

West Des Moines, IA

PROJECT: Guthrie Co, FY26 Env Comp, IA 27223271.26 DATE: 1/7/2026

SUBJECT: 2026-01-07_Guthrie County Sanitary Landfill - 39-SDP-01-73C - 2025 Annual Water Quality Report TRANSMITTAL ID: 00001

PURPOSE: For your approval VIA: Info Exchange

FROM

NAME	COMPANY	EMAIL	PHONE
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TO

NAME	COMPANY	EMAIL	PHONE
brian.rath@dnr.iowa.gov		brian.rath@dnr.iowa.gov	

REMARKS: Good afternoon Brian-

SCS Engineers, on behalf of Guthrie County Environmental Health, is submitting for download the 2025 Annual Water Quality Report for the Guthrie County Sanitary Landfill. If you have any questions or comments regarding this report, please contact me at the number below. Thank you.

Nathan Ohrt
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SCS Engineers
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DESCRIPTION OF CONTENTS

QTY	DATED	TITLE	NOTES
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Transmittal

DATE: 1/7/2026
TRANSMITTAL ID: 00001

Jotham Arber
Nathan Ohrt
Becky Jolly

(Guthrie County Environmental Health)
(SCS Engineers)

January 7, 2026
File No. 27223271.26

Mr. Brian Rath, P.E.
Iowa Department of Natural Resources
Land Quality Bureau
6200 Park Avenue
Des Moines, Iowa 50321

Subject: 2025 Annual Water Quality Report
Guthrie County Sanitary Landfill
Permit No. 39-SDP-01-73C

Dear Brian:

SCS Engineers, on behalf of Guthrie County Environmental Health, has completed the required groundwater monitoring and statistical evaluation for the closed Guthrie County Sanitary Landfill (Landfill) for the year 2025. Services were performed in general accordance with Iowa Administrative Code (IAC) 567-113.10 and the current requirements for implementation of the Hydrologic Monitoring System Plan for the Landfill. Please find enclosed a copy of the 2025 Annual Water Quality Report.

If you have any questions regarding this report, please contact Nathan Ohrt at (319) 331-9613.

Sincerely,



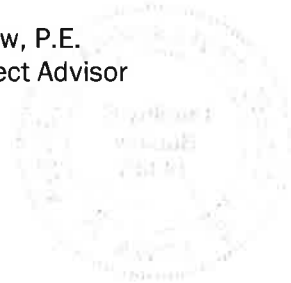
Nathan Ohrt
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NPO/TCB

Copies: Mr. Jotham Arber, Guthrie County Environmental Health



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



2025 ANNUAL WATER QUALITY REPORT

Guthrie County Sanitary Landfill
Solid Waste Permit Number: 39-SDP-01-73C
Guthrie Center, Iowa

SCS ENGINEERS

27223271.26 | January 2026

1690 All-State Court, Suite 100
West Des Moines, IA 50265
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CERTIFICATION

Prepared by: Nathan Ohrt

Date: 1/7/2026

Typed: Nathan Ohrt

Reviewed by: Timothy C. Buelow

Date: 1/7/2025

Typed: Timothy C. Buelow, P.E.

Certification page (PE or groundwater scientist signature) **113.10(1)"d"**

For the purposes of this rule, a "qualified groundwater scientist" means a scientist or an engineer who has received a baccalaureate or postgraduate degree in the natural sciences or engineering and has sufficient training and experience in groundwater hydrology and related fields demonstrated by state registration, professional certifications, or completion of accredited university programs that enable that individual to make sound professional judgments regarding groundwater monitoring, contaminant fate and transport, and corrective action.

	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.	
	<u>Timothy C. Buelow</u>	Date: <u>1/7/2025</u>
	Timothy C. Buelow, P.E.	
	License No. 14445	
	My license renewal date is December 31, 2027.	
Pages or sheets covered by this seal:		
<u>All except Appendix B-1.</u>		

EXECUTIVE SUMMARY

ES.1 PERIOD OF REPORT COVERAGE

SCS Engineers (SCS), on behalf of Guthrie County Environmental Health, has completed the required groundwater sampling for the closed Guthrie County Sanitary Landfill (Landfill). The purpose of this Annual Water Quality Report (AWQR) is to document and statistically evaluate the groundwater sampling results for the year 2025, consisting of the September 2025 annual sampling event. This AWQR was prepared in accordance with the requirements of Iowa Administrative Code (IAC) 567-113.10, the Landfill closure permit and applicable amendments, and current requirements for implementation of the Hydrologic Monitoring System Plan (HMSP).

ES.2 REPORT PRIORITY

The following summarizes the 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: None, landfill closed. Previously MSW and C&D.
- Applicable IAC rules: The closure permit was issued in accordance with the 1989 IAC Chapter 103. Correspondence from the Iowa Department of Natural Resources (DNR) dated October 8, 2008 (Doc #32705) required compliance with IAC 567-113.2(5)"e" and subsequently the groundwater monitoring rules of IAC 567-113.10(6-9). A variance request approved on June 29, 2010 (Doc #58287) replaced the requirements of IAC 567-113.2(5), 113.2(5)"d," and 113.2(5)"e" with the requirements of 567-113.10. In addition, the June 29, 2010 variance, approved the preparation of the Monitoring Well Maintenance and Performance Reevaluation Plan in accordance with the current IAC 567-113.10(2)"f" (effective December 10, 2007).

ES.4 COMMENTS

Due to persistent volatile organic compound (VOC) detections in HMSP background monitoring well MW-12, new background monitoring well MW-21 was installed in August 2025. Construction documentation was submitted on September 5, 2025 (Doc #113798). Additional location and elevation details for monitoring well MW-21 were submitted on December 11, 2025 (Doc #115176).

Monitoring well MW-21 was initially sampled during the 2025 annual sampling event. As sufficient data for statistical evaluation was not available from MW-21, inorganic data from monitoring MW-12 was used as the background dataset for this reporting period. Background sampling will continue for monitoring well MW-21 in the 2026 reporting period.

Statistically significant increases (SSIs) above background were measured for nickel in detection monitoring wells MW-14 and MW-19 during this reporting period. The monitoring wells will be retested in the first quarter of 2026.

VOCs chlorobenzene and cis-1,2-dichloroethene were detected in assessment monitoring well MW-3; neither of the VOCs exceeded a groundwater protection standard (GWPS). Apart from the previously reported statistically significant levels (SSLs) above the groundwater protection standards (GWPSs) for arsenic and cobalt in monitoring well MW-16, no SSLs were measured during this reporting period. It should be noted that the lower confidence limits for arsenic and cobalt in monitoring well MW-16 were below the GWPS during this reporting period. As shown in **Table 11**, the concentration trends of arsenic and cobalt are decreasing in monitoring well MW-16.

As stated in the submittal of well installation documentation dated November 13, 2020, prepared by Evora Consulting (Doc #98927), monitoring well MW-20 was installed to bracket the area of groundwater impact measured at monitoring well MW-16. The DNR concurred with this objective in correspondence dated December 16, 2020 (Doc #99140). Monitoring results for monitoring well MW-20 were non-detect for arsenic and cobalt during this reporting period and have not shown quantifiable concentrations since installation in 2021, indicating the extent of impact near MW-16 is defined.

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1.0 ACRONYMS/ABBREVIATIONS

ACM = Assessment of Corrective Measures
C&D = Construction and Demolition Waste
CAMP = Corrective Action Groundwater Monitoring Program
CCV = Continuing Calibration Verification
CL = Control Limit - Mean plus Two Standard Deviations
DNR = Iowa Department of Natural Resources
DO = Dissolved Oxygen
DQR = Double Quantification Rule
GWPS = Groundwater Protection Standard
LEL = Lower Explosive Limit
LCL = Lower Confidence Limit
LCS = Laboratory Control Sample
LN = Lognormal
MCL = EPA Maximum Contaminant Level
MDL = Method Detection Limit
MSW = Municipal Solid Waste
N = Normal
NC = No Change
NM = Not Measured
NP = Non-Parametric
ORP = Oxidation-Reduction Potential
P = Parametric
PCA = Pre-Corrective Action Monitoring Program
PL = Prediction Limit
QA = Quality Assurance
QC = Quality Control
RL = Reporting Limit
SWS = DNR Statewide Standard for a Protected Groundwater Source
SSI = Statistically Significant Increase Above Background
SSL = Statistically Significant Level Above Groundwater Protection Standard
SSS = Site-Specific Standard (Site-Specific GWPS)
TSS = Total Suspended Solids
UCL = Upper Confidence Limit
VOC = Volatile Organic Compound

2.0 SITE BACKGROUND

2.1 SITE LOCATION

The Guthrie County Sanitary Landfill (Landfill) property is depicted in **Figure 1**, Approved Monitoring Network. The Landfill is located 3 miles west-southwest of Guthrie Center, Iowa in a portion of the S $\frac{1}{2}$ of the NE $\frac{1}{4}$ of Section 10, T79N, R32W, in Guthrie County, Iowa.

2.2 FACILITY

The Landfill began operation in 1974. The Landfill accepted municipal solid waste and construction and demolition waste from its service area. The Landfill was closed and the final cap was installed in 2000. Since closure, waste has been transferred to the Carroll County Sanitary Landfill in Carroll, Iowa. The Landfill was issued a closure permit on September 12, 2002.

2.3 GEOLOGY AND HYDROGEOLOGY OF THE SITE

The *Hydrogeologic Investigation and Monitoring System Plan*, dated December 12, 1991, prepared by Green Environmental Services, Inc., provided geological and hydrogeological descriptions that are excerpted below:

Regional surficial soils and sediments are either glacial or alluvial in origin. Glacial sediments are comprised of till, glaciofluvial, and loess deposits. The till and glaciofluvial deposits are of a pre-[Wisconsinian] glacial stage, originating some 2.5 million years before present while the loess was deposited some 15,000 years before present. Alluvial sediments are found on flood plains and along ancient and present-day stream channels.

Till thickness within an approximate 4 mile radius of the site varies from 15 feet in the Seely Creek flood plain west of the landfill to 98 feet at the landfill site. Loess is typically 5 to 15 feet in thickness where present in this area.

As determined from lithologic logs located within an approximate 4 mile radius of the site, the uppermost bedrock of the region is composed of sandstone and shale of the Cretaceous age Dakota Group. Bedrock elevations range from approximately 1050 to 1167 feet msl [above mean sea level] regionally. The landfill site is located on a bedrock high which has a typical elevation of 1160 feet msl.

Two aquifers exist at the site. The first is the uppermost surficial water table aquifer which is encountered at depths ranging from 4 to 14 feet below ground surface and is generally controlled by the loess-till contact or the occurrence of a sand lens in the till. The second is the bedrock water table aquifer which is encountered in the Dakota sandstone. This aquifer is under unconfined to semi-confined conditions due to groundwater discharge to the South Raccoon River basin directly north of the site.

No hydraulic connection between the overlying surficial aquifer and the lower bedrock aquifer exists. This is demonstrated by the unsaturated uppermost portion of the Dakota sandstone which directly underlies the glacial till. This unsaturated zone varies from 17 to 55 feet in thickness. Recharge of the Dakota aquifer likely occurs offsite to the west with a small local contribution from gravity drainage of the overlying glacial till. The dense nature of the till ensures that downward leakage is

minimal. These observations are verified through examination of the water levels where wells are nested.

3.0 FIGURES DISCUSSION

The following figures are attached.

3.1 FIGURE 1 – APPROVED MONITORING NETWORK

The Landfill property and HMSP monitoring network are depicted in **Figure 1**.

3.2 FIGURE 2 – GROUNDWATER CONTOURS

A groundwater contour map based on water levels measured during the September 2025 groundwater sampling event is included in **Figure 2**. **Figure 2** indicates a generally northwesterly groundwater flow direction. However, the water elevation measured in new monitoring well MW-21 indicated a more northeasterly flow direction east of the waste mass. **Figure 2** also includes leachate level data measured in May 2025, although the leachate level data is not reflected in the groundwater contours. Based on the leachate elevations compared to the interpolated groundwater contours, it appears that leachate mounding may be occurring. However, it is not known whether the leachate elevations measured in the leachate piezometers are the result of the intersection of perched leachate zones within the waste mass or a fully saturated waste mass in the vicinity of the monitoring point. It is also not known whether the leachate is in direct hydraulic communication with the water table or is perched above the water table within the waste mass.

4.0 STANDARDS HISTORY GRAPHS

Standards history graphs are included in **Appendix F**. No graphs were provided for antimony, beryllium, chromium, cobalt, selenium, silver, and thallium, as these constituents have not been detected in background monitoring well MW-12. It should be noted that of these metals, cobalt was detected in new background monitoring well MW-21. As stated in the 2022 AWQR, dated June 21, 2022 (Doc #103463), background monitoring well MW-12 was placed into the assessment monitoring program during the 2022 reporting period due to intermittent measured tetrachloroethene concentrations. Due to the limited number of detections in monitoring well MW-12 and the similarity of measured concentrations at MW-12 to the HMSP monitoring wells in the detection monitoring program, the inorganic parameters measured in monitoring well MW-12 appear to be appropriate for background. However, as mentioned in Section ES.4 of this report, replacement background monitoring well MW-21 was installed. Standards history graphs for the following parameters are included.

- Arsenic
- Barium
- Cadmium
- Copper
- Lead
- Nickel
- Vanadium
- Zinc

The prediction limits were below the GWPSs for the included graphs.

5.0 QA/QC SUMMARY

The quality assurance/quality control (QA/QC) program for the Landfill followed 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 a review of sample handling, analytical sensitivity, blanks, accuracy, and precision. Based on the QA review, no samples were rejected as unusable due to QC failures. In general, the quality of the analytical data for this reporting period does not appear to have been compromised by analytical irregularities and results affected by QC anomalies are qualified with the appropriate data flags, which are listed in the laboratory analytical data sheet in **Appendix B-1**. Data validation documentation can be found in **Appendix B-2**.

6.0 DATA EVALUATION AND SUMMARY

Detection and assessment/corrective action monitoring statistical evaluations in accordance with the requirements of IAC 567-113.10(5) and 113.10(6) were conducted for the groundwater analytical data collected during the September 2025 sampling event. The statistical evaluation for samples collected during the September sampling event is located in **Appendix D**, 2025 Statistical Method and Output, of this report.

6.1 DATA EVALUATION

Detection monitoring wells MW-5, MW-14, and MW-19 were sampled for Appendix I metals and TSS. Barium, cadmium, cobalt, and nickel were detected in monitoring wells MW-14 and MW-19 and barium only was detected in monitoring well MW-5. None of the detected metals exceeded a GWPS. Indicated SSIs for nickel in monitoring wells MW-14 and MW-19 will be retested in the first quarter of 2026. It is likely that the elevated total suspended solids (TSS) concentrations above typical concentrations in monitoring wells MW-14 and MW-19 contributed to the indicated SSIs, as nickel is not consistently measured at quantified concentrations in those monitoring wells.

Assessment monitoring well MW-3 had detections of two metals and two VOCs while assessment monitoring well MW-12 had a detection of barium only. Four metals were detected in corrective action monitoring well MW-16. No detected VOCs were above the associated GWPSs. It should be noted that cobalt, with an SSL above the GWPS in monitoring well MW-16, was measured below the GWPS during this reporting period.

New background monitoring well MW-21 was first sampled during this reporting period. Arsenic, barium, cobalt, and nickel were detected. Cobalt was measured above the GWPS. No VOCs were detected above the reporting limit. Acetone and carbon disulfide, common laboratory contaminants, were detected at J flag concentrations. Background sampling will continue for monitoring well MW-21 in 2026.

Monitoring results for monitoring well MW-20, located downgradient of corrective action monitoring well MW-16 to delineate the area of impact near MW-16, were non-detect for arsenic and cobalt, indicating the extent of impact near MW-16 is defined.

6.2 LEACHATE LEVELS

Landfill staff measure leachate levels. A biannual measurement frequency was approved in correspondence dated March 20, 2018 (Doc #91830).

Leachate head levels have remained generally consistent since 2009. The leachate thicknesses in each piezometer were within the historical range during this reporting period. A table and time series graphs of reporting period and historical leachate levels are included in Appendix F.

6.3 LANDFILL GAS MONITORING SUMMARY

Semi-annual monitoring of the landfill gas probes was performed in March and September 2025 by SCS staff. A methane concentration of 3% of the lower explosive limit for methane was measured in landfill gas monitoring well LFGW-2 during the March 2025 monitoring event, but this detection may be due to instrument drift and was not repeated in the September 2025 monitoring event. Apart from the single March 2025 detection, no methane has been detected in the landfill gas probes installed in October 2020.

Quarterly methane monitoring of the facility structures was performed by facility staff. Facility staff reported that structure methane monitoring results from the first quarter of 2025 were misplaced and are not available. No methane was detected in facility structures during the second, third, and fourth quarters of 2025.

A summary of gas monitoring results is included in **Table 12**. A map of the methane monitoring locations is included in **Figure 3**.

7.0 RECOMMENDATIONS

7.1 SITE IMPACT ON GROUNDWATER

Groundwater conditions at the Landfill are generally stable. Trace concentrations of VOCs are consistently detected at monitoring wells MW-3 and MW-12. The area of impact of SSLs arsenic and cobalt near monitoring well MW-16 is defined by non-detect concentrations at monitoring well MW-20. Two GWPS exceedances were measured during this reporting period – SSL constituent arsenic in corrective action monitoring well MW-16 and cobalt in new monitoring well MW-21.

7.2 PROPOSED MONITORING

Monitoring is proposed to continue in 2026 as summarized in the attached Table 2. Retesting for nickel in monitoring wells MW-14 and MW-19 will occur in the first quarter of 2026. Background sampling for new background monitoring well MW-21 will be performed.

7.3 PROPOSED MONITORING WELL CHANGES

New background monitoring well MW-21 was installed in May 2025 and incorporated into the HMSP monitoring network. The first sample was collected in September 2025.

Tables

Table 1
Monitoring Program Summary
2025 Annual Water Quality Report
Guthrie County Sanitary Landfill
Permit No. 39-SDP-01-73C

Monitoring Well	Formation ⁽¹⁾	Current Monitoring Program	Change for next sampling event	Constituents with SSIs during the 2025 Reporting Period	Constituents with SSLs	Total Number of Samples in Each Monitoring Program since March 2010		
						Detection	Assessment	Corrective Action
HMSP Monitoring Wells								
MW-21	Till/Sand	Background	Background Collection	Not applicable	Not applicable	1		
MW-3	Till	Assessment	None	Chlorobenzene, cis-1,2-Dichloroethene	None		25	
MW-5	Till	Detection	None	None	Not applicable	25		
MW-12	Sandy till	Assessment	None	Not applicable (no background)	None		25	
MW-14	Sandy till	Detection	None	Nickel*	Not applicable	24		
MW-16	Sandy till	Corrective Action	None	Arsenic, Nickel	Arsenic, Cobalt			25
MW-19	Sandy till	Detection	None	Nickel*	Not applicable	26		
Other Monitoring Wells								
MW-20	Till	Impact Delineation for MW-16	None					

Notes:

(1) Obtained from 1991 *Hydrogeologic Investigation and Monitoring System Plan* (Doc #34517).

(2) Inorganic data for the background for the detection monitoring program is from former background monitoring well MW-12.

* - Not confirmed pending retesting.

SSI = Statistically Significant Increase above background.

SSL = Statistically Significant Level above a groundwater protection standard.

Table 2
Monitoring Program Implementation Schedule
2025 Annual Water Quality Report
Guthrie County Sanitary Landfill
Permit No. 39-SDP-01-73C

Monitoring Well	Recent Sampling Dates and Constituents	Upcoming Sampling Dates and Constituents					Full Appendix II Sample Dates	
	9/23/2025	Spring 2026	Summer 2026*	2026 Annual Event	Winter 2026*	2027 Annual Event	Previously Collected	Next Event
MW-21	Appendix I, TSS	Appendix I, TSS	Appendix I, TSS	Appendix I, TSS	Appendix I, TSS	Appendix I, TSS	-	Not applicable
MW-3	Appendix I, TSS			Appendix I, TSS		Appendix II, TSS	3/2011, 3/2012, 4/2017, 4/2022	2027
MW-5	Appendix I metals, TSS			Appendix I metals, TSS		Appendix I metals, TSS	-	Not applicable
MW-12	Appendix I, TSS			Appendix I, TSS		Appendix II, TSS	4/2013, 4/2014, 4/2022	2027
MW-14	Appendix I metals, TSS	Nickel, TSS		Appendix I metals, TSS		Appendix I metals, TSS	-	Not applicable
MW-16	Appendix I, TSS			Appendix I, TSS		Appendix II, TSS	3/2011, 3/2012, 4/2017, 4/2022	2027
MW-19	Appendix I metals, TSS	Nickel, TSS		Appendix I metals, TSS		Appendix I metals, TSS	-	Not applicable
MW-20	Arsenic, Cobalt, TSS			Arsenic, Cobalt, TSS		Arsenic, Cobalt, TSS	-	Not applicable

Notes:

TSS - Total Suspended Solids.

* First year sampling for new monitoring well MW-21 will be performed as directed by the DNR.

Table 3
Monitoring Well Maintenance and Performance Re-Evaluation Schedule
2025 Annual Water Quality Report
Guthrie County Sanitary Landfill
Permit No. 39-SDP-01-35C

Compliance with:	2023	2024	2025	2026	2027
567 IAC 113.10(2)"f"(1) high and low water levels ⁽¹⁾	Completed	Completed	Included	Scheduled	Scheduled
567 IAC 113.10(2)"f"(2) changes in the hydrologic setting and flow paths	Completed	Completed	Included	Scheduled	Scheduled
567 IAC 113.10(2)"f"(3) well depths ⁽²⁾	Completed	Completed	Included	Scheduled	Scheduled
567 IAC 113.10(2)"f"(4) well recharge rates and chemistry (biennial) ⁽²⁾	Completed	-	Included	-	Scheduled
Waste separation from groundwater 113.6(2)i	NA	NA	NA	NA	NA

Comments:

(1) - See Section 2.2 of this report.

(2) - See Table 4.

NA - Not applicable. Waste/groundwater separation is not applicable to this facility.

Table 4
Monitoring Well Performance and Maintenance Summary
2025 Annual Water Quality Report
Guthrie County Sanitary Landfill
Permit No. 39-SDP-01-73C

Well	Top of Casing	Top of Screen	Total Depth		Date of Measurements	Maximum Depth	Initial Flow Rate (L/min)*	Recent Flow Rate (L/min)	
					9/23/2025		Date	Date	
MW-21	1244.50*	1221.50	33.0	Groundwater Level (ft)	16.30	0.1			
				Groundwater Elevation (Ft MSL)	1228.20		0.167	Newly installed	NA
				Measured Well Depth (ft)	32.9		9/23/2025		
				Submerged screen	Y				
MW-3	1244.59	1232.10	21.5	Groundwater Level (ft)	11.80	0.9			
				Groundwater Elevation (Ft MSL)	1232.79		0.125	0.183	46%
				Measured Well Depth (ft)	20.6		8/11/2015	9/23/2025	
				Submerged screen	Y				
MW-5	1217.54	1195.36	32.2	Groundwater Level (ft)	5.12	0.1			
				Groundwater Elevation (Ft MSL)	1212.42		0.1	0.158	58%
				Measured Well Depth (ft)	32.1		8/11/2015	9/23/2025	
				Submerged screen	Y				
MW-12	1279.38	1259.60	29.9	Groundwater Level (ft)	13.89	1.7			
				Groundwater Elevation (Ft MSL)	1265.49		0.1	0.167	67%
				Measured Well Depth (ft)	28.2		8/11/2015	9/23/2025	
				Submerged screen	Y				
MW-14	1231.39	1197.50	43.9	Groundwater Level (ft)	29.00	1.2			
				Groundwater Elevation (Ft MSL)	1202.39		0.09	0.183	103%
				Measured Well Depth (ft)	42.7		8/11/2015	9/23/2025	
				Submerged screen	Y				
MW-16	1198.82	1180.80	28.0	Groundwater Level (ft)	17.45	0.0			
				Groundwater Elevation (Ft MSL)	1181.37		0.07	0.175	150%
				Measured Well Depth (ft)	28.0		8/11/2015	9/23/2025	
				Submerged screen	Y				
MW-19	1207.99	1195.32	27.7	Groundwater Level (ft)	14.00	0.0			
				Groundwater Elevation (Ft MSL)	1193.99		0.125	0.175	40%
				Measured Well Depth (ft)	27.7		8/11/2015	9/23/2025	
				Submerged screen	N				

Comments:

- 1) Measured well depths were within 1.7 feet of the installed depths. It appears siltation is not affecting the ability of the monitoring wells to produce samples.
- 2) As the monitoring wells consistently produce samples, it does not appear the changes in flow rate are significantly impacting well performance.

* The MW-21 top of casing elevation was estimated from the Iowa 2020 LiDAR data.

Table 5
Background and GWPS Summary
2025 Annual Water Quality Report
Guthrie County Sanitary Landfill
Permit No. 39-SDP-01-73C

Interwell Background/GWPS (MW-12)

Constituent	Units	Samples	Detections	Min	Max	Mean	Background Level	Statistical Test	GWPS	Source
Antimony (Sb)	mg/L	24	0	0.001 (1/2 RL)	0.001 (1/2 RL)	0.00100	< 0.002	DQR	0.006	MCL
Arsenic (As)	mg/L	24	2	0.001 (1/2 RL)	0.007	0.00210	0.007	PL (NP)	0.01	MCL
Barium (Ba)	mg/L	24	24	0.264	1.17	0.65133	1.23	PL (P)	2	MCL
Beryllium (Be)	mg/L	24	0	0.0005 (1/2 RL)	0.002 (1/2 RL)	0.00169	< 0.004	DQR	0.004	MCL
Cadmium (Cd)	mg/L	25	1	0.00005 (1/2 RL)	0.0011	0.00037	0.0011	PL (NP)	0.005	MCL
Chromium (Cr)	mg/L	24	0	0.0025 (1/2 RL)	0.01 (1/2 RL)	0.00402	< 0.02	DQR	0.1	MCL
Cobalt (Co)	mg/L	24	0	0.0002 (1/2 RL)	0.002 (1/2 RL)	0.00099	< 0.004	DQR	0.0021	SWS
Copper (Cu)	mg/L	24	4	0.00184*	0.0057	0.00234	0.0057	PL (NP)	1.3	MCL
Lead (Pb)	mg/L	24	1	0.00025 (1/2 RL)	0.0047	0.00175	0.0047	PL (NP)	0.015	MCL
Nickel (Ni)	mg/L	24	6	0.002 (1/2 RL)	0.0098	0.00335	0.0098	PL (NP)	0.1	SWS
Selenium (Se)	mg/L	24	0	0.002 (1/2 RL)	0.0025 (1/2 RL)	0.00210	< 0.005	DQR	0.05	MCL
Silver (Ag)	mg/L	24	0	0.0005 (1/2 RL)	0.002 (1/2 RL)	0.00169	< 0.004	DQR	0.1	SWS
Thallium (Tl)	mg/L	24	0	0.0005 (1/2 RL)	0.002 (1/2 RL)	0.00148	< 0.004	DQR	0.002	MCL
Vanadium (V)	mg/L	24	1	0.0025 (1/2 RL)	0.0136	0.00838	0.0136	PL (NP)	0.035	SWS
Zinc (Zn)	mg/L	24	6	0.004 (1/2 RL)	0.0405	0.01064	0.0405	PL (NP)	2	SWS

Notes:

* - Indicated J flag. The concentration is below the reporting limit but above the method detection limit; the concentration is estimated.

1) The "Detections" column includes both quantified detections and J flag (estimated) concentrations.

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

3) Water quality results and effectiveness of the statistical data evaluation criteria: Statistical evaluations consist of prediction limits, the double quantification rule, and confidence intervals/confidence bands, as appropriate. Data from the background well is not used for development of the confidence intervals or confidence bands.

4) Changes to the previous statistical method during reporting period: There were no changes to the statistical method during the 2025 reporting period.

5) Re-sampling strategy: Retesting is performed on a 1-of-2 scheme.

6) Justification for data exclusion: Confirmed outliers are excluded from statistical consideration and noted in the Summary of Groundwater Chemistry. Analytical results prior to 2025 can be found in the 2024 Annual Water Quality Report, dated January 29, 2025 (Doc #112043).

Acronyms/Abbreviations:

GWPS = Groundwater Protection Standard

RL = Reporting Limit

DQR = Double Quantification Rule

SSS = Site-Specific GWPS

SWS = Statewide Standard

PL = Prediction Limit

NP = Non-Parametric

P = Parametric

MCL = EPA Maximum Contaminant Level

Table 6
Summary of Well/Detected Constituent Pairs With No Previous SSIs
2025 Annual Water Quality Report
Guthrie County Sanitary Landfill
Permit No. 39-SDP-01-73C

Well	Constituent	Units	Most Recent Result	Background Standard
MW-16	Nickel	mg/L	0.0105	0.098
MW-19	Nickel*	mg/L	0.00985	0.098

Notes:

1) This table represents constituent/well pairs with indicated SSIs during the 2025 reporting period that did not have indicated SSIs during the 2024 reporting period.

* Not confirmed pending retesting.

Comments:

1) Problems with the current detection network: Monitoring well MW-21 was installed during this reporting period to replace monitoring well MW-12 as the background monitoring well. Prediction limits were calculated using MW-12 data.

2) Schedule to implement remedies: None.

3) Alternative constituent or sample frequency changes: None.

4) Significant changes to calculated prediction limits: None.

5) Resampling strategy: Retesting is performed on a 1-of-2 retesting scheme.

Table 7
Summary Table of Ongoing and Newly Identified SSIs
2025 Annual Water Quality Report
Guthrie County Sanitary Landfill
Permit No. 39-SDP-01-73C

Well	Constituent	Units	Most Recent Result	Background Standard	Lower Confidence Limit	GWPS	Sample Dates		
							Initial Exceedance	Resample(s)	5 th background sample
MW-3	Chlorobenzene	µg/L	2.12	< 1	1.245	100	3/26/2012	NA	3/26/2012
	cis-1,2-Dichloroethene	µg/L	4.02	< 1	2.143	70	3/29/2010	NA	3/26/2012
MW-5	None								
MW-14	Nickel*	mg/L	0.0126	0.0098	Detection	0.1	9/23/2025	Pending	3/26/2012
MW-16	Arsenic	mg/L	0.0258	0.007	0.005341	0.01	9/23/2025	NA	3/26/2012
	Nickel	mg/L	0.0105	0.098	0.0006155	0.1	9/23/2025	NA	3/26/2012
MW-19	Nickel*	mg/L	0.00985	0.098	Detection	0.1	9/23/2025	Pending	3/26/2012

Notes:

1) Shaded rows denote constituent/well pair with SSI indicated in 2025 that was not indicated in 2024. Unshaded rows denote constituent/well pairs with SSIs indicated during both the 2024 and 2025 reporting periods.

2) "Detection" notes a monitoring well in the detection monitoring program. Confidence limits are not calculated for detection monitoring wells.

* - Not confirmed pending retesting.

NA - Not applicable. Retesting is not part of the statistical method for the monitoring program.

Comments:

1) Problems with the current assessment network: None.

2) Proposed remedies: None.

3) Alternative constituent or sample frequency changes: None.

4) Plume delineation strategies: Arsenic and cobalt impact near monitoring well MW-16 is bracketed downgradient by monitoring well MW-20.

5) Property owner notifications: Not applicable.

Table 8
Summary Table of Ongoing and Newly Identified SSLs
2025 Annual Water Quality Report
Guthrie County Sanitary Landfill
Permit No. 39-SDP-01-73C

Well	Constituent	Units	Most Recent Result	Upper Confidence Limit	GWPS	Initial Exceedance	Upper Confidence Limit Below GWPS		
							1 st Year	2 nd Year	3 rd Year
MW-16	Arsenic	mg/L	0.0258	0.0261	0.01	2011	NA	NA	NA
	Cobalt	mg/L	0.00062	0.0446	0.0021	2011	NA	NA	NA

Notes:

1) The SSLs in monitoring well MW-16 were previously reported.

2) NA indicates Not Applicable. The constituent-monitoring point dataset has not satisfied the statistical requirements of IAC 567-113.10(9)"e"(2), which is identified by the entire confidence interval or any portion of the upper confidence band, as appropriate, being below the GWPS.

Table 9
Summary of Groundwater Chemistry
2025 Annual Water Quality Report
Guthrie County Sanitary Landfill
Permit No. 39-SDP-01-73C

The Reporting Period Summary of Groundwater Chemistry is located in Appendix C.

Analytical results prior to 2025 can be found in the 2024 Annual Water Quality Report, dated January 29, 2025 (Doc #112043).

Table 10
Historical SSI and SSL
2025 Annual Water Quality Report
Guthrie County Sanitary Landfill
Permit No. 39-SDP-01-73C

Key

	Indicated SSI
	SSL

Well	Constituent	2018	2019	2020	2021	2022	2023	2024	2025
MW-3	1,4-Dichlorobenzene								
	Chlorobenzene								
	cis-1,2-Dichloroethene								
	Tetrachloroethene								
MW-12	cis-1,2-Dichloroethene								
	Tetrachloroethene								
MW-14	Nickel							*	**
MW-16	Arsenic								
	Cobalt								
	Nickel								
	Benzene								
	Chlorobenzene								
	cis-1,2-Dichloroethene								
	Chloroethane								
MW-19	Nickel								**

Notes:

A detection of a VOC is considered an SSI for the purposes of this table.

* The concentration of nickel in monitoring well MW-14 was likely not representative due to an elevated TSS concentration, which was the highest measured in the monitoring well since 2017, and was therefore not confirmed.

** - Not confirmed pending retesting.

Table 11
Corrective Action Trend Analysis
2025 Annual Water Quality Report
Guthrie County Sanitary Landfill
Permit No. 39-SDP-01-73C

Well	Current SSL	Trend	Calculated S	Critical S	Total N	Projected Date to Completion
MW-16	Arsenic	Decreasing	-6	-21	8	2036
	Cobalt	Decreasing	-12	21	8	2031

Notes:

N: Number of Samples

S: Mann-Kendall Statistic

In order for the DNR to consider a remedy "completed," the concentration must be below the GWPS for 8 sampling events and remain at that level for 3 years. Therefore, the Completion Date is the Median Sample date plus 7 years (2,555 days) based on the prediction date.

Table 12
Gas Monitoring Summary
2025 Gas Monitoring Report
Guthrie County Sanitary Landfill
Permit No. 39-SDP-01-73C

Monitoring Points			Monitoring Results (%LEL)							
Name	Type	Description	3/10/2025		5/7/2025		9/23/2025		10/29/2025	
#1. Old Shop (blue)	Indoor	Inside Blue Building			0		0		0	
#2. New Shop (brown)	Indoor	Inside Brown Building			0		0		0	
#3. Office	Indoor	Inside Office			0		0		0	
#4. Transfer Station	Indoor	Inside Transfer Station			0		0		0	
#5. HHM Building	Indoor	Inside HHM building			0		0		0	
#6. Recycling Building	Indoor	Inside Recycling Building			0		0		0	
#7. LFGW-1	Gas Probe	Vadose zone near MW-12	0	N			0	N		
#8. LFGW-2	Gas Probe	Vadose zone near MW-3	3	Y			0	Y		
#9. LFGW-3	Gas Probe	Vadose zone near MW-19	0	N			0	N		
#10. LFGW-4	Gas Probe	Vadose zone west of waste mass	0	Y			0	Y		

Notes:

S(Y/N) - Was screen submerged, yes or no or blank is non-applicable.

There were no action limit exceedances during this reporting limit.

Structure monitoring is performed by facility staff. Monitoring results for the first quarter of 2025 were not available, reported as misplaced by facility staff.

Gas probe monitoring is performed by SCS.

A Methane Monitoring Map is included in the Figures section of this report.

Figures

C:\Users\hmadson\OneDrive Path: C:\Users\hmadson\OneDrive User: hmadson Date Saved: 10/2/2025 4:02 PM



HMSP Monitoring Wells	Monitoring Program
MW-3	Assessment
MW-5	Detection
MW-12	Assessment
MW-14	Detection
MW-16	Corrective Action
MW-19	Detection
MW-21	Background



Approved Monitoring Network

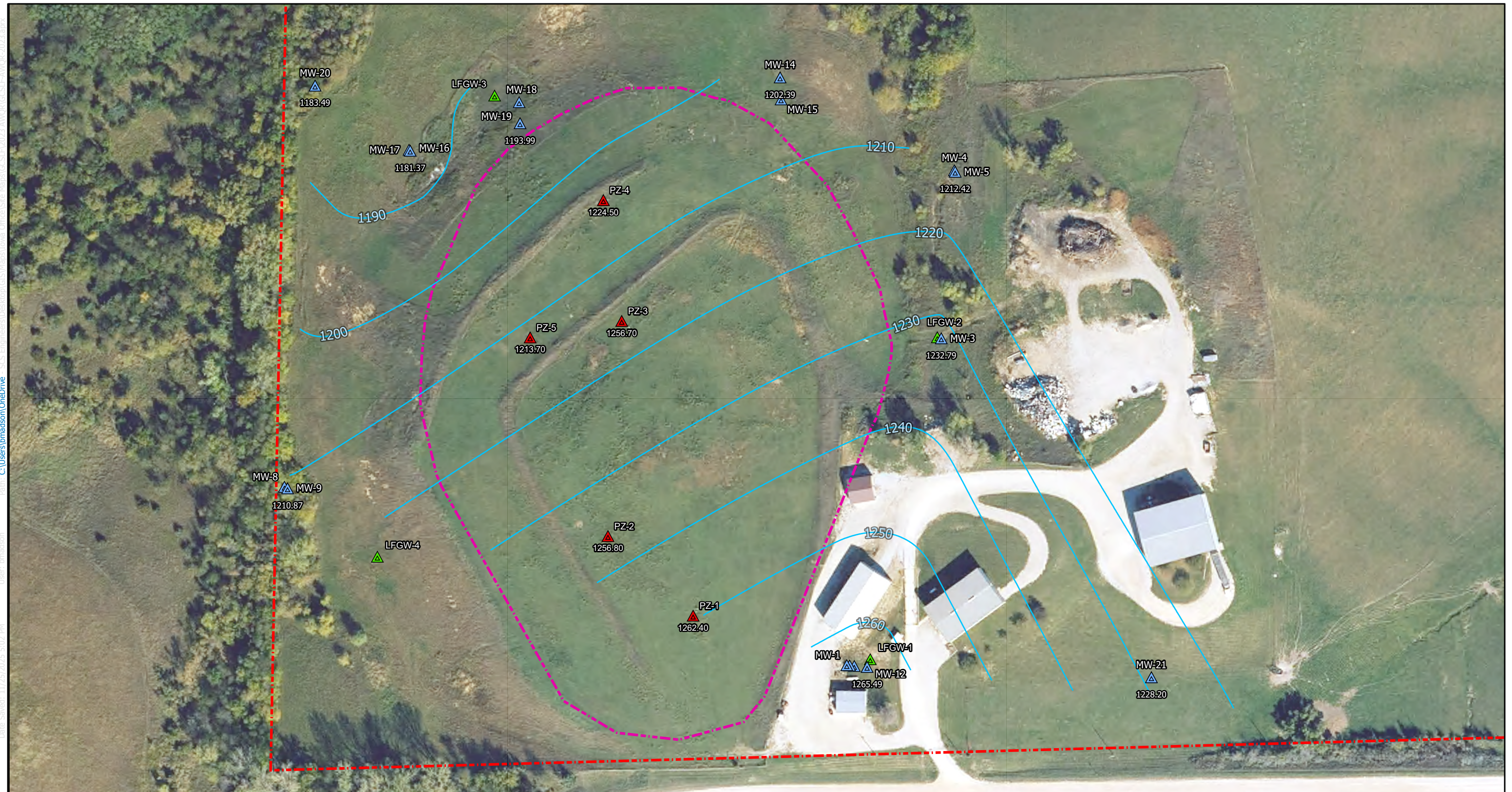
Legend

- Approximate Monitoring Well Location
- Approximate HMSP Monitoring Well Location
- Approximate Methane Monitoring Point Location
- Approximate Leachate Piezometer Location
- Approximate Waste Boundary
- Approximate Property Boundary

Guthrie County
Sanitary Landfill
Guthrie Center, Iowa
Project No: 27223271.26
Drawing Date: September 2025

Figure 1

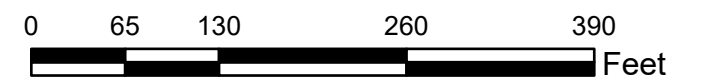
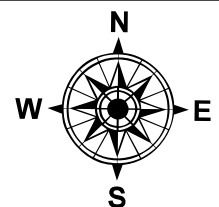
ESRI, COGNIS, USGS, Sources: Esri, TomTom, Garmin, FRC, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, USDA NARS, Iowa State University GIS Facility



SCS
ENGINEERS
environmental consultants and contractors

Approximate Groundwater
Contours Based on Elevations
Taken on Spetember 22, 2025

 Approximate Waste Boundary
 Approximate Property Boundary



*Leachate levels measured by Landfill staff in May 2025 were not used in groundwater contour development.

Appendix A
Field Sampling Forms

FORM FOR GROUNDWATER SAMPLING

Project: Guthrie County Sanitary Landfill	
Monitoring Well/Piezometer ID: MW-3	Date: 9/23/2025
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):	20.6
Initial Static Water Level (feet):	11.80
Initial Groundwater Elevation (ft-amsl):	1232.79
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING							
FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (NTU)	
1:08 PM	Purging start time.						
1:11 PM	15.5	0.6	960.8	6.71	187.0	5.2	
1:14 PM	15.4	0.2	1025.2	6.65	178.2	5.0	
1:17 PM	15.4	0.2	1095.7	6.64	172.1	3.8	
1:20 PM	15.4	0.1	1134.2	6.64	167.3	3.4	
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-Clear Odor-None DUPLICATE

FORM FOR GROUNDWATER SAMPLING

Project: Guthrie County Sanitary Landfill	
Monitoring Well/Piezometer ID: MW-5	Date: 9/23/2025
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):	32.1
Initial Static Water Level (feet):	5.12
Initial Groundwater Elevation (ft-amsl):	1212.42
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (NTU)	
12:46 PM	Purging start time.						
12:49 PM	15.3	0.5	1164.8	6.92	189.9	3.8	
12:52 PM	15.2	0.2	1135.4	6.89	178.1	7.5	
12:55 PM	14.9	0.1	1132.1	6.89	169.8	11.6	
12:58 PM	15.0	0.1	1129.4	6.88	163.8	10.1	
Parameters stabilized, sample collected.							

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

D. WELL MAINTENANCE	
Does the well require any future maintenance?	No
If yes, explain:	
Additional Comments:	Color-Clear Odor-None

FORM FOR GROUNDWATER SAMPLING

Project: Guthrie County Sanitary Landfill	
Monitoring Well/Piezometer ID: MW-12	Date: 9/23/2025
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):	28.2
Initial Static Water Level (feet):	13.89
Initial Groundwater Elevation (ft-amsl):	1265.49
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (NTU)	
1:43 PM	Purging start time.						
1:46 PM	15.0	6.3	942.5	6.91	239.1	4.6	
1:49 PM	14.8	6.4	911.3	6.92	241.7	9.6	
1:52 PM	14.9	6.5	906.0	6.92	244.2	20.9	
1:55 PM	14.9	6.5	903.2	6.92	246.6	32.4	
Parameters stabilized, sample collected.							

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

D. WELL MAINTENANCE	
Does the well require any future maintenance?	No
If yes, explain:	
Additional Comments:	Color-Clear Odor-None

FORM FOR GROUNDWATER SAMPLING

Project: Guthrie County Sanitary Landfill	
Monitoring Well/Piezometer ID: MW-14	Date: 9/23/2025
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):	42.7
Initial Static Water Level (feet):	29.00
Initial Groundwater Elevation (ft-amsl):	1202.39
Equipment Used:	Other

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 (NTU)	
12:20 PM	Purging start time.						
12:23 PM	14.7	0.5	2503.6	6.76	193.3	19.2	
12:26 PM	14.9	0.3	2505.5	6.75	178.9	24.6	
12:29 PM	15.6	0.2	2500.5	6.74	169.1	27.8	
12:32 PM	15.7	0.2	2508.9	6.74	161.8	31.3	
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-Clear Odor-Slight Sulfur

FORM FOR GROUNDWATER SAMPLING

Project: Guthrie County Sanitary Landfill	
Monitoring Well/Piezometer ID: MW-16	Date: 9/23/2025
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):	28.0
Initial Static Water Level (feet):	17.45
Initial Groundwater Elevation (ft-amsl):	1181.37
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING							
FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (NTU)	
11:20 AM	Purging start time.						
11:23 AM	15.2	0.6	1875.2	6.33	-56.8	3.1	
11:26 AM	15.0	0.2	1882.6	6.35	-66.5	3.2	
11:29 AM	15.0	0.1	1874.1	6.37	-70.7	3.8	
11:32 AM	15.0	0.1	1854.1	6.38	-72.5	3.5	
Parameters stabilized, sample collected.							

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

D. WELL MAINTENANCE	
Does the well require any future maintenance?	No
If yes, explain:	
Additional Comments:	Color-Clear Odor-Sulfur/Landfill Gas

FORM FOR GROUNDWATER SAMPLING

Project: Guthrie County Sanitary Landfill	
Monitoring Well/Piezometer ID: MW-19	Date: 9/23/2025
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):	27.7
Initial Static Water Level (feet):	14.00
Initial Groundwater Elevation (ft-amsl):	1193.99
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING							
FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (NTU)	
11:50 AM	Purging start time.						
11:53 AM	15.7	0.4	1312.2	6.67	-8.7	3.5	
11:56 AM	15.6	0.2	1304.5	6.65	13.5	2.7	
11:59 AM	15.6	0.1	1303.6	6.64	30.0	3.2	
12:02 PM	15.7	0.1	1300.9	6.64	42.6	3.4	
Parameters stabilized, sample collected.							

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

D. WELL MAINTENANCE	
Does the well require any future maintenance?	No
If yes, explain:	
Additional Comments:	Color-Clear Odor-None

FORM FOR GROUNDWATER SAMPLING

Project: Guthrie County Sanitary Landfill	
Monitoring Well/Piezometer ID: MW-21	Date: 9/23/2025
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):	32.9
Initial Static Water Level (feet):	16.30
Initial Groundwater Elevation (ft-amsl):	1216.70
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING							
FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (NTU)	
2:10 PM	Purging start time.						
2:13 PM	15.4	0.7	1286.0	7.16	181.5	27.4	
2:16 PM	15.2	0.3	1288.2	7.15	104.8	32.6	
2:19 PM	15.2	0.2	1288.5	7.14	62.8	41.9	
2:22 PM	15.2	0.1	1287.4	7.14	37.3	45.1	
Parameters stabilized, sample collected.							

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

D. WELL MAINTENANCE	
Does the well require any future maintenance?	No Lock needed
If yes, explain:	
Additional Comments:	Color-Clear Odor-Sulfur Needs labeled as well

FORM FOR GROUNDWATER SAMPLING

Project: Guthrie County Sanitary Landfill	
Monitoring Well/Piezometer ID: MW-20	Date: 9/23/2025
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):	33.2
Initial Static Water Level (feet):	16.11
Initial Groundwater Elevation (ft-amsl):	1183.49
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (NTU)	
10:46 AM	Purging start time.						
10:49 AM	13.5	4.4	498.6	6.56	234.7	15.3	
10:52 AM	13.9	4.3	495.2	6.53	246.4	37.6	
10:55 AM	13.7	4.3	495.1	6.53	253.9	77.7	
10:58 AM	13.7	4.2	495.5	6.52	259.3	83.8	
Parameters stabilized, sample collected.							

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

D. WELL MAINTENANCE

Does the well require any future maintenance?		No
If yes, explain:		
Additional Comments:	Color-Clear Odor-None	

Appendix B-1
Laboratory Analytical Data Sheets

ANALYTICAL REPORT

PREPARED FOR

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

Generated 10/6/2025 3:55:36 PM

JOB DESCRIPTION

Guthrie County 2025 Annual HMSP
Guthrie County Sanitary Landfill

JOB NUMBER

310-316432-1

Eurofins Cedar Falls

Job Notes

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

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

Authorization



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Authorized for release by
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Case Narrative

Client: SCS Engineers
Project: Guthrie County 2025 Annual HMSP

Job ID: 310-316432-1

Job ID: 310-316432-1

Eurofins Cedar Falls

Job Narrative 310-316432-1

The analytical test results presented in this report meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page, unless otherwise noted. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable. Regulated compliance samples (e.g. SDWA, NPDES) must comply with associated agency requirements/permits.

- Matrix-specific batch QC (e.g., MS, MSD, SD) may not be reported when insufficient sample volume is available or when site-specific QC samples are not submitted. In such cases, a Laboratory Control Sample Duplicate (LCSD) may be analyzed to provide precision data for the batch.
- For samples analyzed using surrogate and/or isotope dilution analytes, any recoveries falling outside of established acceptance criteria are re-prepared and/or re-analyzed to confirm results, unless the deviation is due to sample dilution or otherwise explained in the case narrative.

Receipt

The samples were received on 9/24/2025 3:50 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 5.6°C.

GC/MS VOA

Method 8260D: The method requirement for no headspace was not met. The following volatile sample was analyzed with headspace in the sample container: Trip Blank (310-316432-10).

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.

Eurofins Cedar Falls

Sample Summary

Client: SCS Engineers
Project/Site: Guthrie County 2025 Annual HMSP

Job ID: 310-316432-1
SDG: Guthrie County Sanitary Landfill

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Sample Origin
310-316432-1	MW-3	Ground Water	09/23/25 13:37	09/24/25 15:50	Iowa
310-316432-2	MW-5	Ground Water	09/23/25 13:06	09/24/25 15:50	Iowa
310-316432-3	MW-12	Ground Water	09/23/25 14:04	09/24/25 15:50	Iowa
310-316432-4	MW-14	Ground Water	09/23/25 12:40	09/24/25 15:50	Iowa
310-316432-5	MW-16	Ground Water	09/23/25 11:40	09/24/25 15:50	Iowa
310-316432-6	MW-19	Ground Water	09/23/25 12:09	09/24/25 15:50	Iowa
310-316432-7	MW-20	Ground Water	09/23/25 11:06	09/24/25 15:50	Iowa
310-316432-8	MW-21	Ground Water	09/23/25 14:31	09/24/25 15:50	Iowa
310-316432-9	MW-D	Ground Water	09/23/25 13:37	09/24/25 15:50	Iowa
310-316432-10	Trip Blank	Water	09/23/25 00:00	09/24/25 15:50	Iowa

Detection Summary

Client: SCS Engineers
Project/Site: Guthrie County 2025 Annual HMSP

Job ID: 310-316432-1
SDG: Guthrie County Sanitary Landfill

Client Sample ID: MW-3

Lab Sample ID: 310-316432-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dichlorobenzene	0.851	J	1.00	0.230	ug/L	1		8260D	Total/NA
Chlorobenzene	2.04		1.00	0.400	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	4.13		1.00	0.210	ug/L	1		8260D	Total/NA
Barium	0.731		0.00200	0.000660	mg/L	1		6020B	Total/NA
Cobalt	0.000250	J	0.000500	0.000170	mg/L	1		6020B	Total/NA
Nickel	0.00503		0.00500	0.00230	mg/L	1		6020B	Total/NA
Total Suspended Solids	2.88		1.88	1.31	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-5

Lab Sample ID: 310-316432-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.0643		0.00200	0.000660	mg/L	1		6020B	Total/NA
Nickel	0.00243	J	0.00500	0.00230	mg/L	1		6020B	Total/NA

Client Sample ID: MW-12

Lab Sample ID: 310-316432-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	0.631	J	1.00	0.480	ug/L	1		8260D	Total/NA
Barium	0.484		0.00200	0.000660	mg/L	1		6020B	Total/NA

Client Sample ID: MW-14

Lab Sample ID: 310-316432-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	0.00132	J	0.00200	0.00100	mg/L	1		6020B	Total/NA
Arsenic	0.000779	J	0.00200	0.000530	mg/L	1		6020B	Total/NA
Barium	0.0244		0.00200	0.000660	mg/L	1		6020B	Total/NA
Cadmium	0.000395		0.000200	0.000100	mg/L	1		6020B	Total/NA
Cobalt	0.000939		0.000500	0.000170	mg/L	1		6020B	Total/NA
Copper	0.00345	J	0.00500	0.00320	mg/L	1		6020B	Total/NA
Lead	0.000450	J	0.000500	0.000330	mg/L	1		6020B	Total/NA
Nickel	0.0126		0.00500	0.00230	mg/L	1		6020B	Total/NA
Total Suspended Solids	64.8		3.75	2.63	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-16

Lab Sample ID: 310-316432-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	3.47	J	10.0	3.10	ug/L	1		8260D	Total/NA
Benzene	0.434	J	0.500	0.220	ug/L	1		8260D	Total/NA
Chlorobenzene	0.517	J	1.00	0.400	ug/L	1		8260D	Total/NA
Chloroethane	1.18	J	4.00	0.790	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	0.448	J	1.00	0.210	ug/L	1		8260D	Total/NA
Vinyl chloride	0.264	J	1.00	0.180	ug/L	1		8260D	Total/NA
Arsenic	0.0258		0.00200	0.000530	mg/L	1		6020B	Total/NA
Barium	0.442		0.00200	0.000660	mg/L	1		6020B	Total/NA
Cobalt	0.000620		0.000500	0.000170	mg/L	1		6020B	Total/NA
Nickel	0.0105		0.00500	0.00230	mg/L	1		6020B	Total/NA
Total Suspended Solids	46.0		15.0	10.5	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-19

Lab Sample ID: 310-316432-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.0889		0.00200	0.000660	mg/L	1		6020B	Total/NA
Cadmium	0.000252		0.000200	0.000100	mg/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Detection Summary

Client: SCS Engineers
Project/Site: Guthrie County 2025 Annual HMSP

Job ID: 310-316432-1
SDG: Guthrie County Sanitary Landfill

Client Sample ID: MW-19 (Continued)

Lab Sample ID: 310-316432-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cobalt	0.000834		0.000500	0.000170	mg/L	1		6020B	Total/NA
Nickel	0.00985		0.00500	0.00230	mg/L	1		6020B	Total/NA
Vanadium	0.00185	J	0.00500	0.00170	mg/L	1		6020B	Total/NA
Total Suspended Solids	16.0		1.88	1.31	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-20

Lab Sample ID: 310-316432-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Suspended Solids	1.50	J	1.88	1.31	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-21

Lab Sample ID: 310-316432-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	5.45	J	10.0	3.10	ug/L	1		8260D	Total/NA
Carbon disulfide	0.595	J	1.00	0.450	ug/L	1		8260D	Total/NA
Arsenic	0.00386		0.00200	0.000530	mg/L	1		6020B	Total/NA
Barium	0.0722		0.00200	0.000660	mg/L	1		6020B	Total/NA
Cobalt	0.00608		0.000500	0.000170	mg/L	1		6020B	Total/NA
Nickel	0.00892		0.00500	0.00230	mg/L	1		6020B	Total/NA
Total Suspended Solids	3.50		1.88	1.31	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-D

Lab Sample ID: 310-316432-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dichlorobenzene	0.882	J	1.00	0.230	ug/L	1		8260D	Total/NA
Chlorobenzene	2.20		1.00	0.400	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	3.91		1.00	0.210	ug/L	1		8260D	Total/NA
Barium	0.699		0.00200	0.000660	mg/L	1		6020B	Total/NA
Cobalt	0.000260	J	0.000500	0.000170	mg/L	1		6020B	Total/NA
Nickel	0.00320	J	0.00500	0.00230	mg/L	1		6020B	Total/NA
Total Suspended Solids	15.3		1.88	1.31	mg/L	1		I-3765-85	Total/NA

Client Sample ID: Trip Blank

Lab Sample ID: 310-316432-10

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Client Sample Results

Client: SCS Engineers
Project/Site: Guthrie County 2025 Annual HMSP

Job ID: 310-316432-1
SDG: Guthrie County Sanitary Landfill

Client Sample ID: MW-3

Lab Sample ID: 310-316432-1

Date Collected: 09/23/25 13:37

Matrix: Ground Water

Date Received: 09/24/25 15:50

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			09/26/25 09:23	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			09/26/25 09:23	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			09/26/25 09:23	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			09/26/25 09:23	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			09/26/25 09:23	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			09/26/25 09:23	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			09/26/25 09:23	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			09/26/25 09:23	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			09/26/25 09:23	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			09/26/25 09:23	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			09/26/25 09:23	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			09/26/25 09:23	1
1,4-Dichlorobenzene	0.851	J	1.00	0.230	ug/L			09/26/25 09:23	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			09/26/25 09:23	1
2-Hexanone	<10.0		10.0	2.00	ug/L			09/26/25 09:23	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			09/26/25 09:23	1
Acetone	<10.0		10.0	3.10	ug/L			09/26/25 09:23	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			09/26/25 09:23	1
Benzene	<0.500		0.500	0.220	ug/L			09/26/25 09:23	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			09/26/25 09:23	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			09/26/25 09:23	1
Bromoform	<5.00		5.00	0.780	ug/L			09/26/25 09:23	1
Bromomethane	<4.00		4.00	1.10	ug/L			09/26/25 09:23	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			09/26/25 09:23	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			09/26/25 09:23	1
Chlorobenzene	2.04		1.00	0.400	ug/L			09/26/25 09:23	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			09/26/25 09:23	1
Chloroethane	<4.00		4.00	0.790	ug/L			09/26/25 09:23	1
Chloroform	<3.00		3.00	1.30	ug/L			09/26/25 09:23	1
Chloromethane	<3.00		3.00	0.610	ug/L			09/26/25 09:23	1
cis-1,2-Dichloroethene	4.13		1.00	0.210	ug/L			09/26/25 09:23	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			09/26/25 09:23	1
Dibromomethane	<1.00		1.00	0.330	ug/L			09/26/25 09:23	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			09/26/25 09:23	1
Iodomethane	<10.0		10.0	7.00	ug/L			09/26/25 09:23	1
Methylene chloride	<5.00		5.00	1.70	ug/L			09/26/25 09:23	1
Styrene	<1.00		1.00	0.370	ug/L			09/26/25 09:23	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			09/26/25 09:23	1
Toluene	<1.00		1.00	0.430	ug/L			09/26/25 09:23	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			09/26/25 09:23	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			09/26/25 09:23	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			09/26/25 09:23	1
Trichloroethene	<1.00		1.00	0.430	ug/L			09/26/25 09:23	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			09/26/25 09:23	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			09/26/25 09:23	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			09/26/25 09:23	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			09/26/25 09:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	116		76 - 130		09/26/25 09:23	1

Eurofins Cedar Falls

Client Sample Results

Client: SCS Engineers
Project/Site: Guthrie County 2025 Annual HMSP

Job ID: 310-316432-1
SDG: Guthrie County Sanitary Landfill

Client Sample ID: MW-3

Lab Sample ID: 310-316432-1

Date Collected: 09/23/25 13:37

Matrix: Ground Water

Date Received: 09/24/25 15:50

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	94		80 - 120		09/26/25 09:23	1
4-Bromofluorobenzene (Surr)	105		80 - 120		09/26/25 09:23	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200	0.00100	mg/L		10/01/25 09:00	10/03/25 20:53	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		10/01/25 09:00	10/03/25 20:53	1
Barium	0.731		0.00200	0.000660	mg/L		10/01/25 09:00	10/03/25 20:53	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		10/01/25 09:00	10/03/25 20:53	1
Cadmium	<0.000200		0.000200	0.000100	mg/L		10/01/25 09:00	10/03/25 20:53	1
Chromium	<0.00500		0.00500	0.00180	mg/L		10/01/25 09:00	10/03/25 20:53	1
Cobalt	0.000250	J	0.000500	0.000170	mg/L		10/01/25 09:00	10/03/25 20:53	1
Copper	<0.00500		0.00500	0.00320	mg/L		10/01/25 09:00	10/03/25 20:53	1
Lead	<0.000500		0.000500	0.000330	mg/L		10/01/25 09:00	10/06/25 13:33	1
Nickel	0.00503		0.00500	0.00230	mg/L		10/01/25 09:00	10/03/25 20:53	1
Selenium	<0.00500		0.00500	0.00140	mg/L		10/01/25 09:00	10/03/25 20:53	1
Silver	<0.00100		0.00100	0.000500	mg/L		10/01/25 09:00	10/03/25 20:53	1
Thallium	<0.00100		0.00100	0.000570	mg/L		10/01/25 09:00	10/03/25 20:53	1
Vanadium	<0.00500		0.00500	0.00170	mg/L		10/01/25 09:00	10/03/25 20:53	1
Zinc	<0.0200		0.0200	0.0130	mg/L		10/01/25 09:00	10/03/25 20:53	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	2.88		1.88	1.31	mg/L			09/25/25 05:38	1

Client Sample Results

Client: SCS Engineers
Project/Site: Guthrie County 2025 Annual HMSP

Job ID: 310-316432-1
SDG: Guthrie County Sanitary Landfill

Client Sample ID: MW-5

Lab Sample ID: 310-316432-2

Date Collected: 09/23/25 13:06

Matrix: Ground Water

Date Received: 09/24/25 15:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200	0.00100	mg/L		10/01/25 09:00	10/03/25 21:04	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		10/01/25 09:00	10/03/25 21:04	1
Barium	0.0643		0.00200	0.000660	mg/L		10/01/25 09:00	10/03/25 21:04	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		10/01/25 09:00	10/03/25 21:04	1
Cadmium	<0.000200		0.000200	0.000100	mg/L		10/01/25 09:00	10/03/25 21:04	1
Chromium	<0.00500		0.00500	0.00180	mg/L		10/01/25 09:00	10/03/25 21:04	1
Cobalt	<0.000500		0.000500	0.000170	mg/L		10/01/25 09:00	10/03/25 21:04	1
Copper	<0.00500		0.00500	0.00320	mg/L		10/01/25 09:00	10/03/25 21:04	1
Lead	<0.000500		0.000500	0.000330	mg/L		10/01/25 09:00	10/03/25 21:04	1
Nickel	0.00243	J	0.00500	0.00230	mg/L		10/01/25 09:00	10/03/25 21:04	1
Selenium	<0.00500		0.00500	0.00140	mg/L		10/01/25 09:00	10/03/25 21:04	1
Silver	<0.00100		0.00100	0.000500	mg/L		10/01/25 09:00	10/03/25 21:04	1
Thallium	<0.00100		0.00100	0.000570	mg/L		10/01/25 09:00	10/03/25 21:04	1
Vanadium	<0.00500		0.00500	0.00170	mg/L		10/01/25 09:00	10/03/25 21:04	1
Zinc	<0.0200		0.0200	0.0130	mg/L		10/01/25 09:00	10/03/25 21:04	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	<1.88		1.88	1.31	mg/L			09/25/25 05:38	1

Client Sample Results

Client: SCS Engineers
Project/Site: Guthrie County 2025 Annual HMSP

Job ID: 310-316432-1
SDG: Guthrie County Sanitary Landfill

Client Sample ID: MW-12

Lab Sample ID: 310-316432-3

Date Collected: 09/23/25 14:04

Matrix: Ground Water

Date Received: 09/24/25 15:50

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			09/26/25 09:46	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			09/26/25 09:46	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			09/26/25 09:46	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			09/26/25 09:46	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			09/26/25 09:46	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			09/26/25 09:46	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			09/26/25 09:46	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			09/26/25 09:46	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			09/26/25 09:46	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			09/26/25 09:46	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			09/26/25 09:46	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			09/26/25 09:46	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			09/26/25 09:46	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			09/26/25 09:46	1
2-Hexanone	<10.0		10.0	2.00	ug/L			09/26/25 09:46	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			09/26/25 09:46	1
Acetone	<10.0		10.0	3.10	ug/L			09/26/25 09:46	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			09/26/25 09:46	1
Benzene	<0.500		0.500	0.220	ug/L			09/26/25 09:46	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			09/26/25 09:46	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			09/26/25 09:46	1
Bromoform	<5.00		5.00	0.780	ug/L			09/26/25 09:46	1
Bromomethane	<4.00		4.00	1.10	ug/L			09/26/25 09:46	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			09/26/25 09:46	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			09/26/25 09:46	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			09/26/25 09:46	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			09/26/25 09:46	1
Chloroethane	<4.00		4.00	0.790	ug/L			09/26/25 09:46	1
Chloroform	<3.00		3.00	1.30	ug/L			09/26/25 09:46	1
Chloromethane	<3.00		3.00	0.610	ug/L			09/26/25 09:46	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			09/26/25 09:46	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			09/26/25 09:46	1
Dibromomethane	<1.00		1.00	0.330	ug/L			09/26/25 09:46	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			09/26/25 09:46	1
Iodomethane	<10.0		10.0	7.00	ug/L			09/26/25 09:46	1
Methylene chloride	<5.00		5.00	1.70	ug/L			09/26/25 09:46	1
Styrene	<1.00		1.00	0.370	ug/L			09/26/25 09:46	1
Tetrachloroethene	0.631 J		1.00	0.480	ug/L			09/26/25 09:46	1
Toluene	<1.00		1.00	0.430	ug/L			09/26/25 09:46	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			09/26/25 09:46	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			09/26/25 09:46	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			09/26/25 09:46	1
Trichloroethene	<1.00		1.00	0.430	ug/L			09/26/25 09:46	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			09/26/25 09:46	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			09/26/25 09:46	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			09/26/25 09:46	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			09/26/25 09:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	115		76 - 130		09/26/25 09:46	1

Eurofins Cedar Falls

Client Sample Results

Client: SCS Engineers
Project/Site: Guthrie County 2025 Annual HMSP

Job ID: 310-316432-1
SDG: Guthrie County Sanitary Landfill

Client Sample ID: MW-12

Lab Sample ID: 310-316432-3

Date Collected: 09/23/25 14:04

Matrix: Ground Water

Date Received: 09/24/25 15:50

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	96		80 - 120		09/26/25 09:46	1
4-Bromofluorobenzene (Surr)	104		80 - 120		09/26/25 09:46	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200	0.00100	mg/L		10/01/25 09:00	10/03/25 21:07	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		10/01/25 09:00	10/03/25 21:07	1
Barium	0.484		0.00200	0.000660	mg/L		10/01/25 09:00	10/03/25 21:07	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		10/01/25 09:00	10/03/25 21:07	1
Cadmium	<0.000200		0.000200	0.000100	mg/L		10/01/25 09:00	10/03/25 21:07	1
Chromium	<0.00500		0.00500	0.00180	mg/L		10/01/25 09:00	10/03/25 21:07	1
Cobalt	<0.000500		0.000500	0.000170	mg/L		10/01/25 09:00	10/03/25 21:07	1
Copper	<0.00500		0.00500	0.00320	mg/L		10/01/25 09:00	10/03/25 21:07	1
Lead	<0.000500		0.000500	0.000330	mg/L		10/01/25 09:00	10/03/25 21:07	1
Nickel	<0.00500		0.00500	0.00230	mg/L		10/01/25 09:00	10/03/25 21:07	1
Selenium	<0.00500		0.00500	0.00140	mg/L		10/01/25 09:00	10/03/25 21:07	1
Silver	<0.00100		0.00100	0.000500	mg/L		10/01/25 09:00	10/03/25 21:07	1
Thallium	<0.00100		0.00100	0.000570	mg/L		10/01/25 09:00	10/03/25 21:07	1
Vanadium	<0.00500		0.00500	0.00170	mg/L		10/01/25 09:00	10/03/25 21:07	1
Zinc	<0.0200		0.0200	0.0130	mg/L		10/01/25 09:00	10/03/25 21:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	<1.88		1.88	1.31	mg/L			09/25/25 05:38	1

Client Sample Results

Client: SCS Engineers
Project/Site: Guthrie County 2025 Annual HMSP

Job ID: 310-316432-1
SDG: Guthrie County Sanitary Landfill

Client Sample ID: MW-14

Lab Sample ID: 310-316432-4

Date Collected: 09/23/25 12:40

Matrix: Ground Water

Date Received: 09/24/25 15:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00132	J	0.00200	0.00100	mg/L		10/01/25 09:00	10/03/25 21:10	1
Arsenic	0.000779	J	0.00200	0.000530	mg/L		10/01/25 09:00	10/03/25 21:10	1
Barium	0.0244		0.00200	0.000660	mg/L		10/01/25 09:00	10/03/25 21:10	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		10/01/25 09:00	10/03/25 21:10	1
Cadmium	0.000395		0.000200	0.000100	mg/L		10/01/25 09:00	10/03/25 21:10	1
Chromium	<0.00500		0.00500	0.00180	mg/L		10/01/25 09:00	10/03/25 21:10	1
Cobalt	0.000939		0.000500	0.000170	mg/L		10/01/25 09:00	10/03/25 21:10	1
Copper	0.00345	J	0.00500	0.00320	mg/L		10/01/25 09:00	10/03/25 21:10	1
Lead	0.000450	J	0.000500	0.000330	mg/L		10/01/25 09:00	10/03/25 21:10	1
Nickel	0.0126		0.00500	0.00230	mg/L		10/01/25 09:00	10/03/25 21:10	1
Selenium	<0.00500		0.00500	0.00140	mg/L		10/01/25 09:00	10/03/25 21:10	1
Silver	<0.00100		0.00100	0.000500	mg/L		10/01/25 09:00	10/03/25 21:10	1
Thallium	<0.00100		0.00100	0.000570	mg/L		10/01/25 09:00	10/03/25 21:10	1
Vanadium	<0.00500		0.00500	0.00170	mg/L		10/01/25 09:00	10/03/25 21:10	1
Zinc	<0.0200		0.0200	0.0130	mg/L		10/01/25 09:00	10/03/25 21:10	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	64.8		3.75	2.63	mg/L			09/25/25 05:38	1

Client Sample Results

Client: SCS Engineers
Project/Site: Guthrie County 2025 Annual HMSP

Job ID: 310-316432-1
SDG: Guthrie County Sanitary Landfill

Client Sample ID: MW-16

Lab Sample ID: 310-316432-5

Date Collected: 09/23/25 11:40

Matrix: Ground Water

Date Received: 09/24/25 15:50

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			09/26/25 10:08	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			09/26/25 10:08	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			09/26/25 10:08	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			09/26/25 10:08	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			09/26/25 10:08	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			09/26/25 10:08	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			09/26/25 10:08	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			09/26/25 10:08	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			09/26/25 10:08	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			09/26/25 10:08	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			09/26/25 10:08	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			09/26/25 10:08	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			09/26/25 10:08	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			09/26/25 10:08	1
2-Hexanone	<10.0		10.0	2.00	ug/L			09/26/25 10:08	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			09/26/25 10:08	1
Acetone	3.47	J	10.0	3.10	ug/L			09/26/25 10:08	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			09/26/25 10:08	1
Benzene	0.434	J	0.500	0.220	ug/L			09/26/25 10:08	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			09/26/25 10:08	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			09/26/25 10:08	1
Bromoform	<5.00		5.00	0.780	ug/L			09/26/25 10:08	1
Bromomethane	<4.00		4.00	1.10	ug/L			09/26/25 10:08	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			09/26/25 10:08	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			09/26/25 10:08	1
Chlorobenzene	0.517	J	1.00	0.400	ug/L			09/26/25 10:08	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			09/26/25 10:08	1
Chloroethane	1.18	J	4.00	0.790	ug/L			09/26/25 10:08	1
Chloroform	<3.00		3.00	1.30	ug/L			09/26/25 10:08	1
Chloromethane	<3.00		3.00	0.610	ug/L			09/26/25 10:08	1
cis-1,2-Dichloroethene	0.448	J	1.00	0.210	ug/L			09/26/25 10:08	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			09/26/25 10:08	1
Dibromomethane	<1.00		1.00	0.330	ug/L			09/26/25 10:08	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			09/26/25 10:08	1
Iodomethane	<10.0		10.0	7.00	ug/L			09/26/25 10:08	1
Methylene chloride	<5.00		5.00	1.70	ug/L			09/26/25 10:08	1
Styrene	<1.00		1.00	0.370	ug/L			09/26/25 10:08	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			09/26/25 10:08	1
Toluene	<1.00		1.00	0.430	ug/L			09/26/25 10:08	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			09/26/25 10:08	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			09/26/25 10:08	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			09/26/25 10:08	1
Trichloroethene	<1.00		1.00	0.430	ug/L			09/26/25 10:08	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			09/26/25 10:08	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			09/26/25 10:08	1
Vinyl chloride	0.264	J	1.00	0.180	ug/L			09/26/25 10:08	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			09/26/25 10:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	113		76 - 130		09/26/25 10:08	1

Eurofins Cedar Falls

Client Sample Results

Client: SCS Engineers
Project/Site: Guthrie County 2025 Annual HMSP

Job ID: 310-316432-1
SDG: Guthrie County Sanitary Landfill

Client Sample ID: MW-16

Lab Sample ID: 310-316432-5

Date Collected: 09/23/25 11:40

Matrix: Ground Water

Date Received: 09/24/25 15:50

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	97		80 - 120		09/26/25 10:08	1
4-Bromofluorobenzene (Surr)	105		80 - 120		09/26/25 10:08	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200	0.00100	mg/L		10/01/25 09:00	10/03/25 21:12	1
Arsenic	0.0258		0.00200	0.000530	mg/L		10/01/25 09:00	10/03/25 21:12	1
Barium	0.442		0.00200	0.000660	mg/L		10/01/25 09:00	10/03/25 21:12	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		10/01/25 09:00	10/03/25 21:12	1
Cadmium	<0.000200		0.000200	0.000100	mg/L		10/01/25 09:00	10/03/25 21:12	1
Chromium	<0.00500		0.00500	0.00180	mg/L		10/01/25 09:00	10/03/25 21:12	1
Cobalt	0.000620		0.000500	0.000170	mg/L		10/01/25 09:00	10/03/25 21:12	1
Copper	<0.00500		0.00500	0.00320	mg/L		10/01/25 09:00	10/03/25 21:12	1
Lead	<0.000500		0.000500	0.000330	mg/L		10/01/25 09:00	10/03/25 21:12	1
Nickel	0.0105		0.00500	0.00230	mg/L		10/01/25 09:00	10/03/25 21:12	1
Selenium	<0.00500		0.00500	0.00140	mg/L		10/01/25 09:00	10/03/25 21:12	1
Silver	<0.00100		0.00100	0.000500	mg/L		10/01/25 09:00	10/03/25 21:12	1
Thallium	<0.00100		0.00100	0.000570	mg/L		10/01/25 09:00	10/03/25 21:12	1
Vanadium	<0.00500		0.00500	0.00170	mg/L		10/01/25 09:00	10/03/25 21:12	1
Zinc	<0.0200		0.0200	0.0130	mg/L		10/01/25 09:00	10/03/25 21:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	46.0		15.0	10.5	mg/L			09/25/25 05:38	1

Client Sample Results

Client: SCS Engineers
Project/Site: Guthrie County 2025 Annual HMSP

Job ID: 310-316432-1
SDG: Guthrie County Sanitary Landfill

Client Sample ID: MW-19

Lab Sample ID: 310-316432-6

Date Collected: 09/23/25 12:09

Matrix: Ground Water

Date Received: 09/24/25 15:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200	0.00100	mg/L		10/01/25 09:00	10/03/25 21:15	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		10/01/25 09:00	10/03/25 21:15	1
Barium	0.0889		0.00200	0.000660	mg/L		10/01/25 09:00	10/03/25 21:15	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		10/01/25 09:00	10/03/25 21:15	1
Cadmium	0.000252		0.000200	0.000100	mg/L		10/01/25 09:00	10/03/25 21:15	1
Chromium	<0.00500		0.00500	0.00180	mg/L		10/01/25 09:00	10/03/25 21:15	1
Cobalt	0.000834		0.000500	0.000170	mg/L		10/01/25 09:00	10/03/25 21:15	1
Copper	<0.00500		0.00500	0.00320	mg/L		10/01/25 09:00	10/03/25 21:15	1
Lead	<0.000500		0.000500	0.000330	mg/L		10/01/25 09:00	10/03/25 21:15	1
Nickel	0.00985		0.00500	0.00230	mg/L		10/01/25 09:00	10/03/25 21:15	1
Selenium	<0.00500		0.00500	0.00140	mg/L		10/01/25 09:00	10/03/25 21:15	1
Silver	<0.00100		0.00100	0.000500	mg/L		10/01/25 09:00	10/03/25 21:15	1
Thallium	<0.00100		0.00100	0.000570	mg/L		10/01/25 09:00	10/03/25 21:15	1
Vanadium	0.00185 J		0.00500	0.00170	mg/L		10/01/25 09:00	10/03/25 21:15	1
Zinc	<0.0200		0.0200	0.0130	mg/L		10/01/25 09:00	10/03/25 21:15	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	16.0		1.88	1.31	mg/L			09/25/25 05:38	1

Client Sample Results

Client: SCS Engineers
Project/Site: Guthrie County 2025 Annual HMSP

Job ID: 310-316432-1
SDG: Guthrie County Sanitary Landfill

Client Sample ID: MW-20

Lab Sample ID: 310-316432-7

Date Collected: 09/23/25 11:06

Matrix: Ground Water

Date Received: 09/24/25 15:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200	0.000530	mg/L		10/01/25 09:00	10/03/25 21:18	1
Cobalt	<0.000500		0.000500	0.000170	mg/L		10/01/25 09:00	10/03/25 21:18	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	1.50	J	1.88	1.31	mg/L			09/25/25 05:38	1

Client Sample Results

Client: SCS Engineers
Project/Site: Guthrie County 2025 Annual HMSP

Job ID: 310-316432-1
SDG: Guthrie County Sanitary Landfill

Client Sample ID: MW-21

Lab Sample ID: 310-316432-8

Date Collected: 09/23/25 14:31

Matrix: Ground Water

Date Received: 09/24/25 15:50

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			09/26/25 10:31	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			09/26/25 10:31	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			09/26/25 10:31	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			09/26/25 10:31	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			09/26/25 10:31	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			09/26/25 10:31	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			09/26/25 10:31	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			09/26/25 10:31	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			09/26/25 10:31	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			09/26/25 10:31	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			09/26/25 10:31	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			09/26/25 10:31	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			09/26/25 10:31	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			09/26/25 10:31	1
2-Hexanone	<10.0		10.0	2.00	ug/L			09/26/25 10:31	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			09/26/25 10:31	1
Acetone	5.45	J	10.0	3.10	ug/L			09/26/25 10:31	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			09/26/25 10:31	1
Benzene	<0.500		0.500	0.220	ug/L			09/26/25 10:31	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			09/26/25 10:31	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			09/26/25 10:31	1
Bromoform	<5.00		5.00	0.780	ug/L			09/26/25 10:31	1
Bromomethane	<4.00		4.00	1.10	ug/L			09/26/25 10:31	1
Carbon disulfide	0.595	J	1.00	0.450	ug/L			09/26/25 10:31	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			09/26/25 10:31	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			09/26/25 10:31	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			09/26/25 10:31	1
Chloroethane	<4.00		4.00	0.790	ug/L			09/26/25 10:31	1
Chloroform	<3.00		3.00	1.30	ug/L			09/26/25 10:31	1
Chloromethane	<3.00		3.00	0.610	ug/L			09/26/25 10:31	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			09/26/25 10:31	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			09/26/25 10:31	1
Dibromomethane	<1.00		1.00	0.330	ug/L			09/26/25 10:31	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			09/26/25 10:31	1
Iodomethane	<10.0		10.0	7.00	ug/L			09/26/25 10:31	1
Methylene chloride	<5.00		5.00	1.70	ug/L			09/26/25 10:31	1
Styrene	<1.00		1.00	0.370	ug/L			09/26/25 10:31	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			09/26/25 10:31	1
Toluene	<1.00		1.00	0.430	ug/L			09/26/25 10:31	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			09/26/25 10:31	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			09/26/25 10:31	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			09/26/25 10:31	1
Trichloroethene	<1.00		1.00	0.430	ug/L			09/26/25 10:31	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			09/26/25 10:31	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			09/26/25 10:31	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			09/26/25 10:31	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			09/26/25 10:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	112		76 - 130		09/26/25 10:31	1

Eurofins Cedar Falls

Client Sample Results

Client: SCS Engineers
Project/Site: Guthrie County 2025 Annual HMSP

Job ID: 310-316432-1
SDG: Guthrie County Sanitary Landfill

Client Sample ID: MW-21

Lab Sample ID: 310-316432-8

Date Collected: 09/23/25 14:31

Matrix: Ground Water

Date Received: 09/24/25 15:50

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	98		80 - 120		09/26/25 10:31	1
4-Bromofluorobenzene (Surr)	101		80 - 120		09/26/25 10:31	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200	0.00100	mg/L		10/01/25 09:00	10/03/25 21:21	1
Arsenic	0.00386		0.00200	0.000530	mg/L		10/01/25 09:00	10/03/25 21:21	1
Barium	0.0722		0.00200	0.000660	mg/L		10/01/25 09:00	10/03/25 21:21	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		10/01/25 09:00	10/03/25 21:21	1
Cadmium	<0.000200		0.000200	0.000100	mg/L		10/01/25 09:00	10/03/25 21:21	1
Chromium	<0.00500		0.00500	0.00180	mg/L		10/01/25 09:00	10/03/25 21:21	1
Cobalt	0.00608		0.000500	0.000170	mg/L		10/01/25 09:00	10/03/25 21:21	1
Copper	<0.00500		0.00500	0.00320	mg/L		10/01/25 09:00	10/03/25 21:21	1
Lead	<0.000500		0.000500	0.000330	mg/L		10/01/25 09:00	10/03/25 21:21	1
Nickel	0.00892		0.00500	0.00230	mg/L		10/01/25 09:00	10/03/25 21:21	1
Selenium	<0.00500		0.00500	0.00140	mg/L		10/01/25 09:00	10/03/25 21:21	1
Silver	<0.00100		0.00100	0.000500	mg/L		10/01/25 09:00	10/03/25 21:21	1
Thallium	<0.00100		0.00100	0.000570	mg/L		10/01/25 09:00	10/03/25 21:21	1
Vanadium	<0.00500		0.00500	0.00170	mg/L		10/01/25 09:00	10/03/25 21:21	1
Zinc	<0.0200		0.0200	0.0130	mg/L		10/01/25 09:00	10/03/25 21:21	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	3.50		1.88	1.31	mg/L			09/25/25 05:38	1

Client Sample Results

Client: SCS Engineers
Project/Site: Guthrie County 2025 Annual HMSP

Job ID: 310-316432-1
SDG: Guthrie County Sanitary Landfill

Client Sample ID: MW-D

Lab Sample ID: 310-316432-9

Date Collected: 09/23/25 13:37

Matrix: Ground Water

Date Received: 09/24/25 15:50

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			09/26/25 10:54	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			09/26/25 10:54	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			09/26/25 10:54	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			09/26/25 10:54	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			09/26/25 10:54	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			09/26/25 10:54	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			09/26/25 10:54	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			09/26/25 10:54	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			09/26/25 10:54	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			09/26/25 10:54	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			09/26/25 10:54	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			09/26/25 10:54	1
1,4-Dichlorobenzene	0.882	J	1.00	0.230	ug/L			09/26/25 10:54	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			09/26/25 10:54	1
2-Hexanone	<10.0		10.0	2.00	ug/L			09/26/25 10:54	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			09/26/25 10:54	1
Acetone	<10.0		10.0	3.10	ug/L			09/26/25 10:54	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			09/26/25 10:54	1
Benzene	<0.500		0.500	0.220	ug/L			09/26/25 10:54	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			09/26/25 10:54	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			09/26/25 10:54	1
Bromoform	<5.00		5.00	0.780	ug/L			09/26/25 10:54	1
Bromomethane	<4.00		4.00	1.10	ug/L			09/26/25 10:54	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			09/26/25 10:54	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			09/26/25 10:54	1
Chlorobenzene	2.20		1.00	0.400	ug/L			09/26/25 10:54	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			09/26/25 10:54	1
Chloroethane	<4.00		4.00	0.790	ug/L			09/26/25 10:54	1
Chloroform	<3.00		3.00	1.30	ug/L			09/26/25 10:54	1
Chloromethane	<3.00		3.00	0.610	ug/L			09/26/25 10:54	1
cis-1,2-Dichloroethene	3.91		1.00	0.210	ug/L			09/26/25 10:54	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			09/26/25 10:54	1
Dibromomethane	<1.00		1.00	0.330	ug/L			09/26/25 10:54	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			09/26/25 10:54	1
Iodomethane	<10.0		10.0	7.00	ug/L			09/26/25 10:54	1
Methylene chloride	<5.00		5.00	1.70	ug/L			09/26/25 10:54	1
Styrene	<1.00		1.00	0.370	ug/L			09/26/25 10:54	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			09/26/25 10:54	1
Toluene	<1.00		1.00	0.430	ug/L			09/26/25 10:54	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			09/26/25 10:54	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			09/26/25 10:54	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			09/26/25 10:54	1
Trichloroethene	<1.00		1.00	0.430	ug/L			09/26/25 10:54	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			09/26/25 10:54	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			09/26/25 10:54	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			09/26/25 10:54	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			09/26/25 10:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	111		76 - 130		09/26/25 10:54	1

Eurofins Cedar Falls

Client Sample Results

Client: SCS Engineers
Project/Site: Guthrie County 2025 Annual HMSP

Job ID: 310-316432-1
SDG: Guthrie County Sanitary Landfill

Client Sample ID: MW-D

Lab Sample ID: 310-316432-9

Date Collected: 09/23/25 13:37

Matrix: Ground Water

Date Received: 09/24/25 15:50

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	95		80 - 120		09/26/25 10:54	1
4-Bromofluorobenzene (Surr)	105		80 - 120		09/26/25 10:54	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200	0.00100	mg/L		10/01/25 09:00	10/03/25 21:24	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		10/01/25 09:00	10/03/25 21:24	1
Barium	0.699		0.00200	0.000660	mg/L		10/01/25 09:00	10/03/25 21:24	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		10/01/25 09:00	10/03/25 21:24	1
Cadmium	<0.000200		0.000200	0.000100	mg/L		10/01/25 09:00	10/03/25 21:24	1
Chromium	<0.00500		0.00500	0.00180	mg/L		10/01/25 09:00	10/03/25 21:24	1
Cobalt	0.000260	J	0.000500	0.000170	mg/L		10/01/25 09:00	10/03/25 21:24	1
Copper	<0.00500		0.00500	0.00320	mg/L		10/01/25 09:00	10/03/25 21:24	1
Lead	<0.000500		0.000500	0.000330	mg/L		10/01/25 09:00	10/03/25 21:24	1
Nickel	0.00320	J	0.00500	0.00230	mg/L		10/01/25 09:00	10/03/25 21:24	1
Selenium	<0.00500		0.00500	0.00140	mg/L		10/01/25 09:00	10/03/25 21:24	1
Silver	<0.00100		0.00100	0.000500	mg/L		10/01/25 09:00	10/03/25 21:24	1
Thallium	<0.00100		0.00100	0.000570	mg/L		10/01/25 09:00	10/03/25 21:24	1
Vanadium	<0.00500		0.00500	0.00170	mg/L		10/01/25 09:00	10/03/25 21:24	1
Zinc	<0.0200		0.0200	0.0130	mg/L		10/01/25 09:00	10/03/25 21:24	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	15.3		1.88	1.31	mg/L			09/25/25 05:38	1

Client Sample Results

Client: SCS Engineers
Project/Site: Guthrie County 2025 Annual HMSP

Job ID: 310-316432-1
SDG: Guthrie County Sanitary Landfill

Client Sample ID: Trip Blank

Lab Sample ID: 310-316432-10

Date Collected: 09/23/25 00:00

Matrix: Water

Date Received: 09/24/25 15:50

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			09/26/25 07:53	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			09/26/25 07:53	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			09/26/25 07:53	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			09/26/25 07:53	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			09/26/25 07:53	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			09/26/25 07:53	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			09/26/25 07:53	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			09/26/25 07:53	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			09/26/25 07:53	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			09/26/25 07:53	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			09/26/25 07:53	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			09/26/25 07:53	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			09/26/25 07:53	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			09/26/25 07:53	1
2-Hexanone	<10.0		10.0	2.00	ug/L			09/26/25 07:53	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			09/26/25 07:53	1
Acetone	<10.0		10.0	3.10	ug/L			09/26/25 07:53	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			09/26/25 07:53	1
Benzene	<0.500		0.500	0.220	ug/L			09/26/25 07:53	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			09/26/25 07:53	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			09/26/25 07:53	1
Bromoform	<5.00		5.00	0.780	ug/L			09/26/25 07:53	1
Bromomethane	<4.00		4.00	1.10	ug/L			09/26/25 07:53	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			09/26/25 07:53	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			09/26/25 07:53	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			09/26/25 07:53	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			09/26/25 07:53	1
Chloroethane	<4.00		4.00	0.790	ug/L			09/26/25 07:53	1
Chloroform	<3.00		3.00	1.30	ug/L			09/26/25 07:53	1
Chloromethane	<3.00		3.00	0.610	ug/L			09/26/25 07:53	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			09/26/25 07:53	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			09/26/25 07:53	1
Dibromomethane	<1.00		1.00	0.330	ug/L			09/26/25 07:53	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			09/26/25 07:53	1
Iodomethane	<10.0		10.0	7.00	ug/L			09/26/25 07:53	1
Methylene chloride	<5.00		5.00	1.70	ug/L			09/26/25 07:53	1
Styrene	<1.00		1.00	0.370	ug/L			09/26/25 07:53	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			09/26/25 07:53	1
Toluene	<1.00		1.00	0.430	ug/L			09/26/25 07:53	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			09/26/25 07:53	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			09/26/25 07:53	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			09/26/25 07:53	1
Trichloroethene	<1.00		1.00	0.430	ug/L			09/26/25 07:53	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			09/26/25 07:53	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			09/26/25 07:53	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			09/26/25 07:53	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			09/26/25 07:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	118		76 - 130		09/26/25 07:53	1

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Client Sample Results

Client: SCS Engineers
Project/Site: Guthrie County 2025 Annual HMSP

Job ID: 310-316432-1
SDG: Guthrie County Sanitary Landfill

Client Sample ID: Trip Blank

Date Collected: 09/23/25 00:00

Date Received: 09/24/25 15:50

Lab Sample ID: 310-316432-10

Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	95		80 - 120		09/26/25 07:53	1
4-Bromofluorobenzene (Surr)	107		80 - 120		09/26/25 07:53	1

Definitions/Glossary

Client: SCS Engineers
Project/Site: Guthrie County 2025 Annual HMSP

Job ID: 310-316432-1
SDG: Guthrie County Sanitary Landfill

Qualifiers

GC/MS VOA

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

Metals

Qualifier	Qualifier Description
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL, and the absolute difference between results is < the upper reporting limits for both.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

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

Glossary

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

Surrogate Summary

Client: SCS Engineers
Project/Site: Guthrie County 2025 Annual HMSP

Job ID: 310-316432-1
SDG: Guthrie County Sanitary Landfill

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Ground Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DBFM (76-130)	TOL (80-120)	BFB (80-120)
310-316432-1	MW-3	116	94	105
310-316432-1 MS	MW-3	94	101	96
310-316432-1 MSD	MW-3	93	97	101
310-316432-3	MW-12	115	96	104
310-316432-5	MW-16	113	97	105
310-316432-8	MW-21	112	98	101
310-316432-9	MW-D	111	95	105

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DBFM (76-130)	TOL (80-120)	BFB (80-120)
310-316432-10	Trip Blank	118	95	107
LCS 310-467904/6	Lab Control Sample	96	98	96
LCS 310-467904/7	Lab Control Sample	114	95	103
MB 310-467904/5	Method Blank	120	93	100

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

QC Sample Results

Client: SCS Engineers
Project/Site: Guthrie County 2025 Annual HMSP

Job ID: 310-316432-1
SDG: Guthrie County Sanitary Landfill

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 310-467904/5

Matrix: Water

Analysis Batch: 467904

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			09/26/25 05:37	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			09/26/25 05:37	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			09/26/25 05:37	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			09/26/25 05:37	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			09/26/25 05:37	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			09/26/25 05:37	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			09/26/25 05:37	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			09/26/25 05:37	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			09/26/25 05:37	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			09/26/25 05:37	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			09/26/25 05:37	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			09/26/25 05:37	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			09/26/25 05:37	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			09/26/25 05:37	1
2-Hexanone	<10.0		10.0	2.00	ug/L			09/26/25 05:37	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			09/26/25 05:37	1
Acetone	<10.0		10.0	3.10	ug/L			09/26/25 05:37	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			09/26/25 05:37	1
Benzene	<0.500		0.500	0.220	ug/L			09/26/25 05:37	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			09/26/25 05:37	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			09/26/25 05:37	1
Bromoform	<5.00		5.00	0.780	ug/L			09/26/25 05:37	1
Bromomethane	<4.00		4.00	1.10	ug/L			09/26/25 05:37	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			09/26/25 05:37	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			09/26/25 05:37	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			09/26/25 05:37	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			09/26/25 05:37	1
Chloroethane	<4.00		4.00	0.790	ug/L			09/26/25 05:37	1
Chloroform	<3.00		3.00	1.30	ug/L			09/26/25 05:37	1
Chloromethane	<3.00		3.00	0.610	ug/L			09/26/25 05:37	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			09/26/25 05:37	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			09/26/25 05:37	1
Dibromomethane	<1.00		1.00	0.330	ug/L			09/26/25 05:37	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			09/26/25 05:37	1
Iodomethane	<10.0		10.0	7.00	ug/L			09/26/25 05:37	1
Methylene chloride	<5.00		5.00	1.70	ug/L			09/26/25 05:37	1
Styrene	<1.00		1.00	0.370	ug/L			09/26/25 05:37	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			09/26/25 05:37	1
Toluene	<1.00		1.00	0.430	ug/L			09/26/25 05:37	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			09/26/25 05:37	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			09/26/25 05:37	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			09/26/25 05:37	1
Trichloroethene	<1.00		1.00	0.430	ug/L			09/26/25 05:37	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			09/26/25 05:37	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			09/26/25 05:37	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			09/26/25 05:37	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			09/26/25 05:37	1

Eurofins Cedar Falls

QC Sample Results

Client: SCS Engineers
Project/Site: Guthrie County 2025 Annual HMSP

Job ID: 310-316432-1
SDG: Guthrie County Sanitary Landfill

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 310-467904/5

Matrix: Water

Analysis Batch: 467904

Client Sample ID: Method Blank

Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	120		76 - 130		09/26/25 05:37	1
Toluene-d8 (Surr)	93		80 - 120		09/26/25 05:37	1
4-Bromofluorobenzene (Surr)	100		80 - 120		09/26/25 05:37	1

Lab Sample ID: LCS 310-467904/6

Matrix: Water

Analysis Batch: 467904

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1,2-Tetrachloroethane	20.0	17.89		ug/L		89	70 - 121
1,1,1-Trichloroethane	20.0	17.61		ug/L		88	69 - 130
1,1,1,2,2-Tetrachloroethane	20.0	17.84		ug/L		89	70 - 122
1,1,2-Trichloroethane	20.0	19.90		ug/L		100	75 - 121
1,1-Dichloroethane	20.0	18.56		ug/L		93	69 - 127
1,1-Dichloroethene	20.0	17.05		ug/L		85	64 - 134
1,2,3-Trichloropropane	20.0	20.38		ug/L		102	70 - 122
1,2-Dibromo-3-chloropropane	20.0	18.24		ug/L		91	62 - 132
1,2-Dibromoethane (EDB)	20.0	18.79		ug/L		94	74 - 122
1,2-Dichlorobenzene	20.0	18.66		ug/L		93	74 - 120
1,2-Dichloroethane	20.0	17.27		ug/L		86	68 - 125
1,2-Dichloropropane	20.0	15.98		ug/L		80	72 - 128
1,4-Dichlorobenzene	20.0	17.93		ug/L		90	72 - 120
2-Butanone (MEK)	40.0	31.98		ug/L		80	60 - 134
2-Hexanone	40.0	34.46		ug/L		86	62 - 139
4-Methyl-2-pentanone (MIBK)	40.0	35.21		ug/L		88	62 - 136
Acetone	40.0	35.90		ug/L		90	59 - 136
Acrylonitrile	200	171.2		ug/L		86	50 - 150
Benzene	20.0	16.91		ug/L		85	71 - 125
Bromochloromethane	20.0	18.72		ug/L		94	69 - 131
Bromodichloromethane	20.0	16.64		ug/L		83	70 - 122
Bromoform	20.0	20.23		ug/L		101	62 - 122
Carbon disulfide	20.0	17.41		ug/L		87	58 - 137
Carbon tetrachloride	20.0	17.43		ug/L		87	63 - 136
Chlorobenzene	20.0	17.61		ug/L		88	74 - 120
Chlorodibromomethane	20.0	18.18		ug/L		91	69 - 121
Chloroform	20.0	17.28		ug/L		86	72 - 122
cis-1,2-Dichloroethene	20.0	16.62		ug/L		83	72 - 123
cis-1,3-Dichloropropene	20.0	17.52		ug/L		88	72 - 123
Dibromomethane	20.0	17.98		ug/L		90	72 - 122
Ethylbenzene	20.0	17.93		ug/L		90	75 - 120
Iodomethane	20.0	13.43		ug/L		67	18 - 150
Methylene chloride	20.0	19.44		ug/L		97	72 - 128
Styrene	20.0	16.94		ug/L		85	74 - 122
Tetrachloroethene	20.0	18.63		ug/L		93	70 - 128
Toluene	20.0	17.43		ug/L		87	74 - 120
trans-1,2-Dichloroethene	20.0	17.24		ug/L		86	67 - 127
trans-1,3-Dichloropropene	20.0	18.65		ug/L		93	67 - 123
trans-1,4-Dichloro-2-butene	20.0	18.44		ug/L		92	50 - 150

Eurofins Cedar Falls

QC Sample Results

Client: SCS Engineers
Project/Site: Guthrie County 2025 Annual HMSP

Job ID: 310-316432-1
SDG: Guthrie County Sanitary Landfill

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 310-467904/6

Matrix: Water

Analysis Batch: 467904

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Trichloroethene	20.0	16.63		ug/L		83	70 - 128
Vinyl acetate	40.0	34.38		ug/L		86	50 - 150
Xylenes, Total	40.0	34.72		ug/L		87	74 - 121

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Dibromofluoromethane (Surr)	96		76 - 130
Toluene-d8 (Surr)	98		80 - 120
4-Bromofluorobenzene (Surr)	96		80 - 120

Lab Sample ID: LCS 310-467904/7

Matrix: Water

Analysis Batch: 467904

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Bromomethane	20.0	18.51		ug/L		93	33 - 138
Chloroethane	20.0	16.80		ug/L		84	59 - 139
Chloromethane	20.0	19.58		ug/L		98	52 - 146
Trichlorofluoromethane	20.0	18.60		ug/L		93	55 - 150
Vinyl chloride	20.0	17.33		ug/L		87	60 - 142

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Dibromofluoromethane (Surr)	114		76 - 130
Toluene-d8 (Surr)	95		80 - 120
4-Bromofluorobenzene (Surr)	103		80 - 120

Lab Sample ID: 310-316432-1 MS

Matrix: Ground Water

Analysis Batch: 467904

Client Sample ID: MW-3

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1,2-Tetrachloroethane	<1.00		25.0	22.01		ug/L		88	55 - 121
1,1,1,1-Trichloroethane	<1.00		25.0	21.10		ug/L		84	53 - 130
1,1,2,2-Tetrachloroethane	<1.00		25.0	21.88		ug/L		88	55 - 123
1,1,2-Trichloroethane	<1.00		25.0	22.27		ug/L		89	60 - 121
1,1-Dichloroethane	<1.00		25.0	21.61		ug/L		86	53 - 127
1,1-Dichloroethene	<2.00		25.0	20.51		ug/L		82	51 - 134
1,2,3-Trichloropropane	<1.00		25.0	24.22		ug/L		97	56 - 122
1,2-Dibromo-3-chloropropane	<5.00		25.0	21.41		ug/L		86	44 - 138
1,2-Dibromoethane (EDB)	<1.00		25.0	22.92		ug/L		92	60 - 122
1,2-Dichlorobenzene	<1.00		25.0	22.55		ug/L		90	60 - 120
1,2-Dichloroethane	<1.00		25.0	21.09		ug/L		84	48 - 128
1,2-Dichloropropane	<1.00		25.0	18.83		ug/L		75	59 - 128
1,4-Dichlorobenzene	0.851	J	25.0	22.39		ug/L		86	58 - 120
2-Butanone (MEK)	<10.0		50.0	43.97		ug/L		88	46 - 134
2-Hexanone	<10.0		50.0	43.72		ug/L		87	46 - 141
4-Methyl-2-pentanone (MIBK)	<10.0		50.0	43.26		ug/L		87	49 - 138
Acetone	<10.0		50.0	43.52		ug/L		87	39 - 141
Acrylonitrile	<5.00		250	200.1		ug/L		80	41 - 150

Eurofins Cedar Falls

QC Sample Results

Client: SCS Engineers
Project/Site: Guthrie County 2025 Annual HMSP

Job ID: 310-316432-1
SDG: Guthrie County Sanitary Landfill

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 310-316432-1 MS

Matrix: Ground Water

Analysis Batch: 467904

Client Sample ID: MW-3

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.500		25.0	19.51		ug/L		78	48 - 125
Bromochloromethane	<5.00		25.0	20.97		ug/L		84	55 - 131
Bromodichloromethane	<1.00		25.0	19.88		ug/L		80	53 - 122
Bromoform	<5.00		25.0	22.98		ug/L		92	47 - 122
Carbon disulfide	<1.00		25.0	22.68		ug/L		91	45 - 137
Carbon tetrachloride	<2.00		25.0	22.74		ug/L		91	45 - 136
Chlorobenzene	2.04		25.0	22.81		ug/L		83	59 - 120
Chlorodibromomethane	<5.00		25.0	20.79		ug/L		83	53 - 121
Chloroform	<3.00		25.0	19.87		ug/L		79	52 - 122
cis-1,2-Dichloroethene	4.13		25.0	22.72		ug/L		74	51 - 123
cis-1,3-Dichloropropene	<5.00		25.0	19.64		ug/L		79	55 - 123
Dibromomethane	<1.00		25.0	21.31		ug/L		85	57 - 122
Ethylbenzene	<1.00		25.0	21.19		ug/L		85	53 - 120
Iodomethane	<10.0		25.0	17.48		ug/L		70	18 - 150
Methylene chloride	<5.00		25.0	22.25		ug/L		89	59 - 128
Styrene	<1.00		25.0	20.25		ug/L		81	50 - 125
Tetrachloroethene	<1.00		25.0	23.33		ug/L		93	51 - 128
Toluene	<1.00		25.0	20.74		ug/L		83	52 - 120
trans-1,2-Dichloroethene	<1.00		25.0	21.01		ug/L		84	53 - 127
trans-1,3-Dichloropropene	<5.00		25.0	21.23		ug/L		85	50 - 123
trans-1,4-Dichloro-2-butene	<10.0		25.0	18.67		ug/L		75	28 - 150
Trichloroethene	<1.00		25.0	19.90		ug/L		80	50 - 128
Vinyl acetate	<10.0		50.0	42.06		ug/L		84	31 - 150
Xylenes, Total	<3.00		50.0	41.89		ug/L		84	50 - 122

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	94		76 - 130
Toluene-d8 (Surr)	101		80 - 120
4-Bromofluorobenzene (Surr)	96		80 - 120

Lab Sample ID: 310-316432-1 MSD

Matrix: Ground Water

Analysis Batch: 467904

Client Sample ID: MW-3

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	<1.00		25.0	21.23		ug/L		85	55 - 121	4	20
1,1,1-Trichloroethane	<1.00		25.0	20.58		ug/L		82	53 - 130	3	20
1,1,2,2-Tetrachloroethane	<1.00		25.0	21.38		ug/L		86	55 - 123	2	20
1,1,2-Trichloroethane	<1.00		25.0	21.30		ug/L		85	60 - 121	4	20
1,1-Dichloroethane	<1.00		25.0	21.09		ug/L		84	53 - 127	2	20
1,1-Dichloroethene	<2.00		25.0	19.38		ug/L		78	51 - 134	6	20
1,2,3-Trichloropropane	<1.00		25.0	22.85		ug/L		91	56 - 122	6	21
1,2-Dibromo-3-chloropropane	<5.00		25.0	21.98		ug/L		88	44 - 138	3	24
1,2-Dibromoethane (EDB)	<1.00		25.0	21.30		ug/L		85	60 - 122	7	20
1,2-Dichlorobenzene	<1.00		25.0	22.48		ug/L		90	60 - 120	0	20
1,2-Dichloroethane	<1.00		25.0	20.51		ug/L		82	48 - 128	3	20
1,2-Dichloropropane	<1.00		25.0	18.19		ug/L		73	59 - 128	3	20
1,4-Dichlorobenzene	0.851	J	25.0	22.14		ug/L		85	58 - 120	1	20

Eurofins Cedar Falls

QC Sample Results

Client: SCS Engineers
Project/Site: Guthrie County 2025 Annual HMSP

Job ID: 310-316432-1
SDG: Guthrie County Sanitary Landfill

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 310-316432-1 MSD

Matrix: Ground Water

Analysis Batch: 467904

Client Sample ID: MW-3

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2-Butanone (MEK)	<10.0		50.0	40.64		ug/L		81	46 - 134	8	23
2-Hexanone	<10.0		50.0	41.82		ug/L		84	46 - 141	4	20
4-Methyl-2-pentanone (MIBK)	<10.0		50.0	42.85		ug/L		86	49 - 138	1	20
Acetone	<10.0		50.0	44.41		ug/L		89	39 - 141	2	23
Acrylonitrile	<5.00		250	197.1		ug/L		79	41 - 150	2	20
Benzene	<0.500		25.0	18.88		ug/L		76	48 - 125	3	20
Bromochloromethane	<5.00		25.0	20.92		ug/L		84	55 - 131	0	21
Bromodichloromethane	<1.00		25.0	19.39		ug/L		78	53 - 122	2	20
Bromoform	<5.00		25.0	21.82		ug/L		87	47 - 122	5	20
Carbon disulfide	<1.00		25.0	19.79		ug/L		79	45 - 137	14	24
Carbon tetrachloride	<2.00		25.0	21.69		ug/L		87	45 - 136	5	20
Chlorobenzene	2.04		25.0	21.98		ug/L		80	59 - 120	4	20
Chlorodibromomethane	<5.00		25.0	19.78		ug/L		79	53 - 121	5	20
Chloroform	<3.00		25.0	19.34		ug/L		77	52 - 122	3	20
cis-1,2-Dichloroethene	4.13		25.0	21.68		ug/L		70	51 - 123	5	20
cis-1,3-Dichloropropene	<5.00		25.0	18.81		ug/L		75	55 - 123	4	20
Dibromomethane	<1.00		25.0	20.09		ug/L		80	57 - 122	6	20
Ethylbenzene	<1.00		25.0	20.52		ug/L		82	53 - 120	3	20
Iodomethane	<10.0		25.0	18.65		ug/L		75	18 - 150	6	32
Methylene chloride	<5.00		25.0	21.46		ug/L		86	59 - 128	4	20
Styrene	<1.00		25.0	19.40		ug/L		78	50 - 125	4	20
Tetrachloroethene	<1.00		25.0	22.56		ug/L		90	51 - 128	3	20
Toluene	<1.00		25.0	19.81		ug/L		79	52 - 120	5	20
trans-1,2-Dichloroethene	<1.00		25.0	19.41		ug/L		78	53 - 127	8	20
trans-1,3-Dichloropropene	<5.00		25.0	19.57		ug/L		78	50 - 123	8	20
trans-1,4-Dichloro-2-butene	<10.0		25.0	18.63		ug/L		75	28 - 150	0	24
Trichloroethene	<1.00		25.0	18.61		ug/L		74	50 - 128	7	20
Vinyl acetate	<10.0		50.0	41.37		ug/L		83	31 - 150	2	25
Xylenes, Total	<3.00		50.0	40.03		ug/L		80	50 - 122	5	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Dibromofluoromethane (Surr)	93		76 - 130
Toluene-d8 (Surr)	97		80 - 120
4-Bromofluorobenzene (Surr)	101		80 - 120

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-468438/1-A

Matrix: Water

Analysis Batch: 468963

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 468438

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200	0.00100	mg/L		10/01/25 09:00	10/03/25 14:37	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		10/01/25 09:00	10/03/25 14:37	1
Barium	<0.00200		0.00200	0.000660	mg/L		10/01/25 09:00	10/03/25 14:37	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		10/01/25 09:00	10/03/25 14:37	1
Cadmium	<0.000200		0.000200	0.000100	mg/L		10/01/25 09:00	10/03/25 14:37	1
Chromium	<0.00500		0.00500	0.00180	mg/L		10/01/25 09:00	10/03/25 14:37	1
Cobalt	<0.000500		0.000500	0.000170	mg/L		10/01/25 09:00	10/03/25 14:37	1

Eurofins Cedar Falls

QC Sample Results

Client: SCS Engineers
Project/Site: Guthrie County 2025 Annual HMSP

Job ID: 310-316432-1
SDG: Guthrie County Sanitary Landfill

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

Lab Sample ID: MB 310-468438/1-A
Matrix: Water
Analysis Batch: 468963

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 468438

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	<0.00500		0.00500	0.00320	mg/L		10/01/25 09:00	10/03/25 14:37	1
Lead	<0.000500		0.000500	0.000330	mg/L		10/01/25 09:00	10/03/25 14:37	1
Nickel	<0.00500		0.00500	0.00230	mg/L		10/01/25 09:00	10/03/25 14:37	1
Selenium	<0.00500		0.00500	0.00140	mg/L		10/01/25 09:00	10/03/25 14:37	1
Silver	<0.00100		0.00100	0.000500	mg/L		10/01/25 09:00	10/03/25 14:37	1
Thallium	<0.00100		0.00100	0.000570	mg/L		10/01/25 09:00	10/03/25 14:37	1
Vanadium	<0.00500		0.00500	0.00170	mg/L		10/01/25 09:00	10/03/25 14:37	1
Zinc	<0.0200		0.0200	0.0130	mg/L		10/01/25 09:00	10/03/25 14:37	1

Lab Sample ID: LCS 310-468438/2-A
Matrix: Water
Analysis Batch: 468963

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 468438

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.200	0.2090		mg/L		105	80 - 120
Arsenic	0.200	0.2090		mg/L		105	80 - 120
Barium	0.100	0.09594		mg/L		96	80 - 120
Beryllium	0.100	0.1050		mg/L		105	80 - 120
Cadmium	0.100	0.09715		mg/L		97	80 - 120
Chromium	0.100	0.09947		mg/L		99	80 - 120
Cobalt	0.100	0.09909		mg/L		99	80 - 120
Copper	0.200	0.2042		mg/L		102	80 - 120
Lead	0.200	0.1995		mg/L		100	80 - 120
Nickel	0.200	0.2133		mg/L		107	80 - 120
Selenium	0.400	0.3879		mg/L		97	80 - 120
Silver	0.100	0.1073		mg/L		107	80 - 120
Thallium	0.100	0.1010		mg/L		101	80 - 120
Vanadium	0.100	0.09817		mg/L		98	80 - 120
Zinc	0.200	0.1857		mg/L		93	80 - 120

Lab Sample ID: 310-316432-1 DU
Matrix: Ground Water
Analysis Batch: 468963

Client Sample ID: MW-3
Prep Type: Total/NA
Prep Batch: 468438

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Antimony	<0.00200		0.001132	J	mg/L		NC	20
Arsenic	<0.00200		<0.00200		mg/L		NC	20
Barium	0.731		0.7373		mg/L		0.8	20
Beryllium	<0.00100		<0.00100		mg/L		NC	20
Cadmium	<0.000200		<0.000200		mg/L		NC	20
Chromium	<0.00500		<0.00500		mg/L		NC	20
Cobalt	0.000250	J	0.0002630	J	mg/L		5	20
Copper	<0.00500		<0.00500		mg/L		NC	20
Nickel	0.00503		0.003545	J F5	mg/L		35	20
Selenium	<0.00500		<0.00500		mg/L		NC	20
Silver	<0.00100		<0.00100		mg/L		NC	20
Thallium	<0.00100		<0.00100		mg/L		NC	20
Vanadium	<0.00500		<0.00500		mg/L		NC	20
Zinc	<0.0200		<0.0200		mg/L		NC	20

Eurofins Cedar Falls

QC Sample Results

Client: SCS Engineers
Project/Site: Guthrie County 2025 Annual HMSP

Job ID: 310-316432-1
SDG: Guthrie County Sanitary Landfill

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

Lab Sample ID: 310-316432-1 DU
Matrix: Ground Water
Analysis Batch: 469052

Client Sample ID: MW-3
Prep Type: Total/NA
Prep Batch: 468438

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Lead	<0.000500		<0.000500		mg/L		NC	20

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

Lab Sample ID: MB 310-467840/1
Matrix: Water
Analysis Batch: 467840

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.00		5.00	3.50	mg/L			09/25/25 05:38	1

Lab Sample ID: LCS 310-467840/2
Matrix: Water
Analysis Batch: 467840

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	101.0		mg/L		101	82 - 117

Lab Sample ID: 310-316432-5 DU
Matrix: Ground Water
Analysis Batch: 467840

Client Sample ID: MW-16
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Total Suspended Solids	46.0		48.00		mg/L		4	35

QC Association Summary

Client: SCS Engineers
Project/Site: Guthrie County 2025 Annual HMSP

Job ID: 310-316432-1
SDG: Guthrie County Sanitary Landfill

GC/MS VOA

Analysis Batch: 467904

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-316432-1	MW-3	Total/NA	Ground Water	8260D	
310-316432-3	MW-12	Total/NA	Ground Water	8260D	
310-316432-5	MW-16	Total/NA	Ground Water	8260D	
310-316432-8	MW-21	Total/NA	Ground Water	8260D	
310-316432-9	MW-D	Total/NA	Ground Water	8260D	
310-316432-10	Trip Blank	Total/NA	Water	8260D	
MB 310-467904/5	Method Blank	Total/NA	Water	8260D	
LCS 310-467904/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-467904/7	Lab Control Sample	Total/NA	Water	8260D	
310-316432-1 MS	MW-3	Total/NA	Ground Water	8260D	
310-316432-1 MSD	MW-3	Total/NA	Ground Water	8260D	

Metals

Prep Batch: 468438

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-316432-1	MW-3	Total/NA	Ground Water	3005A	
310-316432-2	MW-5	Total/NA	Ground Water	3005A	
310-316432-3	MW-12	Total/NA	Ground Water	3005A	
310-316432-4	MW-14	Total/NA	Ground Water	3005A	
310-316432-5	MW-16	Total/NA	Ground Water	3005A	
310-316432-6	MW-19	Total/NA	Ground Water	3005A	
310-316432-7	MW-20	Total/NA	Ground Water	3005A	
310-316432-8	MW-21	Total/NA	Ground Water	3005A	
310-316432-9	MW-D	Total/NA	Ground Water	3005A	
MB 310-468438/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-468438/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-316432-1 DU	MW-3	Total/NA	Ground Water	3005A	

Analysis Batch: 468963

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-316432-1	MW-3	Total/NA	Ground Water	6020B	468438
310-316432-2	MW-5	Total/NA	Ground Water	6020B	468438
310-316432-3	MW-12	Total/NA	Ground Water	6020B	468438
310-316432-4	MW-14	Total/NA	Ground Water	6020B	468438
310-316432-5	MW-16	Total/NA	Ground Water	6020B	468438
310-316432-6	MW-19	Total/NA	Ground Water	6020B	468438
310-316432-7	MW-20	Total/NA	Ground Water	6020B	468438
310-316432-8	MW-21	Total/NA	Ground Water	6020B	468438
310-316432-9	MW-D	Total/NA	Ground Water	6020B	468438
MB 310-468438/1-A	Method Blank	Total/NA	Water	6020B	468438
LCS 310-468438/2-A	Lab Control Sample	Total/NA	Water	6020B	468438
310-316432-1 DU	MW-3	Total/NA	Ground Water	6020B	468438

Analysis Batch: 469052

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-316432-1	MW-3	Total/NA	Ground Water	6020B	468438
310-316432-1 DU	MW-3	Total/NA	Ground Water	6020B	468438

Eurofins Cedar Falls

QC Association Summary

Client: SCS Engineers
Project/Site: Guthrie County 2025 Annual HMSP

Job ID: 310-316432-1
SDG: Guthrie County Sanitary Landfill

General Chemistry

Analysis Batch: 467840

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-316432-1	MW-3	Total/NA	Ground Water	I-3765-85	
310-316432-2	MW-5	Total/NA	Ground Water	I-3765-85	
310-316432-3	MW-12	Total/NA	Ground Water	I-3765-85	
310-316432-4	MW-14	Total/NA	Ground Water	I-3765-85	
310-316432-5	MW-16	Total/NA	Ground Water	I-3765-85	
310-316432-6	MW-19	Total/NA	Ground Water	I-3765-85	
310-316432-7	MW-20	Total/NA	Ground Water	I-3765-85	
310-316432-8	MW-21	Total/NA	Ground Water	I-3765-85	
310-316432-9	MW-D	Total/NA	Ground Water	I-3765-85	
MB 310-467840/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-467840/2	Lab Control Sample	Total/NA	Water	I-3765-85	
310-316432-5 DU	MW-16	Total/NA	Ground Water	I-3765-85	

Lab Chronicle

Client: SCS Engineers
Project/Site: Guthrie County 2025 Annual HMSP

Job ID: 310-316432-1
SDG: Guthrie County Sanitary Landfill

Client Sample ID: MW-3

Lab Sample ID: 310-316432-1

Date Collected: 09/23/25 13:37

Matrix: Ground Water

Date Received: 09/24/25 15:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	467904	WSE8	EET CF	09/26/25 09:23
Total/NA	Prep	3005A			468438	QTZ5	EET CF	10/01/25 09:00
Total/NA	Analysis	6020B		1	468963	NFT2	EET CF	10/03/25 20:53
Total/NA	Prep	3005A			468438	QTZ5	EET CF	10/01/25 09:00
Total/NA	Analysis	6020B		1	469052	NFT2	EET CF	10/06/25 13:33
Total/NA	Analysis	I-3765-85		1	467840	DGU1	EET CF	09/25/25 05:38

Client Sample ID: MW-5

Lab Sample ID: 310-316432-2

Date Collected: 09/23/25 13:06

Matrix: Ground Water

Date Received: 09/24/25 15:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			468438	QTZ5	EET CF	10/01/25 09:00
Total/NA	Analysis	6020B		1	468963	NFT2	EET CF	10/03/25 21:04
Total/NA	Analysis	I-3765-85		1	467840	DGU1	EET CF	09/25/25 05:38

Client Sample ID: MW-12

Lab Sample ID: 310-316432-3

Date Collected: 09/23/25 14:04

Matrix: Ground Water

Date Received: 09/24/25 15:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	467904	WSE8	EET CF	09/26/25 09:46
Total/NA	Prep	3005A			468438	QTZ5	EET CF	10/01/25 09:00
Total/NA	Analysis	6020B		1	468963	NFT2	EET CF	10/03/25 21:07
Total/NA	Analysis	I-3765-85		1	467840	DGU1	EET CF	09/25/25 05:38

Client Sample ID: MW-14

Lab Sample ID: 310-316432-4

Date Collected: 09/23/25 12:40

Matrix: Ground Water

Date Received: 09/24/25 15:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			468438	QTZ5	EET CF	10/01/25 09:00
Total/NA	Analysis	6020B		1	468963	NFT2	EET CF	10/03/25 21:10
Total/NA	Analysis	I-3765-85		1	467840	DGU1	EET CF	09/25/25 05:38

Client Sample ID: MW-16

Lab Sample ID: 310-316432-5

Date Collected: 09/23/25 11:40

Matrix: Ground Water

Date Received: 09/24/25 15:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	467904	WSE8	EET CF	09/26/25 10:08
Total/NA	Prep	3005A			468438	QTZ5	EET CF	10/01/25 09:00
Total/NA	Analysis	6020B		1	468963	NFT2	EET CF	10/03/25 21:12
Total/NA	Analysis	I-3765-85		1	467840	DGU1	EET CF	09/25/25 05:38

Eurofins Cedar Falls

Lab Chronicle

Client: SCS Engineers
Project/Site: Guthrie County 2025 Annual HMSP

Job ID: 310-316432-1
SDG: Guthrie County Sanitary Landfill

Client Sample ID: MW-19

Date Collected: 09/23/25 12:09

Date Received: 09/24/25 15:50

Lab Sample ID: 310-316432-6

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			468438	QTZ5	EET CF	10/01/25 09:00
Total/NA	Analysis	6020B		1	468963	NFT2	EET CF	10/03/25 21:15
Total/NA	Analysis	I-3765-85		1	467840	DGU1	EET CF	09/25/25 05:38

Client Sample ID: MW-20

Date Collected: 09/23/25 11:06

Date Received: 09/24/25 15:50

Lab Sample ID: 310-316432-7

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			468438	QTZ5	EET CF	10/01/25 09:00
Total/NA	Analysis	6020B		1	468963	NFT2	EET CF	10/03/25 21:18
Total/NA	Analysis	I-3765-85		1	467840	DGU1	EET CF	09/25/25 05:38

Client Sample ID: MW-21

Date Collected: 09/23/25 14:31

Date Received: 09/24/25 15:50

Lab Sample ID: 310-316432-8

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	467904	WSE8	EET CF	09/26/25 10:31
Total/NA	Prep	3005A			468438	QTZ5	EET CF	10/01/25 09:00
Total/NA	Analysis	6020B		1	468963	NFT2	EET CF	10/03/25 21:21
Total/NA	Analysis	I-3765-85		1	467840	DGU1	EET CF	09/25/25 05:38

Client Sample ID: MW-D

Date Collected: 09/23/25 13:37

Date Received: 09/24/25 15:50

Lab Sample ID: 310-316432-9

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	467904	WSE8	EET CF	09/26/25 10:54
Total/NA	Prep	3005A			468438	QTZ5	EET CF	10/01/25 09:00
Total/NA	Analysis	6020B		1	468963	NFT2	EET CF	10/03/25 21:24
Total/NA	Analysis	I-3765-85		1	467840	DGU1	EET CF	09/25/25 05:38

Client Sample ID: Trip Blank

Date Collected: 09/23/25 00:00

Date Received: 09/24/25 15:50

Lab Sample ID: 310-316432-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	467904	WSE8	EET CF	09/26/25 07:53

Laboratory References:

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

Accreditation/Certification Summary

Client: SCS Engineers
Project/Site: Guthrie County 2025 Annual HMSP

Job ID: 310-316432-1
SDG: Guthrie County Sanitary Landfill

Laboratory: Eurofins Cedar Falls

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

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

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

Method Summary

Client: SCS Engineers

Project/Site: Guthrie County 2025 Annual HMSP

Job ID: 310-316432-1

SDG: Guthrie County Sanitary Landfill

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
5030B	Purge and Trap	SW846	EET CF

Protocol References:

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

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

Laboratory References:

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



Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>ScS</u>			
City/State:	CITY <u>W. Des Moines</u>	STATE <u>IA</u>	Project:
Receipt Information			
Date/Time Received:	DATE <u>9.24.25</u>	TIME <u>1550</u>	Received By <u>PH</u>
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? ↓ <u>All</u>
Temperature Record			
Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other _____ ☐ NONE			
Thermometer ID: <u>CC</u>		Correction Factor (°C): <u>0</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>5.6</u>		Corrected Temp (°C): <u>5.6</u>	
• Sample Container Temperature			
Container(s) used:	<u>CONTAINER 1</u>		<u>CONTAINER 2</u>
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			

Cedar Falls, IA 50613-6907
phone 319.277.2401 fax 319.277.2425

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

Regulatory Program: ☐ DW ☐ NPDES ☒ RCRA ☐ Other

Project Manager: Nathan Ohrt

Client Contact		Project Manager: Nathan Ohrt		Site Contact: Brent Corkins		Date:		COC No:	
Nathan Ohrt		Email: nohr@scsengineers.com		Lab Contact: Sam Miller		Carrier:		1 of 1 COCs	
SCS Engineers		Cell 319-331-9613						Sampler	
West Des Moines, Iowa		☐ CALENDAR DAYS ☐ WORKING DAYS						For Lab Use Only:	
		Analysis Turnaround Time						Walk-in Client	
		Other: ☐ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day						Lab Sampling	
Project Name Guthrie County 2025 Annual HMSP		Sample Date		Sample Time		Sample Type (C=Comp, G=Grab)		Job / SDG No	
Site Guthrie County Sanitary Landfill		Sample Date		Sample Time		Matrix			
P O # 27223271 26		Sample Date		Sample Time		# of Cont.			
Sample Identification		Sample Date		Sample Time		Matrix		Sample Specific Notes:	
MW-3		9-23-25		1337		G			
MW-5		9-23-25		1306		G			
MW-12		9-23-25		1404		G			
MW-14		9-23-25		1240		G			
MW-16		9-23-25		1140		G			
MW-19		9-23-25		1209		G			
MW-20		9-23-25		1106		G			
MW-21		9-23-25		1431		G			
MW-D		9-23-25		1337		G			
Trip Blank								X	

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

Possible Hazard Identification: 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

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No	Cooler Temp (°C) Obs'd	Cor'd	Therm ID No.
Relinquished by: <i>Kramer Ruth</i>	Company: SCS	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Received in Laboratory by: <i>[Signature]</i>	Company:	Date/Time: 9-24-25 15:50

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-316432-1

SDG Number: Guthrie County Sanitary Landfill

Login Number: 316432

List Number: 1

Creator: Hirsch, Preston

List Source: Eurofins Cedar Falls

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ 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 $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Appendix B-2
Data Validation Documentation

Completed by: Nathan Ohrt
 Sample Date: 9/23/2025
 Lab Report Date: 10/6/2025
 Site Name: Guthrie County Sanitary Landfill
 Project Type: HMSP
 Lab Report Number: 310-316432

OK NO N/A NOTES

Sample Collection and Sample Handling

Chain of Custody

Temperature

Preservation

Condition

Case Narrative

Holding Times

X			
X			
X			
	X		The trip blank was analyzed with headspace in the sample container.
X			
X			

Analytical Sensitivity and Blanks

Method Blank Detections

Trip Blank Detections

X			No detections.
X			No detections.

Accuracy

ICV/CCV

LCS/LCSD

MS/MSD

Surrogates (organics only)

X			
X			
X			
X			

Precision

QA/QC Sample RPDs

Field Duplicates

X			
X			MW-19 and duplicate sample MW-D had <50% RPD for analyzed parameters.

Appendix C
Reporting Period Summary of Groundwater Chemistry

SCS ENGINEERS

Summary of Groundwater Chemistry

Guthrie County SLF (39-SDP-01-73C)

	Sample Date	MW-12 UPG	MW-21 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Total Metals Constituents								
Antimony, mg/L (CAS NO - 7440-36-0)	9/23/2025	< 0.002	< 0.002	< 0.002	< 0.002	0.00132*	< 0.002	< 0.002
	9/23/2025	N/A	N/A	< 0.002	N/A	N/A	N/A	N/A
Arsenic, mg/L (CAS NO - 7440-38-2)	9/23/2025	< 0.002	0.00386	< 0.002	< 0.002	0.000779*	0.0258	< 0.002
	9/23/2025	N/A	N/A	< 0.002	N/A	N/A	N/A	N/A
Barium, mg/L (CAS NO - 7440-39-3)	9/23/2025	0.484	0.0722	0.731	0.0643	0.0244	0.442	0.0889
	9/23/2025	N/A	N/A	0.699	N/A	N/A	N/A	N/A
Beryllium, mg/L (CAS NO - 7440-41-7)	9/23/2025	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	9/23/2025	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A
Cadmium, mg/L (CAS NO - 7440-43-9)	9/23/2025	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.000395	< 0.0002	0.000252
	9/23/2025	N/A	N/A	< 0.0002	N/A	N/A	N/A	N/A
Chromium, mg/L (CAS NO - 7440-47-3)	9/23/2025	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
	9/23/2025	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A
Cobalt, mg/L (CAS NO - 7440-48-4)	9/23/2025	< 0.0005	0.00608	0.00025*	< 0.0005	0.000939	0.00062	0.000834
	9/23/2025	N/A	N/A	0.00026*	N/A	N/A	N/A	N/A
Copper, mg/L (CAS NO - 7440-50-8)	9/23/2025	< 0.005	< 0.005	< 0.005	< 0.005	0.00345*	< 0.005	< 0.005
	9/23/2025	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A
Lead, mg/L (CAS NO - 7439-92-1)	9/23/2025	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.00045*	< 0.0005	< 0.0005
	9/23/2025	N/A	N/A	< 0.0005	N/A	N/A	N/A	N/A
Nickel, mg/L (CAS NO - 7440-02-0)	9/23/2025	< 0.005	0.00892	0.00503	0.00243*	0.0126	0.0105	0.00985
	9/23/2025	N/A	N/A	0.0032*	N/A	N/A	N/A	N/A
Selenium, mg/L (CAS NO - 7782-49-2)	9/23/2025	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
	9/23/2025	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A
Silver, mg/L (CAS NO - 7440-22-4)	9/23/2025	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	9/23/2025	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A
Thallium, mg/L (CAS NO - 7440-28-0)	9/23/2025	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	9/23/2025	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A
Vanadium, mg/L (CAS NO - 7440-62-2)	9/23/2025	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00185*
	9/23/2025	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A
Zinc, mg/L (CAS NO - 7440-66-6)	9/23/2025	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
	9/23/2025	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A
Total Suspended Solids, mg/L (CAS NO - TSS)	9/23/2025	< 1.88	3.5	15.3	< 1.88	64.8	46	16
	9/23/2025	N/A	N/A	2.88	N/A	N/A	N/A	N/A

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

Denotes Detection.
Denotes Confirmed Outlier. Statistically Excluded.

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



Summary of Groundwater Chemistry
Guthrie County SLF (39-SDP-01-73C)

	Sample Date	MW-12 UPG	MW-21 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Appendix I VOC Constituents								
1,1,1,2-Tetrachloroethane, ug/L (CAS NO - 630-20-6)	9/23/2025	< 1	< 1	< 1	N/A	N/A	< 1	N/A
	9/23/2025	N/A	N/A	< 1	N/A	N/A	N/A	N/A
1,1,1-Trichloroethane, ug/L (CAS NO - 71-55-6)	9/23/2025	< 1	< 1	< 1	N/A	N/A	< 1	N/A
	9/23/2025	N/A	N/A	< 1	N/A	N/A	N/A	N/A
1,1,2,2-Tetrachloroethane, ug/L (CAS NO - 79-34-5)	9/23/2025	< 1	< 1	< 1	N/A	N/A	< 1	N/A
	9/23/2025	N/A	N/A	< 1	N/A	N/A	N/A	N/A
1,1,2-Trichloroethane, ug/L (CAS NO - 79-00-5)	9/23/2025	< 1	< 1	< 1	N/A	N/A	< 1	N/A
	9/23/2025	N/A	N/A	< 1	N/A	N/A	N/A	N/A
1,1-Dichloroethane, ug/L (CAS NO - 75-34-3)	9/23/2025	< 1	< 1	< 1	N/A	N/A	< 1	N/A
	9/23/2025	N/A	N/A	< 1	N/A	N/A	N/A	N/A
1,1-Dichloroethene, ug/L (CAS NO - 75-35-4)	9/23/2025	< 2	< 2	< 2	N/A	N/A	< 2	N/A
	9/23/2025	N/A	N/A	< 2	N/A	N/A	N/A	N/A
1,2,3-Trichloropropane, ug/L (CAS NO - 96-18-4)	9/23/2025	< 1	< 1	< 1	N/A	N/A	< 1	N/A
	9/23/2025	N/A	N/A	< 1	N/A	N/A	N/A	N/A
1,2-Dibromo-3-Chloropropane, ug/L (CAS NO - 96-12-8)	9/23/2025	< 5	< 5	< 5	N/A	N/A	< 5	N/A
	9/23/2025	N/A	N/A	< 5	N/A	N/A	N/A	N/A
1,2-Dibromoethane [EDB], ug/L (CAS NO - 106-93-4)	9/23/2025	< 1	< 1	< 1	N/A	N/A	< 1	N/A
	9/23/2025	N/A	N/A	< 1	N/A	N/A	N/A	N/A
1,2-Dichlorobenzene, ug/L (CAS NO - 95-50-1)	9/23/2025	< 1	< 1	< 1	N/A	N/A	< 1	N/A
	9/23/2025	N/A	N/A	< 1	N/A	N/A	N/A	N/A
1,2-Dichloroethane, ug/L (CAS NO - 107-06-2)	9/23/2025	< 1	< 1	< 1	N/A	N/A	< 1	N/A
	9/23/2025	N/A	N/A	< 1	N/A	N/A	N/A	N/A
1,2-Dichloropropane, ug/L (CAS NO - 78-87-5)	9/23/2025	< 1	< 1	< 1	N/A	N/A	< 1	N/A
	9/23/2025	N/A	N/A	< 1	N/A	N/A	N/A	N/A
1,4-Dichlorobenzene, ug/L (CAS NO - 106-46-7)	9/23/2025	< 1	< 1	0.882*	N/A	N/A	< 1	N/A
	9/23/2025	N/A	N/A	0.851*	N/A	N/A	N/A	N/A
2-Butanone, ug/L (CAS NO - 78-93-3)	9/23/2025	< 10	< 10	< 10	N/A	N/A	< 10	N/A
	9/23/2025	N/A	N/A	< 10	N/A	N/A	N/A	N/A
2-Hexanone, ug/L (CAS NO - 591-78-6)	9/23/2025	< 10	< 10	< 10	N/A	N/A	< 10	N/A
	9/23/2025	N/A	N/A	< 10	N/A	N/A	N/A	N/A
4-Methyl-2-Pentanone, ug/L (CAS NO - 108-10-1)	9/23/2025	< 10	< 10	< 10	N/A	N/A	< 10	N/A
	9/23/2025	N/A	N/A	< 10	N/A	N/A	N/A	N/A
Acetone, ug/L (CAS NO - 67-64-1)	9/23/2025	< 10	5.45*	< 10	N/A	N/A	3.47*	N/A
	9/23/2025	N/A	N/A	< 10	N/A	N/A	N/A	N/A
Acrylonitrile, ug/L (CAS NO - 107-13-1)	9/23/2025	< 5	< 5	< 5	N/A	N/A	< 5	N/A
	9/23/2025	N/A	N/A	< 5	N/A	N/A	N/A	N/A
Benzene, ug/L (CAS NO - 71-43-2)	9/23/2025	< 0.5	< 0.5	< 0.5	N/A	N/A	0.434*	N/A
	9/23/2025	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A
Bromochloromethane, ug/L (CAS NO - 74-97-5)	9/23/2025	< 5	< 5	< 5	N/A	N/A	< 5	N/A
	9/23/2025	N/A	N/A	< 5	N/A	N/A	N/A	N/A
Bromodichloromethane, ug/L (CAS NO - 75-27-4)	9/23/2025	< 1	< 1	< 1	N/A	N/A	< 1	N/A
	9/23/2025	N/A	N/A	< 1	N/A	N/A	N/A	N/A
Bromoform, ug/L (CAS NO - 75-25-2)	9/23/2025	< 5	< 5	< 5	N/A	N/A	< 5	N/A
	9/23/2025	N/A	N/A	< 5	N/A	N/A	N/A	N/A
Bromomethane, ug/L (CAS NO - 74-83-9)	9/23/2025	< 4	< 4	< 4	N/A	N/A	< 4	N/A
	9/23/2025	N/A	N/A	< 4	N/A	N/A	N/A	N/A
Carbon Disulfide, ug/L (CAS NO - 75-15-0)	9/23/2025	< 1	0.595*	< 1	N/A	N/A	< 1	N/A
	9/23/2025	N/A	N/A	< 1	N/A	N/A	N/A	N/A
Carbon Tetrachloride, ug/L (CAS NO - 56-23-5)	9/23/2025	< 2	< 2	< 2	N/A	N/A	< 2	N/A
	9/23/2025	N/A	N/A	< 2	N/A	N/A	N/A	N/A
Chlorobenzene, ug/L (CAS NO - 108-90-7)	9/23/2025	< 1	< 1	2.04	N/A	N/A	0.517*	N/A
	9/23/2025	N/A	N/A	2.2	N/A	N/A	N/A	N/A
Chlorodibromomethane, ug/L (CAS NO - 124-48-1)	9/23/2025	< 5	< 5	< 5	N/A	N/A	< 5	N/A
	9/23/2025	N/A	N/A	< 5	N/A	N/A	N/A	N/A
Chloroethane, ug/L (CAS NO - 75-00-3)	9/23/2025	< 4	< 4	< 4	N/A	N/A	1.18*	N/A
	9/23/2025	N/A	N/A	< 4	N/A	N/A	N/A	N/A
Chloroform, ug/L (CAS NO - 67-66-3)	9/23/2025	< 3	< 3	< 3	N/A	N/A	< 3	N/A
	9/23/2025	N/A	N/A	< 3	N/A	N/A	N/A	N/A
Chloromethane, ug/L (CAS NO - 74-87-3)	9/23/2025	< 3	< 3	< 3	N/A	N/A	< 3	N/A
	9/23/2025	N/A	N/A	< 3	N/A	N/A	N/A	N/A
cis-1,2-Dichloroethene, ug/L (CAS NO - 156-59-2)	9/23/2025	< 1	< 1	4.13	N/A	N/A	0.448*	N/A
	9/23/2025	N/A	N/A	3.91	N/A	N/A	N/A	N/A
cis-1,3-Dichloropropene, ug/L (CAS NO - 10061-01-5)	9/23/2025	< 5	< 5	< 5	N/A	N/A	< 5	N/A
	9/23/2025	N/A	N/A	< 5	N/A	N/A	N/A	N/A



Summary of Groundwater Chemistry
Guthrie County SLF (39-SDP-01-73C)

	Sample Date	MW-12 UPG	MW-21 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Appendix I VOC Constituents								
Ethylbenzene, ug/L (CAS NO - 100-41-4)	9/23/2025	< 1	< 1	< 1	N/A	N/A	< 1	N/A
	9/23/2025	N/A	N/A	< 1	N/A	N/A	N/A	N/A
Iodomethane, ug/L (CAS NO - 74-88-4)	9/23/2025	< 10	< 10	< 10	N/A	N/A	< 10	N/A
	9/23/2025	N/A	N/A	< 10	N/A	N/A	N/A	N/A
Methylene Bromide, ug/L (CAS NO - 74-95-3)	9/23/2025	< 1	< 1	< 1	N/A	N/A	< 1	N/A
	9/23/2025	N/A	N/A	< 1	N/A	N/A	N/A	N/A
Methylene Chloride, ug/L (CAS NO - 75-09-2)	9/23/2025	< 5	< 5	< 5	N/A	N/A	< 5	N/A
	9/23/2025	N/A	N/A	< 5	N/A	N/A	N/A	N/A
Styrene, ug/L (CAS NO - 100-42-5)	9/23/2025	< 1	< 1	< 1	N/A	N/A	< 1	N/A
	9/23/2025	N/A	N/A	< 1	N/A	N/A	N/A	N/A
Tetrachloroethene, ug/L (CAS NO - 127-18-4)	9/23/2025	0.631*	< 1	< 1	N/A	N/A	< 1	N/A
	9/23/2025	N/A	N/A	< 1	N/A	N/A	N/A	N/A
Toluene, ug/L (CAS NO - 108-88-3)	9/23/2025	< 1	< 1	< 1	N/A	N/A	< 1	N/A
	9/23/2025	N/A	N/A	< 1	N/A	N/A	N/A	N/A
trans-1,2-Dichloroethene, ug/L (CAS NO - 156-60-5)	9/23/2025	< 1	< 1	< 1	N/A	N/A	< 1	N/A
	9/23/2025	N/A	N/A	< 1	N/A	N/A	N/A	N/A
trans-1,3-Dichloropropene, ug/L (CAS NO - 10061-02-6)	9/23/2025	< 5	< 5	< 5	N/A	N/A	< 5	N/A
	9/23/2025	N/A	N/A	< 5	N/A	N/A	N/A	N/A
trans-1,4-Dichloro-2-Butene, ug/L (CAS NO - 110-57-6)	9/23/2025	< 10	< 10	< 10	N/A	N/A	< 10	N/A
	9/23/2025	N/A	N/A	< 10	N/A	N/A	N/A	N/A
Trichloroethene, ug/L (CAS NO - 79-01-6)	9/23/2025	< 1	< 1	< 1	N/A	N/A	< 1	N/A
	9/23/2025	N/A	N/A	< 1	N/A	N/A	N/A	N/A
Trichlorofluoromethane, ug/L (CAS NO - 75-69-4)	9/23/2025	< 4	< 4	< 4	N/A	N/A	< 4	N/A
	9/23/2025	N/A	N/A	< 4	N/A	N/A	N/A	N/A
Vinyl Acetate, ug/L (CAS NO - 108-05-4)	9/23/2025	< 10	< 10	< 10	N/A	N/A	< 10	N/A
	9/23/2025	N/A	N/A	< 10	N/A	N/A	N/A	N/A
Vinyl Chloride, ug/L (CAS NO - 75-01-4)	9/23/2025	< 1	< 1	< 1	N/A	N/A	0.264*	N/A
	9/23/2025	N/A	N/A	< 1	N/A	N/A	N/A	N/A
Xylenes, total, ug/L (CAS NO - 1330-20-7)	9/23/2025	< 3	< 3	< 3	N/A	N/A	< 3	N/A
	9/23/2025	N/A	N/A	< 3	N/A	N/A	N/A	N/A

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

Denotes Detection.
Denotes Confirmed Outlier. Statistically Excluded.

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

Appendix D
2025 Statistical Method and Output

Statistical Method and Output

Purpose

The purpose of this document is to provide the statistical evaluation of groundwater analytical data collected from the groundwater monitoring network of the Guthrie County Sanitary Landfill (Landfill).

Diagnostic and Exploratory Evaluations and Tests of Assumptions

The detection and assessment/corrective action monitoring statistical programs include diagnostic and exploratory evaluations and statistical tests of assumptions, as appropriate, including the following:

- Time Series Plots
- Shapiro-Wilk test for normality
- Ohio Environmental Protection Agency (EPA) Method for identification of outliers
- Mann-Kendall/Sen's Slope trend test

Management of Non-Detect Data

Non-detect values in the dataset are managed using simple substitution or the Kaplan-Meier estimator. If less than 15% of the data are non-detects, simple substitution is used, where non-detect values are assigned a concentration of one-half ($\frac{1}{2}$) of the practical quantification limit (PQL). If greater than 15% but less than 50% of the data are non-detects, the Kaplan-Meier estimator is used to define the distribution for the dataset. If non-detects comprise greater than 50% of the available data, non-parametric statistical methods are used.

Management of Outliers

Background datasets are evaluated for outliers using the Ohio EPA Method as included in the Sanitas™ statistical software program and described below, which includes the use of Dixon's, Rosner's, and Tukey's outlier tests, as appropriate based on the diagnostic tests, for the datasets that contain less than 75% of the measured concentrations below the PQL. Outliers are not confirmed unless a physical cause or explanation for the outlier is determined.

Management of Data (ND data < 75%)

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

- A parametric dataset with $n < 20$ was evaluated with the Dixon's outlier test.
- A parametric dataset with $n \geq 20$ was evaluated with the Rosner's outlier test.
- A non-parametric dataset was evaluated with the Tukey's outlier test.

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

Management of Data (ND data $\geq$ 75%)

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

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

Confirmed outliers, if any, are shown in the Reporting Period Summary of Groundwater Chemistry included in the Annual Water Quality Report. Confirmed outliers are also shown in the historical analytical data prior to 2025, which can be found in the 2024 Annual Water Quality Report, dated January 29, 2025 (Doc #112043).

Detection Monitoring Statistical Program

The detection monitoring statistical program for the Landfill is defined by Iowa Administrative Code (IAC) 567-113.10(4)"g". Interwell prediction limits with retesting were selected as the appropriate statistical methods for the determination of statistically significant increases (SSIs) over background for inorganic constituents with historical detections in background. Prediction limits are established using the process below. Data from the most recent sampling event is compared to the prediction limits for the determination of SSIs.

Interwell Prediction Limits with Retesting

- If the dataset has a normal distribution (or can be transformed to a normal distribution using Ladder of Powers), parametric interwell prediction limits are calculated if at least five datasets have been collected from the background monitoring point(s).
- If the dataset does not have a normal distribution (and cannot be transformed to a normal distribution using Ladder of Powers) or has greater than 50% non-detects, nonparametric interwell prediction limits are calculated if at least five datasets have been collected from the background monitoring point(s).
- If an SSI above the prediction limit is indicated, retesting samples using the 1-of-2 retesting scheme should be collected prior to the next regularly scheduled sampling event with temporal sample spacing consideration to provide samples with greater independence. If the retesting result is above the prediction limit, the SSI is confirmed, and the monitoring point should be placed into the assessment monitoring program or discharge from the monitoring point should be treated with the leachate for groundwater underdrains. If the retesting sample concentration is below the prediction limit, the SSI is not confirmed, and the monitoring point continues in the detection monitoring program.

Double Quantification Rule

The quasi-statistical "double quantification" rule is used for constituents not detected in the associated background data set. If a constituent is detected in the compliance dataset that has not been historically detected in the background dataset, that constituent must be retested before the next regularly scheduled sampling event. If the retesting results confirm the original detection with a quantifiable detection, the SSI is confirmed, and the monitoring point must be placed into the assessment monitoring program.

Assessment Monitoring/Corrective Action Statistical Program

Confidence intervals or confidence bands, as appropriate, were selected as the appropriate statistical methods for comparison of the groundwater analytical data against a fixed groundwater protection standard (GWPS). The assessment/corrective action monitoring statistical evaluations are performed using the most recent eight samples or all samples if less than eight samples are available. The confidence intervals or confidence bands used for the assessment/corrective action monitoring statistical evaluation are established using the process below. Transformation of the distribution is not considered.

Confidence Intervals or Confidence Bands

- A parametric confidence interval around a normal mean is calculated if the dataset has a normal distribution and no statistically significant trend is present.
- A non-parametric confidence interval around a median is calculated if the dataset does not have a normal distribution and no statistically significant trend is present.
- Non-parametric confidence bands around a Theil-Sen trend line are calculated if the dataset has a statistically significant trend.

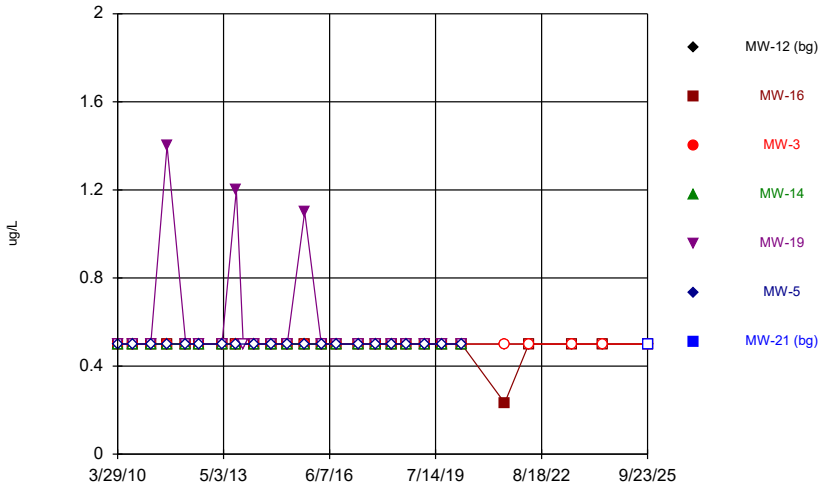
If the lower confidence limit or any part of the lower confidence band, as appropriate, exceeds the GWPS, then the monitoring point is declared out of compliance, and an assessment of corrective measures (ACM) is required.

Statistical Software Output

Sanitas™ statistical software was used to perform the statistical evaluation. Listed below are the statistical outputs attached to this report for the 2025 statistical evaluation.

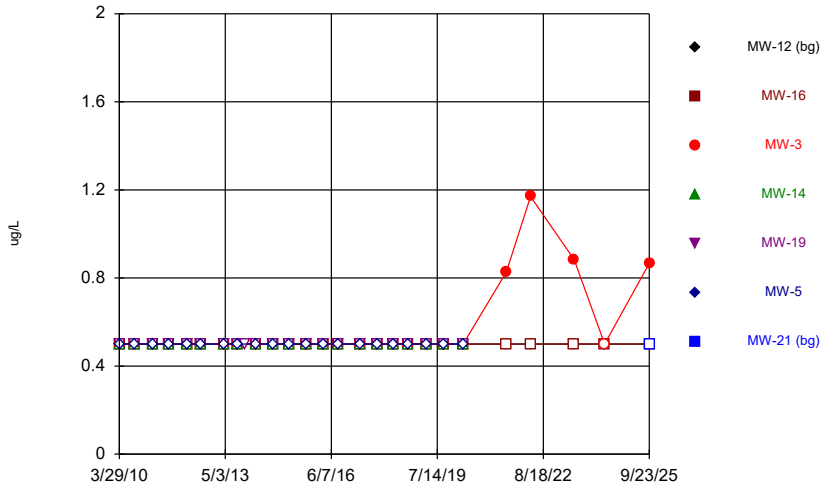
Time Series Plots

Time Series



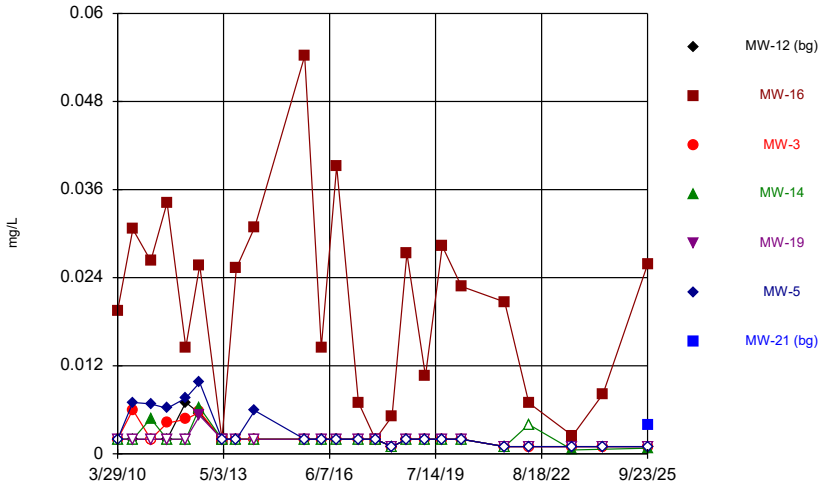
Constituent: 1,1-Dichloroethane Analysis Run 12/1/2025 8:26 AM View: 2025_AWQR-Time_Series
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Time Series



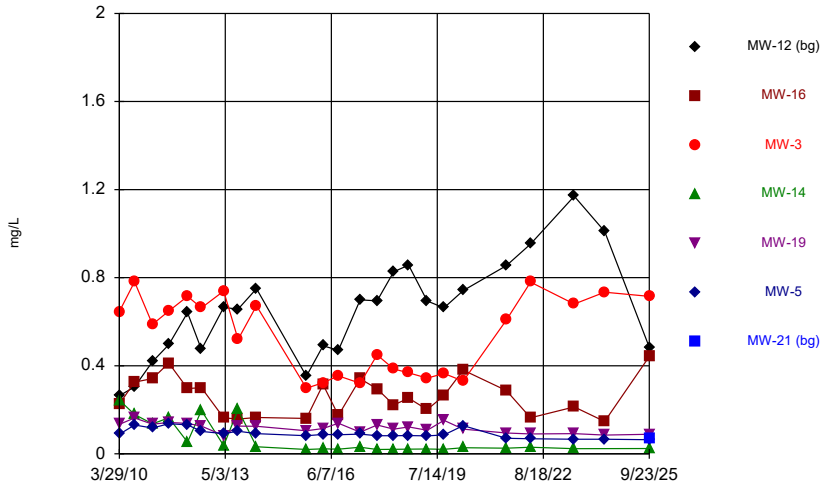
Constituent: 1,4-Dichlorobenzene Analysis Run 12/1/2025 8:26 AM View: 2025_AWQR-Time_Series
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Time Series



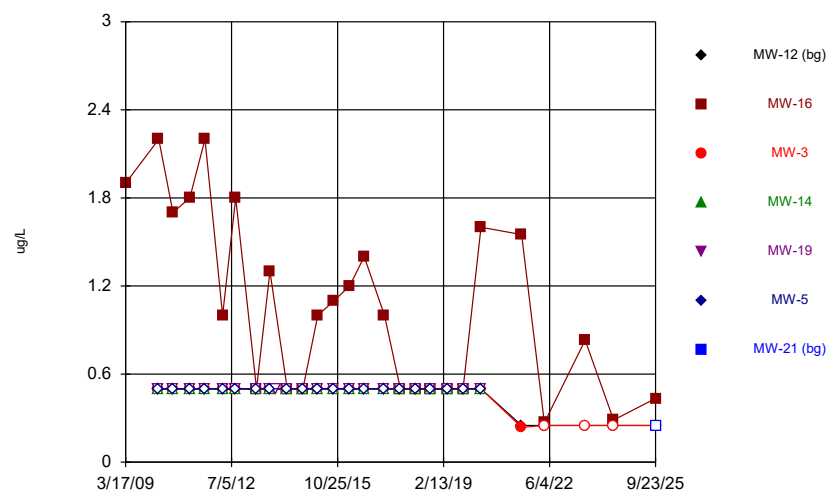
Constituent: Arsenic Analysis Run 12/1/2025 8:26 AM View: 2025_AWQR-Time_Series
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Time Series



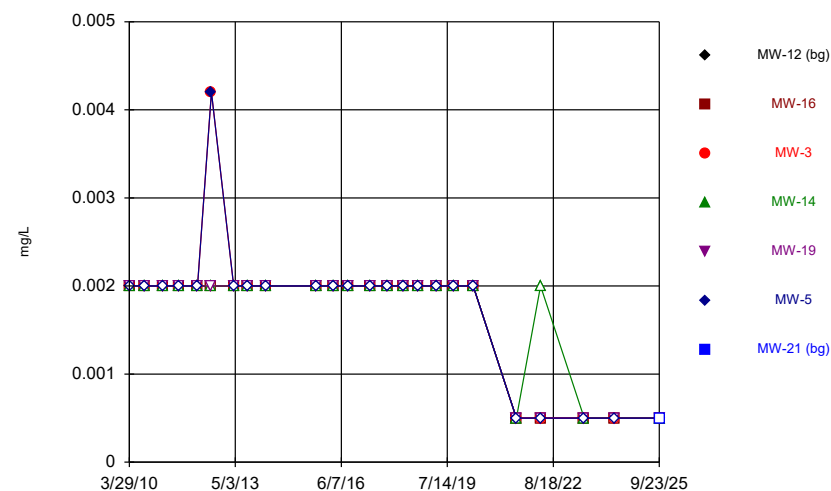
Constituent: Barium Analysis Run 12/1/2025 8:26 AM View: 2025_AWQR-Time_Series
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Time Series



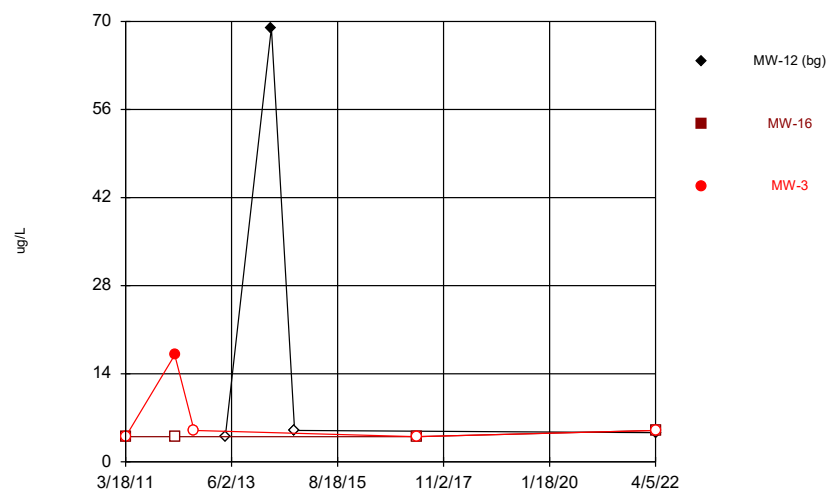
Constituent: Benzene Analysis Run 12/1/2025 8:26 AM View: 2025_AWQR-Time_Series
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Time Series



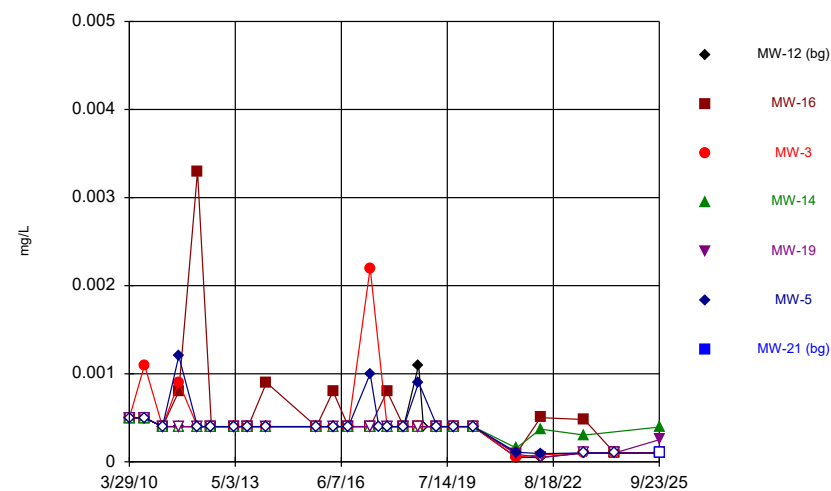
Constituent: Beryllium Analysis Run 12/1/2025 8:26 AM View: 2025_AWQR-Time_Series
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Time Series



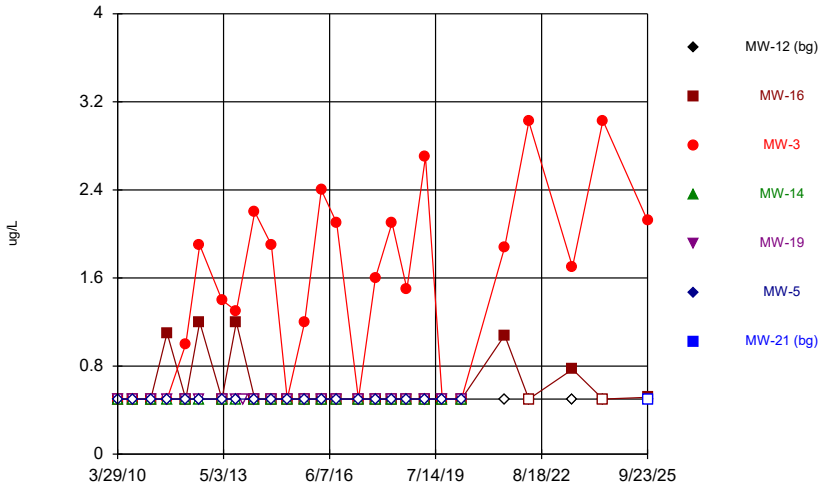
Constituent: Bis[2-ethylhexyl]phthalate Analysis Run 12/1/2025 8:26 AM View: 2025_AWQR-Time_Series
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Time Series



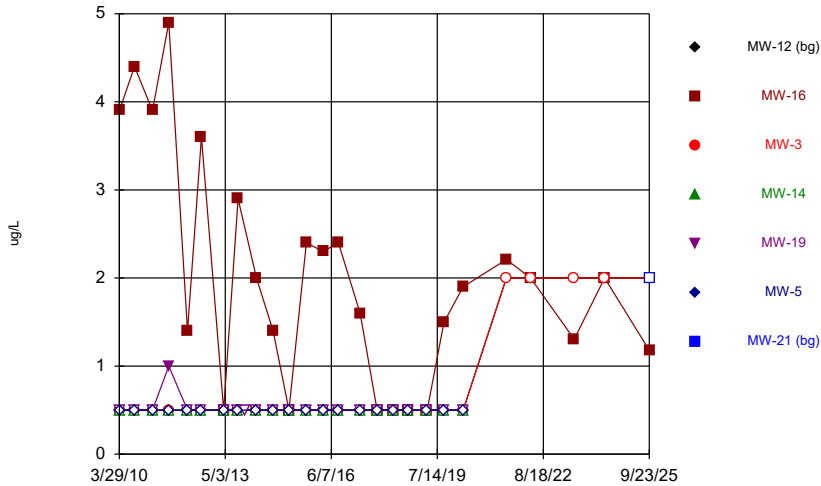
Constituent: Cadmium Analysis Run 12/1/2025 8:26 AM View: 2025_AWQR-Time_Series
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Time Series



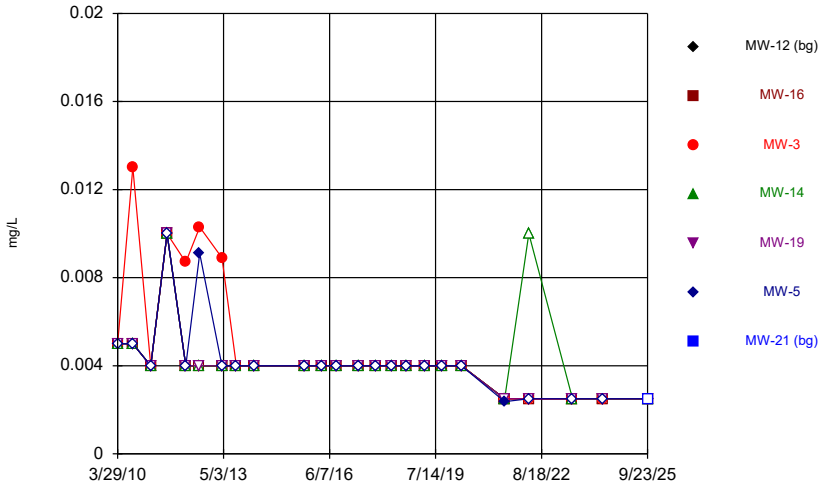
Constituent: Chlorobenzene Analysis Run 12/1/2025 8:26 AM View: 2025_AWQR-Time_Series
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Time Series



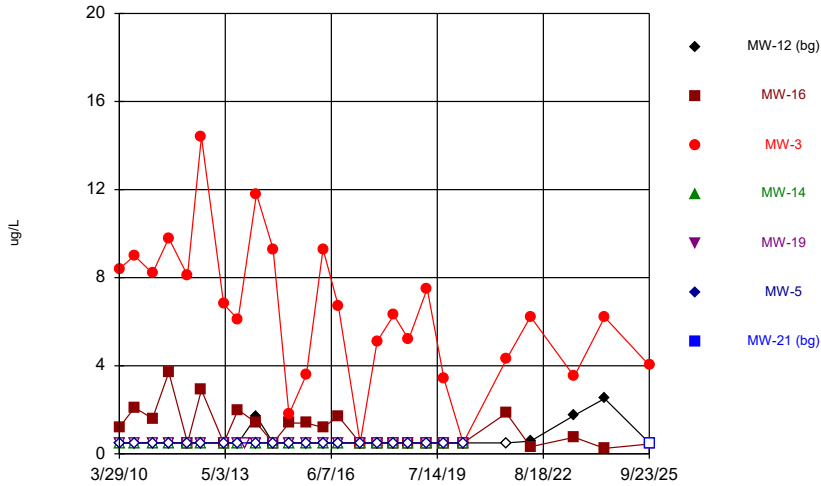
Constituent: Chloroethane Analysis Run 12/1/2025 8:26 AM View: 2025_AWQR-Time_Series
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Time Series



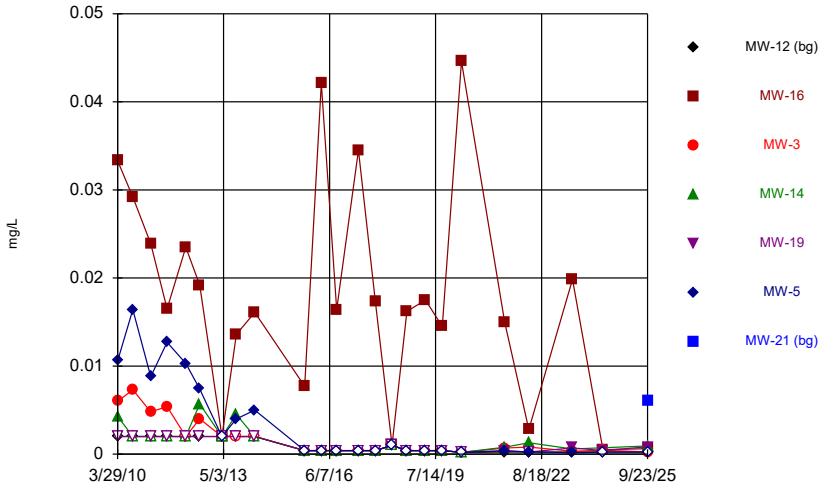
Constituent: Chromium Analysis Run 12/1/2025 8:26 AM View: 2025_AWQR-Time_Series
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Time Series

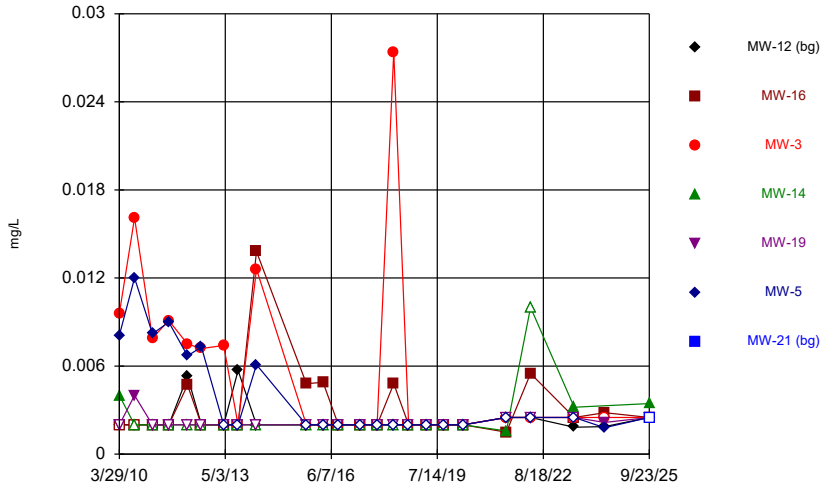


Constituent: cis-1,2-Dichloroethene Analysis Run 12/1/2025 8:26 AM View: 2025_AWQR-Time_Series
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

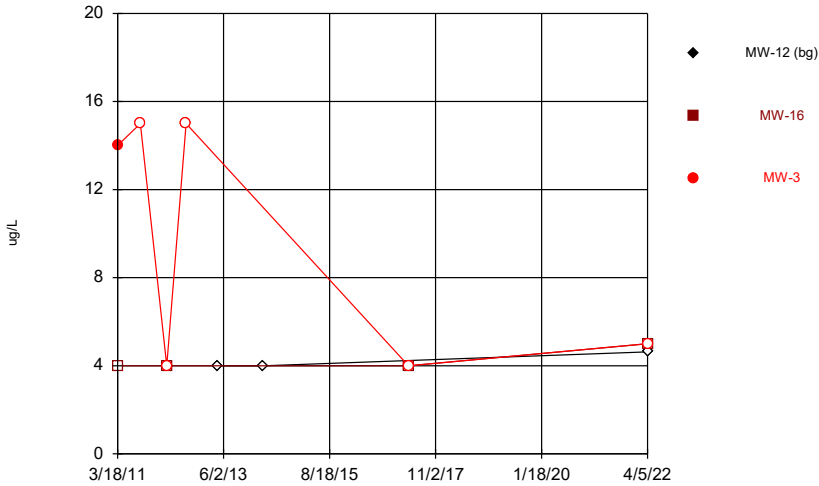
Time Series



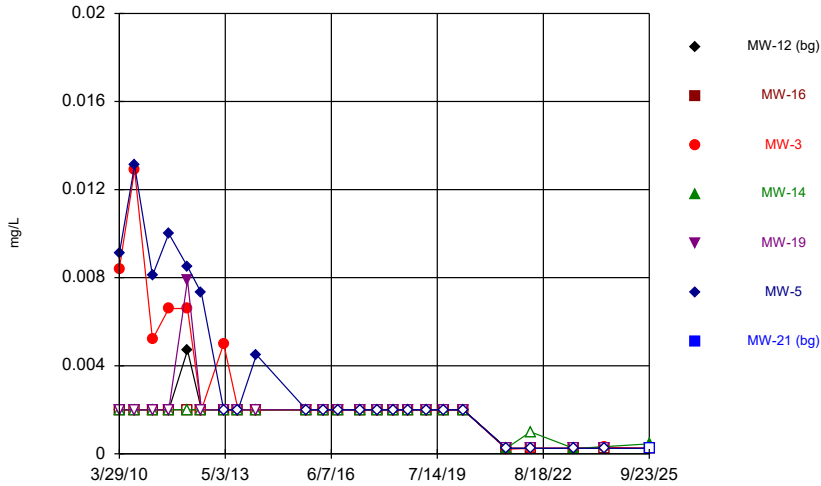
Time Series



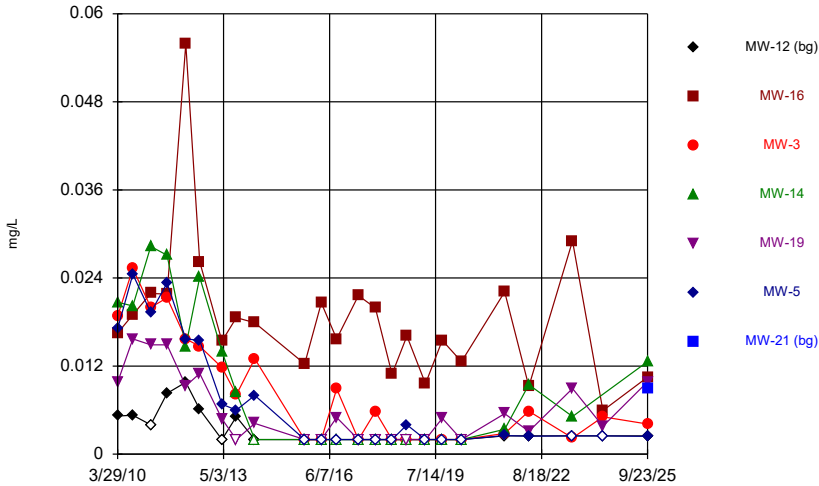
Time Series



Time Series

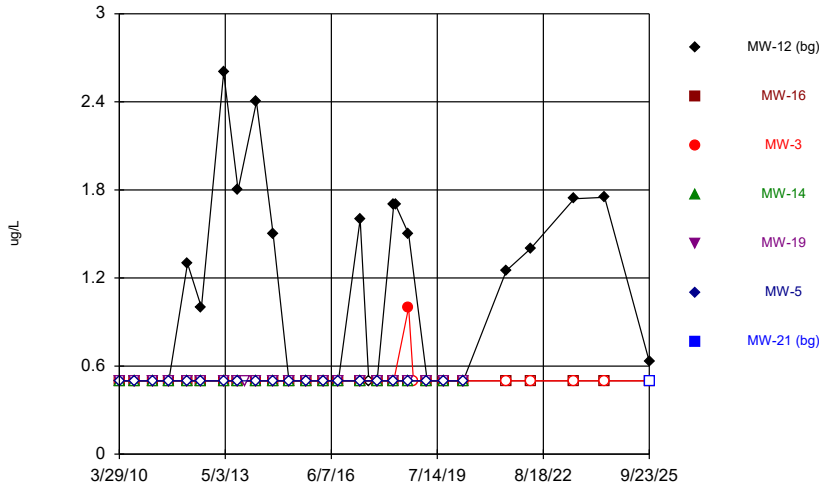


Time Series



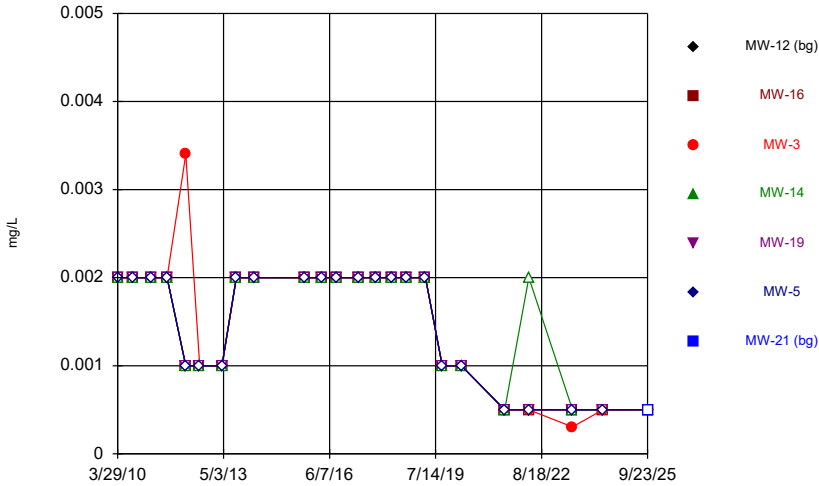
Constituent: Nickel Analysis Run 12/1/2025 8:26 AM View: 2025_AWQR-Time_Series
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Time Series



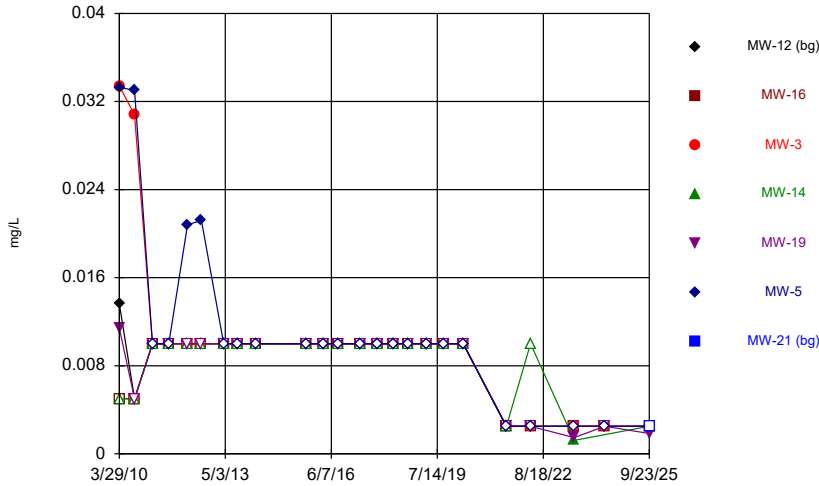
Constituent: Tetrachloroethene Analysis Run 12/1/2025 8:26 AM View: 2025_AWQR-Time_Series
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Time Series



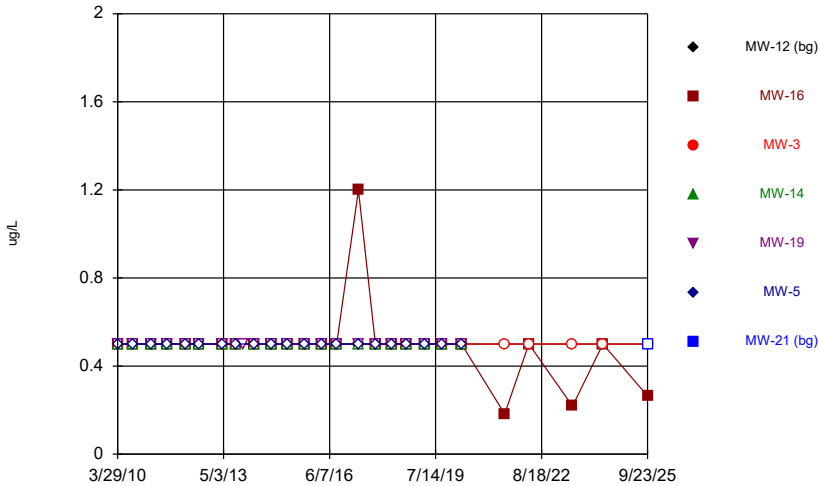
Constituent: Thallium Analysis Run 12/1/2025 8:26 AM View: 2025_AWQR-Time_Series
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Time Series



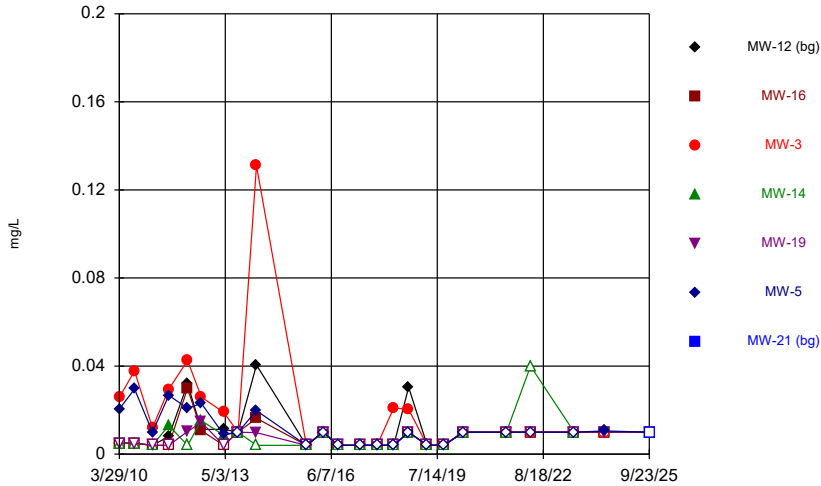
Constituent: Vanadium Analysis Run 12/1/2025 8:26 AM View: 2025_AWQR-Time_Series
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Time Series



Constituent: Vinyl Chloride Analysis Run 12/1/2025 8:26 AM View: 2025_AWQR-Time_Series
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Time Series



Constituent: Zinc Analysis Run 12/1/2025 8:26 AM View: 2025_AWQR-Time_Series
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

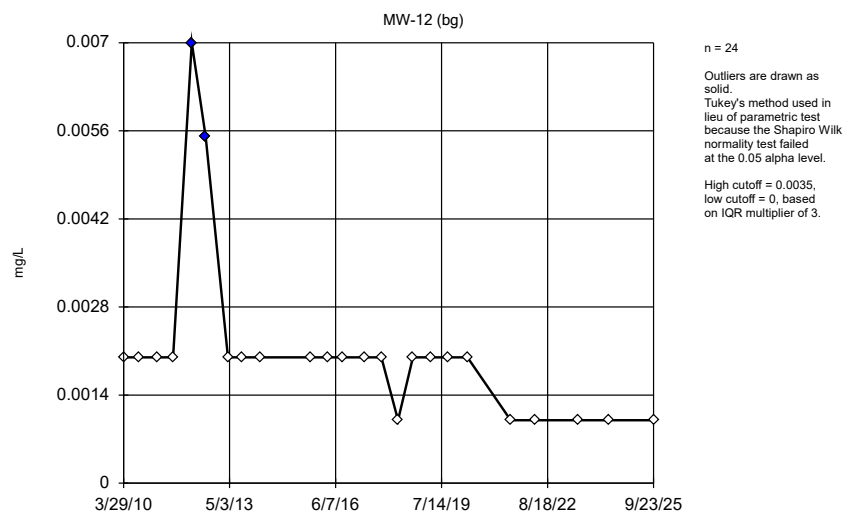
Outlier Tests Summary Table and Graphs

BG Outlier Analysis

Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP Printed 11/18/2025, 1:06 PM

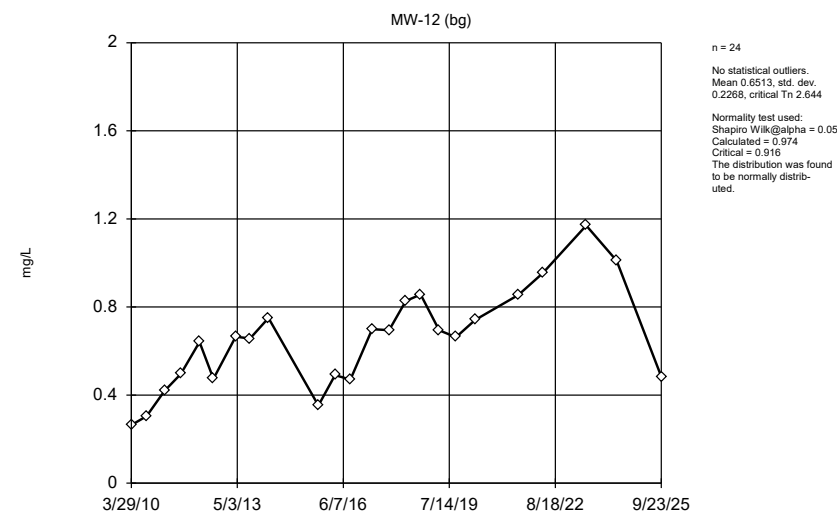
<u>Constituent</u>	<u>Well</u>	<u>Outlier</u>	<u>Value(s)</u>	<u>Date(s)</u>	<u>Method</u>	<u>Alpha</u>	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>Distribution</u>	<u>Normality Test</u>
Arsenic (mg/L)	MW-12 (bg)	Yes	0.007,0.0055	3/26/2012,8/21/2012	NP (nrm)	NaN	24	0.002104	0.001367	unknown	ShapiroWilk
Barium (mg/L)	MW-12 (bg)	No	n/a	n/a	EPA 1989	0.05	24	0.6513	0.2268	normal	ShapiroWilk
Cadmium (mg/L)	MW-12 (bg)	n/a	n/a	n/a	NP (nrm)	NaN	25	0.000372	0.0002047	unknown	ShapiroWilk
Copper (mg/L)	MW-12 (bg)	n/a	n/a	n/a	NP (nrm)	NaN	24	0.002343	0.0009903	unknown	ShapiroWilk
Lead (mg/L)	MW-12 (bg)	n/a	n/a	n/a	NP (nrm)	NaN	24	0.001748	0.0009573	unknown	ShapiroWilk
Nickel (mg/L)	MW-12 (bg)	No	n/a	n/a	NP (nrm)	NaN	24	0.003346	0.002186	unknown	ShapiroWilk
Vanadium (mg/L)	MW-12 (bg)	No	n/a	n/a	NP (nrm)	NaN	24	0.008379	0.003337	unknown	ShapiroWilk
Zinc (mg/L)	MW-12 (bg)	n/a	n/a	n/a	NP (nrm)	NaN	24	0.01064	0.009694	unknown	ShapiroWilk

Tukey's Outlier Screening



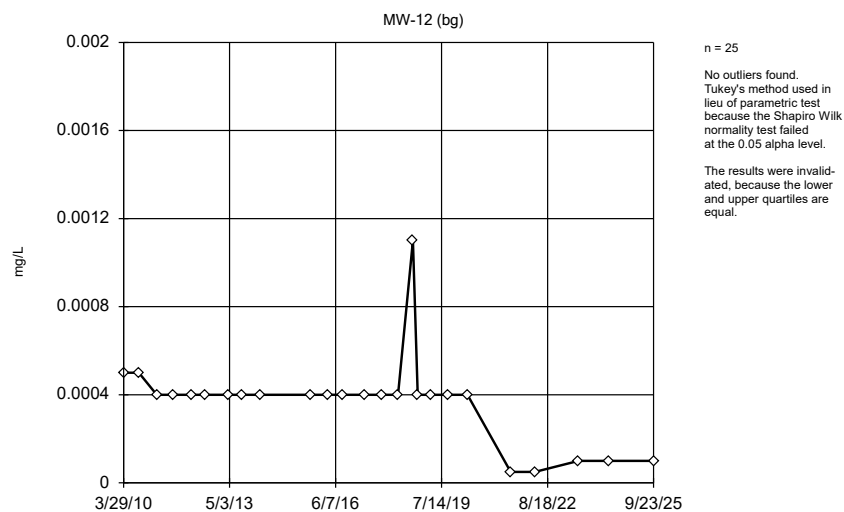
Constituent: Arsenic Analysis Run 11/18/2025 1:05 PM View: 2025_AWQR-BG_Outliers
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

EPA 1989 Outlier Screening



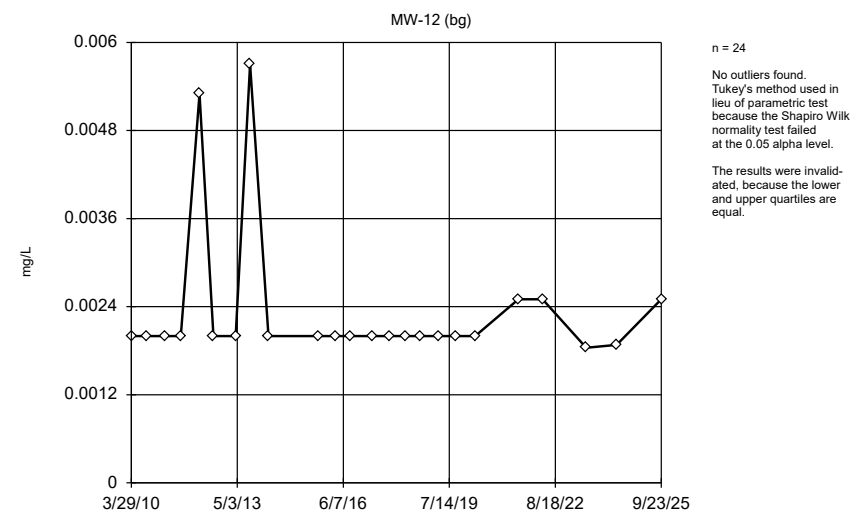
Constituent: Barium Analysis Run 11/18/2025 1:05 PM View: 2025_AWQR-BG_Outliers
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Tukey's Outlier Screening



Constituent: Cadmium Analysis Run 11/18/2025 1:05 PM View: 2025_AWQR-BG_Outliers
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

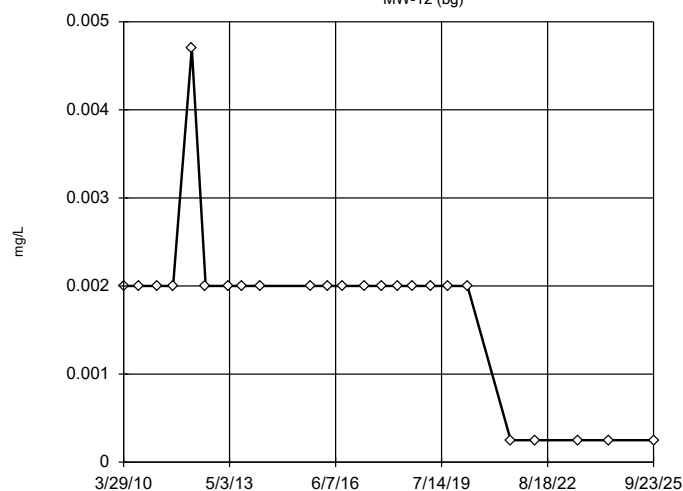
Tukey's Outlier Screening



Constituent: Copper Analysis Run 11/18/2025 1:05 PM View: 2025_AWQR-BG_Outliers
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Tukey's Outlier Screening

MW-12 (bg)



n = 24

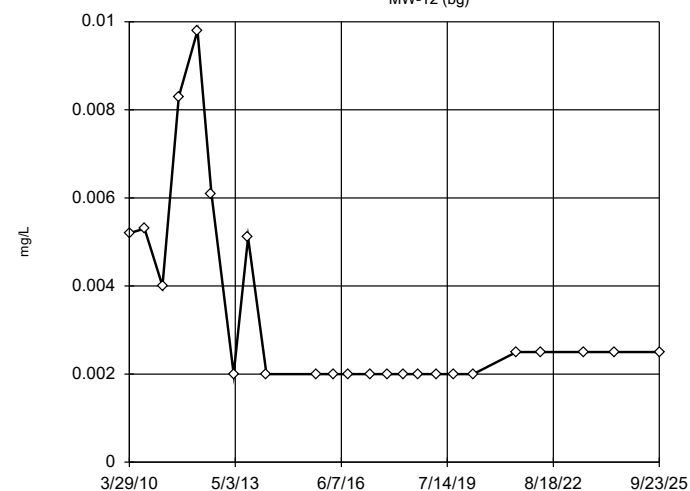
No outliers found.
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.

The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Lead Analysis Run 11/18/2025 1:05 PM View: 2025_AWQR-BG_Outliers
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Tukey's Outlier Screening

MW-12 (bg)



n = 24

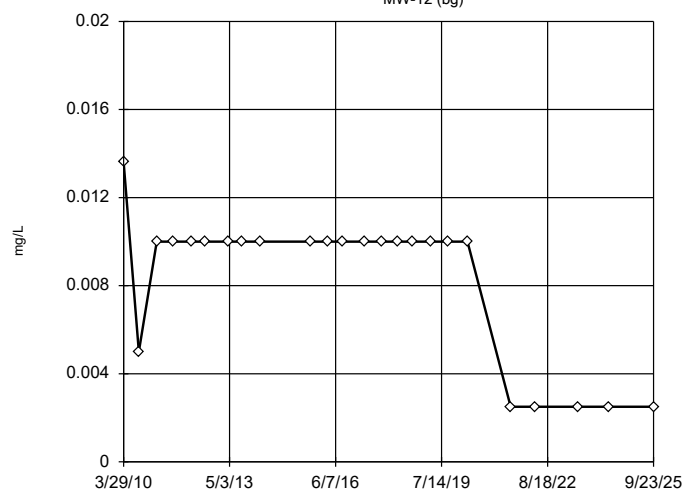
No outliers found.
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.

High cutoff = 0.0122,
low cutoff = -0.00565,
based on IQR multiplier of 3.

Constituent: Nickel Analysis Run 11/18/2025 1:05 PM View: 2025_AWQR-BG_Outliers
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Tukey's Outlier Screening

MW-12 (bg)



n = 24

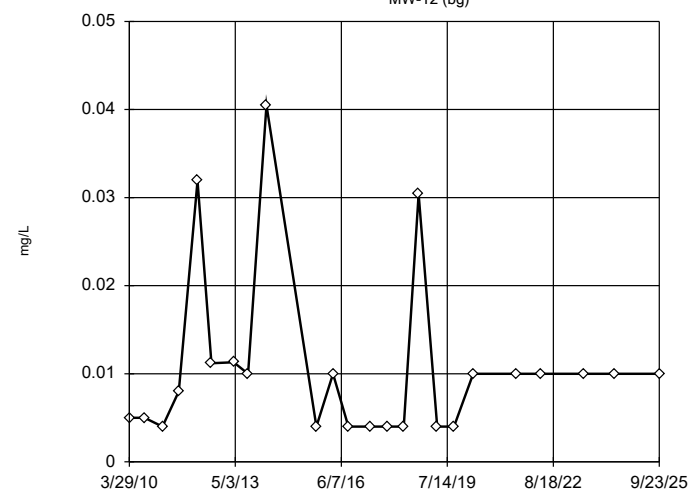
No outliers found.
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.

High cutoff = 0.0175,
low cutoff = 0, based on IQR multiplier of 3.

Constituent: Vanadium Analysis Run 11/18/2025 1:05 PM View: 2025_AWQR-BG_Outliers
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Tukey's Outlier Screening

MW-12 (bg)



n = 24

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

The results were invalidated, because both the lower and upper quartiles represent reporting limits.

Constituent: Zinc Analysis Run 11/18/2025 1:05 PM View: 2025_AWQR-BG_Outliers
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

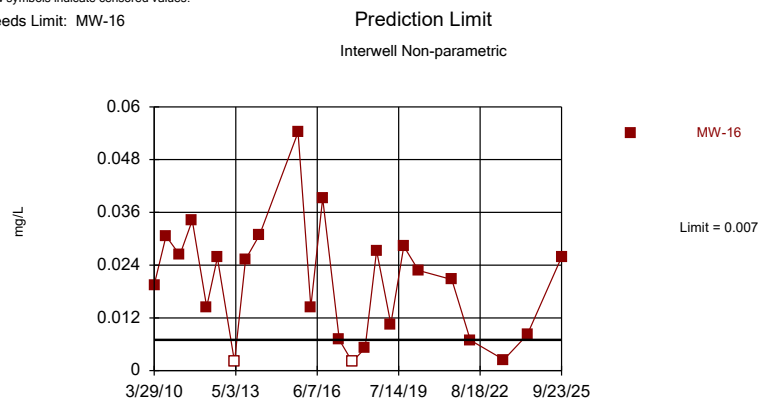
Prediction Limit Summary Table and Graphs

Prediction Limit

Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP Printed 12/1/2025, 8:39 AM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bg N</u>	<u>Bg Wells</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Arsenic (mg/L)	MW-16	0.007	n/a	9/23/2025	0.0258	Yes	24	MW-12	91.67	n/a	0.04	NP Inter (NDs)
Barium (mg/L)	MW-16	1.23	n/a	9/23/2025	0.442	No	24	MW-12	0	No	0.01	Param Inter
Barium (mg/L)	MW-3	1.23	n/a	9/23/2025	0.715	No	24	MW-12	0	No	0.01	Param Inter
Barium (mg/L)	MW-14	1.23	n/a	9/23/2025	0.0244	No	24	MW-12	0	No	0.01	Param Inter
Barium (mg/L)	MW-19	1.23	n/a	9/23/2025	0.0889	No	24	MW-12	0	No	0.01	Param Inter
Barium (mg/L)	MW-5	1.23	n/a	9/23/2025	0.0643	No	24	MW-12	0	No	0.01	Param Inter
Cadmium (mg/L)	MW-14	0.0011	n/a	9/23/2025	0.000395	No	25	MW-12	96	n/a	0.03775	NP Inter (NDs)
Cadmium (mg/L)	MW-19	0.0011	n/a	9/23/2025	0.000252	No	25	MW-12	96	n/a	0.03775	NP Inter (NDs)
Nickel (mg/L)	MW-16	0.0098	n/a	9/23/2025	0.0105	Yes	24	MW-12	75	n/a	0.0378	NP Inter (NDs)
Nickel (mg/L)	MW-3	0.0098	n/a	9/23/2025	0.004115J	No	24	MW-12	75	n/a	0.0378	NP Inter (NDs)
Nickel (mg/L)	MW-14	0.0098	n/a	9/23/2025	0.0126	Yes	24	MW-12	75	n/a	0.0378	NP Inter (NDs)
Nickel (mg/L)	MW-19	0.0098	n/a	9/23/2025	0.00985	Yes	24	MW-12	75	n/a	0.0378	NP Inter (NDs)

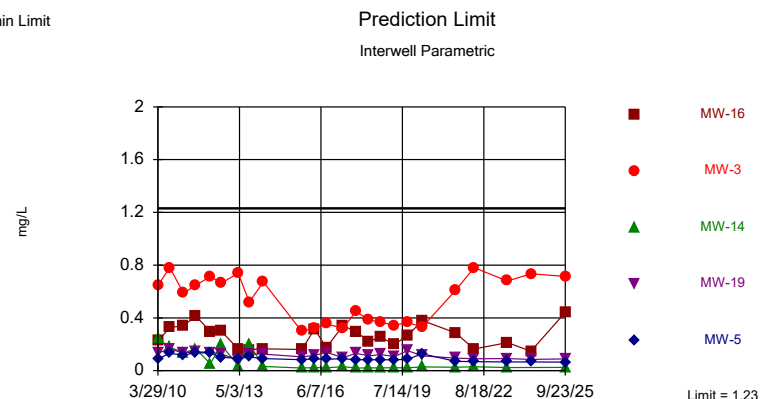
Exceeds Limit: MW-16



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 24 background values. 91.67% NDs. Report alpha = 0.04. Most recent point compared to limit.

Constituent: Arsenic Analysis Run 12/1/2025 8:34 AM View: 2025_AWQR-AM_Interwell_PL
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

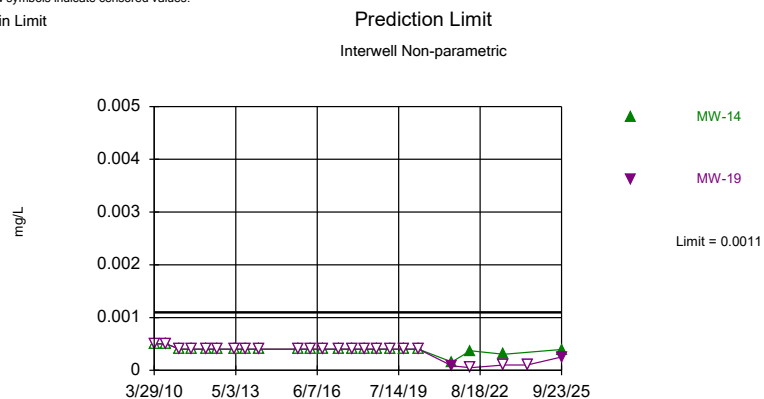
Within Limit



Background Data Summary: Mean=0.6513, Std. Dev.=0.2268, n=24. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.974, critical = 0.884. Report alpha = 0.04901. Individual comparison alpha = 0.01. Most recent point for each compliance well compared to limit.

Constituent: Barium Analysis Run 12/1/2025 8:34 AM View: 2025_AWQR-AM_Interwell_PL
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

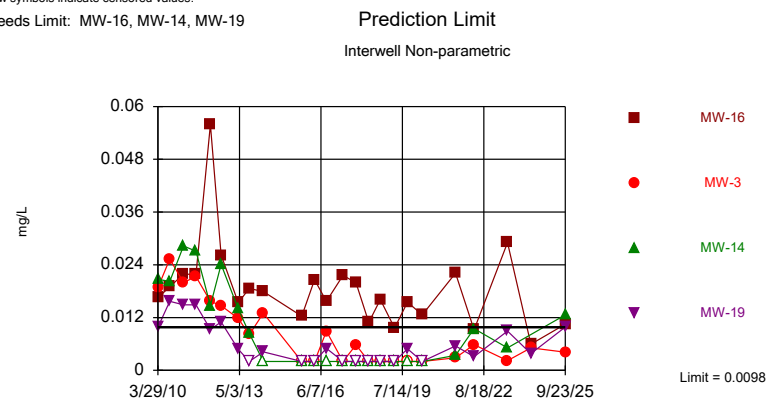
Within Limit



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 25 background values. 96% NDs. Report alpha = 0.07407. Individual comparison alpha = 0.03775. Most recent point for each compliance well compared to limit.

Constituent: Cadmium Analysis Run 12/1/2025 8:34 AM View: 2025_AWQR-AM_Interwell_PL
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Exceeds Limit: MW-16, MW-14, MW-19



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 24 background values. 75% NDs. Report alpha = 0.1429. Individual comparison alpha = 0.0378. Most recent point for each compliance well compared to limit.

Constituent: Nickel Analysis Run 12/1/2025 8:34 AM View: 2025_AWQR-AM_Interwell_PL
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Sen's Slope/Mann Kendall Trend Test Summary Table and Graphs

Trend Test

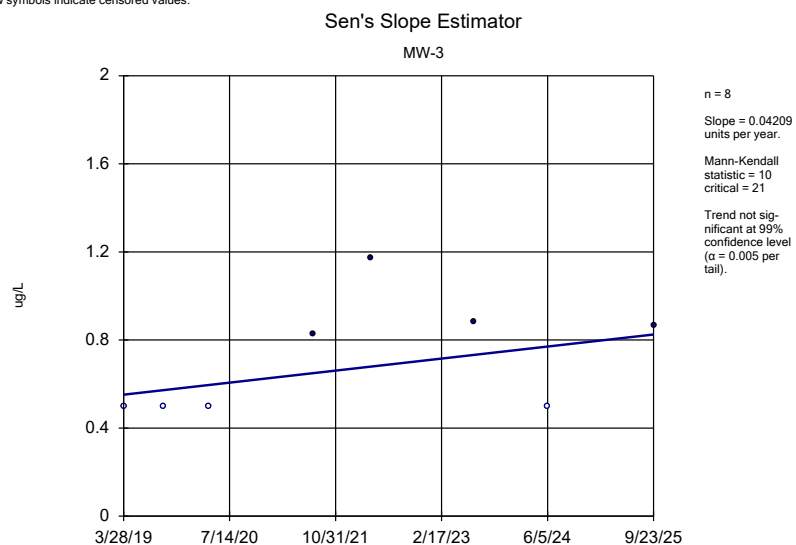
Guthrie County SLF

Client: SCS Engineers

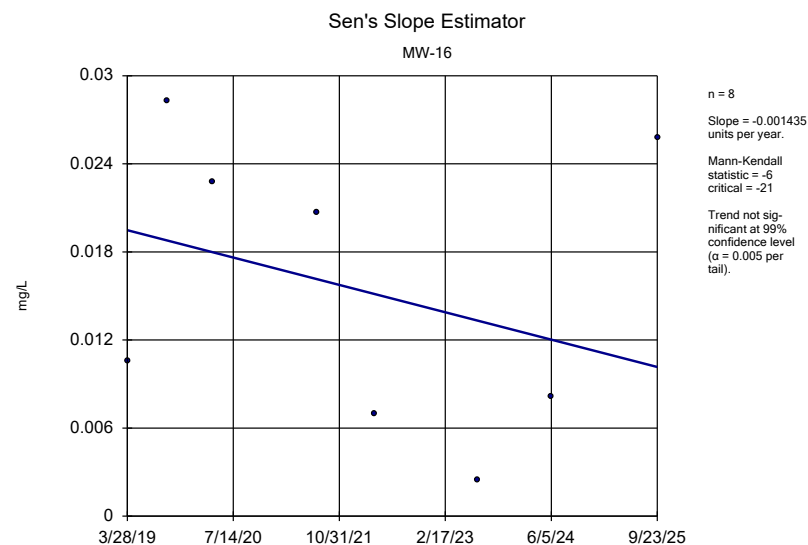
Data: GCSLF_AM_2025_AWQR

Printed 11/19/2025, 2:28 PM

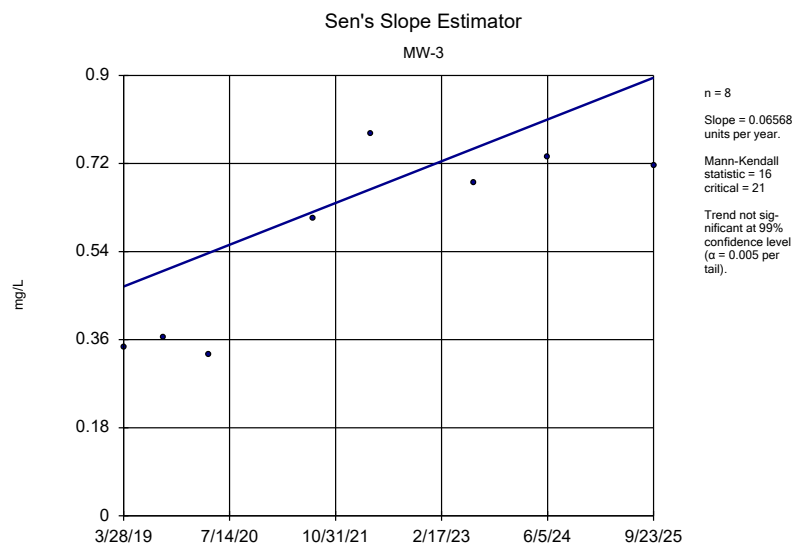
<u>Constituent</u>	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Alpha</u>	<u>Method</u>
1,4-Dichlorobenzene (ug/L)	MW-3	0.04209	10	21	No	8	50	0.01	NP
Arsenic (mg/L)	MW-16	-0.001435	-6	-21	No	8	0	0.01	NP
Barium (mg/L)	MW-3	0.06568	16	21	No	8	0	0.01	NP
Barium (mg/L)	MW-12 (bg)	0.06724	10	21	No	8	0	0.01	NP
Barium (mg/L)	MW-16	-0.002531	0	21	No	8	0	0.01	NP
Benzene (ug/L)	MW-16	-0.04028	-7	-21	No	8	25	0.01	NP
Cadmium (mg/L)	MW-16	-0.000008831	-4	-21	No	8	62.5	0.01	NP
Chlorobenzene (ug/L)	MW-3	0.1485	9	21	No	8	25	0.01	NP
Chlorobenzene (ug/L)	MW-16	0	6	21	No	8	62.5	0.01	NP
Chloroethane (ug/L)	MW-16	0.03743	3	21	No	8	37.5	0.01	NP
cis-1,2-Dichloroethene (ug/L)	MW-3	0.009822	0	21	No	8	12.5	0.01	NP
cis-1,2-Dichloroethene (ug/L)	MW-12 (bg)	0.02756	12	21	No	8	62.5	0.01	NP
cis-1,2-Dichloroethene (ug/L)	MW-16	-0.009105	-7	-21	No	8	37.5	0.01	NP
Cobalt (mg/L)	MW-3	-0.000006979	-1	-21	No	8	37.5	0.01	NP
Cobalt (mg/L)	MW-16	-0.003124	-12	-21	No	8	0	0.01	NP
Copper (mg/L)	MW-16	0.0001041	10	21	No	8	62.5	0.01	NP
Nickel (mg/L)	MW-3	0.0003551	15	21	No	8	37.5	0.01	NP
Nickel (mg/L)	MW-16	-0.000254	-2	-21	No	8	0	0.01	NP
Tetrachloroethene (ug/L)	MW-12 (bg)	0.2266	17	21	No	8	37.5	0.01	NP



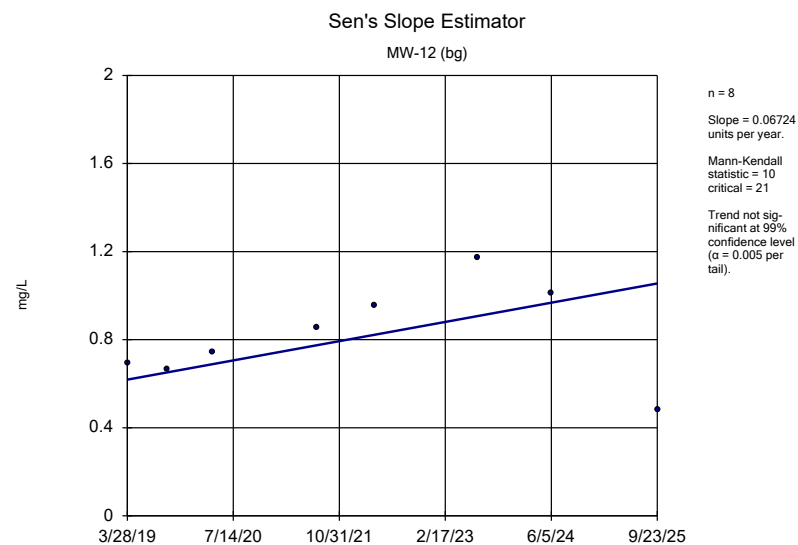
Constituent: 1,4-Dichlorobenzene Analysis Run 11/19/2025 2:26 PM View: 2025 AWQR MK
Guthrie County SLF Client: SCS Engineers Data: GCSLF_AM_2025_AWQR



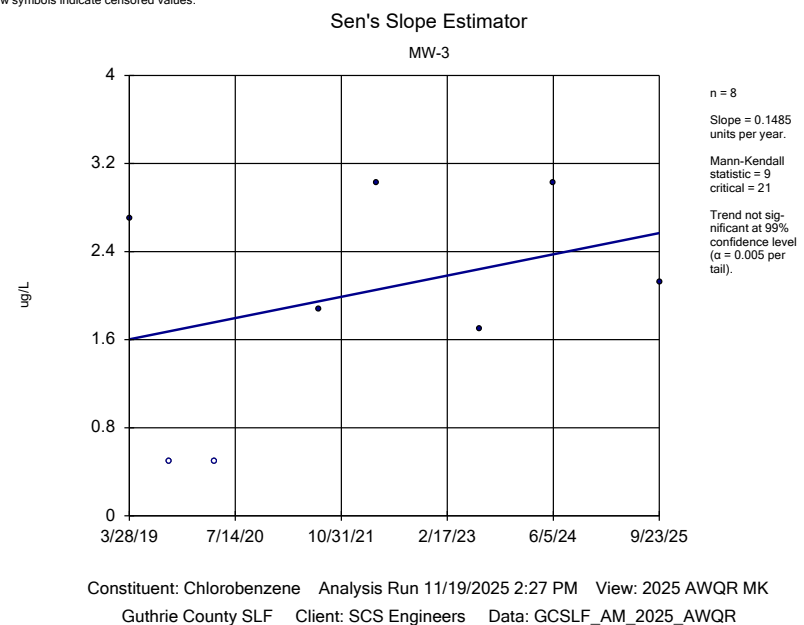
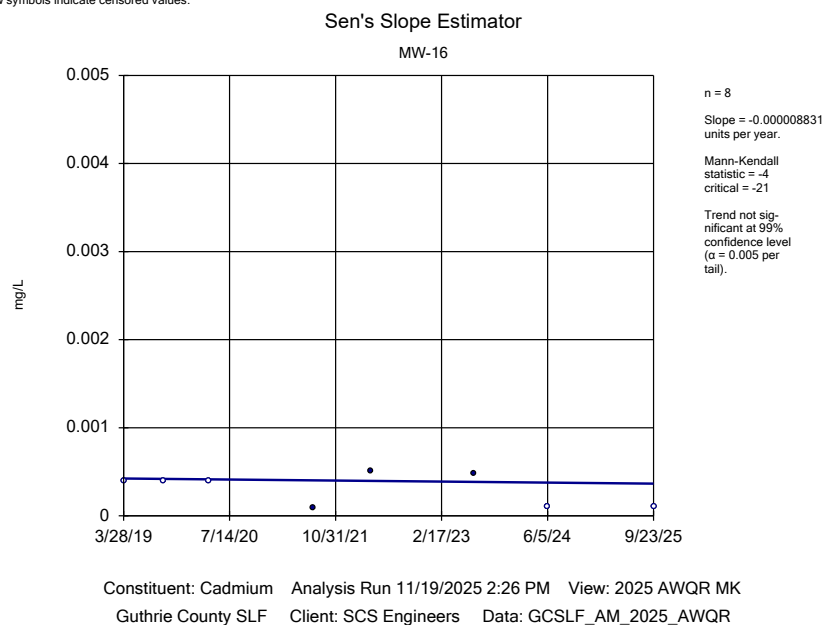
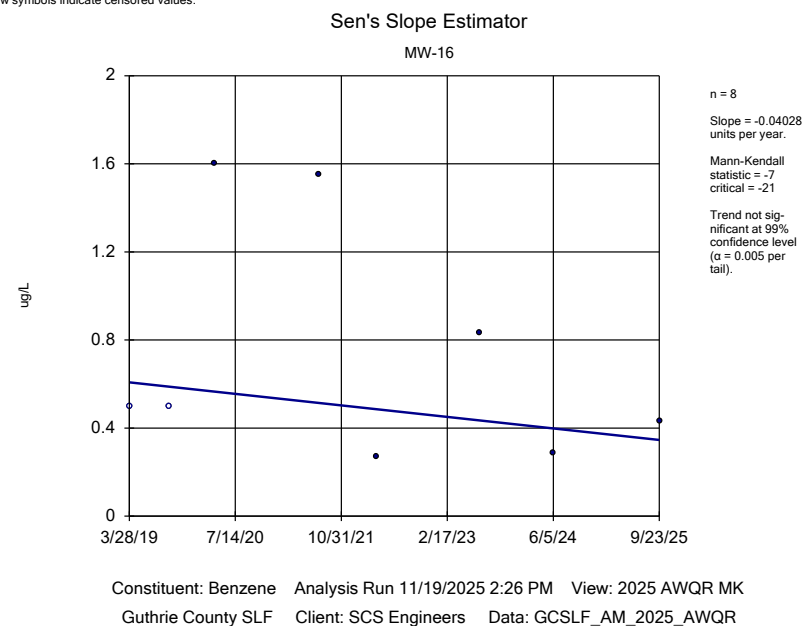
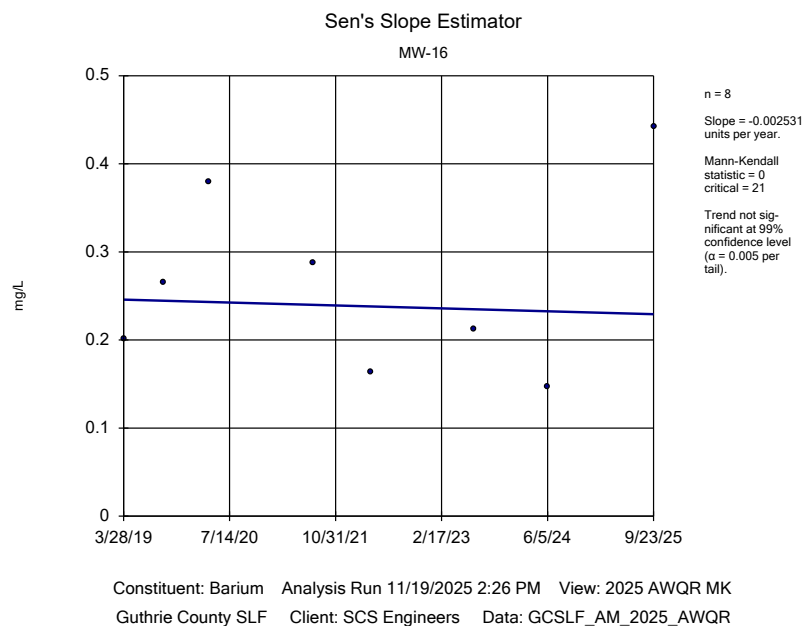
Constituent: Arsenic Analysis Run 11/19/2025 2:26 PM View: 2025 AWQR MK
Guthrie County SLF Client: SCS Engineers Data: GCSLF_AM_2025_AWQR

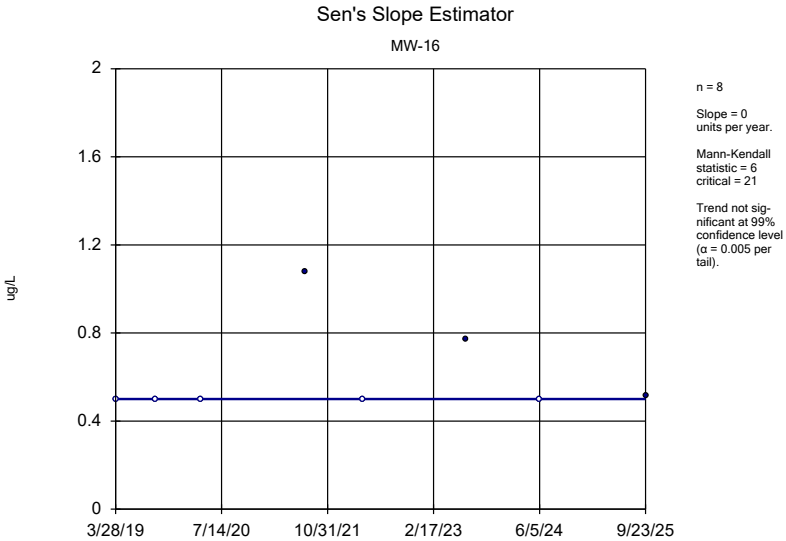


Constituent: Barium Analysis Run 11/19/2025 2:26 PM View: 2025 AWQR MK
Guthrie County SLF Client: SCS Engineers Data: GCSLF_AM_2025_AWQR

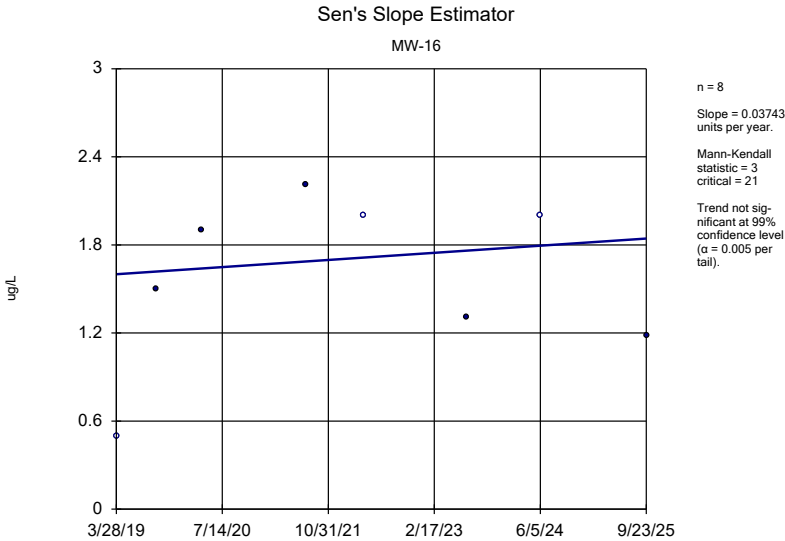


Constituent: Barium Analysis Run 11/19/2025 2:26 PM View: 2025 AWQR MK
Guthrie County SLF Client: SCS Engineers Data: GCSLF_AM_2025_AWQR

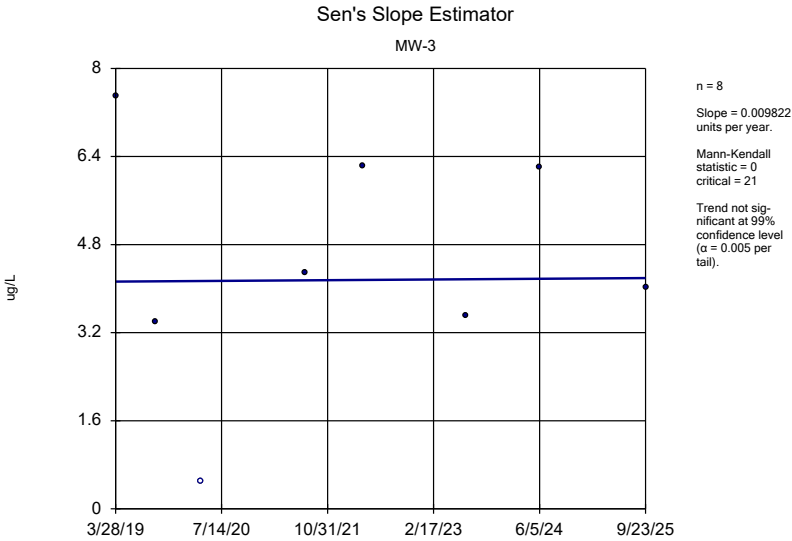




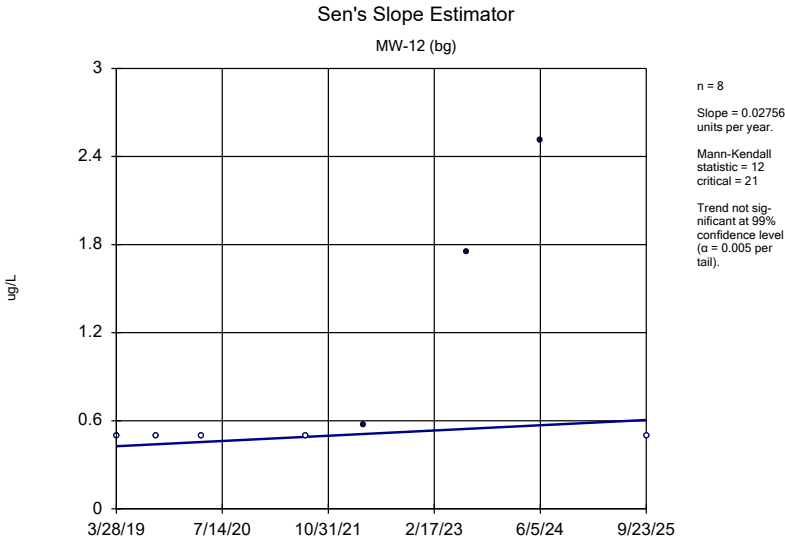
Constituent: Chlorobenzene Analysis Run 11/19/2025 2:27 PM View: 2025 AWQR MK
Guthrie County SLF Client: SCS Engineers Data: GCSLF_AM_2025_AWQR



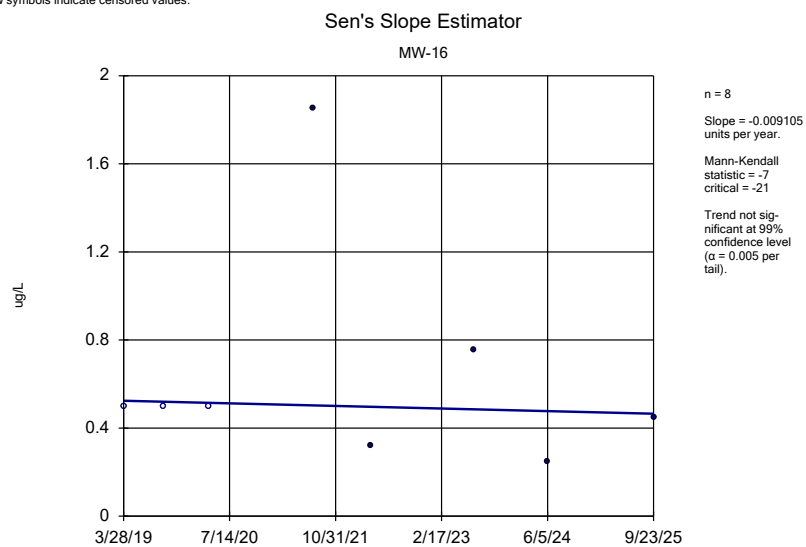
Constituent: Chloroethane Analysis Run 11/19/2025 2:27 PM View: 2025 AWQR MK
Guthrie County SLF Client: SCS Engineers Data: GCSLF_AM_2025_AWQR



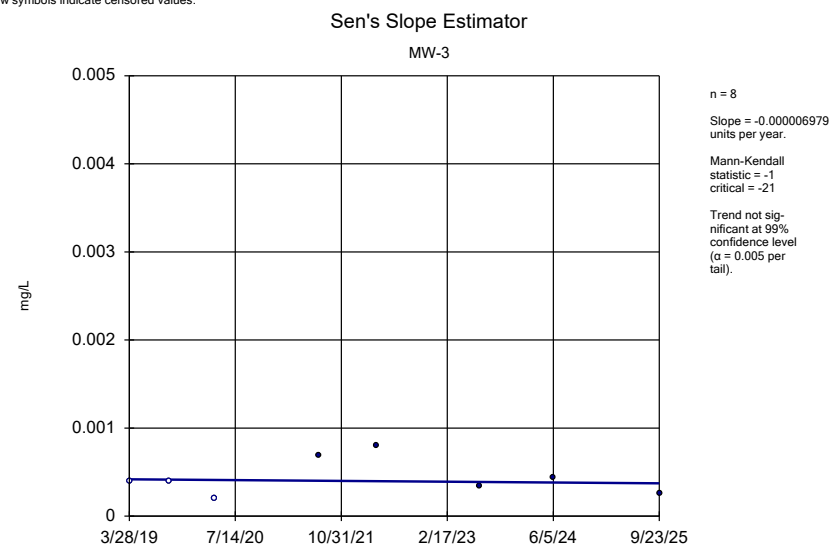
Constituent: cis-1,2-Dichloroethene Analysis Run 11/19/2025 2:27 PM View: 2025 AWQR MK
Guthrie County SLF Client: SCS Engineers Data: GCSLF_AM_2025_AWQR



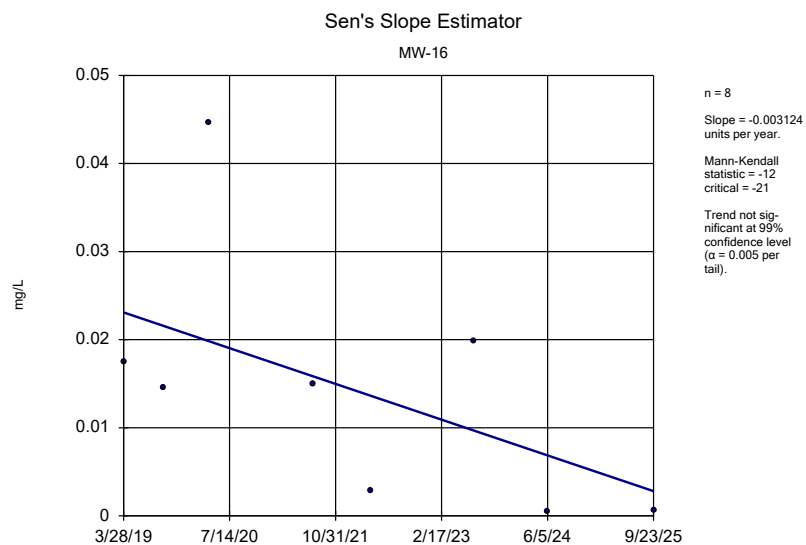
Constituent: cis-1,2-Dichloroethene Analysis Run 11/19/2025 2:27 PM View: 2025 AWQR MK
Guthrie County SLF Client: SCS Engineers Data: GCSLF_AM_2025_AWQR



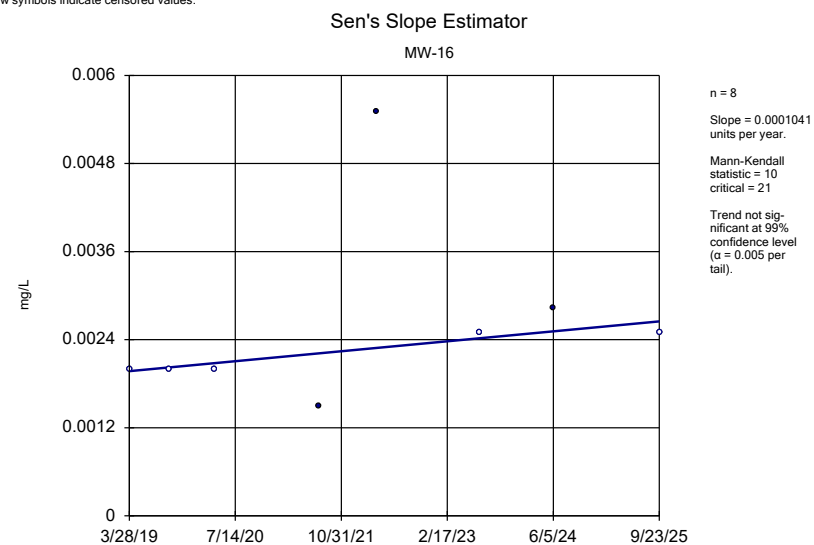
Constituent: cis-1,2-Dichloroethene Analysis Run 11/19/2025 2:27 PM View: 2025 AWQR MK
Guthrie County SLF Client: SCS Engineers Data: GCSLF_AM_2025_AWQR



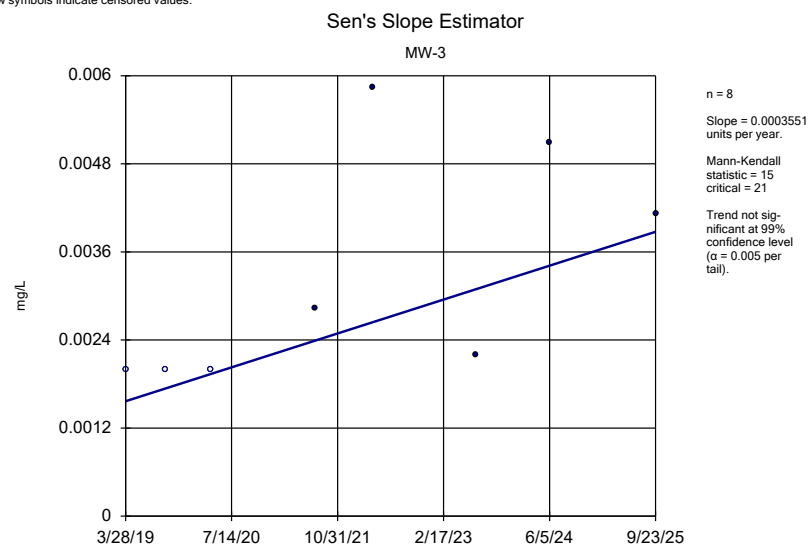
Constituent: Cobalt Analysis Run 11/19/2025 2:27 PM View: 2025 AWQR MK
Guthrie County SLF Client: SCS Engineers Data: GCSLF_AM_2025_AWQR



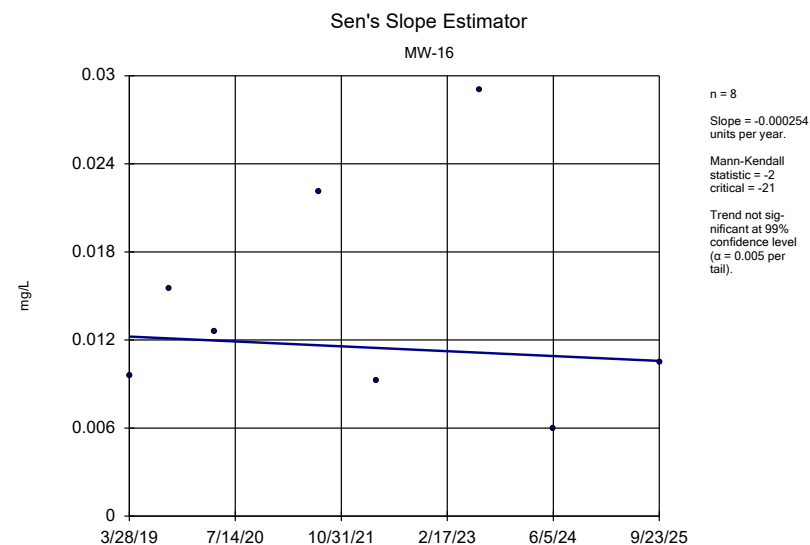
Constituent: Cobalt Analysis Run 11/19/2025 2:27 PM View: 2025 AWQR MK
Guthrie County SLF Client: SCS Engineers Data: GCSLF_AM_2025_AWQR



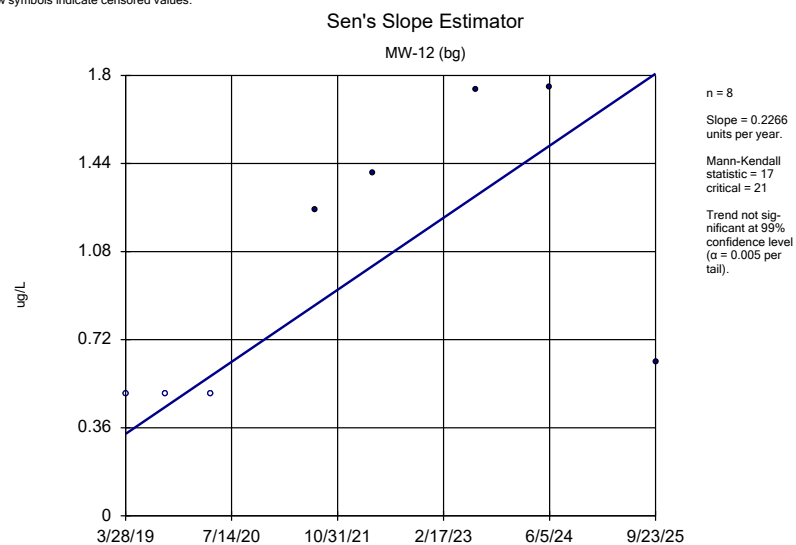
Constituent: Copper Analysis Run 11/19/2025 2:27 PM View: 2025 AWQR MK
Guthrie County SLF Client: SCS Engineers Data: GCSLF_AM_2025_AWQR



Constituent: Nickel Analysis Run 11/19/2025 2:27 PM View: 2025 AWQR MK
Guthrie County SLF Client: SCS Engineers Data: GCSLF_AM_2025_AWQR



Constituent: Nickel Analysis Run 11/19/2025 2:27 PM View: 2025 AWQR MK
Guthrie County SLF Client: SCS Engineers Data: GCSLF_AM_2025_AWQR



Constituent: Tetrachloroethene Analysis Run 11/19/2025 2:27 PM View: 2025 AWQR MK
Guthrie County SLF Client: SCS Engineers Data: GCSLF_AM_2025_AWQR

Confidence Interval Summary Table and Graphs

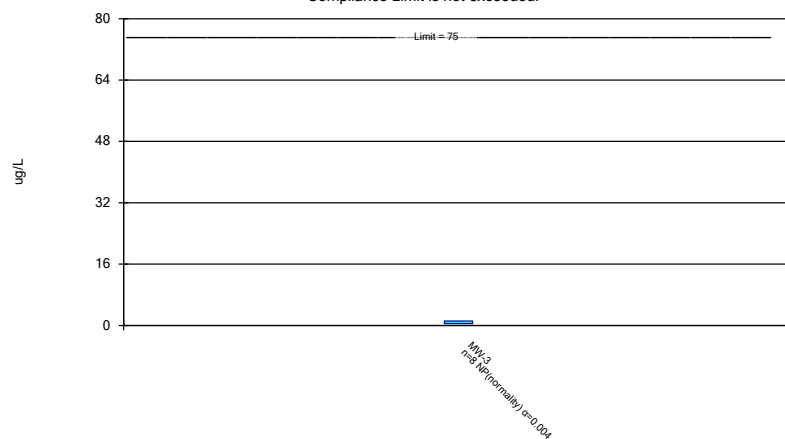
Confidence Interval

Guthrie County SLF Client: SCS Engineers Data: GCSLF_AM_2025_AWQR Printed 12/1/2025, 8:55 AM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
1,4-Dichlorobenzene (ug/L)	MW-3	1.17	0.5	75	No	8	50	No	0.004	NP (normality)
Arsenic (mg/L)	MW-16	0.0261	0.005341	0.01	No	8	0	No	0.01	Param.
Barium (mg/L)	MW-3	0.78	0.33	2	No	8	0	No	0.004	NP (normality)
Barium (mg/L)	MW-12 (bg)	1.054	0.5886	2	No	8	0	No	0.01	Param.
Barium (mg/L)	MW-16	0.3728	0.152	2	No	8	0	No	0.01	Param.
Benzene (ug/L)	MW-16	1.6	0.269	5	No	8	25	No	0.004	NP (normality)
Cadmium (mg/L)	MW-16	0.000502	0.000096	0.005	No	8	62.5	No	0.004	NP (NDs)
Chlorobenzene (ug/L)	MW-3	2.867	1.245	100	No	8	25	No	0.01	Param.
Chlorobenzene (ug/L)	MW-16	1.08	0.5	100	No	8	62.5	No	0.004	NP (NDs)
Chloroethane (ug/L)	MW-16	1.96	1.072	2800	No	8	37.5	No	0.01	Param.
cis-1,2-Dichloroethene (ug/L)	MW-3	6.772	2.143	70	No	8	12.5	No	0.01	Param.
cis-1,2-Dichloroethene (ug/L)	MW-12 (bg)	2.51	0.5	70	No	8	62.5	No	0.004	NP (NDs)
cis-1,2-Dichloroethene (ug/L)	MW-16	1.85	0.25	70	No	8	37.5	No	0.004	NP (normality)
Cobalt (mg/L)	MW-3	0.000664	0.000246	0.0021	No	8	37.5	No	0.01	Param.
Cobalt (mg/L)	MW-16	0.0446	0.000521	0.0021	No	8	0	No	0.004	NP (normality)
Copper (mg/L)	MW-16	0.0055	0.0015	1.3	No	8	62.5	No	0.004	NP (NDs)
Nickel (mg/L)	MW-3	0.00584	0.002	0.1	No	8	37.5	No	0.004	NP (normality)
Nickel (mg/L)	MW-16	0.02247	0.006155	0.1	No	8	0	No	0.01	Param.
Tetrachloroethene (ug/L)	MW-12 (bg)	1.75	0.5	5	No	8	37.5	No	0.004	NP (normality)

Non-Parametric Confidence Interval

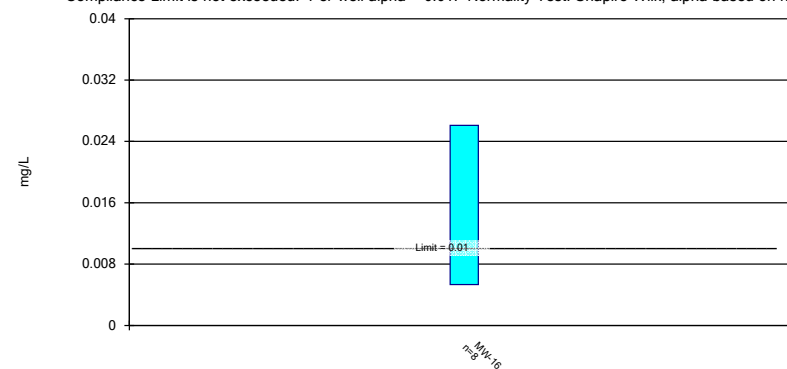
Compliance Limit is not exceeded.



Constituent: 1,4-Dichlorobenzene Analysis Run 12/1/2025 8:47 AM View: 2025_AWQR-Confidence_Inter
Guthrie County SLF Client: SCS Engineers Data: GCSLF_AM_2025_AWQR

Parametric Confidence Interval

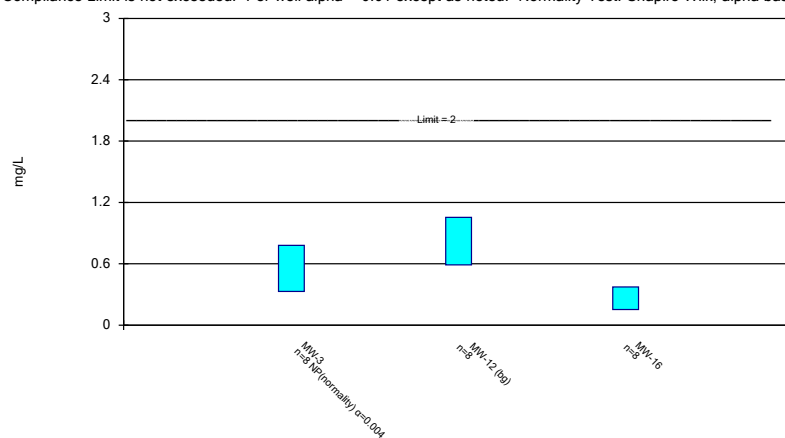
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Arsenic Analysis Run 12/1/2025 8:47 AM View: 2025_AWQR-Confidence_Interval
Guthrie County SLF Client: SCS Engineers Data: GCSLF_AM_2025_AWQR

Parametric and Non-Parametric (NP) Confidence Interval

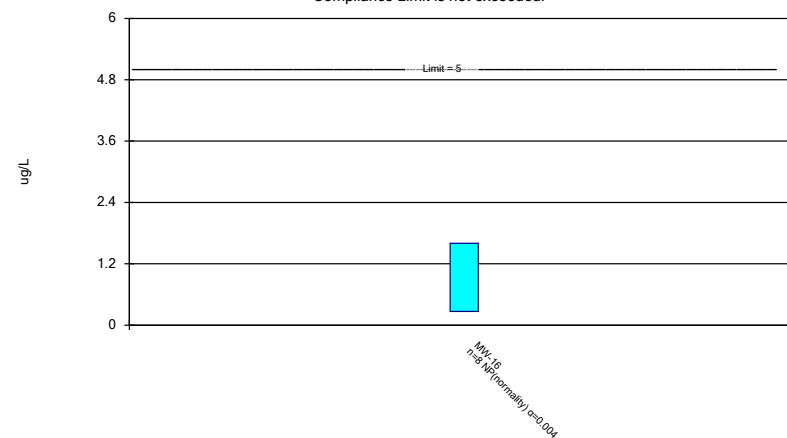
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.



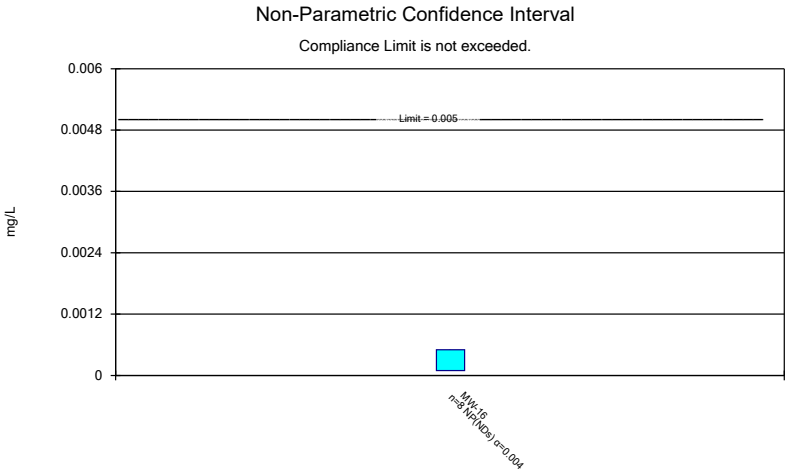
Constituent: Barium Analysis Run 12/1/2025 8:47 AM View: 2025_AWQR-Confidence_Interval
Guthrie County SLF Client: SCS Engineers Data: GCSLF_AM_2025_AWQR

Non-Parametric Confidence Interval

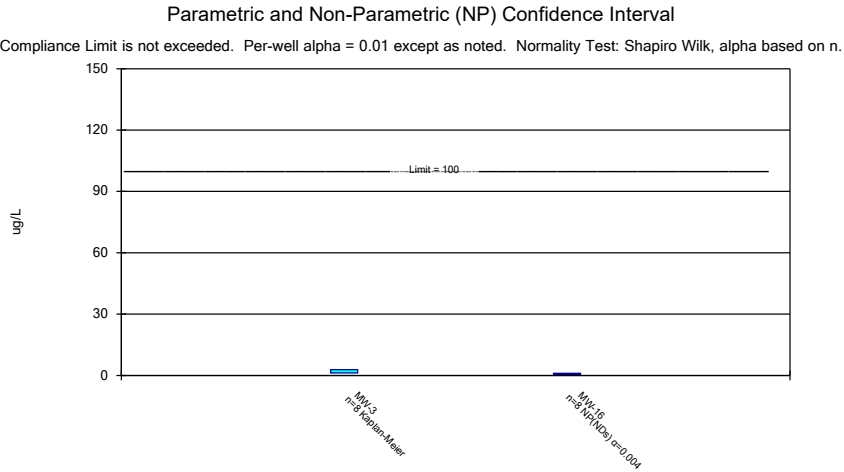
Compliance Limit is not exceeded.



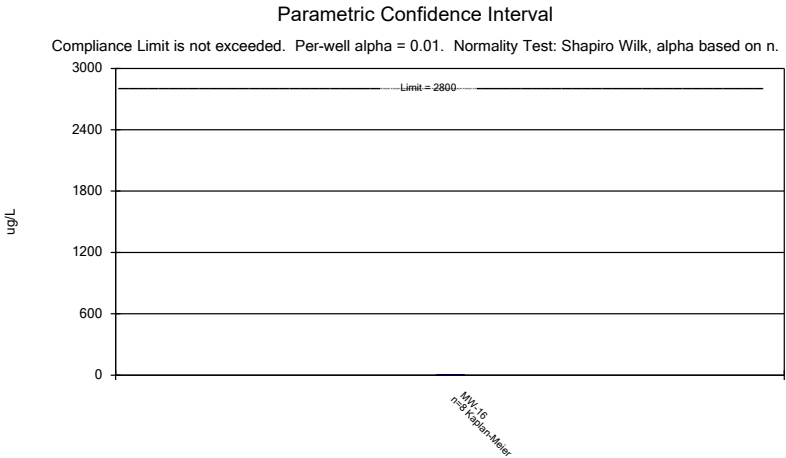
Constituent: Benzene Analysis Run 12/1/2025 8:47 AM View: 2025_AWQR-Confidence_Interval
Guthrie County SLF Client: SCS Engineers Data: GCSLF_AM_2025_AWQR



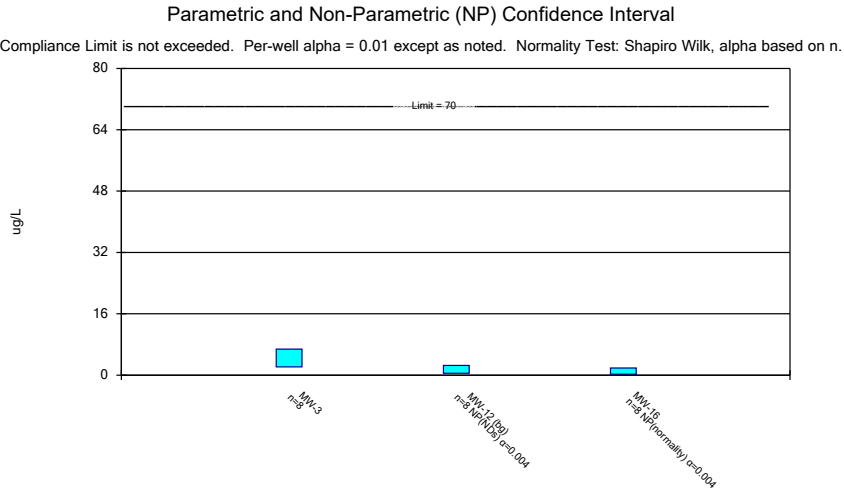
Constituent: Cadmium Analysis Run 12/1/2025 8:47 AM View: 2025_AWQR-Confidence_Interval
Guthrie County SLF Client: SCS Engineers Data: GCSLF_AM_2025_AWQR



Constituent: Chlorobenzene Analysis Run 12/1/2025 8:47 AM View: 2025_AWQR-Confidence_Interval
Guthrie County SLF Client: SCS Engineers Data: GCSLF_AM_2025_AWQR



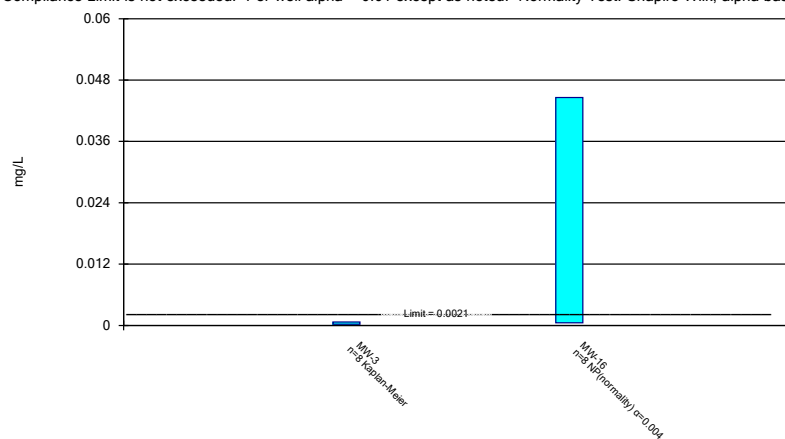
Constituent: Chloroethane Analysis Run 12/1/2025 8:47 AM View: 2025_AWQR-Confidence_Interval
Guthrie County SLF Client: SCS Engineers Data: GCSLF_AM_2025_AWQR



Constituent: cis-1,2-Dichloroethene Analysis Run 12/1/2025 8:47 AM View: 2025_AWQR-Confidence_Inte
Guthrie County SLF Client: SCS Engineers Data: GCSLF_AM_2025_AWQR

Parametric and Non-Parametric (NP) Confidence Interval

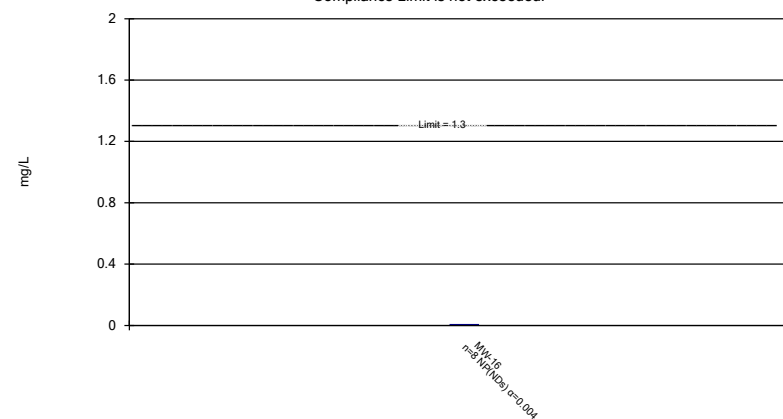
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Cobalt Analysis Run 12/1/2025 8:47 AM View: 2025_AWQR-Confidence_Interval
Guthrie County SLF Client: SCS Engineers Data: GCSLF_AM_2025_AWQR

Non-Parametric Confidence Interval

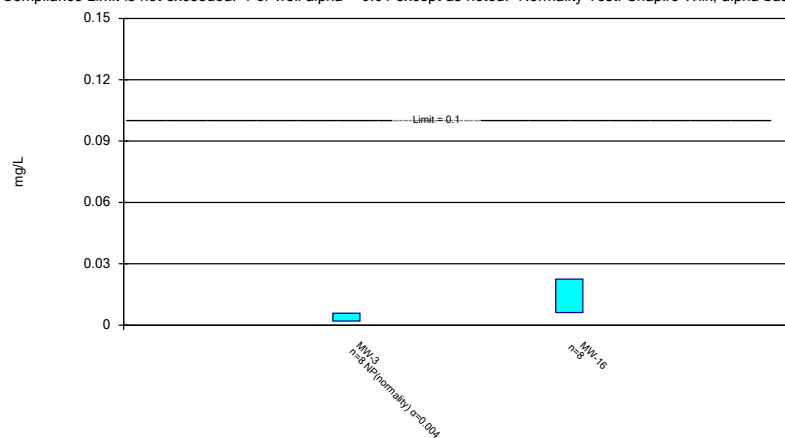
Compliance Limit is not exceeded.



Constituent: Copper Analysis Run 12/1/2025 8:47 AM View: 2025_AWQR-Confidence_Interval
Guthrie County SLF Client: SCS Engineers Data: GCSLF_AM_2025_AWQR

Parametric and Non-Parametric (NP) Confidence Interval

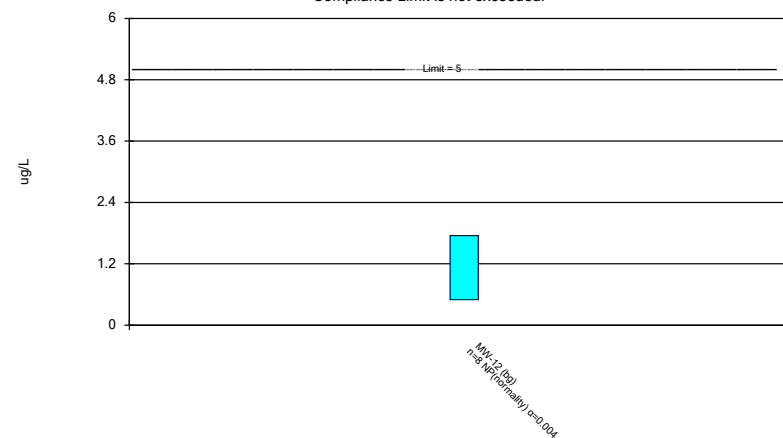
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Nickel Analysis Run 12/1/2025 8:47 AM View: 2025_AWQR-Confidence_Interval
Guthrie County SLF Client: SCS Engineers Data: GCSLF_AM_2025_AWQR

Non-Parametric Confidence Interval

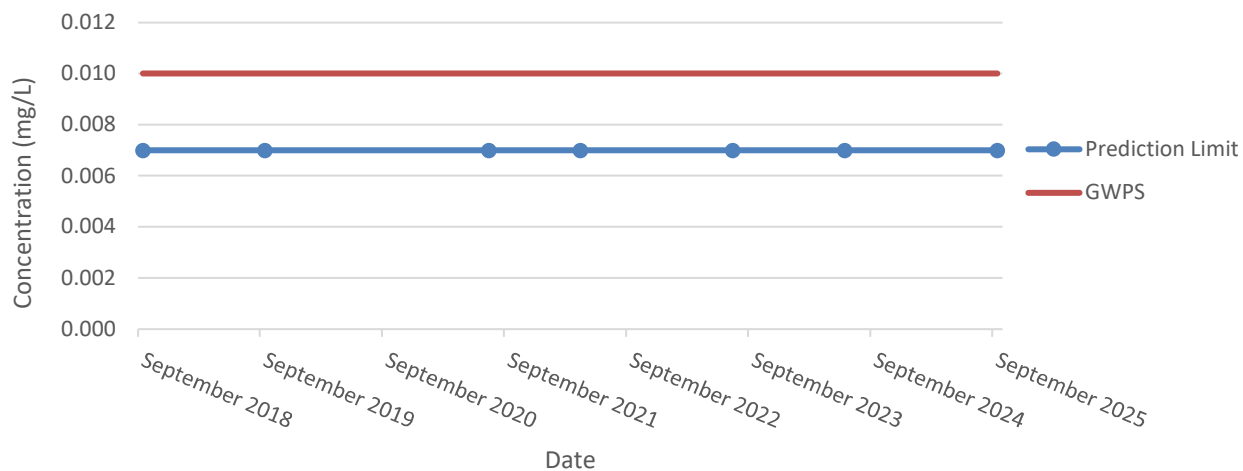
Compliance Limit is not exceeded.



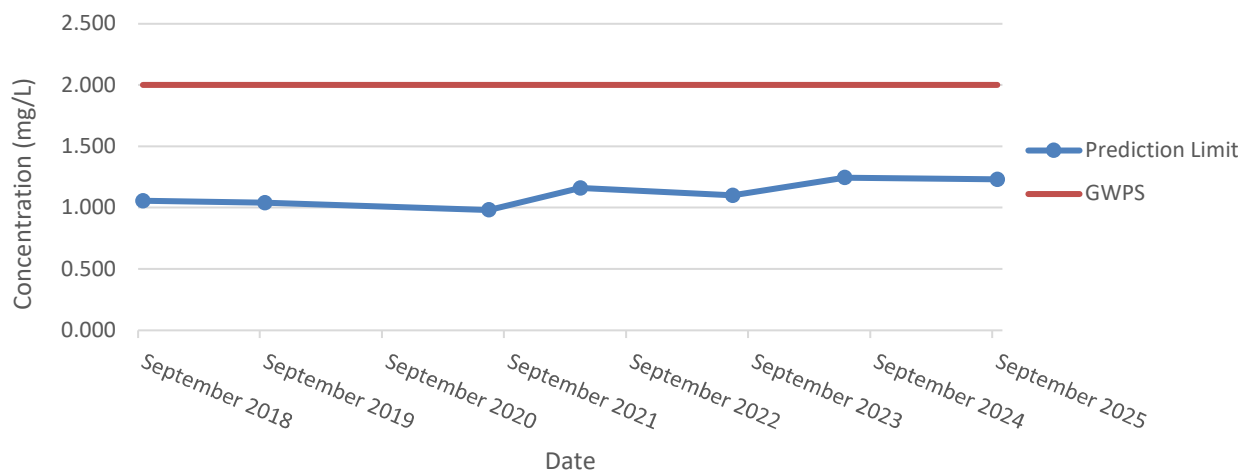
Constituent: Tetrachloroethene Analysis Run 12/1/2025 8:47 AM View: 2025_AWQR-Confidence_Interval
Guthrie County SLF Client: SCS Engineers Data: GCSLF_AM_2025_AWQR

Appendix E
Standards History Graphs

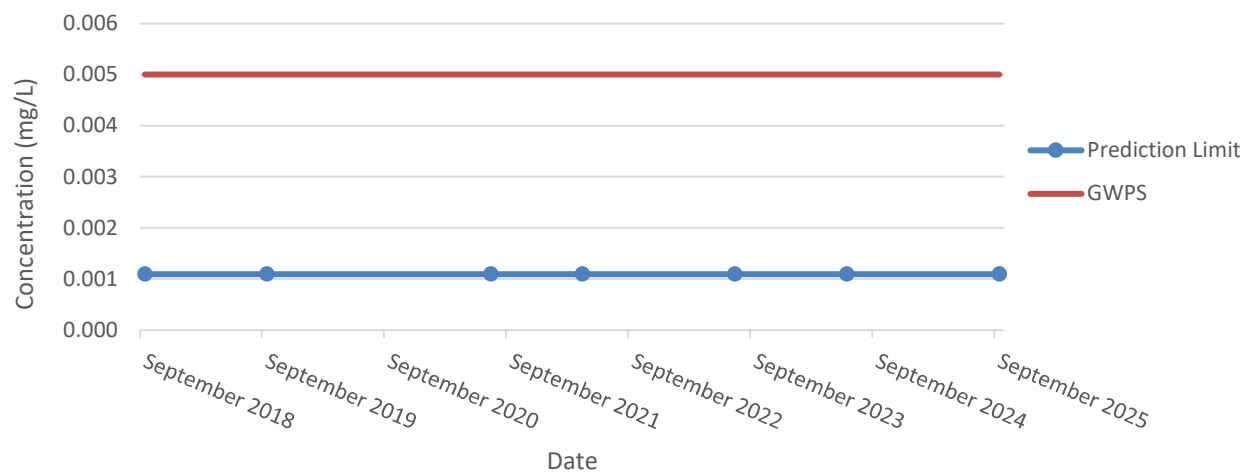
Arsenic
Prediction Limit and GWPS vs. Time



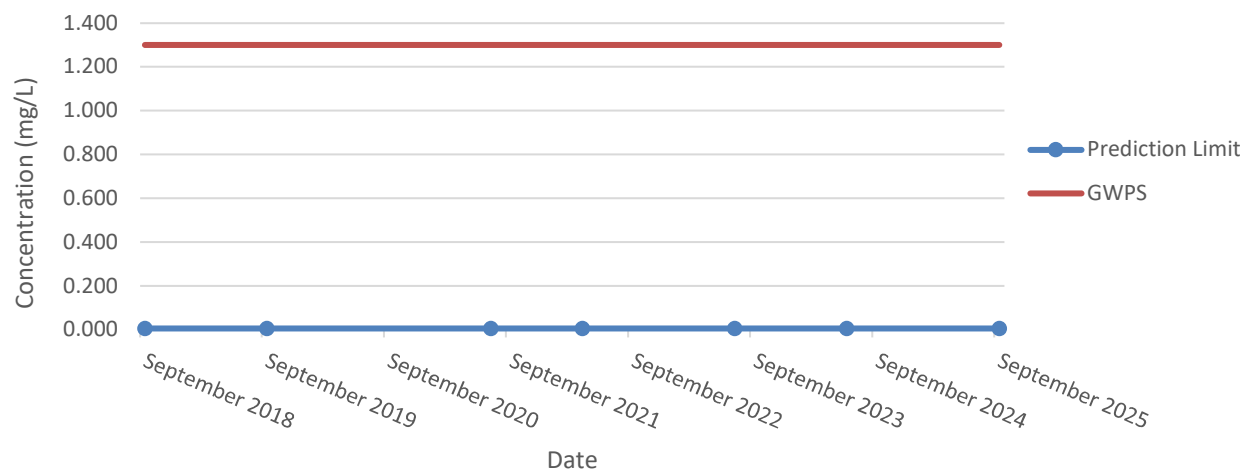
Barium
Prediction Limit and GWPS vs. Time



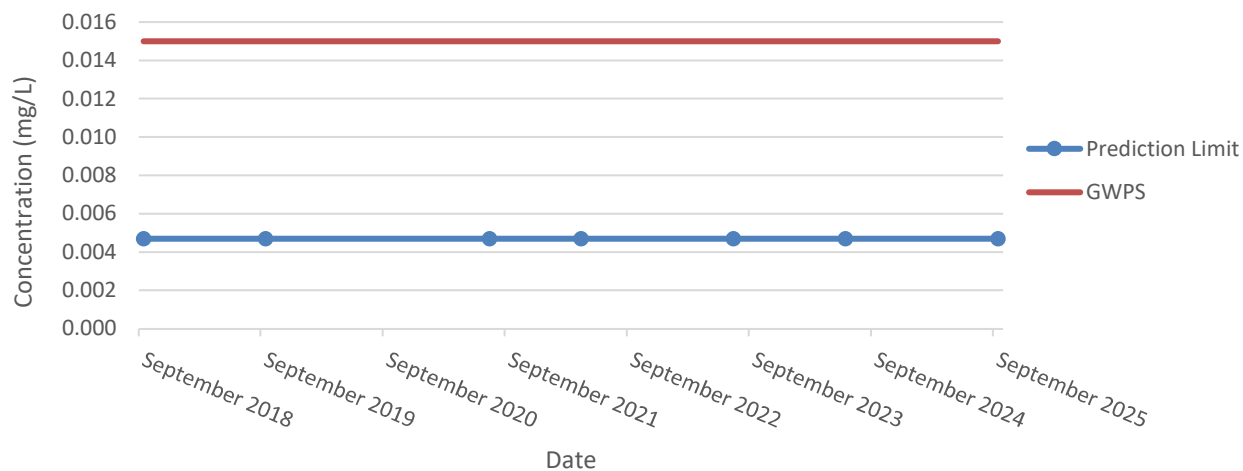
Cadmium Prediction Limit and GWPS vs. Time



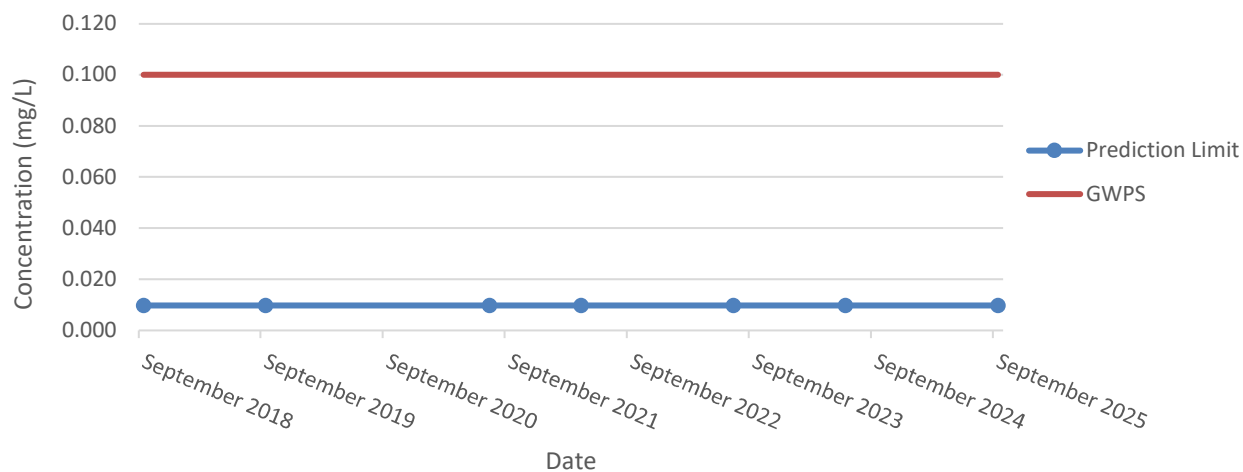
Copper Prediction Limit and GWPS vs. Time



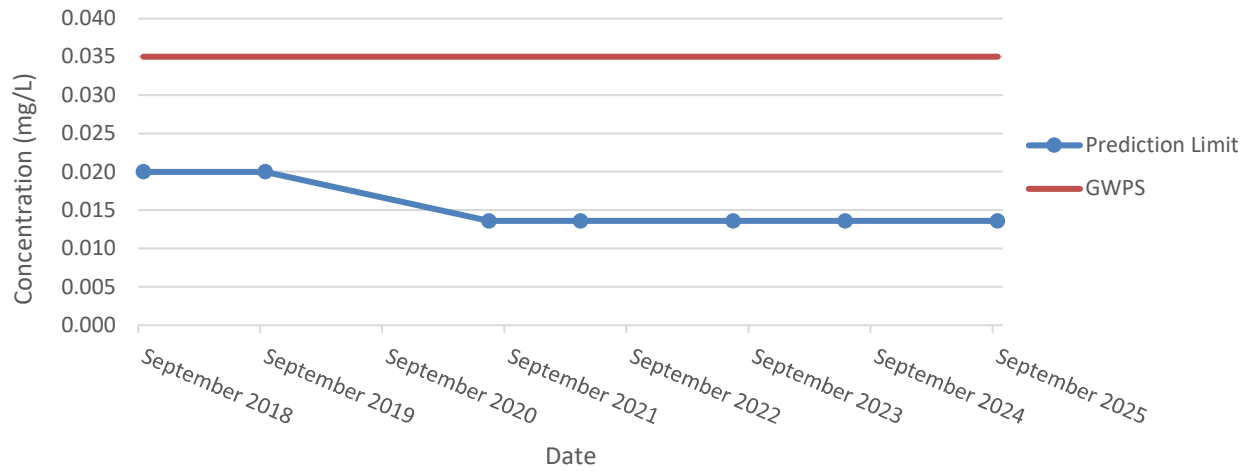
Lead Prediction Limit and GWPS vs. Time



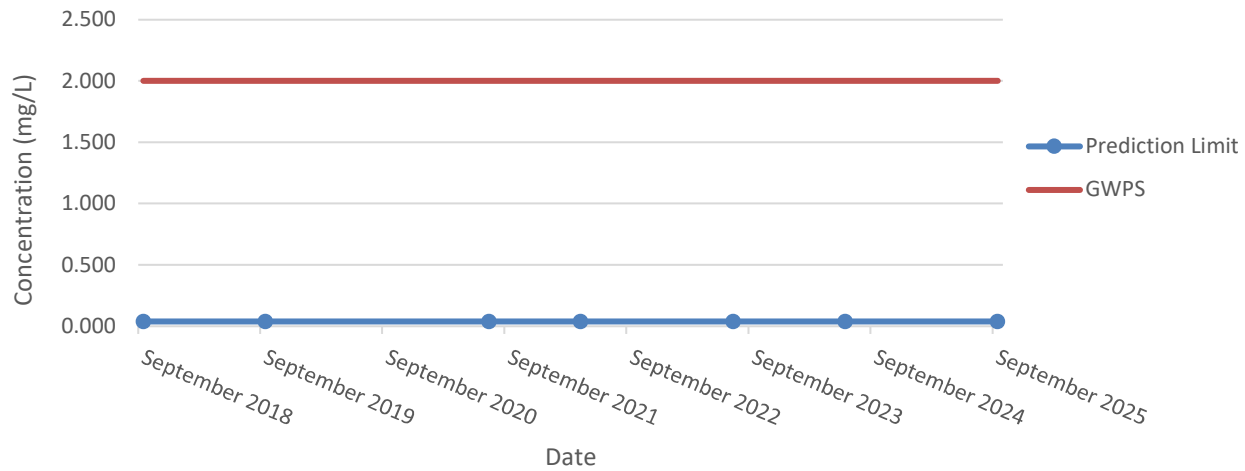
Nickel Prediction Limit and GWPS vs. Time



Vanadium
Prediction Limit and GWPS vs. Time



Zinc
Prediction Limit and GWPS vs. Time



Appendix F
Leachate Levels

Historical Leachate Levels
Guthrie County Sanitary Landfill

Date	PZ-1	PZ-2	PZ-3	PZ-4	PZ-5
1/2009	13.0	14.4	8.6	4.9	0.0
4/2009	12.4	13.6	8.2	5.0	0.0
7/2009	12.5	14.1	8.5	5.5	0.0
1/2010	12.7	13.5	8.7	5.3	0.0
4/2010	13.2	13.3	8.7	5.1	0.0
7/2010	12.4	13.3	8.7	5.1	0.0
10/2010	13.1	13.0	8.5	5.1	0.0
4/2011	12.1	13.5	8.6	5.7	0.0
7/2011	12.7	13.6	8.7	5.2	0.0
10/2011	12.1	13.0	8.2	5.2	0.0
1/2012	12.3	13.2	7.9	5.3	0.0
4/2012	11.5	12.8	8.3	5.3	0.0
8/2012	11.8	12.6	8.2	5.2	0.0
1/2013	12.1	13.0	8.2	5.2	0.0
4/2013	11.9	13.1	8.1	5.3	0.0
8/2013	11.3	12.9	8.6	5.4	0.0
1/2014	11.6	12.7	8.0	5.3	0.0
4/2014	11.0	13.0	7.7	5.8	0.0
7/2014	11.0	12.9	7.8	6.0	0.0
10/2014	11.2	12.8	8.5	6.9	0.0
1/2015	11.7	12.6	8.1	5.1	0.0
4/2015	10.9	13.1	7.6	11.2	0.0
7/2015	11.0	12.9	7.8	6.0	0.0
9/2015	11.4	13.2	8.4	6.9	0.0
1/2016	11.1	12.8	8.5	7.0	0.0
4/2016	11.0	12.9	9.1	7.0	0.0
7/2016	11.4	13.2	8.3	7.0	0.0
10/2016	11.4	13.3	8.3	7.1	0.0
1/2017	11.4	13.2	8.0	7.1	0.0
4/2017	11.9	14.0	9.7	7.2	0.0
8/2017	11.3	13.3	8.2	7.1	0.0
1/2018	12.1	13.9	8.3	7.3	0.0
8/2018	11.3	14.6	8.3	7.1	0.0
1/2019	11.4	13.2	9.3	7.3	0.0
3/2019	11.4	13.5	8.2	7.3	0.0
8/2019	11.6	13.3	8.3	6.9	0.0
3/2021	10.9	13.9	1.8	7.4	0.0
5/2021	12.3	13.9	2.2	7.4	0.0
6/2022	12.3	13.5	2.4	7.5	0.0
6/2023	22.9	18.0	6.4	6.7	0.0
8/2023	11.3	13.0	6.4	6.5	0.0
6/2024	9.4	11.7	5.0	5.7	0.0
8/2024	10.7	13.6	8.1	7.2	1.8
5/2025	10.4	12.5	8.3	6.9	0.7
10/2025	10.7	13.9	9.2	7.6	0.0

Leachate Head Levels

