

September 29, 2023
File No. 27223271.24

Mr. Brian Rath, P.E.
Iowa Department of Natural Resources
Land Quality Bureau
Wallace State Office Building
502 East 9th Street
Des Moines, Iowa 50319

Subject: 2023 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 2023. 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 2023 Annual Water Quality Report.

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

Sincerely,



Nathan Ohrt
Senior Project Professional
SCS Engineers

NPO/TCB



Timothy C. Buelow, P.E.
Project Director
SCS Engineers

Copies: Mr. Jotham Arber, Guthrie County Environmental Health



**2023 ANNUAL WATER QUALITY REPORT
FOR
GUTHRIE COUNTY SANITARY LANDFILL**

GUTHRIE CENTER, IOWA

SOLID WASTE PERMIT NUMBER: 39-SDP-01-73C

SUBMITTAL DATE: SEPTEMBER 2023

**PREPARED FOR:
GUTHRIE COUNTY ENVIRONMENTAL HEALTH**

**PREPARED BY:
SCS ENGINEERS**

CertificationPrepared by: Nathan OhrtDate: 9/29/2023

Typed: Nathan Ohrt

Reviewed by: Timothy C. BuelowDate: 9/29/2023

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> Timothy C. Buelow, P.E.	Date: <u>9/29/2023</u>
	License No. 14445	
	My license renewal date is December 31, 2023.	
	Pages or sheets covered by this seal: <u>All except Appendix B-1.</u>	

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Executive Summary

ES.1 Period of Report Coverage

SCS Engineers (SCS), on behalf of Guthrie County Environmental Health, has completed the required groundwater sampling of 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 2023 consisting of the July 2023 annual sampling event. This AWQR was prepared in accordance with the requirements of Iowa Administrative Code (IAC) 567-113.10(5 and 6), 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.
- 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 approval replaced the requirements in IAC 567-113.21 (effective January 15, 2003) for the Monitoring Well Maintenance and Performance Reevaluation Plan with the regulations in the current IAC 567-113.10(2)"f" (effective December 10, 2007).

ES.4 Comments

Two volatile organic compounds (VOCs) were detected each in monitoring wells assessment monitoring wells MW-3 and MW-12 and benzene was detected in corrective action monitoring well MW-16. Statistically significant increases (SSIs) above background for cobalt and nickel were measured in monitoring well MW-16. 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 limit for arsenic in monitoring well MW-16 was below the GWPS during this reporting period.

No SSIs were measured in the detection monitoring wells MW-5, MW-14, and MW-19 during this reporting period. Except for cobalt in monitoring well MW-16, there were no parameters with measured concentrations higher than the GWPSs.

Monitoring results for monitoring well MW-20, located downgradient of corrective action monitoring well MW-16 to delineate the area of impact of arsenic and cobalt, were non-detect for arsenic and cobalt during this reporting period and had no quantified concentrations during the 2021 and 2022 reporting periods, indicating the extent of impact near MW-16 is defined.

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Section 1.0

Acronyms/Abbreviations

ACM = Assessment of Corrective Measures
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
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

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Section 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 SW ¼ and NE ¼ 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 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.

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Section 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 July 2023 groundwater sampling event is included in Figure 2. Figure 2 indicates a generally northwesterly groundwater flow direction. Figure 2 also includes leachate level data measured in August 2023 next to the leachate piezometers, 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 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.

3.3 Figure 3 – Reporting Period Detection Summary

Figure 3 shows the range of measured concentrations by monitoring point for the monitoring wells for the 2023 reporting period. Further discussion of the detected constituents is included in Section 6.0 – Data Evaluation and Summary of this report.

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Section 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. 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.

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Section 5.0

QA/QC Summary

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

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Section 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 July 2023 sampling event. The statistical evaluation for samples collected during the July 2023 sampling event is located in Appendix D (Statistical Method and Output) of this report.

6.1 Data Evaluation

The groundwater monitoring network for the Landfill consists of groundwater monitoring wells located along the downgradient perimeters of the waste boundary. A map showing the measured concentrations by monitoring well (including the duplicate sample for MW-16) during the 2023 annual sampling event is included as Figure 3, Reporting Period Detection Summary.

Detection monitoring wells MW-5, MW-14, and MW-19 are sampled for Appendix I metals and total suspended solids (TSS). Four metals were detected in monitoring well MW-14, three metals were detected in monitoring well MW-19, and one metal was detected in monitoring well MW-5. None of the detected metals exceeded a GWPS.

Assessment monitoring well MW-3 and background/assessment monitoring well MW-12 each had a detection of barium and two volatile organic compounds (VOCs). Five metals and benzene were measured in corrective action monitoring well MW-16. No detected VOCs were above the associated GWPSs. The site-wide maximum concentrations for each detected constituent were measured in monitoring wells MW-3, MW-12, and MW-16.

As shown in Figure 3, 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. However, the leachate thickness in leachate piezometer PZ-3 decreased significantly during the March and May 2021 and June 2022 measurement events before increasing during the June and August 2023 measurements, though remaining below the historical range during the 2023 measurement events.

The June 2023 measurements in leachate piezometers PZ-1 and PZ-2 showed a significant spike in thickness before returning to the historical ranges during the August 2023 measurements. The June 2023 measurements for these piezometers are likely anomalous.

The leachate thickness in leachate piezometer PZ-4 remained steady around seven feet during this reporting period and leachate piezometer PZ-5 remained dry throughout this reporting period.

6.3 Landfill Gas Monitoring Summary

Semi-annual monitoring of the landfill gas probes was performed in March and July 2023 by SCS staff; no methane was detected. 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; no methane was detected during the first quarter and second quarter of 2023.

A summary of gas monitoring results is included in Table 12. A map of the methane monitoring locations is included in Figure 4. The third and fourth quarters of structure monitoring results will be reported in the 2024 AWQR.

Section 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, MW-12, and MW-16. 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. Apart from cobalt in MW-16, there were no GWPS exceedances measured during this reporting period.

7.2 Proposed Monitoring

Monitoring is proposed to continue in 2024 as summarized in the attached Table 2.

7.3 Proposed Monitoring Well Changes

No monitoring well changes are proposed at this time.

Tables

Table 1
Monitoring Program Summary
2023 Annual Water Quality Report
Guthrie County Sanitary Landfill
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Monitoring Well	Formation ⁽¹⁾	Current Monitoring Program	Change for next sampling event	Constituents with SSLs during the 2023 Reporting Period	Constituents with SSLs	Total Number of Samples in Each Monitoring Program since March 2010		
						Detection	Assessment	Corrective Action
HMSP Monitoring Wells								
MW-12	Sandy till	Background ⁽²⁾ /Assessment	None	Tetrachloroethene, cis-1,2-Dichloroethene	None		22	
MW-3	Till	Assessment	None	Chlorobenzene, cis-1,2-Dichloroethene	None		22	
MW-5	Till	Detection	None	None	Not applicable	22		
MW-14	Sandy till	Detection	None	None	Not applicable	22		
MW-16	Sandy till	Corrective Action	None	Cobalt, Nickel, Benzene	Arsenic, cobalt			22
MW-19	Sandy till	Detection	None	None	Not applicable	22		
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 monitoring well MW-12.

SSI = Statistically Significant Increase above background.

SSL = Statistically Significant Level above a groundwater protection standard.

Table 2
Monitoring Program Implementation Schedule
2023 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	
	7/14/2023	2024 Annual Event	2025 Annual Event	Previously Collected	Next Event
MW-12	Appendix I, TSS	Appendix I, TSS	Appendix I, TSS	4/2013, 4/2014, 4/2022	2027
MW-3	Appendix I, TSS	Appendix I, TSS	Appendix I, 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-14	Appendix I metals, TSS	Appendix I metals, TSS	Appendix I metals, TSS		Not applicable
MW-16	Appendix I, TSS	Appendix I, TSS	Appendix I, TSS	3/2011, 3/2012, 4/2017, 4/2022	2027
MW-19	Appendix I metals, 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.

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

Compliance with:	2021	2022	2023	2024	2025
567 IAC 113.10(2)"f"(1) high and low water levels	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	Completed	Completed	Included	Scheduled	Scheduled
567 IAC 113.10(2)"f"(4) well recharge rates and chemistry (biennial)	Completed		Included		Scheduled
Waste separation from groundwater 113.6(2)i	NA	NA	NA	NA	Scheduled

Comments: None.

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

Table 4
Monitoring Well Performance and Maintenance Summary
2023 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)	
					7/14/2023		Date	7/14/2023	
MW-12	1279.38	1259.60	29.9	Groundwater Level (ft)	17.42	1.9		0.150 7/14/2023	50%
				Groundwater Elevation (Ft MSL)	1261.96		0.1		
				Measured Well Depth (ft)	28.0		8/11/2015		
				Submerged screen	Y				
MW-3	1244.59	1232.10	21.5	Groundwater Level (ft)	12.60	1.0		0.175 7/14/2023	40%
				Groundwater Elevation (Ft MSL)	1231.99		0.125		
				Measured Well Depth (ft)	20.5		8/11/2015		
				Submerged screen	N				
MW-5	1217.54	1195.36	32.2	Groundwater Level (ft)	8.89	0.1		0.150 7/14/2023	50%
				Groundwater Elevation (Ft MSL)	1208.65		0.1		
				Measured Well Depth (ft)	32.1		8/11/2015		
				Submerged screen	Y				
MW-14	1231.39	1197.50	43.9	Groundwater Level (ft)	29.00	1.2		0.173 7/14/2023	93%
				Groundwater Elevation (Ft MSL)	1202.39		0.09		
				Measured Well Depth (ft)	42.7		8/11/2015		
				Submerged screen	Y				
MW-16	1198.82	1180.80	28.0	Groundwater Level (ft)	20.68	0.4		0.120 7/14/2023	71%
				Groundwater Elevation (Ft MSL)	1178.14		0.07		
				Measured Well Depth (ft)	27.6		8/11/2015		
				Submerged screen	N				
MW-19	1207.99	1195.32	27.7	Groundwater Level (ft)	16.46	0.1		0.147 7/14/2023	17%
				Groundwater Elevation (Ft MSL)	1191.53		0.125		
				Measured Well Depth (ft)	27.6		8/11/2015		
				Submerged screen	N				

Comments:

- 1) Measured well depths were within 1.9 feet of the installed depths. It appears siltation is not affecting the ability of the monitoring wells to produce representative samples.
- 2) As the monitoring well consistently produce samples, it does not appear the changes in flow rate are significantly impacting well performance.

Table 5
Background and GWPS Summary
2023 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
Inorganics										
Antimony (Sb)	mg/L	22	0	0.001 (1/2 RL)	0.001 (1/2 RL)	0.00100	<0.002	DQR	0.006	MCL
Arsenic (As)	mg/L	22	2	0.001 (1/2 RL)	0.007	0.00220	0.007	PL (NP)	0.01	MCL
Barium (Ba)	mg/L	22	22	0.264	1.17	0.64264	1.099	PL (P)	2	MCL
Beryllium (Be)	mg/L	22	0	0.0005 (1/2 RL)	0.002 (1/2 RL)	0.00180	<0.004	DQR	0.004	MCL
Cadmium (Cd)	mg/L	23	1	0.00005 (1/2 RL)	0.0011	0.00040	0.0011	PL (NP)	0.005	MCL
Chromium (Cr)	mg/L	22	0	0.0025 (1/2 RL)	0.01 (1/2 RL)	0.00416	<0.02	DQR	0.1	MCL
Cobalt (Co)	mg/L	22	0	0.0002 (1/2 RL)	0.002 (1/2 RL)	0.00105	<0.004	DQR	0.0021	SWS
Copper (Cu)	mg/L	22	3	0.00184*	0.0057	0.00236	0.0057	PL (NP)	1.3	MCL
Lead (Pb)	mg/L	22	1	0.00025 (1/2 RL)	0.0047	0.00188	0.0047	PL (NP)	0.015	MCL
Nickel (Ni)	mg/L	22	6	0.002 (1/2 RL)	0.0098	0.00342	0.0098	PL (NP)	0.1	SWS
Selenium (Se)	mg/L	22	0	0.002 (1/2 RL)	0.0025 (1/2 RL)	0.00207	<0.005	DQR	0.05	MCL
Silver (Ag)	mg/L	22	0	0.0005 (1/2 RL)	0.002 (1/2 RL)	0.00180	<0.004	DQR	0.1	SWS
Thallium (Tl)	mg/L	22	0	0.0005 (1/2 RL)	0.002 (1/2 RL)	0.00157	<0.004	DQR	0.002	MCL
Vanadium (V)	mg/L	22	1	0.0025 (1/2 RL)	0.0136	0.00891	0.0136	PL (NP)	0.035	SWS
Zinc (Zn)	mg/L	22	6	0.004 (1/2 RL)	0.0405	0.01070	0.0405	PL (NP)	2	SWS

Notes:

- 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 2023 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.

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
2023 Annual Water Quality Report
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Well	Constituent	Units	Most Recent Result	Background Standard
MW-12	cis-1,2-Dichloroethene	µg/L	1.75	<1
MW-16	Benzene	µg/L	0.831	<0.5

Notes:

1) This table represents constituent/well pairs with indicated SSIs during the 2023 reporting period that did not have indicated SSIs during the 2022 reporting period.

Comments:

- 1) Problems with the current detection network: None.
- 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
2023 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	cis-1,2-Dichloroethene	µg/L	3.51	<1	2.285	70	3/29/2010	NA	3/26/2012
	Chlorobenzene	µg/L	1.7	<1	1.137	100	3/26/2012	NA	3/26/2012
MW-5	None								
MW-12	cis-1,2-Dichloroethene	µg/L	1.75	<1	0.5	70	4/1/2014	NA	3/26/2012
	Tetrachloroethene	µg/L	1.74	<1	1.017	5	3/26/2012	NA	3/26/2012
MW-14	None								
MW-16	Cobalt	mg/L	0.01985	<0.004	0.002346	0.0021	7/14/2023	NA	3/26/2012
	Nickel	mg/L	0.02905	0.0098	0.008346	0.1	7/14/2023	NA	3/26/2012
	Benzene	µg/L	0.831	<0.5	0.2696	5	3/17/2009	NA	3/26/2012
MW-19	None								

Notes:

1) Shaded rows denote constituent/well pair with SSI indicated in 2023 that was not indicated in 2022. Unshaded rows denote constituent/well pairs with SSIs indicated during both the 2022 and 2023 reporting periods.

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
2023 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	0.00248	0.02656	0.01	2011	NA	NA	NA
	Cobalt	mg/L	0.01985	0.03052	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 confidence band, as appropriate, being below the GWPS.

Table 9
Summary of Groundwater Chemistry
2023 Annual Water Quality Report
Guthrie County Sanitary Landfill
Permit No. 39-SDP-01-73C

The Summary of Groundwater Chemistry is located in Appendix C.

Table 10
Historical SSI and SSL
2023 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
MW-3	1,4-Dichlorobenzene						
	Chlorobenzene						
	cis-1,2-Dichloroethene						
	Tetrachloroethene						
MW-12	Tetrachloroethene						
MW-16	Arsenic						
	Cobalt						
	Nickel						
	Benzene						
	Chlorobenzene						
	cis-1,2-Dichloroethene						
	Chloroethane						

Notes:

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

Table 11
Corrective Action Trend Analysis
2023 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	-8	-21	8	2027
	Cobalt	Increasing	6	21	8	NA

Notes:

N: Number of Samples

S: Mann-Kendall Statistic

NA: Not Applicable; a completion date cannot be calculated with an increasing trend.

Table 12
Gas Monitoring Summary
2023 Gas Monitoring Report
Guthrie County Sanitary Landfill
Permit No. 39-SDP-01-73C

Monitoring Points			Methane Results (% LEL)							
Name	Type	Description	3/6/2023		3/14/2023		6/25/2023		7/14/2023	
#1. Old Shop (blue)	Indoor	Inside Blue Building	0				0			
#2. New Shop (brown)	Indoor	Inside Brown Building	0				0			
#3. Office	Indoor	Inside Office	0				0			
#4. Transfer Station	Indoor	Inside Transfer Station	0				0			
#5. HHM Building	Indoor	Inside HHM building	0				0			
#6. Recycling Building	Indoor	Inside Recycling Building	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			0	Y			0	N
#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	N			0	N

Notes:

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

Results of the third and fourth quarter 2023 structure monitoring will be reported in the 2024 Annual Water Quality Report.

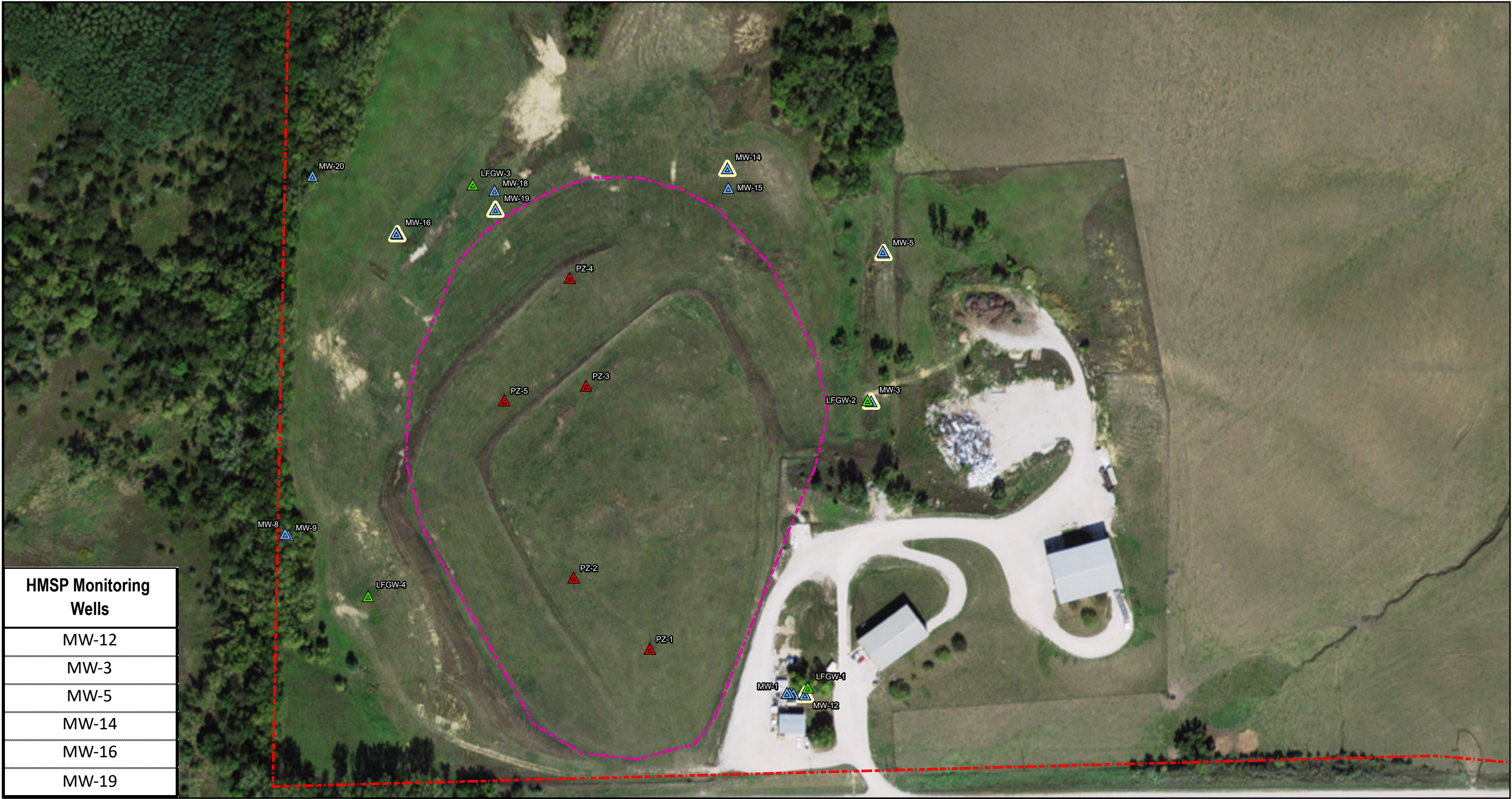
Structure monitoring is performed by facility staff.

Gas probe monitoring is performed by SCS.

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

Figures

Path: C:\Users\hmadison\OneDrive - SCS Engineers\Desktop\GIS\Map\Site Map\CCSI 101013 AMWOP\CCSI E-AMWOP 2023.aprx
User: hmadison
Date Saved: 8/14/2023 4:28 PM



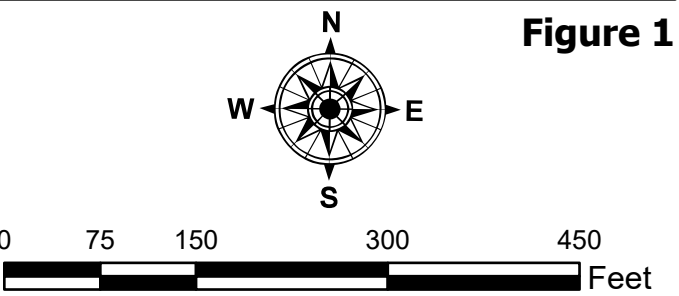
HMSP Monitoring Wells
MW-12
MW-3
MW-5
MW-14
MW-16
MW-19



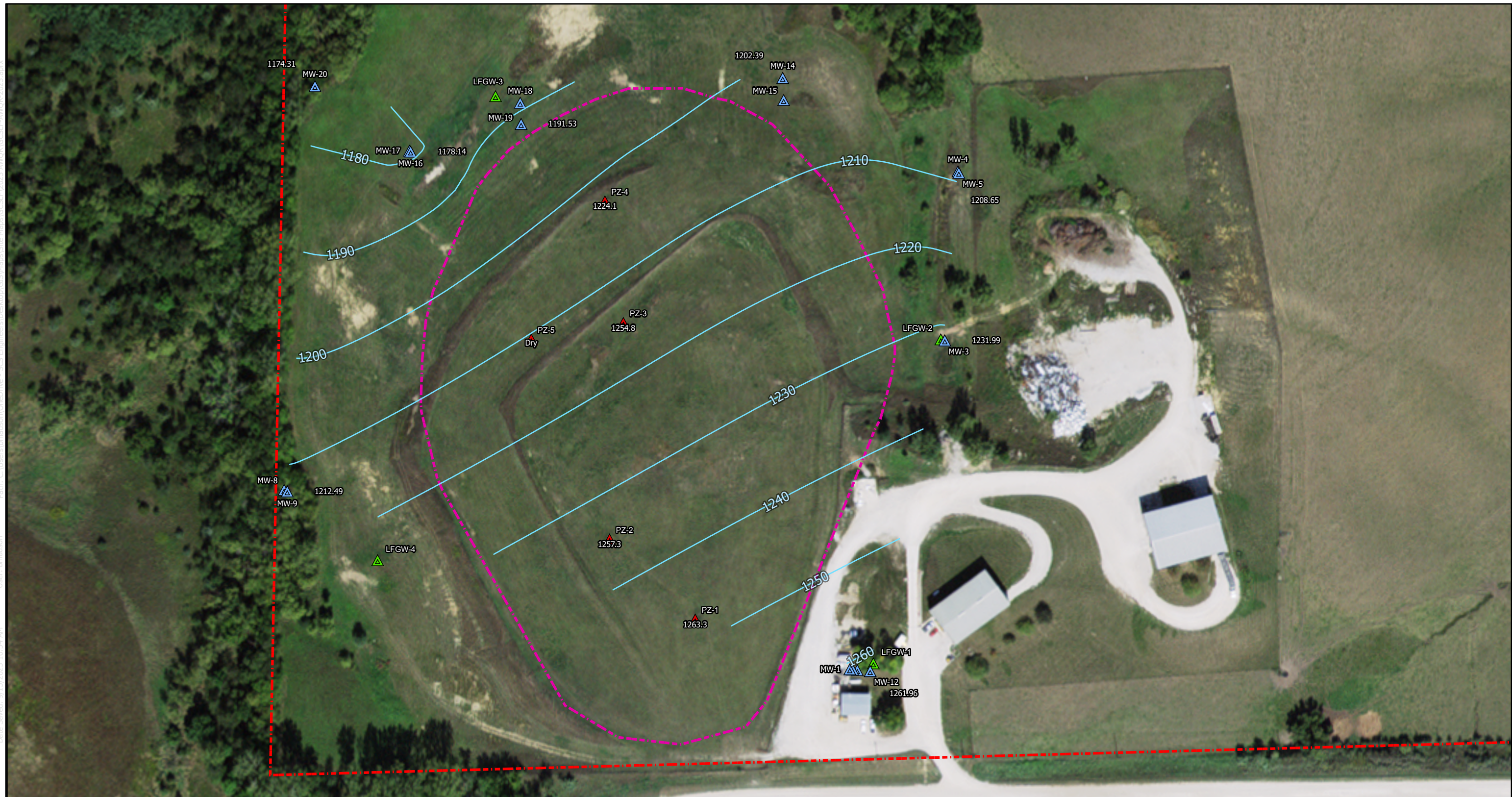
Approved Monitoring Network

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

Guthrie County
Sanitary Landfill
Guthrie Center, Iowa
Project No: 27223271.24
Drawing Date: August 2023



Path: C:\Users\hmadson\OneDrive - SCS Engineers\Desktop\GIS Maps\Site Maps\CCSI 27073 AMCOR\CCSI 27073 AMCOR\CCSI 27073 AMCOR 2023.aprx
User: hmadson
Date Saved: 9/15/2023 10:54 AM



Groundwater Contours

Legend

Approximate Groundwater Contours Based on Elevations Taken on July 14, 2023

Approximate Monitoring Well Location

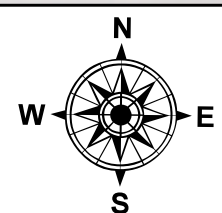
Approximate Methane Monitoring Point Location

Approximate Leachate Piezometer Location

Approximate Waste Boundary
Approximate Property Boundary

Guthrie County
Sanitary Landfill
Guthrie Center, Iowa
Project No: 27223271.24
Drawing Date: August 2023

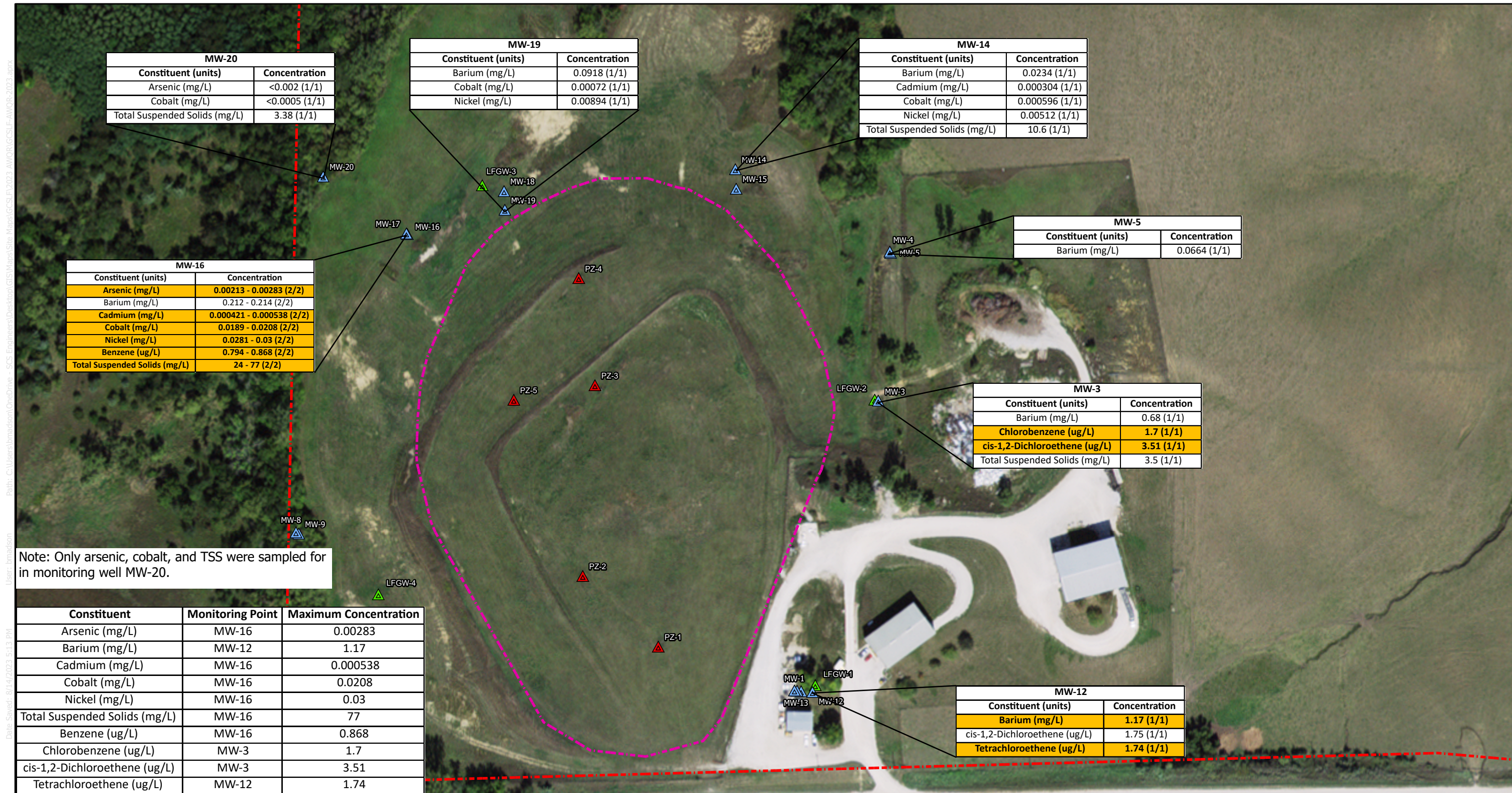
*Leachate levels measured by Landfill staff in August 2023 were not used in groundwater contour development.



0 65 130 260 390 Feet

Figure 2

Path: C:\Users\hmadani\OneDrive - SCS Engineers\Desktop\GIS\Map\Site Maps\CCSI 10103 - AMCOR\CSLE-AMCOR-2023.aprx
User: hmadani
Date Saved: 9/14/2023 5:12 PM

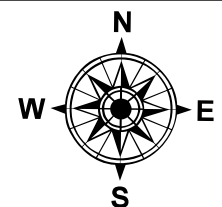


Reporting Period Detection Summary

Legend

- Approximate 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: 27223271.24
Drawing Date: August 2023



0 75 150 300 450
Feet

Figure 3

Appendix A
Field Sampling Forms

FORM FOR GROUNDWATER SAMPLING

Project: Guthrie County Sanitary Landfill	
Monitoring Well/Piezometer ID: MW-12	Date: 7/14/2023
Gradient: Up	Sampler: Scott Stoller

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):	17.42
Initial Groundwater Elevation (ft-amsl):	1261.96
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)	
4:22 PM	Purging start time.						
4:25 PM	14.3	3.1	1026.2	6.92	240.5	5.1	
4:28 PM	14.4	2.4	1022.8	6.85	237.5	4.9	
4:31 PM	14.8	2.2	1022.0	6.82	233.5	5.4	
4:34 PM	14.7	2.1	1021.1	6.81	230.3	6.6	
Parameters stabilized, sample collected.							

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

D. WELL MAINTENANCE

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

FORM FOR GROUNDWATER SAMPLING

[illegible]

FORM FOR GROUNDWATER SAMPLING

Project: Guthrie County Sanitary Landfill	
Monitoring Well/Piezometer ID: MW-5	Date: 7/14/2023
Gradient: Down	Sampler: Scott Stoller

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):	8.89
Initial Groundwater Elevation (ft-amsl):	1208.65
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)	
3:12 PM	Purging start time.						
3:15 PM	14.6	2.2	1049.5	7.02	237.2	12.8	
3:18 PM	14.4	1.7	1055.6	6.98	231.6	21.6	
3:21 PM	14.6	1.5	1054.9	6.96	226.6	22.9	
3:24 PM	13.9	1.4	1055.2	6.99	222.4	20.5	
Parameters stabilized, sample collected.							

Quantity of Water Removed from Well (liters):	1.8
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	15:00
Average Purge Rate (mL/min):	120.00

D. WELL MAINTENANCE

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

FORM FOR GROUNDWATER SAMPLING

[illegible]

FORM FOR GROUNDWATER SAMPLING

Project: Guthrie County Sanitary Landfill	
Monitoring Well/Piezometer ID: MW-16	Date: 7/14/2023
Gradient: Down	Sampler: Scott Stoller

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):	27.6
Initial Static Water Level (feet):	20.68
Initial Groundwater Elevation (ft-amsl):	1178.14
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)	
12:40 PM	Purging start time.						
12:43 PM	15.3	1.5	1357.2	6.33	121.0	7.6	
12:46 PM	14.9	0.9	1325.6	6.37	110.6	9.7	
12:49 PM	14.5	0.8	1349.9	6.38	104.6	9.4	
12:52 PM	14.6	0.7	1405.0	6.38	94.8	5.6	
12:52 PM	14.6	0.7	1409.6	6.38	94.3	5.6	
Parameters stabilized, sample collected.							

Quantity of Water Removed from Well (liters):	1.8
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	15:00
Average Purge Rate (mL/min):	120.00

D. WELL MAINTENANCE

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

FORM FOR GROUNDWATER SAMPLING

Project: Guthrie County Sanitary Landfill	
Monitoring Well/Piezometer ID: MW-19	Date: 7/14/2023
Gradient: Down	Sampler: Scott Stoller

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):	27.6
Initial Static Water Level (feet):	16.46
Initial Groundwater Elevation (ft-amsl):	1191.53
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)	
1:23 PM	Purging start time.						
1:26 PM	14.5	1.8	1280.9	6.76	138.4	5.3	
1:29 PM	14.3	0.9	1274.9	6.72	145.4	5.8	
1:32 PM	14.3	0.7	1274.1	6.69	149.2	4.5	
1:35 PM	14.5	0.6	1271.4	6.66	151.5	4.3	
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):	15:00
Average Purge Rate (mL/min):	146.67

D. WELL MAINTENANCE

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

FORM FOR GROUNDWATER SAMPLING

Project: Guthrie County Sanitary Landfill	
Monitoring Well/Piezometer ID: MW-20	Date: 7/14/2023
Gradient: Down	Sampler: Scott Stoller

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):	33.1
Initial Static Water Level (feet):	25.29
Initial Groundwater Elevation (ft-amsl):	1174.31
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)	
2:33 PM	Purging start time.						
2:36 PM	15.2	7.0	488.4	6.94	214.3	25.1	
2:39 PM	15.0	6.5	461.9	6.78	221.1	22.1	
2:42 PM	14.3	6.5	456.5	6.73	225.3	28.1	
2:45 PM	15.2	6.4	451.8	6.67	228.2	28.5	
Parameters stabilized, sample collected.							

Quantity of Water Removed from Well (liters):	1.5
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	15:00
Average Purge Rate (mL/min):	100.00

D. WELL MAINTENANCE

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

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 7/31/2023 6:29:18 PM

JOB DESCRIPTION

Guthrie County SLF

JOB NUMBER

310-260494-1

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
Meredith Liechti, Service Center Manager
meredith.liechti@et.eurofinsus.com
(319)277-2401

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Case Narrative

Client: SCS Engineers
Project/Site: Guthrie County SLF

Job ID: 310-260494-1

Job ID: 310-260494-1

Laboratory: Eurofins Cedar Falls

Narrative

Job Narrative 310-260494-1

Receipt

The samples were received on 7/17/2023 5:55 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 2.4°C

GC/MS VOA

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

Metals

Method 6020B: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 310-393948 and analytical batch 310-395205 recovered outside control limits for the following analytes: Silver. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

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

General Chemistry

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

Sample Summary

Client: SCS Engineers
Project/Site: Guthrie County SLF

Job ID: 310-260494-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-260494-1	MW-3	Water	07/14/23 15:58	07/17/23 17:55
310-260494-2	MW-12	Water	07/14/23 16:34	07/17/23 17:55
310-260494-3	MW-16	Water	07/14/23 12:52	07/17/23 17:55
310-260494-4	MW-5	Water	07/14/23 15:24	07/17/23 17:55
310-260494-5	MW-14	Water	07/14/23 14:15	07/17/23 17:55
310-260494-6	MW-19	Water	07/14/23 13:35	07/17/23 17:55
310-260494-7	MW-20	Water	07/14/23 14:45	07/17/23 17:55
310-260494-8	MW-D	Water	07/14/23 12:52	07/17/23 17:55

Detection Summary

Client: SCS Engineers
Project/Site: Guthrie County SLF

Job ID: 310-260494-1

Client Sample ID: MW-3

Lab Sample ID: 310-260494-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dichlorobenzene	0.883	J	1.00	0.230	ug/L	1		8260D	Total/NA
Chlorobenzene	1.70		1.00	0.400	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	3.51		1.00	0.210	ug/L	1		8260D	Total/NA
Barium	0.680		0.00200	0.000640	mg/L	1		6020B	Total/NA
Cobalt	0.000340	J	0.000500	0.000170	mg/L	1		6020B	Total/NA
Nickel	0.00220	J	0.00500	0.00190	mg/L	1		6020B	Total/NA
Thallium	0.000306	J	0.00100	0.000260	mg/L	1		6020B	Total/NA
Total Suspended Solids	3.50		1.88	0.638	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-12

Lab Sample ID: 310-260494-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	1.75		1.00	0.210	ug/L	1		8260D	Total/NA
Tetrachloroethene	1.74		1.00	0.480	ug/L	1		8260D	Total/NA
Barium	1.17		0.00200	0.000640	mg/L	1		6020B	Total/NA
Copper	0.00184	J	0.00500	0.00180	mg/L	1		6020B	Total/NA
Total Suspended Solids	1.13	J	1.88	0.638	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-16

Lab Sample ID: 310-260494-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.794		0.500	0.220	ug/L	1		8260D	Total/NA
Chlorobenzene	0.719	J	1.00	0.400	ug/L	1		8260D	Total/NA
Chloroethane	1.26	J	4.00	0.790	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	0.714	J	1.00	0.210	ug/L	1		8260D	Total/NA
Vinyl chloride	0.209	J	1.00	0.180	ug/L	1		8260D	Total/NA
Arsenic	0.00213		0.00200	0.000530	mg/L	1		6020B	Total/NA
Barium	0.214		0.00200	0.000640	mg/L	1		6020B	Total/NA
Cadmium	0.000538		0.000200	0.000100	mg/L	1		6020B	Total/NA
Cobalt	0.0208		0.000500	0.000170	mg/L	1		6020B	Total/NA
Nickel	0.0300		0.00500	0.00190	mg/L	1		6020B	Total/NA
Total Suspended Solids	24.0		7.50	2.55	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-5

Lab Sample ID: 310-260494-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.0664		0.00200	0.000640	mg/L	1		6020B	Total/NA
Cobalt	0.000170	J	0.000500	0.000170	mg/L	1		6020B	Total/NA
Total Suspended Solids	0.750	J	1.88	0.638	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-14

Lab Sample ID: 310-260494-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.000533	J	0.00200	0.000530	mg/L	1		6020B	Total/NA
Barium	0.0234		0.00200	0.000640	mg/L	1		6020B	Total/NA
Cadmium	0.000304		0.000200	0.000100	mg/L	1		6020B	Total/NA
Cobalt	0.000596		0.000500	0.000170	mg/L	1		6020B	Total/NA
Copper	0.00320	J	0.00500	0.00180	mg/L	1		6020B	Total/NA
Lead	0.000246	J	0.000500	0.000240	mg/L	1		6020B	Total/NA
Nickel	0.00512		0.00500	0.00190	mg/L	1		6020B	Total/NA
Vanadium	0.00123	J	0.00500	0.00110	mg/L	1		6020B	Total/NA
Total Suspended Solids	10.6		1.88	0.638	mg/L	1		I-3765-85	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Detection Summary

Client: SCS Engineers
Project/Site: Guthrie County SLF

Job ID: 310-260494-1

Client Sample ID: MW-19

Lab Sample ID: 310-260494-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.0918		0.00200	0.000640	mg/L	1		6020B	Total/NA
Cobalt	0.000720		0.000500	0.000170	mg/L	1		6020B	Total/NA
Nickel	0.00894		0.00500	0.00190	mg/L	1		6020B	Total/NA
Vanadium	0.00148	J	0.00500	0.00110	mg/L	1		6020B	Total/NA
Total Suspended Solids	1.25	J	1.88	0.638	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-20

Lab Sample ID: 310-260494-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Suspended Solids	3.38		1.88	0.638	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-D

Lab Sample ID: 310-260494-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.868		0.500	0.220	ug/L	1		8260D	Total/NA
Chlorobenzene	0.821	J	1.00	0.400	ug/L	1		8260D	Total/NA
Chloroethane	1.35	J	4.00	0.790	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	0.794	J	1.00	0.210	ug/L	1		8260D	Total/NA
Vinyl chloride	0.227	J	1.00	0.180	ug/L	1		8260D	Total/NA
Arsenic	0.00283		0.00200	0.000530	mg/L	1		6020B	Total/NA
Barium	0.212		0.00200	0.000640	mg/L	1		6020B	Total/NA
Cadmium	0.000421		0.000200	0.000100	mg/L	1		6020B	Total/NA
Cobalt	0.0189		0.000500	0.000170	mg/L	1		6020B	Total/NA
Nickel	0.0281		0.00500	0.00190	mg/L	1		6020B	Total/NA
Total Suspended Solids	77.0		15.0	5.10	mg/L	1		I-3765-85	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Client Sample Results

Client: SCS Engineers
Project/Site: Guthrie County SLF

Job ID: 310-260494-1

Client Sample ID: MW-3

Lab Sample ID: 310-260494-1

Date Collected: 07/14/23 15:58

Matrix: Water

Date Received: 07/17/23 17:55

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			07/19/23 17:45	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			07/19/23 17:45	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			07/19/23 17:45	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			07/19/23 17:45	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			07/19/23 17:45	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			07/19/23 17:45	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			07/19/23 17:45	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			07/19/23 17:45	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			07/19/23 17:45	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			07/19/23 17:45	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			07/19/23 17:45	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			07/19/23 17:45	1
1,4-Dichlorobenzene	0.883	J	1.00	0.230	ug/L			07/19/23 17:45	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			07/19/23 17:45	1
2-Hexanone	<10.0		10.0	2.00	ug/L			07/19/23 17:45	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			07/19/23 17:45	1
Acetone	<10.0		10.0	3.10	ug/L			07/19/23 17:45	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			07/19/23 17:45	1
Benzene	<0.500		0.500	0.220	ug/L			07/19/23 17:45	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			07/19/23 17:45	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			07/19/23 17:45	1
Bromoform	<5.00		5.00	0.780	ug/L			07/19/23 17:45	1
Bromomethane	<4.00		4.00	1.10	ug/L			07/19/23 17:45	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			07/19/23 17:45	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			07/19/23 17:45	1
Chlorobenzene	1.70		1.00	0.400	ug/L			07/19/23 17:45	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			07/19/23 17:45	1
Chloroethane	<4.00		4.00	0.790	ug/L			07/19/23 17:45	1
Chloroform	<3.00		3.00	1.30	ug/L			07/19/23 17:45	1
Chloromethane	<3.00		3.00	0.610	ug/L			07/19/23 17:45	1
cis-1,2-Dichloroethene	3.51		1.00	0.210	ug/L			07/19/23 17:45	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			07/19/23 17:45	1
Dibromomethane	<1.00		1.00	0.330	ug/L			07/19/23 17:45	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			07/19/23 17:45	1
Iodomethane	<10.0		10.0	7.00	ug/L			07/19/23 17:45	1
Methylene chloride	<5.00		5.00	1.70	ug/L			07/19/23 17:45	1
Styrene	<1.00		1.00	0.370	ug/L			07/19/23 17:45	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			07/19/23 17:45	1
Toluene	<1.00		1.00	0.430	ug/L			07/19/23 17:45	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			07/19/23 17:45	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			07/19/23 17:45	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			07/19/23 17:45	1
Trichloroethene	<1.00		1.00	0.430	ug/L			07/19/23 17:45	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			07/19/23 17:45	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			07/19/23 17:45	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			07/19/23 17:45	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			07/19/23 17:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	103		80 - 128		07/19/23 17:45	1

Eurofins Cedar Falls

Client Sample Results

Client: SCS Engineers
Project/Site: Guthrie County SLF

Job ID: 310-260494-1

Client Sample ID: MW-3

Lab Sample ID: 310-260494-1

Date Collected: 07/14/23 15:58

Matrix: Water

Date Received: 07/17/23 17:55

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	96		80 - 120		07/19/23 17:45	1
4-Bromofluorobenzene (Surr)	99		80 - 120		07/19/23 17:45	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		07/19/23 09:30	07/31/23 12:07	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		07/19/23 09:30	07/31/23 12:07	1
Barium	0.680		0.00200	0.000640	mg/L		07/19/23 09:30	07/31/23 12:07	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		07/19/23 09:30	07/31/23 12:07	1
Cadmium	<0.000200		0.000200	0.000100	mg/L		07/19/23 09:30	07/31/23 12:07	1
Chromium	<0.00500		0.00500	0.00110	mg/L		07/19/23 09:30	07/31/23 12:07	1
Cobalt	0.000340	J	0.000500	0.000170	mg/L		07/19/23 09:30	07/31/23 12:07	1
Copper	<0.00500		0.00500	0.00180	mg/L		07/19/23 09:30	07/31/23 12:07	1
Lead	<0.000500		0.000500	0.000240	mg/L		07/19/23 09:30	07/31/23 12:07	1
Nickel	0.00220	J	0.00500	0.00190	mg/L		07/19/23 09:30	07/31/23 12:07	1
Selenium	<0.00500		0.00500	0.00140	mg/L		07/19/23 09:30	07/31/23 12:07	1
Silver	<0.00100	F1 *+	0.00100	0.000500	mg/L		07/19/23 09:30	07/31/23 12:07	1
Thallium	0.000306	J	0.00100	0.000260	mg/L		07/19/23 09:30	07/31/23 12:07	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		07/19/23 09:30	07/31/23 12:07	1
Zinc	<0.0200		0.0200	0.00640	mg/L		07/19/23 09:30	07/31/23 12:07	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	0.638	mg/L			07/19/23 20:36	1

Client Sample Results

Client: SCS Engineers
Project/Site: Guthrie County SLF

Job ID: 310-260494-1

Client Sample ID: MW-12

Lab Sample ID: 310-260494-2

Date Collected: 07/14/23 16:34

Matrix: Water

Date Received: 07/17/23 17:55

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			07/19/23 18:06	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			07/19/23 18:06	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			07/19/23 18:06	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			07/19/23 18:06	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			07/19/23 18:06	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			07/19/23 18:06	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			07/19/23 18:06	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			07/19/23 18:06	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			07/19/23 18:06	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			07/19/23 18:06	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			07/19/23 18:06	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			07/19/23 18:06	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			07/19/23 18:06	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			07/19/23 18:06	1
2-Hexanone	<10.0		10.0	2.00	ug/L			07/19/23 18:06	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			07/19/23 18:06	1
Acetone	<10.0		10.0	3.10	ug/L			07/19/23 18:06	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			07/19/23 18:06	1
Benzene	<0.500		0.500	0.220	ug/L			07/19/23 18:06	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			07/19/23 18:06	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			07/19/23 18:06	1
Bromoform	<5.00		5.00	0.780	ug/L			07/19/23 18:06	1
Bromomethane	<4.00		4.00	1.10	ug/L			07/19/23 18:06	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			07/19/23 18:06	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			07/19/23 18:06	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			07/19/23 18:06	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			07/19/23 18:06	1
Chloroethane	<4.00		4.00	0.790	ug/L			07/19/23 18:06	1
Chloroform	<3.00		3.00	1.30	ug/L			07/19/23 18:06	1
Chloromethane	<3.00		3.00	0.610	ug/L			07/19/23 18:06	1
cis-1,2-Dichloroethene	1.75		1.00	0.210	ug/L			07/19/23 18:06	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			07/19/23 18:06	1
Dibromomethane	<1.00		1.00	0.330	ug/L			07/19/23 18:06	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			07/19/23 18:06	1
Iodomethane	<10.0		10.0	7.00	ug/L			07/19/23 18:06	1
Methylene chloride	<5.00		5.00	1.70	ug/L			07/19/23 18:06	1
Styrene	<1.00		1.00	0.370	ug/L			07/19/23 18:06	1
Tetrachloroethene	1.74		1.00	0.480	ug/L			07/19/23 18:06	1
Toluene	<1.00		1.00	0.430	ug/L			07/19/23 18:06	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			07/19/23 18:06	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			07/19/23 18:06	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			07/19/23 18:06	1
Trichloroethene	<1.00		1.00	0.430	ug/L			07/19/23 18:06	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			07/19/23 18:06	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			07/19/23 18:06	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			07/19/23 18:06	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			07/19/23 18:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	104		80 - 128		07/19/23 18:06	1

Eurofins Cedar Falls

Client Sample Results

Client: SCS Engineers
Project/Site: Guthrie County SLF

Job ID: 310-260494-1

Client Sample ID: MW-12

Lab Sample ID: 310-260494-2

Date Collected: 07/14/23 16:34

Matrix: Water

Date Received: 07/17/23 17:55

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	97		80 - 120		07/19/23 18:06	1
4-Bromofluorobenzene (Surr)	100		80 - 120		07/19/23 18:06	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		07/19/23 09:30	07/31/23 12:32	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		07/19/23 09:30	07/31/23 12:32	1
Barium	1.17		0.00200	0.000640	mg/L		07/19/23 09:30	07/31/23 12:32	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		07/19/23 09:30	07/31/23 12:32	1
Cadmium	<0.000200		0.000200	0.000100	mg/L		07/19/23 09:30	07/31/23 12:32	1
Chromium	<0.00500		0.00500	0.00110	mg/L		07/19/23 09:30	07/31/23 12:32	1
Cobalt	<0.000500		0.000500	0.000170	mg/L		07/19/23 09:30	07/31/23 12:32	1
Copper	0.00184	J	0.00500	0.00180	mg/L		07/19/23 09:30	07/31/23 12:32	1
Lead	<0.000500		0.000500	0.000240	mg/L		07/19/23 09:30	07/31/23 12:32	1
Nickel	<0.00500		0.00500	0.00190	mg/L		07/19/23 09:30	07/31/23 12:32	1
Selenium	<0.00500		0.00500	0.00140	mg/L		07/19/23 09:30	07/31/23 12:32	1
Silver	<0.00100	*+	0.00100	0.000500	mg/L		07/19/23 09:30	07/31/23 12:32	1
Thallium	<0.00100		0.00100	0.000260	mg/L		07/19/23 09:30	07/31/23 12:32	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		07/19/23 09:30	07/31/23 12:32	1
Zinc	<0.0200		0.0200	0.00640	mg/L		07/19/23 09:30	07/31/23 12:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	1.13	J	1.88	0.638	mg/L			07/20/23 08:17	1

Client Sample Results

Client: SCS Engineers
Project/Site: Guthrie County SLF

Job ID: 310-260494-1

Client Sample ID: MW-16

Lab Sample ID: 310-260494-3

Date Collected: 07/14/23 12:52

Matrix: Water

Date Received: 07/17/23 17:55

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			07/19/23 18:28	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			07/19/23 18:28	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			07/19/23 18:28	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			07/19/23 18:28	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			07/19/23 18:28	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			07/19/23 18:28	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			07/19/23 18:28	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			07/19/23 18:28	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			07/19/23 18:28	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			07/19/23 18:28	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			07/19/23 18:28	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			07/19/23 18:28	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			07/19/23 18:28	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			07/19/23 18:28	1
2-Hexanone	<10.0		10.0	2.00	ug/L			07/19/23 18:28	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			07/19/23 18:28	1
Acetone	<10.0		10.0	3.10	ug/L			07/19/23 18:28	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			07/19/23 18:28	1
Benzene	0.794		0.500	0.220	ug/L			07/19/23 18:28	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			07/19/23 18:28	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			07/19/23 18:28	1
Bromoform	<5.00		5.00	0.780	ug/L			07/19/23 18:28	1
Bromomethane	<4.00		4.00	1.10	ug/L			07/19/23 18:28	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			07/19/23 18:28	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			07/19/23 18:28	1
Chlorobenzene	0.719 J		1.00	0.400	ug/L			07/19/23 18:28	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			07/19/23 18:28	1
Chloroethane	1.26 J		4.00	0.790	ug/L			07/19/23 18:28	1
Chloroform	<3.00		3.00	1.30	ug/L			07/19/23 18:28	1
Chloromethane	<3.00		3.00	0.610	ug/L			07/19/23 18:28	1
cis-1,2-Dichloroethene	0.714 J		1.00	0.210	ug/L			07/19/23 18:28	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			07/19/23 18:28	1
Dibromomethane	<1.00		1.00	0.330	ug/L			07/19/23 18:28	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			07/19/23 18:28	1
Iodomethane	<10.0		10.0	7.00	ug/L			07/19/23 18:28	1
Methylene chloride	<5.00		5.00	1.70	ug/L			07/19/23 18:28	1
Styrene	<1.00		1.00	0.370	ug/L			07/19/23 18:28	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			07/19/23 18:28	1
Toluene	<1.00		1.00	0.430	ug/L			07/19/23 18:28	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			07/19/23 18:28	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			07/19/23 18:28	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			07/19/23 18:28	1
Trichloroethene	<1.00		1.00	0.430	ug/L			07/19/23 18:28	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			07/19/23 18:28	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			07/19/23 18:28	1
Vinyl chloride	0.209 J		1.00	0.180	ug/L			07/19/23 18:28	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			07/19/23 18:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	105		80 - 128		07/19/23 18:28	1

Eurofins Cedar Falls

Client Sample Results

Client: SCS Engineers
Project/Site: Guthrie County SLF

Job ID: 310-260494-1

Client Sample ID: MW-16

Lab Sample ID: 310-260494-3

Date Collected: 07/14/23 12:52

Matrix: Water

Date Received: 07/17/23 17:55

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	95		80 - 120		07/19/23 18:28	1
4-Bromofluorobenzene (Surr)	101		80 - 120		07/19/23 18:28	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		07/19/23 09:30	07/31/23 12:34	1
Arsenic	0.00213		0.00200	0.000530	mg/L		07/19/23 09:30	07/31/23 12:34	1
Barium	0.214		0.00200	0.000640	mg/L		07/19/23 09:30	07/31/23 12:34	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		07/19/23 09:30	07/31/23 12:34	1
Cadmium	0.000538		0.000200	0.000100	mg/L		07/19/23 09:30	07/31/23 12:34	1
Chromium	<0.00500		0.00500	0.00110	mg/L		07/19/23 09:30	07/31/23 12:34	1
Cobalt	0.0208		0.000500	0.000170	mg/L		07/19/23 09:30	07/31/23 12:34	1
Copper	<0.00500		0.00500	0.00180	mg/L		07/19/23 09:30	07/31/23 12:34	1
Lead	<0.000500		0.000500	0.000240	mg/L		07/19/23 09:30	07/31/23 12:34	1
Nickel	0.0300		0.00500	0.00190	mg/L		07/19/23 09:30	07/31/23 12:34	1
Selenium	<0.00500		0.00500	0.00140	mg/L		07/19/23 09:30	07/31/23 12:34	1
Silver	<0.00100	+	0.00100	0.000500	mg/L		07/19/23 09:30	07/31/23 12:34	1
Thallium	<0.00100		0.00100	0.000260	mg/L		07/19/23 09:30	07/31/23 12:34	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		07/19/23 09:30	07/31/23 12:34	1
Zinc	<0.0200		0.0200	0.00640	mg/L		07/19/23 09:30	07/31/23 12:34	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	24.0		7.50	2.55	mg/L			07/20/23 08:17	1

Client Sample Results

Client: SCS Engineers
Project/Site: Guthrie County SLF

Job ID: 310-260494-1

Client Sample ID: MW-5

Lab Sample ID: 310-260494-4

Date Collected: 07/14/23 15:24

Matrix: Water

Date Received: 07/17/23 17:55

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		07/19/23 09:30	07/31/23 12:37	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		07/19/23 09:30	07/31/23 12:37	1
Barium	0.0664		0.00200	0.000640	mg/L		07/19/23 09:30	07/31/23 12:37	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		07/19/23 09:30	07/31/23 12:37	1
Cadmium	<0.000200		0.000200	0.000100	mg/L		07/19/23 09:30	07/31/23 12:37	1
Chromium	<0.00500		0.00500	0.00110	mg/L		07/19/23 09:30	07/31/23 12:37	1
Cobalt	0.000170	J	0.000500	0.000170	mg/L		07/19/23 09:30	07/31/23 12:37	1
Copper	<0.00500		0.00500	0.00180	mg/L		07/19/23 09:30	07/31/23 12:37	1
Lead	<0.000500		0.000500	0.000240	mg/L		07/19/23 09:30	07/31/23 12:37	1
Nickel	<0.00500		0.00500	0.00190	mg/L		07/19/23 09:30	07/31/23 12:37	1
Selenium	<0.00500		0.00500	0.00140	mg/L		07/19/23 09:30	07/31/23 12:37	1
Silver	<0.00100	*+	0.00100	0.000500	mg/L		07/19/23 09:30	07/31/23 12:37	1
Thallium	<0.00100		0.00100	0.000260	mg/L		07/19/23 09:30	07/31/23 12:37	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		07/19/23 09:30	07/31/23 12:37	1
Zinc	<0.0200		0.0200	0.00640	mg/L		07/19/23 09:30	07/31/23 12:37	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	0.750	J	1.88	0.638	mg/L			07/19/23 20:36	1

Client Sample Results

Client: SCS Engineers
Project/Site: Guthrie County SLF

Job ID: 310-260494-1

Client Sample ID: MW-14

Lab Sample ID: 310-260494-5

Date Collected: 07/14/23 14:15

Matrix: Water

Date Received: 07/17/23 17:55

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		07/19/23 09:30	07/31/23 12:39	1
Arsenic	0.000533	J	0.00200	0.000530	mg/L		07/19/23 09:30	07/31/23 12:39	1
Barium	0.0234		0.00200	0.000640	mg/L		07/19/23 09:30	07/31/23 12:39	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		07/19/23 09:30	07/31/23 12:39	1
Cadmium	0.000304		0.000200	0.000100	mg/L		07/19/23 09:30	07/31/23 12:39	1
Chromium	<0.00500		0.00500	0.00110	mg/L		07/19/23 09:30	07/31/23 12:39	1
Cobalt	0.000596		0.000500	0.000170	mg/L		07/19/23 09:30	07/31/23 12:39	1
Copper	0.00320	J	0.00500	0.00180	mg/L		07/19/23 09:30	07/31/23 12:39	1
Lead	0.000246	J	0.000500	0.000240	mg/L		07/19/23 09:30	07/31/23 12:39	1
Nickel	0.00512		0.00500	0.00190	mg/L		07/19/23 09:30	07/31/23 12:39	1
Selenium	<0.00500		0.00500	0.00140	mg/L		07/19/23 09:30	07/31/23 12:39	1
Silver	<0.00100	*+	0.00100	0.000500	mg/L		07/19/23 09:30	07/31/23 12:39	1
Thallium	<0.00100		0.00100	0.000260	mg/L		07/19/23 09:30	07/31/23 12:39	1
Vanadium	0.00123	J	0.00500	0.00110	mg/L		07/19/23 09:30	07/31/23 12:39	1
Zinc	<0.0200		0.0200	0.00640	mg/L		07/19/23 09:30	07/31/23 12:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	10.6		1.88	0.638	mg/L			07/20/23 08:17	1

Client Sample Results

Client: SCS Engineers
Project/Site: Guthrie County SLF

Job ID: 310-260494-1

Client Sample ID: MW-19

Lab Sample ID: 310-260494-6

Date Collected: 07/14/23 13:35

Matrix: Water

Date Received: 07/17/23 17:55

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		07/19/23 09:30	07/31/23 12:41	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		07/19/23 09:30	07/31/23 12:41	1
Barium	0.0918		0.00200	0.000640	mg/L		07/19/23 09:30	07/31/23 12:41	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		07/19/23 09:30	07/31/23 12:41	1
Cadmium	<0.000200		0.000200	0.000100	mg/L		07/19/23 09:30	07/31/23 12:41	1
Chromium	<0.00500		0.00500	0.00110	mg/L		07/19/23 09:30	07/31/23 12:41	1
Cobalt	0.000720		0.000500	0.000170	mg/L		07/19/23 09:30	07/31/23 12:41	1
Copper	<0.00500		0.00500	0.00180	mg/L		07/19/23 09:30	07/31/23 12:41	1
Lead	<0.000500		0.000500	0.000240	mg/L		07/19/23 09:30	07/31/23 12:41	1
Nickel	0.00894		0.00500	0.00190	mg/L		07/19/23 09:30	07/31/23 12:41	1
Selenium	<0.00500		0.00500	0.00140	mg/L		07/19/23 09:30	07/31/23 12:41	1
Silver	<0.00100	*+	0.00100	0.000500	mg/L		07/19/23 09:30	07/31/23 12:41	1
Thallium	<0.00100		0.00100	0.000260	mg/L		07/19/23 09:30	07/31/23 12:41	1
Vanadium	0.00148	J	0.00500	0.00110	mg/L		07/19/23 09:30	07/31/23 12:41	1
Zinc	<0.0200		0.0200	0.00640	mg/L		07/19/23 09:30	07/31/23 12:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	1.25	J	1.88	0.638	mg/L			07/20/23 08:17	1

Client Sample Results

Client: SCS Engineers
Project/Site: Guthrie County SLF

Job ID: 310-260494-1

Client Sample ID: MW-20

Lab Sample ID: 310-260494-7

Date Collected: 07/14/23 14:45

Matrix: Water

Date Received: 07/17/23 17:55

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		07/19/23 09:30	07/31/23 12:44	1
Cobalt	<0.000500		0.000500	0.000170	mg/L		07/19/23 09:30	07/31/23 12:44	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	3.38		1.88	0.638	mg/L			07/20/23 08:17	1

Client Sample Results

Client: SCS Engineers
Project/Site: Guthrie County SLF

Job ID: 310-260494-1

Client Sample ID: MW-D

Lab Sample ID: 310-260494-8

Date Collected: 07/14/23 12:52

Matrix: Water

Date Received: 07/17/23 17:55

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			07/19/23 18:50	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			07/19/23 18:50	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			07/19/23 18:50	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			07/19/23 18:50	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			07/19/23 18:50	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			07/19/23 18:50	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			07/19/23 18:50	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			07/19/23 18:50	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			07/19/23 18:50	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			07/19/23 18:50	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			07/19/23 18:50	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			07/19/23 18:50	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			07/19/23 18:50	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			07/19/23 18:50	1
2-Hexanone	<10.0		10.0	2.00	ug/L			07/19/23 18:50	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			07/19/23 18:50	1
Acetone	<10.0		10.0	3.10	ug/L			07/19/23 18:50	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			07/19/23 18:50	1
Benzene	0.868		0.500	0.220	ug/L			07/19/23 18:50	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			07/19/23 18:50	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			07/19/23 18:50	1
Bromoform	<5.00		5.00	0.780	ug/L			07/19/23 18:50	1
Bromomethane	<4.00		4.00	1.10	ug/L			07/19/23 18:50	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			07/19/23 18:50	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			07/19/23 18:50	1
Chlorobenzene	0.821 J		1.00	0.400	ug/L			07/19/23 18:50	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			07/19/23 18:50	1
Chloroethane	1.35 J		4.00	0.790	ug/L			07/19/23 18:50	1
Chloroform	<3.00		3.00	1.30	ug/L			07/19/23 18:50	1
Chloromethane	<3.00		3.00	0.610	ug/L			07/19/23 18:50	1
cis-1,2-Dichloroethene	0.794 J		1.00	0.210	ug/L			07/19/23 18:50	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			07/19/23 18:50	1
Dibromomethane	<1.00		1.00	0.330	ug/L			07/19/23 18:50	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			07/19/23 18:50	1
Iodomethane	<10.0		10.0	7.00	ug/L			07/19/23 18:50	1
Methylene chloride	<5.00		5.00	1.70	ug/L			07/19/23 18:50	1
Styrene	<1.00		1.00	0.370	ug/L			07/19/23 18:50	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			07/19/23 18:50	1
Toluene	<1.00		1.00	0.430	ug/L			07/19/23 18:50	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			07/19/23 18:50	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			07/19/23 18:50	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			07/19/23 18:50	1
Trichloroethene	<1.00		1.00	0.430	ug/L			07/19/23 18:50	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			07/19/23 18:50	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			07/19/23 18:50	1
Vinyl chloride	0.227 J		1.00	0.180	ug/L			07/19/23 18:50	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			07/19/23 18:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	106		80 - 128		07/19/23 18:50	1

Eurofins Cedar Falls

Client Sample Results

Client: SCS Engineers
Project/Site: Guthrie County SLF

Job ID: 310-260494-1

Client Sample ID: MW-D

Lab Sample ID: 310-260494-8

Date Collected: 07/14/23 12:52

Matrix: Water

Date Received: 07/17/23 17:55

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	96		80 - 120		07/19/23 18:50	1
4-Bromofluorobenzene (Surr)	99		80 - 120		07/19/23 18:50	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		07/19/23 09:30	07/31/23 12:46	1
Arsenic	0.00283		0.00200	0.000530	mg/L		07/19/23 09:30	07/31/23 12:46	1
Barium	0.212		0.00200	0.000640	mg/L		07/19/23 09:30	07/31/23 12:46	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		07/19/23 09:30	07/31/23 12:46	1
Cadmium	0.000421		0.000200	0.000100	mg/L		07/19/23 09:30	07/31/23 12:46	1
Chromium	<0.00500		0.00500	0.00110	mg/L		07/19/23 09:30	07/31/23 12:46	1
Cobalt	0.0189		0.000500	0.000170	mg/L		07/19/23 09:30	07/31/23 12:46	1
Copper	<0.00500		0.00500	0.00180	mg/L		07/19/23 09:30	07/31/23 12:46	1
Lead	<0.000500		0.000500	0.000240	mg/L		07/19/23 09:30	07/31/23 12:46	1
Nickel	0.0281		0.00500	0.00190	mg/L		07/19/23 09:30	07/31/23 12:46	1
Selenium	<0.00500		0.00500	0.00140	mg/L		07/19/23 09:30	07/31/23 12:46	1
Silver	<0.00100	+	0.00100	0.000500	mg/L		07/19/23 09:30	07/31/23 12:46	1
Thallium	<0.00100		0.00100	0.000260	mg/L		07/19/23 09:30	07/31/23 12:46	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		07/19/23 09:30	07/31/23 12:46	1
Zinc	<0.0200		0.0200	0.00640	mg/L		07/19/23 09:30	07/31/23 12:46	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	77.0		15.0	5.10	mg/L			07/20/23 08:17	1

Definitions/Glossary

Client: SCS Engineers
Project/Site: Guthrie County SLF

Job ID: 310-260494-1

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
*+	LCS and/or LCSD is outside acceptance limits, high biased.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
F1	MS and/or MSD recovery exceeds control limits.
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 SLF

Job ID: 310-260494-1

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 (80-128)	TOL (80-120)	BFB (80-120)
310-260494-1	MW-3	103	96	99
310-260494-2	MW-12	104	97	100
310-260494-3	MW-16	105	95	101
310-260494-8	MW-D	106	96	99
LCS 310-394020/6	Lab Control Sample	98	100	99
LCS 310-394020/7	Lab Control Sample	102	97	99
MB 310-394020/5	Method Blank	101	95	99

Surrogate Legend

- DBFM = Dibromofluoromethane (Surr)
- TOL = Toluene-d8 (Surr)
- BFB = 4-Bromofluorobenzene (Surr)

QC Sample Results

Client: SCS Engineers
Project/Site: Guthrie County SLF

Job ID: 310-260494-1

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

Lab Sample ID: MB 310-394020/5

Matrix: Water

Analysis Batch: 394020

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			07/19/23 11:34	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			07/19/23 11:34	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			07/19/23 11:34	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			07/19/23 11:34	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			07/19/23 11:34	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			07/19/23 11:34	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			07/19/23 11:34	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			07/19/23 11:34	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			07/19/23 11:34	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			07/19/23 11:34	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			07/19/23 11:34	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			07/19/23 11:34	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			07/19/23 11:34	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			07/19/23 11:34	1
2-Hexanone	<10.0		10.0	2.00	ug/L			07/19/23 11:34	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			07/19/23 11:34	1
Acetone	<10.0		10.0	3.10	ug/L			07/19/23 11:34	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			07/19/23 11:34	1
Benzene	<0.500		0.500	0.220	ug/L			07/19/23 11:34	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			07/19/23 11:34	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			07/19/23 11:34	1
Bromoform	<5.00		5.00	0.780	ug/L			07/19/23 11:34	1
Bromomethane	<4.00		4.00	1.10	ug/L			07/19/23 11:34	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			07/19/23 11:34	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			07/19/23 11:34	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			07/19/23 11:34	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			07/19/23 11:34	1
Chloroethane	<4.00		4.00	0.790	ug/L			07/19/23 11:34	1
Chloroform	<3.00		3.00	1.30	ug/L			07/19/23 11:34	1
Chloromethane	<3.00		3.00	0.610	ug/L			07/19/23 11:34	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			07/19/23 11:34	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			07/19/23 11:34	1
Dibromomethane	<1.00		1.00	0.330	ug/L			07/19/23 11:34	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			07/19/23 11:34	1
Iodomethane	<10.0		10.0	7.00	ug/L			07/19/23 11:34	1
Methylene chloride	<5.00		5.00	1.70	ug/L			07/19/23 11:34	1
Styrene	<1.00		1.00	0.370	ug/L			07/19/23 11:34	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			07/19/23 11:34	1
Toluene	<1.00		1.00	0.430	ug/L			07/19/23 11:34	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			07/19/23 11:34	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			07/19/23 11:34	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			07/19/23 11:34	1
Trichloroethene	<1.00		1.00	0.430	ug/L			07/19/23 11:34	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			07/19/23 11:34	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			07/19/23 11:34	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			07/19/23 11:34	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			07/19/23 11:34	1

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QC Sample Results

Client: SCS Engineers
Project/Site: Guthrie County SLF

Job ID: 310-260494-1

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

Lab Sample ID: MB 310-394020/5

Matrix: Water

Analysis Batch: 394020

Client Sample ID: Method Blank

Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	101		80 - 128		07/19/23 11:34	1
Toluene-d8 (Surr)	95		80 - 120		07/19/23 11:34	1
4-Bromofluorobenzene (Surr)	99		80 - 120		07/19/23 11:34	1

Lab Sample ID: LCS 310-394020/6

Matrix: Water

Analysis Batch: 394020

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	19.24		ug/L		96	68 - 123
1,1,1-Trichloroethane	20.0	18.36		ug/L		92	71 - 128
1,1,1,2,2-Tetrachloroethane	20.0	20.99		ug/L		105	64 - 124
1,1,2-Trichloroethane	20.0	19.70		ug/L		99	70 - 124
1,1-Dichloroethane	20.0	17.24		ug/L		86	71 - 123
1,1-Dichloroethene	20.0	18.61		ug/L		93	61 - 129
1,2,3-Trichloropropane	20.0	20.61		ug/L		103	64 - 125
1,2-Dibromo-3-chloropropane	20.0	19.68		ug/L		98	50 - 150
1,2-Dibromoethane (EDB)	20.0	20.77		ug/L		104	73 - 125
1,2-Dichlorobenzene	20.0	19.18		ug/L		96	68 - 120
1,2-Dichloroethane	20.0	17.98		ug/L		90	70 - 124
1,2-Dichloropropane	20.0	18.34		ug/L		92	73 - 121
1,4-Dichlorobenzene	20.0	18.89		ug/L		94	67 - 120
2-Butanone (MEK)	40.0	44.38		ug/L		111	50 - 150
2-Hexanone	40.0	45.68		ug/L		114	60 - 132
4-Methyl-2-pentanone (MIBK)	40.0	43.74		ug/L		109	62 - 130
Acetone	40.0	42.93		ug/L		107	50 - 150
Acrylonitrile	200	205.8		ug/L		103	50 - 150
Benzene	20.0	17.53		ug/L		88	73 - 122
Bromochloromethane	20.0	18.94		ug/L		95	68 - 132
Bromodichloromethane	20.0	18.25		ug/L		91	72 - 121
Bromoform	20.0	18.06		ug/L		90	55 - 129
Carbon disulfide	20.0	17.87		ug/L		89	58 - 131
Carbon tetrachloride	20.0	19.47		ug/L		97	67 - 132
Chlorobenzene	20.0	18.41		ug/L		92	69 - 121
Chlorodibromomethane	20.0	19.35		ug/L		97	69 - 122
Chloroform	20.0	16.84		ug/L		84	72 - 120
cis-1,2-Dichloroethene	20.0	17.49		ug/L		87	74 - 120
cis-1,3-Dichloropropene	20.0	18.98		ug/L		95	71 - 126
Dibromomethane	20.0	18.95		ug/L		95	72 - 123
Ethylbenzene	20.0	18.31		ug/L		92	69 - 122
Iodomethane	20.0	11.17		ug/L		56	10 - 150
Methylene chloride	20.0	17.94		ug/L		90	50 - 150
Styrene	20.0	18.80		ug/L		94	67 - 125
Tetrachloroethene	20.0	20.04		ug/L		100	69 - 131
Toluene	20.0	17.96		ug/L		90	72 - 121
trans-1,2-Dichloroethene	20.0	18.11		ug/L		91	68 - 125
trans-1,3-Dichloropropene	20.0	18.66		ug/L		93	68 - 124
trans-1,4-Dichloro-2-butene	20.0	19.64		ug/L		98	48 - 150

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QC Sample Results

Client: SCS Engineers
Project/Site: Guthrie County SLF

Job ID: 310-260494-1

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

Lab Sample ID: LCS 310-394020/6

Matrix: Water

Analysis Batch: 394020

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	18.29		ug/L		91	73 - 126
Vinyl acetate	40.0	41.57		ug/L		104	50 - 150
Xylenes, Total	40.0	36.86		ug/L		92	68 - 124

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Dibromofluoromethane (Surr)	98		80 - 128
Toluene-d8 (Surr)	100		80 - 120
4-Bromofluorobenzene (Surr)	99		80 - 120

Lab Sample ID: LCS 310-394020/7

Matrix: Water

Analysis Batch: 394020

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	13.27		ug/L		66	24 - 150
Chloroethane	20.0	17.70		ug/L		88	51 - 137
Chloromethane	20.0	16.06		ug/L		80	37 - 150
Trichlorofluoromethane	20.0	19.15		ug/L		96	56 - 144
Vinyl chloride	20.0	18.28		ug/L		91	57 - 136

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Dibromofluoromethane (Surr)	102		80 - 128
Toluene-d8 (Surr)	97		80 - 120
4-Bromofluorobenzene (Surr)	99		80 - 120

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-393948/1-A

Matrix: Water

Analysis Batch: 395205

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 393948

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200	0.00100	mg/L		07/19/23 09:30	07/31/23 12:00	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		07/19/23 09:30	07/31/23 12:00	1
Barium	<0.00200		0.00200	0.000640	mg/L		07/19/23 09:30	07/31/23 12:00	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		07/19/23 09:30	07/31/23 12:00	1
Cadmium	<0.000200		0.000200	0.000100	mg/L		07/19/23 09:30	07/31/23 12:00	1
Chromium	<0.00500		0.00500	0.00110	mg/L		07/19/23 09:30	07/31/23 12:00	1
Cobalt	<0.000500		0.000500	0.000170	mg/L		07/19/23 09:30	07/31/23 12:00	1
Copper	<0.00500		0.00500	0.00180	mg/L		07/19/23 09:30	07/31/23 12:00	1
Lead	<0.000500		0.000500	0.000240	mg/L		07/19/23 09:30	07/31/23 12:00	1
Nickel	<0.00500		0.00500	0.00190	mg/L		07/19/23 09:30	07/31/23 12:00	1
Selenium	<0.00500		0.00500	0.00140	mg/L		07/19/23 09:30	07/31/23 12:00	1
Silver	<0.00100		0.00100	0.000500	mg/L		07/19/23 09:30	07/31/23 12:00	1
Thallium	<0.00100		0.00100	0.000260	mg/L		07/19/23 09:30	07/31/23 12:00	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		07/19/23 09:30	07/31/23 12:00	1
Zinc	<0.0200		0.0200	0.00640	mg/L		07/19/23 09:30	07/31/23 12:00	1

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QC Sample Results

Client: SCS Engineers
Project/Site: Guthrie County SLF

Job ID: 310-260494-1

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

Lab Sample ID: LCS 310-393948/2-A

Matrix: Water

Analysis Batch: 395205

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 393948

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.200	0.2097		mg/L		105	80 - 120
Arsenic	0.200	0.1988		mg/L		99	80 - 120
Barium	0.100	0.1038		mg/L		104	80 - 120
Beryllium	0.100	0.1016		mg/L		102	80 - 120
Cadmium	0.100	0.1003		mg/L		100	80 - 120
Chromium	0.100	0.1041		mg/L		104	80 - 120
Cobalt	0.100	0.1012		mg/L		101	80 - 120
Copper	0.200	0.2050		mg/L		102	80 - 120
Lead	0.200	0.2097		mg/L		105	80 - 120
Nickel	0.200	0.2135		mg/L		107	80 - 120
Selenium	0.400	0.4010		mg/L		100	80 - 120
Silver	0.100	0.1727	*+	mg/L		173	80 - 120
Thallium	0.200	0.1806		mg/L		90	80 - 120
Vanadium	0.100	0.1026		mg/L		103	80 - 120
Zinc	0.200	0.1942		mg/L		97	80 - 120

Lab Sample ID: 310-260494-1 MS

Matrix: Water

Analysis Batch: 395205

Client Sample ID: MW-3

Prep Type: Total/NA

Prep Batch: 393948

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	<0.00200		0.200	0.2027		mg/L		101	75 - 125
Arsenic	<0.00200		0.200	0.1910		mg/L		95	75 - 125
Barium	0.680		0.100	0.8231	4	mg/L		143	75 - 125
Beryllium	<0.00100		0.100	0.09533		mg/L		95	75 - 125
Cadmium	<0.000200		0.100	0.09922		mg/L		99	75 - 125
Chromium	<0.00500		0.100	0.09816		mg/L		98	75 - 125
Cobalt	0.000340	J	0.100	0.09135		mg/L		91	75 - 125
Copper	<0.00500		0.200	0.1970		mg/L		99	75 - 125
Lead	<0.000500		0.200	0.1875		mg/L		94	75 - 125
Nickel	0.00220	J	0.200	0.1951		mg/L		96	75 - 125
Selenium	<0.00500		0.400	0.3846		mg/L		96	75 - 125
Silver	<0.00100	F1 *+	0.100	0.1246		mg/L		125	75 - 125
Thallium	0.000306	J	0.200	0.1613		mg/L		81	75 - 125
Vanadium	<0.00500		0.100	0.09978		mg/L		100	75 - 125
Zinc	<0.0200		0.200	0.1788		mg/L		89	75 - 125

Lab Sample ID: 310-260494-1 MSD

Matrix: Water

Analysis Batch: 395205

Client Sample ID: MW-3

Prep Type: Total/NA

Prep Batch: 393948

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Antimony	<0.00200		0.200	0.2152		mg/L		108	75 - 125	6	20
Arsenic	<0.00200		0.200	0.2014		mg/L		101	75 - 125	5	20
Barium	0.680		0.100	0.8303	4	mg/L		150	75 - 125	1	20
Beryllium	<0.00100		0.100	0.1040		mg/L		104	75 - 125	9	20
Cadmium	<0.000200		0.100	0.1059		mg/L		106	75 - 125	6	20
Chromium	<0.00500		0.100	0.1030		mg/L		103	75 - 125	5	20
Cobalt	0.000340	J	0.100	0.09728		mg/L		97	75 - 125	6	20

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QC Sample Results

Client: SCS Engineers
Project/Site: Guthrie County SLF

Job ID: 310-260494-1

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

Lab Sample ID: 310-260494-1 MSD

Matrix: Water

Analysis Batch: 395205

Client Sample ID: MW-3

Prep Type: Total/NA

Prep Batch: 393948

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Copper	<0.00500		0.200	0.2089		mg/L		104	75 - 125	6	20
Lead	<0.000500		0.200	0.2003		mg/L		100	75 - 125	7	20
Nickel	0.00220	J	0.200	0.2055		mg/L		102	75 - 125	5	20
Selenium	<0.00500		0.400	0.4029		mg/L		101	75 - 125	5	20
Silver	<0.00100	F1 *+	0.100	0.1454	F1	mg/L		145	75 - 125	15	20
Thallium	0.000306	J	0.200	0.1753		mg/L		87	75 - 125	8	20
Vanadium	<0.00500		0.100	0.1053		mg/L		105	75 - 125	5	20
Zinc	<0.0200		0.200	0.1874		mg/L		94	75 - 125	5	20

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

Lab Sample ID: MB 310-394084/1

Matrix: Water

Analysis Batch: 394084

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	1.70	mg/L			07/19/23 20:36	1

Lab Sample ID: LCS 310-394084/2

Matrix: Water

Analysis Batch: 394084

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	108.0		mg/L		108	75 - 116

Lab Sample ID: MB 310-394113/1

Matrix: Water

Analysis Batch: 394113

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	1.70	mg/L			07/20/23 08:17	1

Lab Sample ID: LCS 310-394113/2

Matrix: Water

Analysis Batch: 394113

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	99.00		mg/L		99	75 - 116

Lab Sample ID: 310-260494-8 DU

Matrix: Water

Analysis Batch: 394113

Client Sample ID: MW-D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	77.0		73.00		mg/L		5	35

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QC Association Summary

Client: SCS Engineers
Project/Site: Guthrie County SLF

Job ID: 310-260494-1

GC/MS VOA

Analysis Batch: 394020

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-260494-1	MW-3	Total/NA	Water	8260D	
310-260494-2	MW-12	Total/NA	Water	8260D	
310-260494-3	MW-16	Total/NA	Water	8260D	
310-260494-8	MW-D	Total/NA	Water	8260D	
MB 310-394020/5	Method Blank	Total/NA	Water	8260D	
LCS 310-394020/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-394020/7	Lab Control Sample	Total/NA	Water	8260D	

Metals

Prep Batch: 393948

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-260494-1	MW-3	Total/NA	Water	3005A	
310-260494-2	MW-12	Total/NA	Water	3005A	
310-260494-3	MW-16	Total/NA	Water	3005A	
310-260494-4	MW-5	Total/NA	Water	3005A	
310-260494-5	MW-14	Total/NA	Water	3005A	
310-260494-6	MW-19	Total/NA	Water	3005A	
310-260494-7	MW-20	Total/NA	Water	3005A	
310-260494-8	MW-D	Total/NA	Water	3005A	
MB 310-393948/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-393948/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-260494-1 MS	MW-3	Total/NA	Water	3005A	
310-260494-1 MSD	MW-3	Total/NA	Water	3005A	

Analysis Batch: 395205

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-260494-1	MW-3	Total/NA	Water	6020B	393948
310-260494-2	MW-12	Total/NA	Water	6020B	393948
310-260494-3	MW-16	Total/NA	Water	6020B	393948
310-260494-4	MW-5	Total/NA	Water	6020B	393948
310-260494-5	MW-14	Total/NA	Water	6020B	393948
310-260494-6	MW-19	Total/NA	Water	6020B	393948
310-260494-7	MW-20	Total/NA	Water	6020B	393948
310-260494-8	MW-D	Total/NA	Water	6020B	393948
MB 310-393948/1-A	Method Blank	Total/NA	Water	6020B	393948
LCS 310-393948/2-A	Lab Control Sample	Total/NA	Water	6020B	393948
310-260494-1 MS	MW-3	Total/NA	Water	6020B	393948
310-260494-1 MSD	MW-3	Total/NA	Water	6020B	393948

General Chemistry

Analysis Batch: 394084

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-260494-1	MW-3	Total/NA	Water	I-3765-85	
310-260494-4	MW-5	Total/NA	Water	I-3765-85	
MB 310-394084/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-394084/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Analysis Batch: 394113

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-260494-2	MW-12	Total/NA	Water	I-3765-85	

Eurofins Cedar Falls

QC Association Summary

Client: SCS Engineers
Project/Site: Guthrie County SLF

Job ID: 310-260494-1

General Chemistry (Continued)

Analysis Batch: 394113 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-260494-3	MW-16	Total/NA	Water	I-3765-85	
310-260494-5	MW-14	Total/NA	Water	I-3765-85	
310-260494-6	MW-19	Total/NA	Water	I-3765-85	
310-260494-7	MW-20	Total/NA	Water	I-3765-85	
310-260494-8	MW-D	Total/NA	Water	I-3765-85	
MB 310-394113/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-394113/2	Lab Control Sample	Total/NA	Water	I-3765-85	
310-260494-8 DU	MW-D	Total/NA	Water	I-3765-85	

Lab Chronicle

Client: SCS Engineers
Project/Site: Guthrie County SLF

Job ID: 310-260494-1

Client Sample ID: MW-3

Lab Sample ID: 310-260494-1

Date Collected: 07/14/23 15:58

Matrix: Water

Date Received: 07/17/23 17:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	394020	WSE8	EET CF	07/19/23 17:45
Total/NA	Prep	3005A			393948	KCK5	EET CF	07/19/23 09:30
Total/NA	Analysis	6020B		1	395205	A6US	EET CF	07/31/23 12:07
Total/NA	Analysis	I-3765-85		1	394084	D7CP	EET CF	07/19/23 20:36

Client Sample ID: MW-12

Lab Sample ID: 310-260494-2

Date Collected: 07/14/23 16:34

Matrix: Water

Date Received: 07/17/23 17:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	394020	WSE8	EET CF	07/19/23 18:06
Total/NA	Prep	3005A			393948	KCK5	EET CF	07/19/23 09:30
Total/NA	Analysis	6020B		1	395205	A6US	EET CF	07/31/23 12:32
Total/NA	Analysis	I-3765-85		1	394113	DGU1	EET CF	07/20/23 08:17

Client Sample ID: MW-16

Lab Sample ID: 310-260494-3

Date Collected: 07/14/23 12:52

Matrix: Water

Date Received: 07/17/23 17:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	394020	WSE8	EET CF	07/19/23 18:28
Total/NA	Prep	3005A			393948	KCK5	EET CF	07/19/23 09:30
Total/NA	Analysis	6020B		1	395205	A6US	EET CF	07/31/23 12:34
Total/NA	Analysis	I-3765-85		1	394113	DGU1	EET CF	07/20/23 08:17

Client Sample ID: MW-5

Lab Sample ID: 310-260494-4

Date Collected: 07/14/23 15:24

Matrix: Water

Date Received: 07/17/23 17:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			393948	KCK5	EET CF	07/19/23 09:30
Total/NA	Analysis	6020B		1	395205	A6US	EET CF	07/31/23 12:37
Total/NA	Analysis	I-3765-85		1	394084	D7CP	EET CF	07/19/23 20:36

Client Sample ID: MW-14

Lab Sample ID: 310-260494-5

Date Collected: 07/14/23 14:15

Matrix: Water

Date Received: 07/17/23 17:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			393948	KCK5	EET CF	07/19/23 09:30
Total/NA	Analysis	6020B		1	395205	A6US	EET CF	07/31/23 12:39
Total/NA	Analysis	I-3765-85		1	394113	DGU1	EET CF	07/20/23 08:17

Lab Chronicle

Client: SCS Engineers
Project/Site: Guthrie County SLF

Job ID: 310-260494-1

Client Sample ID: MW-19

Date Collected: 07/14/23 13:35

Date Received: 07/17/23 17:55

Lab Sample ID: 310-260494-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			393948	KCK5	EET CF	07/19/23 09:30
Total/NA	Analysis	6020B		1	395205	A6US	EET CF	07/31/23 12:41
Total/NA	Analysis	I-3765-85		1	394113	DGU1	EET CF	07/20/23 08:17

Client Sample ID: MW-20

Date Collected: 07/14/23 14:45

Date Received: 07/17/23 17:55

Lab Sample ID: 310-260494-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			393948	KCK5	EET CF	07/19/23 09:30
Total/NA	Analysis	6020B		1	395205	A6US	EET CF	07/31/23 12:44
Total/NA	Analysis	I-3765-85		1	394113	DGU1	EET CF	07/20/23 08:17

Client Sample ID: MW-D

Date Collected: 07/14/23 12:52

Date Received: 07/17/23 17:55

Lab Sample ID: 310-260494-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	394020	WSE8	EET CF	07/19/23 18:50
Total/NA	Prep	3005A			393948	KCK5	EET CF	07/19/23 09:30
Total/NA	Analysis	6020B		1	395205	A6US	EET CF	07/31/23 12:46
Total/NA	Analysis	I-3765-85		1	394113	DGU1	EET CF	07/20/23 08:17

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 SLF

Job ID: 310-260494-1

Laboratory: Eurofins Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-23

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

Method Summary

Client: SCS Engineers
Project/Site: Guthrie County SLF

Job ID: 310-260494-1

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



Environment Testing
America



310-260494 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: SCS Engineers			
City/State:	CITY W Des Moines	STATE IA	Project: Guthrie County Landfill
Receipt Information			
Date/Time Received:	DATE 7-17-23	TIME 1755	Received By: HED
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: AD-3
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? ↓
Trip blank vials received empty			
Temperature Record			
Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: _____ ☐ NONE			
Thermometer ID: R		Correction Factor (°C): +0.0	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): 2.4		Corrected Temp (°C): 2.4	
• Sample Container Temperature			
Container(s) used:	CONTAINER 1		CONTAINER 2
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No a) If yes: Is there evidence that the chilling process began? ☐ Yes ☐ No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-260494-1

Login Number: 260494

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Costello, Mackenzie K

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: 7/14/2023
Lab Report Date: 7/31/2013
Site Name: Guthrie County Sanitary Landfill
SCS Project Number: 27223271.24
Project Type: HMSP
Lab Report Number: 310-260494

OK NO N/A NOTES

Sample Collection and Sample Handling

Chain of Custody
Temperature
Preservation
Condition
Case Narrative
Holding Times

X			
X			
X			
X			
X			
X			

Analytical Sensitivity and Blanks

Method Blank Detections
Trip Blank Detections

X			None.
		X	

Accuracy

ICV/CCV

X			
	X		The LCS recovered outside control limits for silver; the analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data were reported.
X			

LCS/LCSD

MS/MSD

Surrogates (organics only)

Precision

QA/QC Sample RPDs

Field Duplicates

X			
X			MW-16 and duplicate sample MW-D had <50% RPD for analyzed parameters.

Appendix C
Summary of Groundwater Chemistry

SCS ENGINEERS

Summary of Groundwater Chemistry

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

	Sample Date	MW-12 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)							
	3/29/2010	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
	9/8/2010	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
	3/18/2011	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
	9/8/2011	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
	3/26/2012	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
	8/21/2012	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
	4/16/2013	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
	9/16/2013	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
	4/1/2014	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
	9/25/2014	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
	3/14/2015	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
	9/16/2015	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
	3/11/2016	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
	8/23/2016	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
	4/11/2017	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
	10/9/2017	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
	4/5/2018	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
	9/11/2018	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
	3/28/2019	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
	9/23/2019	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
	4/15/2020	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
	7/21/2021	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
	7/21/2021	N/A	N/A	< 0.002	N/A	N/A	N/A
	4/5/2022	< 0.002	< 0.002	< 0.002	< 0.008	< 0.002	< 0.002
	4/5/2022	N/A	N/A	N/A	< 0.008	N/A	N/A
	7/14/2023	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
	7/14/2023	N/A	N/A	N/A	N/A	< 0.002	N/A
Arsenic, mg/L (CAS NO - 7440-38-2)							
	3/29/2010	< 0.004	< 0.004	< 0.004	< 0.004	0.0195	< 0.004
	9/8/2010	< 0.004	0.006	0.007	< 0.004	0.0306	< 0.004
	3/18/2011	< 0.004	< 0.004	0.0068	0.0048	0.0263	< 0.004
	9/8/2011	< 0.004	0.0042	0.0062	< 0.004	0.0342	< 0.004
	3/26/2012	0.007	0.0047	0.0076	< 0.004	0.0145	< 0.004
	8/21/2012	0.0055	0.0057	0.0097	0.0063	0.0257	0.0052
	4/16/2013	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	9/16/2013	< 0.004	< 0.004	< 0.004	< 0.004	0.0253	< 0.004
	4/1/2014	< 0.004	< 0.004	0.0059	< 0.004	0.0309	< 0.004
	9/25/2014	0.0043	0.0057	< 0.004	< 0.004	0.0141	< 0.004
	3/14/2015	0.0046	< 0.004	< 0.004	< 0.004	0.0327	< 0.004
	9/16/2015	< 0.004	< 0.004	< 0.004	< 0.004	0.0542	< 0.004
	3/11/2016	< 0.004	< 0.004	< 0.004	< 0.004	0.0145	< 0.004
	8/23/2016	< 0.004	< 0.004	< 0.004	< 0.004	0.0392	< 0.004
	4/11/2017	< 0.004	< 0.004	< 0.004	< 0.004	0.007	< 0.004
	10/9/2017	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	4/5/2018	< 0.002	< 0.002	< 0.002	< 0.002	0.0051	< 0.002
	9/11/2018	< 0.004	< 0.004	< 0.004	< 0.004	0.0273	< 0.004
	3/28/2019	< 0.004	< 0.004	< 0.004	< 0.004	0.0106	< 0.004
	9/23/2019	< 0.004	< 0.004	< 0.004	< 0.004	0.0283	< 0.004
	4/15/2020	< 0.004	< 0.004	< 0.004	< 0.004	0.0228	< 0.004
	7/21/2021	< 0.002	< 0.002	< 0.002	< 0.002	0.0207	< 0.002
	7/21/2021	N/A	N/A	< 0.002	N/A	N/A	N/A
	4/5/2022	< 0.002	< 0.002	< 0.002	< 0.008	0.00694	< 0.002
	4/5/2022	N/A	N/A	N/A	< 0.008	N/A	N/A
	7/14/2023	< 0.002	< 0.002	< 0.002	0.000533*	0.00283	< 0.002
	7/14/2023	N/A	N/A	N/A	N/A	0.00213	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

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

	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Total Metals Constituents							
Barium, mg/L (CAS NO - 7440-39-3)	3/29/2010	0.264	0.646	0.0892	0.244	0.226	0.134
	9/8/2010	0.304	0.781	0.131	0.179	0.326	0.163
	3/18/2011	0.419	0.588	0.117	0.136	0.342	0.135
	9/8/2011	0.496	0.648	0.137	0.164	0.412	0.143
	3/26/2012	0.641	0.715	0.132	0.053	0.297	0.138
	8/21/2012	0.474	0.663	0.102	0.197	0.3	0.126
	4/16/2013	0.665	0.739	0.092	0.0372	0.164	0.083
	9/16/2013	0.657	0.52	0.103	0.201	0.158	0.126
	4/1/2014	0.75	0.672	0.0917	0.0321	0.165	0.125
	9/25/2014	0.673	1.15	0.103	0.0519	0.218	0.114
	3/14/2015	0.769	0.508	0.0779	0.0864	0.155	0.123
	9/16/2015	0.353	0.298	0.0825	0.0196	0.161	0.105
	3/11/2016	0.491	0.323	0.0883	0.023	0.315	0.115
	8/23/2016	0.47	0.354	0.0867	0.0211	0.175	0.139
	4/11/2017	0.699	0.321	0.0897	0.0303	0.341	0.0981
	10/9/2017	0.695	0.449	0.0822	0.02	0.295	0.131
	4/5/2018	0.827	0.385	0.0827	0.0206	0.222	0.112
	9/11/2018	0.857	0.368	0.083	0.0212	0.253	0.122
	3/28/2019	0.694	0.344	0.0814	0.022	0.201	0.107
	9/23/2019	0.663	0.365	0.0863	0.0204	0.265	0.152
	4/15/2020	0.741	0.33	0.128	0.0281	0.38	0.112
	7/21/2021	0.855	0.608	0.0706	0.0254	0.287	0.0946
	7/21/2021	N/A	N/A	0.0705	N/A	N/A	N/A
	4/5/2022	0.953	0.78	0.0684	0.031	0.164	0.0906
	4/5/2022	N/A	N/A	N/A	0.0286	N/A	N/A
	7/14/2023	1.17	0.68	0.0664	0.0234	0.212	0.0918
	7/14/2023	N/A	N/A	N/A	N/A	0.214	N/A
Beryllium, mg/L (CAS NO - 7440-41-7)	3/29/2010	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	9/8/2010	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	3/18/2011	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	9/8/2011	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	3/26/2012	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	8/21/2012	< 0.004	0.0042	0.0042	< 0.004	< 0.004	< 0.004
	4/16/2013	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	9/16/2013	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	4/1/2014	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	9/25/2014	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	3/14/2015	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	9/16/2015	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	3/11/2016	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	8/23/2016	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	4/11/2017	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	10/9/2017	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	4/5/2018	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	9/11/2018	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	3/28/2019	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	9/23/2019	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	4/15/2020	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	7/21/2021	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	7/21/2021	N/A	N/A	< 0.001	N/A	N/A	N/A
	4/5/2022	< 0.001	< 0.001	< 0.001	< 0.004	< 0.001	< 0.001
	4/5/2022	N/A	N/A	N/A	< 0.004	N/A	N/A
	7/14/2023	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	7/14/2023	N/A	N/A	N/A	N/A	< 0.001	N/A

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Summary of Groundwater Chemistry

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

	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Total Metals Constituents							
Cadmium, mg/L (CAS NO - 7440-43-9)							
	3/29/2010	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	9/8/2010	< 0.001	0.0011	< 0.001	< 0.001	< 0.001	< 0.001
	3/18/2011	< 0.0008	< 0.0008	< 0.0008	< 0.0008	< 0.0008	< 0.0008
	9/8/2011	< 0.0008	0.0009	0.0012	< 0.0008	0.0008	< 0.0008
	3/26/2012	< 0.0008	< 0.0008	< 0.0008	< 0.0008	0.0033	< 0.0008
	8/21/2012	< 0.0008	< 0.0008	< 0.0008	< 0.0008	< 0.0008	< 0.0008
	4/16/2013	< 0.0008	< 0.0008	< 0.0008	< 0.0008	< 0.0008	< 0.0008
	9/16/2013	< 0.0008	< 0.0008	< 0.0008	< 0.0008	< 0.0008	< 0.0008
	4/1/2014	< 0.0008	< 0.0008	< 0.0008	< 0.0008	0.0009	< 0.0008
	9/25/2014	< 0.0008	< 0.0008	< 0.0008	< 0.0008	< 0.0008	< 0.0008
	3/14/2015	< 0.0008	< 0.0008	< 0.0008	< 0.0008	< 0.0008	< 0.0008
	9/16/2015	< 0.0008	< 0.0008	< 0.0008	< 0.0008	< 0.0008	< 0.0008
	3/11/2016	< 0.0008	< 0.0008	< 0.0008	< 0.0008	0.0008	< 0.0008
	8/23/2016	< 0.0008	< 0.0008	< 0.0008	< 0.0008	< 0.0008	< 0.0008
	4/11/2017	< 0.0008	0.0022	0.001	< 0.0008	< 0.0008	< 0.0008
	7/13/2017	N/A	N/A	< 0.0008	N/A	N/A	N/A
	10/9/2017	< 0.0008	< 0.0008	< 0.0008	< 0.0008	0.0008	< 0.0008
	4/5/2018	< 0.0008	< 0.0008	< 0.0008	< 0.0008	< 0.0008	< 0.0008
	9/11/2018	0.0011	< 0.0008	0.0009	< 0.0008	< 0.0008	< 0.0008
	11/1/2018	< 0.0008	N/A	N/A	N/A	N/A	N/A
	3/28/2019	< 0.0008	< 0.0008	< 0.0008	< 0.0008	< 0.0008	< 0.0008
	9/23/2019	< 0.0008	< 0.0008	< 0.0008	< 0.0008	< 0.0008	< 0.0008
	4/15/2020	< 0.0008	< 0.0008	< 0.0008	< 0.0008	< 0.0008	< 0.0008
	7/21/2021	< 0.0001	0.000054*	0.000116	0.000157	0.000096*	0.000086*
	7/21/2021	N/A	N/A	0.000103	N/A	N/A	N/A
	4/5/2022	< 0.0001	0.000081*	0.000094*	0.0004	0.000502	< 0.0001
	4/5/2022	N/A	N/A	N/A	0.000344*	N/A	N/A
	7/14/2023	< 0.0002	< 0.0002	< 0.0002	0.000304	0.000421	< 0.0002
	7/14/2023	N/A	N/A	N/A	N/A	0.000538	N/A
Chromium, mg/L (CAS NO - 7440-47-3)							
	3/29/2010	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
	9/8/2010	< 0.01	0.013	< 0.01	< 0.01	< 0.01	< 0.01
	3/18/2011	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008
	9/8/2011	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
	3/26/2012	< 0.008	0.0087	< 0.008	< 0.008	< 0.008	< 0.008
	8/21/2012	< 0.008	0.0103	0.0091	< 0.008	< 0.008	< 0.008
	4/16/2013	< 0.008	0.0089	< 0.008	< 0.008	< 0.008	< 0.008
	9/16/2013	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008
	4/1/2014	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008
	9/25/2014	< 0.008	0.0105	< 0.008	< 0.008	< 0.008	< 0.008
	3/14/2015	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008
	9/16/2015	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008
	3/11/2016	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008
	8/23/2016	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008
	4/11/2017	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008
	10/9/2017	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008
	4/5/2018	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008
	9/11/2018	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008
	3/28/2019	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008
	9/23/2019	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008
	4/15/2020	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008
	7/21/2021	< 0.005	< 0.005	0.00225*	< 0.005	< 0.005	< 0.005
	7/21/2021	N/A	N/A	< 0.005	N/A	N/A	N/A
	4/5/2022	< 0.005	< 0.005	< 0.005	< 0.02	< 0.005	< 0.005
	4/5/2022	N/A	N/A	N/A	< 0.02	N/A	N/A
	7/14/2023	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
	7/14/2023	N/A	N/A	N/A	N/A	< 0.005	N/A

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Summary of Groundwater Chemistry

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

	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Total Metals Constituents							
Cobalt, mg/L (CAS NO - 7440-48-4)	3/29/2010	< 0.004	0.006	0.0106	0.0043	0.0333	< 0.004
	9/8/2010	< 0.004	0.0073	0.0164	< 0.004	0.0292	< 0.004
	3/18/2011	< 0.004	0.0048	0.0088	< 0.004	0.0239	< 0.004
	9/8/2011	< 0.004	0.0054	0.0127	< 0.004	0.0165	< 0.004
	3/26/2012	< 0.004	< 0.004	0.0103	< 0.004	0.0235	< 0.004
	8/21/2012	< 0.004	0.004	0.0074	0.0057	0.0192	< 0.004
	4/16/2013	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	9/16/2013	< 0.004	< 0.004	0.004	0.0045	0.0136	< 0.004
	4/1/2014	< 0.004	< 0.004	0.005	< 0.004	0.0161	< 0.004
	9/25/2014	0.0026	0.0138	0.0024	0.0009	0.0296	0.0012
	3/14/2015	0.0026	0.0049	0.0016	0.0019	0.0081	0.0011
	9/16/2015	< 0.0008	< 0.0008	< 0.0008	< 0.0008	0.0077	< 0.0008
	3/11/2016	< 0.0008	< 0.0008	< 0.0008	< 0.0008	0.0421	< 0.0008
	8/23/2016	< 0.0008	< 0.0008	< 0.0008	< 0.0008	0.0164	< 0.0008
	4/11/2017	< 0.0008	< 0.0008	< 0.0008	< 0.0008	0.0345	< 0.0008
	10/9/2017	< 0.0008	< 0.0008	< 0.0008	< 0.0008	0.0173	< 0.0008
	4/5/2018	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
	9/11/2018	< 0.0008	< 0.0008	< 0.0008	< 0.0008	0.0162	< 0.0008
	3/28/2019	< 0.0008	< 0.0008	< 0.0008	< 0.0008	0.0175	< 0.0008
	9/23/2019	< 0.0008	< 0.0008	< 0.0008	< 0.0008	0.0145	< 0.0008
	4/15/2020	< 0.0004	< 0.0004	< 0.0004	< 0.0004	0.0446	< 0.0004
	7/21/2021	< 0.0005	0.000691	0.000403*	0.000783	0.015	0.000395*
	7/21/2021	N/A	N/A	0.000324*	N/A	N/A	N/A
	4/5/2022	< 0.0005	0.000803	0.000258*	0.00131*	0.0028	< 0.0005
	4/5/2022	N/A	N/A	N/A	0.0013*	N/A	N/A
	7/14/2023	< 0.0005	0.00034*	0.00017*	0.000596	0.0189	0.00072
	7/14/2023	N/A	N/A	N/A	N/A	0.0208	N/A
Copper, mg/L (CAS NO - 7440-50-8)	3/29/2010	< 0.004	0.0096	0.0081	0.004	< 0.004	< 0.004
	9/8/2010	< 0.004	0.0161	0.012	< 0.004	< 0.004	0.004
	3/18/2011	< 0.004	0.0079	0.0082	< 0.004	< 0.004	< 0.004
	9/8/2011	< 0.004	0.0091	0.009	< 0.004	< 0.004	< 0.004
	3/26/2012	0.0053	0.0075	0.0067	< 0.004	0.0047	< 0.004
	8/21/2012	< 0.004	0.0072	0.0073	< 0.004	< 0.004	< 0.004
	4/16/2013	< 0.004	0.0074	< 0.004	< 0.004	< 0.004	< 0.004
	9/16/2013	0.0057	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	4/1/2014	< 0.004	0.0126	0.0061	< 0.004	0.0138	< 0.004
	9/25/2014	0.0049	0.0131	< 0.004	< 0.004	0.0071	< 0.004
	3/14/2015	0.0054	0.0075	< 0.004	< 0.004	< 0.004	< 0.004
	9/16/2015	< 0.004	< 0.004	< 0.004	< 0.004	0.0048	< 0.004
	3/11/2016	< 0.004	< 0.004	< 0.004	< 0.004	0.0049	< 0.004
	8/23/2016	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	4/11/2017	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	10/9/2017	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	4/5/2018	< 0.004	0.0274	< 0.004	< 0.004	0.0048	< 0.004
	9/11/2018	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	3/28/2019	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	9/23/2019	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	4/15/2020	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	7/21/2021	< 0.005	< 0.005	< 0.005	0.00158*	0.0015*	< 0.005
	7/21/2021	N/A	N/A	< 0.005	N/A	N/A	N/A
	4/5/2022	< 0.005	< 0.005	< 0.005	< 0.02	0.0055	< 0.005
	4/5/2022	N/A	N/A	N/A	< 0.02	N/A	N/A
	7/14/2023	0.00184*	< 0.005	< 0.005	0.0032*	< 0.005	< 0.005
	7/14/2023	N/A	N/A	N/A	N/A	< 0.005	N/A

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Summary of Groundwater Chemistry

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

	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Total Metals Constituents							
Lead, mg/L (CAS NO - 7439-92-1)	3/29/2010	< 0.004	0.0084	0.0091	< 0.004	< 0.004	< 0.004
	9/8/2010	< 0.004	0.0129	0.0131	< 0.004	< 0.004	< 0.004
	3/18/2011	< 0.004	0.0052	0.0081	< 0.004	< 0.004	< 0.004
	9/8/2011	< 0.004	0.0066	0.01	< 0.004	< 0.004	< 0.004
	3/26/2012	0.0047	0.0066	0.0085	< 0.004	< 0.004	0.0079
	8/21/2012	< 0.004	< 0.004	0.0073	< 0.004	< 0.004	< 0.004
	4/16/2013	< 0.004	0.005	< 0.004	< 0.004	< 0.004	< 0.004
	9/16/2013	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	4/1/2014	< 0.004	< 0.004	0.0045	< 0.004	< 0.004	< 0.004
	9/25/2014	< 0.004	0.0088	< 0.004	< 0.004	< 0.004	< 0.004
	3/14/2015	< 0.004	0.0044	< 0.004	< 0.004	< 0.004	< 0.004
	9/16/2015	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	3/11/2016	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	8/23/2016	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	4/11/2017	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	10/9/2017	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	4/5/2018	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	9/11/2018	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	3/28/2019	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	9/23/2019	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	4/15/2020	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	7/21/2021	< 0.0005	0.000215*	< 0.0005	0.000258*	< 0.0005	< 0.0005
	7/21/2021	N/A	N/A	< 0.0005	N/A	N/A	N/A
	4/5/2022	< 0.0005	< 0.0005	< 0.0005	< 0.002	< 0.0005	< 0.0005
	4/5/2022	N/A	N/A	N/A	< 0.002	N/A	N/A
	7/14/2023	< 0.0005	< 0.0005	< 0.0005	0.000246*	< 0.0005	< 0.0005
	7/14/2023	N/A	N/A	N/A	N/A	< 0.0005	N/A
Mercury, mg/L (CAS NO - 7439-97-6)	3/18/2011	N/A	< 0.0005	N/A	N/A	< 0.0005	N/A
	3/26/2012	N/A	< 0.0005	N/A	N/A	< 0.0005	N/A
	4/16/2013	< 0.0005	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.0005	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.0005	N/A	N/A	< 0.0005	N/A
	4/5/2022	< 0.0002	N/A	N/A	N/A	< 0.0002	N/A
Nickel, mg/L (CAS NO - 7440-02-0)	3/29/2010	0.0052	0.0188	0.0171	0.0207	0.0165	0.0098
	9/8/2010	0.0053	0.0253	0.0245	0.0202	0.019	0.0157
	3/18/2011	< 0.008	0.02	0.0193	0.0283	0.0219	0.0149
	9/8/2011	0.0083	0.0213	0.0233	0.0271	0.0218	0.0149
	3/26/2012	0.0098	0.0157	0.0157	0.0147	0.0559	0.0093
	8/21/2012	0.0061	0.0147	0.0155	0.0241	0.0262	0.011
	4/16/2013	< 0.004	0.0118	0.0068	0.014	0.0154	0.0048
	9/16/2013	0.0051	0.0081	0.006	0.0084	0.0186	< 0.004
	4/1/2014	< 0.004	0.013	0.008	< 0.004	0.0179	0.0042
	9/25/2014	0.0069	0.0257	0.0045	0.0043	0.0331	< 0.004
	3/14/2015	0.0066	0.0134	< 0.004	0.0048	0.015	0.0115
	9/16/2015	< 0.004	< 0.004	< 0.004	< 0.004	0.0123	< 0.004
	3/11/2016	< 0.004	< 0.004	< 0.004	< 0.004	0.0206	< 0.004
	8/23/2016	< 0.004	0.0089	< 0.004	< 0.004	0.0157	0.005
	4/11/2017	< 0.004	< 0.004	< 0.004	< 0.004	0.0216	< 0.004
	10/9/2017	< 0.004	0.0058	< 0.004	< 0.004	0.0199	< 0.004
	4/5/2018	< 0.004	< 0.004	< 0.004	< 0.004	0.0109	< 0.004
	9/11/2018	< 0.004	< 0.004	0.004	< 0.004	0.0161	< 0.004
	3/28/2019	< 0.004	< 0.004	< 0.004	< 0.004	0.0096	< 0.004
	9/23/2019	< 0.004	< 0.004	< 0.004	< 0.004	0.0155	0.0049
	4/15/2020	< 0.004	< 0.004	< 0.004	< 0.004	0.0126	< 0.004
	7/21/2021	< 0.005	0.00283*	0.00256*	0.00338*	0.0221	0.00553
	7/21/2021	N/A	N/A	< 0.005	N/A	N/A	N/A
	4/5/2022	< 0.005	0.00584	0.00246*	0.00988*	0.00923	0.0031*
	4/5/2022	N/A	N/A	N/A	0.00904*	N/A	N/A
	7/14/2023	< 0.005	0.0022*	< 0.005	0.00512	0.0281	0.00894
	7/14/2023	N/A	N/A	N/A	N/A	0.03	N/A

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Summary of Groundwater Chemistry

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

	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Total Metals Constituents							
Selenium, mg/L (CAS NO - 7782-49-2)	3/29/2010	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	9/8/2010	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	3/18/2011	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	9/8/2011	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	3/26/2012	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	8/21/2012	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	4/16/2013	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	9/16/2013	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	4/1/2014	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	9/25/2014	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	3/14/2015	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	9/16/2015	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	3/11/2016	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	8/23/2016	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	4/11/2017	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	10/9/2017	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	4/5/2018	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	9/11/2018	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	3/28/2019	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	9/23/2019	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	4/15/2020	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	7/21/2021	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
	7/21/2021	N/A	N/A	< 0.005	N/A	N/A	N/A
	4/5/2022	< 0.005	< 0.005	< 0.005	< 0.02	< 0.005	< 0.005
	4/5/2022	N/A	N/A	N/A	< 0.02	N/A	N/A
	7/14/2023	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
	7/14/2023	N/A	N/A	N/A	N/A	< 0.005	N/A
Silver, mg/L (CAS NO - 7440-22-4)	3/29/2010	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	9/8/2010	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	3/18/2011	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	9/8/2011	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	3/26/2012	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	8/21/2012	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	4/16/2013	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	9/16/2013	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	4/1/2014	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	9/25/2014	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	3/14/2015	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	9/16/2015	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	3/11/2016	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	8/23/2016	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	4/11/2017	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	10/9/2017	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	4/5/2018	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	9/11/2018	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	3/28/2019	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	9/23/2019	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	4/15/2020	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	7/21/2021	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	7/21/2021	N/A	N/A	< 0.001	N/A	N/A	N/A
	4/5/2022	< 0.001	< 0.001	< 0.001	< 0.004	< 0.001	< 0.001
	4/5/2022	N/A	N/A	N/A	< 0.004	N/A	N/A
	7/14/2023	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	7/14/2023	N/A	N/A	N/A	N/A	< 0.001	N/A

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Summary of Groundwater Chemistry

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

	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Total Metals Constituents							
Thallium, mg/L (CAS NO - 7440-28-0)	3/29/2010	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	9/8/2010	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	3/18/2011	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	9/8/2011	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	3/26/2012	< 0.002	0.0034	< 0.002	< 0.002	< 0.002	< 0.002
	8/21/2012	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
	4/16/2013	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
	9/16/2013	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	4/1/2014	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	9/25/2014	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	3/14/2015	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	9/16/2015	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	3/11/2016	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	8/23/2016	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	4/11/2017	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	10/9/2017	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	4/5/2018	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	9/11/2018	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	3/28/2019	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
	9/23/2019	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
	4/15/2020	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
	7/21/2021	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	7/21/2021	N/A	N/A	< 0.001	N/A	N/A	N/A
	4/5/2022	< 0.001	< 0.001	< 0.001	< 0.004	< 0.001	< 0.001
	4/5/2022	N/A	N/A	N/A	< 0.004	N/A	N/A
	7/14/2023	< 0.001	0.000306*	< 0.001	< 0.001	< 0.001	< 0.001
	7/14/2023	N/A	N/A	N/A	N/A	< 0.001	N/A
Tin, mg/L (CAS NO - 7440-31-5)	3/18/2011	N/A	< 0.02	N/A	N/A	< 0.02	N/A
	3/26/2012	N/A	< 0.02	N/A	N/A	< 0.02	N/A
	4/16/2013	< 0.02	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.02	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.02	N/A	N/A	< 0.02	N/A
	4/5/2022	< 0.005	< 0.005	N/A	N/A	< 0.005	N/A
Vanadium, mg/L (CAS NO - 7440-62-2)	3/29/2010	0.0136	0.0334	0.0333	< 0.01	< 0.01	0.0114
	9/8/2010	< 0.01	0.0308	0.033	< 0.01	< 0.01	< 0.01
	3/18/2011	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
	9/8/2011	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
	3/26/2012	< 0.02	< 0.02	0.0208	< 0.02	< 0.02	< 0.02
	8/21/2012	< 0.02	< 0.02	0.0212	< 0.02	< 0.02	< 0.02
	4/16/2013	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
	9/16/2013	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
	4/1/2014	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
	9/25/2014	< 0.02	0.027	< 0.02	< 0.02	< 0.02	< 0.02
	3/14/2015	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
	9/16/2015	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
	3/11/2016	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
	8/23/2016	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
	4/11/2017	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
	10/9/2017	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
	4/5/2018	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
	9/11/2018	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
	3/28/2019	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
	9/23/2019	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
	4/15/2020	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
	7/21/2021	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
	7/21/2021	N/A	N/A	< 0.005	N/A	N/A	N/A
	4/5/2022	< 0.005	< 0.005	< 0.005	< 0.02	< 0.005	< 0.005
	4/5/2022	N/A	N/A	N/A	< 0.02	N/A	N/A
	7/14/2023	< 0.005	< 0.005	< 0.005	0.00123*	< 0.005	0.00148*
	7/14/2023	N/A	N/A	N/A	N/A	< 0.005	N/A

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Summary of Groundwater Chemistry

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

	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Total Metals Constituents							
Zinc, mg/L (CAS NO - 7440-66-6)	3/29/2010	< 0.01	0.0259	0.0205	< 0.01	< 0.01	< 0.01
	9/8/2010	< 0.01	0.0377	0.0296	< 0.01	< 0.01	< 0.01
	3/18/2011	< 0.008	0.012	0.01	< 0.008	< 0.008	< 0.008
	9/8/2011	0.008	0.0295	0.0267	0.013	< 0.008	< 0.008
	3/26/2012	0.0319	0.0425	0.0209	< 0.008	0.0299	0.0103
	8/21/2012	0.0112	0.0259	0.023	0.0152	0.0107	0.0145
	4/16/2013	0.0113	0.019	0.009	0.0086	< 0.008	< 0.008
	9/16/2013	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
	4/1/2014	0.0405	0.131	0.0198	< 0.008	0.0163	0.0098
	9/25/2014	0.0142	0.031	0.0092	< 0.008	0.0098	< 0.008
	3/14/2015	0.0219	0.0179	< 0.008	< 0.008	< 0.008	< 0.008
	9/16/2015	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008
	3/11/2016	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
	8/23/2016	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008
	4/11/2017	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008
	10/9/2017	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008
	4/5/2018	< 0.008	0.021	< 0.008	< 0.008	< 0.008	< 0.008
	9/11/2018	0.0304	0.0203	< 0.02	< 0.02	< 0.02	< 0.02
	3/28/2019	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008
	9/23/2019	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008
	4/15/2020	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
	7/21/2021	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
	7/21/2021	N/A	N/A	< 0.02	N/A	N/A	N/A
	4/5/2022	< 0.02	< 0.02	< 0.02	< 0.08	< 0.02	< 0.02
	4/5/2022	N/A	N/A	N/A	< 0.08	N/A	N/A
	7/14/2023	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
	7/14/2023	N/A	N/A	N/A	N/A	< 0.02	N/A
Total Suspended Solids, mg/L (CAS NO - TSS)							
	9/25/2014	112	427	19	7	38	35
	3/14/2015	199	259	32	15	85	49
	3/11/2016	< 2	17	3	4	33	2
	8/23/2016	5	29	5	2	98	4
	4/11/2017	48	145	25	56	43	127
	10/9/2017	3	25	< 2	4	7	< 2
	4/5/2018	2	40	4	< 2	8	< 2
	9/11/2018	4	40	3	3	42	5
	3/28/2019	< 2	19	2	5	33	< 2
	9/23/2019	5	16	4	2	96	3
	4/15/2020	13	174	10	7	99	17
	7/21/2021	4.25	10.3	6.87	19.8	39.5	7.5
	7/21/2021	N/A	N/A	7.88	N/A	N/A	N/A
	4/5/2022	< 1.88	3.13	7.62	27.3	11	1.38*
	4/5/2022	N/A	N/A	N/A	19	N/A	N/A
	7/14/2023	1.13*	3.5	0.75*	10.6	24	1.25*
	7/14/2023	N/A	N/A	N/A	N/A	77	N/A

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

Denotes Detection.

Denotes Confirmed Outlier. Statistically Excluded.

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

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Summary of Groundwater Chemistry

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

	Sample Date	MW-12 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)	3/29/2010	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2010	< 1	< 1	< 1	< 1	< 1	< 1
	3/18/2011	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2011	< 1	< 1	< 1	< 1	< 1	< 1
	3/26/2012	< 1	< 1	< 1	< 1	< 1	< 1
	8/21/2012	< 1	< 1	< 1	< 1	< 1	< 1
	4/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 1
	4/1/2014	< 1	< 1	< 1	< 1	< 1	< 1
	9/25/2014	< 1	< 1	< 1	< 1	< 1	< 1
	3/14/2015	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2015	< 1	< 1	< 1	< 1	< 1	< 1
	3/11/2016	< 1	< 1	< 1	< 1	< 1	< 1
	8/23/2016	< 1	< 1	< 1	< 1	< 1	< 1
	4/11/2017	< 1	< 1	< 1	< 1	< 1	< 1
	10/9/2017	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2018	< 1	< 1	< 1	< 1	< 1	< 1
	9/11/2018	< 1	< 1	< 1	< 1	< 1	< 1
	3/28/2019	< 1	< 1	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	< 1	< 1
	4/15/2020	< 1	< 1	< 1	< 1	< 1	< 1
	7/21/2021	< 1	< 1	N/A	N/A	< 1	N/A
	4/5/2022	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 1	N/A
1,1,1-Trichloroethane, ug/L (CAS NO - 71-55-6)	3/29/2010	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2010	< 1	< 1	< 1	< 1	< 1	< 1
	3/18/2011	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2011	< 1	< 1	< 1	< 1	< 1	< 1
	3/26/2012	< 1	< 1	< 1	< 1	< 1	< 1
	8/21/2012	< 1	< 1	< 1	< 1	< 1	< 1
	4/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 1
	4/1/2014	< 1	< 1	< 1	< 1	< 1	< 1
	9/25/2014	< 1	< 1	< 1	< 1	< 1	< 1
	3/14/2015	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2015	< 1	< 1	< 1	< 1	< 1	< 1
	3/11/2016	< 1	< 1	< 1	< 1	< 1	< 1
	8/23/2016	< 1	< 1	< 1	< 1	< 1	< 1
	4/11/2017	< 1	< 1	< 1	< 1	< 1	< 1
	10/9/2017	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2018	< 1	< 1	< 1	< 1	< 1	< 1
	9/11/2018	< 1	< 1	< 1	< 1	< 1	< 1
	3/28/2019	< 1	< 1	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	< 1	< 1
	4/15/2020	< 1	< 1	< 1	< 1	< 1	< 1
	7/21/2021	< 1	< 1	N/A	N/A	< 1	N/A
	4/5/2022	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 1	N/A

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Summary of Groundwater Chemistry

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

	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Appendix I VOC Constituents 1,1,2,2-Tetrachloroethane, ug/L (CAS NO - 79-34-5)	3/29/2010	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2010	< 1	< 1	< 1	< 1	< 1	< 1
	3/18/2011	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2011	< 1	< 1	< 1	< 1	< 1	< 1
	3/26/2012	< 1	< 1	< 1	< 1	< 1	< 1
	8/21/2012	< 1	< 1	< 1	< 1	< 1	< 1
	4/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 1
	4/1/2014	< 1	< 1	< 1	< 1	< 1	< 1
	9/25/2014	< 1	< 1	< 1	< 1	< 1	< 1
	3/14/2015	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2015	< 1	< 1	< 1	< 1	< 1	< 1
	3/11/2016	< 1	< 1	< 1	< 1	< 1	< 1
	8/23/2016	< 1	< 1	< 1	< 1	< 1	< 1
	4/11/2017	< 1	< 1	< 1	< 1	< 1	< 1
	10/9/2017	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2018	< 1	< 1	< 1	< 1	< 1	< 1
	9/11/2018	< 1	< 1	< 1	< 1	< 1	< 1
	3/28/2019	< 1	< 1	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	< 1	< 1
	4/15/2020	< 1	< 1	< 1	< 1	< 1	< 1
	7/21/2021	< 1	< 1	N/A	N/A	< 1	N/A
	4/5/2022	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 1	N/A
1,1,2-Trichloroethane, ug/L (CAS NO - 79-00-5)	3/29/2010	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2010	< 1	< 1	< 1	< 1	< 1	< 1
	3/18/2011	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2011	< 1	< 1	< 1	< 1	< 1	< 1
	3/26/2012	< 1	< 1	< 1	< 1	< 1	< 1
	8/21/2012	< 1	< 1	< 1	< 1	< 1	< 1
	4/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 1
	4/1/2014	< 1	< 1	< 1	< 1	< 1	< 1
	9/25/2014	< 1	< 1	< 1	< 1	< 1	< 1
	3/14/2015	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2015	< 1	< 1	< 1	< 1	< 1	< 1
	3/11/2016	< 1	< 1	< 1	< 1	< 1	< 1
	8/23/2016	< 1	< 1	< 1	< 1	< 1	< 1
	4/11/2017	< 1	< 1	< 1	< 1	< 1	< 1
	10/9/2017	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2018	< 1	< 1	< 1	< 1	< 1	< 1
	9/11/2018	< 1	< 1	< 1	< 1	< 1	< 1
	3/28/2019	< 1	< 1	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	< 1	< 1
	4/15/2020	< 1	< 1	< 1	< 1	< 1	< 1
	7/21/2021	< 1	< 1	N/A	N/A	< 1	N/A
	4/5/2022	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 1	N/A

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Summary of Groundwater Chemistry

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

	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Appendix I VOC Constituents 1,1-Dichloroethane, ug/L (CAS NO - 75-34-3)	3/29/2010	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2010	< 1	< 1	< 1	< 1	< 1	< 1
	3/18/2011	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2011	< 1	< 1	< 1	< 1	< 1	1.4
	3/26/2012	< 1	< 1	< 1	< 1	< 1	< 1
	8/21/2012	< 1	< 1	< 1	< 1	< 1	< 1
	4/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2013	< 1	< 1	< 1	< 1	< 1	1.2
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 1
	4/1/2014	< 1	< 1	< 1	< 1	< 1	< 1
	9/25/2014	< 1	< 1	< 1	< 1	< 1	< 1
	3/14/2015	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2015	< 1	< 1	< 1	< 1	< 1	1.1
	3/11/2016	< 1	< 1	< 1	< 1	< 1	< 1
	8/23/2016	< 1	< 1	< 1	< 1	< 1	< 1
	4/11/2017	< 1	< 1	< 1	< 1	< 1	< 1
	10/9/2017	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2018	< 1	< 1	< 1	< 1	< 1	< 1
	9/11/2018	< 1	< 1	< 1	< 1	< 1	< 1
	3/28/2019	< 1	< 1	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	< 1	< 1
	4/15/2020	< 1	< 1	< 1	< 1	< 1	< 1
	7/21/2021	< 1	< 1	N/A	N/A	0.233*	N/A
	4/5/2022	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 1	N/A
1,1-Dichloroethene, ug/L (CAS NO - 75-35-4)	3/29/2010	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2010	< 1	< 1	< 1	< 1	< 1	< 1
	3/18/2011	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2011	< 1	< 1	< 1	< 1	< 1	< 1
	3/26/2012	< 1	< 1	< 1	< 1	< 1	< 1
	8/21/2012	< 1	< 1	< 1	< 1	< 1	< 1
	4/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 1
	4/1/2014	< 1	< 1	< 1	< 1	< 1	< 1
	9/25/2014	< 1	< 1	< 1	< 1	< 1	< 1
	3/14/2015	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2015	< 1	< 1	< 1	< 1	< 1	< 1
	3/11/2016	< 1	< 1	< 1	< 1	< 1	< 1
	8/23/2016	< 1	< 1	< 1	< 1	< 1	< 1
	4/11/2017	< 1	< 1	< 1	< 1	< 1	< 1
	10/9/2017	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2018	< 1	< 1	< 1	< 1	< 1	< 1
	9/11/2018	< 1	< 1	< 1	< 1	< 1	< 1
	3/28/2019	< 1	< 1	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	< 1	< 1
	4/15/2020	< 1	< 1	< 1	< 1	< 1	< 1
	7/21/2021	< 2	< 2	N/A	N/A	< 2	N/A
	4/5/2022	< 2	< 2	N/A	N/A	< 2	N/A
	7/14/2023	< 2	< 2	N/A	N/A	< 2	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 2	N/A

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Summary of Groundwater Chemistry

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

	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Appendix I VOC Constituents 1,2,3-Trichloropropane, ug/L (CAS NO - 96-18-4)	3/29/2010	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2010	< 1	< 1	< 1	< 1	< 1	< 1
	3/18/2011	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2011	< 1	< 1	< 1	< 1	< 1	< 1
	3/26/2012	< 1	< 1	< 1	< 1	< 1	< 1
	8/21/2012	< 1	< 1	< 1	< 1	< 1	< 1
	4/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 1
	4/1/2014	< 1	< 1	< 1	< 1	< 1	< 1
	9/25/2014	< 1	< 1	< 1	< 1	< 1	< 1
	3/14/2015	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2015	< 1	< 1	< 1	< 1	< 1	< 1
	3/11/2016	< 1	< 1	< 1	< 1	< 1	< 1
	8/23/2016	< 1	< 1	< 1	< 1	< 1	< 1
	4/11/2017	< 1	< 1	< 1	< 1	< 1	< 1
	10/9/2017	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2018	< 1	< 1	< 1	< 1	< 1	< 1
	9/11/2018	< 1	< 1	< 1	< 1	< 1	< 1
	3/28/2019	< 1	< 1	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	< 1	< 1
	4/15/2020	< 1	< 1	< 1	< 1	< 1	< 1
	7/21/2021	< 1	< 1	N/A	N/A	< 1	N/A
	4/5/2022	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 1	N/A
1,2-Dibromo-3-Chloropropane, ug/L (CAS NO - 96-12-8)	3/29/2010	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2010	< 1	< 1	< 1	< 1	< 1	< 1
	3/18/2011	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2011	< 1	< 1	< 1	< 1	< 1	< 1
	3/26/2012	< 1	< 1	< 1	< 1	< 1	< 1
	8/21/2012	< 1	< 1	< 1	< 1	< 1	< 1
	4/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 1
	4/1/2014	< 1	< 1	< 1	< 1	< 1	< 1
	9/25/2014	< 1	< 1	< 1	< 1	< 1	< 1
	3/14/2015	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2015	< 1	< 1	< 1	< 1	< 1	< 1
	3/11/2016	< 1	< 1	< 1	< 1	< 1	< 1
	8/23/2016	< 1	< 1	< 1	< 1	< 1	< 1
	4/11/2017	< 1	< 1	< 1	< 1	< 1	< 1
	10/9/2017	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2018	< 1	< 1	< 1	< 1	< 1	< 1
	9/11/2018	< 1	< 1	< 1	< 1	< 1	< 1
	3/28/2019	< 1	< 1	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	< 1	< 1
	4/15/2020	< 5	< 5	< 5	< 5	< 5	< 5
	7/21/2021	< 5	< 5	N/A	N/A	< 5	N/A
	4/5/2022	< 5	< 5	N/A	N/A	< 5	N/A
	7/14/2023	< 5	< 5	N/A	N/A	< 5	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 5	N/A

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Summary of Groundwater Chemistry

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

	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Appendix I VOC Constituents							
1,2-Dibromoethane [EDB], ug/L (CAS NO - 106-93-4)	3/29/2010	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2010	< 1	< 1	< 1	< 1	< 1	< 1
	3/18/2011	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2011	< 1	< 1	< 1	< 1	< 1	< 1
	3/26/2012	< 1	< 1	< 1	< 1	< 1	< 1
	8/21/2012	< 1	< 1	< 1	< 1	< 1	< 1
	4/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	4/1/2014	< 1	< 1	< 1	< 1	< 1	< 1
	9/25/2014	< 1	< 1	< 1	< 1	< 1	< 1
	3/14/2015	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2015	< 1	< 1	< 1	< 1	< 1	< 1
	3/11/2016	< 1	< 1	< 1	< 1	< 1	< 1
	8/23/2016	< 1	< 1	< 1	< 1	< 1	< 1
	4/11/2017	< 1	< 1	< 1	< 1	< 1	< 1
	10/9/2017	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2018	< 1	< 1	< 1	< 1	< 1	< 1
	9/11/2018	< 1	< 1	< 1	< 1	< 1	< 1
	3/28/2019	< 1	< 1	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	< 1	< 1
	4/15/2020	< 1	< 1	< 1	< 1	< 1	< 1
	7/21/2021	< 1	< 1	N/A	N/A	< 1	N/A
	4/5/2022	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 1	N/A
1,2-Dichlorobenzene, ug/L (CAS NO - 95-50-1)	3/29/2010	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2010	< 1	< 1	< 1	< 1	< 1	< 1
	3/18/2011	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2011	< 1	< 1	< 1	< 1	< 1	< 1
	3/26/2012	< 1	< 1	< 1	< 1	< 1	< 1
	8/21/2012	< 1	< 1	< 1	< 1	< 1	< 1
	4/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 1
	4/1/2014	< 1	< 1	< 1	< 1	< 1	< 1
	9/25/2014	< 1	< 1	< 1	< 1	< 1	< 1
	3/14/2015	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2015	< 1	< 1	< 1	< 1	< 1	< 1
	3/11/2016	< 1	< 1	< 1	< 1	< 1	< 1
	8/23/2016	< 1	< 1	< 1	< 1	< 1	< 1
	4/11/2017	< 1	< 1	< 1	< 1	< 1	< 1
	10/9/2017	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2018	< 1	< 1	< 1	< 1	< 1	< 1
	9/11/2018	< 1	< 1	< 1	< 1	< 1	< 1
	3/28/2019	< 1	< 1	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	< 1	< 1
	4/15/2020	< 1	< 1	< 1	< 1	< 1	< 1
	7/21/2021	< 1	< 1	N/A	N/A	< 1	N/A
	4/5/2022	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 1	N/A

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Summary of Groundwater Chemistry

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

	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Appendix I VOC Constituents 1,2-Dichloroethane, ug/L (CAS NO - 107-06-2)	3/29/2010	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2010	< 1	< 1	< 1	< 1	< 1	< 1
	3/18/2011	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2011	< 1	< 1	< 1	< 1	< 1	< 1
	3/26/2012	< 1	< 1	< 1	< 1	< 1	< 1
	8/21/2012	< 1	< 1	< 1	< 1	< 1	< 1
	4/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 1
	4/1/2014	< 1	< 1	< 1	< 1	< 1	< 1
	9/25/2014	< 1	< 1	< 1	< 1	< 1	< 1
	3/14/2015	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2015	< 1	< 1	< 1	< 1	< 1	< 1
	3/11/2016	< 1	< 1	< 1	< 1	< 1	< 1
	8/23/2016	< 1	< 1	< 1	< 1	< 1	< 1
	4/11/2017	< 1	< 1	< 1	< 1	< 1	< 1
	10/9/2017	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2018	< 1	< 1	< 1	< 1	< 1	< 1
	9/11/2018	< 1	< 1	< 1	< 1	< 1	< 1
	3/28/2019	< 1	< 1	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	< 1	< 1
	4/15/2020	< 1	< 1	< 1	< 1	< 1	< 1
	7/21/2021	< 1	< 1	N/A	N/A	< 1	N/A
	4/5/2022	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 1	N/A
1,2-Dichloropropane, ug/L (CAS NO - 78-87-5)	3/29/2010	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2010	< 1	< 1	< 1	< 1	< 1	< 1
	3/18/2011	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2011	< 1	< 1	< 1	< 1	< 1	< 1
	3/26/2012	< 1	< 1	< 1	< 1	< 1	< 1
	8/21/2012	< 1	< 1	< 1	< 1	< 1	< 1
	4/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 1
	4/1/2014	< 1	< 1	< 1	< 1	< 1	< 1
	9/25/2014	< 1	< 1	< 1	< 1	< 1	< 1
	3/14/2015	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2015	< 1	< 1	< 1	< 1	< 1	< 1
	3/11/2016	< 1	< 1	< 1	< 1	< 1	< 1
	8/23/2016	< 1	< 1	< 1	< 1	< 1	< 1
	4/11/2017	< 1	< 1	< 1	< 1	< 1	< 1
	10/9/2017	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2018	< 1	< 1	< 1	< 1	< 1	< 1
	9/11/2018	< 1	< 1	< 1	< 1	< 1	< 1
	3/28/2019	< 1	< 1	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	< 1	< 1
	4/15/2020	< 1	< 1	< 1	< 1	< 1	< 1
	7/21/2021	< 1	< 1	N/A	N/A	< 1	N/A
	4/5/2022	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 1	N/A

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Summary of Groundwater Chemistry

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

	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Appendix I VOC Constituents 1,4-Dichlorobenzene, ug/L (CAS NO - 106-46-7)	3/29/2010	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2010	< 1	< 1	< 1	< 1	< 1	< 1
	3/18/2011	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2011	< 1	< 1	< 1	< 1	< 1	< 1
	3/26/2012	< 1	< 1	< 1	< 1	< 1	< 1
	8/21/2012	< 1	< 1	< 1	< 1	< 1	< 1
	4/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 1
	4/1/2014	< 1	< 1	< 1	< 1	< 1	< 1
	9/25/2014	< 1	< 1	< 1	< 1	< 1	< 1
	3/14/2015	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2015	< 1	< 1	< 1	< 1	< 1	< 1
	3/11/2016	< 1	< 1	< 1	< 1	< 1	< 1
	8/23/2016	< 1	< 1	< 1	< 1	< 1	< 1
	4/11/2017	< 1	< 1	< 1	< 1	< 1	< 1
	10/9/2017	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2018	< 1	< 1	< 1	< 1	< 1	< 1
	9/11/2018	< 1	< 1	< 1	< 1	< 1	< 1
	3/28/2019	< 1	< 1	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	< 1	< 1
	4/15/2020	< 1	< 1	< 1	< 1	< 1	< 1
	7/21/2021	< 1	0.828*	N/A	N/A	< 1	N/A
	4/5/2022	< 1	1.17	N/A	N/A	< 1	N/A
	7/14/2023	< 1	0.883*	N/A	N/A	< 1	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 1	N/A
2-Butanone, ug/L (CAS NO - 78-93-3)	3/29/2010	< 5	< 5	< 5	< 5	< 5	< 5
	9/8/2010	< 5	< 5	< 5	< 5	< 5	< 5
	3/18/2011	< 5	< 5	< 5	< 5	< 5	< 5
	9/8/2011	< 5	< 5	< 5	< 5	< 5	< 5
	3/26/2012	< 5	< 5	< 5	< 5	< 5	< 5
	8/21/2012	< 5	< 5	< 5	< 5	< 5	< 5
	4/16/2013	< 5	< 5	< 5	< 5	< 5	< 5
	9/16/2013	< 5	< 5	< 5	< 5	< 5	< 5
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 5
	4/1/2014	< 5	< 5	< 5	< 5	< 5	< 5
	9/25/2014	< 5	< 5	< 5	< 5	< 5	< 5
	3/14/2015	< 5	< 5	< 5	< 5	< 5	< 5
	9/16/2015	< 5	< 5	< 5	< 5	< 5	< 5
	3/11/2016	< 5	< 5	< 5	< 5	< 5	< 5
	8/23/2016	< 5	< 5	< 5	< 5	< 5	< 5
	4/11/2017	< 5	< 5	< 5	< 5	< 5	< 5
	10/9/2017	< 5	< 5	< 5	< 5	< 5	< 5
	4/5/2018	< 5	< 5	< 5	< 5	< 5	< 5
	9/11/2018	< 5	< 5	< 5	< 5	< 5	< 5
	3/28/2019	< 5	< 5	< 5	< 5	< 5	< 5
	9/23/2019	< 5	< 5	< 5	< 5	< 5	< 5
	4/15/2020	< 5	< 5	< 5	< 5	< 5	< 5
	7/21/2021	< 10	< 10	N/A	N/A	< 10	N/A
	4/5/2022	< 10	< 10	N/A	N/A	< 10	N/A
	7/14/2023	< 10	< 10	N/A	N/A	< 10	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 10	N/A

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Summary of Groundwater Chemistry

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

	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Appendix I VOC Constituents							
2-Hexanone, ug/L (CAS NO - 591-78-6)	3/29/2010	< 5	< 5	< 5	< 5	< 5	< 5
	9/8/2010	< 5	< 5	< 5	< 5	< 5	< 5
	3/18/2011	< 5	< 5	< 5	< 5	< 5	< 5
	9/8/2011	< 5	< 5	< 5	< 5	< 5	< 5
	3/26/2012	< 5	< 5	< 5	< 5	< 5	< 5
	8/21/2012	< 5	< 5	< 5	< 5	< 5	< 5
	4/16/2013	< 5	< 5	< 5	< 5	< 5	< 5
	9/16/2013	< 5	< 5	< 5	< 5	< 5	< 5
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 5
	4/1/2014	< 5	< 5	< 5	< 5	< 5	< 5
	9/25/2014	< 5	< 5	< 5	< 5	< 5	< 5
	3/14/2015	< 5	< 5	< 5	< 5	< 5	< 5
	9/16/2015	< 5	< 5	< 5	< 5	< 5	< 5
	3/11/2016	< 5	< 5	< 5	< 5	< 5	< 5
	8/23/2016	< 5	< 5	< 5	< 5	< 5	< 5
	4/11/2017	< 5	< 5	< 5	< 5	< 5	< 5
	10/9/2017	< 5	< 5	< 5	< 5	< 5	< 5
	4/5/2018	< 5	< 5	< 5	< 5	< 5	< 5
	9/11/2018	< 5	< 5	< 5	< 5	< 5	< 5
	3/28/2019	< 5	< 5	< 5	< 5	< 5	< 5
	9/23/2019	< 5	< 5	< 5	< 5	< 5	< 5
	4/15/2020	< 5	< 5	< 5	< 5	< 5	< 5
	7/21/2021	< 10	< 10	N/A	N/A	< 10	N/A
	4/5/2022	< 10	< 10	N/A	N/A	< 10	N/A
	7/14/2023	< 10	< 10	N/A	N/A	< 10	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 10	N/A
4-Methyl-2-Pentanone, ug/L (CAS NO - 108-10-1)	3/29/2010	< 5	< 5	< 5	< 5	< 5	< 5
	9/8/2010	< 5	< 5	< 5	< 5	< 5	< 5
	3/18/2011	< 5	< 5	< 5	< 5	< 5	< 5
	9/8/2011	< 5	< 5	< 5	< 5	< 5	< 5
	3/26/2012	< 5	< 5	< 5	< 5	< 5	< 5
	8/21/2012	< 5	< 5	< 5	< 5	< 5	< 5
	4/16/2013	< 5	< 5	< 5	< 5	< 5	< 5
	9/16/2013	< 5	< 5	< 5	< 5	< 5	< 5
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 5
	4/1/2014	< 5	< 5	< 5	< 5	< 5	< 5
	9/25/2014	< 5	< 5	< 5	< 5	< 5	< 5
	3/14/2015	< 5	< 5	< 5	< 5	< 5	< 5
	9/16/2015	< 5	< 5	< 5	< 5	< 5	< 5
	3/11/2016	< 5	< 5	< 5	< 5	< 5	< 5
	8/23/2016	< 5	< 5	< 5	< 5	< 5	< 5
	4/11/2017	< 5	< 5	< 5	< 5	< 5	< 5
	10/9/2017	< 5	< 5	< 5	< 5	< 5	< 5
	4/5/2018	< 5	< 5	< 5	< 5	< 5	< 5
	9/11/2018	< 5	< 5	< 5	< 5	< 5	< 5
	3/28/2019	< 5	< 5	< 5	< 5	< 5	< 5
	9/23/2019	< 5	< 5	< 5	< 5	< 5	< 5
	4/15/2020	< 5	< 5	< 5	< 5	< 5	< 5
	7/21/2021	< 10	< 10	N/A	N/A	< 10	N/A
	4/5/2022	< 10	< 10	N/A	N/A	< 10	N/A
	7/14/2023	< 10	< 10	N/A	N/A	< 10	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 10	N/A

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Summary of Groundwater Chemistry

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

	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Appendix I VOC Constituents							
Acetone, ug/L (CAS NO - 67-64-1)	3/29/2010	< 10	< 10	< 10	< 10	< 10	< 10
	9/8/2010	< 10	< 10	< 10	< 10	< 10	< 10
	3/18/2011	< 10	< 10	< 10	< 10	< 10	< 10
	9/8/2011	< 10	< 10	< 10	< 10	< 10	< 10
	3/26/2012	< 10	< 10	< 10	< 10	< 10	< 10
	8/21/2012	< 10	< 10	< 10	< 10	< 10	< 10
	4/16/2013	< 10	< 10	< 10	< 10	< 10	< 10
	9/16/2013	< 10	< 10	< 10	< 10	< 10	< 10
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 10
	4/1/2014	< 10	< 10	< 10	< 10	< 10	< 10
	9/25/2014	< 10	< 10	< 10	< 10	< 10	< 10
	3/14/2015	< 10	< 10	< 10	< 10	< 10	< 10
	9/16/2015	< 10	< 10	< 10	< 10	< 10	< 10
	3/11/2016	< 10	< 10	< 10	< 10	< 10	< 10
	8/23/2016	< 10	< 10	< 10	< 10	< 10	< 10
	4/11/2017	< 10	< 10	< 10	< 10	< 10	< 10
	10/9/2017	< 10	< 10	< 10	< 10	< 10	< 10
	4/5/2018	< 10	< 10	< 10	< 10	< 10	< 10
	9/11/2018	< 10	< 10	< 10	< 10	< 10	< 10
	3/28/2019	< 10	< 10	< 10	< 10	< 10	< 10
	9/23/2019	< 10	< 10	< 10	< 10	< 10	< 10
	4/15/2020	< 10	< 10	< 10	< 10	< 10	< 10
	7/21/2021	< 10	< 10	N/A	N/A	< 10	N/A
	4/5/2022	< 10	< 10	N/A	N/A	< 10	N/A
	7/14/2023	< 10	< 10	N/A	N/A	< 10	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 10	N/A
Acrylonitrile, ug/L (CAS NO - 107-13-1)	3/29/2010	< 5	< 5	< 5	< 5	< 5	< 5
	9/8/2010	< 5	< 5	< 5	< 5	< 5	< 5
	3/18/2011	< 5	< 5	< 5	< 5	< 5	< 5
	9/8/2011	< 5	< 5	< 5	< 5	< 5	< 5
	3/26/2012	< 5	< 5	< 5	< 5	< 5	< 5
	8/21/2012	< 5	< 5	< 5	< 5	< 5	< 5
	4/16/2013	< 5	< 5	< 5	< 5	< 5	< 5
	9/16/2013	< 5	< 5	< 5	< 5	< 5	< 5
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 5
	4/1/2014	< 5	< 5	< 5	< 5	< 5	< 5
	9/25/2014	< 5	< 5	< 5	< 5	< 5	< 5
	3/14/2015	< 5	< 5	< 5	< 5	< 5	< 5
	9/16/2015	< 5	< 5	< 5	< 5	< 5	< 5
	3/11/2016	< 5	< 5	< 5	< 5	< 5	< 5
	8/23/2016	< 5	< 5	< 5	< 5	< 5	< 5
	4/11/2017	< 5	< 5	< 5	< 5	< 5	< 5
	10/9/2017	< 5	< 5	< 5	< 5	< 5	< 5
	4/5/2018	< 5	< 5	< 5	< 5	< 5	< 5
	9/11/2018	< 5	< 5	< 5	< 5	< 5	< 5
	3/28/2019	< 5	< 5	< 5	< 5	< 5	< 5
	9/23/2019	< 5	< 5	< 5	< 5	< 5	< 5
	4/15/2020	< 5	< 5	< 5	< 5	< 5	< 5
	7/21/2021	< 5	< 5	N/A	N/A	< 5	N/A
	4/5/2022	< 5	< 5	N/A	N/A	< 5	N/A
	7/14/2023	< 5	< 5	N/A	N/A	< 5	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 5	N/A

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Summary of Groundwater Chemistry

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

	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Appendix I VOC Constituents Benzene, ug/L (CAS NO - 71-43-2)	3/17/2009	N/A	N/A	N/A	N/A	1.9	N/A
	3/29/2010	< 1	< 1	< 1	< 1	2.2	< 1
	9/8/2010	< 1	< 1	< 1	< 1	1.7	< 1
	3/18/2011	< 1	< 1	< 1	< 1	1.8	< 1
	9/8/2011	< 1	< 1	< 1	< 1	2.2	< 1
	3/26/2012	< 1	< 1	< 1	< 1	1	< 1
	8/21/2012	< 1	< 1	< 1	< 1	1.8	< 1
	4/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2013	< 1	< 1	< 1	< 1	1.3	< 1
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 1
	4/1/2014	< 1	< 1	< 1	< 1	< 1	< 1
	9/25/2014	< 1	< 1	< 1	< 1	< 1	< 1
	3/14/2015	< 1	< 1	< 1	< 1	1	< 1
	9/16/2015	< 1	< 1	< 1	< 1	1.1	< 1
	3/11/2016	< 1	< 1	< 1	< 1	1.2	< 1
	8/23/2016	< 1	< 1	< 1	< 1	1.4	< 1
	4/11/2017	< 1	< 1	< 1	< 1	1	< 1
	10/9/2017	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2018	< 1	< 1	< 1	< 1	< 1	< 1
	9/11/2018	< 1	< 1	< 1	< 1	< 1	< 1
	3/28/2019	< 1	< 1	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	< 1	< 1
	4/15/2020	< 1	< 1	< 1	< 1	1.6	< 1
	7/21/2021	< 0.5	0.237*	N/A	N/A	1.55	N/A
	4/5/2022	< 0.5	< 0.5	N/A	N/A	0.269*	N/A
	7/14/2023	< 0.5	< 0.5	N/A	N/A	0.868	N/A
	7/14/2023	N/A	N/A	N/A	N/A	0.794	N/A
Bromochloromethane, ug/L (CAS NO - 74-97-5)	3/29/2010	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2010	< 1	< 1	< 1	< 1	< 1	< 1
	3/18/2011	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2011	< 1	< 1	< 1	< 1	< 1	< 1
	3/26/2012	< 1	< 1	< 1	< 1	< 1	< 1
	8/21/2012	< 1	< 1	< 1	< 1	< 1	< 1
	4/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 1
	4/1/2014	< 1	< 1	< 1	< 1	< 1	< 1
	9/25/2014	< 1	< 1	< 1	< 1	< 1	< 1
	3/14/2015	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2015	< 1	< 1	< 1	< 1	< 1	< 1
	3/11/2016	< 1	< 1	< 1	< 1	< 1	< 1
	8/23/2016	< 1	< 1	< 1	< 1	< 1	< 1
	4/11/2017	< 1	< 1	< 1	< 1	< 1	< 1
	10/9/2017	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2018	< 1	< 1	< 1	< 1	< 1	< 1
	9/11/2018	< 1	< 1	< 1	< 1	< 1	< 1
	3/28/2019	< 1	< 1	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	< 1	< 1
	4/15/2020	< 1	< 1	< 1	< 1	< 1	< 1
	7/21/2021	< 5	< 5	N/A	N/A	< 5	N/A
	4/5/2022	< 5	< 5	N/A	N/A	< 5	N/A
	7/14/2023	< 5	< 5	N/A	N/A	< 5	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 5	N/A

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Summary of Groundwater Chemistry

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

	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Appendix I VOC Constituents							
Bromodichloromethane, ug/L (CAS NO - 75-27-4)	3/29/2010	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2010	< 1	< 1	< 1	< 1	< 1	< 1
	3/18/2011	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2011	< 1	< 1	< 1	< 1	< 1	< 1
	3/26/2012	< 1	< 1	< 1	< 1	< 1	< 1
	8/21/2012	< 1	< 1	< 1	< 1	< 1	< 1
	4/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 1
	4/1/2014	< 1	< 1	< 1	< 1	< 1	< 1
	9/25/2014	< 1	< 1	< 1	< 1	< 1	< 1
	3/14/2015	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2015	< 1	< 1	< 1	< 1	< 1	< 1
	3/11/2016	< 1	< 1	< 1	< 1	< 1	< 1
	8/23/2016	< 1	< 1	< 1	< 1	< 1	< 1
	4/11/2017	< 1	< 1	< 1	< 1	< 1	< 1
	10/9/2017	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2018	< 1	< 1	< 1	< 1	< 1	< 1
	9/11/2018	< 1	< 1	< 1	< 1	< 1	< 1
	3/28/2019	< 1	< 1	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	< 1	< 1
	4/15/2020	< 1	< 1	< 1	< 1	< 1	< 1
	7/21/2021	< 1	< 1	N/A	N/A	< 1	N/A
	4/5/2022	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 1	N/A
Bromoform, ug/L (CAS NO - 75-25-2)	3/29/2010	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2010	< 1	< 1	< 1	< 1	< 1	< 1
	3/18/2011	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2011	< 1	< 1	< 1	< 1	< 1	< 1
	3/26/2012	< 1	< 1	< 1	< 1	< 1	< 1
	8/21/2012	< 1	< 1	< 1	< 1	< 1	< 1
	4/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 1
	4/1/2014	< 1	< 1	< 1	< 1	< 1	< 1
	9/25/2014	< 1	< 1	< 1	< 1	< 1	< 1
	3/14/2015	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2015	< 1	< 1	< 1	< 1	< 1	< 1
	3/11/2016	< 1	< 1	< 1	< 1	< 1	< 1
	8/23/2016	< 1	< 1	< 1	< 1	< 1	< 1
	4/11/2017	< 1	< 1	< 1	< 1	< 1	< 1
	10/9/2017	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2018	< 1	< 1	< 1	< 1	< 1	< 1
	9/11/2018	< 1	< 1	< 1	< 1	< 1	< 1
	3/28/2019	< 1	< 1	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	< 1	< 1
	4/15/2020	< 1	< 1	< 1	< 1	< 1	< 1
	7/21/2021	< 5	< 5	N/A	N/A	< 5	N/A
	4/5/2022	< 5	< 5	N/A	N/A	< 5	N/A
	7/14/2023	< 5	< 5	N/A	N/A	< 5	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 5	N/A

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Summary of Groundwater Chemistry

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

	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Appendix I VOC Constituents Bromomethane, ug/L (CAS NO - 74-83-9)	3/29/2010	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2010	< 1	< 1	< 1	< 1	< 1	< 1
	3/18/2011	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2011	< 1	< 1	< 1	< 1	< 1	< 1
	3/26/2012	< 1	< 1	< 1	< 1	< 1	< 1
	8/21/2012	< 1	< 1	< 1	< 1	< 1	< 1
	4/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 1
	4/1/2014	< 1	< 1	< 1	< 1	< 1	< 1
	9/25/2014	< 1	< 1	< 1	< 1	< 1	< 1
	3/14/2015	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2015	< 1	< 1	< 1	< 1	< 1	< 1
	3/11/2016	< 1	< 1	< 1	< 1	< 1	< 1
	8/23/2016	< 1	< 1	< 1	< 1	< 1	< 1
	4/11/2017	< 1	< 1	< 1	< 1	< 1	< 1
	10/9/2017	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2018	< 1	< 1	< 1	< 1	< 1	< 1
	9/11/2018	< 1	< 1	< 1	< 1	< 1	< 1
	3/28/2019	< 1	< 1	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	< 1	< 1
	4/15/2020	< 1	< 1	< 1	< 1	< 1	< 1
	7/21/2021	< 4	< 4	N/A	N/A	< 4	N/A
	4/5/2022	< 4	< 4	N/A	N/A	< 4	N/A
	7/14/2023	< 4	< 4	N/A	N/A	< 4	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 4	N/A
Carbon Disulfide, ug/L (CAS NO - 75-15-0)	3/29/2010	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2010	< 1	< 1	< 1	< 1	< 1	< 1
	3/18/2011	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2011	< 1	< 1	< 1	< 1	< 1	< 1
	3/26/2012	< 1	< 1	< 1	< 1	< 1	< 1
	8/21/2012	< 1	< 1	< 1	< 1	< 1	< 1
	4/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 1
	4/1/2014	< 1	< 1	< 1	< 1	< 1	< 1
	9/25/2014	< 1	< 1	< 1	< 1	< 1	< 1
	3/14/2015	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2015	< 1	< 1	< 1	< 1	< 1	< 1
	3/11/2016	< 1	< 1	< 1	< 1	< 1	< 1
	8/23/2016	< 1	< 1	< 1	< 1	< 1	< 1
	4/11/2017	< 1	< 1	< 1	< 1	< 1	< 1
	10/9/2017	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2018	< 1	< 1	< 1	< 1	< 1	< 1
	9/11/2018	< 1	< 1	< 1	< 1	< 1	< 1
	3/28/2019	< 1	< 1	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	< 1	< 1
	4/15/2020	< 1	< 1	< 1	< 1	< 1	< 1
	7/21/2021	< 1	< 1	N/A	N/A	< 1	N/A
	4/5/2022	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 1	N/A

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Summary of Groundwater Chemistry

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

	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Appendix I VOC Constituents Carbon Tetrachloride, ug/L (CAS NO - 56-23-5)	3/29/2010	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2010	< 1	< 1	< 1	< 1	< 1	< 1
	3/18/2011	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2011	< 1	< 1	< 1	< 1	< 1	< 1
	3/26/2012	< 1	< 1	< 1	< 1	< 1	< 1
	8/21/2012	< 1	< 1	< 1	< 1	< 1	< 1
	4/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 1
	4/1/2014	< 1	< 1	< 1	< 1	< 1	< 1
	9/25/2014	< 1	< 1	< 1	< 1	< 1	< 1
	3/14/2015	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2015	< 1	< 1	< 1	< 1	< 1	< 1
	3/11/2016	< 1	< 1	< 1	< 1	< 1	< 1
	8/23/2016	< 1	< 1	< 1	< 1	< 1	< 1
	4/11/2017	< 1	< 1	< 1	< 1	< 1	< 1
	10/9/2017	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2018	< 1	< 1	< 1	< 1	< 1	< 1
	9/11/2018	< 1	< 1	< 1	< 1	< 1	< 1
	3/28/2019	< 1	< 1	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	< 1	< 1
	4/15/2020	< 1	< 1	< 1	< 1	< 1	< 1
	7/21/2021	< 2	< 2	N/A	N/A	< 2	N/A
	4/5/2022	< 2	< 2	N/A	N/A	< 2	N/A
	7/14/2023	< 2	< 2	N/A	N/A	< 2	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 2	N/A
Chlorobenzene, ug/L (CAS NO - 108-90-7)	3/29/2010	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2010	< 1	< 1	< 1	< 1	< 1	< 1
	3/18/2011	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2011	< 1	< 1	< 1	< 1	1.1	< 1
	3/26/2012	< 1	1	< 1	< 1	< 1	< 1
	8/21/2012	< 1	1.9	< 1	< 1	1.2	< 1
	4/16/2013	< 1	1.4	< 1	< 1	< 1	< 1
	9/16/2013	< 1	1.3	< 1	< 1	1.2	< 1
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 1
	4/1/2014	< 1	2.2	< 1	< 1	< 1	< 1
	9/25/2014	< 1	1.9	< 1	< 1	< 1	< 1
	3/14/2015	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2015	< 1	1.2	< 1	< 1	< 1	< 1
	3/11/2016	< 1	2.4	< 1	< 1	< 1	< 1
	8/23/2016	< 1	2.1	< 1	< 1	< 1	< 1
	4/11/2017	< 1	< 1	< 1	< 1	< 1	< 1
	10/9/2017	< 1	1.6	< 1	< 1	< 1	< 1
	4/5/2018	< 1	2.1	< 1	< 1	< 1	< 1
	9/11/2018	< 1	1.5	< 1	< 1	< 1	< 1
	3/28/2019	< 1	2.7	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	< 1	< 1
	4/15/2020	< 1	< 1	< 1	< 1	< 1	< 1
	7/21/2021	< 1	1.88	N/A	N/A	1.08	N/A
	4/5/2022	< 1	3.02	N/A	N/A	< 1	N/A
	7/14/2023	< 1	1.7	N/A	N/A	0.821*	N/A
	7/14/2023	N/A	N/A	N/A	N/A	0.719*	N/A

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Summary of Groundwater Chemistry

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

	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Appendix I VOC Constituents							
Chlorodibromomethane, ug/L (CAS NO - 124-48-1)	3/29/2010	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2010	< 1	< 1	< 1	< 1	< 1	< 1
	3/18/2011	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2011	< 1	< 1	< 1	< 1	< 1	< 1
	3/26/2012	< 1	< 1	< 1	< 1	< 1	< 1
	8/21/2012	< 1	< 1	< 1	< 1	< 1	< 1
	4/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	4/1/2014	< 1	< 1	< 1	< 1	< 1	< 1
	9/25/2014	< 1	< 1	< 1	< 1	< 1	< 1
	3/14/2015	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2015	< 1	< 1	< 1	< 1	< 1	< 1
	3/11/2016	< 1	< 1	< 1	< 1	< 1	< 1
	8/23/2016	< 1	< 1	< 1	< 1	< 1	< 1
	4/11/2017	< 1	< 1	< 1	< 1	< 1	< 1
	10/9/2017	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2018	< 1	< 1	< 1	< 1	< 1	< 1
	9/11/2018	< 1	< 1	< 1	< 1	< 1	< 1
	3/28/2019	< 1	< 1	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	< 1	< 1
	4/15/2020	< 1	< 1	< 1	< 1	< 1	< 1
	7/21/2021	< 5	< 5	N/A	N/A	< 5	N/A
	4/5/2022	< 5	< 5	N/A	N/A	< 5	N/A
	7/14/2023	< 5	< 5	N/A	N/A	< 5	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 5	N/A
Chloroethane, ug/L (CAS NO - 75-00-3)	3/29/2010	< 1	< 1	< 1	< 1	3.9	< 1
	9/8/2010	< 1	< 1	< 1	< 1	4.4	< 1
	3/18/2011	< 1	< 1	< 1	< 1	3.9	< 1
	9/8/2011	< 1	< 1	< 1	< 1	4.9	1
	3/26/2012	< 1	< 1	< 1	< 1	1.4	< 1
	8/21/2012	< 1	< 1	< 1	< 1	3.6	< 1
	4/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2013	< 1	< 1	< 1	< 1	2.9	< 1
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 1
	4/1/2014	< 1	< 1	< 1	< 1	2	< 1
	9/25/2014	< 1	< 1	< 1	< 1	1.4	< 1
	3/14/2015	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2015	< 1	< 1	< 1	< 1	2.4	< 1
	3/11/2016	< 1	< 1	< 1	< 1	2.3	< 1
	8/23/2016	< 1	< 1	< 1	< 1	2.4	< 1
	4/11/2017	< 1	< 1	< 1	< 1	1.6	< 1
	10/9/2017	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2018	< 1	< 1	< 1	< 1	< 1	< 1
	9/11/2018	< 1	< 1	< 1	< 1	< 1	< 1
	3/28/2019	< 1	< 1	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	1.5	< 1
	4/15/2020	< 1	< 1	< 1	< 1	1.9	< 1
	7/21/2021	< 4	< 4	N/A	N/A	2.21*	N/A
	4/5/2022	< 4	< 4	N/A	N/A	< 4	N/A
	7/14/2023	< 4	< 4	N/A	N/A	1.35*	N/A
	7/14/2023	N/A	N/A	N/A	N/A	1.26*	N/A

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Summary of Groundwater Chemistry

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

	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Appendix I VOC Constituents Chloroform, ug/L (CAS NO - 67-66-3)	3/29/2010	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2010	< 1	< 1	< 1	< 1	< 1	< 1
	3/18/2011	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2011	< 1	< 1	< 1	< 1	< 1	< 1
	3/26/2012	< 1	< 1	< 1	< 1	< 1	< 1
	8/21/2012	< 1	< 1	< 1	< 1	< 1	< 1
	4/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 1
	4/1/2014	< 1	< 1	< 1	< 1	< 1	< 1
	9/25/2014	< 1	< 1	< 1	< 1	< 1	< 1
	3/14/2015	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2015	< 1	< 1	< 1	< 1	< 1	< 1
	3/11/2016	< 1	< 1	< 1	< 1	< 1	< 1
	8/23/2016	< 1	< 1	< 1	< 1	< 1	< 1
	4/11/2017	< 1	< 1	< 1	< 1	< 1	< 1
	10/9/2017	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2018	< 1	< 1	< 1	< 1	< 1	< 1
	9/11/2018	< 1	< 1	< 1	< 1	< 1	< 1
	3/28/2019	< 1	< 1	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	< 1	< 1
	4/15/2020	< 1	< 1	< 1	< 1	< 1	< 1
	7/21/2021	< 3	< 3	N/A	N/A	< 3	N/A
	4/5/2022	< 3	< 3	N/A	N/A	< 3	N/A
	7/14/2023	< 3	< 3	N/A	N/A	< 3	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 3	N/A
Chloromethane, ug/L (CAS NO - 74-87-3)	3/29/2010	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2010	< 1	< 1	< 1	< 1	< 1	< 1
	3/18/2011	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2011	< 1	< 1	< 1	< 1	< 1	< 1
	3/26/2012	< 1	< 1	< 1	< 1	< 1	< 1
	8/21/2012	< 1	< 1	< 1	< 1	< 1	< 1
	4/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 1
	4/1/2014	< 1	< 1	< 1	< 1	< 1	< 1
	9/25/2014	< 1	< 1	< 1	< 1	< 1	< 1
	3/14/2015	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2015	< 1	< 1	< 1	< 1	< 1	< 1
	3/11/2016	< 1	< 1	< 1	< 1	< 1	< 1
	8/23/2016	< 1	< 1	< 1	< 1	< 1	< 1
	4/11/2017	< 1	< 1	< 1	< 1	< 1	< 1
	10/9/2017	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2018	< 1	< 1	< 1	< 1	< 1	< 1
	9/11/2018	< 1	< 1	< 1	< 1	< 1	< 1
	3/28/2019	< 1	< 1	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	< 1	< 1
	4/15/2020	< 1	< 1	< 1	< 1	< 1	< 1
	7/21/2021	< 3	< 3	N/A	N/A	< 3	N/A
	4/5/2022	< 3	< 3	N/A	N/A	< 3	N/A
	7/14/2023	< 3	< 3	N/A	N/A	< 3	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 3	N/A

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Summary of Groundwater Chemistry

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

	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Appendix I VOC Constituents cis-1,2-Dichloroethene, ug/L (CAS NO - 156-59-2)	3/29/2010	< 1	8.4	< 1	< 1	1.2	< 1
	9/8/2010	< 1	9	< 1	< 1	2.1	< 1
	3/18/2011	< 1	8.2	< 1	< 1	1.6	< 1
	9/8/2011	< 1	9.8	< 1	< 1	3.7	< 1
	3/26/2012	< 1	8.1	< 1	< 1	< 1	< 1
	8/21/2012	< 1	14.4	< 1	< 1	2.9	< 1
	4/16/2013	< 1	6.8	< 1	< 1	< 1	< 1
	9/16/2013	< 1	6.1	< 1	< 1	2	< 1
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 1
	4/1/2014	1.7	11.8	< 1	< 1	1.4	< 1
	9/25/2014	< 1	9.3	< 1	< 1	< 1	< 1
	3/14/2015	< 1	1.8	< 1	< 1	1.4	< 1
	9/16/2015	< 1	3.6	< 1	< 1	1.4	< 1
	3/11/2016	< 1	9.3	< 1	< 1	1.2	< 1
	8/23/2016	< 1	6.7	< 1	< 1	1.7	< 1
	4/11/2017	< 1	< 1	< 1	< 1	< 1	< 1
	10/9/2017	< 1	5.1	< 1	< 1	< 1	< 1
	4/5/2018	< 1	6.3	< 1	< 1	< 1	< 1
	9/11/2018	< 1	5.2	< 1	< 1	< 1	< 1
	3/28/2019	< 1	7.5	< 1	< 1	< 1	< 1
	9/23/2019	< 1	3.4	< 1	< 1	< 1	< 1
	4/15/2020	< 1	< 1	< 1	< 1	< 1	< 1
	7/21/2021	< 1	4.29	N/A	N/A	1.85	N/A
	4/5/2022	0.576*	6.23	N/A	N/A	0.319*	N/A
	7/14/2023	1.75	3.51	N/A	N/A	0.714*	N/A
	7/14/2023	N/A	N/A	N/A	N/A	0.794*	N/A
cis-1,3-Dichloropropene, ug/L (CAS NO - 10061-01-5)	3/29/2010	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2010	< 1	< 1	< 1	< 1	< 1	< 1
	3/18/2011	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2011	< 1	< 1	< 1	< 1	< 1	< 1
	3/26/2012	< 1	< 1	< 1	< 1	< 1	< 1
	8/21/2012	< 1	< 1	< 1	< 1	< 1	< 1
	4/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 1
	4/1/2014	< 1	< 1	< 1	< 1	< 1	< 1
	9/25/2014	< 1	< 1	< 1	< 1	< 1	< 1
	3/14/2015	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2015	< 1	< 1	< 1	< 1	< 1	< 1
	3/11/2016	< 1	< 1	< 1	< 1	< 1	< 1
	8/23/2016	< 1	< 1	< 1	< 1	< 1	< 1
	4/11/2017	< 1	< 1	< 1	< 1	< 1	< 1
	10/9/2017	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2018	< 1	< 1	< 1	< 1	< 1	< 1
	9/11/2018	< 1	< 1	< 1	< 1	< 1	< 1
	3/28/2019	< 1	< 1	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	< 1	< 1
	4/15/2020	< 1	< 1	< 1	< 1	< 1	< 1
	7/21/2021	< 5	< 5	N/A	N/A	< 5	N/A
	4/5/2022	< 5	< 5	N/A	N/A	< 5	N/A
	7/14/2023	< 5	< 5	N/A	N/A	< 5	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 5	N/A

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Summary of Groundwater Chemistry

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

	Sample Date	MW-12 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)	3/29/2010	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2010	< 1	< 1	< 1	< 1	< 1	< 1
	3/18/2011	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2011	< 1	< 1	< 1	< 1	< 1	< 1
	3/26/2012	< 1	< 1	< 1	< 1	< 1	< 1
	8/21/2012	< 1	< 1	< 1	< 1	< 1	< 1
	4/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 1
	4/1/2014	< 1	< 1	< 1	< 1	< 1	< 1
	9/25/2014	< 1	< 1	< 1	< 1	< 1	< 1
	3/14/2015	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2015	< 1	< 1	< 1	< 1	< 1	< 1
	3/11/2016	< 1	< 1	< 1	< 1	< 1	< 1
	8/23/2016	< 1	< 1	< 1	< 1	< 1	< 1
	4/11/2017	< 1	< 1	< 1	< 1	< 1	< 1
	10/9/2017	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2018	< 1	< 1	< 1	< 1	< 1	< 1
	9/11/2018	< 1	< 1	< 1	< 1	< 1	< 1
	3/28/2019	< 1	< 1	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	< 1	< 1
	4/15/2020	< 1	< 1	< 1	< 1	< 1	< 1
	7/21/2021	< 1	< 1	N/A	N/A	< 1	N/A
	4/5/2022	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 1	N/A
Iodomethane, ug/L (CAS NO - 74-88-4)	3/29/2010	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2010	< 1	< 1	< 1	< 1	< 1	< 1
	3/18/2011	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2011	< 1	< 1	< 1	< 1	< 1	< 1
	3/26/2012	< 1	< 1	< 1	< 1	< 1	< 1
	8/21/2012	< 1	< 1	< 1	< 1	< 1	< 1
	4/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 1
	4/1/2014	< 1	< 1	< 1	< 1	< 1	< 1
	9/25/2014	< 1	< 1	< 1	< 1	< 1	< 1
	3/14/2015	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2015	< 1	< 1	< 1	< 1	< 1	< 1
	3/11/2016	< 1	< 1	< 1	< 1	< 1	< 1
	8/23/2016	< 1	< 1	< 1	< 1	< 1	< 1
	4/11/2017	< 1	< 1	< 1	< 1	< 1	< 1
	10/9/2017	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2018	< 1	< 1	< 1	< 1	< 1	< 1
	9/11/2018	< 1	< 1	< 1	< 1	< 1	< 1
	3/28/2019	< 1	< 1	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	< 1	< 1
	4/15/2020	< 1	< 1	< 1	< 1	< 1	< 1
	7/21/2021	< 10	< 10	N/A	N/A	< 10	N/A
	4/5/2022	< 10	< 10	N/A	N/A	< 10	N/A
	7/14/2023	< 10	< 10	N/A	N/A	< 10	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 10	N/A

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Summary of Groundwater Chemistry

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

	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Appendix I VOC Constituents Methylene Bromide, ug/L (CAS NO - 74-95-3)	3/29/2010	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2010	< 1	< 1	< 1	< 1	< 1	< 1
	3/18/2011	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2011	< 1	< 1	< 1	< 1	< 1	< 1
	3/26/2012	< 1	< 1	< 1	< 1	< 1	< 1
	8/21/2012	< 1	< 1	< 1	< 1	< 1	< 1
	4/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 1
	4/1/2014	< 1	< 1	< 1	< 1	< 1	< 1
	9/25/2014	< 1	< 1	< 1	< 1	< 1	< 1
	3/14/2015	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2015	< 1	< 1	< 1	< 1	< 1	< 1
	3/11/2016	< 1	< 1	< 1	< 1	< 1	< 1
	8/23/2016	< 1	< 1	< 1	< 1	< 1	< 1
	4/11/2017	< 1	< 1	< 1	< 1	< 1	< 1
	10/9/2017	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2018	< 1	< 1	< 1	< 1	< 1	< 1
	9/11/2018	< 1	< 1	< 1	< 1	< 1	< 1
	3/28/2019	< 1	< 1	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	< 1	< 1
	4/15/2020	< 1	< 1	< 1	< 1	< 1	< 1
	7/21/2021	< 1	< 1	N/A	N/A	< 1	N/A
	4/5/2022	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 1	N/A
Methylene Chloride, ug/L (CAS NO - 75-09-2)	3/29/2010	< 5	< 5	< 5	< 5	< 5	< 5
	9/8/2010	< 5	< 5	< 5	< 5	< 5	< 5
	3/18/2011	< 5	< 5	< 5	< 5	< 5	< 5
	9/8/2011	< 5	< 5	< 5	< 5	< 5	< 5
	3/26/2012	< 5	< 5	< 5	< 5	< 5	< 5
	8/21/2012	< 5	< 5	< 5	< 5	< 5	< 5
	4/16/2013	< 5	< 5	< 5	< 5	< 5	< 5
	9/16/2013	< 5	< 5	< 5	< 5	< 5	< 5
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 5
	4/1/2014	< 5	< 5	< 5	< 5	< 5	< 5
	9/25/2014	< 5	< 5	< 5	< 5	< 5	< 5
	3/14/2015	< 5	< 5	< 5	< 5	< 5	< 5
	9/16/2015	< 5	< 5	< 5	< 5	< 5	< 5
	3/11/2016	< 5	< 5	< 5	< 5	< 5	< 5
	8/23/2016	< 5	< 5	< 5	< 5	< 5	< 5
	4/11/2017	< 5	< 5	< 5	< 5	< 5	< 5
	10/9/2017	< 5	< 5	< 5	< 5	< 5	< 5
	4/5/2018	< 5	< 5	< 5	< 5	< 5	< 5
	9/11/2018	< 5	< 5	< 5	< 5	< 5	< 5
	3/28/2019	< 5	< 5	< 5	< 5	< 5	< 5
	9/23/2019	< 5	< 5	< 5	< 5	< 5	< 5
	4/15/2020	< 5	< 5	< 5	< 5	< 5	< 5
	7/21/2021	< 5	< 5	N/A	N/A	< 5	N/A
	4/5/2022	< 5	< 5	N/A	N/A	< 5	N/A
	7/14/2023	< 5	< 5	N/A	N/A	< 5	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 5	N/A

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Summary of Groundwater Chemistry

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

	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Appendix I VOC Constituents							
Styrene, ug/L (CAS NO - 100-42-5)	3/29/2010	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2010	< 1	< 1	< 1	< 1	< 1	< 1
	3/18/2011	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2011	< 1	< 1	< 1	< 1	< 1	< 1
	3/26/2012	< 1	< 1	< 1	< 1	< 1	< 1
	8/21/2012	< 1	< 1	< 1	< 1	< 1	< 1
	4/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 1
	4/1/2014	< 1	< 1	< 1	< 1	< 1	< 1
	9/25/2014	< 1	< 1	< 1	< 1	< 1	< 1
	3/14/2015	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2015	< 1	< 1	< 1	< 1	< 1	< 1
	3/11/2016	< 1	< 1	< 1	< 1	< 1	< 1
	8/23/2016	< 1	< 1	< 1	< 1	< 1	< 1
	4/11/2017	< 1	< 1	< 1	< 1	< 1	< 1
	10/9/2017	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2018	< 1	< 1	< 1	< 1	< 1	< 1
	9/11/2018	< 1	< 1	< 1	< 1	< 1	< 1
	3/28/2019	< 1	< 1	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	< 1	< 1
	4/15/2020	< 1	< 1	< 1	< 1	< 1	< 1
	7/21/2021	< 1	< 1	N/A	N/A	< 1	N/A
	4/5/2022	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 1	N/A
Tetrachloroethene, ug/L (CAS NO - 127-18-4)	3/29/2010	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2010	< 1	< 1	< 1	< 1	< 1	< 1
	3/18/2011	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2011	< 1	< 1	< 1	< 1	< 1	< 1
	3/26/2012	1.3	< 1	< 1	< 1	< 1	< 1
	8/21/2012	1	< 1	< 1	< 1	< 1	< 1
	4/16/2013	2.6	< 1	< 1	< 1	< 1	< 1
	9/16/2013	1.8	< 1	< 1	< 1	< 1	< 1
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 1
	4/1/2014	2.4	< 1	< 1	< 1	< 1	< 1
	9/25/2014	1.5	< 1	< 1	< 1	< 1	< 1
	3/14/2015	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2015	< 1	< 1	< 1	< 1	< 1	< 1
	3/11/2016	< 1	< 1	< 1	< 1	< 1	< 1
	8/23/2016	< 1	< 1	< 1	< 1	< 1	< 1
	4/11/2017	1.6	< 1	< 1	< 1	< 1	< 1
	7/13/2017	< 1	N/A	N/A	N/A	N/A	N/A
	10/9/2017	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2018	1.7	< 1	< 1	< 1	< 1	< 1
	4/23/2018	1.7	N/A	N/A	N/A	N/A	N/A
	9/11/2018	1.5	1	< 1	< 1	< 1	< 1
	11/1/2018	N/A	< 1	N/A	N/A	N/A	N/A
	3/28/2019	< 1	< 1	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	< 1	< 1
	4/15/2020	< 1	< 1	< 1	< 1	< 1	< 1
	7/21/2021	1.25	< 1	N/A	N/A	< 1	N/A
	4/5/2022	1.4	< 1	N/A	N/A	< 1	N/A
	7/14/2023	1.74	< 1	N/A	N/A	< 1	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 1	N/A

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Summary of Groundwater Chemistry

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

	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Appendix I VOC Constituents							
Toluene, ug/L (CAS NO - 108-88-3)	3/29/2010	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2010	< 1	< 1	< 1	< 1	< 1	< 1
	3/18/2011	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2011	< 1	< 1	< 1	< 1	< 1	< 1
	3/26/2012	< 1	< 1	< 1	< 1	< 1	< 1
	8/21/2012	< 1	< 1	< 1	< 1	< 1	< 1
	4/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 1
	4/1/2014	< 1	< 1	< 1	< 1	< 1	< 1
	9/25/2014	< 1	< 1	< 1	< 1	< 1	< 1
	3/14/2015	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2015	< 1	< 1	< 1	< 1	< 1	< 1
	3/11/2016	< 1	< 1	< 1	< 1	< 1	< 1
	8/23/2016	< 1	< 1	< 1	< 1	< 1	< 1
	4/11/2017	< 1	< 1	< 1	< 1	< 1	< 1
	10/9/2017	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2018	< 1	< 1	< 1	< 1	< 1	< 1
	9/11/2018	< 1	< 1	< 1	< 1	< 1	< 1
	3/28/2019	< 1	< 1	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	< 1	< 1
	4/15/2020	< 1	< 1	< 1	< 1	< 1	< 1
	7/21/2021	< 1	< 1	N/A	N/A	< 1	N/A
	4/5/2022	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 1	N/A
trans-1,2-Dichloroethene, ug/L (CAS NO - 156-60-5)	3/29/2010	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2010	< 1	< 1	< 1	< 1	< 1	< 1
	3/18/2011	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2011	< 1	< 1	< 1	< 1	< 1	< 1
	3/26/2012	< 1	< 1	< 1	< 1	< 1	< 1
	8/21/2012	< 1	< 1	< 1	< 1	< 1	< 1
	4/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 1
	4/1/2014	< 1	< 1	< 1	< 1	< 1	< 1
	9/25/2014	< 1	< 1	< 1	< 1	< 1	< 1
	3/14/2015	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2015	< 1	< 1	< 1	< 1	< 1	< 1
	3/11/2016	< 1	< 1	< 1	< 1	< 1	< 1
	8/23/2016	< 1	< 1	< 1	< 1	< 1	< 1
	4/11/2017	< 1	< 1	< 1	< 1	< 1	< 1
	10/9/2017	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2018	< 1	< 1	< 1	< 1	< 1	< 1
	9/11/2018	< 1	< 1	< 1	< 1	< 1	< 1
	3/28/2019	< 1	< 1	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	< 1	< 1
	4/15/2020	< 1	< 1	< 1	< 1	< 1	< 1
	7/21/2021	< 1	< 1	N/A	N/A	< 1	N/A
	4/5/2022	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 1	N/A

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Summary of Groundwater Chemistry

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

	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Appendix I VOC Constituents trans-1,3-Dichloropropene, ug/L (CAS NO - 10061-02-6)	3/29/2010	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2010	< 1	< 1	< 1	< 1	< 1	< 1
	3/18/2011	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2011	< 1	< 1	< 1	< 1	< 1	< 1
	3/26/2012	< 1	< 1	< 1	< 1	< 1	< 1
	8/21/2012	< 1	< 1	< 1	< 1	< 1	< 1
	4/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 1
	4/1/2014	< 1	< 1	< 1	< 1	< 1	< 1
	9/25/2014	< 1	< 1	< 1	< 1	< 1	< 1
	3/14/2015	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2015	< 1	< 1	< 1	< 1	< 1	< 1
	3/11/2016	< 1	< 1	< 1	< 1	< 1	< 1
	8/23/2016	< 1	< 1	< 1	< 1	< 1	< 1
	4/11/2017	< 1	< 1	< 1	< 1	< 1	< 1
	10/9/2017	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2018	< 1	< 1	< 1	< 1	< 1	< 1
	9/11/2018	< 1	< 1	< 1	< 1	< 1	< 1
	3/28/2019	< 1	< 1	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	< 1	< 1
	4/15/2020	< 1	< 1	< 1	< 1	< 1	< 1
	7/21/2021	< 5	< 5	N/A	N/A	< 5	N/A
	4/5/2022	< 5	< 5	N/A	N/A	< 5	N/A
	7/14/2023	< 5	< 5	N/A	N/A	< 5	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 5	N/A
trans-1,4-Dichloro-2-Butene, ug/L (CAS NO - 110-57-6)	3/29/2010	< 5	< 5	< 5	< 5	< 5	< 5
	9/8/2010	< 5	< 5	< 5	< 5	< 5	< 5
	3/18/2011	< 5	< 5	< 5	< 5	< 5	< 5
	9/8/2011	< 5	< 5	< 5	< 5	< 5	< 5
	3/26/2012	< 5	< 5	< 5	< 5	< 5	< 5
	8/21/2012	< 5	< 5	< 5	< 5	< 5	< 5
	4/16/2013	< 5	< 5	< 5	< 5	< 5	< 5
	9/16/2013	< 5	< 5	< 5	< 5	< 5	< 5
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 5
	4/1/2014	< 5	< 5	< 5	< 5	< 5	< 5
	9/25/2014	< 5	< 5	< 5	< 5	< 5	< 5
	3/14/2015	< 5	< 5	< 5	< 5	< 5	< 5
	9/16/2015	< 5	< 5	< 5	< 5	< 5	< 5
	3/11/2016	< 5	< 5	< 5	< 5	< 5	< 5
	8/23/2016	< 5	< 5	< 5	< 5	< 5	< 5
	4/11/2017	< 5	< 5	< 5	< 5	< 5	< 5
	10/9/2017	< 5	< 5	< 5	< 5	< 5	< 5
	4/5/2018	< 5	< 5	< 5	< 5	< 5	< 5
	9/11/2018	< 5	< 5	< 5	< 5	< 5	< 5
	3/28/2019	< 5	< 5	< 5	< 5	< 5	< 5
	9/23/2019	< 5	< 5	< 5	< 5	< 5	< 5
	4/15/2020	< 5	< 5	< 5	< 5	< 5	< 5
	7/21/2021	< 10	< 10	N/A	N/A	< 10	N/A
	4/5/2022	< 10	< 10	N/A	N/A	< 10	N/A
	7/14/2023	< 10	< 10	N/A	N/A	< 10	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 10	N/A

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Summary of Groundwater Chemistry

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

	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Appendix I VOC Constituents Trichloroethene, ug/L (CAS NO - 79-01-6)	3/29/2010	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2010	< 1	< 1	< 1	< 1	< 1	< 1
	3/18/2011	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2011	< 1	< 1	< 1	< 1	< 1	< 1
	3/26/2012	< 1	< 1	< 1	< 1	< 1	< 1
	8/21/2012	< 1	< 1	< 1	< 1	< 1	< 1
	4/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 1
	4/1/2014	< 1	< 1	< 1	< 1	< 1	< 1
	9/25/2014	< 1	< 1	< 1	< 1	< 1	< 1
	3/14/2015	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2015	< 1	< 1	< 1	< 1	< 1	< 1
	3/11/2016	< 1	< 1	< 1	< 1	< 1	< 1
	8/23/2016	< 1	< 1	< 1	< 1	< 1	< 1
	4/11/2017	< 1	< 1	< 1	< 1	< 1	< 1
	10/9/2017	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2018	< 1	< 1	< 1	< 1	< 1	< 1
	9/11/2018	< 1	< 1	< 1	< 1	< 1	< 1
	3/28/2019	< 1	< 1	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	< 1	< 1
	4/15/2020	< 1	< 1	< 1	< 1	< 1	< 1
	7/21/2021	< 1	< 1	N/A	N/A	< 1	N/A
	4/5/2022	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 1	N/A
Trichlorofluoromethane, ug/L (CAS NO - 75-69-4)	3/29/2010	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2010	< 1	< 1	< 1	< 1	< 1	< 1
	3/18/2011	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2011	< 1	< 1	< 1	< 1	< 1	< 1
	3/26/2012	< 1	< 1	< 1	< 1	< 1	< 1
	8/21/2012	< 1	< 1	< 1	< 1	< 1	< 1
	4/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 1
	4/1/2014	< 1	< 1	< 1	< 1	< 1	< 1
	9/25/2014	< 1	< 1	< 1	< 1	< 1	< 1
	3/14/2015	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2015	< 1	< 1	< 1	< 1	< 1	< 1
	3/11/2016	< 1	< 1	< 1	< 1	< 1	< 1
	8/23/2016	< 1	< 1	< 1	< 1	< 1	< 1
	4/11/2017	< 1	< 1	< 1	< 1	< 1	< 1
	10/9/2017	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2018	< 1	< 1	< 1	< 1	< 1	< 1
	9/11/2018	< 1	< 1	< 1	< 1	< 1	< 1
	3/28/2019	< 1	< 1	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	< 1	< 1
	4/15/2020	< 1	< 1	< 1	< 1	< 1	< 1
	7/21/2021	< 4	< 4	N/A	N/A	< 4	N/A
	4/5/2022	< 4	< 4	N/A	N/A	< 4	N/A
	7/14/2023	< 4	< 4	N/A	N/A	< 4	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 4	N/A

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Summary of Groundwater Chemistry

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

	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Appendix I VOC Constituents							
Vinyl Acetate, ug/L (CAS NO - 108-05-4)	3/29/2010	< 5	< 5	< 5	< 5	< 5	< 5
	9/8/2010	< 5	< 5	< 5	< 5	< 5	< 5
	3/18/2011	< 5	< 5	< 5	< 5	< 5	< 5
	9/8/2011	< 5	< 5	< 5	< 5	< 5	< 5
	3/26/2012	< 5	< 5	< 5	< 5	< 5	< 5
	8/21/2012	< 5	< 5	< 5	< 5	< 5	< 5
	4/16/2013	< 5	< 5	< 5	< 5	< 5	< 5
	9/16/2013	< 5	< 5	< 5	< 5	< 5	< 5
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 5
	4/1/2014	< 5	< 5	< 5	< 5	< 5	< 5
	9/25/2014	< 5	< 5	< 5	< 5	< 5	< 5
	3/14/2015	< 5	< 5	< 5	< 5	< 5	< 5
	9/16/2015	< 5	< 5	< 5	< 5	< 5	< 5
	3/11/2016	< 5	< 5	< 5	< 5	< 5	< 5
	8/23/2016	< 5	< 5	< 5	< 5	< 5	< 5
	4/11/2017	< 5	< 5	< 5	< 5	< 5	< 5
	10/9/2017	< 5	< 5	< 5	< 5	< 5	< 5
	4/5/2018	< 5	< 5	< 5	< 5	< 5	< 5
	9/11/2018	< 5	< 5	< 5	< 5	< 5	< 5
	3/28/2019	< 5	< 5	< 5	< 5	< 5	< 5
	9/23/2019	< 5	< 5	< 5	< 5	< 5	< 5
	4/15/2020	< 5	< 5	< 5	< 5	< 5	< 5
	7/21/2021	< 10	< 10	N/A	N/A	< 10	N/A
	4/5/2022	< 10	< 10	N/A	N/A	< 10	N/A
	7/14/2023	< 10	< 10	N/A	N/A	< 10	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 10	N/A
Vinyl Chloride, ug/L (CAS NO - 75-01-4)	3/29/2010	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2010	< 1	< 1	< 1	< 1	< 1	< 1
	3/18/2011	< 1	< 1	< 1	< 1	< 1	< 1
	9/8/2011	< 1	< 1	< 1	< 1	< 1	< 1
	3/26/2012	< 1	< 1	< 1	< 1	< 1	< 1
	8/21/2012	< 1	< 1	< 1	< 1	< 1	< 1
	4/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2013	< 1	< 1	< 1	< 1	< 1	< 1
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 1
	4/1/2014	< 1	< 1	< 1	< 1	< 1	< 1
	9/25/2014	< 1	< 1	< 1	< 1	< 1	< 1
	3/14/2015	< 1	< 1	< 1	< 1	< 1	< 1
	9/16/2015	< 1	< 1	< 1	< 1	< 1	< 1
	3/11/2016	< 1	< 1	< 1	< 1	< 1	< 1
	8/23/2016	< 1	< 1	< 1	< 1	< 1	< 1
	4/11/2017	< 1	< 1	< 1	< 1	1.2	< 1
	10/9/2017	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2018	< 1	< 1	< 1	< 1	< 1	< 1
	9/11/2018	< 1	< 1	< 1	< 1	< 1	< 1
	3/28/2019	< 1	< 1	< 1	< 1	< 1	< 1
	9/23/2019	< 1	< 1	< 1	< 1	< 1	< 1
	4/15/2020	< 1	< 1	< 1	< 1	< 1	< 1
	7/21/2021	< 1	< 1	N/A	N/A	0.183*	N/A
	4/5/2022	< 1	< 1	N/A	N/A	< 1	N/A
	7/14/2023	< 1	< 1	N/A	N/A	0.209*	N/A
	7/14/2023	N/A	N/A	N/A	N/A	0.227*	N/A

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Summary of Groundwater Chemistry

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

	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Appendix I VOC Constituents							
Xylenes, total, ug/L (CAS NO - 1330-20-7)	3/29/2010	< 2	< 2	< 2	< 2	< 2	< 2
	9/8/2010	< 2	< 2	< 2	< 2	< 2	< 2
	3/18/2011	< 2	< 2	< 2	< 2	< 2	< 2
	9/8/2011	< 2	< 2	< 2	< 2	< 2	< 2
	3/26/2012	< 2	< 2	< 2	< 2	< 2	< 2
	8/21/2012	< 2	< 2	< 2	< 2	< 2	< 2
	4/16/2013	< 2	< 2	< 2	< 2	< 2	< 2
	9/16/2013	< 2	< 2	< 2	< 2	< 2	< 2
	11/29/2013	N/A	N/A	N/A	N/A	N/A	< 2
	4/1/2014	< 2	< 2	< 2	< 2	< 2	< 2
	9/25/2014	< 2	< 2	< 2	< 2	< 2	< 2
	3/14/2015	< 2	< 2	< 2	< 2	< 2	< 2
	9/16/2015	< 2	< 2	< 2	< 2	< 2	< 2
	3/11/2016	< 2	< 2	< 2	< 2	< 2	< 2
	8/23/2016	< 2	< 2	< 2	< 2	< 2	< 2
	4/11/2017	< 2	< 2	< 2	< 2	< 2	< 2
	10/9/2017	< 2	< 2	< 2	< 2	< 2	< 2
	4/5/2018	< 2	< 2	< 2	< 2	< 2	< 2
	9/11/2018	< 2	< 2	< 2	< 2	< 2	< 2
	3/28/2019	< 2	< 2	< 2	< 2	< 2	< 2
	9/23/2019	< 2	< 2	< 2	< 2	< 2	< 2
	4/15/2020	< 2	< 2	< 2	< 2	< 2	< 2
	7/21/2021	< 3	< 3	N/A	N/A	< 3	N/A
	4/5/2022	< 3	< 3	N/A	N/A	< 3	N/A
	7/14/2023	< 3	< 3	N/A	N/A	< 3	N/A
	7/14/2023	N/A	N/A	N/A	N/A	< 3	N/A

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

Denotes Detection.

Denotes Confirmed Outlier. Statistically Excluded.

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

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Summary of Groundwater Chemistry

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

Other Constituents	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
1,1-Dichloropropene, ug/L (CAS NO - 563-58-6)	3/18/2011	N/A	< 1	N/A	N/A	< 1	N/A
	3/26/2012	N/A	< 1	N/A	N/A	< 1	N/A
	4/16/2013	< 1	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 1	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 1	N/A	N/A	< 1	N/A
	4/5/2022	< 1	< 1	N/A	N/A	< 1	N/A
1,2,4,5-Tetrachlorobenzene, ug/L (CAS NO - 95-94-3)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
1,2,4-Trichlorobenzene, ug/L (CAS NO - 120-82-1)	3/18/2011	N/A	< 1	N/A	N/A	< 1	N/A
	3/26/2012	N/A	< 1	N/A	N/A	< 1	N/A
	4/16/2013	< 1	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 1	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 1	N/A	N/A	< 1	N/A
	4/5/2022	< 5	< 5	N/A	N/A	< 5	N/A
1,3,5-Trinitrobenzene, ug/L (CAS NO - 99-35-4)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
1,3-Dichlorobenzene, ug/L (CAS NO - 541-73-1)	3/18/2011	N/A	< 1	N/A	N/A	< 1	N/A
	3/26/2012	N/A	< 1	N/A	N/A	< 1	N/A
	4/16/2013	< 1	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 1	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 1	N/A	N/A	< 1	N/A
	4/5/2022	< 1	< 1	N/A	N/A	< 1	N/A
1,3-Dichloropropane, ug/L (CAS NO - 142-28-9)	3/18/2011	N/A	< 1	N/A	N/A	< 1	N/A
	3/26/2012	N/A	< 1	N/A	N/A	< 1	N/A
	4/16/2013	< 1	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 1	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 1	N/A	N/A	< 1	N/A
	4/5/2022	< 1	< 1	N/A	N/A	< 1	N/A
1,3-Dinitrobenzene, ug/L (CAS NO - 99-65-0)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
1,4-Naphthoquinone, ug/L (CAS NO - 130-15-4)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
1,4-Phenylenediamine, ug/L (CAS NO - 106-50-3)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
1-Naphthylamine, ug/L (CAS NO - 134-32-7)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A

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Summary of Groundwater Chemistry

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

Other Constituents	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
2,2-Dichloropropane, ug/L (CAS NO - 594-20-7)	3/18/2011	N/A	< 1	N/A	N/A	< 1	N/A
	3/26/2012	N/A	< 1	N/A	N/A	< 1	N/A
	4/16/2013	< 1	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 1	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 1	N/A	N/A	< 1	N/A
	4/5/2022	< 4	< 4	N/A	N/A	< 4	N/A
2,3,4,6-Tetrachlorophenol, ug/L (CAS NO - 58-90-2)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
2,4,5-T [2C], ug/L (CAS NO - 93-76-5)	3/18/2011	N/A	< 0.7	N/A	N/A	< 0.6	N/A
	3/26/2012	N/A	< 0.5	N/A	N/A	< 0.5	N/A
	4/16/2013	< 0.5	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.5	N/A	N/A	< 0.5	N/A
	4/5/2022	< 0.986	< 0.979	N/A	N/A	< 0.964	N/A
2,4,5-TP [Silvex] [2C], ug/L (CAS NO - 93-72-1)	3/18/2011	N/A	< 0.7	N/A	N/A	< 0.6	N/A
	3/26/2012	N/A	< 0.5	N/A	N/A	< 0.5	N/A
	4/16/2013	< 0.5	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.5	N/A	N/A	< 0.5	N/A
	4/5/2022	< 0.986	< 0.979	N/A	N/A	< 0.964	N/A
2,4,5-Trichlorophenol, ug/L (CAS NO - 95-95-4)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
2,4,6-Trichlorophenol, ug/L (CAS NO - 88-06-2)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
2,4-D [2C], ug/L (CAS NO - 94-75-7)	3/18/2011	N/A	< 2.8	N/A	N/A	< 2.6	N/A
	3/26/2012	N/A	< 2	N/A	N/A	< 2	N/A
	4/16/2013	< 2	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 3.2	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 2	N/A	N/A	< 2	N/A
	4/5/2022	< 0.986	< 0.979	N/A	N/A	< 0.964	N/A
2,4-Dichlorophenol, ug/L (CAS NO - 120-83-2)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
2,4-Dimethylphenol, ug/L (CAS NO - 105-67-9)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
2,4-Dinitrophenol, ug/L (CAS NO - 51-28-5)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 18.5	< 20	N/A	N/A	< 20	N/A

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

Other Constituents	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
2,4-Dinitrotoluene, ug/L (CAS NO - 121-14-2)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
2,6-Dichlorophenol, ug/L (CAS NO - 87-65-0)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
2,6-Dinitrotoluene, ug/L (CAS NO - 606-20-2)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
2-Acetylaminofluorene, ug/L (CAS NO - 53-96-3)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
2-Chloronaphthalene, ug/L (CAS NO - 91-58-7)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
2-Chlorophenol, ug/L (CAS NO - 95-57-8)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
2-Methylnaphthalene, ug/L (CAS NO - 91-57-6)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
2-Methylphenol, ug/L (CAS NO - 95-48-7)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
2-Naphthylamine, ug/L (CAS NO - 91-59-8)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
2-Nitroaniline, ug/L (CAS NO - 88-74-4)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A

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Summary of Groundwater Chemistry

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

Other Constituents	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
2-Nitrophenol, ug/L (CAS NO - 88-75-5)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
3,3-Dichlorobenzidine, ug/L (CAS NO - 91-94-1)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
3,3-Dimethylbenzidine, ug/L (CAS NO - 119-93-7)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
3/4-Methylphenol, ug/L (CAS NO - T-34MP)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
3-Chloropropene, ug/L (CAS NO - 107-05-1)	3/18/2011	N/A	< 1	N/A	N/A	< 1	N/A
	3/26/2012	N/A	< 1	N/A	N/A	< 1	N/A
	4/16/2013	< 1	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 1	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 1	N/A	N/A	< 1	N/A
	4/5/2022	< 2	< 2	N/A	N/A	< 2	N/A
3-Methylcholanthrene, ug/L (CAS NO - 56-49-5)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
3-Nitroaniline, ug/L (CAS NO - 99-09-2)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
4,4'-DDD, ug/L (CAS NO - 72-54-8)	3/18/2011	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	3/26/2012	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	4/16/2013	< 0.05	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.07	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	4/5/2022	< 0.064	< 0.08	N/A	N/A	< 0.064	N/A
4,4'-DDE, ug/L (CAS NO - 72-55-9)	3/18/2011	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	3/26/2012	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	4/16/2013	< 0.05	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.07	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	4/5/2022	< 0.064	< 0.08	N/A	N/A	< 0.064	N/A
4,4'-DDT, ug/L (CAS NO - 50-29-3)	3/18/2011	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	3/26/2012	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	4/16/2013	< 0.05	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.07	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	4/5/2022	< 0.064	< 0.08	N/A	N/A	< 0.064	N/A

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Other Constituents	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
4,6-Dinitro-2-methylphenol, ug/L (CAS NO - 534-52-1)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
4-Aminobiphenyl, ug/L (CAS NO - 92-67-1)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
4-Bromophenyl phenyl ether, ug/L (CAS NO - 101-55-3)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
4-Chloro-3-methylphenol, ug/L (CAS NO - 59-50-7)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
4-Chloroaniline, ug/L (CAS NO - 106-47-8)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
4-Chlorophenyl phenyl ether, ug/L (CAS NO - 7005-72-3)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
4-Nitroaniline, ug/L (CAS NO - 100-01-6)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
4-Nitrophenol, ug/L (CAS NO - 100-02-7)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
5-Nitro-o-toluidine, ug/L (CAS NO - 99-55-8)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
7,12-Dimethylbenz [a] anthracene, ug/L (CAS NO - 57-97-6)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A

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Other Constituents	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Acenaphthene, ug/L (CAS NO - 83-32-9)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Acenaphthylene, ug/L (CAS NO - 208-96-8)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Acetonitrile, ug/L (CAS NO - 75-05-8)	3/18/2011	N/A	< 10	N/A	N/A	< 10	N/A
	3/26/2012	N/A	< 10	N/A	N/A	< 10	N/A
	4/16/2013	< 10	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 10	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 10	N/A	N/A	< 10	N/A
	4/5/2022	< 10000	< 10000	N/A	N/A	< 10000	N/A
Acetophenone, ug/L (CAS NO - 98-86-2)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Acrolein, ug/L (CAS NO - 107-02-8)	3/18/2011	N/A	< 10	N/A	N/A	< 10	N/A
	3/26/2012	N/A	< 10	N/A	N/A	< 10	N/A
	4/16/2013	< 10	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 10	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 10	N/A	N/A	< 10	N/A
	4/5/2022	< 10	< 10	N/A	N/A	< 10	N/A
Aldrin, ug/L (CAS NO - 309-00-2)	3/18/2011	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	3/26/2012	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	4/16/2013	< 0.05	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.07	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	4/5/2022	< 0.064	< 0.08	N/A	N/A	< 0.064	N/A
Anthracene, ug/L (CAS NO - 120-12-7)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Benzo [a] anthracene, ug/L (CAS NO - 56-55-3)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Benzo [a] pyrene, ug/L (CAS NO - 50-32-8)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Benzo [b] fluoranthene, ug/L (CAS NO - 205-99-2)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A

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Other Constituents	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Benzo [g,h,i] perylene, ug/L (CAS NO - 191-24-2)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Benzo [k] fluoranthene, ug/L (CAS NO - 207-08-9)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Benzyl alcohol, ug/L (CAS NO - 100-51-6)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Alpha-BHC, ug/L (CAS NO - 319-84-6)	3/18/2011	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	3/26/2012	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	4/16/2013	< 0.05	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.07	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	4/5/2022	< 0.064	< 0.08	N/A	N/A	< 0.064	N/A
Beta-BHC, ug/L (CAS NO - 319-85-7)	3/18/2011	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	3/26/2012	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	4/16/2013	< 0.05	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.07	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	4/5/2022	< 0.064	< 0.08	N/A	N/A	< 0.064	N/A
Delta-BHC, ug/L (CAS NO - 319-86-8)	3/18/2011	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	3/26/2012	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	4/16/2013	< 0.05	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.07	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	4/5/2022	< 0.064	< 0.08	N/A	N/A	< 0.064	N/A
Gamma-BHC [Lindane], ug/L (CAS NO - 58-89-9)	3/18/2011	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	3/26/2012	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	4/16/2013	< 0.05	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.07	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	4/5/2022	< 0.064	< 0.08	N/A	N/A	< 0.064	N/A
Bis[2-chloroethoxy]methane, ug/L (CAS NO - 111-91-1)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Bis[2-chloroethyl]ether, ug/L (CAS NO - 111-44-4)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Bis[2-chloroisopropyl]ether, ug/L (CAS NO - 108-60-1)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A

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Summary of Groundwater Chemistry

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

Other Constituents	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Bis[2-ethylhexyl]phthalate, ug/L (CAS NO - 117-81-7)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	17	N/A	N/A	< 8	N/A
	8/21/2012	N/A	< 10	N/A	N/A	N/A	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	69	N/A	N/A	N/A	N/A	N/A
	9/25/2014	< 10	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Butyl benzyl phthalate, ug/L (CAS NO - 85-68-7)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Chlordane, ug/L (CAS NO - 57-74-9)	3/18/2011	N/A	< 0.1	N/A	N/A	< 0.1	N/A
	3/26/2012	N/A	< 0.1	N/A	N/A	< 0.1	N/A
	4/16/2013	< 0.1	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.13	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.1	N/A	N/A	< 0.1	N/A
	4/5/2022	< 2	< 2.5	N/A	N/A	< 2	N/A
Chlorobenzilate, ug/L (CAS NO - 510-15-6)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Chloroprene, ug/L (CAS NO - 126-99-8)	3/18/2011	N/A	< 1	N/A	N/A	< 1	N/A
	3/26/2012	N/A	< 1	N/A	N/A	< 1	N/A
	4/16/2013	< 1	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 1	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 1	N/A	N/A	< 1	N/A
	4/5/2022	< 1	< 1	N/A	N/A	< 1	N/A
Chrysene, ug/L (CAS NO - 218-01-9)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Cyanide, mg/L (CAS NO - 57-12-5)	3/18/2011	N/A	< 0.007	N/A	N/A	< 0.007	N/A
	3/26/2012	N/A	< 0.007	N/A	N/A	< 0.007	N/A
	4/16/2013	< 0.007	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.005	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.005	N/A	N/A	< 0.005	N/A
	4/5/2022	< 0.01	< 0.01	N/A	N/A	< 0.01	N/A
Diallate [cis or trans], ug/L (CAS NO - 2303-16-4)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Dibenz [a,h] anthracene, ug/L (CAS NO - 53-70-3)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A

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

Other Constituents	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Dibenzofuran, ug/L (CAS NO - 132-64-9)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Dichlorodifluoromethane, ug/L (CAS NO - 75-71-8)	3/18/2011	N/A	< 1	N/A	N/A	< 1	N/A
	3/26/2012	N/A	< 1	N/A	N/A	< 1	N/A
	4/16/2013	< 1	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 1	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 1	N/A	N/A	< 1	N/A
	4/5/2022	< 3	< 3	N/A	N/A	< 3	N/A
Dieldrin, ug/L (CAS NO - 60-57-1)	3/18/2011	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	3/26/2012	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	4/16/2013	< 0.05	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.07	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	4/5/2022	< 0.064	< 0.08	N/A	N/A	< 0.064	N/A
Diethyl phthalate, ug/L (CAS NO - 84-66-2)	3/18/2011	N/A	14	N/A	N/A	< 8	N/A
	9/8/2011	N/A	< 30	N/A	N/A	N/A	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	8/21/2012	N/A	< 30	N/A	N/A	N/A	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Dimethoate, ug/L (CAS NO - 60-51-5)	3/18/2011	N/A	< 0.4	N/A	N/A	< 0.4	N/A
	3/26/2012	N/A	< 0.4	N/A	N/A	< 0.4	N/A
	4/16/2013	< 0.4	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.4	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.4	N/A	N/A	< 0.4	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Dimethyl phthalate, ug/L (CAS NO - 131-11-3)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Dimethylaminoazobenzene, ug/L (CAS NO - 60-11-7)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Di-n-butyl phthalate, ug/L (CAS NO - 84-74-2)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Di-n-octyl phthalate, ug/L (CAS NO - 117-84-0)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 18.5	< 20	N/A	N/A	< 20	N/A

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

Other Constituents	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Dinoseb, ug/L (CAS NO - 88-85-7)	3/18/2011	N/A	< 0.7	N/A	N/A	< 0.6	N/A
	3/26/2012	N/A	< 0.5	N/A	N/A	< 0.5	N/A
	4/16/2013	< 0.5	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.5	N/A	N/A	< 0.5	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Diphenylamine, ug/L (CAS NO - 122-39-4)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Disulfoton, ug/L (CAS NO - 298-04-4)	3/18/2011	N/A	< 0.4	N/A	N/A	< 0.4	N/A
	3/26/2012	N/A	< 0.4	N/A	N/A	< 0.4	N/A
	4/16/2013	< 0.4	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.4	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.4	N/A	N/A	< 0.4	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Endosulfan I, ug/L (CAS NO - 959-98-8)	3/18/2011	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	3/26/2012	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	4/16/2013	< 0.05	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.07	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	4/5/2022	< 0.064	< 0.08	N/A	N/A	< 0.064	N/A
Endosulfan II, ug/L (CAS NO - 33213-65-9)	3/18/2011	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	3/26/2012	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	4/16/2013	< 0.05	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.07	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	4/5/2022	< 0.064	< 0.08	N/A	N/A	< 0.064	N/A
Endosulfan sulfate, ug/L (CAS NO - 1031-07-8)	3/18/2011	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	3/26/2012	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	4/16/2013	< 0.05	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.07	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	4/5/2022	< 0.064	< 0.08	N/A	N/A	< 0.064	N/A
Endrin, ug/L (CAS NO - 72-20-8)	3/18/2011	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	3/26/2012	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	4/16/2013	< 0.05	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.07	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	4/5/2022	< 0.064	< 0.08	N/A	N/A	< 0.064	N/A
Endrin aldehyde, ug/L (CAS NO - 7421-93-4)	3/18/2011	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	3/26/2012	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	4/16/2013	< 0.05	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.07	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	4/5/2022	< 0.064	< 0.08	N/A	N/A	< 0.064	N/A
Ethyl Methacrylate, ug/L (CAS NO - 97-63-2)	3/18/2011	N/A	< 10	N/A	N/A	< 10	N/A
	3/26/2012	N/A	< 10	N/A	N/A	< 10	N/A
	4/16/2013	< 10	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 10	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 10	N/A	N/A	< 10	N/A
	4/5/2022	< 2	< 2	N/A	N/A	< 2	N/A
Ethyl Methanesulfonate, ug/L (CAS NO - 62-50-0)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A

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

Other Constituents	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Famphur, ug/L (CAS NO - 52-85-7)	3/18/2011	N/A	< 0.4	N/A	N/A	< 0.4	N/A
	3/26/2012	N/A	< 0.4	N/A	N/A	< 0.4	N/A
	4/16/2013	< 0.4	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.4	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.4	N/A	N/A	< 0.4	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Fluoranthene, ug/L (CAS NO - 206-44-0)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Fluorene, ug/L (CAS NO - 86-73-7)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Heptachlor, ug/L (CAS NO - 76-44-8)	3/18/2011	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	3/26/2012	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	4/16/2013	< 0.05	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.07	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	4/5/2022	< 0.064	< 0.08	N/A	N/A	< 0.064	N/A
Heptachlor Epoxide, ug/L (CAS NO - 1024-57-3)	3/18/2011	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	3/26/2012	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	4/16/2013	< 0.05	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.07	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	4/5/2022	< 0.064	< 0.08	N/A	N/A	< 0.064	N/A
Hexachlorobenzene, ug/L (CAS NO - 118-74-1)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/18/2011	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/16/2013	< 0.05	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.07	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Hexachlorobutadiene, ug/L (CAS NO - 87-68-3)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Hexachlorocyclopentadiene, ug/L (CAS NO - 77-47-4)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Hexachloroethane, ug/L (CAS NO - 67-72-1)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A

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

Other Constituents	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Hexachloropropene, ug/L (CAS NO - 1888-71-7)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Indeno [1,2,3-cd] pyrene, ug/L (CAS NO - 193-39-5)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Isobutanol, mg/L (CAS NO - 78-83-1)	3/18/2011	N/A	< 1	N/A	N/A	< 1	N/A
	3/26/2012	N/A	< 1	N/A	N/A	< 1	N/A
	4/16/2013	< 1	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 1	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 1	N/A	N/A	< 1	N/A
	4/5/2022	< 10	< 10	N/A	N/A	< 10	N/A
Isodrin, ug/L (CAS NO - 465-73-6)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Isophorone, ug/L (CAS NO - 78-59-1)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Isosafrole, ug/L (CAS NO - 120-58-1)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Kepone, ug/L (CAS NO - 143-50-0)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Methacrylonitrile, ug/L (CAS NO - 126-98-7)	3/18/2011	N/A	< 1	N/A	N/A	< 1	N/A
	3/26/2012	N/A	< 1	N/A	N/A	< 1	N/A
	4/16/2013	< 1	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 1	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 1	N/A	N/A	< 1	N/A
	4/5/2022	< 10	< 10	N/A	N/A	< 10	N/A
Methapyrilene, ug/L (CAS NO - 91-80-5)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Methoxychlor, ug/L (CAS NO - 72-43-5)	3/18/2011	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	3/26/2012	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	4/16/2013	< 0.05	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.07	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.05	N/A	N/A	< 0.05	N/A
	4/5/2022	< 0.064	< 0.08	N/A	N/A	< 0.064	N/A

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

Other Constituents	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Methyl Methacrylate, ug/L (CAS NO - 80-62-6)	3/18/2011	N/A	< 1	N/A	N/A	< 1	N/A
	3/26/2012	N/A	< 1	N/A	N/A	< 1	N/A
	4/16/2013	< 1	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 1	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 1	N/A	N/A	< 1	N/A
	4/5/2022	< 2	< 2	N/A	N/A	< 2	N/A
Methyl Methanesulfonate, ug/L (CAS NO - 66-27-3)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Naphthalene, ug/L (CAS NO - 91-20-3)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 5	< 5	N/A	N/A	< 5	N/A
Nitrobenzene, ug/L (CAS NO - 98-95-3)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
N-Nitrosodiethylamine, ug/L (CAS NO - 55-18-5)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
N-Nitrosodimethylamine, ug/L (CAS NO - 62-75-9)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
N-Nitrosodi-n-butylamine, ug/L (CAS NO - 924-16-3)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
N-Nitrosodi-n-propylamine, ug/L (CAS NO - 621-64-7)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
N-Nitrosodiphenylamine, ug/L (CAS NO - 86-30-6)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
N-Nitrosomethylethylamine, ug/L (CAS NO - 10595-95-6)	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A

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Other Constituents	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
N-Nitrosopiperidine, ug/L (CAS NO - 100-75-4)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
N-Nitrosopyrrolidine, ug/L (CAS NO - 930-55-2)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
O,O,O-Triethyl Phosphorothioate, ug/L (CAS NO - 126-68-1)	3/18/2011	N/A	< 0.4	N/A	N/A	< 0.4	N/A
	3/26/2012	N/A	< 0.4	N/A	N/A	< 0.4	N/A
	4/16/2013	< 0.4	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.4	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.4	N/A	N/A	< 0.4	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
O-Toluidine, ug/L (CAS NO - 95-53-4)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Parathion-Ethyl, ug/L (CAS NO - 56-38-2)	3/18/2011	N/A	< 0.4	N/A	N/A	< 0.4	N/A
	3/26/2012	N/A	< 0.4	N/A	N/A	< 0.4	N/A
	4/16/2013	< 0.4	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.4	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.4	N/A	N/A	< 0.4	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Parathion-Methyl, ug/L (CAS NO - 298-00-0)	3/18/2011	N/A	< 0.4	N/A	N/A	< 0.4	N/A
	3/26/2012	N/A	< 0.4	N/A	N/A	< 0.4	N/A
	4/16/2013	< 0.4	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.4	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.4	N/A	N/A	< 0.4	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
PCB-1016, ug/L (CAS NO - 12674-11-2)	3/18/2011	N/A	< 0.1	N/A	N/A	< 0.1	N/A
	3/26/2012	N/A	< 0.1	N/A	N/A	< 0.1	N/A
	4/16/2013	< 0.1	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.13	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.1	N/A	N/A	< 0.1	N/A
	4/5/2022	< 0.8	< 1	N/A	N/A	< 0.8	N/A
PCB-1221, ug/L (CAS NO - 11104-28-2)	3/18/2011	N/A	< 0.2	N/A	N/A	< 0.2	N/A
	3/26/2012	N/A	< 0.2	N/A	N/A	< 0.2	N/A
	4/16/2013	< 0.2	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.26	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.2	N/A	N/A	< 0.2	N/A
	4/5/2022	< 0.8	< 1	N/A	N/A	< 0.8	N/A
PCB-1232, ug/L (CAS NO - 11141-16-5)	3/18/2011	N/A	< 0.2	N/A	N/A	< 0.2	N/A
	3/26/2012	N/A	< 0.2	N/A	N/A	< 0.2	N/A
	4/16/2013	< 0.2	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.26	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.2	N/A	N/A	< 0.2	N/A
	4/5/2022	< 0.8	< 1	N/A	N/A	< 0.8	N/A
PCB-1242, ug/L (CAS NO - 53469-21-9)	3/18/2011	N/A	< 0.2	N/A	N/A	< 0.2	N/A
	3/26/2012	N/A	< 0.2	N/A	N/A	< 0.2	N/A
	4/16/2013	< 0.2	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.26	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.2	N/A	N/A	< 0.2	N/A
	4/5/2022	< 0.8	< 1	N/A	N/A	< 0.8	N/A

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

Other Constituents	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
PCB-1248, ug/L (CAS NO - 12672-29-6)	3/18/2011	N/A	< 0.2	N/A	N/A	< 0.2	N/A
	3/26/2012	N/A	< 0.2	N/A	N/A	< 0.2	N/A
	4/16/2013	< 0.2	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.26	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.2	N/A	N/A	< 0.2	N/A
	4/5/2022	< 0.8	< 1	N/A	N/A	< 0.8	N/A
PCB-1254, ug/L (CAS NO - 11097-69-1)	3/18/2011	N/A	< 0.1	N/A	N/A	< 0.1	N/A
	3/26/2012	N/A	< 0.1	N/A	N/A	< 0.1	N/A
	4/16/2013	< 0.1	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.13	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.1	N/A	N/A	< 0.1	N/A
	4/5/2022	< 0.8	< 1	N/A	N/A	< 0.8	N/A
PCB-1260, ug/L (CAS NO - 11096-82-5)	3/18/2011	N/A	< 0.1	N/A	N/A	< 0.1	N/A
	3/26/2012	N/A	< 0.1	N/A	N/A	< 0.1	N/A
	4/16/2013	< 0.1	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.13	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.1	N/A	N/A	< 0.1	N/A
	4/5/2022	< 0.8	< 1	N/A	N/A	< 0.8	N/A
Pentachlorobenzene, ug/L (CAS NO - 608-93-5)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Pentachloronitrobenzene, ug/L (CAS NO - 82-68-8)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Pentachlorophenol [2C], ug/L (CAS NO - 87-86-5)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Phenacetin, ug/L (CAS NO - 62-44-2)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Phenanthrene, ug/L (CAS NO - 85-01-8)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Phenol, ug/L (CAS NO - 108-95-2)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Phorate, ug/L (CAS NO - 298-02-2)	3/18/2011	N/A	< 0.4	N/A	N/A	< 0.4	N/A
	3/26/2012	N/A	< 0.4	N/A	N/A	< 0.4	N/A
	4/16/2013	< 0.4	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.4	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.4	N/A	N/A	< 0.4	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A

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Summary of Groundwater Chemistry

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

Other Constituents	Sample Date	MW-12 UPG	MW-3 DNG	MW-5 DNG	MW-14 DNG	MW-16 DNG	MW-19 DNG
Pronamide, ug/L (CAS NO - 23950-58-5)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Propionitrile, ug/L (CAS NO - 107-12-0)	3/18/2011	N/A	< 10	N/A	N/A	< 10	N/A
	3/26/2012	N/A	< 10	N/A	N/A	< 10	N/A
	4/16/2013	< 10	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 10	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 10	N/A	N/A	< 10	N/A
	4/5/2022	< 10	< 10	N/A	N/A	< 10	N/A
Pyrene, ug/L (CAS NO - 129-00-0)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Safrole, ug/L (CAS NO - 94-59-7)	3/18/2011	N/A	< 8	N/A	N/A	< 8	N/A
	3/26/2012	N/A	< 8	N/A	N/A	< 8	N/A
	4/16/2013	< 8	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 8	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 8	N/A	N/A	< 8	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Sulfide, mg/L (CAS NO - 18496-25-8)	3/18/2011	N/A	< 0.1	N/A	N/A	< 0.1	N/A
	3/26/2012	N/A	< 0.1	N/A	N/A	< 0.1	N/A
	4/16/2013	< 0.1	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.1	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.1	N/A	N/A	< 0.1	N/A
	4/5/2022	< 1	< 1	N/A	N/A	< 1	N/A
Thionazin, ug/L (CAS NO - 297-97-2)	3/18/2011	N/A	< 0.4	N/A	N/A	< 0.4	N/A
	3/26/2012	N/A	< 0.4	N/A	N/A	< 0.4	N/A
	4/16/2013	< 0.4	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.4	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.4	N/A	N/A	< 0.4	N/A
	4/5/2022	< 9.26	< 10	N/A	N/A	< 10	N/A
Toxaphene, ug/L (CAS NO - 8001-35-2)	3/18/2011	N/A	< 0.2	N/A	N/A	< 0.2	N/A
	3/26/2012	N/A	< 0.2	N/A	N/A	< 0.2	N/A
	4/16/2013	< 0.2	N/A	N/A	N/A	N/A	N/A
	4/1/2014	< 0.26	N/A	N/A	N/A	N/A	N/A
	4/11/2017	N/A	< 0.2	N/A	N/A	< 0.2	N/A
	4/5/2022	< 2	< 2.5	N/A	N/A	< 2	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
2023 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 Summary of Groundwater Chemistry included in the Annual Water Quality Report.

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..

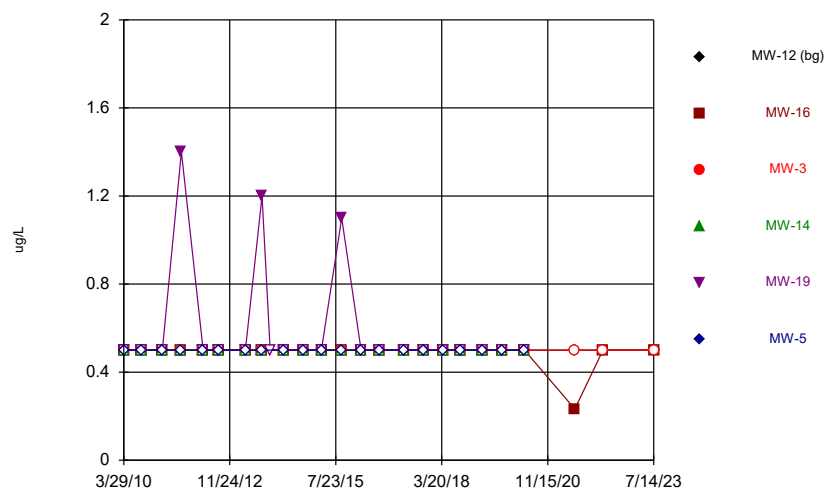
Statistical Software Output

Sanitas™ statistical software was used to perform the statistical evaluation. Listed below are the statistical outputs attached to this report for the 2023 statistical evaluation.

- Time Series Plots
- Outlier Tests Summary Tables and Graphs
- Interwell Prediction Limit Summary Tables and Graphs
- Mann-Kendall/Sen's Slope Trend Test Summary Table and Graphs
- Confidence Interval Summary Table and Graphs

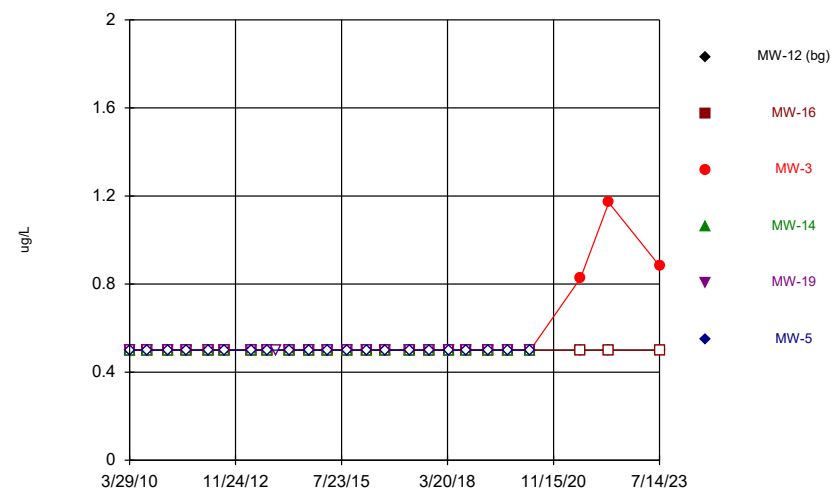
Attachment A
Time Series Plots

Time Series



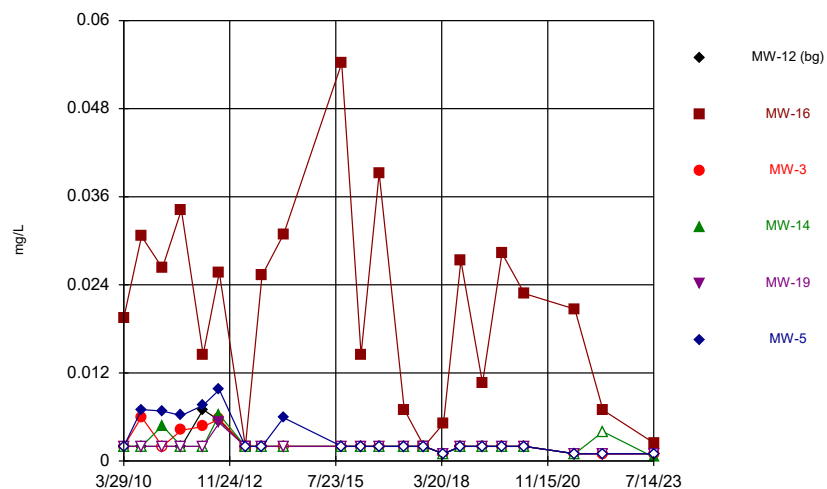
Constituent: 1,1-Dichloroethane Analysis Run 8/2/2023 5:53 PM View: 2023AWQR - Time Series
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Time Series



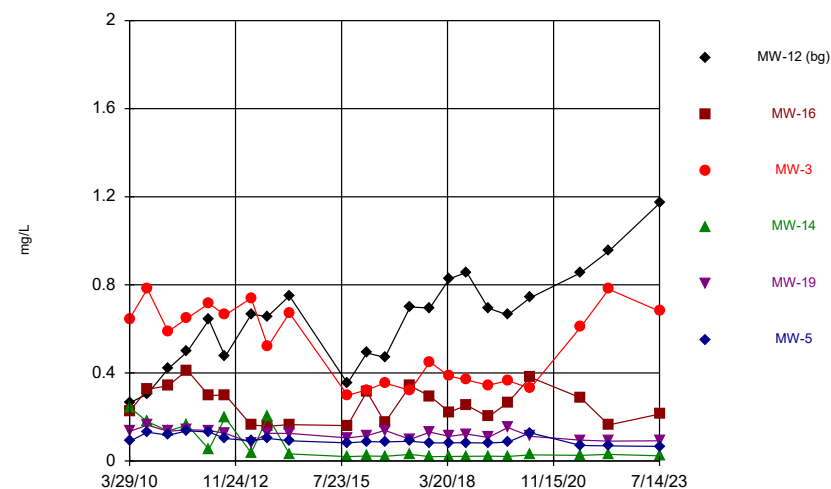
Constituent: 1,4-Dichlorobenzene Analysis Run 8/2/2023 5:53 PM View: 2023AWQR - Time Series
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Time Series



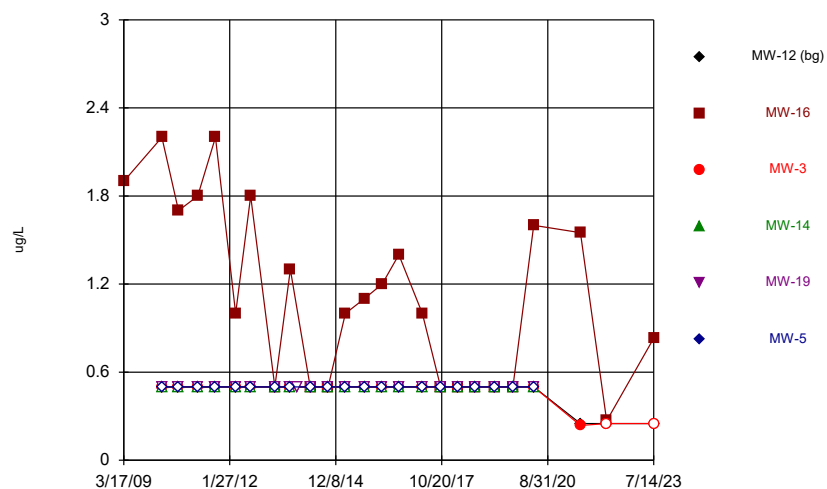
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Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Time Series



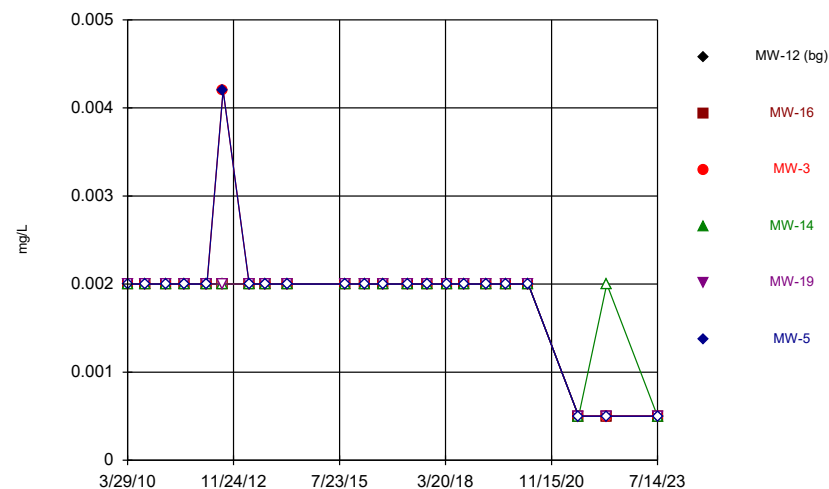
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Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Time Series



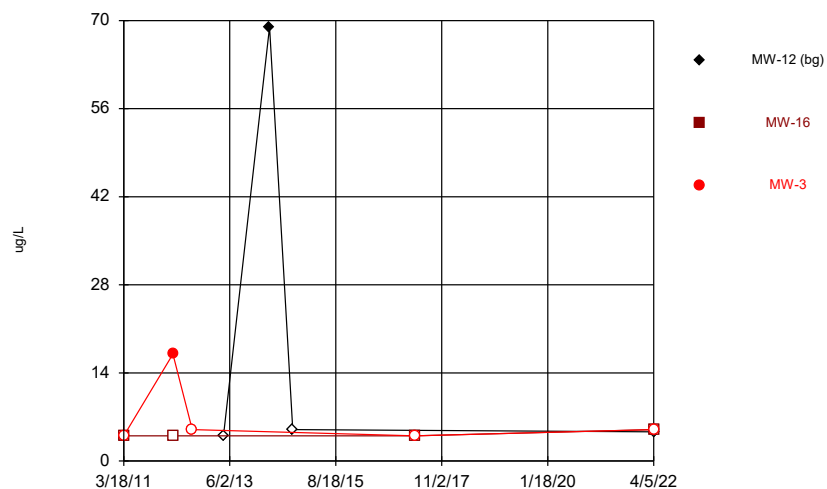
Constituent: Benzene Analysis Run 8/2/2023 5:53 PM View: 2023AWQR - Time Series
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Time Series



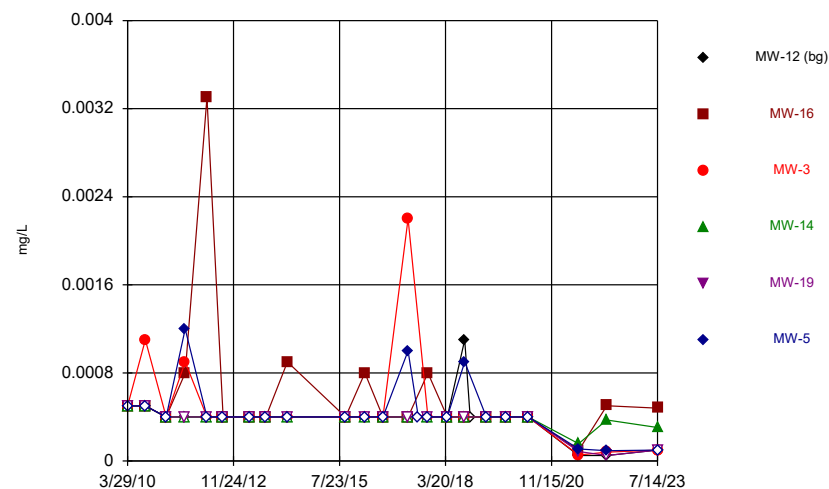
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Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Time Series



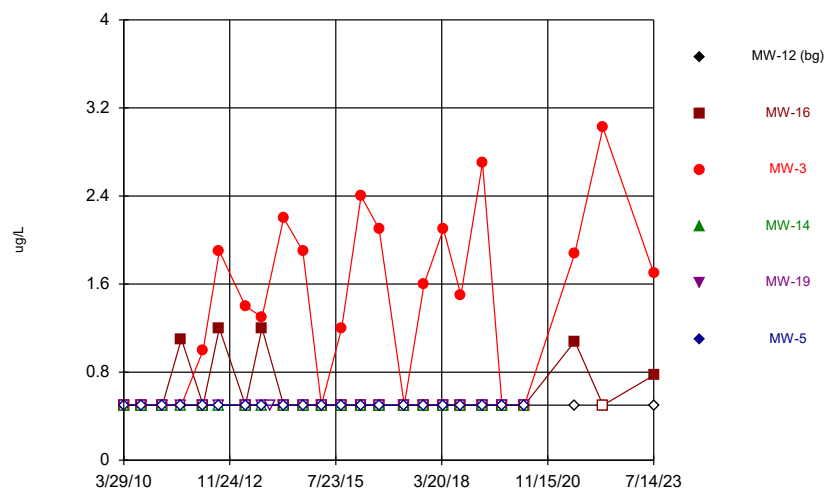
Constituent: Bis[2-ethylhexyl]phthalate Analysis Run 8/2/2023 5:53 PM View: 2023AWQR - Time Series
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Time Series



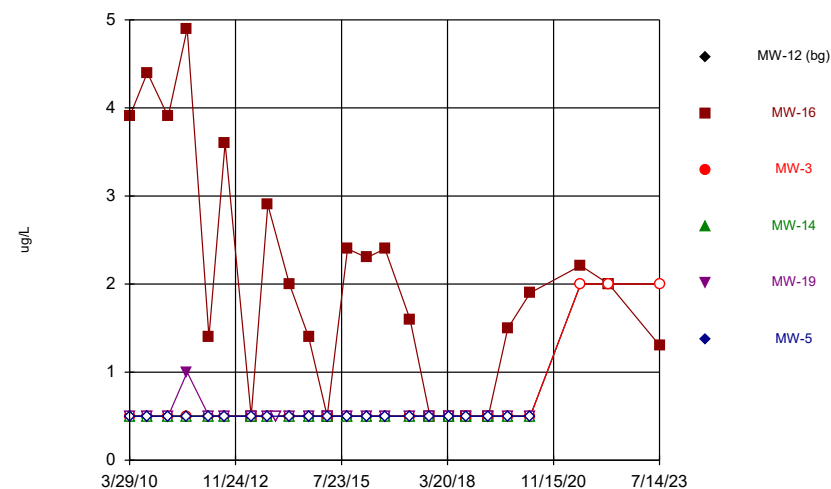
Constituent: Cadmium Analysis Run 8/2/2023 5:53 PM View: 2023AWQR - Time Series
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Time Series



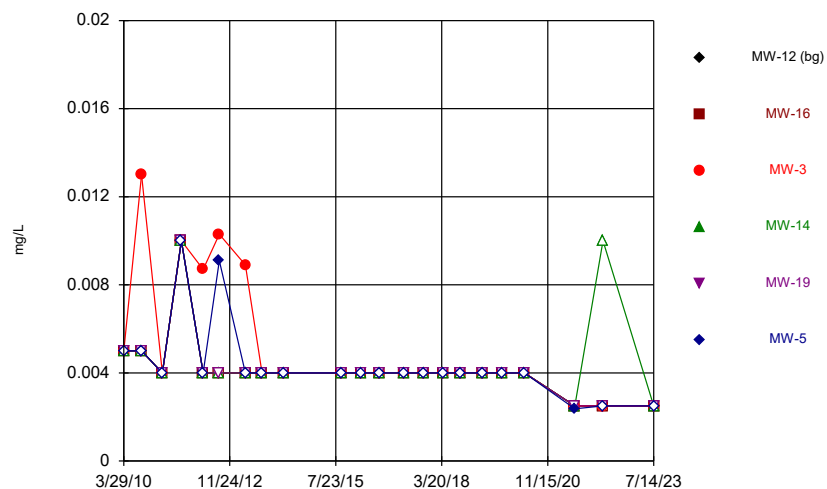
Constituent: Chlorobenzene Analysis Run 8/2/2023 5:53 PM View: 2023AWQR - Time Series
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Time Series



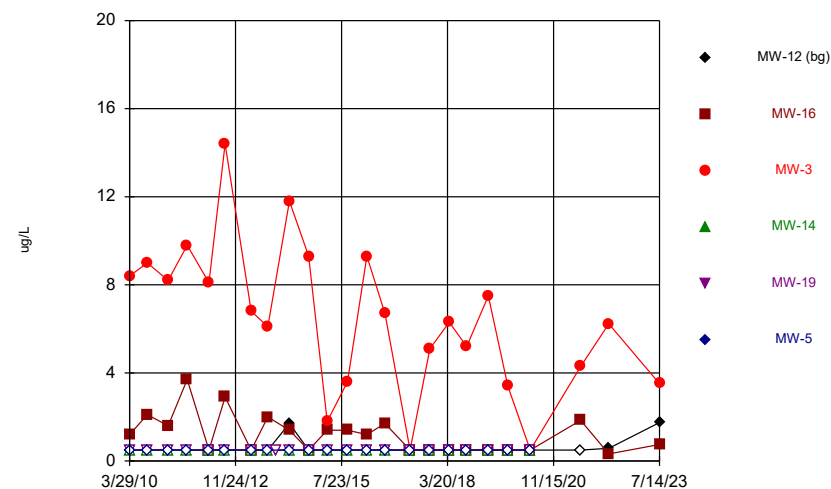
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Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Time Series



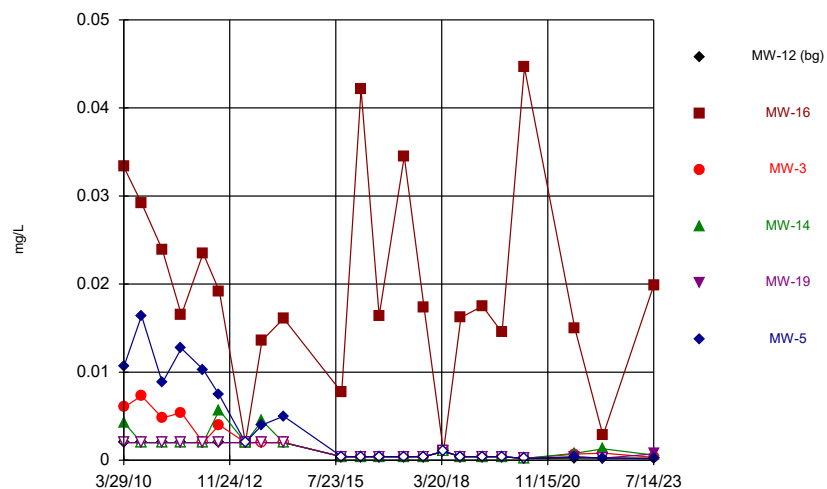
Constituent: Chromium Analysis Run 8/2/2023 5:53 PM View: 2023AWQR - Time Series
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Time Series

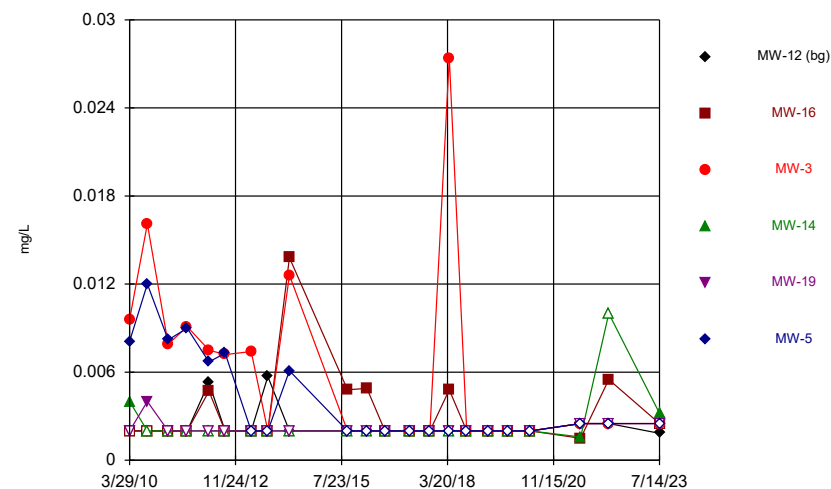


Constituent: cis-1,2-Dichloroethene Analysis Run 8/2/2023 5:53 PM View: 2023AWQR - Time Series
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

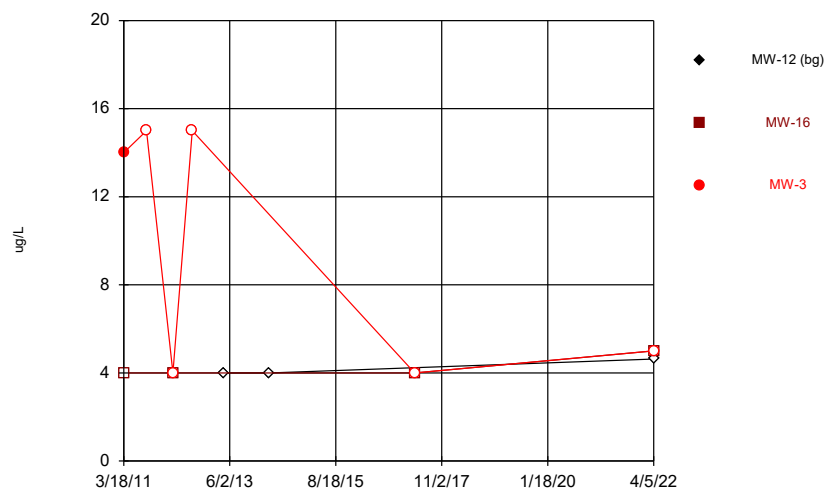
Time Series



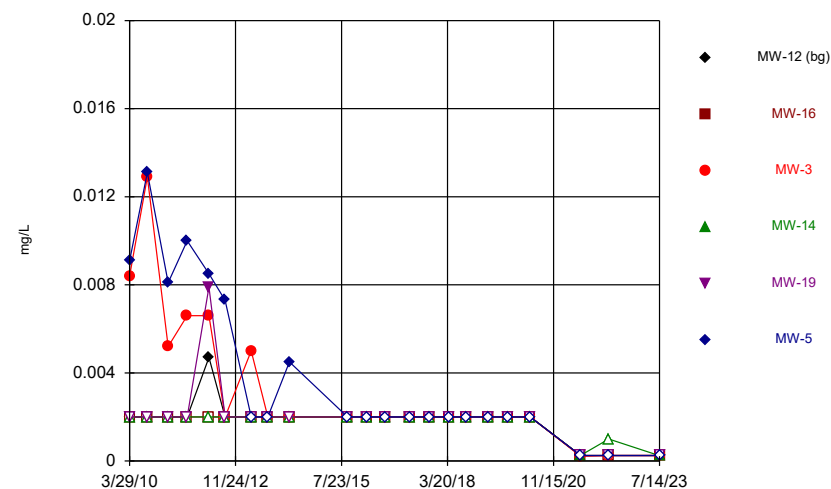
Time Series



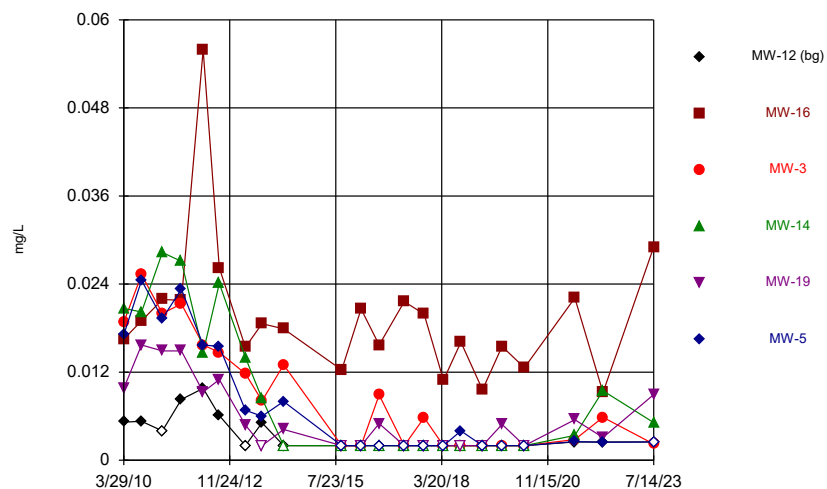
Time Series



Time Series

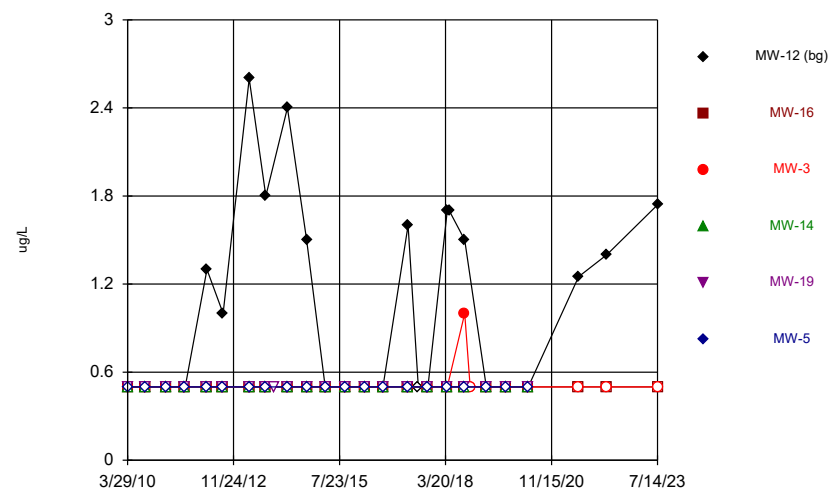


Time Series



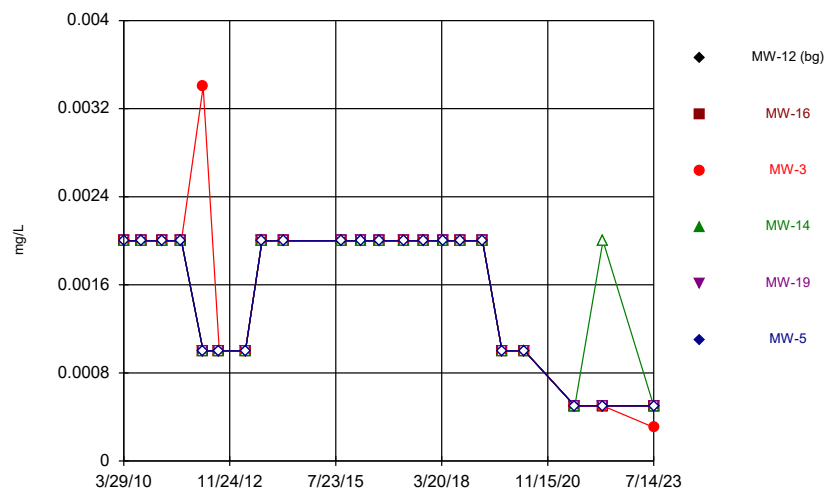
Constituent: Nickel Analysis Run 8/2/2023 5:53 PM View: 2023AWQR - Time Series
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Time Series



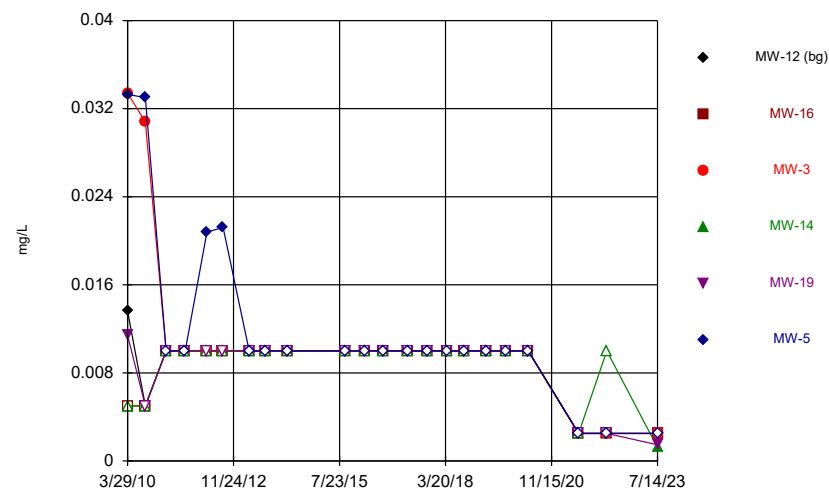
Constituent: Tetrachloroethene Analysis Run 8/2/2023 5:53 PM View: 2023AWQR - Time Series
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Time Series



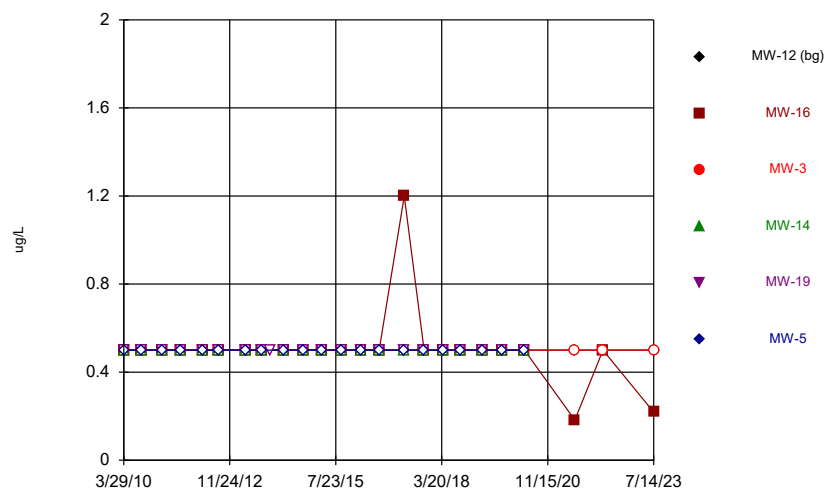
Constituent: Thallium Analysis Run 8/2/2023 5:53 PM View: 2023AWQR - Time Series
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Time Series



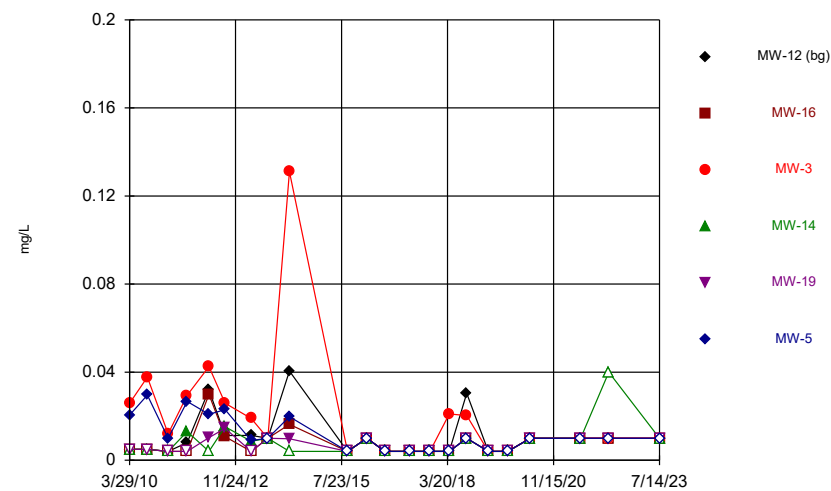
Constituent: Vanadium Analysis Run 8/2/2023 5:53 PM View: 2023AWQR - Time Series
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Time Series



Constituent: Vinyl Chloride Analysis Run 8/2/2023 5:53 PM View: 2023AWQR - Time Series
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Time Series



Constituent: Zinc Analysis Run 8/2/2023 5:53 PM View: 2023AWQR - Time Series
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Attachment B
Outlier Tests Summary Table and Graphs

Outlier Analysis

Guthrie County SLF

Client: SCS Engineers

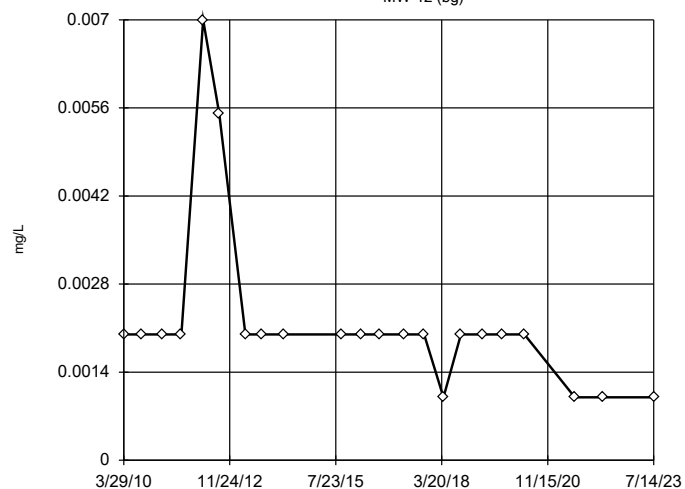
Data: Guthrie HMSP

Printed 8/3/2023, 12:22 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>Normality Test</u>
Arsenic (mg/L)	MW-12 (bg)	No	n/a	n/a	OH	NaN	22	0.002205	0.001386	n/a
Barium (mg/L)	MW-12 (bg)	No	n/a	n/a	EPA/OH	0.05	22	0.6426	0.2209	ShapiroWilk
Cadmium (mg/L)	MW-12 (bg)	Yes	0.0011	9/11/2018	OH	NaN	23	0.0003957	0.0001959	n/a
Copper (mg/L)	MW-12 (bg)	No	n/a	n/a	OH	NaN	22	0.002356	0.001031	n/a
Lead (mg/L)	MW-12 (bg)	Yes	0.0047	3/26/2012	OH	NaN	22	0.001884	0.0008778	n/a
Nickel (mg/L)	MW-12 (bg)	No	n/a	n/a	NP (nrm)/OH	NaN	22	0.003423	0.002271	ShapiroWilk
Vanadium (mg/L)	MW-12 (bg)	No	n/a	n/a	OH	NaN	22	0.008914	0.002934	n/a
Zinc (mg/L)	MW-12 (bg)	Yes	0.0319,0.0405,0.0304	3/26/2012,4/1/2014,9/11/2018	NP (nrm)/OH	NaN	22	0.0107	0.01014	ShapiroWilk

Ohio EPA 0715 Outlier Algorithm

MW-12 (bg)



Constituent: Arsenic Analysis Run 8/3/2023 12:16 PM View: 2023AWQR - Outliers
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

EPA Screening (suspected outliers for Rosner's Test)

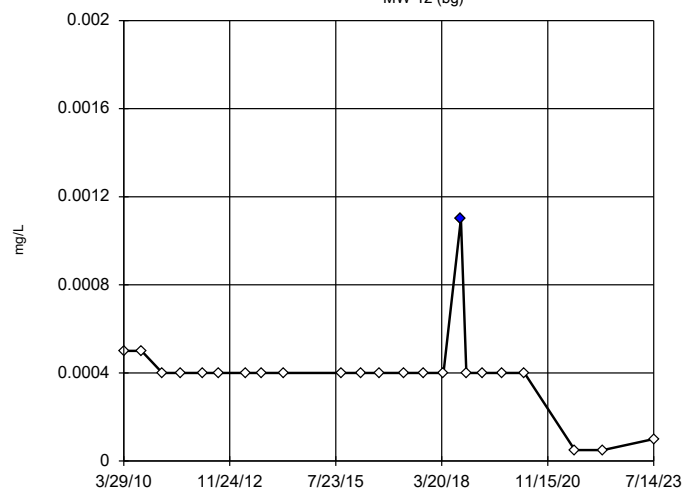
MW-12 (bg)



Constituent: Barium Analysis Run 8/3/2023 12:16 PM View: 2023AWQR - Outliers
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Ohio EPA 0715 Outlier Algorithm

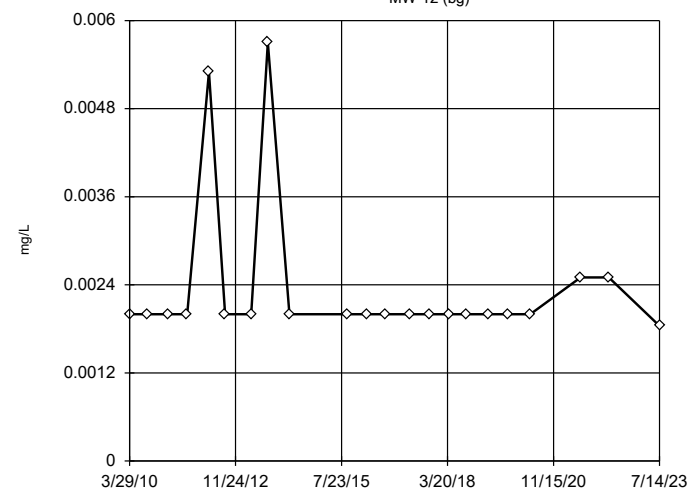
MW-12 (bg)



Constituent: Cadmium Analysis Run 8/3/2023 12:16 PM View: 2023AWQR - Outliers
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Ohio EPA 0715 Outlier Algorithm

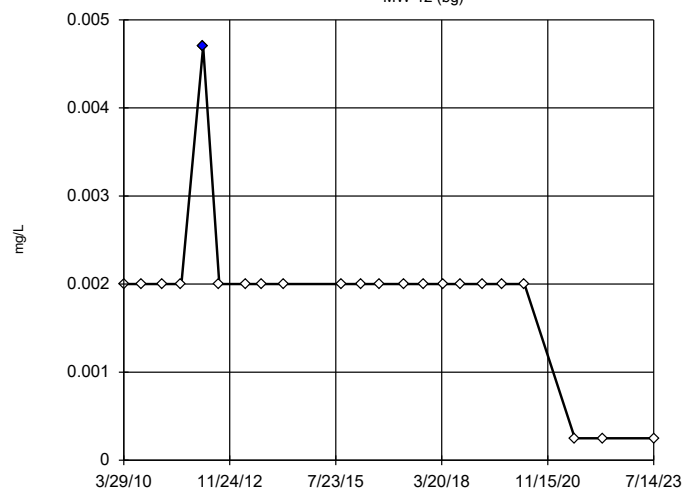
MW-12 (bg)



Constituent: Copper Analysis Run 8/3/2023 12:16 PM View: 2023AWQR - Outliers
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Ohio EPA 0715 Outlier Algorithm

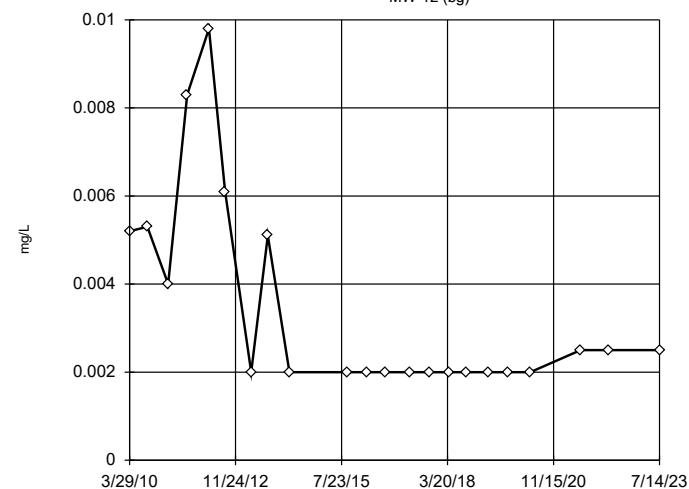
MW-12 (bg)



Constituent: Lead Analysis Run 8/3/2023 12:16 PM View: 2023AWQR - Outliers
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm

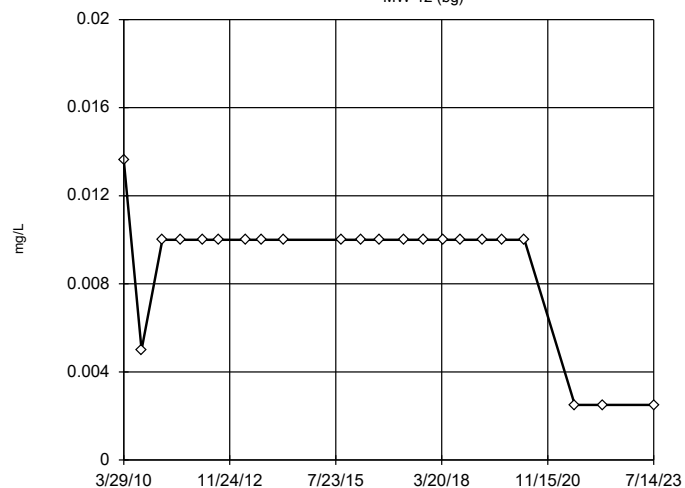
MW-12 (bg)



Constituent: Nickel Analysis Run 8/3/2023 12:16 PM View: 2023AWQR - Outliers
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Ohio EPA 0715 Outlier Algorithm

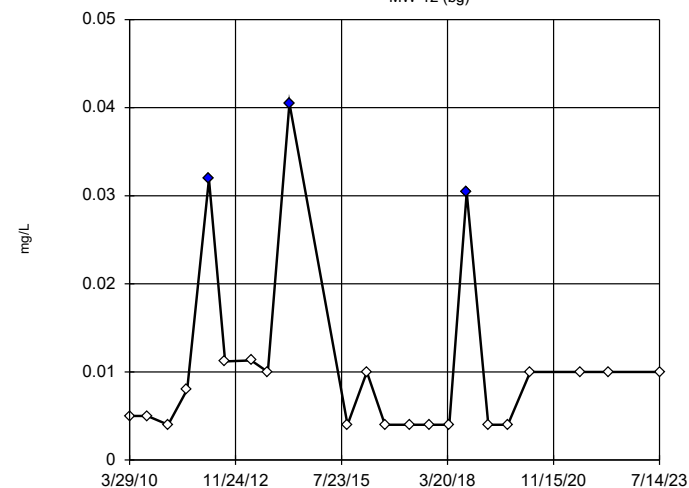
MW-12 (bg)



Constituent: Vanadium Analysis Run 8/3/2023 12:16 PM View: 2023AWQR - Outliers
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm

MW-12 (bg)



Constituent: Zinc Analysis Run 8/3/2023 12:16 PM View: 2023AWQR - Outliers
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Attachment C
Prediction Limit Summary Table and Graphs

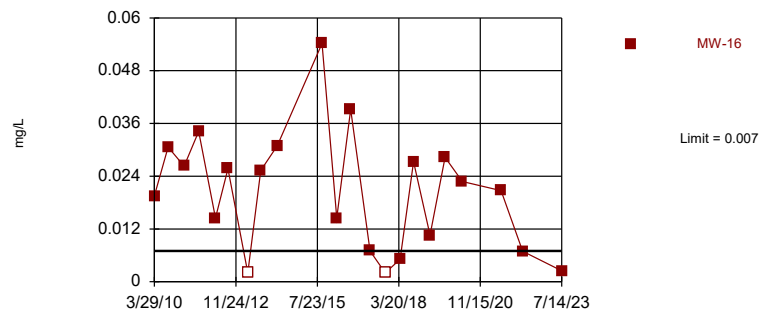
Prediction Limit

Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP Printed 8/3/2023, 2:03 PM

<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>%NDs</u>	<u>Trans...</u>	<u>Alpha</u>	<u>Method</u>
Arsenic (mg/L)	MW-16	0.007	n/a	7/14/2023	0.00248	No	22	90.91	n/a	0.003495	NP Inter (NDs) 1 of 2
Barium (mg/L)	MW-16	1.099	n/a	7/14/2023	0.213	No	22	0	No	0.001316	Param Inter 1 of 2
Barium (mg/L)	MW-3	1.099	n/a	7/14/2023	0.68	No	22	0	No	0.001316	Param Inter 1 of 2
Barium (mg/L)	MW-14	1.099	n/a	7/14/2023	0.0234	No	22	0	No	0.001316	Param Inter 1 of 2
Barium (mg/L)	MW-19	1.099	n/a	7/14/2023	0.0918	No	22	0	No	0.001316	Param Inter 1 of 2
Barium (mg/L)	MW-5	1.099	n/a	7/14/2023	0.0664	No	22	0	No	0.001316	Param Inter 1 of 2
Cadmium (mg/L)	MW-16	0.0011	n/a	7/14/2023	0.0004795	No	23	95.65	n/a	0.003232	NP Inter (NDs) 1 of 2
Cadmium (mg/L)	MW-14	0.0011	n/a	7/14/2023	0.000304	No	23	95.65	n/a	0.003232	NP Inter (NDs) 1 of 2
Cobalt (mg/L)	MW-16	0.002	n/a	7/14/2023	0.01985	Yes	22	100	n/a	0.003495	NP Inter (NDs) 1 of 2
Cobalt (mg/L)	MW-14	0.002	n/a	7/14/2023	0.000596	No	22	100	n/a	0.003495	NP Inter (NDs) 1 of 2
Cobalt (mg/L)	MW-19	0.002	n/a	7/14/2023	0.00072	No	22	100	n/a	0.003495	NP Inter (NDs) 1 of 2
Nickel (mg/L)	MW-16	0.0098	n/a	7/14/2023	0.02905	Yes	22	72.73	n/a	0.003495	NP Inter (NDs) 1 of 2
Nickel (mg/L)	MW-14	0.0098	n/a	7/14/2023	0.00512	No	22	72.73	n/a	0.003495	NP Inter (NDs) 1 of 2
Nickel (mg/L)	MW-19	0.0098	n/a	7/14/2023	0.00894	No	22	72.73	n/a	0.003495	NP Inter (NDs) 1 of 2

Within Limit

Prediction Limit Interwell Non-parametric

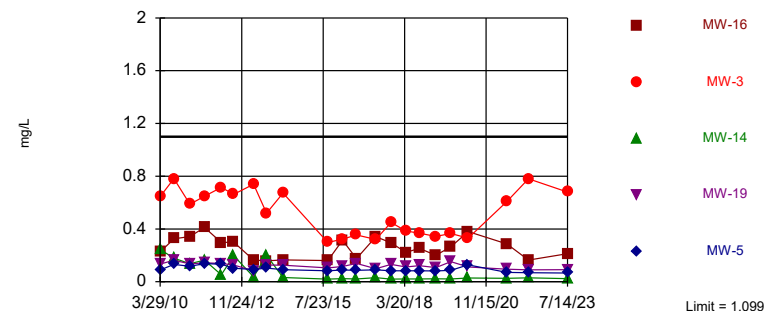


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 22 background values. 90.91% NDs. Annual per-constituent alpha = 0.03441. Individual comparison alpha = 0.003495 (1 of 2). Assumes 4 future values.

Constituent: Arsenic Analysis Run 8/3/2023 2:01 PM View: 2023AWQR - Prediction Limit
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Within Limit

Prediction Limit Interwell Parametric

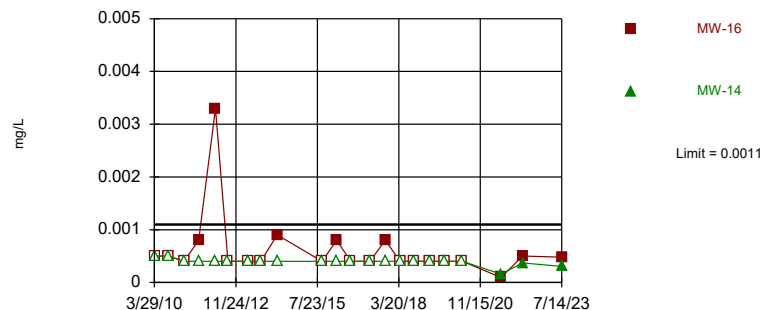


Background Data Summary: Mean=0.6426, Std. Dev.=0.2209, n=22. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9702, critical = 0.878. Kappa = 2.066 (c=8, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.006563. Individual comparison alpha = 0.001316. Comparing 5 points to limit.

Constituent: Barium Analysis Run 8/3/2023 2:01 PM View: 2023AWQR - Prediction Limit
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Within Limit

Prediction Limit Interwell Non-parametric

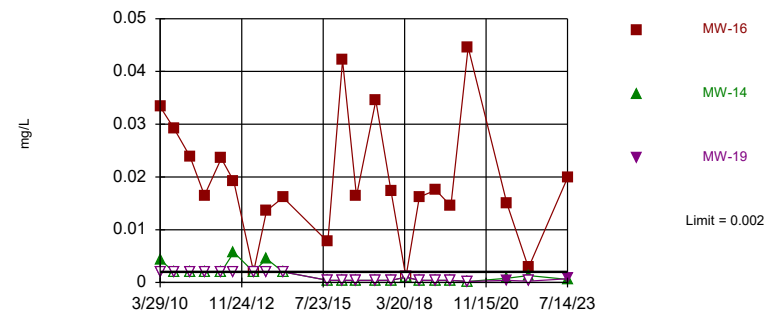


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 23 background values. 95.65% NDs. Annual per-constituent alpha = 0.03185. Individual comparison alpha = 0.003232 (1 of 2). Comparing 2 points to limit. Assumes 3 future values.

Constituent: Cadmium Analysis Run 8/3/2023 2:01 PM View: 2023AWQR - Prediction Limit
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Exceeds Limit: MW-16

Prediction Limit Interwell Non-parametric



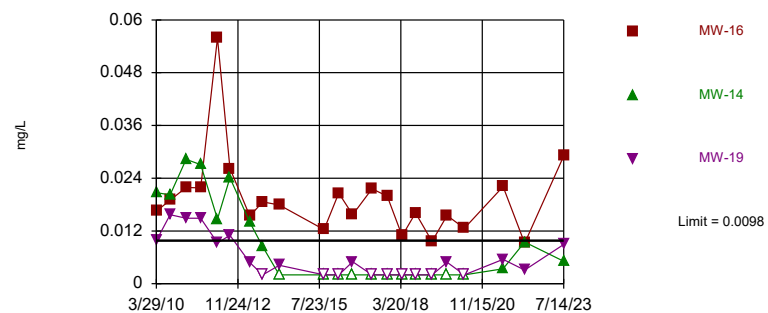
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 22 background values. 100% NDs. Annual per-constituent alpha = 0.03441. Individual comparison alpha = 0.003495 (1 of 2). Comparing 3 points to limit. Assumes 2 future values.

Constituent: Cobalt Analysis Run 8/3/2023 2:01 PM View: 2023AWQR - Prediction Limit
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

Exceeds Limit: MW-16

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 22 background values. 72.73% NDs. Annual per-constituent alpha = 0.03441. Individual comparison alpha = 0.003495 (1 of 2). Comparing 3 points to limit. Assumes 2 future values.

Constituent: Nickel Analysis Run 8/3/2023 2:01 PM View: 2023AWQR - Prediction Limit
Guthrie County SLF Client: SCS Engineers Data: Guthrie HMSP

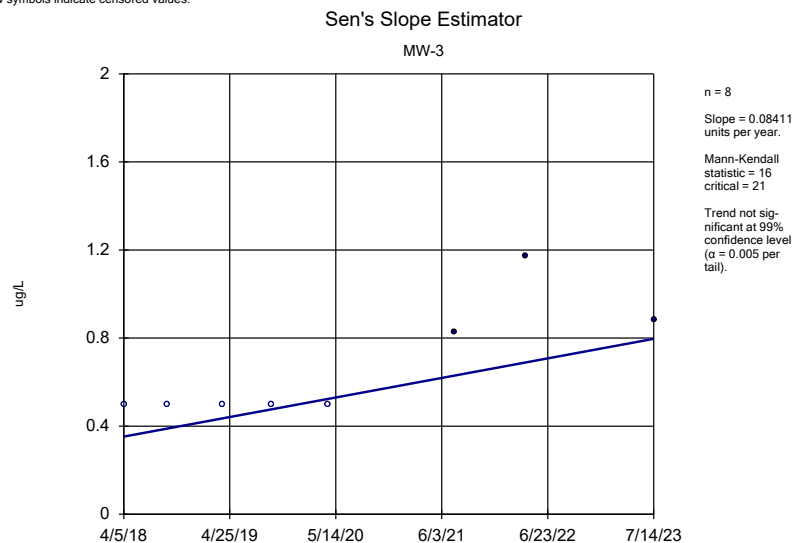
Attachment D

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

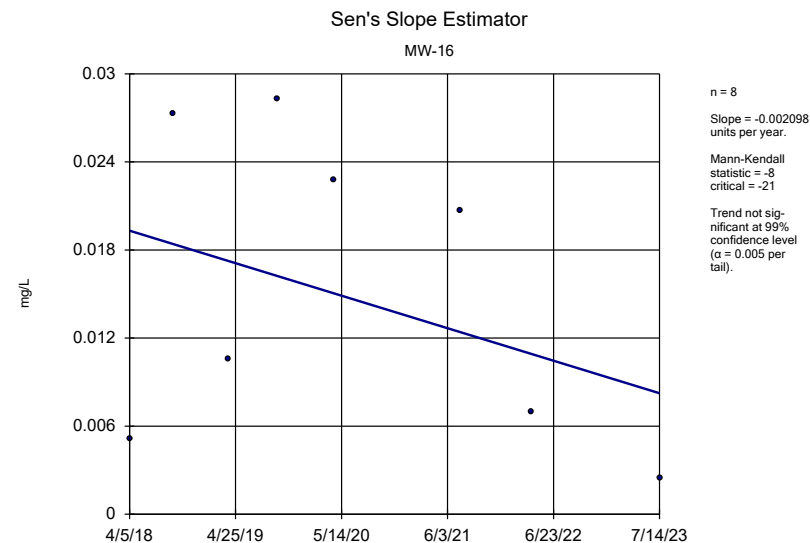
Trend Test

Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM Printed 8/3/2023, 3:17 PM

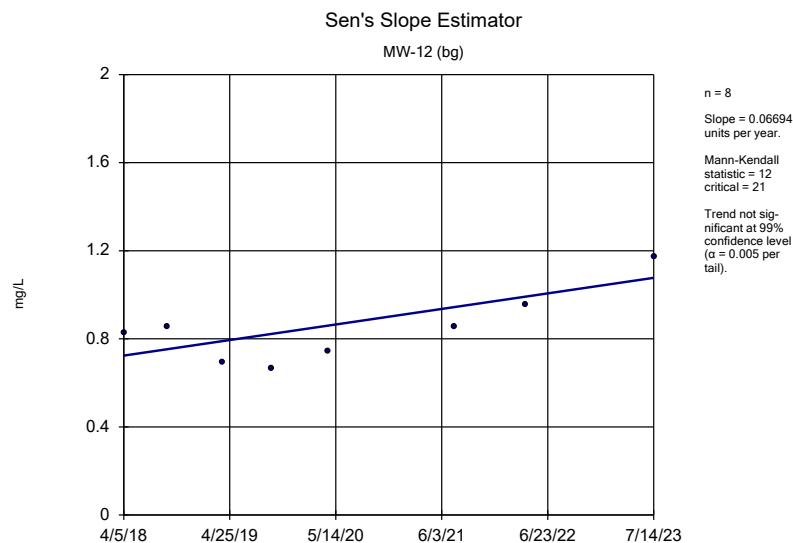
<u>Constituent</u>	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Alpha</u>	<u>Method</u>
1,4-Dichlorobenzene (ug/L)	MW-3	0.08411	16	21	No	8	62.5	0.01	NP
Arsenic (mg/L)	MW-16	-0.002098	-8	-21	No	8	0	0.01	NP
Barium (mg/L)	MW-12 (bg)	0.06694	12	21	No	8	0	0.01	NP
Barium (mg/L)	MW-16	0.000543	0	21	No	8	0	0.01	NP
Barium (mg/L)	MW-3	0.06605	8	21	No	8	0	0.01	NP
Benzene (ug/L)	MW-16	0	4	21	No	8	50	0.01	NP
Bis[2-ethylhexyl]phthalate (ug/L)	MW-12 (bg)	0.01053	0	8	No	4	75	0.01	NP
Bis[2-ethylhexyl]phthalate (ug/L)	MW-3	0	0	12	No	5	80	0.01	NP
Cadmium (mg/L)	MW-12 (bg)	-0.0001089	-17	-21	No	8	87.5	0.01	NP
Cadmium (mg/L)	MW-16	0	6	21	No	8	62.5	0.01	NP
Chlorobenzene (ug/L)	MW-16	0	9	21	No	8	75	0.01	NP
Chlorobenzene (ug/L)	MW-3	0.02066	1	21	No	8	25	0.01	NP
Chloroethane (ug/L)	MW-16	0.3098	15	21	No	8	50	0.01	NP
cis-1,2-Dichloroethene (ug/L)	MW-12 (bg)	0	13	21	No	8	75	0.01	NP
cis-1,2-Dichloroethene (ug/L)	MW-16	0	4	21	No	8	62.5	0.01	NP
cis-1,2-Dichloroethene (ug/L)	MW-3	-0.4068	-8	-21	No	8	12.5	0.01	NP
Cobalt (mg/L)	MW-16	0.0006503	6	21	No	8	12.5	0.01	NP
Cobalt (mg/L)	MW-3	-0.00001318	-5	-21	No	8	62.5	0.01	NP
Copper (mg/L)	MW-16	0	0	21	No	8	62.5	0.01	NP
Copper (mg/L)	MW-3	0	5	21	No	8	87.5	0.01	NP
Diethyl phthalate (ug/L)	MW-3	-0.8139	-3	-14	No	6	83.33	0.01	NP
Nickel (mg/L)	MW-16	0.002763	6	21	No	8	0	0.01	NP
Nickel (mg/L)	MW-3	0.00004392	14	21	No	8	62.5	0.01	NP
Tetrachloroethene (ug/L)	MW-12 (bg)	0.003826	3	21	No	8	37.5	0.01	NP
Tetrachloroethene (ug/L)	MW-3	0	-7	-21	No	8	87.5	0.01	NP
Zinc (mg/L)	MW-12 (bg)	0	7	21	No	8	87.5	0.01	NP
Zinc (mg/L)	MW-3	0	-5	-21	No	8	75	0.01	NP



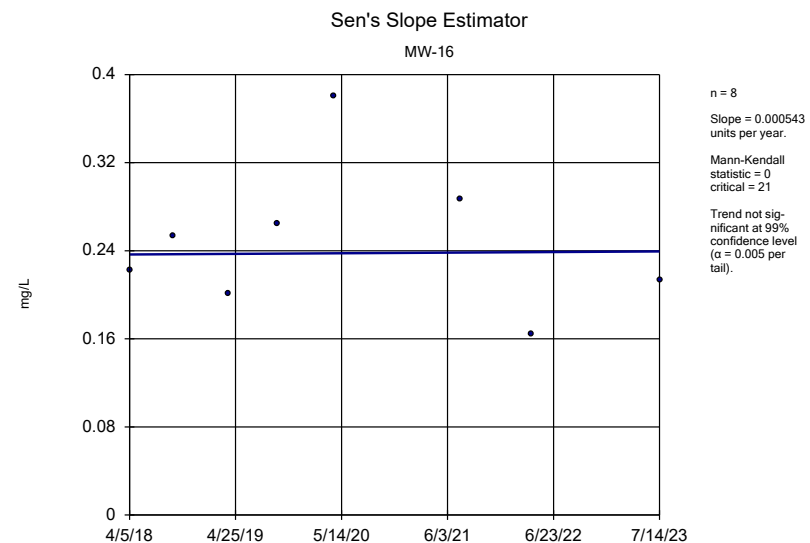
Constituent: 1,4-Dichlorobenzene Analysis Run 8/3/2023 3:15 PM View: 2023AWQR - Mann Kendall
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM



Constituent: Arsenic Analysis Run 8/3/2023 3:15 PM View: 2023AWQR - Mann Kendall
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM



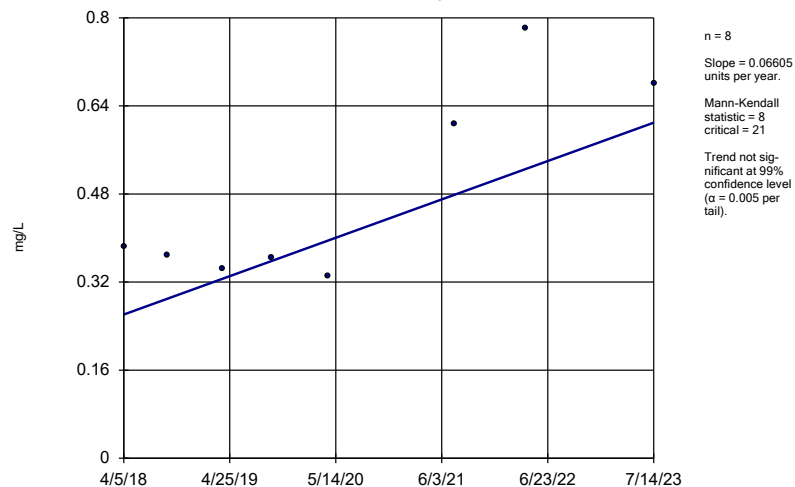
Constituent: Barium Analysis Run 8/3/2023 3:15 PM View: 2023AWQR - Mann Kendall
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM



Constituent: Barium Analysis Run 8/3/2023 3:15 PM View: 2023AWQR - Mann Kendall
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM

Sen's Slope Estimator

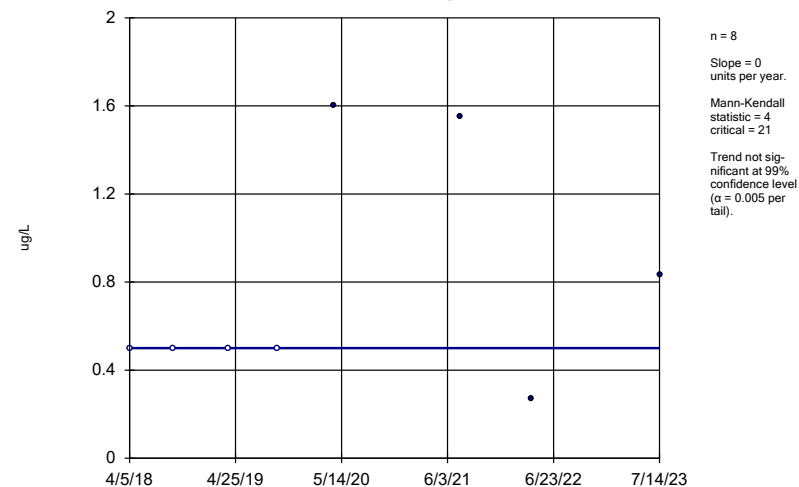
MW-3



Constituent: Barium Analysis Run 8/3/2023 3:15 PM View: 2023AWQR - Mann Kendall
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM

Sen's Slope Estimator

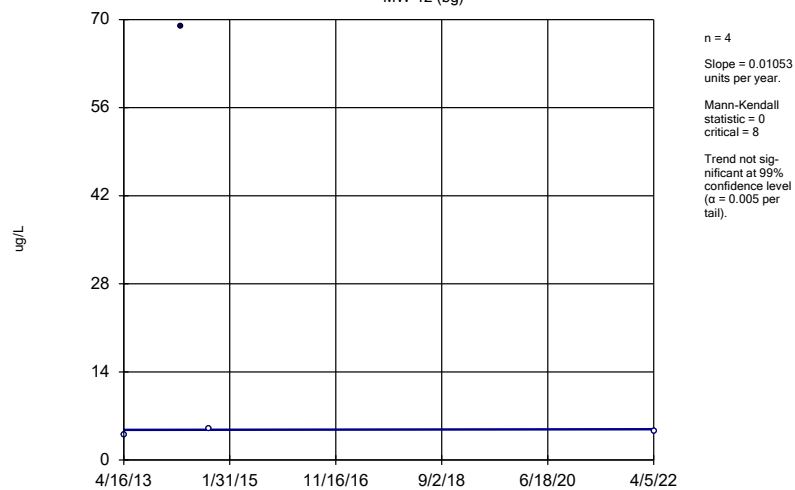
MW-16



Constituent: Benzene Analysis Run 8/3/2023 3:15 PM View: 2023AWQR - Mann Kendall
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM

Sen's Slope Estimator

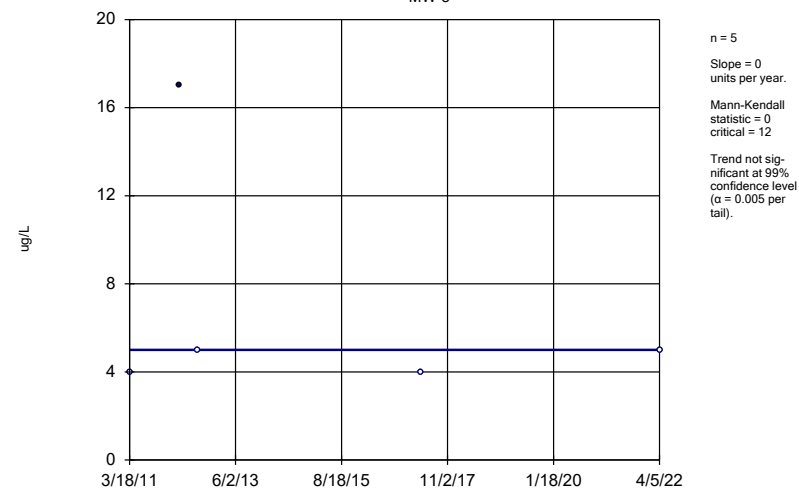
MW-12 (bg)



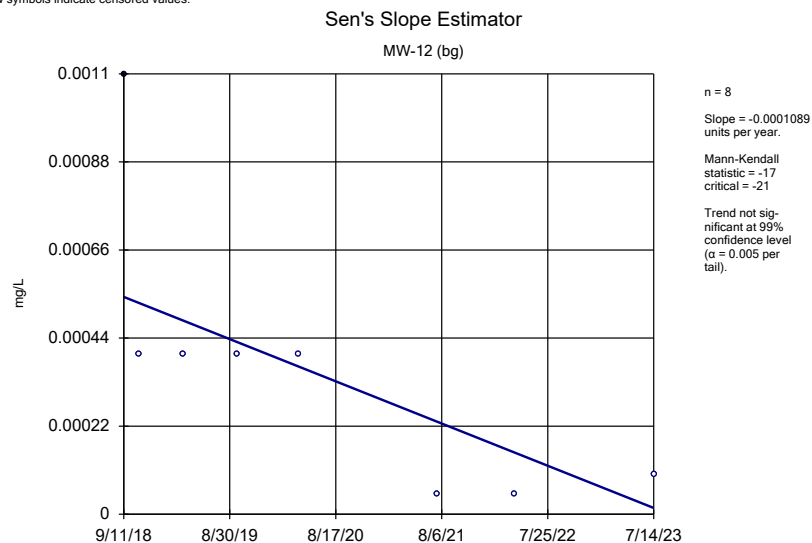
Constituent: Bis[2-ethylhexyl]phthalate Analysis Run 8/3/2023 3:15 PM View: 2023AWQR - Mann Kendall
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM

Sen's Slope Estimator

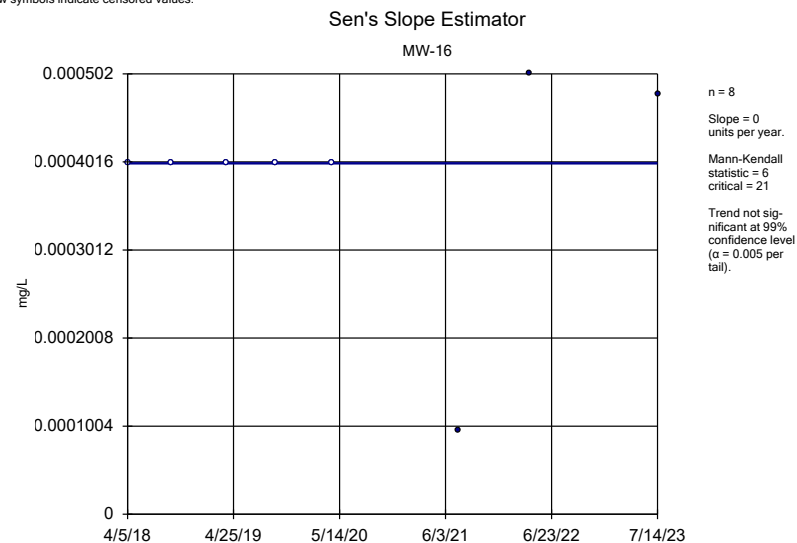
MW-3



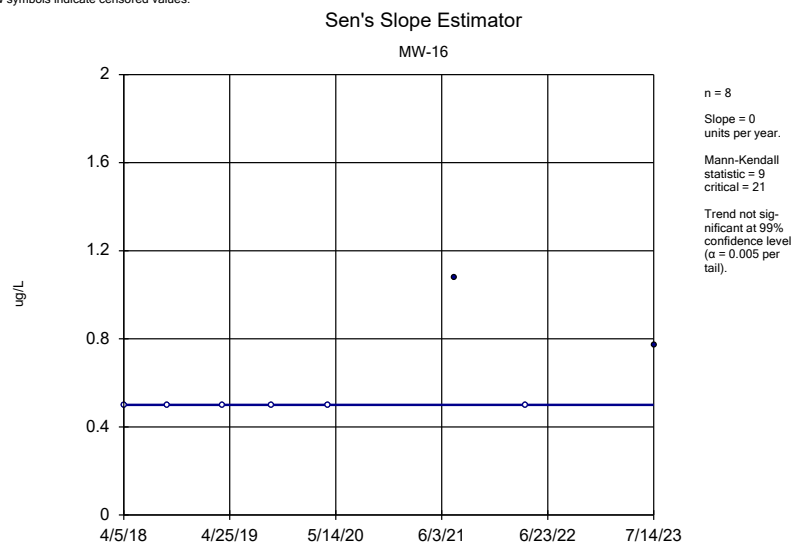
Constituent: Bis[2-ethylhexyl]phthalate Analysis Run 8/3/2023 3:15 PM View: 2023AWQR - Mann Kendall
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM



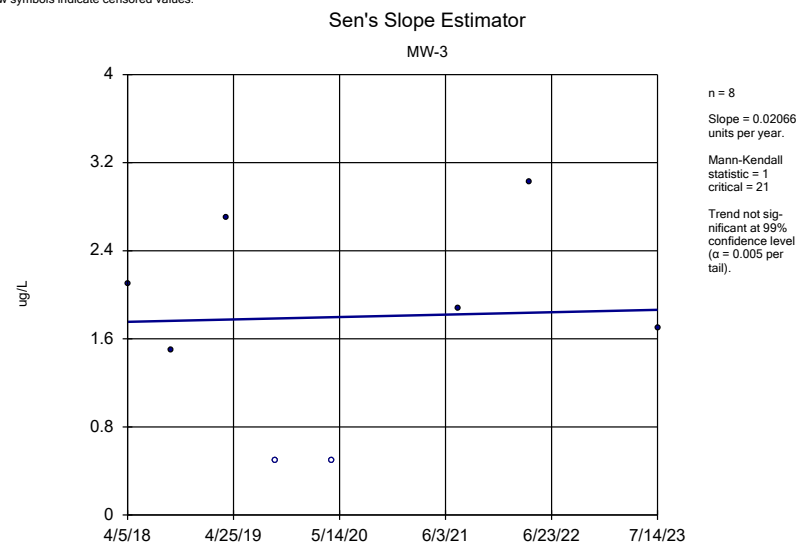
Constituent: Cadmium Analysis Run 8/3/2023 3:15 PM View: 2023AWQR - Mann Kendall
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM



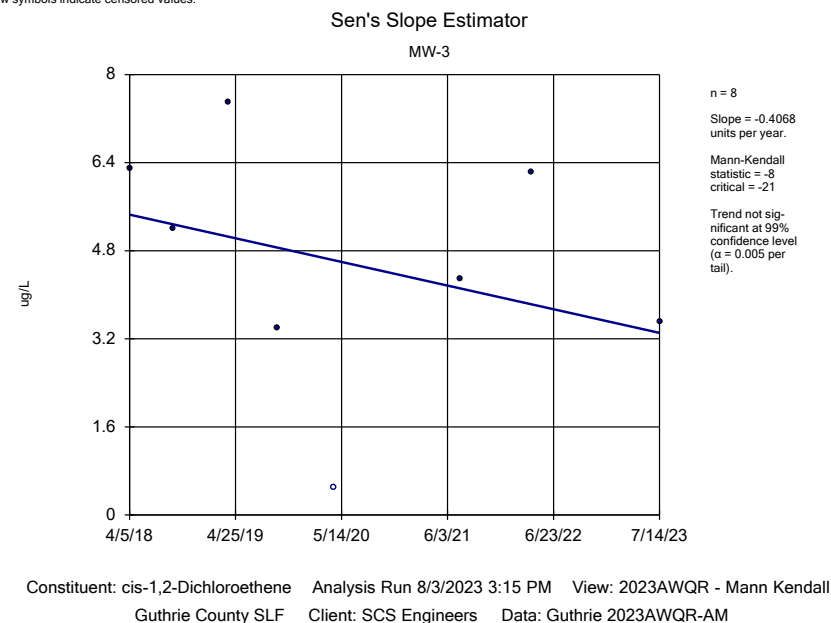
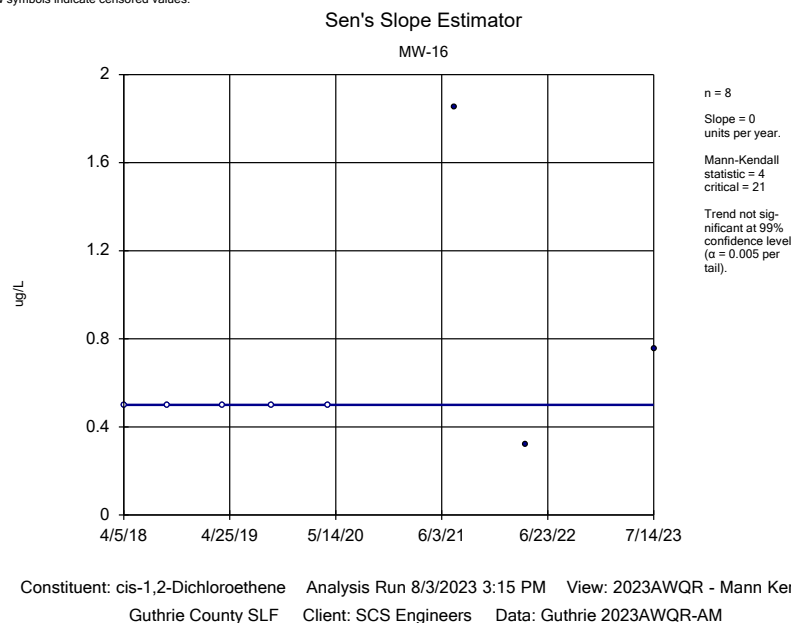
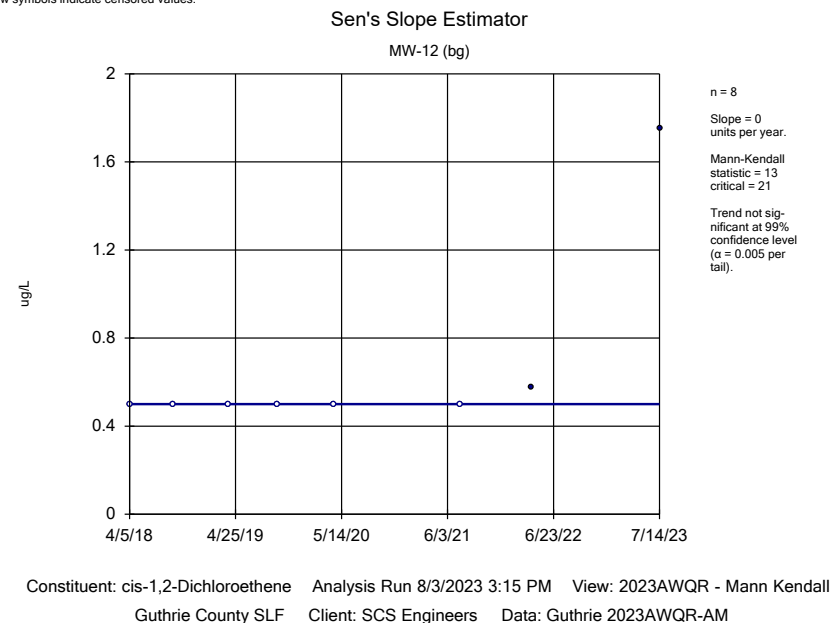
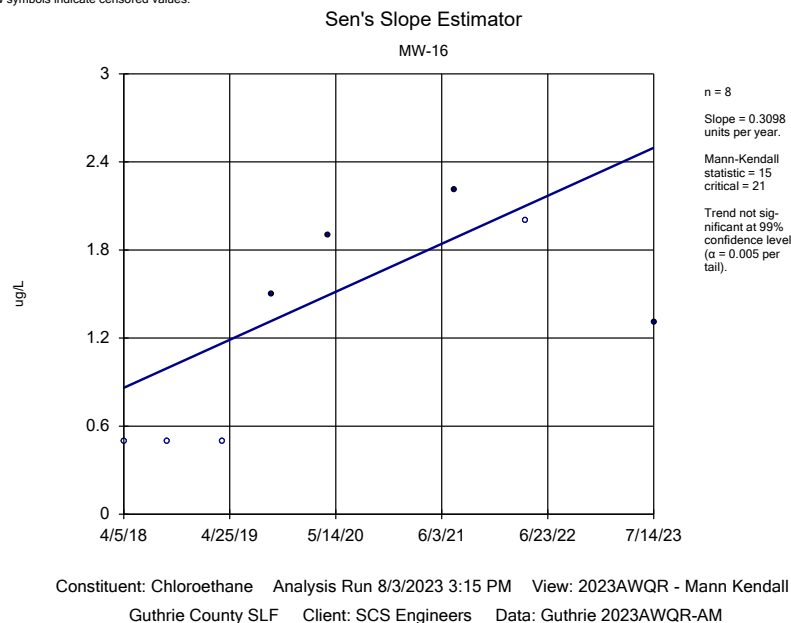
Constituent: Cadmium Analysis Run 8/3/2023 3:15 PM View: 2023AWQR - Mann Kendall
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM

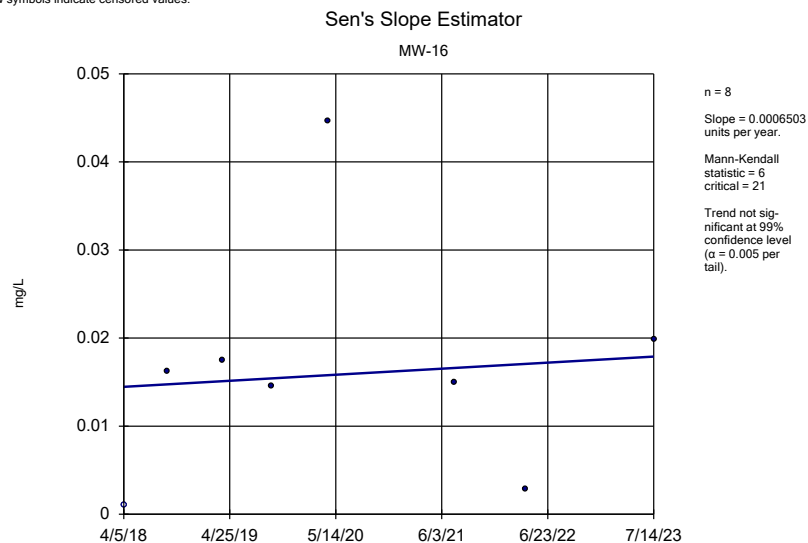


Constituent: Chlorobenzene Analysis Run 8/3/2023 3:15 PM View: 2023AWQR - Mann Kendall
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM

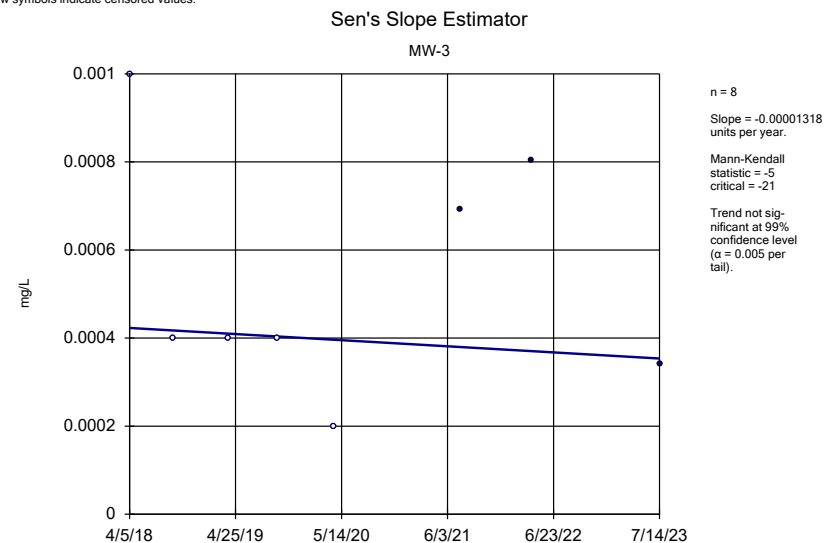


Constituent: Chlorobenzene Analysis Run 8/3/2023 3:15 PM View: 2023AWQR - Mann Kendall
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM

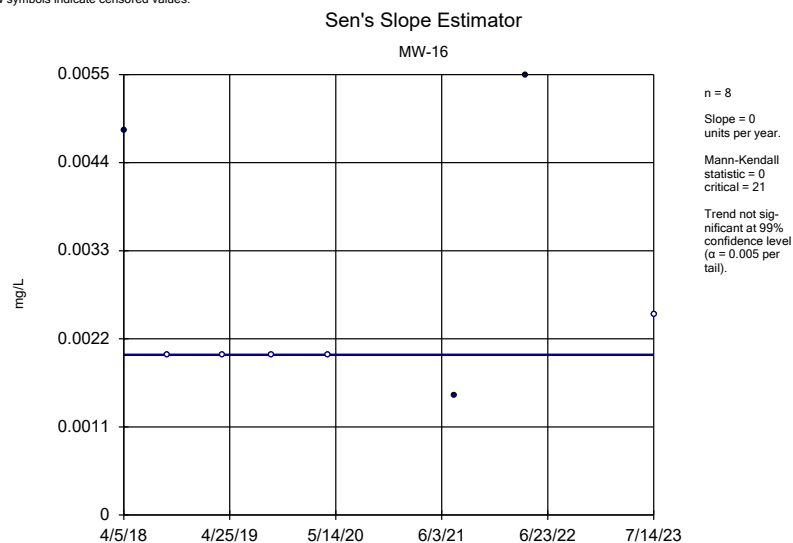




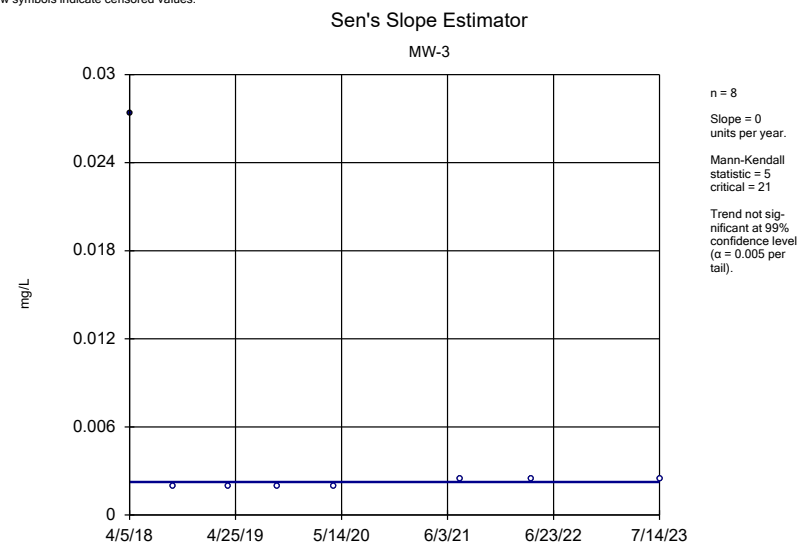
Constituent: Cobalt Analysis Run 8/3/2023 3:15 PM View: 2023AWQR - Mann Kendall
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM



Constituent: Cobalt Analysis Run 8/3/2023 3:15 PM View: 2023AWQR - Mann Kendall
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM



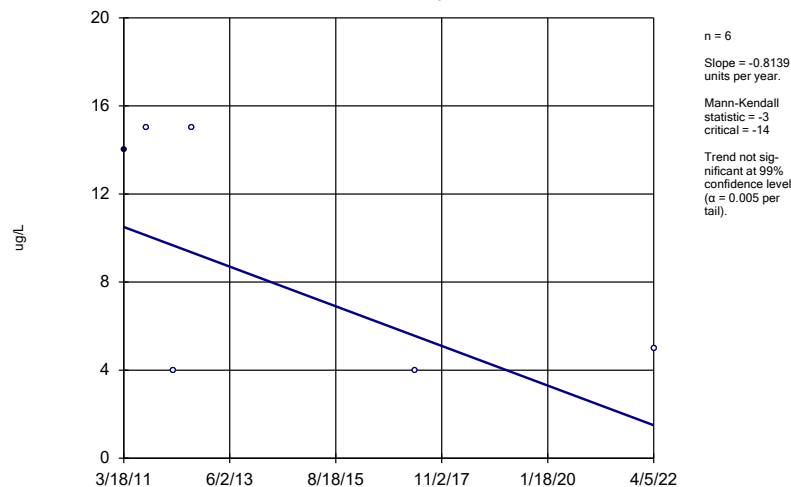
Constituent: Copper Analysis Run 8/3/2023 3:15 PM View: 2023AWQR - Mann Kendall
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM



Constituent: Copper Analysis Run 8/3/2023 3:15 PM View: 2023AWQR - Mann Kendall
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM

Sen's Slope Estimator

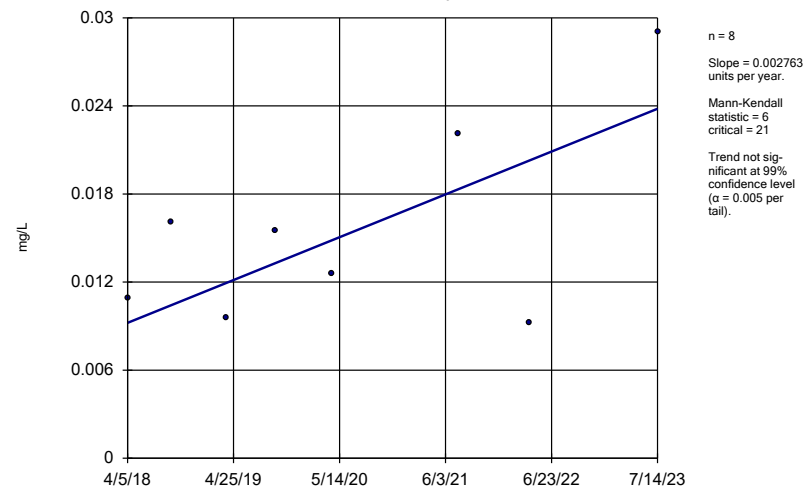
MW-3



Constituent: Diethyl phthalate Analysis Run 8/3/2023 3:15 PM View: 2023AWQR - Mann Kendall
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM

Sen's Slope Estimator

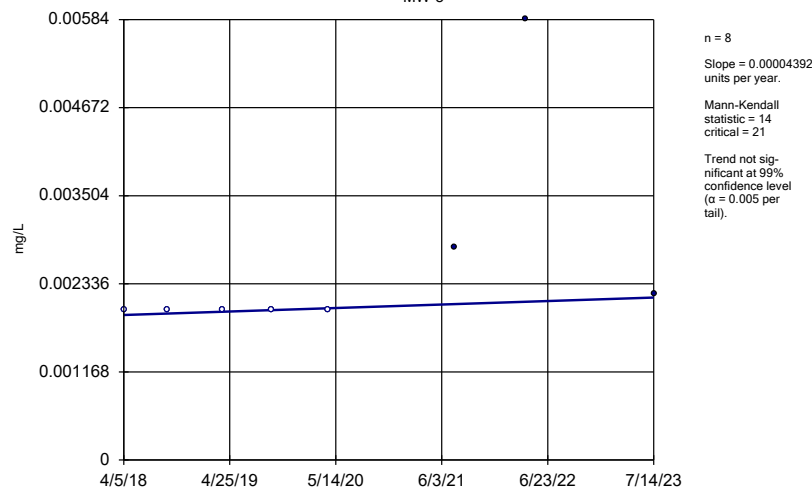
MW-16



Constituent: Nickel Analysis Run 8/3/2023 3:15 PM View: 2023AWQR - Mann Kendall
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM

Sen's Slope Estimator

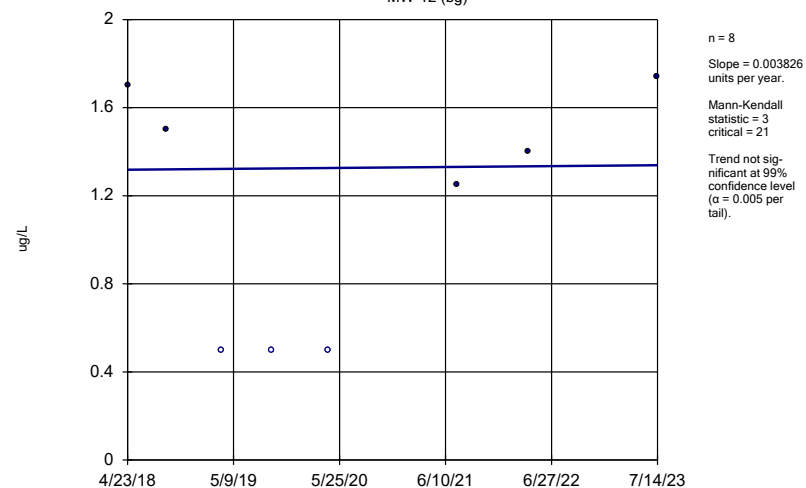
MW-3



Constituent: Nickel Analysis Run 8/3/2023 3:15 PM View: 2023AWQR - Mann Kendall
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM

Sen's Slope Estimator

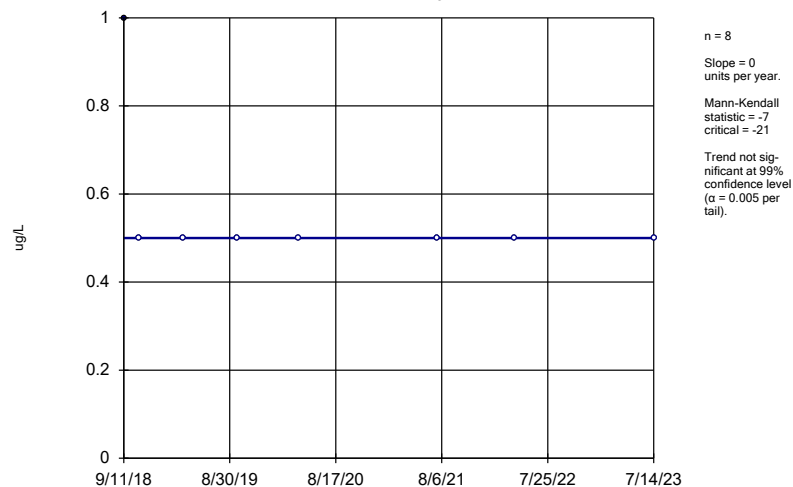
MW-12 (bg)



Constituent: Tetrachloroethene Analysis Run 8/3/2023 3:15 PM View: 2023AWQR - Mann Kendall
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM

Sen's Slope Estimator

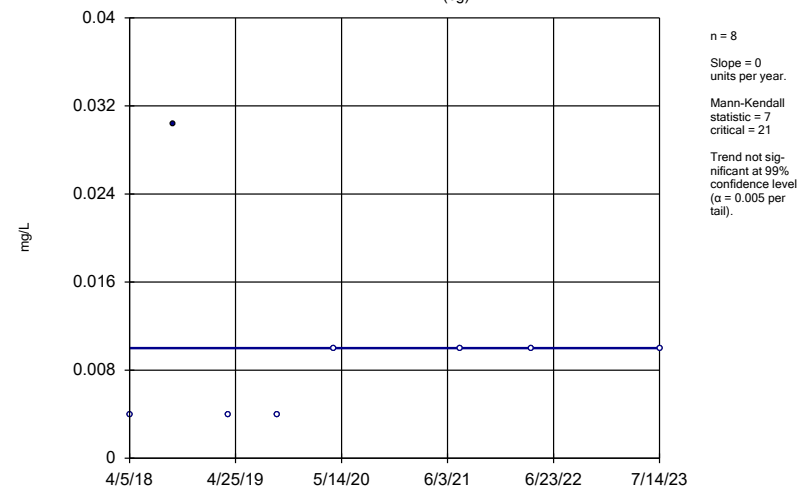
MW-3



Constituent: Tetrachloroethene Analysis Run 8/3/2023 3:15 PM View: 2023AWQR - Mann Kendall
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM

Sen's Slope Estimator

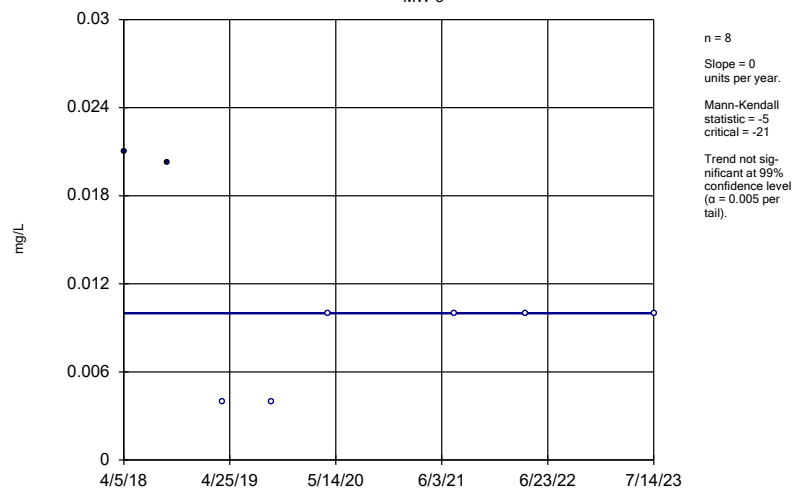
MW-12 (bg)



Constituent: Zinc Analysis Run 8/3/2023 3:15 PM View: 2023AWQR - Mann Kendall
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM

Sen's Slope Estimator

MW-3



Constituent: Zinc Analysis Run 8/3/2023 3:15 PM View: 2023AWQR - Mann Kendall
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM

Attachment E

Confidence Interval Summary Table and Graphs

Confidence Interval

Guthrie County SLF

Client: SCS Engineers

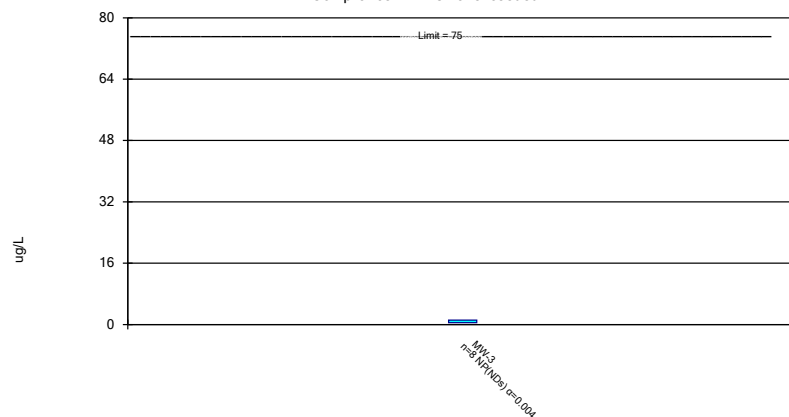
Data: Guthrie 2023AWQR-AM

Printed 8/3/2023, 3:30 PM

<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	62.5	No	0.004	NP (NDs)
Arsenic (mg/L)	MW-16	0.02656	0.004495	0.01	No	8	0	No	0.01	Param.
Barium (mg/L)	MW-12 (bg)	1.017	0.6729	2	No	8	0	No	0.01	Param.
Barium (mg/L)	MW-16	0.318	0.1782	2	No	8	0	No	0.01	Param.
Barium (mg/L)	MW-3	0.6713	0.2937	2	No	8	0	No	0.01	Param.
Benzene (ug/L)	MW-16	1.343	0.2696	5	No	8	50	No	0.01	Param.
Bis[2-ethylhexyl]phthalate (ug/L)	MW-12 (bg)	69	4	6	No	4	75	No	0.0625	NP (NDs)
Bis[2-ethylhexyl]phthalate (ug/L)	MW-3	17	4	6	No	5	80	No	0.031	NP (NDs)
Cadmium (mg/L)	MW-12 (bg)	0.0011	0.00005	0.005	No	8	87.5	No	0.004	NP (NDs)
Cadmium (mg/L)	MW-16	0.000502	0.000096	0.005	No	8	62.5	No	0.004	NP (NDs)
Chlorobenzene (ug/L)	MW-16	1.08	0.5	100	No	8	75	No	0.004	NP (NDs)
Chlorobenzene (ug/L)	MW-3	2.588	1.137	100	No	8	25	No	0.01	Param.
Chloroethane (ug/L)	MW-16	1.891	0.9419	2800	No	8	50	No	0.01	Param.
cis-1,2-Dichloroethene (ug/L)	MW-12 (bg)	1.75	0.5	70	No	8	75	No	0.004	NP (NDs)
cis-1,2-Dichloroethene (ug/L)	MW-16	1.85	0.319	70	No	8	62.5	No	0.004	NP (NDs)
cis-1,2-Dichloroethene (ug/L)	MW-3	6.947	2.285	70	No	8	12.5	No	0.01	Param.
Cobalt (mg/L)	MW-16	0.03052	0.002346	0.0021	Yes	8	12.5	No	0.01	Param.
Cobalt (mg/L)	MW-3	0.001	0.0002	0.0021	No	8	62.5	No	0.004	NP (NDs)
Copper (mg/L)	MW-16	0.0055	0.0015	1.3	No	8	62.5	No	0.004	NP (NDs)
Copper (mg/L)	MW-3	0.0274	0.002	1.3	No	8	87.5	No	0.004	NP (NDs)
Diethyl phthalate (ug/L)	MW-3	15	4	5600	No	6	83.33	No	0.0155	NP (NDs)
Nickel (mg/L)	MW-16	0.02292	0.008346	0.1	No	8	0	No	0.01	Param.
Nickel (mg/L)	MW-3	0.00584	0.002	0.1	No	8	62.5	No	0.004	NP (NDs)
Tetrachloroethene (ug/L)	MW-12 (bg)	1.631	1.017	5	No	8	37.5	No	0.01	Param.
Tetrachloroethene (ug/L)	MW-3	1	0.5	5	No	8	87.5	No	0.004	NP (NDs)
Zinc (mg/L)	MW-12 (bg)	0.0304	0.004	2	No	8	87.5	No	0.004	NP (NDs)
Zinc (mg/L)	MW-3	0.021	0.004	2	No	8	75	No	0.004	NP (NDs)

Non-Parametric Confidence Interval

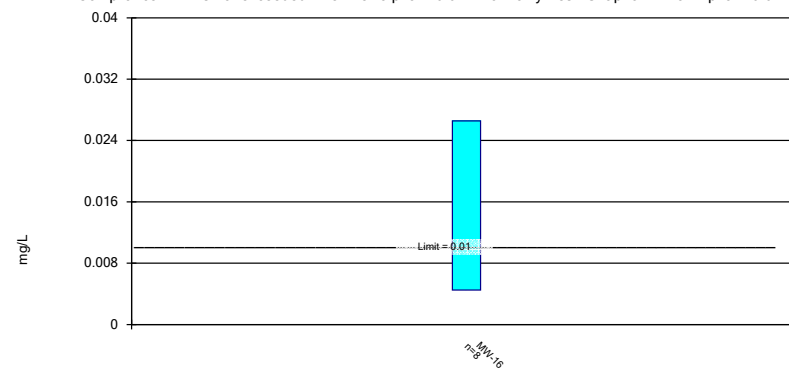
Compliance Limit is not exceeded.



Constituent: 1,4-Dichlorobenzene Analysis Run 8/3/2023 3:29 PM View: 2023AWQR - Confidence Interval
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM

Parametric Confidence Interval

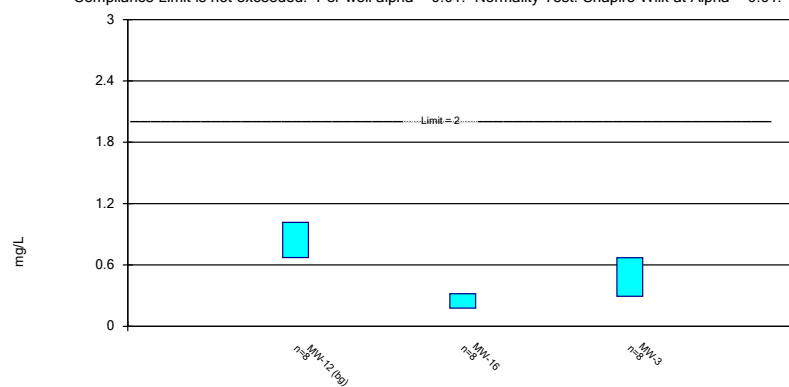
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Constituent: Arsenic Analysis Run 8/3/2023 3:29 PM View: 2023AWQR - Confidence Interval
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM

Parametric Confidence Interval

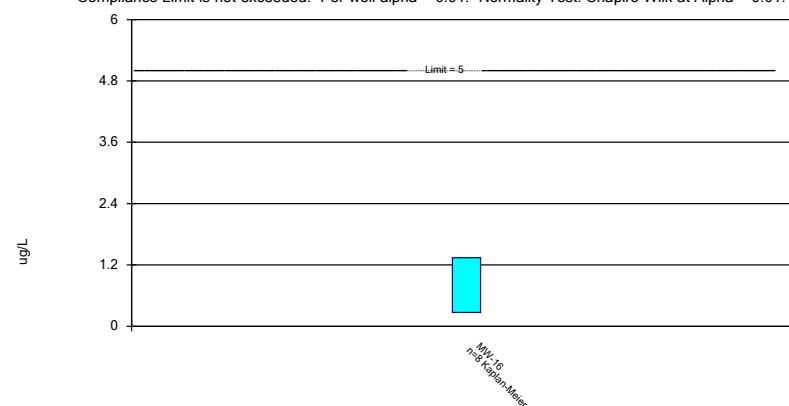
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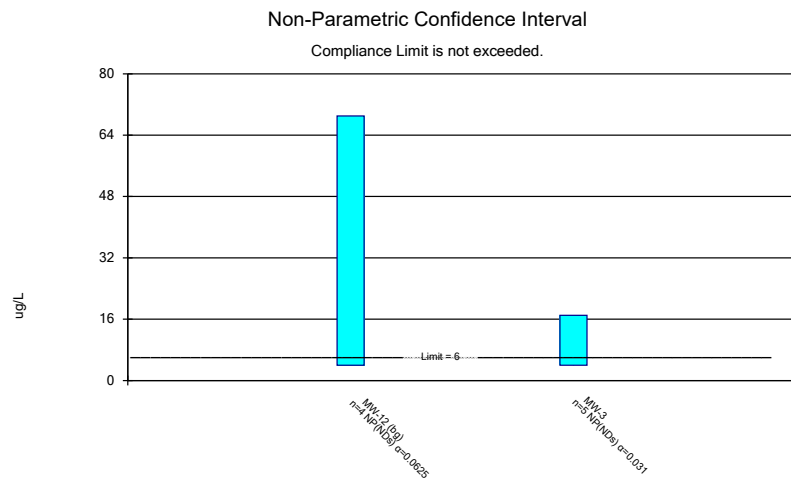
Constituent: Barium Analysis Run 8/3/2023 3:29 PM View: 2023AWQR - Confidence Interval
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM

Parametric Confidence Interval

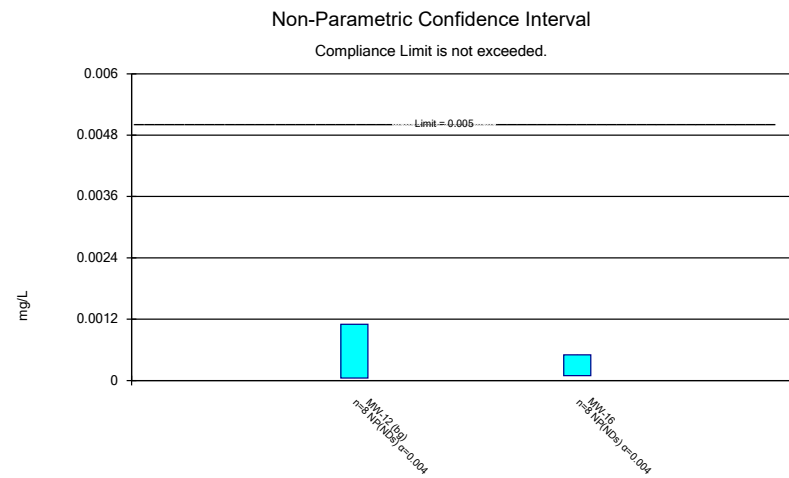
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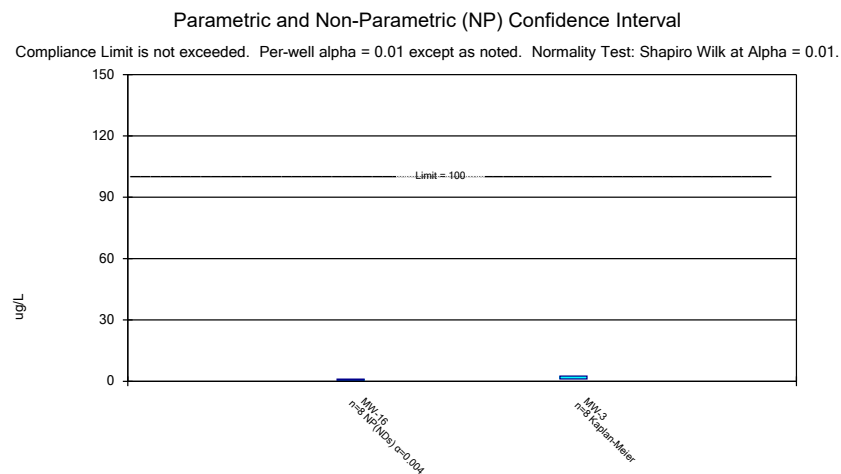
Constituent: Benzene Analysis Run 8/3/2023 3:29 PM View: 2023AWQR - Confidence Interval
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM



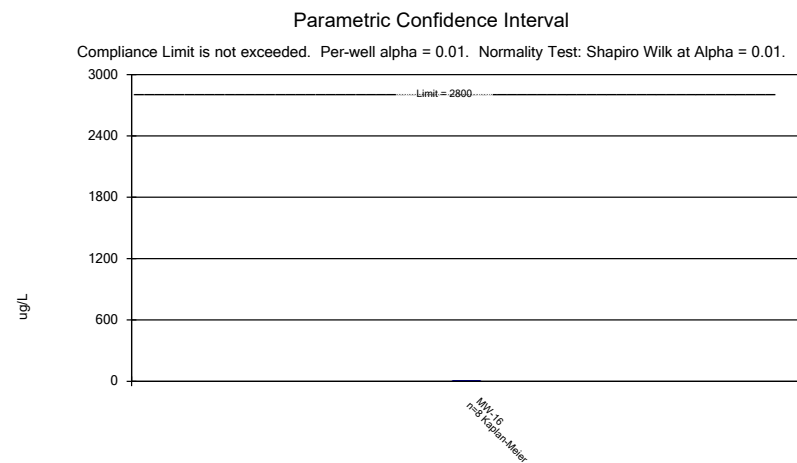
Constituent: Bis[2-ethylhexyl]phthalate Analysis Run 8/3/2023 3:29 PM View: 2023AWQR - Confidence Int
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM



Constituent: Cadmium Analysis Run 8/3/2023 3:29 PM View: 2023AWQR - Confidence Interval
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM



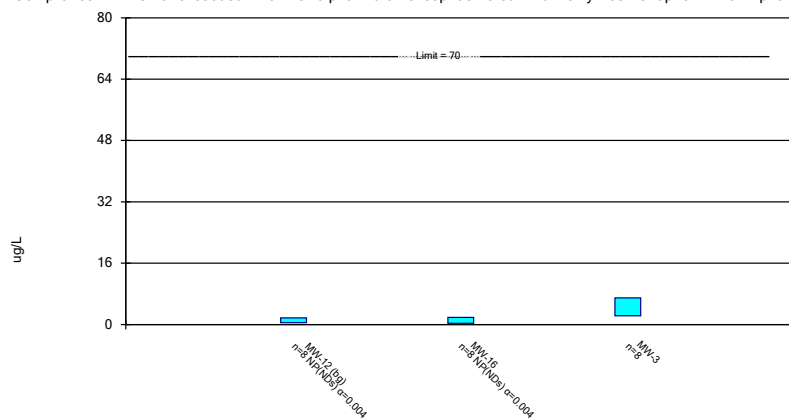
Constituent: Chlorobenzene Analysis Run 8/3/2023 3:29 PM View: 2023AWQR - Confidence Interval
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM



Constituent: Chloroethane Analysis Run 8/3/2023 3:29 PM View: 2023AWQR - Confidence Interval
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM

Parametric and Non-Parametric (NP) Confidence Interval

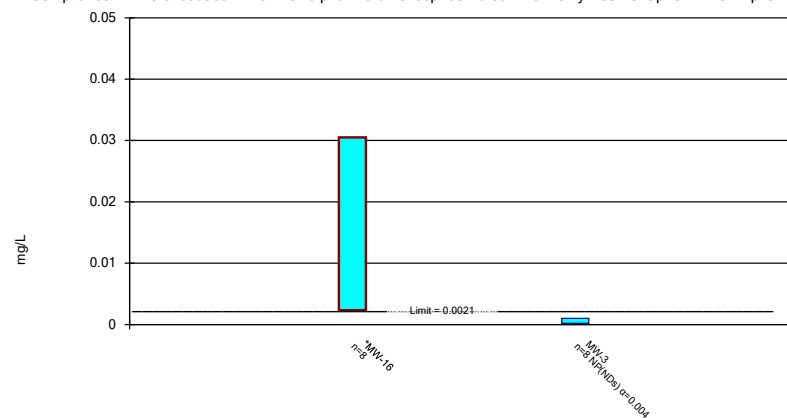
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Constituent: cis-1,2-Dichloroethene Analysis Run 8/3/2023 3:29 PM View: 2023AWQR - Confidence Interv
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM

Parametric and Non-Parametric (NP) Confidence Interval

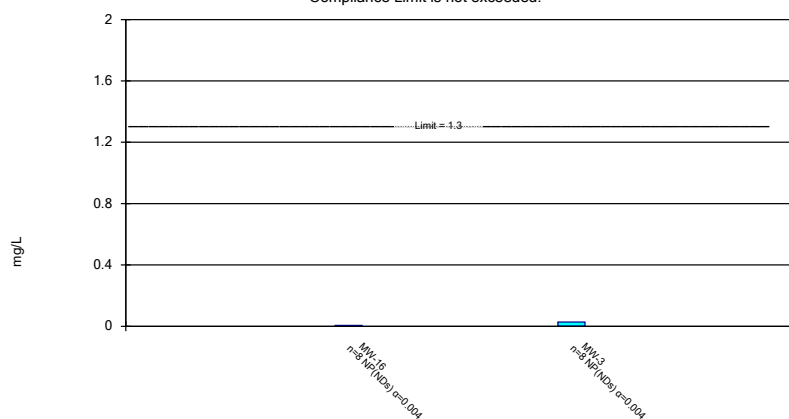
Compliance limit is exceeded.* Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Cobalt Analysis Run 8/3/2023 3:29 PM View: 2023AWQR - Confidence Interval
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM

Non-Parametric Confidence Interval

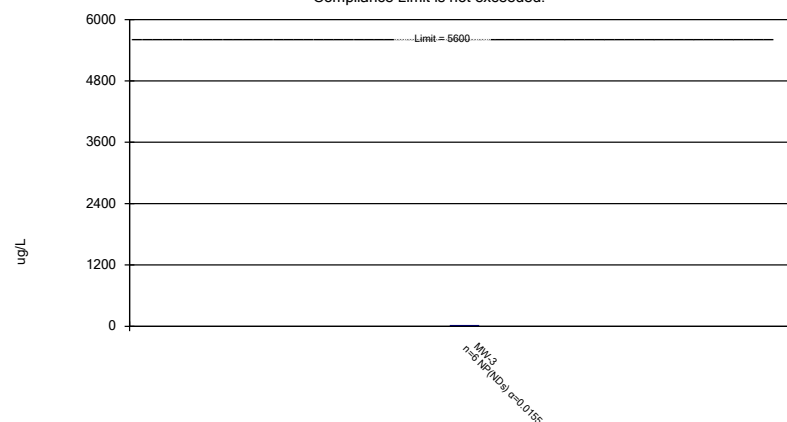
Compliance Limit is not exceeded.



Constituent: Copper Analysis Run 8/3/2023 3:29 PM View: 2023AWQR - Confidence Interval
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM

Non-Parametric Confidence Interval

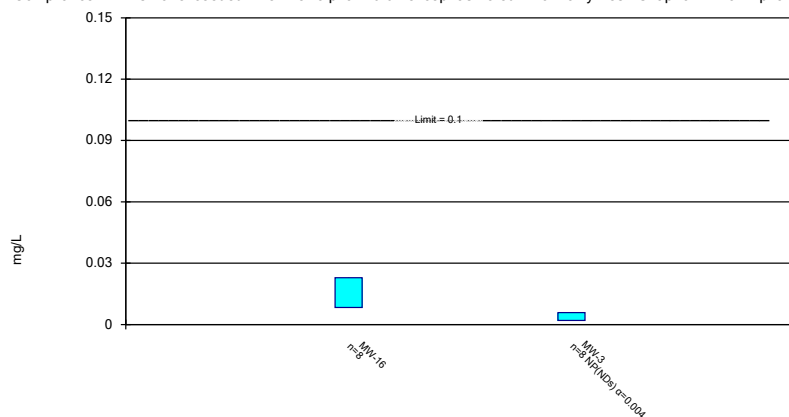
Compliance Limit is not exceeded.



Constituent: Diethyl phthalate Analysis Run 8/3/2023 3:29 PM View: 2023AWQR - Confidence Interval
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM

Parametric and Non-Parametric (NP) Confidence Interval

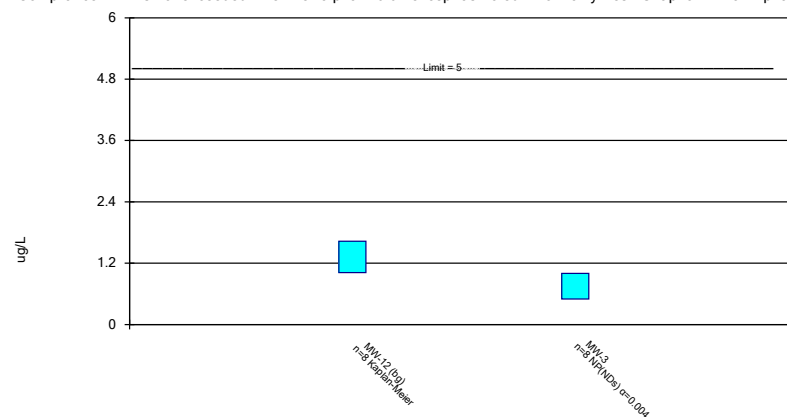
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Nickel Analysis Run 8/3/2023 3:29 PM View: 2023AWQR - Confidence Interval
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM

Parametric and Non-Parametric (NP) Confidence Interval

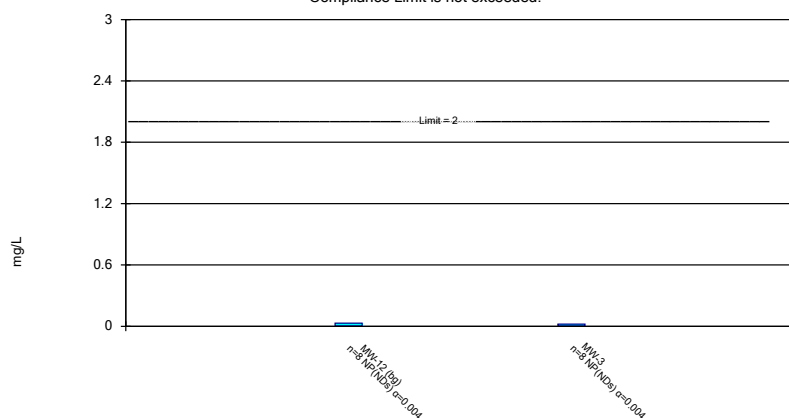
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Tetrachloroethene Analysis Run 8/3/2023 3:29 PM View: 2023AWQR - Confidence Interval
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM

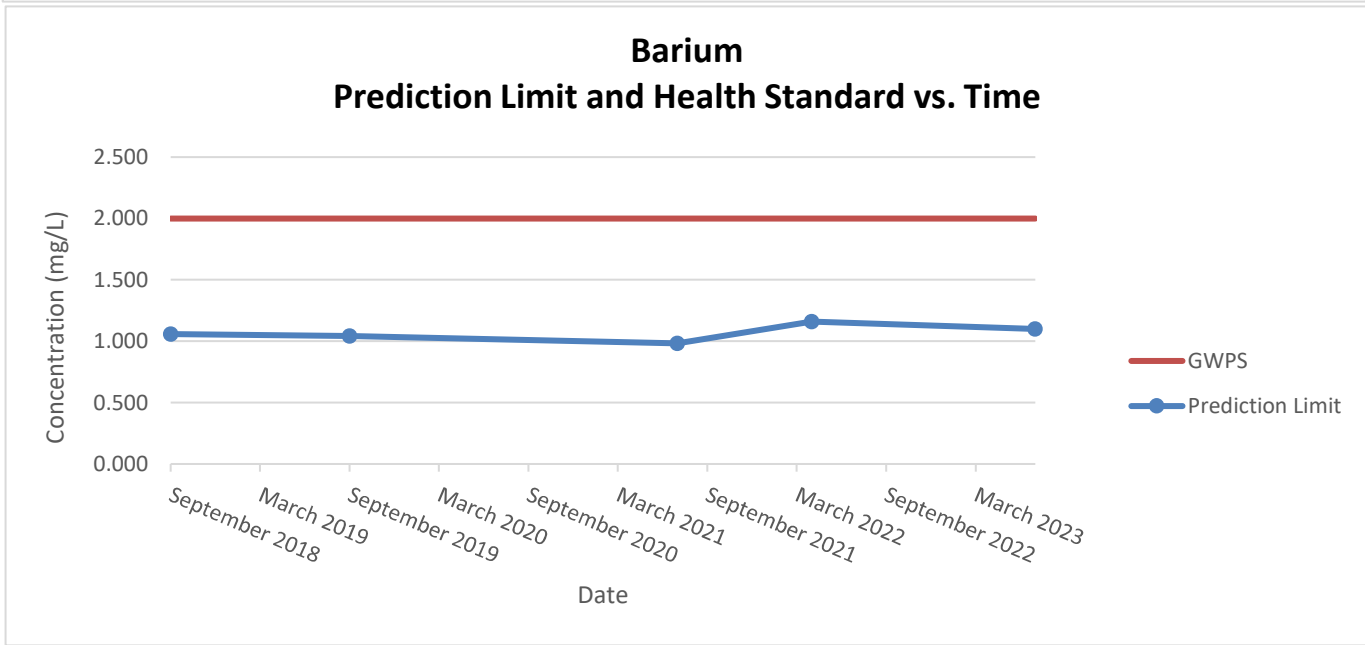
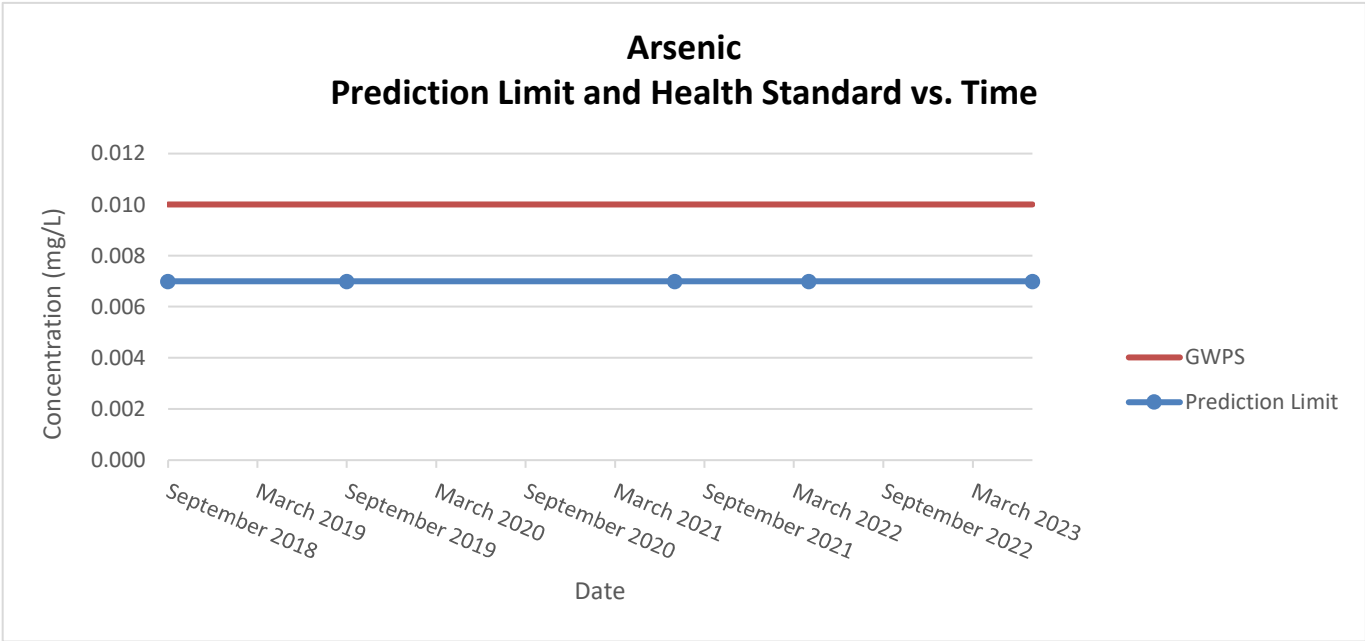
Non-Parametric Confidence Interval

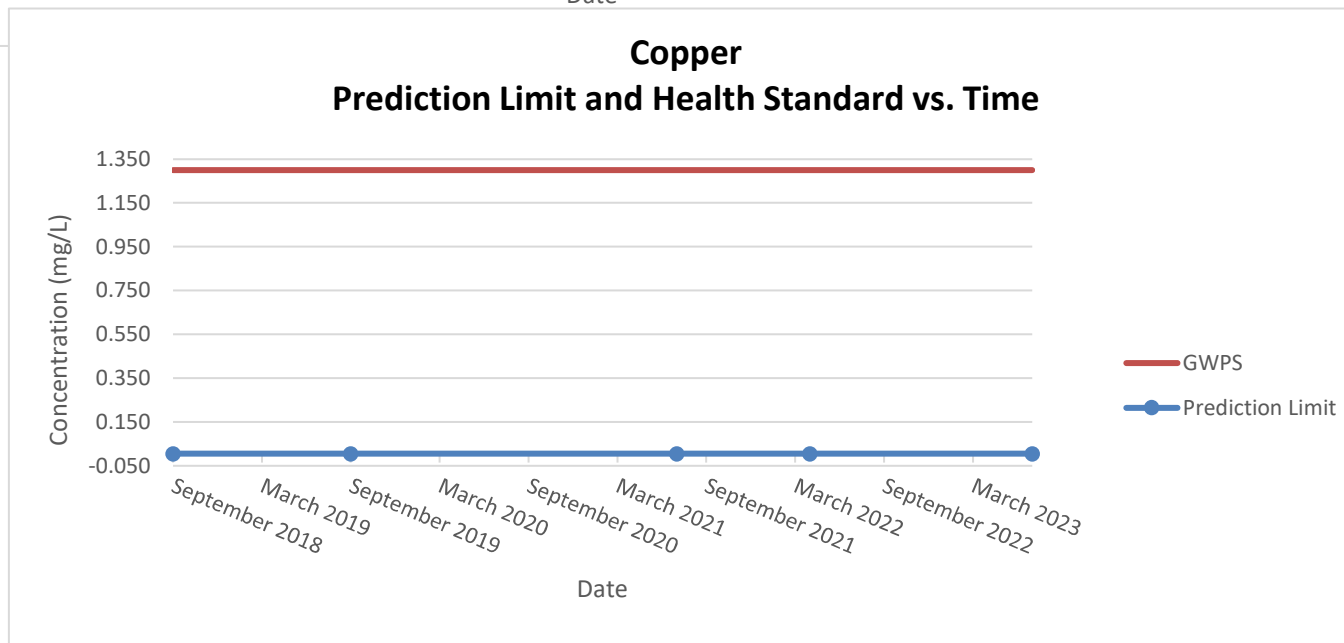
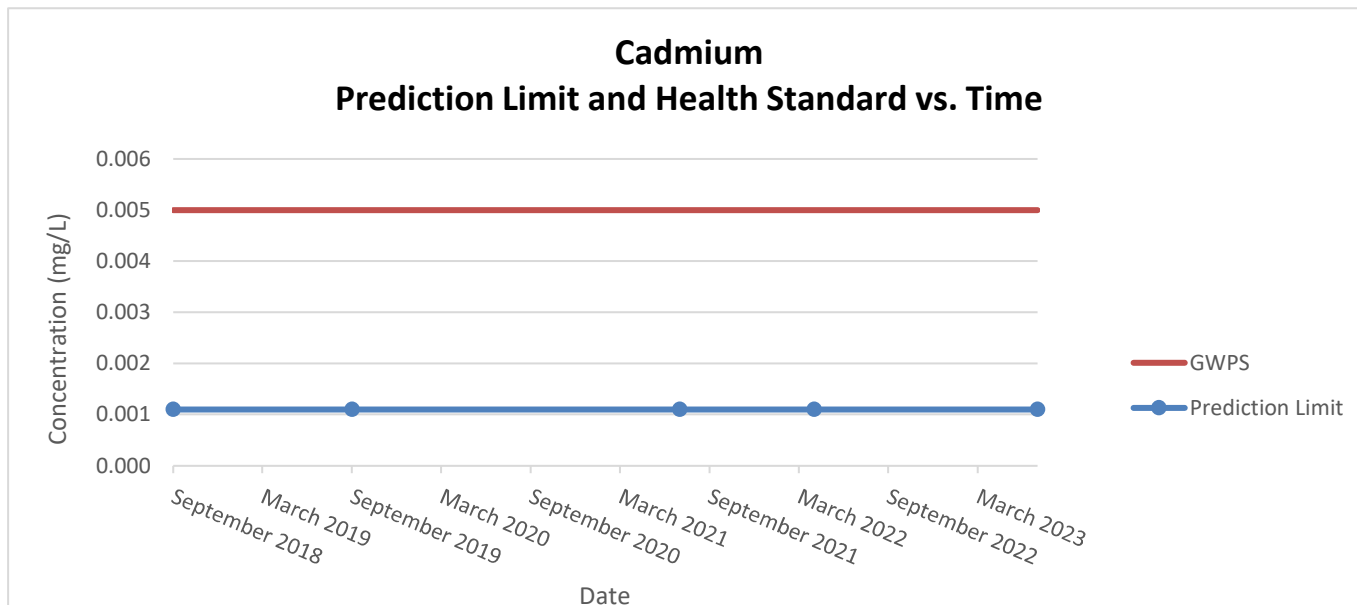
Compliance Limit is not exceeded.



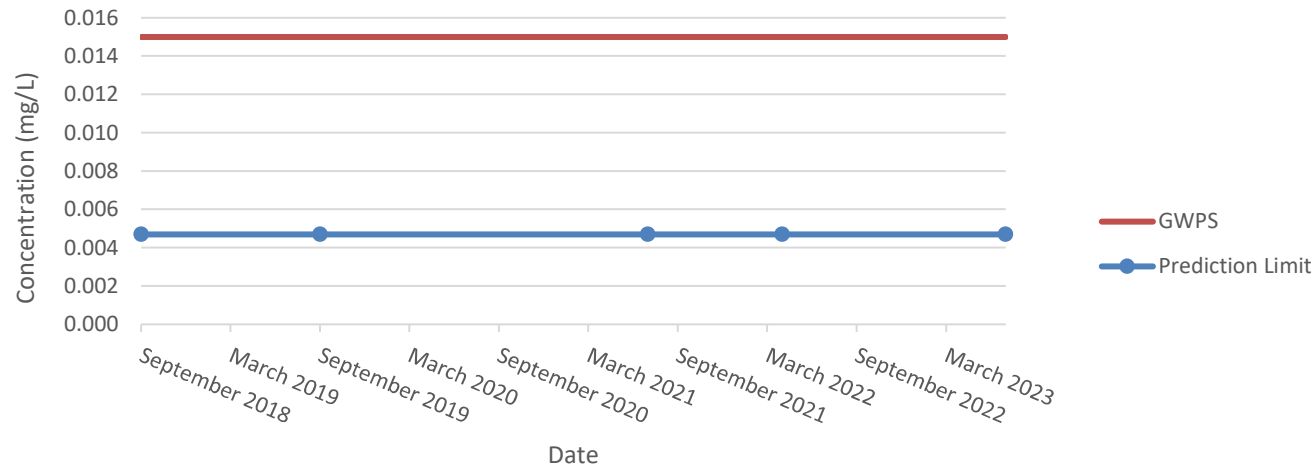
Constituent: Zinc Analysis Run 8/3/2023 3:29 PM View: 2023AWQR - Confidence Interval
Guthrie County SLF Client: SCS Engineers Data: Guthrie 2023AWQR-AM

Appendix E
Standards History Graphs

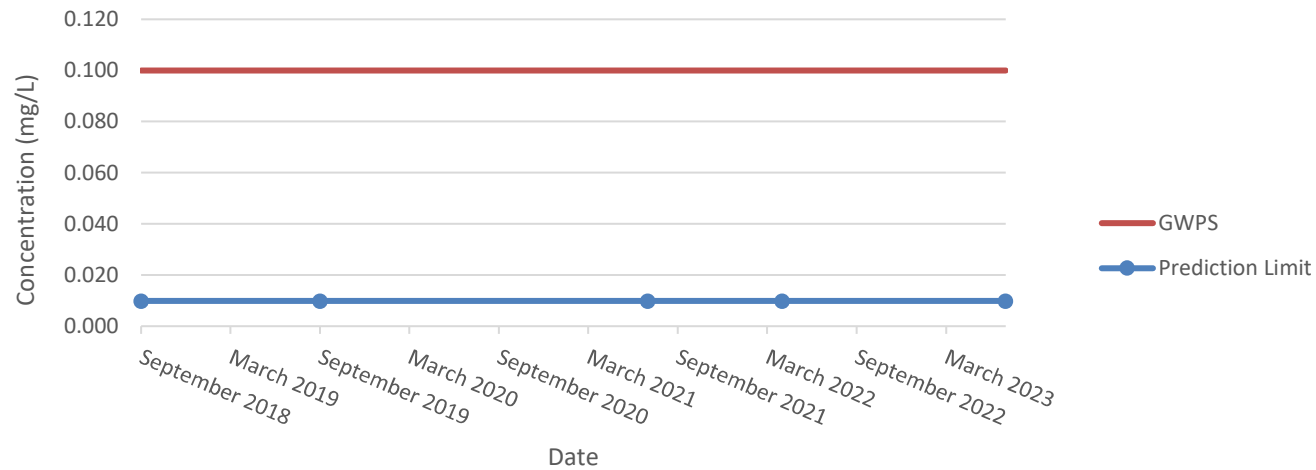


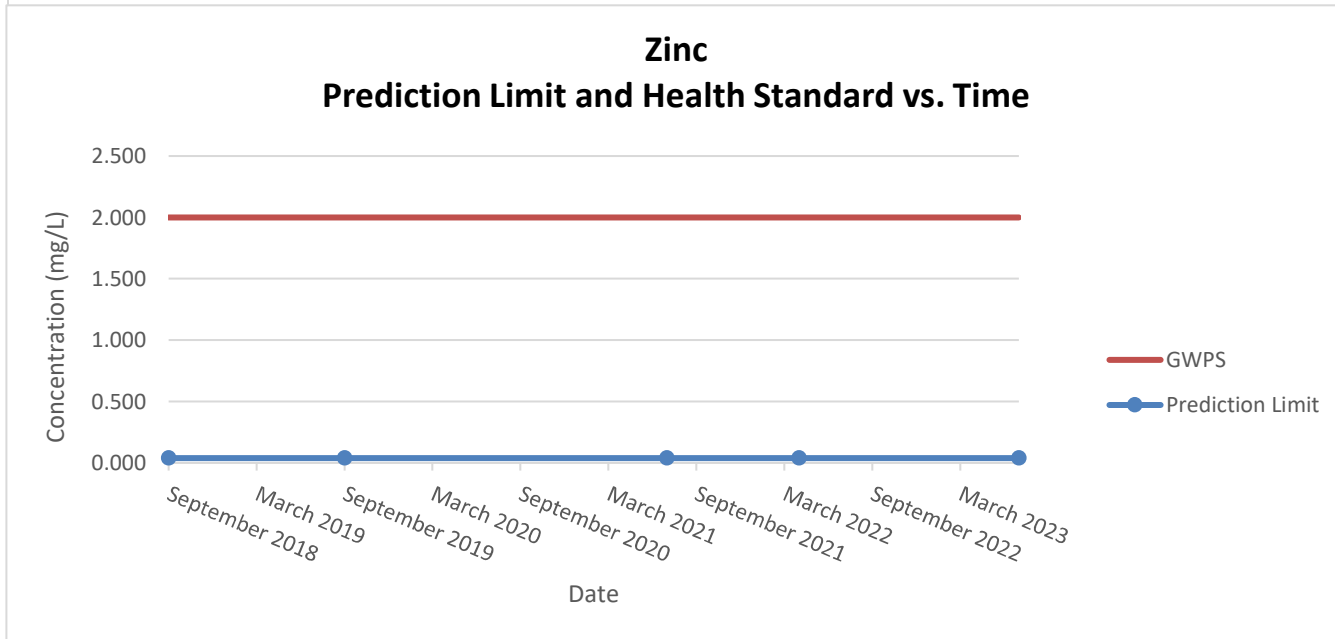
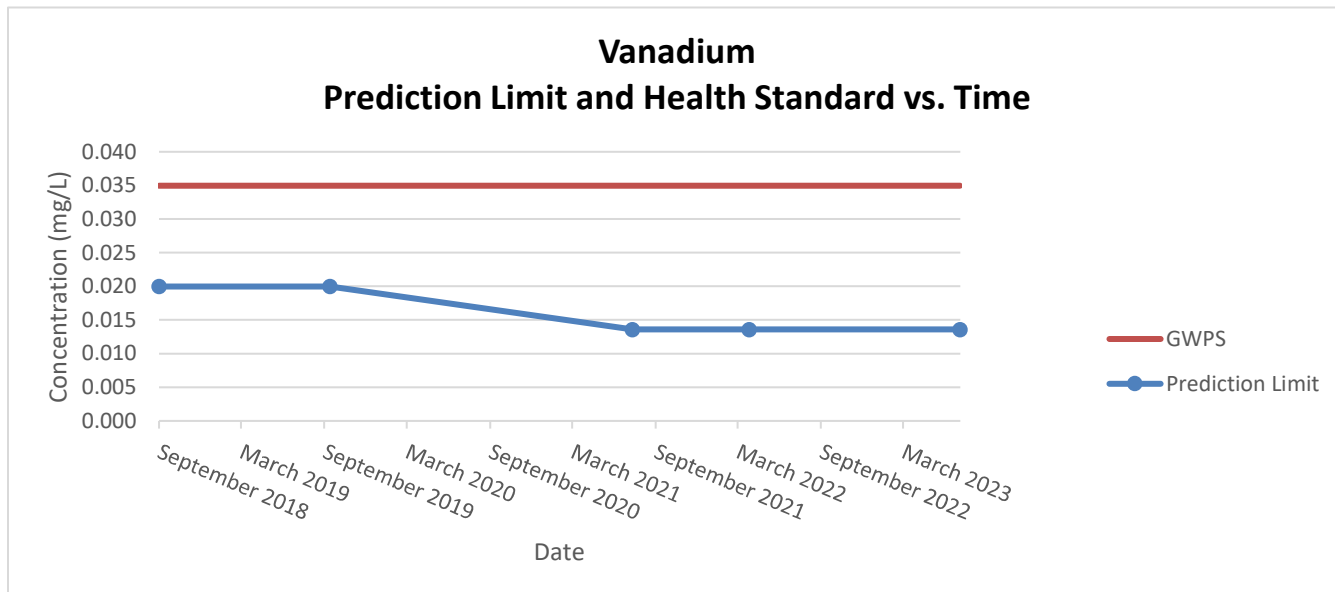


Lead Prediction Limit and Health Standard vs. Time



Nickel Prediction Limit and Health Standard 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

NA: Not applicable

Leachate Head Levels

