 0.2
	10/3/2018	N/A	< 0.2	< 0.2	< 0.2
	4/9/2019	< 0.2	< 0.2	< 0.2	< 0.2
	10/8/2019	< 0.2	< 0.2	< 0.2	< 0.2
	7/1/2020	< 0.2	< 0.2	< 0.2	< 0.2
	7/1/2020	N/A	N/A	< 0.2	N/A
	10/15/2020	< 0.2	< 0.2	< 0.2	< 0.2
	10/15/2020	N/A	< 0.2	N/A	N/A
	5/7/2021	< 0.2	< 0.2	< 0.2	< 0.2
	5/7/2021	< 0.2	N/A	N/A	N/A
	10/26/2021	< 0.2	< 0.2	< 0.2	< 0.2
	10/26/2021	N/A	N/A	N/A	< 0.2
	4/6/2022	< 0.2	< 0.2	< 0.2	< 0.2
	4/6/2022	N/A	< 0.2	N/A	N/A
	10/19/2022	< 0.2	< 0.2	< 0.2	< 0.2
	10/19/2022	N/A	N/A	< 0.2	N/A
	4/18/2023	< 0.2	< 0.2	< 0.2	< 0.2
	4/18/2023	< 0.2	N/A	N/A	N/A
	10/26/2023	N/A	< 0.2	< 0.2	< 0.2
	10/26/2023	N/A	N/A	N/A	0.481
	4/19/2024	N/A	< 0.2	< 0.2	< 0.2
	4/19/2024	N/A	N/A	N/A	< 0.2
	10/8/2024	N/A	< 0.2	0.336	< 0.2
	10/8/2024	N/A	N/A	< 0.2	N/A
Arsenic, Dissolved, mg/L (CAS NO - D7440-38-2)	2/27/1997	N/A	< 0.001	N/A	N/A
	4/7/1998	N/A	0.0014	N/A	N/A
	10/16/1998	N/A	< 0.001	N/A	N/A
	4/16/1999	N/A	< 0.001	N/A	N/A
	10/7/1999	N/A	0.0012	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Council Bluffs Construction and Demolition Landfill - 78-SDP-04-89

Other Constituents	Sample Date	MW-3 UPG	MW-2R DNG	MW-12 DNG	MW-13 DNG
Arsenic, Dissolved, mg/L (CAS NO - D7440-38-2)	4/5/2000	N/A	0.002	N/A	N/A
	10/12/2000	N/A	0.004	N/A	N/A
	3/27/2001	N/A	0.005	N/A	N/A
	10/3/2001	N/A	0.003	N/A	N/A
	4/23/2002	N/A	0.002	N/A	N/A
	10/3/2002	N/A	0.005	N/A	N/A
	4/17/2003	< 0.001	0.0018	N/A	N/A
	10/15/2003	< 0.001	0.0024	N/A	N/A
	4/15/2004	< 0.001	0.0025	N/A	N/A
	10/4/2004	0.0103	0.0016	N/A	N/A
	4/5/2005	< 0.001	0.0015	N/A	N/A
	10/10/2005	< 0.001	N/A	N/A	N/A
	4/18/2006	< 0.001	N/A	N/A	N/A
	10/4/2011	< 0.001	N/A	N/A	N/A
	4/17/2012	< 0.004	N/A	N/A	N/A
	7/17/2017	N/A	0.000516	0.000676	0.00133
	10/26/2017	N/A	0.000573	0.000859	0.00123
	12/28/2017	N/A	< 0.002	< 0.002	0.00111
Chemical Oxygen Demand, mg/L (CAS NO - COD)	2/27/1997	N/A	< 5	N/A	N/A
	4/7/1998	N/A	< 5	N/A	N/A
	10/16/1998	N/A	< 5	N/A	N/A
	4/16/1999	N/A	< 5	N/A	N/A
	10/7/1999	N/A	< 5	N/A	N/A
	4/5/2000	< 10	< 10	N/A	N/A
	10/12/2000	< 10	< 10	N/A	N/A
	3/27/2001	< 10	< 10	N/A	N/A
	10/3/2001	< 10	< 10	N/A	N/A
	4/23/2002	< 10	< 10	N/A	N/A
	10/3/2002	< 10	< 10	N/A	N/A
	4/17/2003	6	6.5	N/A	N/A
	10/15/2003	< 5	< 5	N/A	N/A
	4/15/2004	5.6	< 5	N/A	N/A
	10/4/2004	< 5	< 5	N/A	N/A
	4/5/2005	< 5	< 5	N/A	N/A
	10/10/2005	12	N/A	N/A	N/A
	4/18/2006	10.9	N/A	N/A	N/A
	4/1/2008	N/A	< 5	N/A	N/A
	10/24/2008	N/A	< 5	N/A	N/A
	4/29/2010	N/A	< 5	N/A	N/A
	10/26/2010	7.1	< 5	N/A	N/A
	4/19/2011	5.6	< 5	N/A	N/A
	10/4/2011	< 5	< 5	N/A	N/A
	4/17/2012	28	33	N/A	N/A
	9/12/2012	< 5	< 5	N/A	N/A
	4/3/2013	< 5	N/A	N/A	N/A
	10/17/2013	4.6	N/A	N/A	N/A
	4/29/2014	< 5	N/A	N/A	N/A
	10/31/2014	8.6	N/A	N/A	N/A
	4/8/2015	5.15	N/A	N/A	N/A
	10/27/2015	< 5	N/A	N/A	N/A
	10/3/2016	20.7	N/A	N/A	N/A
	4/11/2017	< 5	< 5	< 5	9.8
	7/17/2017	N/A	8.54	10	< 5
	10/26/2017	< 5	< 5	5.22	14
	12/28/2017	N/A	< 5	< 5	10.6
	10/3/2018	N/A	< 5	< 5	14.8
	4/9/2019	5.21	< 5	4.85	22.1
	10/8/2019	< 5	< 5	< 5	4.9
	7/1/2020	9.1	7.78	12.1	25.6
	7/1/2020	N/A	N/A	18.7	N/A
	10/15/2020	10.5	10.5	13.5	17.7
	10/15/2020	N/A	< 5	N/A	N/A
	5/7/2021	< 5	< 5	16.7	24.6
	5/7/2021	7.8	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Council Bluffs Construction and Demolition Landfill - 78-SDP-04-89

Other Constituents	Sample Date	MW-3 UPG	MW-2R DNG	MW-12 DNG	MW-13 DNG
Chemical Oxygen Demand, mg/L (CAS NO - COD)	10/26/2021	7.88	7.53	19.7	24.2
	10/26/2021	N/A	N/A	N/A	27
	4/6/2022	5.09	< 5	12.5	8.63
	4/6/2022	N/A	< 5	N/A	N/A
	10/19/2022	8	< 5	22.3	5.52
	10/19/2022	N/A	N/A	17.6	N/A
	4/18/2023	6.65	< 5	23	15
	4/18/2023	< 5	N/A	N/A	N/A
	10/26/2023	N/A	< 5	27	15.9
	10/26/2023	N/A	N/A	N/A	13.3
	4/19/2024	N/A	< 5	24.2	6.45
	4/19/2024	N/A	N/A	N/A	6.12
	10/8/2024	N/A	< 5	34	15
	10/8/2024	N/A	N/A	36.7	N/A
Chloride, mg/L (CAS NO - 16887-00-6)	2/27/1997	N/A	< 5	N/A	N/A
	4/7/1998	N/A	< 5	N/A	N/A
	10/16/1998	N/A	< 5	N/A	N/A
	4/16/1999	N/A	< 5	N/A	N/A
	10/7/1999	N/A	< 5	N/A	N/A
	4/5/2000	24	< 10	N/A	N/A
	10/12/2000	34	< 10	N/A	N/A
	3/27/2001	38	< 10	N/A	N/A
	10/3/2001	51	< 10	N/A	N/A
	4/23/2002	54	< 10	N/A	N/A
	10/3/2002	52	< 10	N/A	N/A
	4/17/2003	58.9	< 5	N/A	N/A
	10/15/2003	52.3	< 5	N/A	N/A
	4/15/2004	55.9	< 5	N/A	N/A
	10/4/2004	66.6	20.5	N/A	N/A
	4/5/2005	55	< 5	N/A	N/A
	10/10/2005	19.4	N/A	N/A	N/A
	4/18/2006	58.4	N/A	N/A	N/A
	4/1/2008	N/A	< 5	N/A	N/A
	10/24/2008	N/A	< 5	N/A	N/A
	4/29/2010	N/A	< 5	N/A	N/A
	10/26/2010	29.1	< 5	N/A	N/A
	4/19/2011	18.4	< 5	N/A	N/A
	10/4/2011	12.6	< 5	N/A	N/A
	4/17/2012	12	< 10	N/A	N/A
	9/12/2012	10.2	< 5	N/A	N/A
	4/3/2013	8.61	N/A	N/A	N/A
	10/17/2013	8.48	N/A	N/A	N/A
	4/29/2014	10.1	N/A	N/A	N/A
	10/31/2014	9.95	N/A	N/A	N/A
	4/8/2015	10.2	N/A	N/A	N/A
	10/27/2015	10.2	N/A	N/A	N/A
	10/3/2016	8.07	N/A	N/A	N/A
	4/11/2017	7.45	11.8	26.2	55
	7/17/2017	N/A	8.25	31.2	68.4
	10/26/2017	7.64	4.8	29.1	65.6
	12/28/2017	N/A	5.11	25.3	52.5
	10/3/2018	N/A	3.62	32	42.7
	4/9/2019	8.82	3.09	25.9	32.5
	10/8/2019	9.92	4.12	56.9	42.5
	7/1/2020	9.52	4.27*	47.5	48
	7/1/2020	N/A	N/A	48.4	N/A
	10/15/2020	10.2	4.53*	93.2	67.8
	10/15/2020	N/A	5.45	N/A	N/A
	5/7/2021	9.62	5.71	100	58.4
	5/7/2021	9.8	N/A	N/A	N/A
	10/26/2021	13.8	6.54	86.4	61.8
	10/26/2021	N/A	N/A	N/A	64.5
	4/6/2022	14.9	4.17*	97.3	49.2
	4/6/2022	N/A	3.98*	N/A	N/A

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Summary of Groundwater Chemistry

Council Bluffs Construction and Demolition Landfill - 78-SDP-04-89

Other Constituents	Sample Date	MW-3 UPG	MW-2R DNG	MW-12 DNG	MW-13 DNG
Chloride, mg/L (CAS NO - 16887-00-6)	10/19/2022	13.6	5.59	96.4	36
	10/19/2022	N/A	N/A	91.8	N/A
	4/18/2023	17.8	13.6	113	40.3
	4/18/2023	18.1	N/A	N/A	N/A
	10/26/2023	N/A	8.35	108	67.7
	10/26/2023	N/A	N/A	N/A	60.8
	4/19/2024	N/A	13.8	129	50.3
	4/19/2024	N/A	N/A	N/A	49.9
	10/8/2024	N/A	17.5	119	37.1
	10/8/2024	N/A	N/A	121	N/A
Iron, Dissolved, mg/L (CAS NO - D7439-89-6)	2/27/1997	N/A	0.47	N/A	N/A
	4/7/1998	N/A	< 0.1	N/A	N/A
	10/16/1998	N/A	< 0.1	N/A	N/A
	4/16/1999	N/A	< 0.1	N/A	N/A
	10/7/1999	N/A	< 0.1	N/A	N/A
	4/5/2000	0.267	< 0.03	N/A	N/A
	10/12/2000	< 0.03	< 0.03	N/A	N/A
	3/27/2001	0.105	< 0.03	N/A	N/A
	10/3/2001	< 0.03	< 0.03	N/A	N/A
	4/23/2002	< 0.03	< 0.03	N/A	N/A
	10/3/2002	< 0.03	< 0.03	N/A	N/A
	4/17/2003	< 0.1	< 0.1	N/A	N/A
	10/15/2003	< 0.1	< 0.1	N/A	N/A
	4/15/2004	< 0.1	< 0.1	N/A	N/A
	10/4/2004	< 0.1	< 0.1	N/A	N/A
	4/5/2005	< 0.1	< 0.1	N/A	N/A
	10/10/2005	< 0.1	N/A	N/A	N/A
	4/18/2006	< 0.1	N/A	N/A	N/A
	4/1/2008	N/A	< 0.1	N/A	N/A
	10/24/2008	N/A	< 0.1	N/A	N/A
	4/29/2010	N/A	< 0.1	N/A	N/A
	10/26/2010	< 0.1	< 0.1	N/A	N/A
	4/19/2011	< 0.1	< 0.1	N/A	N/A
	10/4/2011	< 0.1	< 0.1	N/A	N/A
	4/17/2012	2.09	29.2	N/A	N/A
	9/12/2012	< 0.1	< 0.1	N/A	N/A
	4/3/2013	0.516	N/A	N/A	N/A
	10/17/2013	0.0611	N/A	N/A	N/A
	4/29/2014	< 0.1	N/A	N/A	N/A
	10/31/2014	0.528	N/A	N/A	N/A
	4/8/2015	0.361	N/A	N/A	N/A
	10/27/2015	1.6	N/A	N/A	N/A
	10/3/2016	0.236	N/A	N/A	N/A
	4/11/2017	< 0.5	1.16	< 0.5	3.84
	7/17/2017	N/A	0.0569	0.0816	0.0491
	10/26/2017	< 0.5	< 0.5	< 0.5	< 0.5
	12/28/2017	N/A	< 0.5	< 0.5	< 0.5
	10/3/2018	N/A	< 0.5	0.147	< 0.5
	4/9/2019	< 0.5	< 0.5	< 0.5	< 0.5
	10/8/2019	< 0.5	< 0.5	< 0.5	0.149
	7/1/2020	< 0.5	< 0.5	< 0.5	< 0.5
	7/1/2020	N/A	N/A	< 0.5	N/A
	10/15/2020	< 0.5	< 0.5	< 0.5	< 0.5
	10/15/2020	N/A	< 0.5	N/A	N/A
	5/7/2021	< 0.5	< 0.5	< 0.5	0.267*
	5/7/2021	< 0.5	N/A	N/A	N/A
	10/26/2021	< 0.5	< 0.5	< 0.5	0.863
	10/26/2021	N/A	N/A	N/A	0.843
	4/6/2022	< 0.5	< 0.5	< 0.5	< 0.5
	4/6/2022	N/A	< 0.5	N/A	N/A
	10/19/2022	< 0.5	< 0.5	< 0.5	0.313*
	10/19/2022	N/A	N/A	< 0.5	N/A
	4/18/2023	0.0965*	< 0.5	< 0.5	0.58
	4/18/2023	< 0.5	N/A	N/A	N/A

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Summary of Groundwater Chemistry

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Other Constituents	Sample Date	MW-3 UPG	MW-2R DNG	MW-12 DNG	MW-13 DNG
Iron, Dissolved, mg/L (CAS NO - D7439-89-6)	10/26/2023	N/A	< 0.5	< 0.5	**0.563**
	10/26/2023	N/A	N/A	N/A	0.455*
	4/19/2024	N/A	< 0.1	0.0819*	**0.598**
	4/19/2024	N/A	N/A	N/A	**0.568**
	10/8/2024	N/A	< 0.5	0.101*	**0.831**
	10/8/2024	N/A	N/A	0.093*	N/A
pH, S.U. (CAS NO - PH)	2/27/1997	N/A	6.89	N/A	N/A
	4/7/1998	N/A	7.32	N/A	N/A
	10/16/1998	N/A	7.57	N/A	N/A
	4/16/1999	N/A	7.88	N/A	N/A
	10/7/1999	N/A	7.1	N/A	N/A
	4/5/2000	6.93	6.81	N/A	N/A
	10/12/2000	6.95	6.43	N/A	N/A
	3/27/2001	7.85	7.37	N/A	N/A
	10/3/2001	7.86	8.18	N/A	N/A
	4/23/2002	7.34	6.97	N/A	N/A
	10/3/2002	7.32	6.83	N/A	N/A
	4/17/2003	6.89	6.75	N/A	N/A
	10/15/2003	6.78	6.73	N/A	N/A
	4/15/2004	7.35	7.26	N/A	N/A
	10/4/2004	7.42	7.41	N/A	N/A
	4/5/2005	7.7	7.57	N/A	N/A
	10/10/2005	7.51	7.5	N/A	N/A
	4/18/2006	7.23	N/A	N/A	N/A
	4/1/2008	N/A	7.5	N/A	N/A
	10/24/2008	N/A	7.21	N/A	N/A
	10/26/2010	7.53	7.61	N/A	N/A
	4/19/2011	7.46	7.35	N/A	N/A
	10/4/2011	7.31	7	N/A	N/A
	4/17/2012	7.4	7.3	N/A	N/A
	9/12/2012	7.65	7.25	N/A	N/A
	4/3/2013	7.35	N/A	N/A	N/A
	10/17/2013	8.28	N/A	N/A	N/A
	4/29/2014	8	N/A	N/A	N/A
	10/31/2014	8.8	N/A	N/A	N/A
	4/8/2015	7.93	N/A	N/A	N/A
	10/27/2015	7.85	N/A	N/A	N/A
	10/3/2016	9.01	N/A	N/A	N/A
	4/11/2017	N/A	7.6	7.28	7.27
	7/17/2017	N/A	7.33	7.24	7.45
	10/26/2017	7.56	7.64	7.71	7.86
	10/3/2018	N/A	7.21	7.28	6.74
	4/9/2019	7.34	7.26	7.29	6.84
	10/8/2019	7.3	7.27	7.18	6.83
	7/1/2020	7.19	7.2	7.23	6.81
	10/15/2020	7.3	7.32	7.14	6.76
	5/7/2021	7.01	6.97	7.08	6.75
	10/26/2021	7.02	7.21	7.06	6.72
	4/6/2022	6.92	7.1	7.05	6.67
	10/19/2022	7.06	7.13	7.15	6.81
	4/18/2023	7.08	7.07	7.02	6.72
	10/26/2023	N/A	7.08	7.23	6.8
	4/19/2024	N/A	7.16	7.11	6.77
	10/8/2024	N/A	7.06	7.04	6.76
Specific Conductance, umhos/cm (CAS NO - SPECCON)	4/7/1998	N/A	880	N/A	N/A
	10/16/1998	N/A	780	N/A	N/A
	4/16/1999	N/A	1010	N/A	N/A
	10/7/1999	N/A	480	N/A	N/A
	4/5/2000	1060	1630	N/A	N/A
	10/12/2000	1050	750	N/A	N/A
	3/27/2001	1920	1640	N/A	N/A
	10/3/2001	1800	790	N/A	N/A
	4/23/2002	1287	810	N/A	N/A
	10/3/2002	988	688	N/A	N/A
	4/17/2003	1209	845	N/A	N/A

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Summary of Groundwater Chemistry

Council Bluffs Construction and Demolition Landfill - 78-SDP-04-89

Other Constituents	Sample Date	MW-3 UPG	MW-2R DNG	MW-12 DNG	MW-13 DNG
Specific Conductance, umhos/cm (CAS NO - SPECCON)	10/15/2003	872	513	N/A	N/A
	4/15/2004	1296	766	N/A	N/A
	10/4/2004	815	1338	N/A	N/A
	4/5/2005	1320	795	N/A	N/A
	10/10/2005	912	1300	N/A	N/A
	4/18/2006	1253	N/A	N/A	N/A
	4/1/2008	N/A	751	N/A	N/A
	10/24/2008	N/A	332	N/A	N/A
	4/29/2010	N/A	1280	N/A	N/A
	10/26/2010	1244	862	N/A	N/A
	4/19/2011	807	1283	N/A	N/A
	10/4/2011	2018	2750	N/A	N/A
	4/17/2012	875	1175	N/A	N/A
	9/12/2012	1020	908	N/A	N/A
	4/3/2013	1025	N/A	N/A	N/A
	10/17/2013	1008	N/A	N/A	N/A
	4/29/2014	1000	N/A	N/A	N/A
	10/31/2014	905	N/A	N/A	N/A
	4/8/2015	929	N/A	N/A	N/A
	10/27/2015	802	N/A	N/A	N/A
	10/3/2016	839	N/A	N/A	N/A
	4/11/2017	N/A	622	1408	1465
	7/17/2017	N/A	789	727	1732
	10/26/2017	712	697	631	1292
	10/3/2018	N/A	735	721	1911
	4/9/2019	924.2	682.6	588.7	1596.2
	10/8/2019	1064.7	729.2	870.5	1889.9
	7/1/2020	1032.6	694.1	729.9	1787.1
	10/15/2020	1027.6	692.5	909.5	1791.5
	5/7/2021	1076.6	732.9	968	1804.1
	10/26/2021	1105.7	772	920.8	1827.5
	4/6/2022	1031	681	868	1617
	10/19/2022	1150	795	1030	1742
	4/18/2023	1141	839	1047.7	1716.6
	10/26/2023	N/A	645.9	926	1557.2
	4/19/2024	N/A	847.9	1196.3	1895.1
	10/8/2024	N/A	923.3	1119.6	1690.9
Total Organic Halogens, mg/L (CAS NO - TOH)	4/7/1998	N/A	< 0.01	N/A	N/A
	10/16/1998	N/A	< 0.01	N/A	N/A
	4/16/1999	N/A	< 0.01	N/A	N/A
	10/7/1999	N/A	< 0.01	N/A	N/A
	10/12/2000	< 0.01	**0.02**	N/A	N/A
	10/3/2001	< 0.01	< 0.01	N/A	N/A
	10/3/2002	< 0.01	**0.07**	N/A	N/A
	10/15/2003	< 0.01	< 0.01	N/A	N/A
	10/4/2004	< 0.01	< 0.01	N/A	N/A
	10/10/2005	< 0.01	N/A	N/A	N/A
	10/24/2008	N/A	< 0.01	N/A	N/A
	10/26/2010	< 0.01	**0.0131**	N/A	N/A
	10/4/2011	< 0.01	< 0.01	N/A	N/A
	9/12/2012	**0.0182**	**0.0117**	N/A	N/A
	10/17/2013	< 0.03	N/A	N/A	N/A
	10/31/2014	< 0.03	N/A	N/A	N/A
	10/27/2015	< 0.03	N/A	N/A	N/A
	10/3/2016	< 0.03	N/A	N/A	N/A
	7/17/2017	N/A	< 0.03	< 0.03	**0.0666**
	10/26/2017	< 0.03	**0.0182**	**0.141**	**0.325**
	12/28/2017	N/A	< 0.03	**0.0263**	**0.0567**
	10/3/2018	N/A	**0.013**	**0.0189**	**0.0236**
	10/8/2019	< 0.01	< 0.01	**0.019**	**0.031**
	10/15/2020	0.0392*	0.0207*	**0.119**	**0.0702**
	10/15/2020	N/A	0.0315*	N/A	N/A
	10/26/2021	0.025*	0.0243*	**0.0425**	**0.102**
	10/26/2021	N/A	N/A	N/A	**0.0559**

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Summary of Groundwater Chemistry

Council Bluffs Construction and Demolition Landfill - 78-SDP-04-89

Other Constituents	Sample Date	MW-3 UPG	MW-2R DNG	MW-12 DNG	MW-13 DNG
Total Organic Halogens, mg/L (CAS NO - TOH)	10/19/2022	**0.563**	0.026*	**0.122**	**0.0959**
	10/19/2022	N/A	N/A	**0.143**	N/A
	10/26/2023	N/A	< 0.04	**0.136**	**0.0745**
	10/26/2023	N/A	N/A	N/A	**0.0836**
	10/8/2024	N/A	< 0.04	**0.0956**	**0.137**
	10/8/2024	N/A	N/A	**0.285**	N/A
Total Phenols, mg/L (CAS NO - TP)	4/7/1998	N/A	< 0.02	N/A	N/A
	10/16/1998	N/A	< 0.02	N/A	N/A
	4/16/1999	N/A	< 0.02	N/A	N/A
	10/7/1999	N/A	< 0.02	N/A	N/A
	10/12/2000	< 0.1	< 0.1	N/A	N/A
	10/3/2001	< 0.1	< 0.1	N/A	N/A
	10/3/2002	< 0.1	< 0.1	N/A	N/A
	10/15/2003	< 0.02	< 0.02	N/A	N/A
	10/4/2004	< 0.02	< 0.02	N/A	N/A
	10/10/2005	< 0.02	N/A	N/A	N/A
	10/24/2008	N/A	< 0.02	N/A	N/A
	10/26/2010	< 0.02	< 0.02	N/A	N/A
	10/4/2011	< 0.02	< 0.018	N/A	N/A
	9/12/2012	< 0.02	< 0.02	N/A	N/A
	10/17/2013	**0.0078**	N/A	N/A	N/A
	10/31/2014	< 0.0192	N/A	N/A	N/A
	10/27/2015	< 0.0184	N/A	N/A	N/A
	10/3/2016	**0.0125**	N/A	N/A	N/A
	7/17/2017	N/A	< 0.02	< 0.02	< 0.02
	10/26/2017	< 0.0192	< 0.0188	< 0.0192	< 0.0184
	12/28/2017	N/A	< 0.0192	< 0.0196	< 0.0192
	10/3/2018	N/A	< 0.0196	< 0.0196	< 0.0192
	10/8/2019	< 0.02	< 0.02	< 0.02	< 0.0192
	10/15/2020	< 0.02	< 0.02	< 0.02	< 0.02
	10/15/2020	N/A	< 0.02	N/A	N/A
	10/26/2021	< 0.0196	< 0.02	< 0.0188	< 0.0184
	10/26/2021	N/A	N/A	N/A	< 0.0184
	10/19/2022	< 0.02	< 0.02	< 0.02	< 0.02
	10/19/2022	N/A	N/A	< 0.02	N/A
	10/8/2024	N/A	< 0.02	< 0.02	< 0.02
	10/8/2024	N/A	N/A	< 0.02	N/A

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

Denotes Detection.

Denotes Confirmed Outlier. Statistically Excluded.

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

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Summary of Groundwater Chemistry
Council Bluffs Construction and Demolition Landfill - 78-SDP-04-89

Appendix I VOC Constituents	Sample Date	MW-3 UPG	MW-2R DNG	MW-12 DNG	MW-13 DNG
1,1,1,2-Tetrachloroethane, ug/L (CAS NO - 630-20-6)	12/28/2017	N/A	< 1	< 1	< 1
1,1,1-Trichloroethane, ug/L (CAS NO - 71-55-6)	2/27/1997	N/A	< 1	N/A	N/A
	4/7/1998	N/A	< 1	N/A	N/A
	10/16/1998	N/A	< 1	N/A	N/A
	4/16/1999	N/A	< 1	N/A	N/A
	10/7/1999	N/A	< 1	N/A	N/A
	8/1/2017	N/A	< 1	< 1	< 1
	10/26/2017	N/A	< 1	< 1	< 1
	12/28/2017	N/A	< 1	< 1	< 1
1,1,2,2-Tetrachloroethane, ug/L (CAS NO - 79-34-5)	12/28/2017	N/A	< 1	< 1	< 1
1,1,2-Trichloroethane, ug/L (CAS NO - 79-00-5)	12/28/2017	N/A	< 1	< 1	< 1
1,1-Dichloroethane, ug/L (CAS NO - 75-34-3)	12/28/2017	N/A	< 1	< 1	< 1
1,1-Dichloroethene, ug/L (CAS NO - 75-35-4)	2/27/1997	N/A	< 2	N/A	N/A
	4/7/1998	N/A	< 2	N/A	N/A
	10/16/1998	N/A	< 2	N/A	N/A
	4/16/1999	N/A	< 2	N/A	N/A
	10/7/1999	N/A	< 2	N/A	N/A
	8/1/2017	N/A	< 2	< 2	< 2
	10/26/2017	N/A	< 2	< 2	< 2
	12/28/2017	N/A	< 2	< 2	< 2
1,2,3-Trichloropropane, ug/L (CAS NO - 96-18-4)	12/28/2017	N/A	< 1	< 1	< 1
1,2-Dibromo-3-Chloropropane, ug/L (CAS NO - 96-12-8)	12/28/2017	N/A	< 5	< 5	< 5
1,2-Dibromoethane [EDB], ug/L (CAS NO - 106-93-4)	12/28/2017	N/A	< 1	< 1	< 1
1,2-Dichlorobenzene, ug/L (CAS NO - 95-50-1)	12/28/2017	N/A	< 1	< 1	< 1
1,2-Dichloroethane, ug/L (CAS NO - 107-06-2)	2/27/1997	N/A	< 0.4	N/A	N/A
	4/7/1998	N/A	< 0.4	N/A	N/A
	10/16/1998	N/A	< 0.4	N/A	N/A
	4/16/1999	N/A	< 0.4	N/A	N/A
	10/7/1999	N/A	< 0.4	N/A	N/A
	8/1/2017	N/A	< 1	< 1	< 1
	10/26/2017	N/A	< 1	< 1	< 1
	12/28/2017	N/A	< 1	< 1	< 1
1,2-Dichloropropane, ug/L (CAS NO - 78-87-5)	12/28/2017	N/A	< 1	< 1	< 1
1,4-Dichlorobenzene, ug/L (CAS NO - 106-46-7)	2/27/1997	N/A	< 1	N/A	N/A
	4/7/1998	N/A	< 1	N/A	N/A
	10/16/1998	N/A	< 1	N/A	N/A
	4/16/1999	N/A	< 1	N/A	N/A
	10/7/1999	N/A	< 1	N/A	N/A
	8/1/2017	N/A	< 1	< 1	< 1
	10/26/2017	N/A	< 1	< 1	< 1
	12/28/2017	N/A	< 1	< 1	< 1
2-Butanone, ug/L (CAS NO - 78-93-3)	12/28/2017	N/A	< 10	< 10	< 10
2-Hexanone, ug/L (CAS NO - 591-78-6)	12/28/2017	N/A	< 10	< 10	< 10
4-Methyl-2-Pentanone, ug/L (CAS NO - 108-10-1)	12/28/2017	N/A	< 10	< 10	< 10
Benzene, ug/L (CAS NO - 71-43-2)	2/27/1997	N/A	< 0.5	N/A	N/A
	4/7/1998	N/A	< 0.5	N/A	N/A
	10/16/1998	N/A	< 0.5	N/A	N/A
	4/16/1999	N/A	< 0.5	N/A	N/A
	10/7/1999	N/A	< 0.5	N/A	N/A
	8/1/2017	N/A	< 0.5	< 0.5	< 0.5
	10/26/2017	N/A	< 0.5	< 0.5	< 0.5
	12/28/2017	N/A	< 0.5	< 0.5	< 0.5
Bromomethane, ug/L (CAS NO - 74-83-9)	12/28/2017	N/A	< 4	< 4	< 4
Carbon Disulfide, ug/L (CAS NO - 75-15-0)	12/28/2017	N/A	< 1	< 1	< 1
Carbon Tetrachloride, ug/L (CAS NO - 56-23-5)	2/27/1997	N/A	< 0.3	N/A	N/A
	4/7/1998	N/A	< 0.3	N/A	N/A
	10/16/1998	N/A	< 0.3	N/A	N/A
	4/16/1999	N/A	< 0.3	N/A	N/A
	10/7/1999	N/A	< 0.3	N/A	N/A
	8/1/2017	N/A	< 2	< 2	< 2
	10/26/2017	N/A	< 2	< 2	< 2
	12/28/2017	N/A	< 2	< 2	< 2
Chlorobenzene, ug/L (CAS NO - 108-90-7)	12/28/2017	N/A	< 1	< 1	< 1
Chlorodibromomethane, ug/L (CAS NO - 124-48-1)	12/28/2017	N/A	< 5	< 5	< 5
Chloroethane, ug/L (CAS NO - 75-00-3)	12/28/2017	N/A	< 4	< 4	< 4

SCS ENGINEERS

Summary of Groundwater Chemistry

Council Bluffs Construction and Demolition Landfill - 78-SDP-04-89

Appendix I VOC Constituents	Sample Date	MW-3 UPG	MW-2R DNG	MW-12 DNG	MW-13 DNG
Chloroform, ug/L (CAS NO - 67-66-3)	12/28/2017	N/A	< 1	< 1	< 1
Chloromethane, ug/L (CAS NO - 74-87-3)	12/28/2017	N/A	< 3	< 3	< 3
cis-1,2-Dichloroethene, ug/L (CAS NO - 156-59-2)	12/28/2017	N/A	< 1	< 1	< 1
cis-1,3-Dichloropropene, ug/L (CAS NO - 10061-01-5)	12/28/2017	N/A	< 5	< 5	< 5
Ethylbenzene, ug/L (CAS NO - 100-41-4)	12/28/2017	N/A	< 1	< 1	< 1
Iodomethane, ug/L (CAS NO - 74-88-4)	12/28/2017	N/A	< 10	< 10	< 10
Methylene Bromide, ug/L (CAS NO - 74-95-3)	12/28/2017	N/A	< 1	< 1	< 1
Methylene Chloride, ug/L (CAS NO - 75-09-2)	12/28/2017	N/A	< 5	< 5	< 5
Styrene, ug/L (CAS NO - 100-42-5)	12/28/2017	N/A	< 1	< 1	< 1
Tetrachloroethene, ug/L (CAS NO - 127-18-4)	12/28/2017	N/A	< 1	< 1	< 1
Toluene, ug/L (CAS NO - 108-88-3)	12/28/2017	N/A	< 1	< 1	**0.786**
trans-1,2-Dichloroethene, ug/L (CAS NO - 156-60-5)	12/28/2017	N/A	< 1	< 1	< 1
trans-1,3-Dichloropropene, ug/L (CAS NO - 10061-02-6)	12/28/2017	N/A	< 5	< 5	< 5
trans-1,4-Dichloro-2-Butene, ug/L (CAS NO - 110-57-6)	12/28/2017	N/A	< 10	< 10	< 10
Trichloroethene, ug/L (CAS NO - 79-01-6)	2/27/1997	N/A	< 1	N/A	N/A
	4/7/1998	N/A	< 1	N/A	N/A
	10/16/1998	N/A	< 1	N/A	N/A
	4/16/1999	N/A	< 1	N/A	N/A
	10/7/1999	N/A	< 1	N/A	N/A
	8/1/2017	N/A	< 1	< 1	< 1
	10/26/2017	N/A	< 1	< 1	< 1
	12/28/2017	N/A	< 1	< 1	< 1
Trichlorofluoromethane, ug/L (CAS NO - 75-69-4)	12/28/2017	N/A	< 4	< 4	< 4
Vinyl Acetate, ug/L (CAS NO - 108-05-4)	12/28/2017	N/A	< 10	< 10	< 10
Vinyl Chloride, ug/L (CAS NO - 75-01-4)	12/28/2017	N/A	< 1	< 1	< 1

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.

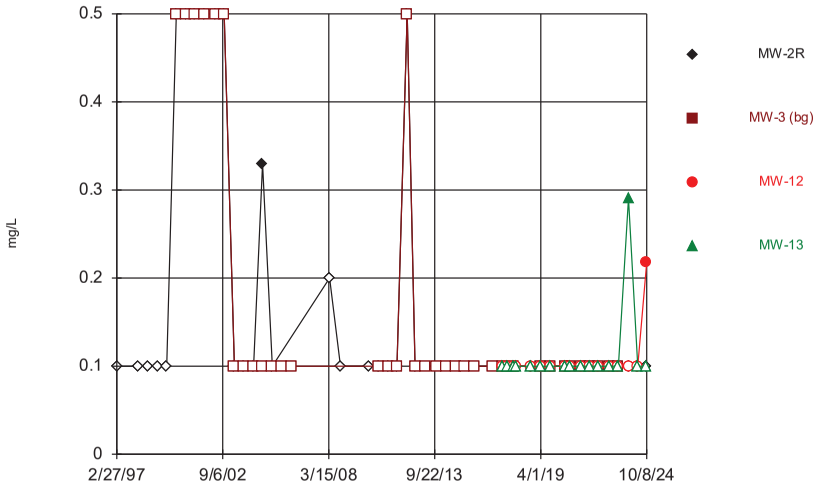
Sampling performed over multiple dates is recorded on the first date sampled. Refer to field forms for exact sample date.

Appendix D

2024 Statistical Output

Sanitas™ v.10.0.23 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

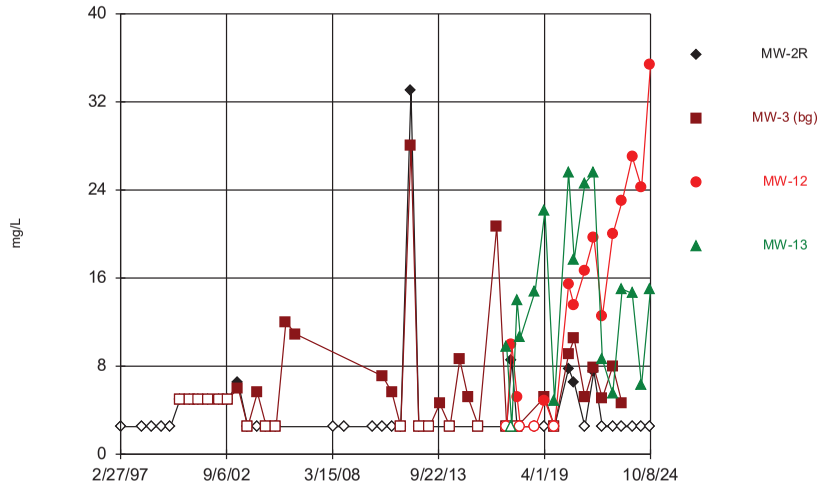
Time Series



Constituent: Ammonia as N Analysis Run 11/13/2024 4:09 PM View: 2024AWQR-Time_Series
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB Sanitas

Sanitas™ v.10.0.23 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

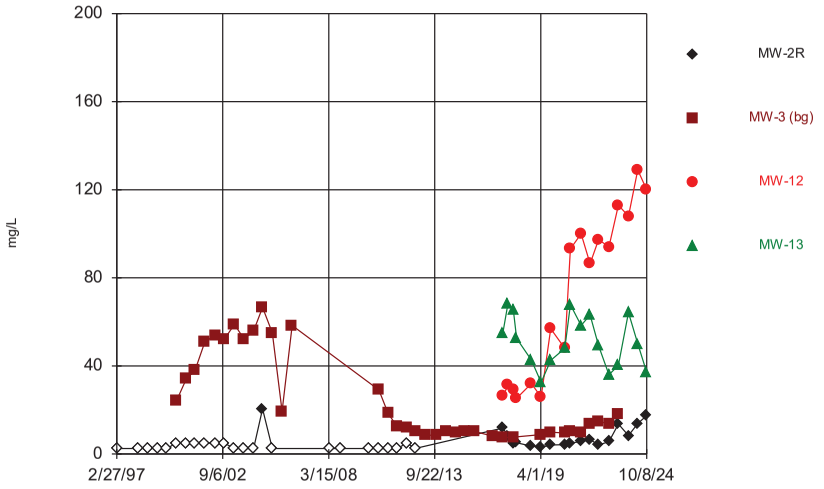
Time Series



Constituent: Chemical Oxygen Demand Analysis Run 11/13/2024 4:09 PM View: 2024AWQR-Time_Serie
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB Sanitas

Sanitas™ v.10.0.23 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

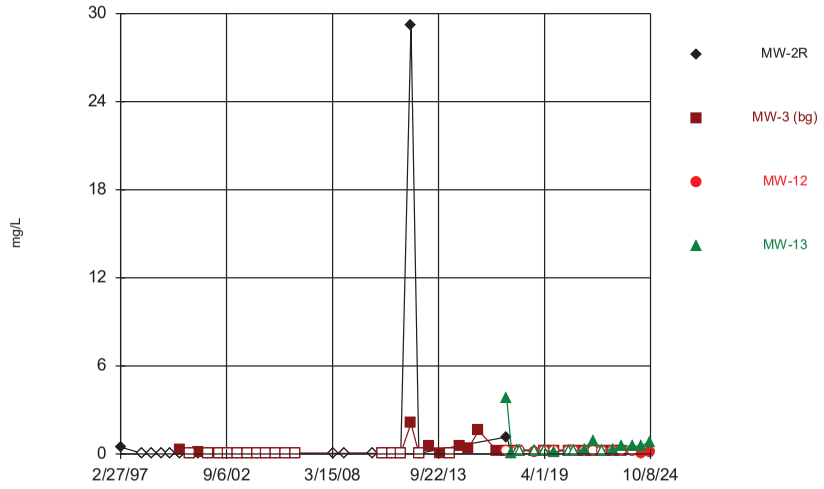
Time Series



Constituent: Chloride Analysis Run 11/13/2024 4:09 PM View: 2024AWQR-Time_Series
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB Sanitas

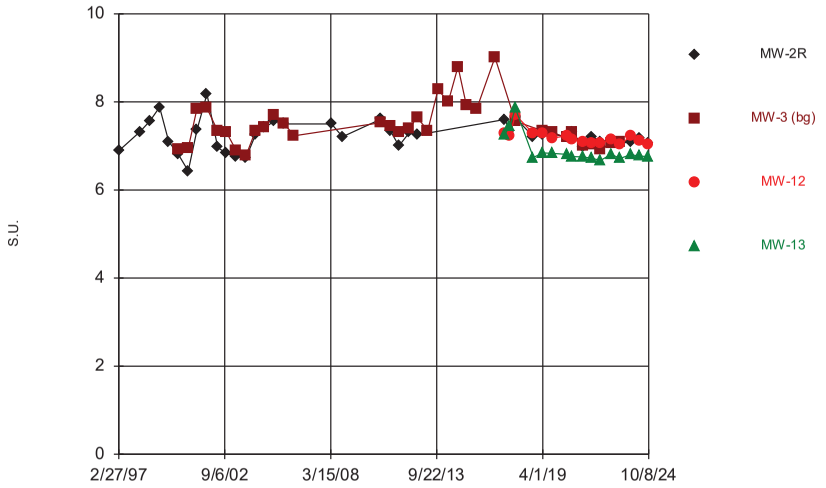
Sanitas™ v.10.0.23 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



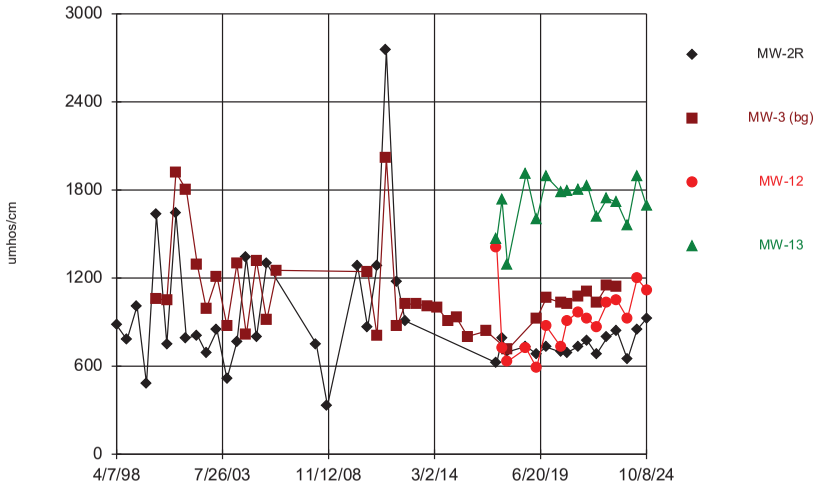
Constituent: Iron, Dissolved Analysis Run 11/13/2024 4:09 PM View: 2024AWQR-Time_Series
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB Sanitas

Time Series



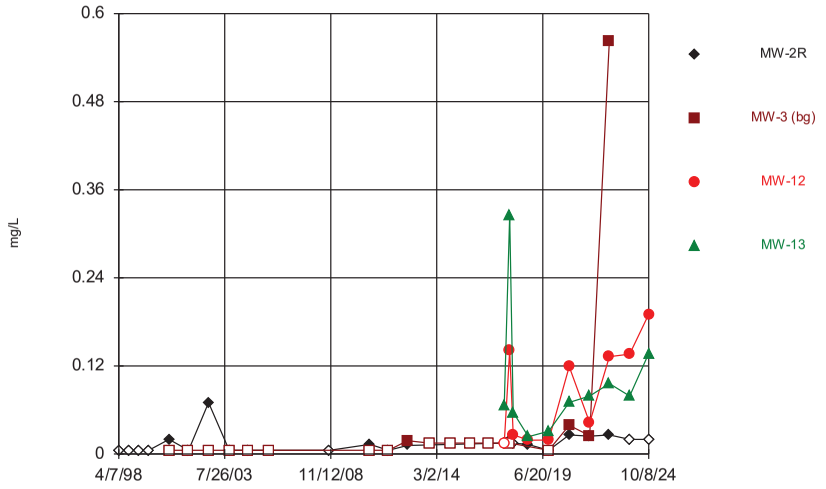
Constituent: pH Analysis Run 11/13/2024 4:09 PM View: 2024AWQR-Time_Series
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB Sanitas

Time Series



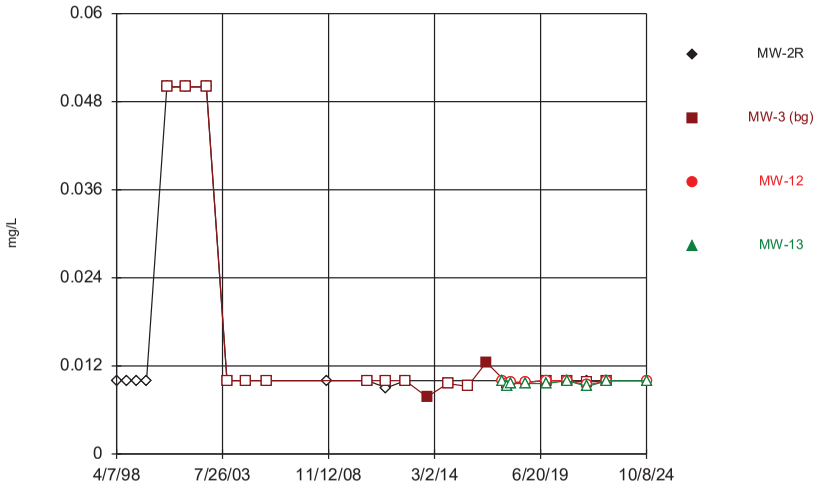
Constituent: Specific Conductance Analysis Run 11/13/2024 4:09 PM View: 2024AWQR-Time_Series
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB Sanitas

Time Series



Constituent: Total Organic Halogens Analysis Run 11/13/2024 4:09 PM View: 2024AWQR-Time_Series
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB Sanitas

Time Series



Constituent: Total Phenols Analysis Run 11/13/2024 4:09 PM View: 2024AWQR-Time_Series
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB Sanitas

Spring Control Limit

Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB Sanitas Printed 11/13/2024, 5:46 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform
Chemical Oxygen Demand (mg/L)	**MW-12**	**16.73**	**n/a**	**4/19/2024**	**24.2**	**Yes**	**36**	**47.22**	**No**
Chemical Oxygen Demand (mg/L)	MW-13	16.73	n/a	4/19/2024	6.285	No	36	47.22	No
Chloride (mg/L)	MW-2R	64.23	n/a	4/19/2024	13.8	No	36	0	No
Chloride (mg/L)	**MW-12**	**64.23**	**n/a**	**4/19/2024**	**129**	**Yes**	**36**	**0**	**No**
Chloride (mg/L)	MW-13	64.23	n/a	4/19/2024	50.1	No	36	0	No
Iron, Dissolved (mg/L)	MW-13	1.09	n/a	4/19/2024	0.583	No	36	72.22	No
pH (S.U.)	MW-2R	8.474	6.468	4/19/2024	7.16	No	35	0	No
pH (S.U.)	MW-12	8.474	6.468	4/19/2024	7.11	No	35	0	No
pH (S.U.)	MW-13	8.474	6.468	4/19/2024	6.77	No	35	0	No
Specific Conductance (umhos/cm)	MW-2R	1691	n/a	4/19/2024	847.9	No	35	0	No
Specific Conductance (umhos/cm)	MW-12	1691	n/a	4/19/2024	1196	No	35	0	No
Specific Conductance (umhos/cm)	**MW-13**	**1691**	**n/a**	**4/19/2024**	**1895**	**Yes**	**35**	**0**	**No**

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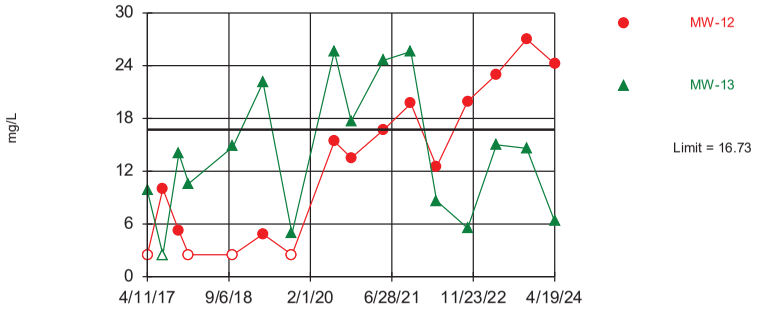
Hollow symbols indicate censored values.

Exceeds Limit: MW-12

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=6.313, Std. Dev.=5.21, n=36, 47.22% NDs. Normality test was disabled. Comparing 2 points to limit. Assumes 11 future values. Kappa overridden to 2.

Constituent: Chemical Oxygen Demand Analysis Run 11/13/2024 5:43 PM View: 2024AWQR-Control_Lim
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB Sanitas

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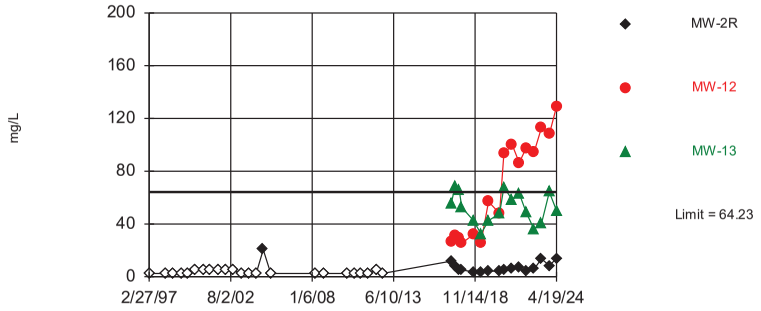
Hollow symbols indicate censored values.

Exceeds Limit: MW-12

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=24.75, Std. Dev.=19.74, n=36. Normality test was disabled. Comparing 3 points to limit. Assumes 10 future values. Kappa overridden to 2.

Constituent: Chloride Analysis Run 11/13/2024 5:43 PM View: 2024AWQR-Control_Limits-Spring
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB Sanitas

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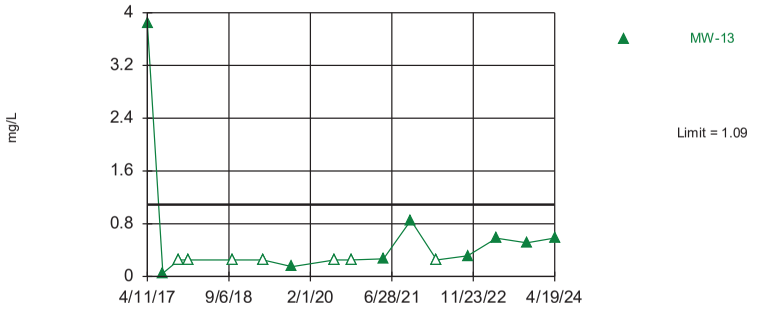
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=0.2527, Std. Dev.=0.4186, n=36, 72.22% NDs (user selected parametric test despite non-detects). Normality test was disabled. Assumes 12 future values. Kappa overridden to 2.

Constituent: Iron, Dissolved Analysis Run 11/13/2024 5:43 PM View: 2024AWQR-Control_Limits-Spring
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB Sanitas

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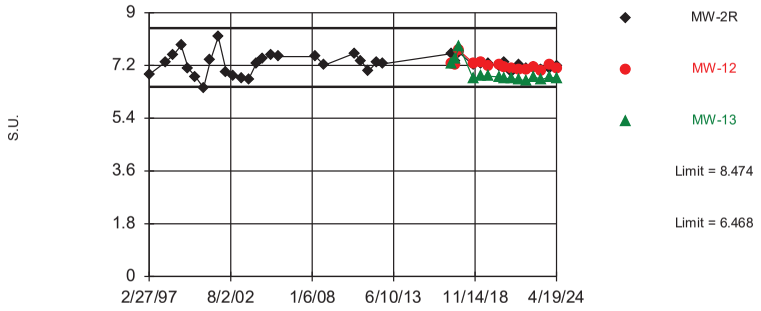
Within Limits

Prediction Limit

Interwell Parametric



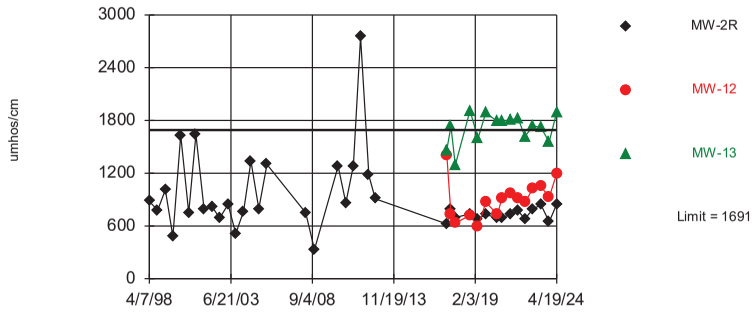
Background Data Summary: Mean=7.471, Std. Dev.=0.5015, n=35. Normality test was disabled. Comparing 3 points to limit. Assumes 10 future values. Kappa overridden to 2.

Constituent: pH Analysis Run 11/13/2024 5:43 PM View: 2024AWQR-Control_Limits-Spring
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB Sanitas

Exceeds Limit: MW-13

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=1101, Std. Dev.=295.1, n=35. Normality test was disabled. Comparing 3 points to limit. Assumes 10 future values. Kappa overridden to 2.

Constituent: Specific Conductance Analysis Run 11/13/2024 5:43 PM View: 2024AWQR-Control_Limits-S

Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB Sanitas

Fall Control Limit

Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB Sanitas Printed 11/13/2024, 6:00 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform
Ammonia as N (mg/L)	MW-12	0.4989	n/a	10/8/2024	0.218	No	36	100	No
Chemical Oxygen Demand (mg/L)	**MW-12**	**16.73**	**n/a**	**10/8/2024**	**35.35**	**Yes**	**36**	**47.22**	**No**
Chemical Oxygen Demand (mg/L)	MW-13	16.73	n/a	10/8/2024	15	No	36	47.22	No
Chloride (mg/L)	MW-2R	64.23	n/a	10/8/2024	17.5	No	36	0	No
Chloride (mg/L)	**MW-12**	**64.23**	**n/a**	**10/8/2024**	**120**	**Yes**	**36**	**0**	**No**
Chloride (mg/L)	MW-13	64.23	n/a	10/8/2024	37.1	No	36	0	No
Iron, Dissolved (mg/L)	MW-13	1.09	n/a	10/8/2024	0.831	No	36	72.22	No
pH (S.U.)	MW-2R	8.474	6.468	10/8/2024	7.06	No	35	0	No
pH (S.U.)	MW-12	8.474	6.468	10/8/2024	7.04	No	35	0	No
pH (S.U.)	MW-13	8.474	6.468	10/8/2024	6.76	No	35	0	No
Specific Conductance (umhos/cm)	MW-2R	1691	n/a	10/8/2024	923.3	No	35	0	No
Specific Conductance (umhos/cm)	MW-12	1691	n/a	10/8/2024	1120	No	35	0	No
Specific Conductance (umhos/cm)	**MW-13**	**1691**	**n/a**	**10/8/2024**	**1691**	**Yes**	**35**	**0**	**No**
Total Organic Halogens (mg/L)	MW-12	0.303	n/a	10/8/2024	0.1903	No	18	77.78	No
Total Organic Halogens (mg/L)	MW-13	0.303	n/a	10/8/2024	0.137	No	18	77.78	No

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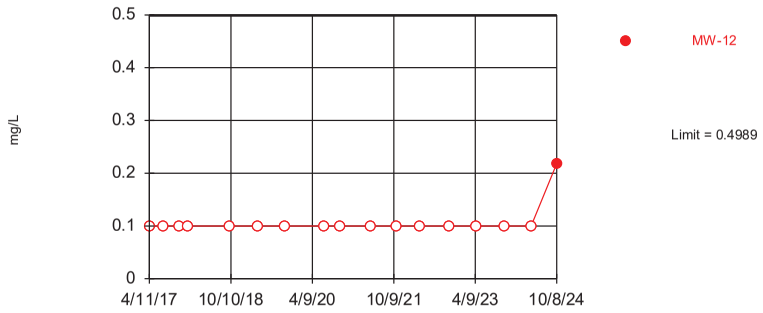
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=0.1778, Std. Dev.=0.1606, n=36, 100% NDs (user selected parametric test despite non-detects). Normality test was disabled. Assumes 12 future values. Kappa overridden to 2.

Constituent: Ammonia as N Analysis Run 11/13/2024 5:56 PM View: 2024AWQR-Control_Limits-Fall
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB Sanitas

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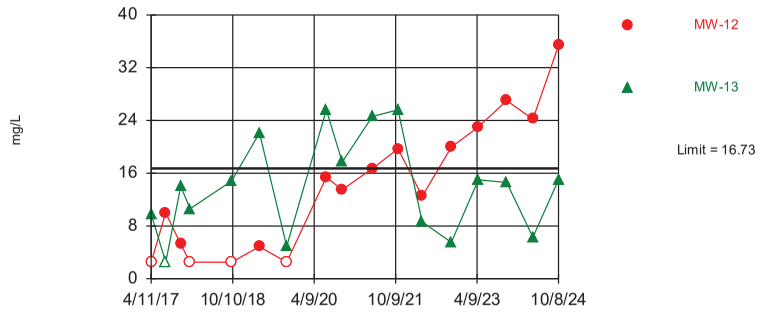
Hollow symbols indicate censored values.

Exceeds Limit: MW-12

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=6.313, Std. Dev.=5.21, n=36, 47.22% NDs. Normality test was disabled. Comparing 2 points to limit. Assumes 11 future values. Kappa overridden to 2.

Constituent: Chemical Oxygen Demand Analysis Run 11/13/2024 5:56 PM View: 2024AWQR-Control_Lim
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB Sanitas

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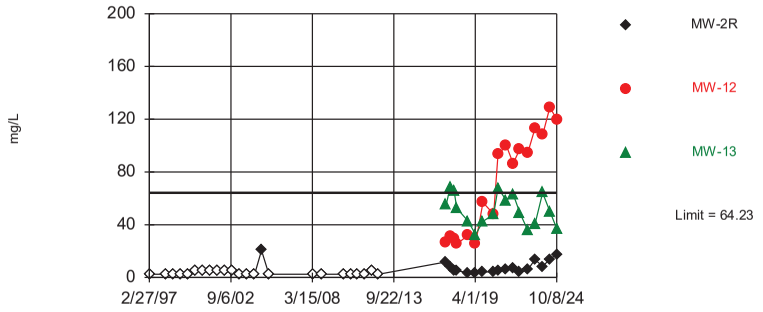
Hollow symbols indicate censored values.

Exceeds Limit: MW-12

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=24.75, Std. Dev.=19.74, n=36. Normality test was disabled. Comparing 3 points to limit. Assumes 10 future values. Kappa overridden to 2.

Constituent: Chloride Analysis Run 11/13/2024 5:56 PM View: 2024AWQR-Control_Limits-Fall
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB Sanitas

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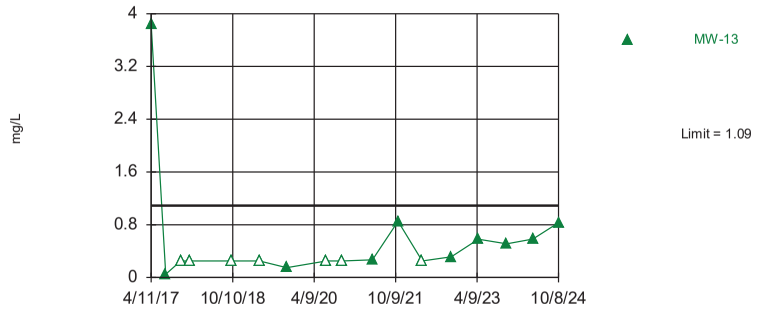
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Interwell Parametric



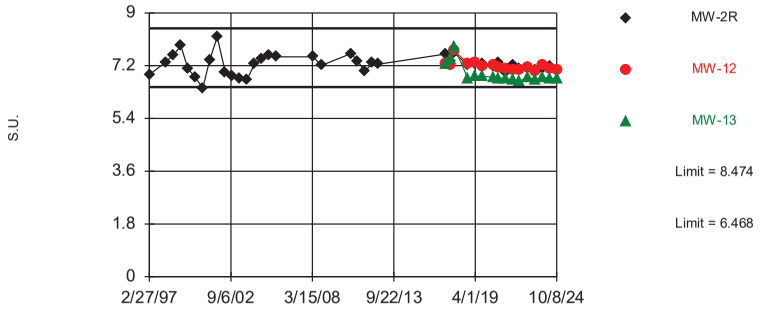
Background Data Summary: Mean=0.2527, Std. Dev.=0.4186, n=36, 72.22% NDs (user selected parametric test despite non-detects). Normality test was disabled. Assumes 12 future values. Kappa overridden to 2.

Constituent: Iron, Dissolved Analysis Run 11/13/2024 5:56 PM View: 2024AWQR-Control_Limits-Fall
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB Sanitas

Within Limits

Prediction Limit

Interwell Parametric



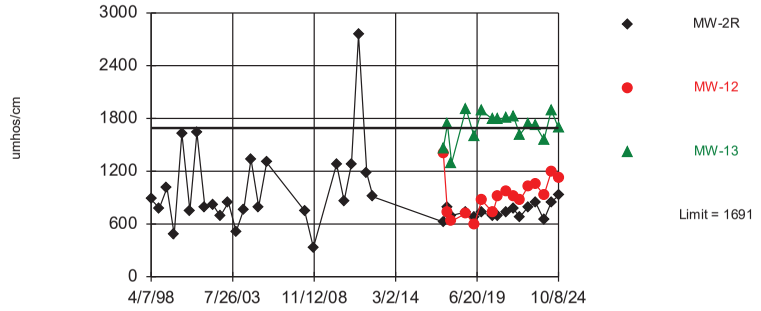
Background Data Summary: Mean=7.471, Std. Dev.=0.5015, n=35. Normality test was disabled. Comparing 3 points to limit. Assumes 10 future values. Kappa overridden to 2.

Constituent: pH Analysis Run 11/13/2024 5:56 PM View: 2024AWQR-Control_Limits-Fall
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB Sanitas

Exceeds Limit: MW-13

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=1101, Std. Dev.=295.1, n=35. Normality test was disabled. Comparing 3 points to limit. Assumes 10 future values. Kappa overridden to 2.

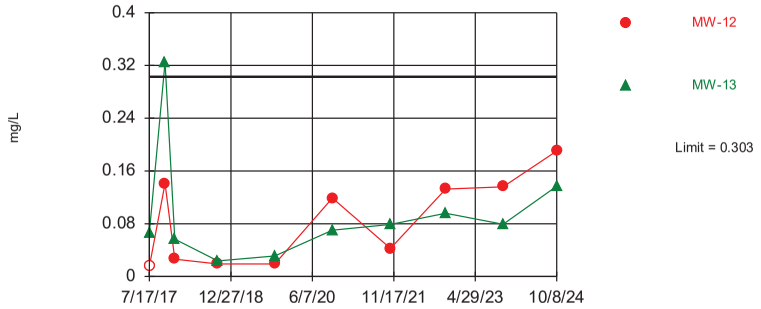
Constituent: Specific Conductance Analysis Run 11/13/2024 5:56 PM View: 2024AWQR-Control_Limits-F
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB Sanitas

Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=0.04252, Std. Dev.=0.1302, n=18, 77.78% NDs (user selected parametric test despite non-detects). Normality test was disabled. Comparing 2 points to limit. Assumes 11 future values. Kappa overridden to 2.

Constituent: Total Organic Halogens Analysis Run 11/13/2024 5:56 PM View: 2024AWQR-Control_Limits-
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB Sanitas

Trend Test

Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB-2024AWQR-AM Printed 11/13/2024, 10:11 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Alpha	Method
Ammonia as N (mg/L)	MW-12	0	7	21	No	8	87.5	0.01	NP
Ammonia as N (mg/L)	MW-13	0	3	21	No	8	87.5	0.01	NP
Chemical Oxygen Demand (mg/L)	MW-2R	0	-5	-21	No	8	87.5	0.01	NP
Chemical Oxygen Demand (mg/L)	MW-3 (bg)	-0.3866	-4	-21	No	8	12.5	0.01	NP
Chemical Oxygen Demand (mg/L)	**MW-12**	**5.372**	**22**	**21**	**Yes**	**8**	**0**	**0.01**	**NP**
Chemical Oxygen Demand (mg/L)	MW-13	-3.196	-7	-21	No	8	0	0.01	NP
Chloride (mg/L)	MW-2R	2.873	18	21	No	8	0	0.01	NP
Chloride (mg/L)	MW-3 (bg)	2.41	18	21	No	8	0	0.01	NP
Chloride (mg/L)	MW-12	10.31	16	21	No	8	0	0.01	NP
Chloride (mg/L)	MW-13	-5.039	-6	-21	No	8	0	0.01	NP
Iron, Dissolved (mg/L)	MW-13	0.1571	12	21	No	8	12.5	0.01	NP
pH (S.U.)	MW-2R	-0.009812	-2	-21	No	8	0	0.01	NP
pH (S.U.)	MW-3 (bg)	-0.08345	-9	-21	No	8	0	0.01	NP
pH (S.U.)	MW-12	-0.005378	-2	-21	No	8	0	0.01	NP
pH (S.U.)	MW-13	0.01016	5	21	No	8	0	0.01	NP
Specific Conductance (umhos/cm)	MW-2R	48.3	14	21	No	8	0	0.01	NP
Specific Conductance (umhos/cm)	MW-3 (bg)	30.59	12	21	No	8	0	0.01	NP
Specific Conductance (umhos/cm)	MW-12	47.06	14	21	No	8	0	0.01	NP
Specific Conductance (umhos/cm)	MW-13	-35.74	-6	-21	No	8	0	0.01	NP
Total Organic Halogens (mg/L)	MW-2R	0.00101	5	21	No	8	50	0.01	NP
Total Organic Halogens (mg/L)	MW-3 (bg)	0.002236	12	21	No	8	62.5	0.01	NP
Total Organic Halogens (mg/L)	**MW-12**	**0.02365**	**22**	**21**	**Yes**	**8**	**0**	**0.01**	**NP**
Total Organic Halogens (mg/L)	**MW-13**	**0.01232**	**22**	**21**	**Yes**	**8**	**0**	**0.01**	**NP**
Total Phenols (mg/L)	MW-3 (bg)	0.00005007	8	21	No	8	87.5	0.01	NP

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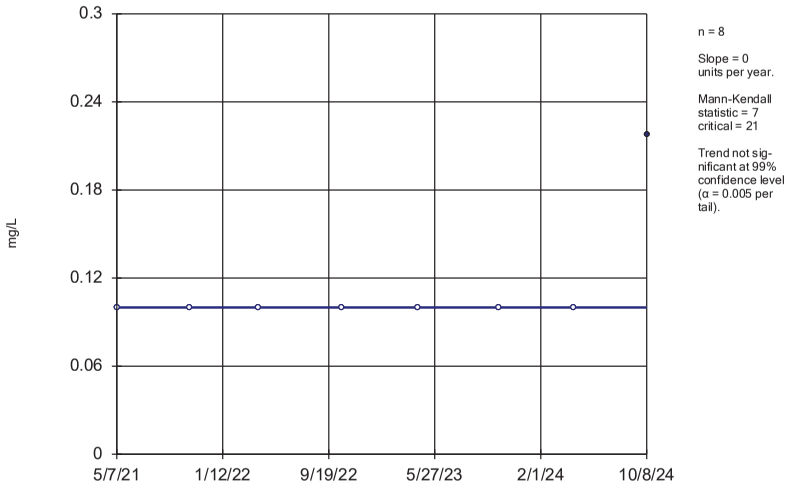
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-12



Constituent: Ammonia as N Analysis Run 11/13/2024 10:10 PM View: 2024AWQR-Mann_Kendall
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB-2024AWQR-AM

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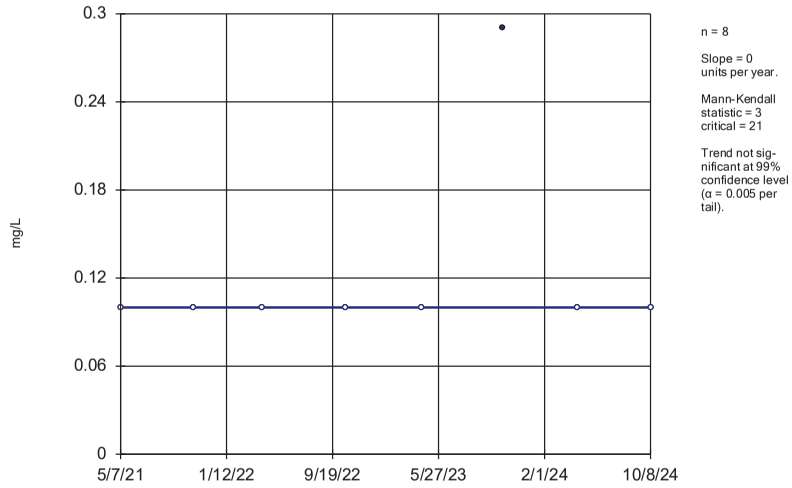
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-13



Constituent: Ammonia as N Analysis Run 11/13/2024 10:10 PM View: 2024AWQR-Mann_Kendall
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB-2024AWQR-AM

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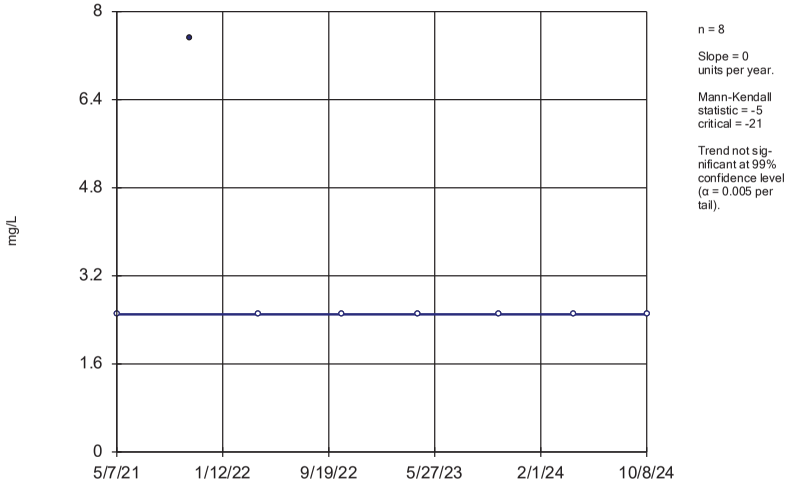
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-2R



Constituent: Chemical Oxygen Demand Analysis Run 11/13/2024 10:10 PM View: 2024AWQR-Mann_Ken
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB-2024AWQR-AM

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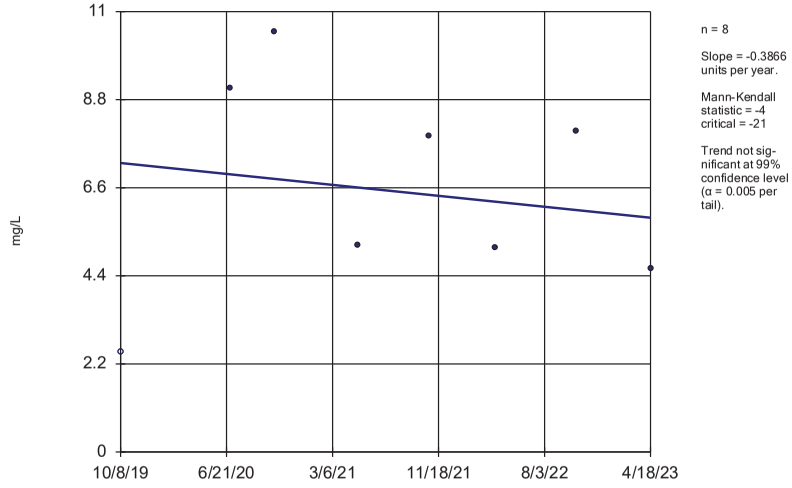
Hollow symbols indicate censored values.

Sen's Slope Estimator

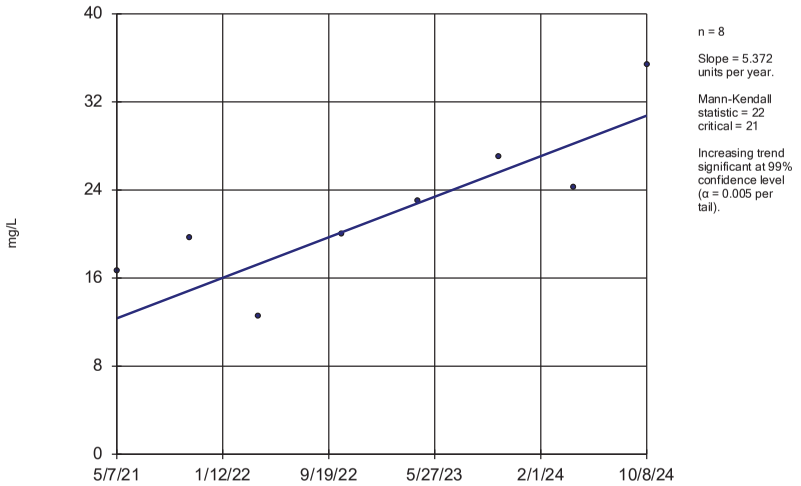
MW-3 (bg)



Constituent: Chemical Oxygen Demand Analysis Run 11/13/2024 10:10 PM View: 2024AWQR-Mann_Ken
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB-2024AWQR-AM

Sen's Slope Estimator

MW-12

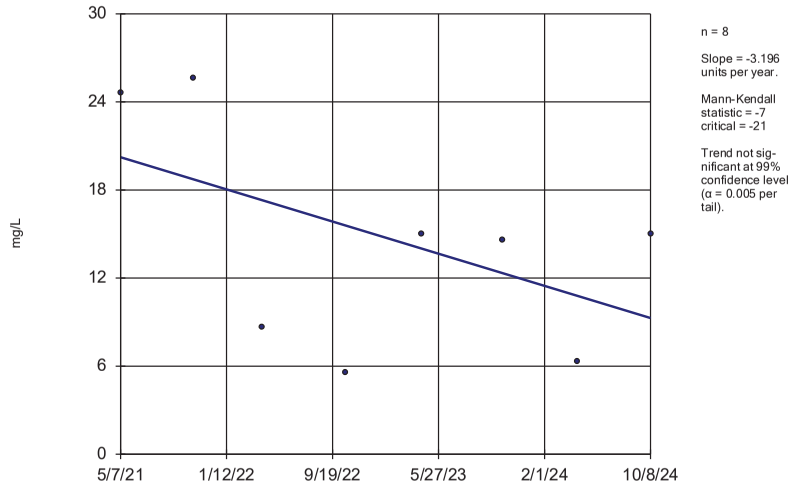


Constituent: Chemical Oxygen Demand Analysis Run 11/13/2024 10:10 PM View: 2024AWQR-Mann_Ken
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB-2024AWQR-AM

Sanitas™ v.10.0.23 Software licensed to SCS Engineers. UG

Sen's Slope Estimator

MW-13



Constituent: Chemical Oxygen Demand Analysis Run 11/13/2024 10:10 PM View: 2024AWQR-Mann_Ken
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB-2024AWQR-AM

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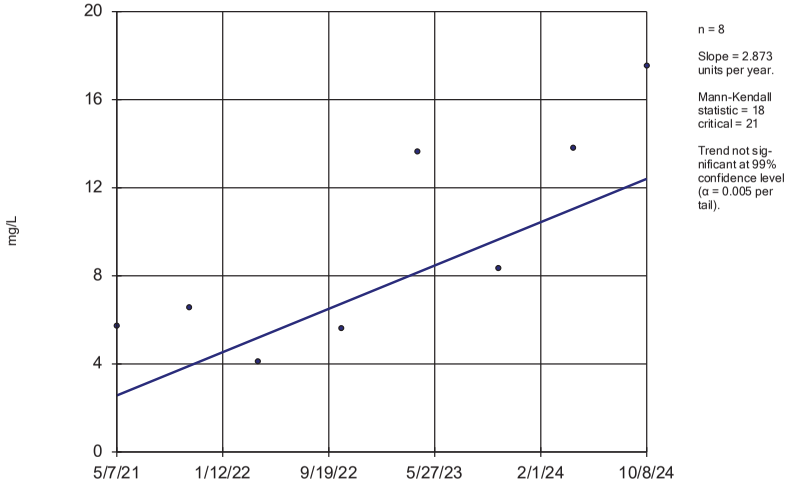
Sen's Slope Estimator

MW-2R



Constituent: Chloride Analysis Run 11/13/2024 10:10 PM View: 2024AWQR-Mann_Kendall
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB-2024AWQR-AM

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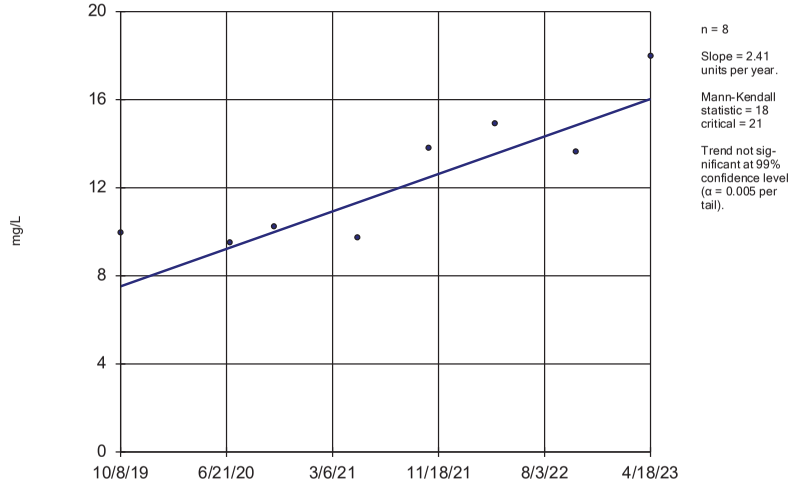
Sen's Slope Estimator

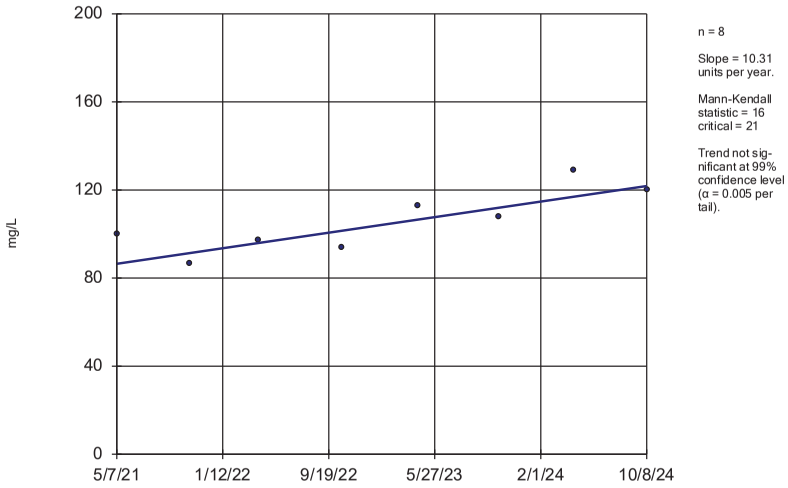
MW-3 (bg)



Constituent: Chloride Analysis Run 11/13/2024 10:10 PM View: 2024AWQR-Mann_Kendall
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB-2024AWQR-AM

Sen's Slope Estimator

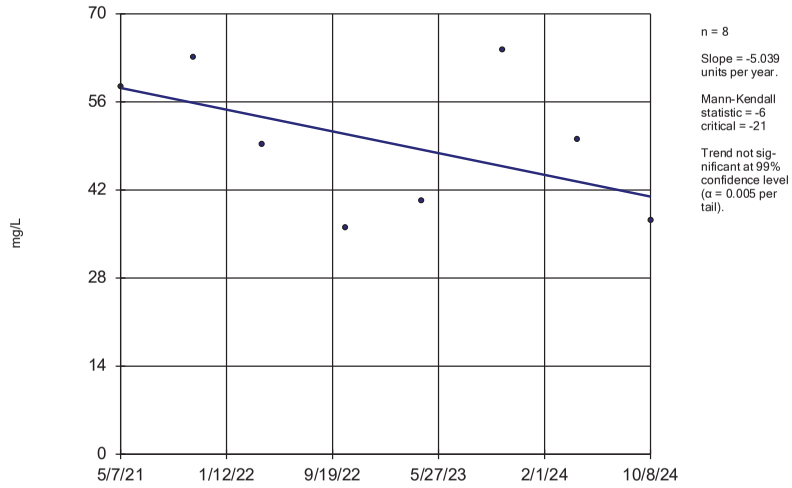
MW-12



Constituent: Chloride Analysis Run 11/13/2024 10:10 PM View: 2024AWQR-Mann_Kendall
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB-2024AWQR-AM

Sen's Slope Estimator

MW-13

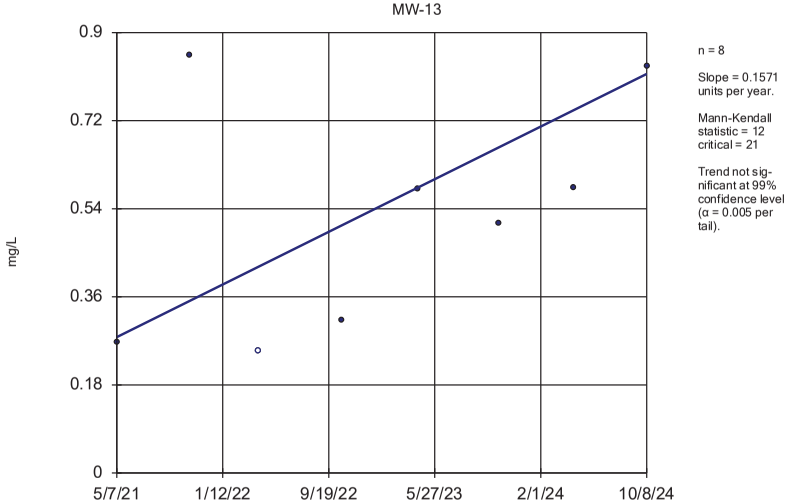


Constituent: Chloride Analysis Run 11/13/2024 10:10 PM View: 2024AWQR-Mann_Kendall
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB-2024AWQR-AM

Hollow symbols indicate censored values.

Sen's Slope Estimator

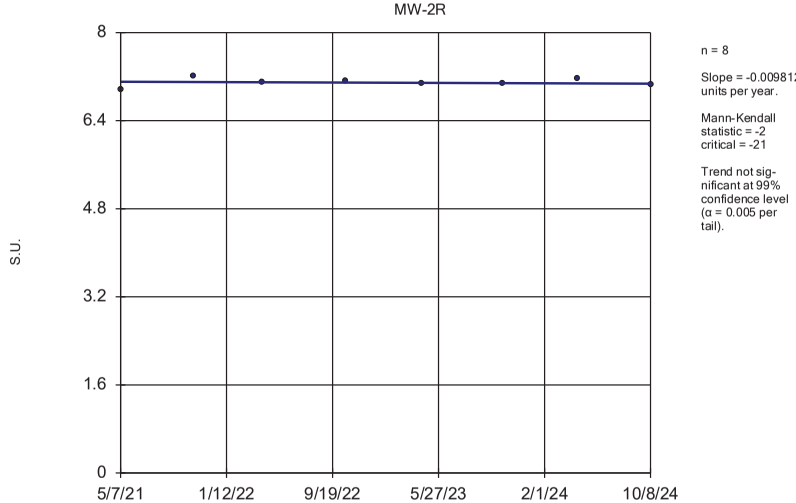
MW-13



Constituent: Iron, Dissolved Analysis Run 11/13/2024 10:10 PM View: 2024AWQR-Mann_Kendall
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB-2024AWQR-AM

Sen's Slope Estimator

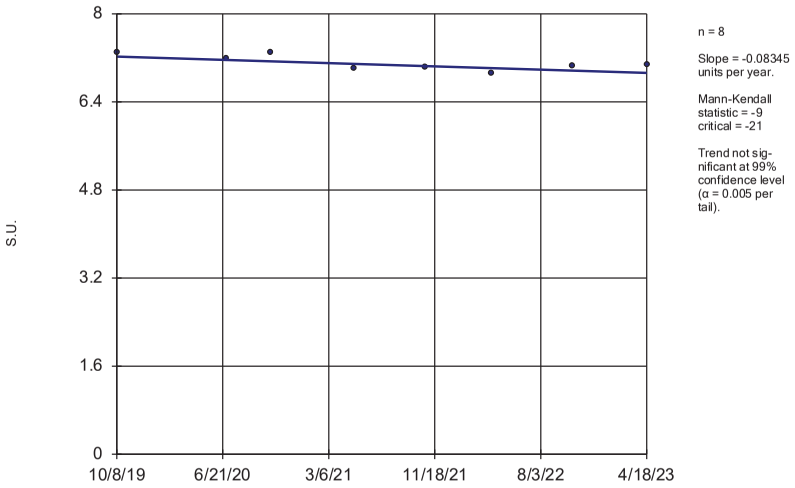
MW-2R



Constituent: pH Analysis Run 11/13/2024 10:10 PM View: 2024AWQR-Mann_Kendall
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB-2024AWQR-AM

Sen's Slope Estimator

MW-3 (bg)



Constituent: pH Analysis Run 11/13/2024 10:10 PM View: 2024AWQR-Mann_Kendall
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB-2024AWQR-AM

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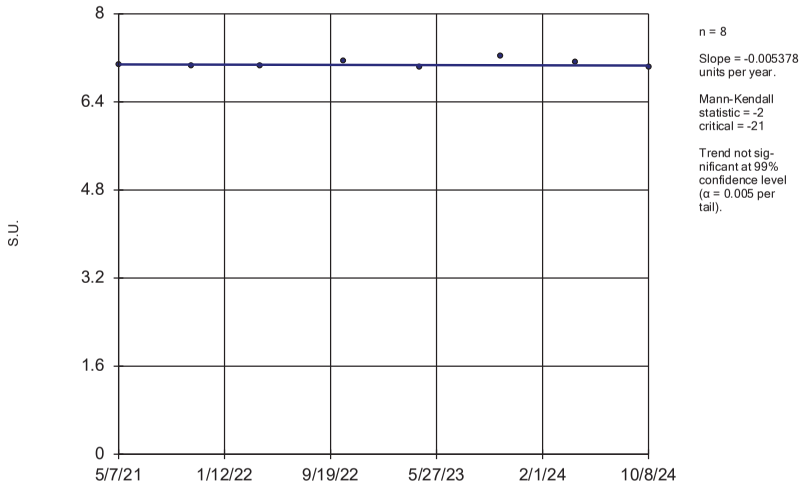
Sen's Slope Estimator

MW-12

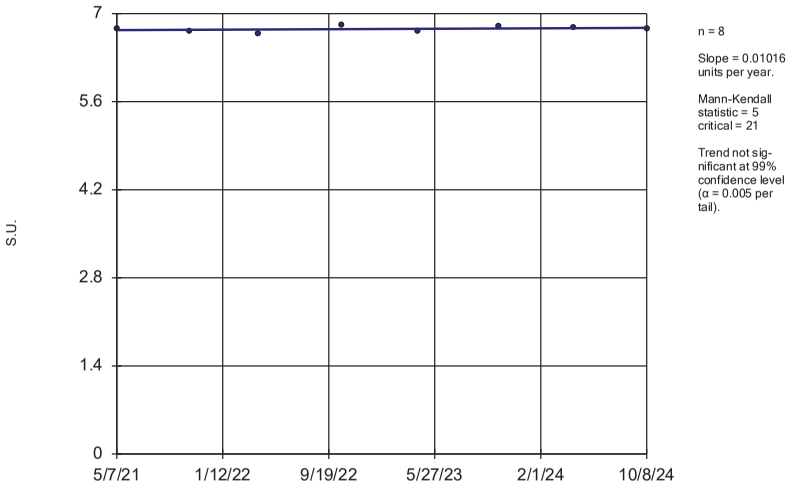


Constituent: pH Analysis Run 11/13/2024 10:10 PM View: 2024AWQR-Mann_Kendall
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB-2024AWQR-AM

Sanitas™ v.10.0.23 Software licensed to SCS Engineers. UG

Sen's Slope Estimator

MW-13

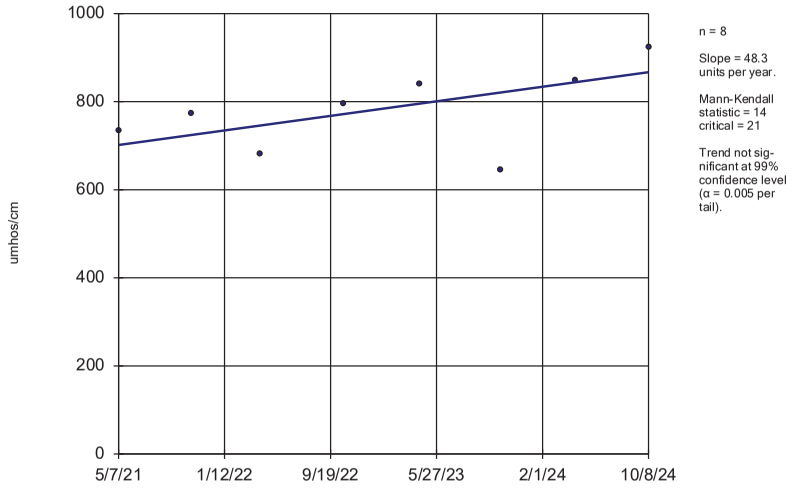


Constituent: pH Analysis Run 11/13/2024 10:10 PM View: 2024AWQR-Mann_Kendall
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB-2024AWQR-AM

Sanitas™ v.10.0.23 Software licensed to SCS Engineers. UG

Sen's Slope Estimator

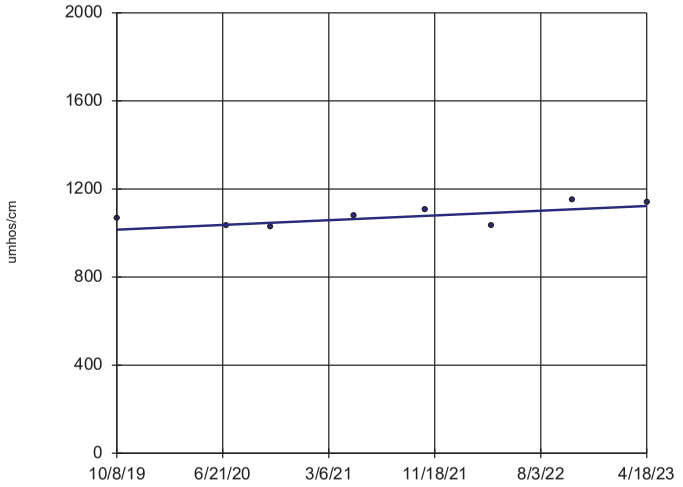
MW-2R



Constituent: Specific Conductance Analysis Run 11/13/2024 10:10 PM View: 2024AWQR-Mann_Kendall
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB-2024AWQR-AM

Sen's Slope Estimator

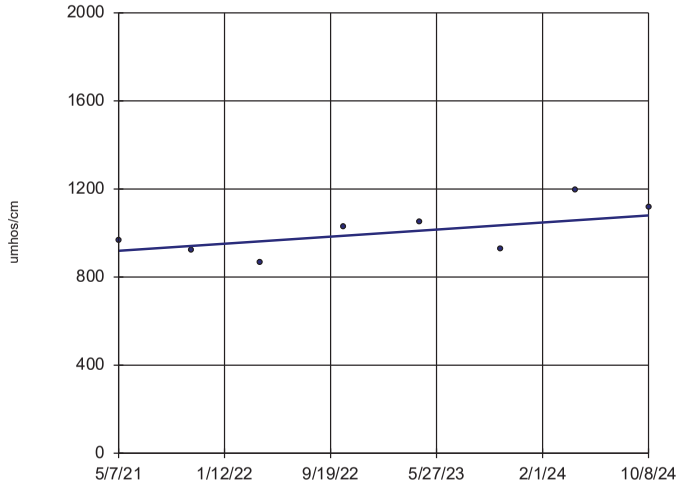
MW-3 (bg)



Constituent: Specific Conductance Analysis Run 11/13/2024 10:10 PM View: 2024AWQR-Mann_Kendall
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB-2024AWQR-AM

Sen's Slope Estimator

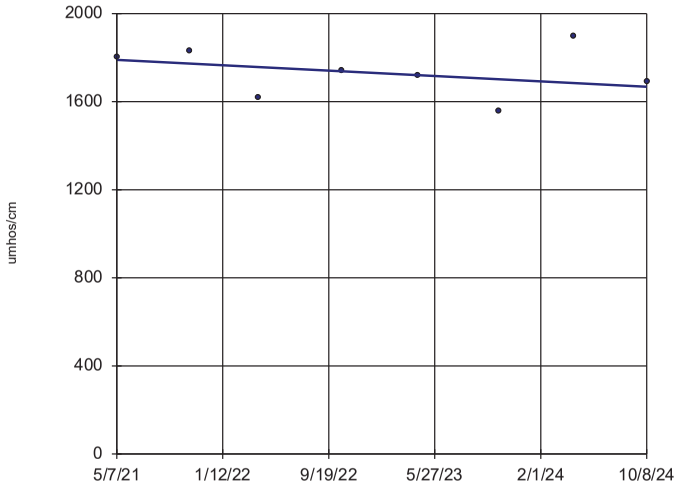
MW-12



Constituent: Specific Conductance Analysis Run 11/13/2024 10:10 PM View: 2024AWQR-Mann_Kendall
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB-2024AWQR-AM

Sen's Slope Estimator

MW-13

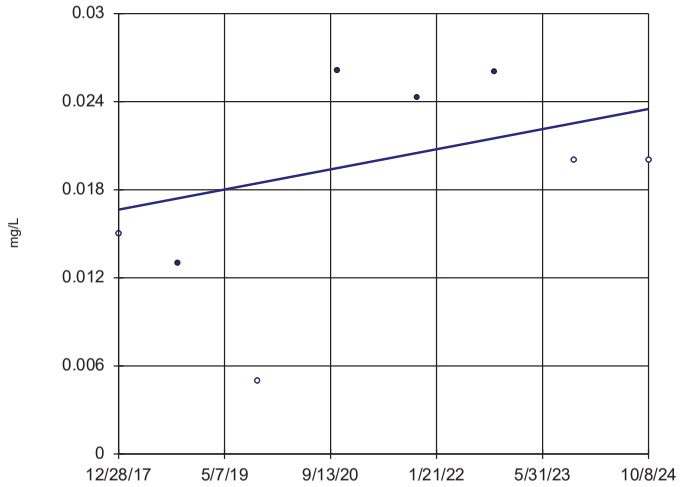


Constituent: Specific Conductance Analysis Run 11/13/2024 10:10 PM View: 2024AWQR-Mann_Kendall
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB-2024AWQR-AM

Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-2R



Constituent: Total Organic Halogens Analysis Run 11/13/2024 10:10 PM View: 2024AWQR-Mann_Kendal
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB-2024AWQR-AM

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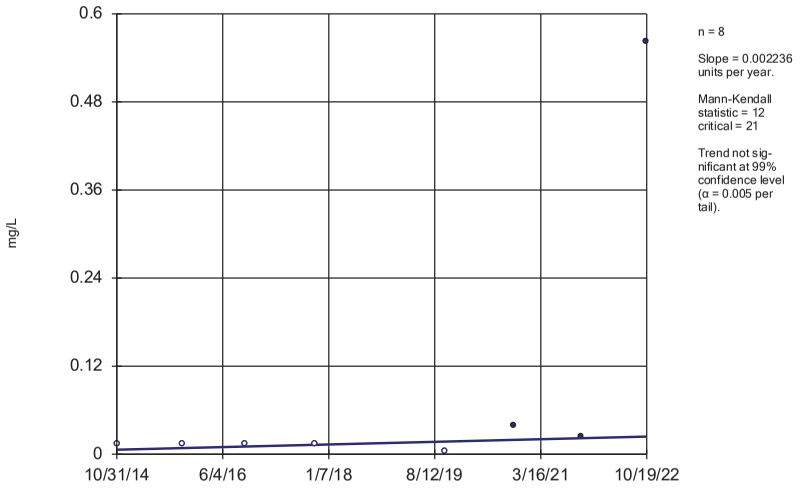
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-3 (bg)

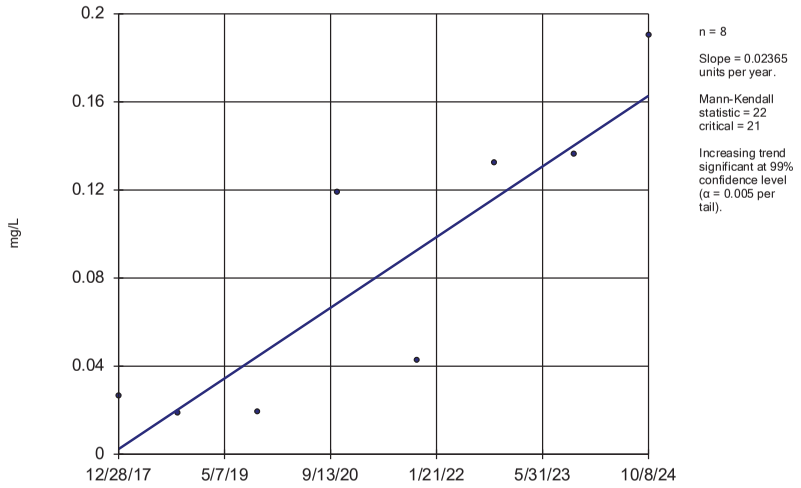


Constituent: Total Organic Halogens Analysis Run 11/13/2024 10:10 PM View: 2024AWQR-Mann_Kendal
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB-2024AWQR-AM

Sanitas™ v.10.0.23 Software licensed to SCS Engineers. UG

Sen's Slope Estimator

MW-12

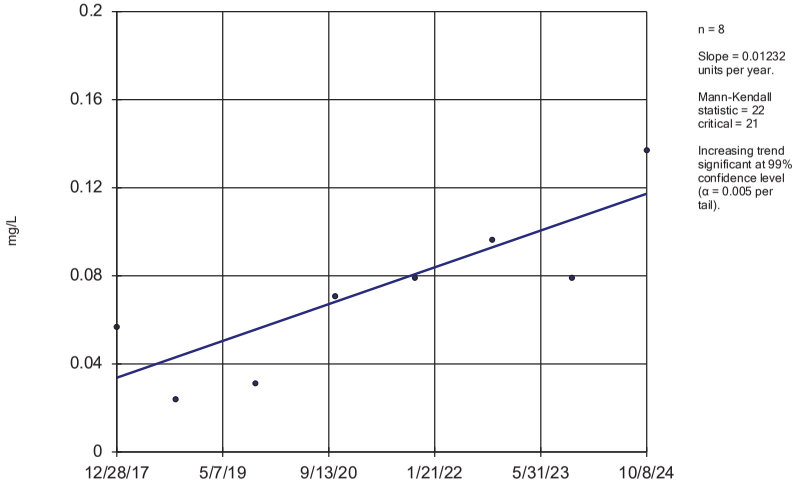


Constituent: Total Organic Halogens Analysis Run 11/13/2024 10:10 PM View: 2024AWQR-Mann_Kendal
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB-2024AWQR-AM

Sanitas™ v.10.0.23 Software licensed to SCS Engineers. UG

Sen's Slope Estimator

MW-13

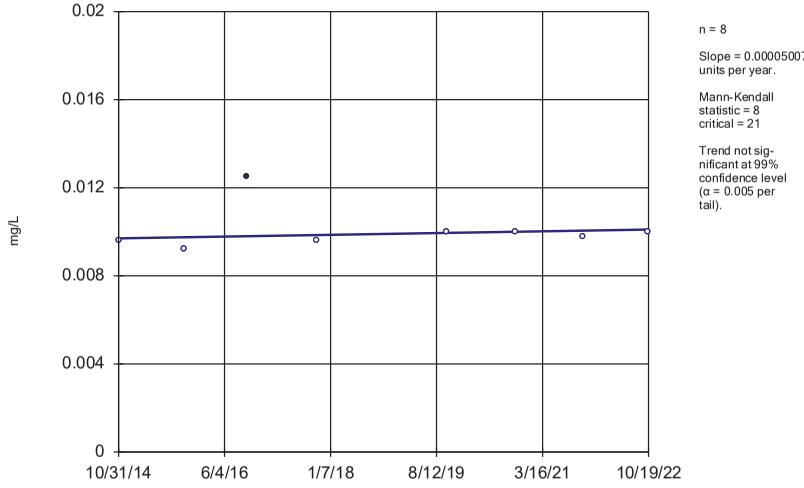


Constituent: Total Organic Halogens Analysis Run 11/13/2024 10:10 PM View: 2024AWQR-Mann_Kendal
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB-2024AWQR-AM

Sanitas™ v.10.0.23 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-3 (bg)



Constituent: Total Phenols Analysis Run 11/13/2024 10:10 PM View: 2024AWQR-Mann_Kendall
Anderson Excavating Landfill Client: SCS Engineers Data: ANDEX CB-2024AWQR-AM

Appendix E

Mann-Kendall Output

Monitoring Well	Constituent Name	Calculated Statistic		
		Decreasing Trend	Stable Trend	Increasing Trend
MW-2R	Chemical Oxygen Demand		-5	
	Chloride			18
	pH		-2	
	Specific Conductance			14
	Total Organic Halogens		5	
MW-3	Chemical Oxygen Demand		-4	
	Chloride			18
	pH		-9	
	Specific Conductance		12	
	Total Organic Halogens		12	
	Total Phenols		8	
MW-12	Ammonia as N		7	
	Chemical Oxygen Demand			22
	Chloride			16
	pH		-2	
	Specific Conductance			14
	Total Organic Halogens			22
MW-13	Ammonia as N		3	
	Chemical Oxygen Demand		-7	
	Chloride		-6	
	Iron, Dissolved		12	
	pH		5	
	Specific Conductance		-6	
	Total Organic Halogens			22

Appendix F

2024 Leachate Control System Performance Evaluation Report

Table F1
Leachate Management Summary
2024 Annual Water Quality Report
Council Bluffs C&D Landfill
Permit No. 78-SDP-04-89C

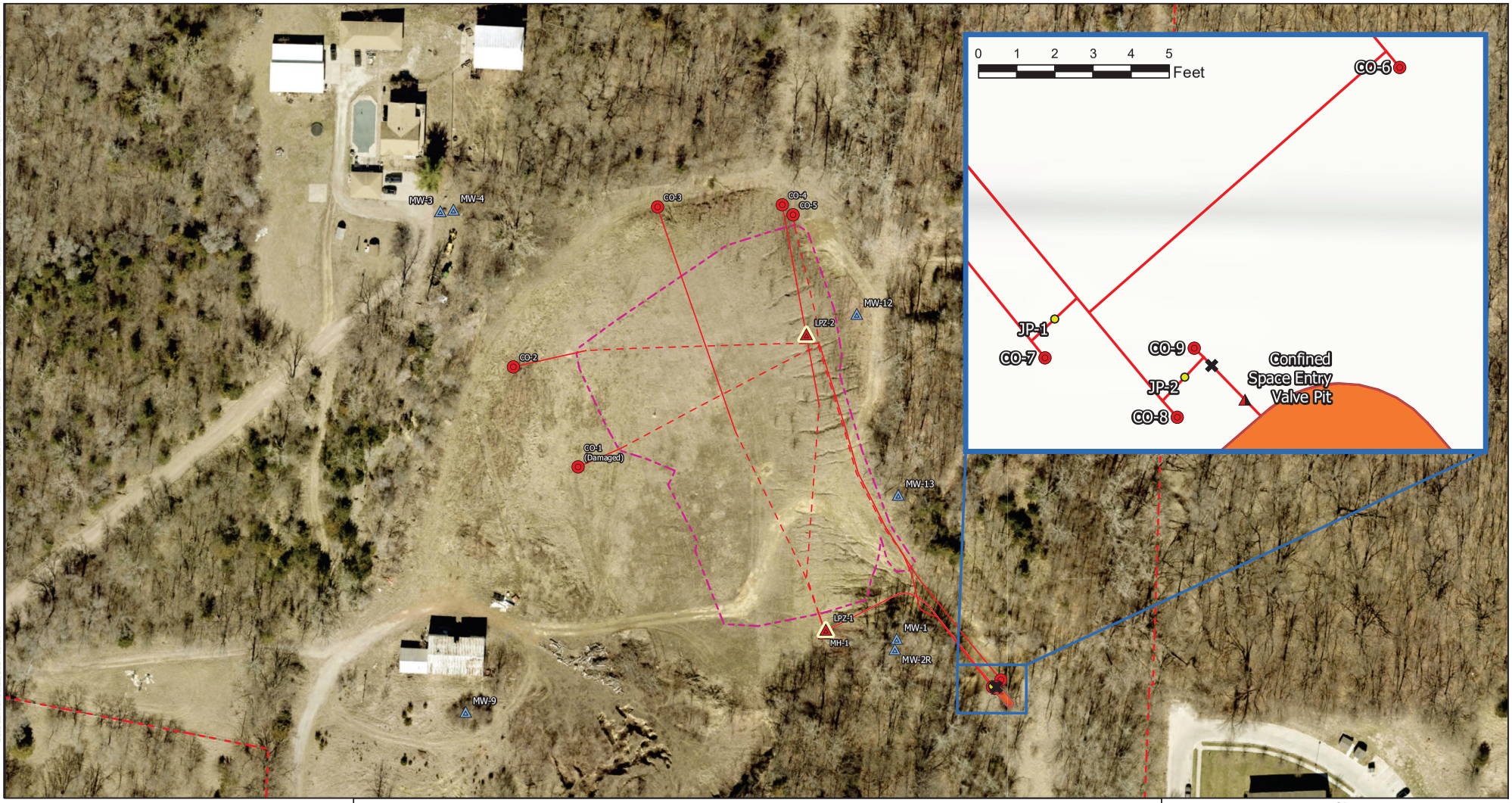
Month	Leachate Head on Liner (ft)		Leachate Storage Tank		Hauled to	Precipitation
	LPZ-1	LPZ-2	Depth to Liquid (ft)	Leachate Volume (gal)	POTW (gal)	(in)
November 2023	0.72	Dry	12.46	NA	0	0.43
December 2023	0.66	Dry	12.36	NA	0	0.21
January 2024	0.18	Dry	12.37	NA	0	0.01
February 2024	0.20	Dry	12.40	NA	0	0.03
March 2024	0.59	20.78	NM	NA	0	1.49
April 2024	0.35	20.58	12.45	NA	0	1.96
May 2024	0.75	Dry	12.34	NA	0	6.28
June 2024	0.19	0.11	11.36	NA	0	3.26
July 2024	0.67	Dry	11.35	NA	0	5.36
August 2024	0.15	Dry	12.05	NA	6,000	4.47
September 2024	0.70	Dry	16.67	NA	12,000	0.43
October 2024	Dry	Dry	16.35	NA	0	1.02
Total					18,000	24.95

Notes:

1) Historical leachate levels and graphs are provided in Attachment A.
2) Precipitation data obtained from Iowa State University Iowa Environmental Mesonet (https://mesonet.agron.iastate.edu/ASOS/reports/mon_prec.php).
3) NA - Not Available
4) NM - Not Measured
5) The leachate level measurements in leachate piezometer LPZ-2 appeared to be erroneous during the March and April sampling events.

Comments:

Reporting Period: November 2023 - October 2024.
Approved Changes to Leachate Collection System: The Leachate Collection System Action Plan (Doc #99014), as approved in Revision #3 to the Closure Permit, issued September 25, 2023 (Doc #107755), was completed in December 2023 (Doc #108441).
Proposed Changes to Leachate Collection System: None.
Maintenance Performed on Leachate Collection System: Maintenance performed on the leachate system is summarized in the Leachate Control System July 2024 Action Plan Update (Doc #110589).
Last Date of Cleaning and Inspection: The last cleaning was completed in 2017 and a camera inspection of the leachate cleanouts was completed in 2019. SCS Engineers performed a camera inspection of the leachate pipes upstream from MH-1 into Phase 1 cell and Cleanout 2 in June 2024.
Date of Next Cleaning and Inspection: Cleaning and inspection requirements for the leachate collection system will be determined following the maintenance described above.
Volume of Leachate Treated Off-Site: 18,000 gallons of leachate were hauled to the City of Council Bluffs POTW during this reporting period.
Leachate Quality Testing Results: Leachate quality testing results are provided in Attachment B.



Leachate Control System

SCS ENGINEERS
environmental consultants and contractors

Legend

- Leachate Monitoring Point
- Manhole
- Leachate Cleanout
- Monitoring Well
- Junction Point
- Above Ground Shutoff Valve
- Approximate Location of Leachate Storage Tank
- Leachate Collection Piping (Perforated)
- Leachate Collection Piping (Solid)
- Approximate Waste Boundary
- Approximate Property Boundary

*All map feature locations are approximate

Anderson Excavating Council Bluffs Landfill
Council Bluffs, Iowa
Project No: 27224173.01
Drawing Date: November 2024

N W E S

0 75 150 300 Feet

Figure 1

Attachment A

Historical Leachate Levels and Graphs

HISTORICAL LEACHATE COLUMN THICKNESSES AND ELEVATIONS
COUNCIL BLUFFS C & D LANDFILL
Permit No. 78-SDP-04-89C
Project No. 27223230.00

	LPZ-1				LPZ-2			
DATE	Head	LPZ Depth	Depth to Leachate	Leachate Elevation	Head	LPZ Depth	Depth to Leachate	Leachate Elevation
07/03/08	6.30	33.8	27.50	1115.50	NA	NA	NA	NA
08/07/08	6.50	34.0	27.50	1115.50	NA	NA	NA	NA
09/22/08	4.87	34.0	29.15	1113.85	2.02	38.0	36.00	1100.02
10/24/08	6.52	34.1	27.55	1115.45	3.44	38.0	34.56	1101.46
11/04/08	5.33	33.9	28.55	1114.45	2.90	38.0	35.06	1100.96
12/26/08	6.40	34.0	27.60	1115.40	0.70	37.8	37.10	1098.92
01/20/09	5.64	33.9	28.22	1114.78	0.26	37.8	37.54	1098.48
2/25/2009 *	NM	NM	NA	NA	NA	NA	NA	NA
3/9/2009 **	NM	NM	NA	NA	NA	NA	NA	NA
04/29/09	6.39	34.0	27.64	1115.36	1.22	37.6	36.40	1099.62
05/11/09	6.33	34.0	27.70	1115.30	0.64	37.8	37.20	1098.82
06/24/09	6.00	33.9	27.85	1115.15	1.90	37.7	35.82	1100.20
07/08/09	8.49	34.2	25.71	1117.29	3.88	38.1	34.17	1101.85
08/07/09	6.00	33.8	27.80	1115.20	2.87	37.6	34.75	1101.27
09/10/09	5.81	33.7	27.93	1115.07	2.39	37.6	35.22	1100.80
10/08/09	6.30	33.9	27.61	1115.39	0.92	37.6	36.68	1099.34
02/25/11	Dry	38.6	38.90	1104.10	Dry	37.6	42.60	1093.42
03/21/11	Dry	38.7	38.90	1104.10	Dry	37.9	42.60	1093.42
04/19/11	Dry	33.6	38.90	1104.10	Dry	37.9	42.60	1093.42
05/09/11	NM	NM	NA	NA	NM	NM	NA	NA
06/17/11	Dry	33.5	38.90	1104.10	Dry	38.3	42.60	1093.42
08/29/11	Dry	33.5	38.90	1104.10	Dry	38.3	42.60	1093.42
09/26/11	7.96	33.5	25.50	1117.50	10.50	38.3	27.75	1108.27
10/04/11	Dry	33.5	38.90	1104.10	Dry	38.3	42.00	1094.02
11/29/11	15.00†	33.45†	18.45†	1124.55†	Dry	38.3	42.00	1094.02
12/20/11	14.05†	32.9†	18.85†	1124.15†	5.82	38.7	32.88	1103.14
01/24/12	14.07†	32.88†	18.81†	1124.19†	Dry	38.7	42.00	1094.02
02/15/12	13.05†	32.1†	19.05†	1123.95†	Dry	38.2	42.00	1094.02
03/19/12	13.77†	32.7†	18.93†	1124.07†	Dry	38.5	42.00	1094.02
04/17/12	Dry	33.5	38.90	1104.10	10.55	38.7	28.15	1107.87
05/22/12	Dry	32.9	38.90	1104.10	16.83	38.6	21.81	1114.21
06/15/12	Dry	33.8	38.90	1104.10	Dry	38.6	42.00	1094.02
07/26/12	Dry	33.8	38.90	1104.10	Dry	38.6	42.60	1093.42
08/29/12	Dry	33.7	38.90	1104.10	0.02	38.6	38.53	1097.49
09/12/12	Dry	33.8	38.90	1104.10	0.03	38.6	38.57	1097.45
10/17/12	Dry	33.8	38.90	1104.10	Dry	38.6	42.60	1093.42
11/06/12	Dry	33.7	38.90	1104.10	Dry	38.5	42.60	1093.42
12/06/12	Dry	33.7	38.90	1104.10	Dry	38.6	42.60	1093.42
01/17/13	Dry	33.5	38.90	1104.10	Dry	38.3	42.60	1093.42
02/27/13	Dry	33.3	38.90	1104.10	Dry	38.4	42.60	1093.42
03/08/13	Dry	33.2	38.90	1104.10	Dry	38.5	42.60	1093.42
04/03/13	Dry	33.5	38.90	1104.10	Dry	38.3	42.60	1093.42
05/21/13	Dry	33.0	38.90	1104.10	Dry	38.4	42.60	1093.42
06/01/13**	NM	NM	NA	NA	NM	NM	NA	NA
07/10/13	Dry	33.2	38.90	1104.10	Dry	38.3	42.60	1093.42
08/16/13	Dry	33.2	38.90	1104.10	Dry	38.2	42.60	1093.42
09/18/13	Dry	33.2	38.90	1104.10	Dry	38.2	42.60	1093.42
10/17/13	Dry	33.2	38.90	1104.10	Dry	43.5	42.60	1093.42
11/20/13	Dry	33.2	38.90	1104.10	Dry	43.4	42.60	1093.42
12/12/13	Dry	33.2	38.90	1104.10	Dry	43.4	42.60	1093.42

HISTORICAL LEACHATE COLUMN THICKNESSES AND ELEVATIONS
COUNCIL BLUFFS C & D LANDFILL
Permit No. 78-SDP-04-89C
Project No. 27223230.00

	LPZ-1				LPZ-2			
DATE	Head	LPZ Depth	Depth to Leachate	Leachate Elevation	Head	LPZ Depth	Depth to Leachate	Leachate Elevation
01/29/14	0.37	38.6	38.19	1104.81	Dry	42.6	42.60	1093.42
02/12/14	0.41	38.6	38.19	1104.81	Dry	42.6	42.60	1093.42
03/26/14	0.48	38.6	38.12	1104.88	Dry	42.6	42.60	1093.42
04/29/14	Dry	38.5	38.50	1104.50	Dry	42.5	42.50	1093.52
05/20/14	Dry	33.5	33.50	1109.50	Dry	43.5	43.50	1092.52
06/18/14	Dry	33.5	33.50	1109.50	Dry	43.5	43.50	1092.52
07/10/14	Dry	33.4	33.40	1109.60	Dry	43.3	43.30	1092.72
08/15/14	Dry	33.4	33.40	1109.60	Dry	43.0	43.00	1093.02
09/16/14	Dry	33.5	33.50	1109.50	Dry	43.5	43.50	1092.52
10/31/14	Dry	38.6	38.60	1104.40	Dry	42.6	42.60	1093.42
11/19/14	0.85	33.5	32.65	1110.35	0.05	42.7	42.65	1093.37
12/08/14	0.64	38.9	38.22	1104.78	Dry	42.7	42.74	1093.28
01/12/15	0.61	38.8	38.22	1104.78	Dry	42.7	42.73	1093.29
02/17/15	0.61	38.8	38.22	1104.78	0.04	42.7	42.69	1093.33
03/16/15	0.56	38.8	38.26	1104.74	0.30	42.7	42.43	1093.59
04/08/15	0.56	38.8	38.26	1104.74	0.28	42.7	42.45	1093.57
05/04/15	Dry	38.9	38.89	1104.11	Dry	42.7	42.73	1093.29
06/04/15	0.80	38.8	38.02	1104.98	0.03	42.7	42.70	1093.32
07/09/15	1.00	38.9	37.85	1105.15	0.05	42.7	42.69	1093.33
08/10/15	0.73	38.9	38.12	1104.88	0.01	42.7	42.73	1093.29
10/27/15	0.40	38.7	38.30	1104.70	Dry	42.6	42.55	1093.47
12/03/15	Dry	42.8	42.75	1103.46	3.75	38.9	38.25	1105.50
01/13/16	Dry	38.9	38.93	1107.28	Dry	42.8	42.62	1101.13
02/11/16	0.10	38.9	38.80	1107.41	Dry	42.8	42.77	1100.98
03/14/16	NM	NM	NM	NM	3.69	38.7	38.31	1105.44
04/21/16	0.99	37.9	37.91	1108.30	NM	NM	NM	NM
05/11/16	Dry	39.0	38.96	1107.25	1.20	42.0	40.80	1102.95
06/16/16	0.10	38.8	38.80	1107.41	1.80	42.1	40.20	1103.55
07/21/16	0.70	38.9	38.20	1108.01	0.40	42.1	41.60	1102.15
08/02/16	0.72	38.9	38.18	1108.03	0.10	42.0	41.90	1101.85
09/26/16	0.68	38.7	38.22	1107.99	0.11	41.9	41.89	1101.86
10/12/16	0.68	38.7	38.22	1107.99	0.11	41.9	41.89	1101.86
11/01/16	0.65	39.0	38.25	1107.96	Dry	42.0	42.03	1101.72
12/23/16	0.17	38.7	38.73	1107.48	Dry	42.0	42.00	1101.75
01/24/17	0.58	39.0	38.32	1107.89	Dry	42.1	42.12	1101.63
02/10/17	0.58	39.0	38.32	1107.89	Dry	42.0	42.02	1101.73
03/09/17	0.43	38.9	38.47	1107.74	Dry	43.0	43.00	1100.75
04/11/17	0.31	38.8	38.59	1107.62	Dry	42.1	42.05	1101.70
05/08/17	0.75	38.9	38.15	1108.06	Dry	44.0	43.99	1099.76
06/09/17	0.24	39.0	38.66	1107.55	1.02	42.0	40.98	1102.77
07/17/17	Dry	38.9	38.93	1107.28	Dry	44.0	43.99	1099.76
08/01/17	Dry	38.9	38.93	1107.28	Dry	44.0	43.99	1099.76
09/12/17	0.62	39.0	38.28	1107.93	Dry	42.1	42.02	1101.73
10/26/17	Dry	38.9	38.93	1107.28	Dry	44.0	43.99	1099.76
11/30/17	0.15	39.0	38.75	1107.46	Dry	42.0	42.04	1101.71
12/28/17	1.48	39.0	37.42	1108.79	Dry	42.1	42.05	1101.70
09/06/18	0.49	38.9	38.41	1107.80	17.15	42.2	24.85	1118.90
10/02/18	1.80	39.2	37.10	1109.11	1.90	42.0	40.10	1103.65
11/08/18	0.67	38.8	38.23	1107.98	2.22	42.2	39.78	1103.97
12/27/18	0.78	38.9	38.12	1108.09	0.92	42.1	41.08	1102.67

HISTORICAL LEACHATE COLUMN THICKNESSES AND ELEVATIONS
COUNCIL BLUFFS C & D LANDFILL
Permit No. 78-SDP-04-89C
Project No. 27223230.00

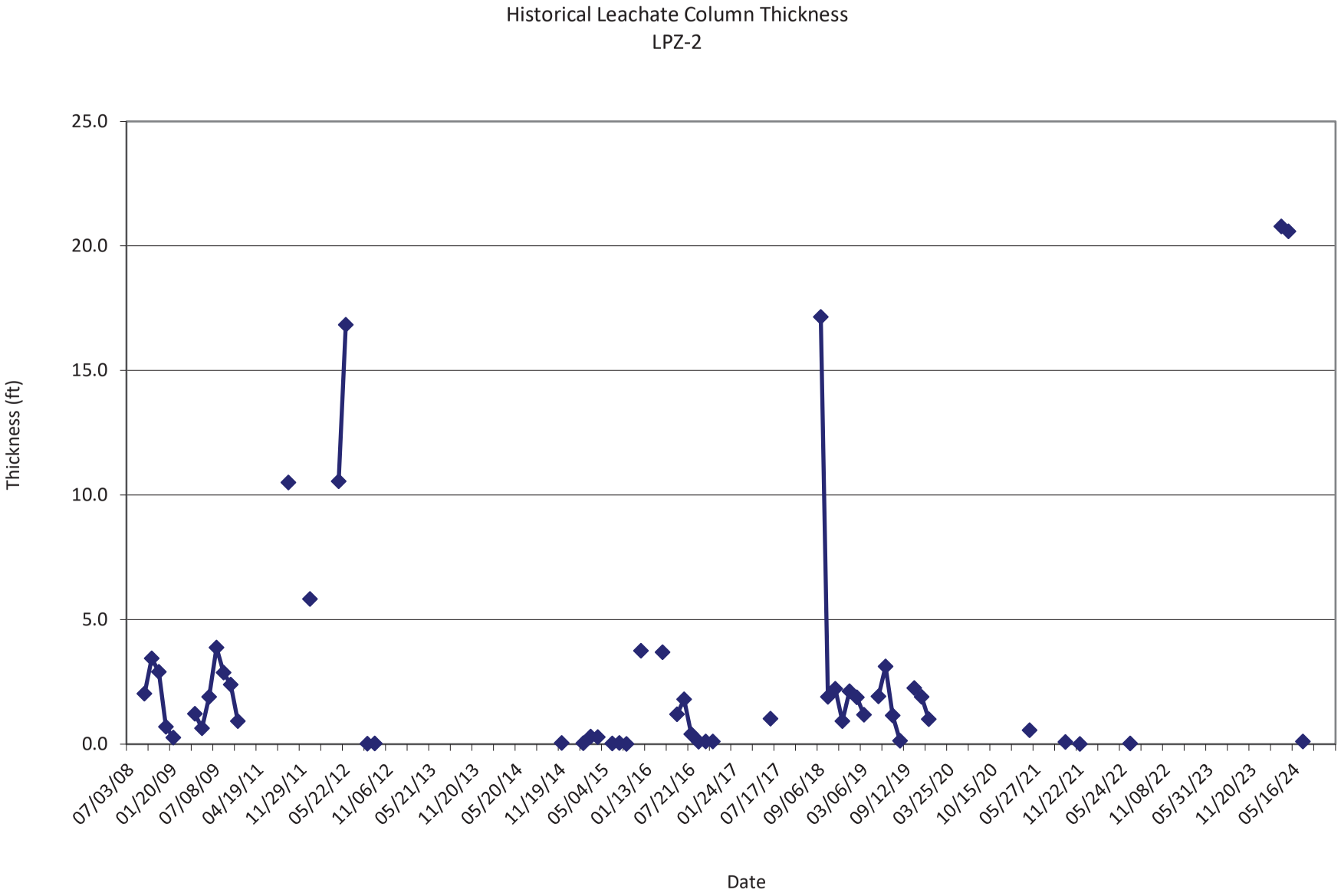
	LPZ-1				LPZ-2			
DATE	Head	LPZ Depth	Depth to Leachate	Leachate Elevation	Head	LPZ Depth	Depth to Leachate	Leachate Elevation
01/29/19	0.68	38.9	38.22	1107.99	2.12	42.1	39.88	1103.87
02/14/19	0.61	38.9	38.29	1107.92	1.88	42.1	40.12	1103.63
03/06/19	0.44	38.9	38.46	1107.75	1.18	42.1	40.82	1102.93
04/09/19	0.10	38.8	38.80	1107.41	Dry	42.2	42.15	1101.60
05/23/19	0.80	39.0	38.10	1108.11	1.92	42.1	40.08	1103.67
06/13/19	0.36	39.4	38.54	1107.67	3.12	42.1	38.88	1104.87
07/23/19	0.80	39.0	38.10	1108.11	1.15	42.1	40.85	1102.90
08/20/19	0.76	39.0	38.14	1108.07	0.13	42.1	41.87	1101.88
09/12/19	0.70	39.0	38.20	1108.01	Dry	42.1	42.06	1101.69
10/08/19	0.88	39.0	38.02	1108.19	2.25	42.1	39.75	1104.00
11/21/19	0.70	38.9	38.20	1108.01	1.90	42.1	40.10	1103.65
12/11/19	0.69	39.0	38.21	1108.00	1.00	42.1	41.00	1102.75
01/28/20	0.70	39.0	38.20	1108.01	Dry	42.1	42.11	1101.64
02/24/20	Dry	39.0	38.94	1107.27	Dry	42.1	42.05	1101.70
03/25/20	0.90	39.0	38.00	1108.21	Dry	42.1	42.10	1101.65
05/29/20	0.74	39.0	38.16	1108.05	Dry	42.1	42.05	1101.70
07/01/20	0.60	39.0	38.30	1107.91	Dry	42.2	42.09	1101.66
07/21/20	0.39	39.0	38.51	1107.70	Dry	42.1	42.09	1101.66
08/27/20	0.70	39.0	38.20	1108.01	Dry	42.1	42.03	1101.72
09/29/20	0.68	38.9	38.22	1107.99	Dry	42.1	42.88	1100.87
10/15/20	0.63	38.9	38.27	1107.94	Dry	42.1	42.05	1101.70
11/25/20	0.58	38.9	38.32	1107.89	Dry	42.1	42.10	1101.65
12/10/20	0.59	38.9	38.31	1107.90	Dry	42.1	42.10	1101.65
01/19/21	0.38	38.9	38.52	1107.69	Dry	42.1	42.10	1101.65
02/18/21	0.56	38.9	38.34	1107.87	Dry	42.1	42.08	1101.67
04/28/21	0.60	39.0	38.30	1107.91	0.56	42.2	41.44	1102.31
05/27/21	0.68	39.0	38.22	1107.99	Dry	42.1	42.07	1101.68
06/17/21	0.53	38.9	38.37	1107.84	Dry	42.1	42.06	1101.69
07/21/21	1.59	39.0	37.31	1108.90	Dry	42.1	42.06	1101.69
08/03/21	0.70	39.1	38.20	1108.01	Dry	42.1	42.06	1101.69
09/01/21	1.02	39.0	37.88	1108.33	0.09	42.0	41.91	1101.84
10/26/21	0.70	39.0	38.20	1108.01	Dry	42.1	42.05	1101.70
11/22/21	0.71	39.0	38.19	1108.02	0.01	42.1	41.99	1101.76
12/22/21	0.71	39.0	38.19	1108.02	Dry	42.1	42.02	1101.73
01/30/22	0.62	39.0	38.28	1107.93	Dry	42.1	42.03	1101.72
02/23/22	0.58	39.0	38.32	1107.89	Dry	42.1	42.10	1101.65
03/08/22	0.61	39.0	38.29	1107.92	Dry	42.1	42.05	1101.70
04/06/22	0.62	39.0	38.28	1107.93	Dry	42.1	42.10	1101.65
05/24/22	0.67	39.0	38.23	1107.98	Dry	42.1	42.08	1101.67
06/29/22	0.91	39.0	37.99	1108.22	0.03	42.1	41.97	1101.78
07/19/22	0.01	39.0	38.89	1107.32	Dry	42.1	42.02	1101.73
08/18/22	0.72	39.0	38.18	1108.03	Dry	42.1	42.00	1101.75
09/07/22	0.81	39.0	38.09	1108.12	Dry	42.1	42.05	1101.70
10/19/22	0.58	39.0	38.32	1107.89	Dry	42.1	42.00	1101.75
11/08/22	0.75	39.0	38.15	1108.06	Dry	42.1	42.06	1101.69
12/12/22	0.68	39.0	38.22	1107.99	Dry	42.1	42.03	1101.72
01/26/23	0.76	39.0	38.14	1108.07	Dry	42.1	42.00	1101.75
02/21/23	0.61	39.0	38.29	1107.92	Dry	42.1	42.05	1101.70
03/30/23	0.91	39.0	37.99	1108.22	Dry	42.1	42.00	1101.75
04/18/23	1.06	39.0	37.84	1108.37	Dry	42.1	42.00	1101.75
05/31/23	0.67	39.0	38.23	1107.98	Dry	42.1	42.02	1101.73
06/27/23	0.69	39.0	38.21	1108.00	Dry	42.1	42.00	1101.75
07/25/23	0.70	39.0	38.20	1108.01	Dry	42.1	42.00	1101.75
08/30/23	0.70	39.0	38.20	1108.01	Dry	42.1	42.03	1101.72
09/11/23	0.74	39.0	38.16	1108.05	Dry	42.1	42.00	1101.75
10/27/23	0.52	39.0	38.38	1107.83	Dry	42.1	42.10	1101.65

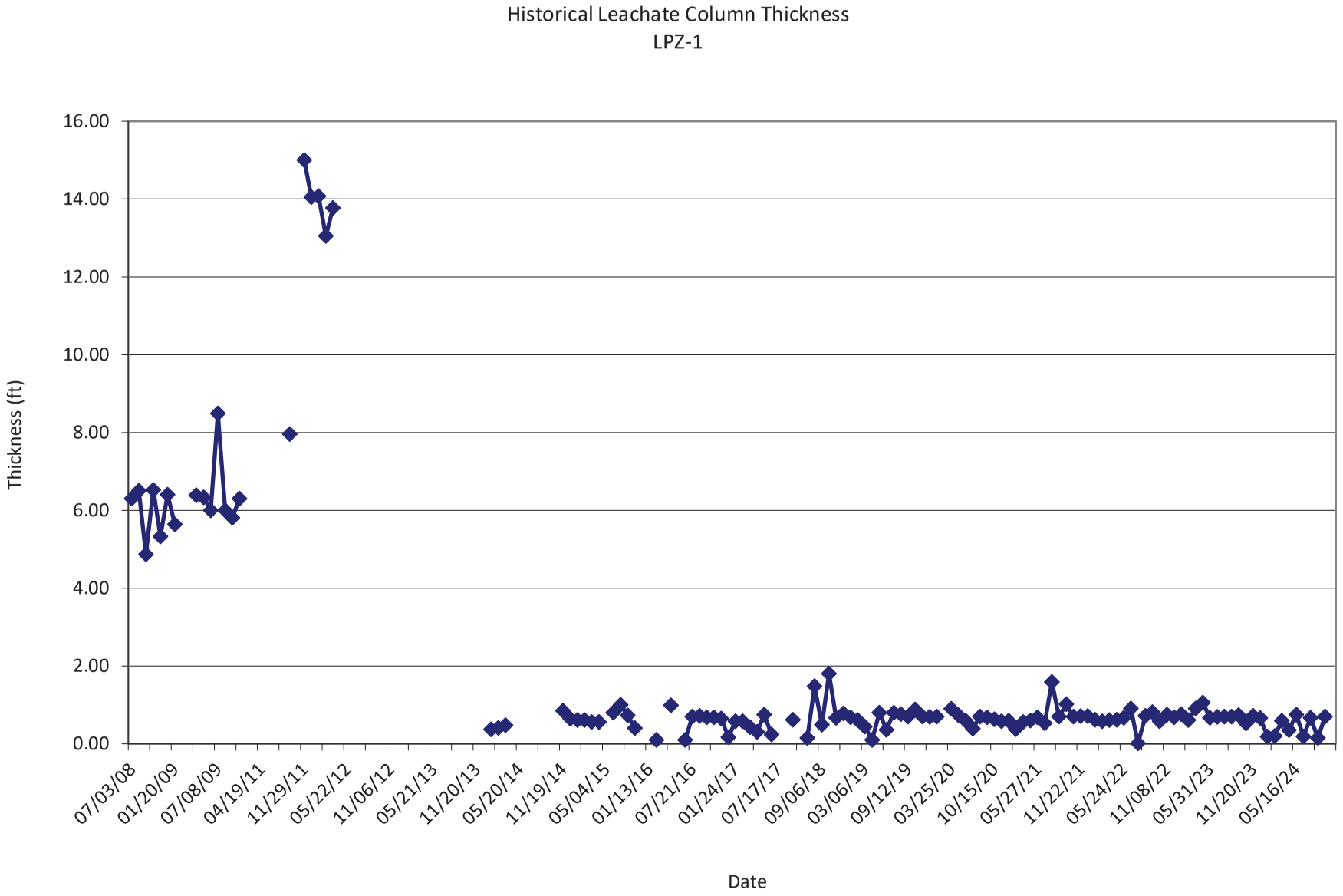
HISTORICAL LEACHATE COLUMN THICKNESSES AND ELEVATIONS
COUNCIL BLUFFS C & D LANDFILL
Permit No. 78-SDP-04-89C
Project No. 27223230.00

	LPZ-1				LPZ-2			
DATE	Head	LPZ Depth	Depth to Leachate	Leachate Elevation	Head	LPZ Depth	Depth to Leachate	Leachate Elevation
11/20/23	0.72	39.0	38.18	1108.03	Dry	42.1	42.00	1101.75
12/12/23	0.66	39.0	38.24	1107.97	Dry	42.1	42.00	1101.75
01/31/24	0.18	39.0	38.72	1107.49	Dry	42.1	42.02	1101.73
02/29/24	0.20	39.0	38.70	1107.51	Dry	42.1	42.03	1101.72
03/13/24	0.59	39.0	38.31	1107.90	20.78	42.1	21.22	1122.53
04/19/24	0.35	39.0	38.55	1107.66	20.58	42.1	21.42	1122.33
05/16/24	0.75	39.0	38.15	1108.06	Dry	42.1	42.03	1101.72
06/01/24	0.19	39.0	38.71	1107.50	0.11	42.1	41.89	1101.86
07/16/24	0.67	39.0	38.23	1107.98	Dry	42.1	42.00	1101.75
08/29/24	0.15	39.0	38.75	1107.46	Dry	42.1	42.04	1101.71
09/27/24	0.70	39.0	38.20	1108.01	Dry	42.1	42.00	1101.75
10/29/24	Dry	39.0	39.00	1107.21	Dry	42.1	42.00	1101.75

Notes:

All measurements are in feet.
Elevation of top of casing (ft amsl): LPZ-1:1143.00, LPZ-2:1136.02 prior to December 2015.
Elevation of top of casing (ft amsl): LPZ-1:1146.21, LPZ-2:1143.75 after November 2015.
* An equipment malfunction prevented the measurement of leachate level and well depth.
** Levels and depths were not measured due to personnel error.
† Possible erroneous data as stated in 2012 LCSPER.
Column thicknesses beginning in December 2015 are based on total depths of 38.9 and 42.0 for LPZ-1 and LPZ-2,
Levels and depths were not measured from January 2018 - August 2018.


Historical Leachate Column Thickness
LPZ-2
Thickness (ft)
25.0
20.0
15.0
10.0
5.0
0.0
07/03/08
01/20/09
07/08/09
04/19/11
11/29/11
05/22/12
11/06/12
05/21/13
11/20/13
05/20/14
11/19/14
05/04/15
01/13/16
07/21/16
01/24/17
07/17/17
09/06/18
03/06/19
09/12/19
03/25/20
10/15/20
05/27/21
11/22/21
05/24/22
11/08/22
05/31/23
11/20/23
05/16/24
Date


Historical Leachate Column Thickness
LPZ-1
Thickness (ft)
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
07/03/08
01/20/09
07/08/09
04/19/11
11/29/11
05/22/12
11/06/12
05/21/13
11/20/13
05/20/14
11/19/14
05/04/15
01/13/16
07/21/16
01/24/17
07/17/17
09/06/18
03/06/19
09/12/19
03/25/20
10/15/20
05/27/21
11/22/21
05/24/22
11/08/22
05/31/23
11/20/23
05/16/24
Date

Attachment B

Leachate Quality Testing Results

Midwest Laboratories
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19 August 2024

Work Order: 1612174

Fran T
3T Inc - 63103
333 Lincoln Avenue
Council Bluffs, IA 51503

RE: Wastewater from Landfill

Enclosed are the results of analyses for samples received by the laboratory on 2024-08-12 13:10. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Heather Ramig
Project Manager
hramig@midwestlabs.com

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3T Inc - 63103
333 Lincoln Avenue
Council Bluffs, IA 51503

Project: Wastewater from Landfill

Project Manager: Fran T

Reported:
2024-08-19 16:53

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
2520 E Kanesville	1612174-01	Aqueous	2024-08-12 11:55	2024-08-12 13:10

Containers used for the following analyses:

	1612174-01 A:	SM 2540 D-2015, SM 4500-H+ B-2011, SM 5210 B-2016, Total Metals per EPA 245.1
#	1612174-01 B:	Total Metals per EPA 200.7, Total Metals per EPA 200.8
#	1612174-01 C:	EPA 1664B
#	1612174-01 E:	SM 4500-CN- E-2016

Note: Indicates container was received outside the acceptable pH range and was preserved at the laboratory.

Analysis Results Reviewed by:

Total Metals per EPA 200.7 reviewed by kkh9.

Total Metals per EPA 200.8 reviewed by kkh9.

Total Metals per EPA 245.1 reviewed by kkh9.

EPA 1664B reviewed by mgn8.

SM 2540 D-2015 reviewed by jdb5.

SM 4500-CN- E-2016 reviewed by jdb5.

SM 5210 B-2016 reviewed by mgn8.

SM 4500-H+ B-2011 reviewed by mgn8.

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3T Inc - 63103
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Council Bluffs, IA 51503

Project: Wastewater from Landfill

Project Manager: Fran T

Reported:
2024-08-19 16:53

Sample ID: 2520 E Kanesville
Laboratory ID: 1612174-01
Sampled Date/Time: 2024-08-12 11:55

Analyte	Result	Reporting Limit	Units	Method	Prepared	Analyzed	Analyst	(Container) / Notes
Total Metals								
Antimony	<	0.0005	mg/L	EPA 200.8	2024-08-14	2024-08-16	ras7	(B)
Arsenic	0.004	0.001	mg/L	EPA 200.8	2024-08-14	2024-08-16	ras7	(B)
Beryllium	<	0.001	mg/L	EPA 200.7	2024-08-14	2024-08-14	dsh7	(B)
Cadmium	<	0.005	mg/L	EPA 200.7	2024-08-14	2024-08-14	dsh7	(B)
Chromium	<	0.01	mg/L	EPA 200.7	2024-08-14	2024-08-14	dsh7	(B)
Copper	<	0.01	mg/L	EPA 200.7	2024-08-14	2024-08-14	dsh7	(B)
Lead	0.0010	0.0005	mg/L	EPA 200.8	2024-08-14	2024-08-16	ras7	(B)
Mercury	<	0.0004	mg/L	EPA 245.1	2024-08-14	2024-08-16	mab7	(A)
Nickel	0.01	0.01	mg/L	EPA 200.7	2024-08-14	2024-08-14	dsh7	(B)
Selenium	0.011	0.001	mg/L	EPA 200.8	2024-08-14	2024-08-16	ras7	(B)
Silver	<	0.01	mg/L	EPA 200.7	2024-08-14	2024-08-14	dsh7	(B)
Thallium	<	0.0005	mg/L	EPA 200.8	2024-08-14	2024-08-16	ras7	(B)
Zinc	0.01	0.01	mg/L	EPA 200.7	2024-08-14	2024-08-14	dsh7	(B)
Environmental Chemistry								
Biochemical Oxygen Demand	29.4	13.0	mg/L	SM 5210 B-2016	2024-08-12/17:29	2024-08-17/17:25	lkm2	(A)/ BOD30
Cyanide (total)	<	0.02	mg/L	SM 4500-CN-E-2016	2024-08-14	2024-08-14	gas9	(E)
Hexane Extractable Material (HEM)	7.7	5.0	mg/L	EPA 1664B	2024-08-15	2024-08-15	kjp4	(C)/ HEM
Total Suspended Solids	62	4	mg/L	SM 2540 D-2015	2024-08-13	2024-08-13	ppj2	(A)
Environmental Chemistry (in lab, exceeds regulatory hold time)								
pH @ 21.4°C	7.07		S.U.	SM 4500-H+ B-2011	2024-08-14	2024-08-14	cvn2	(A)

Work Order: 1612174

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3T Inc - 63103
333 Lincoln Avenue
Council Bluffs, IA 51503

Project: Wastewater from Landfill
Project Manager: Fran T

Reported:
2024-08-19 16:53

Total Metals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B946698										
Blank (B946698-BLK1)				Prepared & Analyzed: 2024-08-14						
Beryllium	<	0.001	mg/L							
Cadmium	<	0.005	mg/L							
Chromium	<	0.01	mg/L							
Copper	<	0.01	mg/L							
Nickel	<	0.01	mg/L							
Silver	<	0.01	mg/L							
Zinc	<	0.01	mg/L							
LCS (B946698-BS1)				Prepared & Analyzed: 2024-08-14						
Beryllium	0.976	0.001	mg/L	1.00		97.6	85-115			
Cadmium	0.934	0.005	mg/L	1.00		93.4	85-115			
Chromium	0.94	0.01	mg/L	1.00		93.6	85-115			
Copper	1.92	0.01	mg/L	2.00		96.2	85-115			
Nickel	0.92	0.01	mg/L	1.00		91.8	85-115			
Silver	0.976	0.01	mg/L	1.00		97.6	85-115			
Zinc	1.85	0.01	mg/L	2.00		92.3	85-115			
Matrix Spike (B946698-MS1)		**Source: 1609318-01**		Prepared & Analyzed: 2024-08-14						
Beryllium	1.00	0.001	mg/L	1.00	<	100	70-130			
Cadmium	0.941	0.005	mg/L	1.00	<	94.1	70-130			
Chromium	0.96	0.01	mg/L	1.00	<	96.2	70-130			
Copper	1.98	0.01	mg/L	2.00	0.02	98.3	70-130			
Nickel	0.93	0.01	mg/L	1.00	<	92.9	70-130			
Silver	1.004	0.01	mg/L	1.00	<	100	70-130			
Zinc	1.89	0.01	mg/L	2.00	<	94.6	70-130			
Matrix Spike Dup (B946698-MSD1)		**Source: 1609318-01**		Prepared & Analyzed: 2024-08-14						
Beryllium	1.00	0.001	mg/L	1.00	<	100	70-130	0.399	20	
Cadmium	0.948	0.005	mg/L	1.00	<	94.8	70-130	0.699	20	
Chromium	0.96	0.01	mg/L	1.00	<	95.6	70-130	0.636	20	
Copper	1.99	0.01	mg/L	2.00	0.02	98.7	70-130	0.453	20	
Nickel	0.93	0.01	mg/L	1.00	<	93.2	70-130	0.312	20	
Silver	1.009	0.01	mg/L	1.00	<	101	70-130	0.497	20	
Zinc	1.90	0.01	mg/L	2.00	<	94.8	70-130	0.317	20	

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333 Lincoln Avenue
Council Bluffs, IA 51503

Project: Wastewater from Landfill

Project Manager: Fran T

Reported:
2024-08-19 16:53

Total Metals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B946699										
Blank (B946699-BLK1)				Prepared: 2024-08-14 Analyzed: 2024-08-16						
Antimony	<	0.0005	mg/L							
Arsenic	<	0.001	mg/L							
Lead	<	0.0005	mg/L							
Selenium	<	0.001	mg/L							
Thallium	<	0.0005	mg/L							
LCS (B946699-BS1)				Prepared: 2024-08-14 Analyzed: 2024-08-16						
Antimony	0.0367	0.0005	mg/L	0.0400		91.7	85-115			
Arsenic	0.039	0.001	mg/L	0.0400		97.1	85-115			
Lead	0.0395	0.0005	mg/L	0.0400		98.8	85-115			
Selenium	0.038	0.001	mg/L	0.0400		94.5	85-115			
Thallium	0.0415	0.0005	mg/L	0.0400		104	85-115			
Matrix Spike (B946699-MS1)		**Source: 1612039-01**		Prepared: 2024-08-14 Analyzed: 2024-08-16						
Antimony	0.0389	0.0005	mg/L	0.0400	0.0004	96.3	70-130			
Arsenic	0.046	0.001	mg/L	0.0400	0.007	97.6	70-130			
Lead	0.0352	0.0005	mg/L	0.0400	<	88.0	70-130			
Selenium	0.038	0.001	mg/L	0.0400	0.001	93.4	70-130			
Thallium	0.0383	0.0005	mg/L	0.0400	0.000015	95.8	70-130			
Matrix Spike Dup (B946699-MSD1)		**Source: 1612039-01**		Prepared: 2024-08-14 Analyzed: 2024-08-16						
Antimony	0.0398	0.0005	mg/L	0.0400	0.0004	98.5	70-130	2.29	20	
Arsenic	0.047	0.001	mg/L	0.0400	0.007	98.7	70-130	0.935	20	
Lead	0.0359	0.0005	mg/L	0.0400	<	89.8	70-130	2.10	20	
Selenium	0.039	0.001	mg/L	0.0400	0.001	95.3	70-130	1.91	20	
Thallium	0.0394	0.0005	mg/L	0.0400	0.000015	98.4	70-130	2.61	20	

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3T Inc - 63103
333 Lincoln Avenue
Council Bluffs, IA 51503

Project: Wastewater from Landfill

Project Manager: Fran T

Reported:
2024-08-19 16:53

Total Metals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B946844										
Blank (B946844-BLK1)				Prepared: 2024-08-14 Analyzed: 2024-08-16						
Mercury	<	0.0004	mg/L							
LCS (B946844-BS1)				Prepared: 2024-08-14 Analyzed: 2024-08-16						
Mercury	0.0009	0.0004	mg/L	0.00100		94.2	85-115			
Matrix Spike (B946844-MS1)		**Source: 1608705-01**		Prepared: 2024-08-14 Analyzed: 2024-08-16						
Mercury	0.0025	0.0004	mg/L	0.00250	<	102	70-130			
Matrix Spike Dup (B946844-MSD1)		**Source: 1608705-01**		Prepared: 2024-08-14 Analyzed: 2024-08-16						
Mercury	0.0025	0.0004	mg/L	0.00250	<	102	70-130	0.00	20	

Work Order: 1612174

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3T Inc - 63103
333 Lincoln Avenue
Council Bluffs, IA 51503

Project: Wastewater from Landfill

Project Manager: Fran T

Reported:
2024-08-19 16:53

Environmental Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B946643										
Blank (B946643-BLK1)				Prepared: 2024-08-12 Analyzed: 2024-08-17						
Biochemical Oxygen Demand	<	2.0	mg/L							
LCS (B946643-BS1)				Prepared: 2024-08-12 Analyzed: 2024-08-17						
Biochemical Oxygen Demand	232.6	2.0	mg/L	198		117	84.6-115.4			BOD
Duplicate (B946643-DUP1)		**Source: 1611483-01**		Prepared: 2024-08-12 Analyzed: 2024-08-17						
Biochemical Oxygen Demand	809.0	127	mg/L		856.8			5.74	20	
Batch B946666										
Blank (B946666-BLK1)				Prepared & Analyzed: 2024-08-13						
Total Suspended Solids	<	4	mg/L							
LCS (B946666-BS1)				Prepared & Analyzed: 2024-08-13						
Total Suspended Solids	105.0	4	mg/L	100		105	90-110			
Duplicate (B946666-DUP1)		**Source: 1588134-01**		Prepared & Analyzed: 2024-08-13						
Total Suspended Solids	32.4	4	mg/L		24.0			29.7	10	
Duplicate (B946666-DUP2)		**Source: 1611482-03**		Prepared & Analyzed: 2024-08-13						
Total Suspended Solids	360.0	4	mg/L		340.0			5.71	10	
Batch B946689										
Blank (B946689-BLK1)				Prepared & Analyzed: 2024-08-15						
Hexane Extractable Material (HEM)	<	5.0	mg/L							

Work Order: 1612174

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Council Bluffs, IA 51503

Project: Wastewater from Landfill
Project Manager: Fran T

Reported:
2024-08-19 16:53

Environmental Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B946689										
Blank (B946689-BLK2)				Prepared & Analyzed: 2024-08-15						
Hexane Extractable Material (HEM)	<	5.0	mg/L							
LCS (B946689-BS1)				Prepared & Analyzed: 2024-08-15						
Hexane Extractable Material (HEM)	37.50	5.0	mg/L	40.0		93.8	78-114			
LCS (B946689-BS2)				Prepared & Analyzed: 2024-08-15						
Hexane Extractable Material (HEM)	38.20	5.0	mg/L	40.0		95.5	78-114			
Matrix Spike (B946689-MS1)		**Source: 1610578-02**		Prepared & Analyzed: 2024-08-15						
Hexane Extractable Material (HEM)	44.80	5.0	mg/L	40.0	7.70	92.8	78-114			
Batch B946713										
Blank (B946713-BLK1)				Prepared & Analyzed: 2024-08-14						
Cyanide (total)	<	0.02	mg/L							
LCS (B946713-BS1)				Prepared & Analyzed: 2024-08-14						
Cyanide (total)	0.189	0.02	mg/L	0.200		94.5	90-110			
Matrix Spike (B946713-MS1)		**Source: 1612174-01**		Prepared & Analyzed: 2024-08-14						
Cyanide (total)	0.185	0.02	mg/L	0.200	<	92.5	90-110			
Matrix Spike Dup (B946713-MSD1)		**Source: 1612174-01**		Prepared & Analyzed: 2024-08-14						
Cyanide (total)	0.182	0.02	mg/L	0.200	<	91.0	90-110	1.63	10	

Work Order: 1612174

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Project: Wastewater from Landfill
Project Manager: Fran T

Reported:
2024-08-19 16:53

Environmental Chemistry (in lab, exceeds regulatory hold time) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B946759										
Duplicate (B946759-DUP1)		**Source: 1610631-01**		Prepared & Analyzed: 2024-08-14						
pH @ 22.7°C	5.88		S.U.		5.89			0.170	10	
Reference (B946759-SRM1)				Prepared & Analyzed: 2024-08-14						
pH @ 21.3°C	3.99		S.U.	4.00		99.8	98.2-101.8			

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3T Inc - 63103
333 Lincoln Avenue
Council Bluffs, IA 51503

Project: Wastewater from Landfill
Project Manager: Fran T

Reported:
2024-08-19 16:53

Certified Analyses included in this Report

Method	Analyte	Certifications
EPA 1664B in Aqueous	Hexane Extractable Material (HEM)	KS,FL,TX,UT,IA
EPA 200.7 in Aqueous	Beryllium	KS,TX,FL,UT,OK,IA
	Cadmium	TX,FL,UT,OK,KS,IA
	Chromium	KS,TX,FL,UT,OK,IA
	Copper	FL,IA,KS,OK,TX,UT,NE
	Nickel	FL,KS,TX,UT,OK,IA
	Silver	FL,KS,TX,UT,OK,IA
	Zinc	FL,KS,TX,UT,OK,IA
EPA 200.8 in Aqueous	Antimony	TX,KS,FL,OK,IA
	Arsenic	TX,KS,FL,OK,IA
	Lead	FL,KS,TX,OK,IA,NE
	Selenium	FL,KS,TX,OK,IA
	Thallium	FL,KS,TX,OK,IA
EPA 245.1 in Aqueous	Mercury	FL,KS,TX,UT,OK,IA
SM 2540 D-2015 in Aqueous	Total Suspended Solids	FL,KS,TX,UT,IA,OK
SM 4500-CN- E-2016 in Aqueous	Cyanide (total)	IA,FL,KS
SM 4500-H+ B-2011 in Aqueous	pH	FL,KS
SM 5210 B-2016 in Aqueous	Biochemical Oxygen Demand	KS,TX,FL,UT,IA,OK

Code	Description	Number	Expires
FL	Florida Department of Health	E87918	06/30/2025
IA	Iowa Department of Natural Resources	064	05/01/2025
KS	Kansas Department of Health and Environment	E-10402	04/30/2025
NE	State of Nebraska Dept of Health & Human Services	NE-04-05	06/30/2025
OK	Oklahoma Department of Environmental Quality	2022-068	08/31/2024
TX	Texas Commission on Environmental Quality	TX-C24-00262	07/31/2025
UT	State of Utah Department of Health	NE000012023-13	07/31/2024
WA	State of Washington Department of Ecology	C912	06/07/2024

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3T Inc - 63103	Project: Wastewater from Landfill	
333 Lincoln Avenue		**Reported:**
Council Bluffs, IA 51503	Project Manager: Fran T	2024-08-19 16:53

Notes and Definitions

HEM	Laboratory was unable to analyze entire contents of the sample container for HEM. Results may not be suitable for regulatory purposes.
BOD30	Test replicates show >30% difference between highest and lowest values.
BOD	BOD/CBOD QC results did not meet the method requirements. Restricted hold and incubation times prevent a retest. Results are considered an estimate. If a follow-up sample is required for permit compliance, please contact your account manager.
<	Less than reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

EPA 524.2, EPA 624, EPA 8260, OA-1, TCLP VOC, GRO, and all microbiological analyses are conducted in the facility located at 13606 B Street, Omaha, NE 68144. All other analyses are conducted in the main facility located at 13611 B Street, Omaha, NE 68144.

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CHAIN OF CUSTODY

Lab Work Order Number: 1612174
Date Generated: 08/12/2024

Client Name: 3T Inc - 63103	Project Name: Wastewater from Landfill
Client Contact: Fran T	Project Description:
Address: 333 Lincoln Avenue	Purchase Order Number:
City: Council Bluffs	Midwest Labs Contact: Heather Ramig
State/Zip: IA, 51503	Regulatory (Circle One): Yes No
Phone: 7123281178 / Fax: 0	Regulatory Agency:
Sampler Name (printed):	Sample Type (Circle One - See Below): D G W S/H U P

Requested Analyses (Test Names): Ag, As-M, Be, Cd, Cr, Cu, Hg, Ni, Pb-M, Sb-M, Se-M, Tl-M, Zn | BOD, pH, TSS | HEM | Total Cyanide

Copy To:

WORKORDER: 1612174 COC Sticker #: 1

Email to:

Lab ID	Sample Name or Field ID	Sampled Date	Sampled Time	Sample Code	Matrix Code	Container Count	Preservation Code 3	1	6	7	Sample Comments
01	2520 E Kanesville	8/12/24	1155		A	4	1	1	1	1	
	+Pcc Other WO FF @ 8:12										

Relinquished By / Date/Time	Received By / Date/Time: 8/12/24 1310
Relinquished By / Date/Time	Received By / Date/Time
Comments:	

Lab Internal Use Only:
Temperature Upon Receipt: 20.7°C
Cooler Numbers:
Notes:

Matrix Codes: A=Aqueous

Preservation Codes: 1=Cool 6°C,3=pH<2; HNO3,6=pH<2; HCL,7=pH>12; NaOH

Sample Type Codes: D = Drinking Water (Safe Drinking Water Act), G = Groundwater, W = Wastewater (Clean Water Act), S/H = Solid/Hazardous Waste (RCRA), U = Underground Storage Tank (UST), P = Process Water

Chain of Custody will have a signature upon receipt but no subsequent signatures.

RC Form 15 - Effective 10/31/2013

Work Order

Midwest Laboratories®

13611 B Street
Omaha, NE 68144
Phone 402-334-7770
Fax 402-334-9121
www.midwestlabs.com

CHAIN OF CUSTODY

Lab Work Order Number: 1578290
Date Generated: 12/03/2021

Client Name: 3T inc - 63103	Project Name: Septic Wastewater Analysis
Client Contact: Fran T	Project Description:
Address: 333 Lincoln Avenue	Purchase Order Number:
City: Council Bluffs	Midwest Labs Contact: Heather Ramig
State/Zip: IA, 51503	Regulatory (Circle One): Yes No
Phone: 7123281178 Fax: 0	Regulatory Agency:
Sampler Name (printed):	Sample Type (Circle One - See Below): D G W S/H U P

Requested Analyses (Test Names): BOD, TSS; Ecoli-NP-Tray

Copy To:

Created new project & WO HG 8/12/24

Email to:

Lab ID	Sample Name or Field ID	Sampled Date	Sampled Time	Sample Code	Matrix Code	Container Count	Preservation Code 1	Preservation Code 10	Preservation Code 2	Sample Comments
01	Site = 2520 E Kanesville	8/12/24	1155		A	2 4	1	1	2	

WORKORDER: 1612174
COC
Sticker #: 2

- landfill ww.

Relinquished By: Nicole Dewhurst Date/Time: 8-12-24	Received By: Date/Time:
Relinquished By: Date/Time:	Received By: Date/Time:
Comments:	

Lab Internal Use Only:
Temperature Upon Receipt:
Cooler Numbers:
Notes:

Matrix Codes: A=Aqueous

Preservation Codes: 1=Cool 6°C,10=Sterile, Na2SO3, Cool 6°C

Sample Type Codes: D = Drinking Water (Safe Drinking Water Act), G = Groundwater, W = Wastewater (Clean Water Act), S/H = Solid/Hazardous Waste (RCRA), U = Underground Storage Tank (UST), P = Process Water

Chain of Custody will have a signature upon receipt but no subsequent signatures.

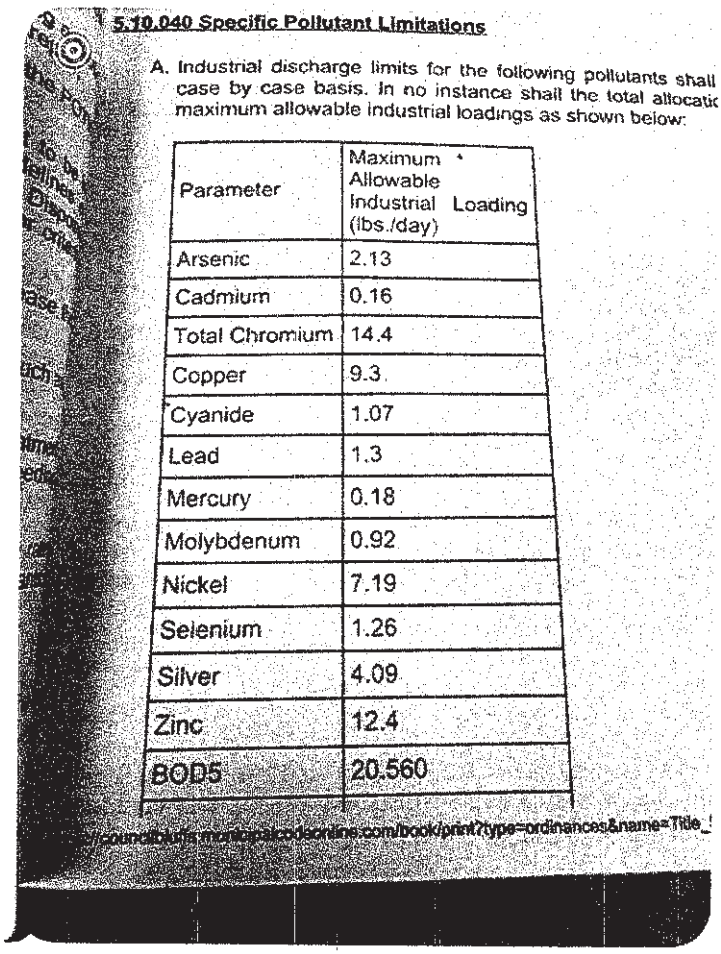
WORKORDER: 1612174 COC Sticker #: 3

Don

iMessage
Today 12:19 PM

Tyree,

We will need BOD, Suspended Solids, list of metals, PH, Temp and Oil/ Grease



5.10.040 Specific Pollutant Limitations

A. Industrial discharge limits for the following pollutants shall case by case basis. In no instance shall the total allocatic maximum allowable industrial loadings as shown below:

Parameter	Maximum Allowable Industrial Loading (lbs./day)
Arsenic	2.13
Cadmium	0.16
Total Chromium	14.4
Copper	9.3
Cyanide	1.07
Lead	1.3
Mercury	0.18
Molybdenum	0.92
Nickel	7.19
Selenium	1.26
Silver	4.09
Zinc	12.4
BOD5	20.560

Thank you I will get it tested and let you know the results

Read 12:24 PM

d_3tseptic service@yahoo.com
Nicole

email also: hwoodard@councilbluffsia.gov

+

hwoodard@councilbluffs-ia.gov

Regulatory

Midwest Laboratories®

This sheet **MUST** be filled out before samples can be processed. To ensure that holding times are met, it is your responsibility that a completed form comes attached to the Chain of Custody. Samples must be received on ice.

Is this sample for regulatory/permit reporting? ☒ Yes ☐ No

What city/state was your sample collected in? Council Bluffs, Iowa

What agency/state are you reporting? _____

What type of sample? (Circle One)

Drinking Water For human consumption, 30 hr hold time	**Ground Water**	**Wastewater**
Soilid Waste	**Hazardous Waste**	**UST**
Storm Water	**Process Water**	**Livestock**

SEE REVERSE SIDE FOR SAMPLING INSTRUCTIONS

WORKORDER: **1612174**
COC
Sticker #: 4

RC FORM 14-3 Effective 01.30.19

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Sample Acceptance Checklist
Document Number: RC CHKLIST 001
Revision No.: 5
Effective Date: 04/25/22
Page 1 of 1

WORKORDER: 1612174
COC
Sticker #: 5

Lab Number:

Thermometer Used: ☐ Therm Fisher IR 24

Sample Temperature (°C): 20.7

Cooler Intact: ☑ Yes ☐ No
Received on Ice: ☐ Yes ☑ No
Hand Delivered: ☑ Yes ☐ No

Date & Initials of person accepting samples: 8/12/24 AR

							Comments
Chain of Custody present?	☑	Yes	☐	No	☐	N/A	
Sample ID(s):	☑	Yes	☐	No	☐	N/A	
Sample Location(s):	☑	Yes	☐	No	☐	N/A	
Client contact:	☑	Yes	☐	No	☐	N/A	
Analysis Requested:	☑	Yes	☐	No	☐	N/A	
Date & Time of collection:	☑	Yes	☐	No	☐	N/A	
Sampler name on COC?	☐	Yes	☑	No	☐	N/A	
Chain of custody relinquished with signature?	☑	Yes	☐	No	☐	N/A	
Chain of custody complete?	☐	Yes	☑	No	☐	N/A	
Sample labels match COC?	☐	Yes	☑	No	☐	N/A	
Written in indelible ink?	☑	Yes	☐	No	☐	N/A	
Labels indicate proper preservation?	☑	Yes	☐	No	☐	N/A	
Samples arrived within hold time?	☑	Yes	☐	No	☐	N/A	
Samples arrived within correct temperature?	☑	Yes	☐	No	☐	N/A	
Samples arrived frozen?	☐	Yes	☑	No	☐	N/A	
Sufficient volume?	☑	Yes	☐	No	☐	N/A	
Appropriate containers used?	☑	Yes	☐	No	☐	N/A	
Filtered volume received for dissolved tests?	☐	Yes	☐	No	☑	N/A	
Headspace in VOA vials?	☐	Yes	☐	No	☑	N/A	
Trip Blank present?	☐	Yes	☑	No	☐	N/A	

Client Notification/Resolution: Date/Time Contacted: _____

Person Contacted: _____ Contacted By: _____

Comments/Resolution: _____

_____

_____

_____

_____

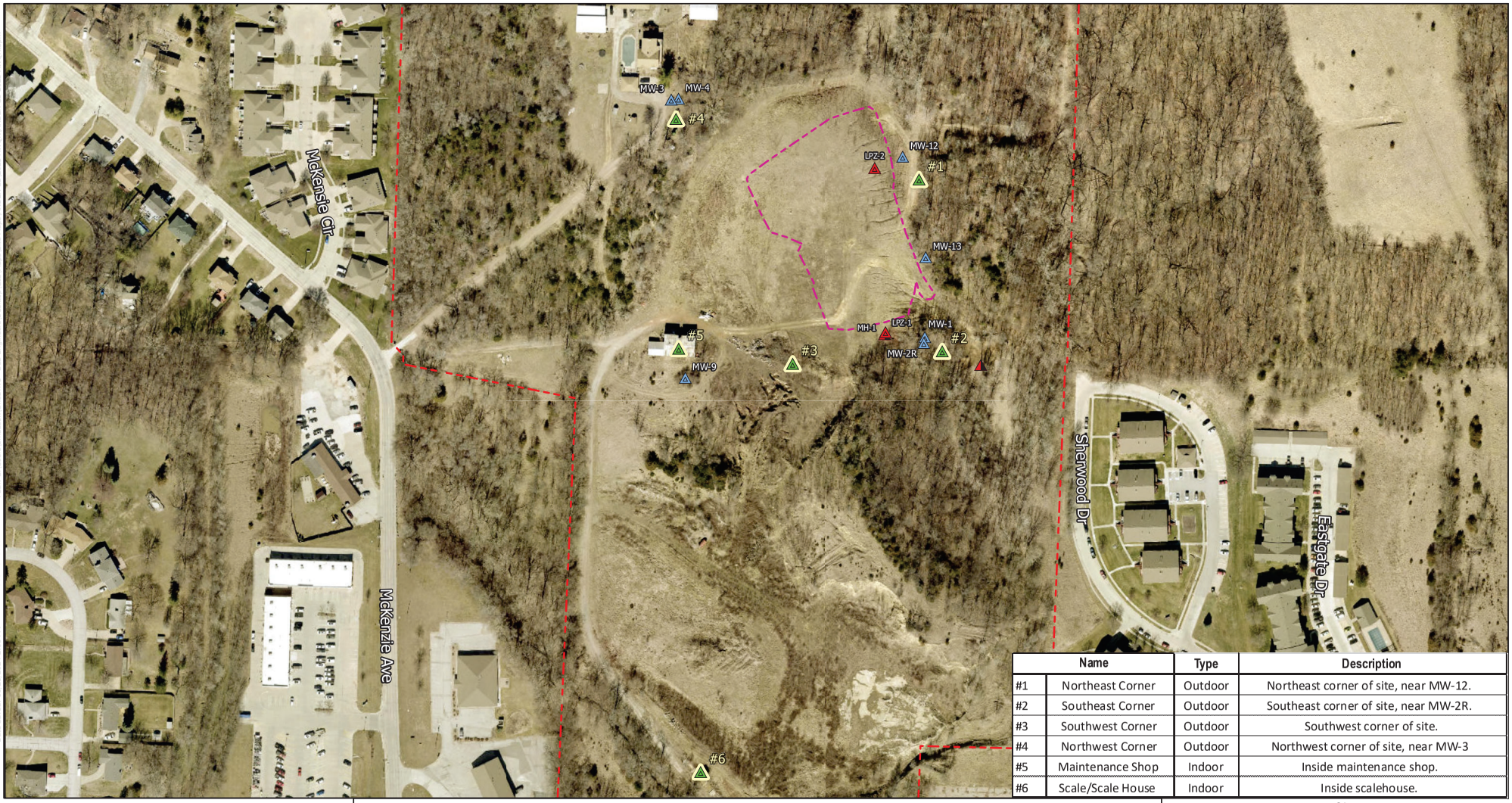
Appendix G

2024 Landfill Gas Annual Report

Table G1
Gas Monitoring Summary
2024 Annual Water Quality Report
Council Bluffs C&D Landfill
Permit No. 78-SDP-04-89C

Monitoring Points				Methane Results (% LEL)							
Name		Type	Description	3/13/2024	S (Y/N)	4/18/2024	S (Y/N)	7/16/2024	S (Y/N)	10/8/2024	S (Y/N)
#1	Northeast Corner	Outdoor	Northeast corner of site, near MW-12.	0%		0%		0%		0%	
#2	Southeast Corner	Outdoor	Southeast corner of site, near MW-2R.	0%		0%		0%		0%	
#3	Southwest Corner	Outdoor	Southwest corner of site.	0%		0%		0%		0%	
#4	Northwest Corner	Outdoor	Northwest corner of site, near MW-3	0%		0%		0%		0%	
#5	Maintenance Shop	Indoor	Inside maintenance shop.	0%		0%		0%		0%	
#6	Scale/Scale House	Indoor	Inside scalehouse.	0%		0%		0%		0%	

S(Y/N) - Was screen submerged, yes or no.



	Name	Type	Description
#1	Northeast Corner	Outdoor	Northeast corner of site, near MW-12.
#2	Southeast Corner	Outdoor	Southeast corner of site, near MW-2R.
#3	Southwest Corner	Outdoor	Southwest corner of site.
#4	Northwest Corner	Outdoor	Northwest corner of site, near MW-3
#5	Maintenance Shop	Indoor	Inside maintenance shop.
#6	Scale/Scale House	Indoor	Inside scalehouse.

SCS ENGINEERS
environmental consultants and contractors

Methane Monitoring Network

Figure 1

Legend

- Methane Monitoring Point
- Leachate Monitoring Point
- Monitoring Well
- Approximate Waste Boundary
- Approximate Property Boundary
- Manhole

Anderson Excavating Council Bluffs Landfill
Council Bluffs, Iowa
Project No: 27224173.01
Drawing Date: November 2024

N W E S

0 140 280 560 Feet