

July 30, 2024  
File No. 27222352.00

Mr. Curtis Spence  
Assistant Director – Electric Department  
Ames Municipal Electric System  
200 E 5<sup>th</sup> Street  
Ames, Iowa 50010

Subject: 2023-2024 Annual Groundwater Monitoring and Corrective Action Basis Report  
Coal Combustion Residuals (CCR) Inactive Surface Impoundment

Dear Mr. Spence:

On behalf of the City of Ames Municipal Electric System, SCS Engineers (SCS) is submitting this 2023-2024 Annual Groundwater Monitoring and Corrective Action Basis Report for the Ames Municipal Electric System Inactive Coal Combustion Residuals (CCR) Surface Impoundment (Impoundment).

If you have any questions regarding this document, please contact the undersigned.

Sincerely,



Sean Marczewski  
Project Professional  
SCS Engineers

SAM/MDB/CLC



Christine L. Collier, P.E.  
Project Manager  
SCS Engineers



# Groundwater Monitoring Basis Report - August 2023 to July 2024



City of Ames Municipal Electric System  
502 Carrol Avenue  
Ames, Iowa 50010

**SCS ENGINEERS**

Project No. 27222352.00 | July 30, 2024

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## 1.0 INTRODUCTION AND PURPOSE

The “Coal Combustion Residuals (CCR) Final Rule” (Rule) published by the United States Environmental Protection Agency (USEPA) in the “*Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule*,” dated April 17, 2015, establishes groundwater monitoring requirements for CCR units.

A groundwater monitoring system, certified in accordance with the CCR Rule, has been installed for the Ames Municipal Electric System Inactive CCR Surface Impoundment (Impoundment). Details and specifications of the groundwater monitoring system for the CCR unit are provided in the April 2019 “*Groundwater Monitoring Sampling and Analysis Program – Coal Combustion Residuals Inactive Surface Impoundment*” (SAP), which is located in the CCR Operating Record for the CCR unit.

This report provides the groundwater monitoring results for samples collected from August 2023 to July 2024 and associated information as required by the Rule. The purpose of this report is to provide additional documentation for that data, to include the laboratory reports, field data sheets, quality assurance/quality control (QA/QC) validation of data, related pertinent information, and explanation for any additional sampling, resampling, and reanalysis, as necessary.

## 2.0 GROUNDWATER SAMPLING HISTORY

The following section provides a brief history of groundwater sampling conducted according to the CCR Rule at the Impoundment prior to August 2019. For reference, Appendix III Detection Monitoring constituents and Appendix IV Assessment Monitoring constituents are identified in the SAP.

Eight independent background groundwater samples were collected from August 2018 to March 2019 at each monitoring well in the CCR unit’s groundwater monitoring network. The background groundwater samples were used to establish a representative compliance background data set for statistical evaluation of each Appendix III and Appendix IV constituent. Detection monitoring, which entails analysis of Appendix III constituents only, was initiated in April 2019 upon completion of background data collection and once statistical prediction limits were established for each monitoring well-constituent pair (e.g., MW-101 chloride, MW-104 boron, MW-108 calcium, etc.). The groundwater samples collected on April 12, 2019, the first detection monitoring sampling event, were also analyzed for Appendix IV constituents. The Appendix IV constituents were included in the analysis to increase the sample size in the background data set and to improve the statistical power for future statistical evaluations.

The initial assessment monitoring sampling event was performed on October 9, 2019 following confirmed statistically significant increases over background and the assessment monitoring program was initiated on November 13, 2019. Semiannual assessment monitoring sampling events have been ongoing since, as required.

## 3.0 GROUNDWATER SAMPLING AND ANALYSES

In accordance with the certified document “Statistical Method Certification by a Qualified Professional Engineer” for the Impoundment’s groundwater monitoring network, interwell prediction limit analysis for downgradient monitoring wells and intrawell prediction limit analysis for upgradient monitoring wells with retesting are used to statistically evaluate the groundwater monitoring data collected under the CCR Rule. The data from a given sampling event are compared to prediction limits calculated from the background data. If a sample result exceeds the prediction limit for a given

monitoring well-constituent pair (or is outside the upper or lower prediction limits for pH), it is identified for resampling and retesting in accordance with the certified statistical method. If the resampling result exceeds the statistical prediction limit, then a statistically significant increase (SSI) is verified. If the resampling result is below the statistical prediction limit, then there is no SSI. Statistical analyses are completed using the statistical software program developed by Sanitas™.

The following sections discuss the groundwater sampling and analyses for the two groundwater monitoring events conducted at the Impoundment from August 2023 to July 2024. Groundwater samples, including designated QA/QC samples, were collected in general accordance with the SAP. As discussed in the SAP and as recommended by USEPA guidance, QA/QC samples included field duplicates and site-specific matrix spike/matrix spike duplicate samples (MS/MSD).

### 3.1 OCTOBER 2023 ASSESSMENT MONITORING SAMPLING EVENT

The tenth assessment monitoring groundwater sampling event was conducted on October 17, 2023. Groundwater samples were collected at each groundwater monitoring network well during the October 2023 assessment monitoring sampling event. In accordance with §257.95 (d)(1), the samples collected for the October 2023 assessment monitoring event were analyzed for the full suite of Appendix III constituents and Appendix IV constituents previously detected during the April 2023 sampling event on a well-specific basis. The results and statistical evaluation for this event were previously entered into the operating record within 90 days, as required by 257.95(d)(1).

The Appendix III and selected Appendix IV constituent results from the October 2023 assessment monitoring sampling event were compared to the statistical prediction limits calculated from the background data. Twenty-six SSIs were identified across six monitoring wells. The results are summarized in **Table 1**. During the October 2023 sampling event, cobalt SSIs at MW-106 (0.0296 mg/L) and MW-107 (0.0642 mg/L) exceeded the Groundwater protection standard (GWPS) (0.006 mg/L), but was not at statistically significant levels above the GWPS. Two SSIs exceeded the GWPS (0.04 mg/L) for lithium at MW-106 (0.0606 mg/L) and MW-108 (0.0585 mg/L), but not at statistically significant levels above the GWPS. The remaining twenty two SSIs did not exceed applicable SGWPSs.

Table 1. October 2023 Assessment Monitoring Exceedance Summary

Parameter	MW-101	MW-104	MW-105	MW-106	MW-107	MW-108
Boron			X	X		
Cadmium				X	X	
Calcium			X	X	X	
Chloride	X		X	X	X	
Cobalt				X	X	
Lithium			X	X	X	X
Molybdenum		X	X	X	X	
Sulfate	X		X	X		
Total Dissolved Solids			X	X		

Field data sheets and the laboratory report for the October 2023 assessment monitoring sampling event are provided in **Appendices A** and **B**, respectively.

### 3.2 APRIL 2024 ASSESSMENT MONITORING SAMPLING EVENT

The eleventh assessment monitoring groundwater sampling event was conducted on April 23, 2024. Groundwater samples were collected at each groundwater monitoring network well during the April 2024 assessment monitoring sampling event. In accordance with § 257.95 (d)(1), the samples collected for the April 2024 assessment monitoring event were analyzed for the full suite of Appendix III and Appendix IV constituents. The results and statistical evaluation for this event were previously entered into the operating record within 90 days, as required by 257.95(d)(1).

The Appendix III and Appendix IV constituent results from the April 2024 assessment monitoring sampling event were compared to the statistical prediction limits calculated from the background data. Twenty SSIs were identified across eight monitoring wells. The results are summarized in **Table 2**. During the April 2024 sampling event, the arsenic SSI at MW-106 (0.0178 mg/L) exceeded the GWPS (0.01 mg/L) but not at a statistically significant level above the GWPS. Two SSIs exceeded the GWPS (0.006 mg/L) for Cobalt at MW-106 (0.0118 mg/L) and MW-107 (0.0161 mg/L), but not at statistically significant levels above the GWPS. The other seventeen SSIs did not exceed applicable GWPSs.

Table 2. April 2024 Assessment Monitoring Exceedance Summary

Parameter	MW-101	MW-102	MW-103	MW-104	MW-105	MW-106	MW-107	MW-108
Arsenic						X		
Barium			X					
Boron					X			
Cadmium							X	
Chloride	X	X			X	X	X	
Cobalt						X	X	
Fluoride						X		
Lithium		X			X			X
Molybdenum				X	X	X		
Selenium		X						
Sulfate	X							

Field data sheets and the laboratory report for the April 2024 assessment monitoring sampling event are provided in **Appendices A** and **B**, respectively.

### 4.0 GENERAL QA/QC RESULTS AND EVALUATION

In accordance with the current SAP, the data were reviewed and met the data quality objectives for accuracy, representativeness, completeness, and comparability. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are noted in the laboratory reports. Based on evaluation of the data, the sample results were determined to be valid and usable as qualified for their intended purposes.

## 4.1 FIELD QUALITY CONTROL SAMPLES AND RESULTS

Field quality control (QC) samples included duplicate samples and site-specific MS/MSD samples. The results of the duplicate samples compared to the original samples were in general agreement with relative percent differences (RPDs) below 20 percent. The sample results were considered acceptable for their intended purpose. Site-specific MS/MSD results are provided with the laboratory reports.

## 4.2 LABORATORY QA/QC RESULTS

The laboratory provided analytical and QA/QC results in accordance with the QA/QC Plan (i.e., QAP). The QA/QC Plan may be referred to as the “Comprehensive Quality Assurance Manual” by the laboratory. QA/QC results outside of specified limits were noted and flagged by the laboratory in the analytical results. The laboratory QA/QC results are located near the end of each laboratory report. The laboratory reports are provided in **Appendix B**.


## 4.3 DATA VALIDATION

In accordance with the current SAP, data validation procedures were followed to determine whether the groundwater monitoring data provided in the laboratory reports were usable, useable with qualification, or unusable based on data validation criteria. Data validation includes visual results review and comparison to historical results. The data were reviewed for inconsistencies, which may include noted outlier data, as determined by visual data review and comparisons to historical results for each monitoring well. Such outlier data might include unexpected detect or non-detect results for target constituents or significant increases or decreases when compared to historical results. The data validation summary reports are provided in **Appendix C**.

The data from the October 2023 and April 2024 sampling events conducted during this reporting period met data validation criteria and were useable as qualified for their intended purposes.

## 5.0 GENERAL COMMENTS

This report has been prepared and reviewed under the direction of a qualified groundwater scientist and qualified professional engineer. Please note that SCS Engineers does not warrant the work of regulatory agencies or other third parties supplying information used in the assimilation of this report. This report is prepared in accordance with generally accepted environmental engineering and geological practices and within the constraints of the client’s directives. It is intended for the exclusive use of Ames Municipal Electric System for specific application to their Inactive CCR Surface Impoundment. No warranties, expressed or implied, are intended or made.



Appendix A  
Field Data Sheets



### FORM FOR GROUNDWATER SAMPLING

Project: <b>City of Ames - Inactive CCR Impoundment</b>	
Monitoring Well/Piezometer ID: <b>MW-101</b>	Date: <b>10/17/2023</b>
Gradient: <b>Up</b>	Sampler: <b>Sean Marczewski</b>

**A. MW/PIEZOMETER CONDITIONS**

Well/Piezometer Capped? <b>Yes</b>	
Litter/Standing Water? <b>No</b>	

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

Measured Well Total Depth (feet):	<b>NM</b>
Initial Static Water Level (feet):	<b>24.42</b>
Initial Groundwater Elevation (ft-amsl):	<b>876.03</b>
Equipment Used:	<b>Dedicated Bladder</b>

**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)	Static Water Level (feet)
9:55 AM	Purging start time.						24.42
9:58 AM							24.44
10:01 AM	10.8	2.78	751.0	7.30	218.5	11.41	24.44
10:04 AM	10.8	2.13	755.0	7.31	207.8	11.61	24.45
10:07 AM	10.8	1.69	757.0	7.35	192.6	10.57	24.45
10:10 AM	10.8	1.30	756.0	7.43	172.6	11.21	24.45
10:13 AM	10.8	1.26	756.0	7.44	170.2	10.81	24.45
10:16 AM	10.8	1.19	756.0	7.45	165.6	11.99	24.45
10:19 AM	10.8	1.13	756.0	7.46	161.2	12.40	24.45
10:22 AM	10.9	1.08	755.0	7.46	157.0	11.87	24.46
10:29 AM	Parameters stabilized, sample collected.						24.47

Quantity of Water Removed from Well (liters):	<b>13.5</b>
Was well pumped/bailed dry?	<b>No</b>
Total Amount of Time Purged (minutes:seconds):	<b>27:00</b>
Average Purge Rate (mL/min):	<b>500.00</b>

**D. WELL MAINTENANCE**

Does the well require any future maintenance?		<b>No</b>
If yes, explain:		

Additional Comments:	
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## FORM FOR GROUNDWATER SAMPLING

Project: <b>City of Ames - Inactive CCR Impoundment</b>	
Monitoring Well/Piezometer ID: <b>MW-102</b>	Date: <b>10/17/2023</b>
Gradient: <b>Up</b>	Sampler: <b>Sean Marczewski</b>

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):	NM
Initial Static Water Level (feet):	24.00
Initial Groundwater Elevation (ft-amsl):	875.84
Equipment Used:	Dedicated Bladder

### 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)	Static Water Level (feet)
10:40 AM	Purging start time.						24.00
10:43 AM							24.00
10:46 AM	11.3	5.80	683.0	7.59	167.3	4.62	24.01
10:49 AM	11.2	4.79	685.0	7.54	165.3	5.27	24.01
10:52 AM	11.2	4.22	692.0	7.52	163.1	5.32	24.01
10:55 AM	11.2	3.91	699.0	7.51	161.4	5.53	24.01
10:58 AM	11.3	3.60	706.0	7.50	159.1	5.83	24.01
11:01 AM	11.2	3.36	712.0	7.50	156.9	5.72	24.01
11:04 AM	11.3	3.15	715.0	7.50	154.2	5.22	24.01
11:07 AM	11.3	3.04	717.0	7.50	152.3	5.28	24.01
11:15 AM	Parameters stabilized, sample collected.						24.01

Quantity of Water Removed from Well (liters):	10.8
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	27:00
Average Purge Rate (mL/min):	400.00

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

## FORM FOR GROUNDWATER SAMPLING

Project: <b>City of Ames - Inactive CCR Impoundment</b>	
Monitoring Well/Piezometer ID: <b>MW-103</b>	Date: <b>10/17/2023</b>
Gradient: <b>Up</b>	Sampler: <b>Sean Marczewski</b>

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):	NM
Initial Static Water Level (feet):	24.78
Initial Groundwater Elevation (ft-amsl):	875.75
Equipment Used:	Dedicated Bladder

### 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)	Static Water Level (feet)
11:24 AM	Purging start time.						24.78
11:27 AM							24.79
11:30 AM	11.7	2.66	775.0	7.54	156.5	10.53	24.79
11:33 AM	11.7	1.80	768.0	7.51	149.7	8.33	24.80
11:36 AM	11.7	1.45	765.0	7.50	144.0	3.56	24.80
11:39 AM	11.6	1.26	760.0	7.50	138.1	4.09	24.80
11:42 AM	11.7	1.15	752.0	7.49	133.1	3.85	24.80
11:45 AM	11.7	1.11	750.0	7.47	129.9	3.70	24.80
11:48 AM	11.7	1.06	742.0	7.47	125.2	3.56	24.80
11:56 AM	Parameters stabilized, sample collected.						24.80

Quantity of Water Removed from Well (liters):	12.0
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	24:00
Average Purge Rate (mL/min):	500.00

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

Additional Comments:	
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### FORM FOR GROUNDWATER SAMPLING

Project: <b>City of Ames - Inactive CCR Impoundment</b>	
Monitoring Well/Piezometer ID: <b>MW-104</b>	Date: <b>10/17/2023</b>
Gradient: <b>Down</b>	Sampler: <b>Sean Marczewski</b>

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

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	NM
Initial Static Water Level (feet):	24.69
Initial Groundwater Elevation (ft-amsl):	875.46
Equipment Used:	Dedicated Bladder

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)	Static Water Level (feet)
12:13 PM	Purging start time.						24.69
12:16 PM							24.69
12:19 PM	11.6	2.52	812.0	7.37	130.5	8.03	24.70
12:22 PM	11.5	1.74	810.0	7.40	126.3	8.21	24.70
12:25 PM	11.5	1.37	811.0	7.43	121.9	9.50	24.71
12:28 PM	11.6	1.17	812.0	7.45	116.0	12.31	24.71
12:31 PM	11.5	1.01	809.0	7.47	103.4	10.75	24.71
12:34 PM	11.5	0.94	808.0	7.48	92.3	8.64	24.71
12:37 PM	11.5	0.87	807.0	7.48	78.1	10.58	24.71
12:40 PM	11.5	0.83	807.0	7.48	69.7	11.21	24.71
12:43 PM	11.5	0.79	804.0	7.48	61.7	7.35	24.72
12:46 PM	11.5	0.75	803.0	7.48	56.2	4.99	24.72
12:49 PM	11.5	0.73	803.0	7.49	53.2	4.83	24.72
12:52 PM	11.4	0.71	802.0	7.50	50.1	3.10	24.72
1:00 PM	Parameters stabilized, sample collected.						24.72

Quantity of Water Removed from Well (liters):	19.5
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	39:00
Average Purge Rate (mL/min):	500.00

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

Additional Comments:	
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### FORM FOR GROUNDWATER SAMPLING

Project: <b>City of Ames - Inactive CCR Impoundment</b>	
Monitoring Well/Piezometer ID: <b>MW-105</b>	Date: <b>10/17/2023</b>
Gradient: <b>Down</b>	Sampler: <b>Sean Marczewski</b>

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

<b>B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)</b>	
Measured Well Total Depth (feet):	NM
Initial Static Water Level (feet):	25.31
Initial Groundwater Elevation (ft-amsl):	875.16
Equipment Used:	Dedicated Bladder

<b>C. WELL PURGING</b>							
<b>FIELD PARAMETERS</b> [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)	Static Water Level (feet)
1:10 PM	Purging start time.						25.31
1:13 PM							25.31
1:16 PM	13.1	2.30	2287.0	7.58	65.0	18.23	25.30
1:19 PM	13.1	1.53	2301.0	7.61	18.7	9.45	25.30
1:22 PM	13.1	1.19	2309.0	7.62	-4.9	8.78	25.31
1:25 PM	13.1	1.02	2313.0	7.63	-17.8	7.06	25.31
1:28 PM	13.1	0.91	2318.0	7.63	-26.0	5.90	25.32
1:31 PM	13.1	0.84	2315.0	7.64	-32.6	5.75	25.32
1:34 PM	13.1	0.78	2310.0	7.65	-37.3	5.74	25.32
1:37 PM	13.1	0.78	2312.0	7.65	-41.5	5.42	25.32
1:54 PM	Parameters stabilized, sample collected.						25.32

Quantity of Water Removed from Well (liters):	13.5
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	27:00
Average Purge Rate (mL/min):	500.00

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

Additional Comments:	Duplicate sample collected. Sample started out cloudy with a yellow tint and then cleared up.
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## FORM FOR GROUNDWATER SAMPLING

Project: <b>City of Ames - Inactive CCR Impoundment</b>	
Monitoring Well/Piezometer ID: <b>MW-106</b>	Date: <b>10/17/2023</b>
Gradient: <b>Down</b>	Sampler: <b>Sean Marczewski</b>

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):	NM
Initial Static Water Level (feet):	25.55
Initial Groundwater Elevation (ft-amsl):	875.43
Equipment Used:	Dedicated Bladder

### 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)	Static Water Level (feet)
2:05 PM	Purging start time.						25.55
2:08 PM							25.57
2:11 PM	14.3	2.08	3181.0	7.09	31.2	7.46	25.57
2:14 PM	14.2	1.62	3181.0	7.05	19.1	5.60	25.57
2:17 PM	14.2	1.16	3196.0	7.00	8.7	3.84	25.57
2:20 PM	14.2	1.00	3197.0	6.99	5.4	3.57	25.57
2:23 PM	14.2	0.90	3196.0	6.97	3.6	3.14	25.58
2:26 PM	14.2	0.82	3196.0	6.97	1.9	2.79	25.58
2:29 PM	14.2	0.78	3192.0	6.96	1.2	2.82	25.58
2:32 PM	14.2	0.74	3191.0	6.96	0.5	2.77	25.58
2:38 PM	Parameters stabilized, sample collected.						25.58

Quantity of Water Removed from Well (liters):	13.5
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	27:00
Average Purge Rate (mL/min):	500.00

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

Additional Comments:	
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## FORM FOR GROUNDWATER SAMPLING

Project: <b>City of Ames - Inactive CCR Impoundment</b>	
Monitoring Well/Piezometer ID: <b>MW-107</b>	Date: <b>10/17/2023</b>
Gradient: <b>Down</b>	Sampler: <b>Sean Marczewski</b>

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):	NM
Initial Static Water Level (feet):	24.81
Initial Groundwater Elevation (ft-amsl):	875.54
Equipment Used:	Dedicated Bladder

### 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)	Static Water Level (feet)
2:47 PM	Purging start time.						24.81
2:50 PM							24.81
2:53 PM	13.5	2.20	2227.0	7.07	59.2	6.3	24.81
2:56 PM	13.5	1.48	2224.0	7.03	59.7	4.5	24.81
2:59 PM	13.5	1.17	2227.0	7.01	60.9	4.1	24.81
3:02 PM	13.4	1.00	2224.0	7.00	62.3	3.5	24.81
3:05 PM	13.5	0.88	2227.0	6.99	63.7	3.3	24.81
3:08 PM	13.5	0.81	2231.0	6.98	65.0	3.0	24.81
3:11 PM	13.4	0.76	2230.0	6.98	66.2	2.9	24.81
3:14 PM	13.5	0.74	2221.0	6.98	67.3	2.6	24.81
3:20 PM	Parameters stabilized, sample collected.						24.81

Quantity of Water Removed from Well (liters):	13.5
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	27:00
Average Purge Rate (mL/min):	500.00

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

Additional Comments:	
----------------------	--

## FORM FOR GROUNDWATER SAMPLING

Project: <b>City of Ames - Inactive CCR Impoundment</b>	
Monitoring Well/Piezometer ID: <b>MW-108</b>	Date: <b>10/17/2023</b>
Gradient: <b>Down</b>	Sampler: <b>Sean Marczewski</b>

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):	NM
Initial Static Water Level (feet):	25.70
Initial Groundwater Elevation (ft-amsl):	875.70
Equipment Used:	Dedicated Bladder

### 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)	Static Water Level (feet)
3:31 PM	Purging start time.						25.70
3:34 PM							25.72
3:37 PM	11.9	4.1	941.0	7.79	99.0	6.62	25.72
3:40 PM	11.8	2.9	944.0	7.77	92.3	4.36	25.72
3:43 PM	11.8	2.4	944.0	7.76	87.9	3.75	25.72
3:46 PM	11.9	2.2	944.0	7.76	83.7	3.35	25.72
3:49 PM	11.9	1.9	944.0	7.76	76.5	2.78	25.72
3:52 PM	11.9	1.8	943.0	7.76	75.3	2.60	25.72
3:55 PM	11.9	1.8	944.0	7.76	73.5	2.75	25.72
4:03 PM	Parameters stabilized, sample collected.						25.72

Quantity of Water Removed from Well (liters):	12.0
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	24:00
Average Purge Rate (mL/min):	500.00

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

Additional Comments:	Sample was clear with small black particles and no odor.
----------------------	--



## FORM FOR GROUNDWATER SAMPLING

Project: <b>City of Ames - Inactive CCR Impoundment</b>	
Monitoring Well/Piezometer ID: <b>MW-101</b>	Date: <b>4/23/2024</b>
Gradient: <b>Up</b>	Sampler: <b>Michael Morgan</b>

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

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	37.25
Initial Static Water Level (feet):	23.87
Initial Groundwater Elevation (ft-amsl):	876.58
Equipment Used:	Dedicated Submersible Pump

### C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)	Static Water Level (feet)
9:26 AM	Purging start time.						23.85
9:29 AM							23.85
9:32 AM	11.6	3.29	726.0	7.15	81.6	7.3	23.85
9:35 AM	11.6	3.38	728.0	7.16	79.4	8.1	23.85
9:38 AM	11.6	2.77	730.0	7.15	77.6	8.3	23.85
9:41 AM	11.7	2.45	728.0	7.15	76.0	8.4	23.85
10:08 AM	Parameters stabilized, sample collected.						23.85

Quantity of Water Removed from Well (liters):	2.3
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	15:00
Average Purge Rate (mL/min):	153.33

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

Additional Comments:	Color: clear    Odor: none
----------------------	----------------------------

## FORM FOR GROUNDWATER SAMPLING

Project: <b>City of Ames - Inactive CCR Impoundment</b>	
Monitoring Well/Piezometer ID: <b>MW-102</b>	Date: <b>4/23/2024</b>
Gradient: <b>Up</b>	Sampler: <b>Michael Morgan</b>

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):	37.0
Initial Static Water Level (feet):	23.18
Initial Groundwater Elevation (ft-amsl):	876.66
Equipment Used:	Dedicated Submersible Pump

### C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)	Static Water Level (feet)
10:32 AM	Purging start time.						23.39
10:35 AM							23.39
10:38 AM	11.7	1.52	717.0	7.21	85.3	12.2	23.39
10:41 AM	11.6	0.97	723.0	7.22	83.7	12.1	23.39
10:44 AM	11.6	0.59	725.0	7.23	82.1	11.8	23.39
11:03 AM	Parameters stabilized, sample collected.						23.39

Quantity of Water Removed from Well (liters):	2.85
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	237.50

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

Additional Comments:	Color: clear    Odor: none
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## FORM FOR GROUNDWATER SAMPLING

Project: <b>City of Ames - Inactive CCR Impoundment</b>	
Monitoring Well/Piezometer ID: <b>MW-103</b>	Date: <b>4/23/2024</b>
Gradient: <b>Up</b>	Sampler: <b>Michael Morgan</b>

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):	37.59
Initial Static Water Level (feet):	24.06
Initial Groundwater Elevation (ft-amsl):	876.47
Equipment Used:	Dedicated Submersible Pump

### C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)	Static Water Level (feet)
11:17 AM	Purging start time.						24.06
11:20 AM							24.06
11:23 AM	11.2	1.28	736.0	7.15	79.7	8.3	24.06
11:26 AM	11.2	0.62	738.0	7.15	80.0	6.7	24.06
11:29 AM	11.2	0.31	738.0	7.15	80.4	7.9	24.06
11:32 AM	11.1	0.22	737.0	7.15	80.4	7.9	24.06
11:47 AM	Parameters stabilized, sample collected.						24.06

Quantity of Water Removed from Well (liters):	5.7
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	15:00
Average Purge Rate (mL/min):	380.00

D. WELL MAINTENANCE	
Does the well require any future maintenance?	Yes
If yes, explain:	Vegetation needs to be cleared away from the well.

Additional Comments:	Color: clear    Odor: none
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## FORM FOR GROUNDWATER SAMPLING

Project: <b>City of Ames - Inactive CCR Impoundment</b>	
Monitoring Well/Piezometer ID: <b>MW-104</b>	Date: <b>4/23/2024</b>
Gradient: <b>Down</b>	Sampler: <b>Michael Morgan</b>

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):	37.21
Initial Static Water Level (feet):	24.02
Initial Groundwater Elevation (ft-amsl):	876.13
Equipment Used:	Dedicated Submersible Pump

### C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)	Static Water Level (feet)
12:05 PM	Purging start time.						24.02
12:08 PM							24.02
12:11 PM	11.8	0.69	678.0	7.10	86.1	6.9	24.02
12:14 PM	11.8	0.47	671.0	7.10	87.8	7.0	24.02
12:17 PM	11.8	0.30	676.0	7.10	89.0	8.3	24.02
12:20 PM	11.8	0.23	676.0	7.10	92.0	7.6	24.02
12:33 PM	Parameters stabilized, sample collected.						24.02

Quantity of Water Removed from Well (liters):	4.5
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	15
Average Purge Rate (mL/min):	300.00

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

Additional Comments:	Color: clear    Odor: none
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## FORM FOR GROUNDWATER SAMPLING

Project: <b>City of Ames - Inactive CCR Impoundment</b>	
Monitoring Well/Piezometer ID: <b>MW-105</b>	Date: <b>4/23/2024</b>
Gradient: <b>Down</b>	Sampler: <b>Michael Morgan</b>

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):	37.5
Initial Static Water Level (feet):	24.72
Initial Groundwater Elevation (ft-amsl):	875.75
Equipment Used:	Dedicated Submersible Pump

### C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)	Static Water Level (feet)
12:45 PM	Purging start time.						24.72
12:48 PM							24.72
12:51 PM	13.2	0.99	1892.0	7.54	110.8	14.3	24.72
12:54 PM	13.2	0.67	1885.0	7.55	108.0	10.7	24.72
12:57 PM	13.2	0.43	1877.0	7.55	103.3	9.3	24.72
1:00 PM	13.2	0.36	1871.0	7.55	97.5	6.6	24.72
1:03 PM	13.2	0.36	1867.0	7.55	94.2	7.7	24.72
1:18 PM	Parameters stabilized, sample collected.						24.72

Quantity of Water Removed from Well (liters):	5.5
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	18
Average Purge Rate (mL/min):	305.56

D. WELL MAINTENANCE	
Does the well require any future maintenance? <span style="float: right;">No</span>	
If yes, explain:	
Additional Comments:	Color: Light yellow discoloration with small red flakes. Water began to become clear after approximately 4L purged.      Odor: none

## FORM FOR GROUNDWATER SAMPLING

Project: <b>City of Ames - Inactive CCR Impoundment</b>	
Monitoring Well/Piezometer ID: <b>MW-106</b>	Date: <b>4/23/2024</b>
Gradient: <b>Down</b>	Sampler: <b>Michael Morgan</b>

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

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	37.5
Initial Static Water Level (feet):	25.23
Initial Groundwater Elevation (ft-amsl):	875.75
Equipment Used:	Dedicated Submersible Pump

C. WELL PURGING							
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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)	Static Water Level (feet)
1:30 PM	Purging start time.						25.23
1:33 PM							25.23
1:36 PM	14.8	4.21	2101.0	7.13	77.2	7.8	25.23
1:39 PM	14.8	3.77	2060.0	7.14	59.3	7.5	25.23
1:42 PM	14.7	3.68	2053.0	7.13	40.8	7.8	25.23
1:45 PM	14.8	3.29	2049.0	7.13	27.0	6.1	25.23
1:48 PM	14.7	3.17	2045.0	7.13	12.4	7.4	25.23
1:51 PM	14.8	3.21	2046.0	7.12	-0.5	6.9	25.23
2:04 PM	Parameters stabilized, sample collected.						25.23

Quantity of Water Removed from Well (liters):	7.7
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	21
Average Purge Rate (mL/min):	366.67

D. WELL MAINTENANCE	
Does the well require any future maintenance? <b>No</b>	
If yes, explain:	
Additional Comments:	Color: clear    Faint odor.

## FORM FOR GROUNDWATER SAMPLING

Project: <b>City of Ames - Inactive CCR Impoundment</b>	
Monitoring Well/Piezometer ID: <b>MW-107</b>	Date: <b>4/23/2024</b>
Gradient: <b>Down</b>	Sampler: <b>Michael Morgan</b>

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):	37.0
Initial Static Water Level (feet):	24.44
Initial Groundwater Elevation (ft-amsl):	875.91
Equipment Used:	Dedicated Submersible Pump

### C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)	Static Water Level (feet)
2:16 PM	Purging start time.						24.44
2:19 PM							24.44
2:22 PM	14.0	1.96	1621.0	6.83	49.2	7.9	24.44
2:25 PM	14.0	1.81	1610.0	6.82	50.1	7.2	24.44
2:28 PM	13.9	1.56	1610.0	6.82	60.8	7.3	24.44
2:31 PM	14.0	1.37	1604.0	6.82	51.2	7.6	24.44
2:41 PM	Parameters stabilized, sample collected.						24.44

Quantity of Water Removed from Well (liters):	4.8
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	15
Average Purge Rate (mL/min):	320.00

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

Additional Comments:	Color: clear    Odor: none
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## FORM FOR GROUNDWATER SAMPLING

Project:	<b>City of Ames - Inactive CCR Impoundment</b>		
Monitoring Well/Piezometer ID:	<b>MW-108</b>	Date:	<b>4/23/2024</b>
Gradient:	Down	Sampler:	Michael Morgan

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):	37.55
Initial Static Water Level (feet):	25.29
Initial Groundwater Elevation (ft-amsl):	876.11
Equipment Used:	Dedicated Submersible Pump

C. WELL PURGING							
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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)	Static Water Level (feet)
2:59 PM	Purging start time.						25.29
3:02 PM							25.29
3:05 PM	11.8	1.81	683.0	7.61	61.5	8.0	25.29
3:08 PM	11.8	1.06	657.3	7.67	63.4	8.5	25.29
3:11 PM	11.8	0.88	650.1	7.67	64.7	8.5	25.29
3:14 PM	11.6	0.79	646.7	7.67	65.7	9.9	25.29
3:17 PM	12.0	0.82	641.3	7.66	66.2	9.8	25.29
3:43 PM	Parameters stabilized, sample collected.						25.29

Quantity of Water Removed from Well (liters):	4.4
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	18
Average Purge Rate (mL/min):	244.44

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

Additional Comments:	Water was clear with small black particles. Odor: none
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Appendix B  
Analytical Laboratory Results

 **ANALYTICAL REPORT****PREPARED FOR**

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

Generated 10/31/2023 4:35:56 PM

**JOB DESCRIPTION**

Ames Inactive CCR Impoundment

**JOB NUMBER**

310-267521-1

# 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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10/31/2023 4:35:56 PM

Authorized for release by  
Meredith Liechti, Service Center Manager  
[meredith.liechti@et.eurofinsus.com](mailto:meredith.liechti@et.eurofinsus.com)  
(319)277-2401



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# Case Narrative

Client: SCS Engineers  
Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-267521-1

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**Job ID: 310-267521-1**

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**Laboratory: Eurofins Cedar Falls**

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**Narrative**

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**Job Narrative  
310-267521-1**

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

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

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

**Receipt**

The samples were received on 10/18/2023 4:25 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.5°C

**HPLC/IC**

Method 9056A\_ORGFM\_28D: The following samples were diluted due to the nature of the sample matrix: MW-101 (310-267521-1), MW-102 (310-267521-2), MW-103 (310-267521-3), MW-104 (310-267521-4), MW-105 (310-267521-5), MW-106 (310-267521-6), MW-107 (310-267521-7), MW-108 (310-267521-8) and DUP-1 (310-267521-9). Elevated reporting limits (RLs) are provided.

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

**Metals**

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

**General Chemistry**

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



# Sample Summary

Client: SCS Engineers  
Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-267521-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-267521-1	MW-101	Water	10/17/23 10:22	10/18/23 16:25
310-267521-2	MW-102	Water	10/17/23 11:07	10/18/23 16:25
310-267521-3	MW-103	Water	10/17/23 11:48	10/18/23 16:25
310-267521-4	MW-104	Water	10/17/23 12:52	10/18/23 16:25
310-267521-5	MW-105	Water	10/17/23 13:37	10/18/23 16:25
310-267521-6	MW-106	Water	10/17/23 14:32	10/18/23 16:25
310-267521-7	MW-107	Water	10/17/23 15:14	10/18/23 16:25
310-267521-8	MW-108	Water	10/17/23 15:55	10/18/23 16:25
310-267521-9	DUP-1	Water	10/17/23 13:37	10/18/23 16:25

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

# Detection Summary

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-267521-1

## Client Sample ID: MW-101

## Lab Sample ID: 310-267521-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	24.8		5.00		mg/L	5		9056A	Total/NA
Sulfate	45.7		5.00		mg/L	5		9056A	Total/NA
Barium	0.117		0.00200		mg/L	1		6020B	Total/NA
Calcium	104		0.500		mg/L	1		6020B	Total/NA
Lithium	0.0105		0.0100		mg/L	1		6020B	Total/NA
Selenium	0.00907		0.00500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	382		50.0		mg/L	1		SM 2540C	Total/NA
pH	7.4	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-102

## Lab Sample ID: 310-267521-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	24.8		5.00		mg/L	5		9056A	Total/NA
Sulfate	33.3		5.00		mg/L	5		9056A	Total/NA
Barium	0.0854		0.00200		mg/L	1		6020B	Total/NA
Calcium	99.8		0.500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	362		50.0		mg/L	1		SM 2540C	Total/NA
pH	7.5	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-103

## Lab Sample ID: 310-267521-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	23.9		5.00		mg/L	5		9056A	Total/NA
Sulfate	57.8		5.00		mg/L	5		9056A	Total/NA
Barium	0.0353		0.00200		mg/L	1		6020B	Total/NA
Calcium	103		0.500		mg/L	1		6020B	Total/NA
Lithium	0.0107		0.0100		mg/L	1		6020B	Total/NA
Total Dissolved Solids	386		50.0		mg/L	1		SM 2540C	Total/NA
pH	7.5	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-104

## Lab Sample ID: 310-267521-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	24.5		5.00		mg/L	5		9056A	Total/NA
Sulfate	71.6		5.00		mg/L	5		9056A	Total/NA
Barium	0.0659		0.00200		mg/L	1		6020B	Total/NA
Boron	0.116		0.100		mg/L	1		6020B	Total/NA
Calcium	135		0.500		mg/L	1		6020B	Total/NA
Lithium	0.0147		0.0100		mg/L	1		6020B	Total/NA
Molybdenum	0.0270		0.00200		mg/L	1		6020B	Total/NA
Total Dissolved Solids	452		50.0		mg/L	1		SM 2540C	Total/NA
pH	7.5	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-105

## Lab Sample ID: 310-267521-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	286		5.00		mg/L	5		9056A	Total/NA
Sulfate	670		20.0		mg/L	20		9056A	Total/NA
Arsenic	0.00211		0.00200		mg/L	1		6020B	Total/NA
Barium	0.0551		0.00200		mg/L	1		6020B	Total/NA
Boron	0.790		0.100		mg/L	1		6020B	Total/NA
Calcium	265		0.500		mg/L	1		6020B	Total/NA
Cobalt	0.000965		0.000500		mg/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

# Detection Summary

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-267521-1

## Client Sample ID: MW-105 (Continued)

Lab Sample ID: 310-267521-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lithium	0.0315		0.0100		mg/L	1		6020B	Total/NA
Molybdenum	0.0374		0.00200		mg/L	1		6020B	Total/NA
Total Dissolved Solids	1500		50.0		mg/L	1		SM 2540C	Total/NA
pH	7.7	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-106

Lab Sample ID: 310-267521-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	453		5.00		mg/L	5		9056A	Total/NA
Sulfate	896		20.0		mg/L	20		9056A	Total/NA
Arsenic	0.00326		0.00200		mg/L	1		6020B	Total/NA
Barium	0.0883		0.00200		mg/L	1		6020B	Total/NA
Boron	0.580		0.100		mg/L	1		6020B	Total/NA
Cadmium	0.00207		0.000200		mg/L	1		6020B	Total/NA
Calcium	396		0.500		mg/L	1		6020B	Total/NA
Cobalt	0.0296		0.000500		mg/L	1		6020B	Total/NA
Lead	0.00338		0.000500		mg/L	1		6020B	Total/NA
Lithium	0.0606		0.0100		mg/L	1		6020B	Total/NA
Molybdenum	0.0224		0.00200		mg/L	1		6020B	Total/NA
Total Dissolved Solids	2120		250		mg/L	1		SM 2540C	Total/NA
pH	7.2	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-107

Lab Sample ID: 310-267521-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	309		5.00		mg/L	5		9056A	Total/NA
Sulfate	453		5.00		mg/L	5		9056A	Total/NA
Barium	0.0589		0.00200		mg/L	1		6020B	Total/NA
Boron	0.422		0.100		mg/L	1		6020B	Total/NA
Cadmium	0.00637		0.000200		mg/L	1		6020B	Total/NA
Calcium	247		0.500		mg/L	1		6020B	Total/NA
Cobalt	0.0642		0.000500		mg/L	1		6020B	Total/NA
Lead	0.00599		0.000500		mg/L	1		6020B	Total/NA
Lithium	0.0362		0.0100		mg/L	1		6020B	Total/NA
Molybdenum	0.0211		0.00200		mg/L	1		6020B	Total/NA
Total Dissolved Solids	1370		50.0		mg/L	1		SM 2540C	Total/NA
pH	7.0	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-108

Lab Sample ID: 310-267521-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	53.6		5.00		mg/L	5		9056A	Total/NA
Sulfate	124		5.00		mg/L	5		9056A	Total/NA
Barium	0.102		0.00200		mg/L	1		6020B	Total/NA
Boron	0.152		0.100		mg/L	1		6020B	Total/NA
Calcium	119		0.500		mg/L	1		6020B	Total/NA
Lithium	0.0585		0.0100		mg/L	1		6020B	Total/NA
Molybdenum	0.00279		0.00200		mg/L	1		6020B	Total/NA
Total Dissolved Solids	534		50.0		mg/L	1		SM 2540C	Total/NA
pH	7.6	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls



# Detection Summary

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-267521-1

**Client Sample ID: DUP-1**

**Lab Sample ID: 310-267521-9**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	287		5.00		mg/L	5		9056A	Total/NA
Sulfate	665		20.0		mg/L	20		9056A	Total/NA
Arsenic	0.00203		0.00200		mg/L	1		6020B	Total/NA
Barium	0.0556		0.00200		mg/L	1		6020B	Total/NA
Boron	0.831		0.100		mg/L	1		6020B	Total/NA
Calcium	270		0.500		mg/L	1		6020B	Total/NA
Cobalt	0.000883		0.000500		mg/L	1		6020B	Total/NA
Lithium	0.0311		0.0100		mg/L	1		6020B	Total/NA
Molybdenum	0.0381		0.00200		mg/L	1		6020B	Total/NA
Total Dissolved Solids	1480		50.0		mg/L	1		SM 2540C	Total/NA
pH	7.6	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-267521-1

**Client Sample ID: MW-101**

**Lab Sample ID: 310-267521-1**

Date Collected: 10/17/23 10:22

Matrix: Water

Date Received: 10/18/23 16:25

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	24.8		5.00		mg/L			10/28/23 15:00	5
Fluoride	<1.00		1.00		mg/L			10/28/23 15:00	5
Sulfate	45.7		5.00		mg/L			10/28/23 15:00	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		10/20/23 09:10	10/23/23 17:46	1
Arsenic	<0.00200		0.00200		mg/L		10/20/23 09:10	10/23/23 17:46	1
Barium	0.117		0.00200		mg/L		10/20/23 09:10	10/23/23 17:46	1
Beryllium	<0.00100		0.00100		mg/L		10/20/23 09:10	10/23/23 17:46	1
Boron	<0.100		0.100		mg/L		10/20/23 09:10	10/23/23 17:46	1
Cadmium	<0.000200		0.000200		mg/L		10/20/23 09:10	10/23/23 17:46	1
Calcium	104		0.500		mg/L		10/20/23 09:10	10/23/23 17:46	1
Chromium	<0.00500		0.00500		mg/L		10/20/23 09:10	10/23/23 17:46	1
Cobalt	<0.000500		0.000500		mg/L		10/20/23 09:10	10/23/23 17:46	1
Lead	<0.000500		0.000500		mg/L		10/20/23 09:10	10/23/23 17:46	1
Lithium	0.0105		0.0100		mg/L		10/20/23 09:10	10/23/23 17:46	1
Molybdenum	<0.00200		0.00200		mg/L		10/20/23 09:10	10/23/23 17:46	1
Selenium	0.00907		0.00500		mg/L		10/20/23 09:10	10/23/23 17:46	1
Thallium	<0.00100		0.00100		mg/L		10/20/23 09:10	10/23/23 17:46	1

**Method: SW846 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		10/30/23 11:04	10/31/23 11:33	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	382		50.0		mg/L			10/19/23 16:07	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.4	HF	1.0		SU			10/18/23 17:17	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-267521-1

**Client Sample ID: MW-102**

**Lab Sample ID: 310-267521-2**

Date Collected: 10/17/23 11:07

Matrix: Water

Date Received: 10/18/23 16:25

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	24.8		5.00		mg/L			10/28/23 15:12	5
Fluoride	<1.00		1.00		mg/L			10/28/23 15:12	5
Sulfate	33.3		5.00		mg/L			10/28/23 15:12	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		10/20/23 09:10	10/23/23 17:48	1
Arsenic	<0.00200		0.00200		mg/L		10/20/23 09:10	10/23/23 17:48	1
Barium	0.0854		0.00200		mg/L		10/20/23 09:10	10/23/23 17:48	1
Beryllium	<0.00100		0.00100		mg/L		10/20/23 09:10	10/23/23 17:48	1
Boron	<0.100		0.100		mg/L		10/20/23 09:10	10/23/23 17:48	1
Cadmium	<0.000200		0.000200		mg/L		10/20/23 09:10	10/23/23 17:48	1
Calcium	99.8		0.500		mg/L		10/20/23 09:10	10/23/23 17:48	1
Chromium	<0.00500		0.00500		mg/L		10/20/23 09:10	10/23/23 17:48	1
Cobalt	<0.000500		0.000500		mg/L		10/20/23 09:10	10/23/23 17:48	1
Lead	<0.000500		0.000500		mg/L		10/20/23 09:10	10/23/23 17:48	1
Lithium	<0.0100		0.0100		mg/L		10/20/23 09:10	10/23/23 17:48	1
Molybdenum	<0.00200		0.00200		mg/L		10/20/23 09:10	10/23/23 17:48	1
Selenium	<0.00500		0.00500		mg/L		10/20/23 09:10	10/23/23 17:48	1
Thallium	<0.00100		0.00100		mg/L		10/20/23 09:10	10/23/23 17:48	1

**Method: SW846 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		10/30/23 11:08	10/31/23 11:39	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	362		50.0		mg/L			10/19/23 16:07	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.5	HF	1.0		SU			10/18/23 17:19	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-267521-1

**Client Sample ID: MW-103**

**Lab Sample ID: 310-267521-3**

Date Collected: 10/17/23 11:48

Matrix: Water

Date Received: 10/18/23 16:25

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	23.9		5.00		mg/L			10/28/23 15:50	5
Fluoride	<1.00		1.00		mg/L			10/28/23 15:50	5
Sulfate	57.8		5.00		mg/L			10/28/23 15:50	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		10/20/23 09:10	10/23/23 17:51	1
Arsenic	<0.00200		0.00200		mg/L		10/20/23 09:10	10/23/23 17:51	1
Barium	0.0353		0.00200		mg/L		10/20/23 09:10	10/23/23 17:51	1
Beryllium	<0.00100		0.00100		mg/L		10/20/23 09:10	10/23/23 17:51	1
Boron	<0.100		0.100		mg/L		10/20/23 09:10	10/23/23 17:51	1
Cadmium	<0.000200		0.000200		mg/L		10/20/23 09:10	10/23/23 17:51	1
Calcium	103		0.500		mg/L		10/20/23 09:10	10/23/23 17:51	1
Chromium	<0.00500		0.00500		mg/L		10/20/23 09:10	10/23/23 17:51	1
Cobalt	<0.000500		0.000500		mg/L		10/20/23 09:10	10/23/23 17:51	1
Lead	<0.000500		0.000500		mg/L		10/20/23 09:10	10/23/23 17:51	1
Lithium	0.0107		0.0100		mg/L		10/20/23 09:10	10/23/23 17:51	1
Molybdenum	<0.00200		0.00200		mg/L		10/20/23 09:10	10/23/23 17:51	1
Selenium	<0.00500		0.00500		mg/L		10/20/23 09:10	10/23/23 17:51	1
Thallium	<0.00100		0.00100		mg/L		10/20/23 09:10	10/23/23 17:51	1

**Method: SW846 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		10/30/23 11:08	10/31/23 11:50	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	386		50.0		mg/L			10/19/23 16:07	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.5	HF	1.0		SU			10/18/23 17:21	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-267521-1

**Client Sample ID: MW-104**

**Lab Sample ID: 310-267521-4**

Date Collected: 10/17/23 12:52

Matrix: Water

Date Received: 10/18/23 16:25

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	24.5		5.00		mg/L			10/28/23 16:03	5
Fluoride	<1.00		1.00		mg/L			10/28/23 16:03	5
Sulfate	71.6		5.00		mg/L			10/28/23 16:03	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		10/20/23 09:10	10/23/23 17:53	1
Arsenic	<0.00200		0.00200		mg/L		10/20/23 09:10	10/23/23 17:53	1
Barium	0.0659		0.00200		mg/L		10/20/23 09:10	10/23/23 17:53	1
Beryllium	<0.00100		0.00100		mg/L		10/20/23 09:10	10/23/23 17:53	1
Boron	0.116		0.100		mg/L		10/20/23 09:10	10/23/23 17:53	1
Cadmium	<0.000200		0.000200		mg/L		10/20/23 09:10	10/23/23 17:53	1
Calcium	135		0.500		mg/L		10/20/23 09:10	10/23/23 17:53	1
Chromium	<0.00500		0.00500		mg/L		10/20/23 09:10	10/23/23 17:53	1
Cobalt	<0.000500		0.000500		mg/L		10/20/23 09:10	10/23/23 17:53	1
Lead	<0.000500		0.000500		mg/L		10/20/23 09:10	10/23/23 17:53	1
Lithium	0.0147		0.0100		mg/L		10/20/23 09:10	10/23/23 17:53	1
Molybdenum	0.0270		0.00200		mg/L		10/20/23 09:10	10/23/23 17:53	1
Selenium	<0.00500		0.00500		mg/L		10/20/23 09:10	10/23/23 17:53	1
Thallium	<0.00100		0.00100		mg/L		10/20/23 09:10	10/23/23 17:53	1

**Method: SW846 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		10/30/23 11:08	10/31/23 11:52	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	452		50.0		mg/L			10/19/23 16:07	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.5	HF	1.0		SU			10/18/23 17:24	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-267521-1

**Client Sample ID: MW-105**

**Lab Sample ID: 310-267521-5**

Date Collected: 10/17/23 13:37

Matrix: Water

Date Received: 10/18/23 16:25

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	286		5.00		mg/L			10/28/23 16:15	5
Fluoride	<1.00		1.00		mg/L			10/28/23 16:15	5
Sulfate	670		20.0		mg/L			10/30/23 09:37	20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		10/20/23 09:10	10/23/23 18:04	1
Arsenic	0.00211		0.00200		mg/L		10/20/23 09:10	10/23/23 18:04	1
Barium	0.0551		0.00200		mg/L		10/20/23 09:10	10/23/23 18:04	1
Beryllium	<0.00100		0.00100		mg/L		10/20/23 09:10	10/23/23 18:04	1
Boron	0.790		0.100		mg/L		10/20/23 09:10	10/23/23 18:04	1
Cadmium	<0.000200		0.000200		mg/L		10/20/23 09:10	10/23/23 18:04	1
Calcium	265		0.500		mg/L		10/20/23 09:10	10/23/23 18:04	1
Chromium	<0.00500		0.00500		mg/L		10/20/23 09:10	10/23/23 18:04	1
Cobalt	0.000965		0.000500		mg/L		10/20/23 09:10	10/23/23 18:04	1
Lead	<0.000500		0.000500		mg/L		10/20/23 09:10	10/23/23 18:04	1
Lithium	0.0315		0.0100		mg/L		10/20/23 09:10	10/23/23 18:04	1
Molybdenum	0.0374		0.00200		mg/L		10/20/23 09:10	10/23/23 18:04	1
Selenium	<0.00500		0.00500		mg/L		10/20/23 09:10	10/23/23 18:04	1
Thallium	<0.00100		0.00100		mg/L		10/20/23 09:10	10/23/23 18:04	1

**Method: SW846 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		10/30/23 11:08	10/31/23 11:54	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	1500		50.0		mg/L			10/19/23 16:07	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.7	HF	1.0		SU			10/18/23 17:26	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-267521-1

**Client Sample ID: MW-106**

**Lab Sample ID: 310-267521-6**

Date Collected: 10/17/23 14:32

Matrix: Water

Date Received: 10/18/23 16:25

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	453		5.00		mg/L			10/28/23 16:28	5
Fluoride	<1.00		1.00		mg/L			10/28/23 16:28	5
Sulfate	896		20.0		mg/L			10/28/23 16:40	20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		10/20/23 09:10	10/23/23 18:07	1
Arsenic	0.00326		0.00200		mg/L		10/20/23 09:10	10/23/23 18:07	1
Barium	0.0883		0.00200		mg/L		10/20/23 09:10	10/23/23 18:07	1
Beryllium	<0.00100		0.00100		mg/L		10/20/23 09:10	10/23/23 18:07	1
Boron	0.580		0.100		mg/L		10/20/23 09:10	10/23/23 18:07	1
Cadmium	0.00207		0.000200		mg/L		10/20/23 09:10	10/23/23 18:07	1
Calcium	396		0.500		mg/L		10/20/23 09:10	10/23/23 18:07	1
Chromium	<0.00500		0.00500		mg/L		10/20/23 09:10	10/23/23 18:07	1
Cobalt	0.0296		0.000500		mg/L		10/20/23 09:10	10/23/23 18:07	1
Lead	0.00338		0.000500		mg/L		10/20/23 09:10	10/23/23 18:07	1
Lithium	0.0606		0.0100		mg/L		10/20/23 09:10	10/23/23 18:07	1
Molybdenum	0.0224		0.00200		mg/L		10/20/23 09:10	10/23/23 18:07	1
Selenium	<0.00500		0.00500		mg/L		10/20/23 09:10	10/23/23 18:07	1
Thallium	<0.00100		0.00100		mg/L		10/20/23 09:10	10/23/23 18:07	1

**Method: SW846 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		10/30/23 11:08	10/31/23 11:56	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	2120		250		mg/L			10/19/23 16:07	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.2	HF	1.0		SU			10/18/23 17:39	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-267521-1

**Client Sample ID: MW-107**

**Lab Sample ID: 310-267521-7**

Date Collected: 10/17/23 15:14

Matrix: Water

Date Received: 10/18/23 16:25

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	309		5.00		mg/L			10/28/23 16:53	5
Fluoride	<1.00		1.00		mg/L			10/28/23 16:53	5
Sulfate	453		5.00		mg/L			10/28/23 16:53	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		10/20/23 09:10	10/23/23 18:09	1
Arsenic	<0.00200		0.00200		mg/L		10/20/23 09:10	10/23/23 18:09	1
Barium	0.0589		0.00200		mg/L		10/20/23 09:10	10/23/23 18:09	1
Beryllium	<0.00100		0.00100		mg/L		10/20/23 09:10	10/23/23 18:09	1
Boron	0.422		0.100		mg/L		10/20/23 09:10	10/23/23 18:09	1
Cadmium	0.00637		0.000200		mg/L		10/20/23 09:10	10/23/23 18:09	1
Calcium	247		0.500		mg/L		10/20/23 09:10	10/23/23 18:09	1
Chromium	<0.00500		0.00500		mg/L		10/20/23 09:10	10/23/23 18:09	1
Cobalt	0.0642		0.000500		mg/L		10/20/23 09:10	10/23/23 18:09	1
Lead	0.00599		0.000500		mg/L		10/20/23 09:10	10/23/23 18:09	1
Lithium	0.0362		0.0100		mg/L		10/20/23 09:10	10/23/23 18:09	1
Molybdenum	0.0211		0.00200		mg/L		10/20/23 09:10	10/23/23 18:09	1
Selenium	<0.00500		0.00500		mg/L		10/20/23 09:10	10/23/23 18:09	1
Thallium	<0.00100		0.00100		mg/L		10/20/23 09:10	10/23/23 18:09	1

**Method: SW846 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		10/30/23 11:08	10/31/23 11:58	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	1370		50.0		mg/L			10/19/23 16:07	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.0	HF	1.0		SU			10/18/23 17:45	1



# Client Sample Results

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-267521-1

**Client Sample ID: MW-108**

**Lab Sample ID: 310-267521-8**

Date Collected: 10/17/23 15:55

Matrix: Water

Date Received: 10/18/23 16:25

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	53.6		5.00		mg/L			10/28/23 17:18	5
Fluoride	<1.00		1.00		mg/L			10/28/23 17:18	5
Sulfate	124		5.00		mg/L			10/28/23 17:18	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		10/20/23 09:10	10/23/23 18:11	1
Arsenic	<0.00200		0.00200		mg/L		10/20/23 09:10	10/23/23 18:11	1
Barium	0.102		0.00200		mg/L		10/20/23 09:10	10/23/23 18:11	1
Beryllium	<0.00100		0.00100		mg/L		10/20/23 09:10	10/23/23 18:11	1
Boron	0.152		0.100		mg/L		10/20/23 09:10	10/23/23 18:11	1
Cadmium	<0.000200		0.000200		mg/L		10/20/23 09:10	10/23/23 18:11	1
Calcium	119		0.500		mg/L		10/20/23 09:10	10/23/23 18:11	1
Chromium	<0.00500		0.00500		mg/L		10/20/23 09:10	10/23/23 18:11	1
Cobalt	<0.000500		0.000500		mg/L		10/20/23 09:10	10/23/23 18:11	1
Lead	<0.000500		0.000500		mg/L		10/20/23 09:10	10/23/23 18:11	1
Lithium	0.0585		0.0100		mg/L		10/20/23 09:10	10/23/23 18:11	1
Molybdenum	0.00279		0.00200		mg/L		10/20/23 09:10	10/23/23 18:11	1
Selenium	<0.00500		0.00500		mg/L		10/20/23 09:10	10/23/23 18:11	1
Thallium	<0.00100		0.00100		mg/L		10/20/23 09:10	10/23/23 18:11	1

**Method: SW846 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		10/30/23 11:08	10/31/23 12:00	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	534		50.0		mg/L			10/19/23 16:07	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.6	HF	1.0		SU			10/18/23 17:47	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-267521-1

**Client Sample ID: DUP-1**

**Lab Sample ID: 310-267521-9**

Date Collected: 10/17/23 13:37

Matrix: Water

Date Received: 10/18/23 16:25

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	287		5.00		mg/L			10/28/23 17:31	5
Fluoride	<1.00		1.00		mg/L			10/28/23 17:31	5
Sulfate	665		20.0		mg/L			10/30/23 09:50	20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		10/20/23 09:10	10/23/23 18:14	1
Arsenic	0.00203		0.00200		mg/L		10/20/23 09:10	10/23/23 18:14	1
Barium	0.0556		0.00200		mg/L		10/20/23 09:10	10/23/23 18:14	1
Beryllium	<0.00100		0.00100		mg/L		10/20/23 09:10	10/23/23 18:14	1
Boron	0.831		0.100		mg/L		10/20/23 09:10	10/23/23 18:14	1
Cadmium	<0.000200		0.000200		mg/L		10/20/23 09:10	10/23/23 18:14	1
Calcium	270		0.500		mg/L		10/20/23 09:10	10/23/23 18:14	1
Chromium	<0.00500		0.00500		mg/L		10/20/23 09:10	10/23/23 18:14	1
Cobalt	0.000883		0.000500		mg/L		10/20/23 09:10	10/23/23 18:14	1
Lead	<0.000500		0.000500		mg/L		10/20/23 09:10	10/23/23 18:14	1
Lithium	0.0311		0.0100		mg/L		10/20/23 09:10	10/23/23 18:14	1
Molybdenum	0.0381		0.00200		mg/L		10/20/23 09:10	10/23/23 18:14	1
Selenium	<0.00500		0.00500		mg/L		10/20/23 09:10	10/23/23 18:14	1
Thallium	<0.00100		0.00100		mg/L		10/20/23 09:10	10/23/23 18:14	1

**Method: SW846 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		10/30/23 11:08	10/31/23 12:02	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	1480		50.0		mg/L			10/19/23 16:07	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.6	HF	1.0		SU			10/18/23 17:51	1

# Definitions/Glossary

Client: SCS Engineers  
Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-267521-1

## Qualifiers

### General Chemistry

Qualifier	Qualifier Description
HF	Parameter with a holding time of 15 minutes. Test performed by laboratory at client's request. Sample was analyzed outside of hold time.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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

# QC Sample Results

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-267521-1

## Method: 9056A - Anions, Ion Chromatography

**Lab Sample ID: MB 310-404228/3**  
**Matrix: Water**  
**Analysis Batch: 404228**

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chloride	<1.00		1.00		mg/L			10/28/23 11:26	1
Fluoride	<0.200		0.200		mg/L			10/28/23 11:26	1
Sulfate	<1.00		1.00		mg/L			10/28/23 11:26	1

**Lab Sample ID: LCS 310-404228/4**  
**Matrix: Water**  
**Analysis Batch: 404228**

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

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Chloride	10.0	9.909		mg/L		99	90 - 110
Fluoride	2.00	1.941		mg/L		97	90 - 110
Sulfate	10.0	10.48		mg/L		105	90 - 110

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

**Lab Sample ID: MB 310-403141/1-A**  
**Matrix: Water**  
**Analysis Batch: 403421**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 403141**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Antimony	<0.00200		0.00200		mg/L		10/20/23 09:10	10/23/23 13:39	1
Arsenic	<0.00200		0.00200		mg/L		10/20/23 09:10	10/23/23 13:39	1
Barium	<0.00200		0.00200		mg/L		10/20/23 09:10	10/23/23 13:39	1
Beryllium	<0.00100		0.00100		mg/L		10/20/23 09:10	10/23/23 13:39	1
Cadmium	<0.000200		0.000200		mg/L		10/20/23 09:10	10/23/23 13:39	1
Calcium	<0.500		0.500		mg/L		10/20/23 09:10	10/23/23 13:39	1
Chromium	<0.00500		0.00500		mg/L		10/20/23 09:10	10/23/23 13:39	1
Cobalt	<0.000500		0.000500		mg/L		10/20/23 09:10	10/23/23 13:39	1
Lead	<0.000500		0.000500		mg/L		10/20/23 09:10	10/23/23 13:39	1
Lithium	<0.0100		0.0100		mg/L		10/20/23 09:10	10/23/23 13:39	1
Molybdenum	<0.00200		0.00200		mg/L		10/20/23 09:10	10/23/23 13:39	1
Selenium	<0.00500		0.00500		mg/L		10/20/23 09:10	10/23/23 13:39	1
Thallium	<0.00100		0.00100		mg/L		10/20/23 09:10	10/23/23 13:39	1

**Lab Sample ID: MB 310-403141/1-A**  
**Matrix: Water**  
**Analysis Batch: 404262**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 403141**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Boron	<0.100		0.100		mg/L		10/20/23 09:10	10/30/23 14:02	1

**Lab Sample ID: LCS 310-403141/2-A**  
**Matrix: Water**  
**Analysis Batch: 404088**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 403141**

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Boron	0.200	0.1891		mg/L		95	80 - 120
Thallium	0.200	0.1865		mg/L		93	80 - 120

# QC Sample Results

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-267521-1

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

Lab Sample ID: 310-267521-4 DU  
 Matrix: Water  
 Analysis Batch: 403509

Client Sample ID: MW-104  
 Prep Type: Total/NA  
 Prep Batch: 403141

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Antimony	<0.00200		<0.00200		mg/L		NC	20
Arsenic	<0.00200		<0.00200		mg/L		NC	20
Barium	0.0659		0.06481		mg/L		2	20
Beryllium	<0.00100		<0.00100		mg/L		NC	20
Cadmium	<0.000200		<0.000200		mg/L		NC	20
Calcium	135		137.6		mg/L		2	20
Chromium	<0.00500		<0.00500		mg/L		NC	20
Cobalt	<0.000500		<0.000500		mg/L		NC	20
Lead	<0.000500		<0.000500		mg/L		NC	20
Lithium	0.0147		0.01485		mg/L		1	20
Molybdenum	0.0270		0.02738		mg/L		1	20
Selenium	<0.00500		<0.00500		mg/L		NC	20

## Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-404220/1-A  
 Matrix: Water  
 Analysis Batch: 404376

Client Sample ID: Method Blank  
 Prep Type: Total/NA  
 Prep Batch: 404220

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	<0.000200		0.000200		mg/L		10/30/23 11:04	10/31/23 10:29	1

Lab Sample ID: LCS 310-404220/2-A  
 Matrix: Water  
 Analysis Batch: 404376

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA  
 Prep Batch: 404220

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Mercury	0.00167	0.001752		mg/L		105	80 - 120

Lab Sample ID: MB 310-404221/1-A  
 Matrix: Water  
 Analysis Batch: 404376

Client Sample ID: Method Blank  
 Prep Type: Total/NA  
 Prep Batch: 404221

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	<0.000200		0.000200		mg/L		10/30/23 11:08	10/31/23 11:35	1

Lab Sample ID: LCS 310-404221/2-A  
 Matrix: Water  
 Analysis Batch: 404376

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA  
 Prep Batch: 404221

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Mercury	0.00167	0.001720		mg/L		103	80 - 120

Lab Sample ID: 310-267521-2 MS  
 Matrix: Water  
 Analysis Batch: 404376

Client Sample ID: MW-102  
 Prep Type: Total/NA  
 Prep Batch: 404221

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier	Added	Result	Qualifier				
Mercury	<0.000200		0.00167	0.001362		mg/L		82	80 - 120

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# QC Sample Results

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-267521-1

## Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: 310-267521-2 MSD  
 Matrix: Water  
 Analysis Batch: 404376

Client Sample ID: MW-102  
 Prep Type: Total/NA  
 Prep Batch: 404221

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	<0.000200		0.00167	0.001393		mg/L		84	80 - 120	2	20

## Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 310-403137/1  
 Matrix: Water  
 Analysis Batch: 403137

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<50.0		50.0		mg/L			10/19/23 16:07	1

Lab Sample ID: LCS 310-403137/2  
 Matrix: Water  
 Analysis Batch: 403137

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	982.0		mg/L		98	90 - 110

Lab Sample ID: 310-267521-4 DU  
 Matrix: Water  
 Analysis Batch: 403137

Client Sample ID: MW-104  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	452		442.0		mg/L		2	20

## Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-402993/1  
 Matrix: Water  
 Analysis Batch: 402993

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH	7.00	7.0		SU		100	98 - 102

Lab Sample ID: 310-267521-6 DU  
 Matrix: Water  
 Analysis Batch: 402993

Client Sample ID: MW-106  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.2	HF	7.2		SU		0.1	20

# QC Association Summary

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-267521-1

## HPLC/IC

### Analysis Batch: 404228

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267521-1	MW-101	Total/NA	Water	9056A	
310-267521-2	MW-102	Total/NA	Water	9056A	
310-267521-3	MW-103	Total/NA	Water	9056A	
310-267521-4	MW-104	Total/NA	Water	9056A	
310-267521-5	MW-105	Total/NA	Water	9056A	
310-267521-5	MW-105	Total/NA	Water	9056A	
310-267521-6	MW-106	Total/NA	Water	9056A	
310-267521-6	MW-106	Total/NA	Water	9056A	
310-267521-7	MW-107	Total/NA	Water	9056A	
310-267521-8	MW-108	Total/NA	Water	9056A	
310-267521-9	DUP-1	Total/NA	Water	9056A	
310-267521-9	DUP-1	Total/NA	Water	9056A	
MB 310-404228/3	Method Blank	Total/NA	Water	9056A	
LCS 310-404228/4	Lab Control Sample	Total/NA	Water	9056A	

## Metals

### Prep Batch: 403141

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267521-1	MW-101	Total/NA	Water	3005A	
310-267521-2	MW-102	Total/NA	Water	3005A	
310-267521-3	MW-103	Total/NA	Water	3005A	
310-267521-4	MW-104	Total/NA	Water	3005A	
310-267521-5	MW-105	Total/NA	Water	3005A	
310-267521-6	MW-106	Total/NA	Water	3005A	
310-267521-7	MW-107	Total/NA	Water	3005A	
310-267521-8	MW-108	Total/NA	Water	3005A	
310-267521-9	DUP-1	Total/NA	Water	3005A	
MB 310-403141/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-403141/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-267521-4 DU	MW-104	Total/NA	Water	3005A	

### Analysis Batch: 403421

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-403141/1-A	Method Blank	Total/NA	Water	6020B	403141

### Analysis Batch: 403509

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267521-1	MW-101	Total/NA	Water	6020B	403141
310-267521-2	MW-102	Total/NA	Water	6020B	403141
310-267521-3	MW-103	Total/NA	Water	6020B	403141
310-267521-4	MW-104	Total/NA	Water	6020B	403141
310-267521-5	MW-105	Total/NA	Water	6020B	403141
310-267521-6	MW-106	Total/NA	Water	6020B	403141
310-267521-7	MW-107	Total/NA	Water	6020B	403141
310-267521-8	MW-108	Total/NA	Water	6020B	403141
310-267521-9	DUP-1	Total/NA	Water	6020B	403141
310-267521-4 DU	MW-104	Total/NA	Water	6020B	403141

# QC Association Summary

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-267521-1

## Metals

### Analysis Batch: 404088

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-403141/2-A	Lab Control Sample	Total/NA	Water	6020B	403141

### Prep Batch: 404220

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267521-1	MW-101	Total/NA	Water	7470A	
MB 310-404220/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-404220/2-A	Lab Control Sample	Total/NA	Water	7470A	

### Prep Batch: 404221

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267521-2	MW-102	Total/NA	Water	7470A	
310-267521-3	MW-103	Total/NA	Water	7470A	
310-267521-4	MW-104	Total/NA	Water	7470A	
310-267521-5	MW-105	Total/NA	Water	7470A	
310-267521-6	MW-106	Total/NA	Water	7470A	
310-267521-7	MW-107	Total/NA	Water	7470A	
310-267521-8	MW-108	Total/NA	Water	7470A	
310-267521-9	DUP-1	Total/NA	Water	7470A	
MB 310-404221/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-404221/2-A	Lab Control Sample	Total/NA	Water	7470A	
310-267521-2 MS	MW-102	Total/NA	Water	7470A	
310-267521-2 MSD	MW-102	Total/NA	Water	7470A	

### Analysis Batch: 404262

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-403141/1-A	Method Blank	Total/NA	Water	6020B	403141

### Analysis Batch: 404376

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267521-1	MW-101	Total/NA	Water	7470A	404220
310-267521-2	MW-102	Total/NA	Water	7470A	404221
310-267521-3	MW-103	Total/NA	Water	7470A	404221
310-267521-4	MW-104	Total/NA	Water	7470A	404221
310-267521-5	MW-105	Total/NA	Water	7470A	404221
310-267521-6	MW-106	Total/NA	Water	7470A	404221
310-267521-7	MW-107	Total/NA	Water	7470A	404221
310-267521-8	MW-108	Total/NA	Water	7470A	404221
310-267521-9	DUP-1	Total/NA	Water	7470A	404221
MB 310-404220/1-A	Method Blank	Total/NA	Water	7470A	404220
MB 310-404221/1-A	Method Blank	Total/NA	Water	7470A	404221
LCS 310-404220/2-A	Lab Control Sample	Total/NA	Water	7470A	404220
LCS 310-404221/2-A	Lab Control Sample	Total/NA	Water	7470A	404221
310-267521-2 MS	MW-102	Total/NA	Water	7470A	404221
310-267521-2 MSD	MW-102	Total/NA	Water	7470A	404221

## General Chemistry

### Analysis Batch: 402993

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267521-1	MW-101	Total/NA	Water	SM 4500 H+ B	
310-267521-2	MW-102	Total/NA	Water	SM 4500 H+ B	

Eurofins Cedar Falls



# QC Association Summary

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-267521-1

## General Chemistry (Continued)

### Analysis Batch: 402993 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267521-3	MW-103	Total/NA	Water	SM 4500 H+ B	
310-267521-4	MW-104	Total/NA	Water	SM 4500 H+ B	
310-267521-5	MW-105	Total/NA	Water	SM 4500 H+ B	
310-267521-6	MW-106	Total/NA	Water	SM 4500 H+ B	
310-267521-7	MW-107	Total/NA	Water	SM 4500 H+ B	
310-267521-8	MW-108	Total/NA	Water	SM 4500 H+ B	
310-267521-9	DUP-1	Total/NA	Water	SM 4500 H+ B	
LCS 310-402993/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
310-267521-6 DU	MW-106	Total/NA	Water	SM 4500 H+ B	

### Analysis Batch: 403137

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-267521-1	MW-101	Total/NA	Water	SM 2540C	
310-267521-2	MW-102	Total/NA	Water	SM 2540C	
310-267521-3	MW-103	Total/NA	Water	SM 2540C	
310-267521-4	MW-104	Total/NA	Water	SM 2540C	
310-267521-5	MW-105	Total/NA	Water	SM 2540C	
310-267521-6	MW-106	Total/NA	Water	SM 2540C	
310-267521-7	MW-107	Total/NA	Water	SM 2540C	
310-267521-8	MW-108	Total/NA	Water	SM 2540C	
310-267521-9	DUP-1	Total/NA	Water	SM 2540C	
MB 310-403137/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-403137/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-267521-4 DU	MW-104	Total/NA	Water	SM 2540C	

# Lab Chronicle

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-267521-1

## Client Sample ID: MW-101

Lab Sample ID: 310-267521-1

Date Collected: 10/17/23 10:22

Matrix: Water

Date Received: 10/18/23 16:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	404228	QTZ5	EET CF	10/28/23 15:00
Total/NA	Prep	3005A			403141	KCK5	EET CF	10/20/23 09:10
Total/NA	Analysis	6020B		1	403509	A6US	EET CF	10/23/23 17:46
Total/NA	Prep	7470A			404220	NFT2	EET CF	10/30/23 11:04
Total/NA	Analysis	7470A		1	404376	NFT2	EET CF	10/31/23 11:33
Total/NA	Analysis	SM 2540C		1	403137	ENB7	EET CF	10/19/23 16:07
Total/NA	Analysis	SM 4500 H+ B		1	402993	ZJX4	EET CF	10/18/23 17:17

## Client Sample ID: MW-102

Lab Sample ID: 310-267521-2

Date Collected: 10/17/23 11:07

Matrix: Water

Date Received: 10/18/23 16:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	404228	QTZ5	EET CF	10/28/23 15:12
Total/NA	Prep	3005A			403141	KCK5	EET CF	10/20/23 09:10
Total/NA	Analysis	6020B		1	403509	A6US	EET CF	10/23/23 17:48
Total/NA	Prep	7470A			404221	NFT2	EET CF	10/30/23 11:08
Total/NA	Analysis	7470A		1	404376	NFT2	EET CF	10/31/23 11:39
Total/NA	Analysis	SM 2540C		1	403137	ENB7	EET CF	10/19/23 16:07
Total/NA	Analysis	SM 4500 H+ B		1	402993	ZJX4	EET CF	10/18/23 17:19

## Client Sample ID: MW-103

Lab Sample ID: 310-267521-3

Date Collected: 10/17/23 11:48

Matrix: Water

Date Received: 10/18/23 16:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	404228	QTZ5	EET CF	10/28/23 15:50
Total/NA	Prep	3005A			403141	KCK5	EET CF	10/20/23 09:10
Total/NA	Analysis	6020B		1	403509	A6US	EET CF	10/23/23 17:51
Total/NA	Prep	7470A			404221	NFT2	EET CF	10/30/23 11:08
Total/NA	Analysis	7470A		1	404376	NFT2	EET CF	10/31/23 11:50
Total/NA	Analysis	SM 2540C		1	403137	ENB7	EET CF	10/19/23 16:07
Total/NA	Analysis	SM 4500 H+ B		1	402993	ZJX4	EET CF	10/18/23 17:21

## Client Sample ID: MW-104

Lab Sample ID: 310-267521-4

Date Collected: 10/17/23 12:52

Matrix: Water

Date Received: 10/18/23 16:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	404228	QTZ5	EET CF	10/28/23 16:03
Total/NA	Prep	3005A			403141	KCK5	EET CF	10/20/23 09:10
Total/NA	Analysis	6020B		1	403509	A6US	EET CF	10/23/23 17:53
Total/NA	Prep	7470A			404221	NFT2	EET CF	10/30/23 11:08
Total/NA	Analysis	7470A		1	404376	NFT2	EET CF	10/31/23 11:52

# Lab Chronicle

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-267521-1

**Client Sample ID: MW-104**

**Lab Sample ID: 310-267521-4**

Date Collected: 10/17/23 12:52

Matrix: Water

Date Received: 10/18/23 16:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	SM 2540C		1	403137	ENB7	EET CF	10/19/23 16:07
Total/NA	Analysis	SM 4500 H+ B		1	402993	ZJX4	EET CF	10/18/23 17:24

**Client Sample ID: MW-105**

**Lab Sample ID: 310-267521-5**

Date Collected: 10/17/23 13:37

Matrix: Water

Date Received: 10/18/23 16:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	404228	QTZ5	EET CF	10/28/23 16:15
Total/NA	Analysis	9056A		20	404228	QTZ5	EET CF	10/30/23 09:37
Total/NA	Prep	3005A			403141	KCK5	EET CF	10/20/23 09:10
Total/NA	Analysis	6020B		1	403509	A6US	EET CF	10/23/23 18:04
Total/NA	Prep	7470A			404221	NFT2	EET CF	10/30/23 11:08
Total/NA	Analysis	7470A		1	404376	NFT2	EET CF	10/31/23 11:54
Total/NA	Analysis	SM 2540C		1	403137	ENB7	EET CF	10/19/23 16:07
Total/NA	Analysis	SM 4500 H+ B		1	402993	ZJX4	EET CF	10/18/23 17:26

**Client Sample ID: MW-106**

**Lab Sample ID: 310-267521-6**

Date Collected: 10/17/23 14:32

Matrix: Water

Date Received: 10/18/23 16:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	404228	QTZ5	EET CF	10/28/23 16:28
Total/NA	Analysis	9056A		20	404228	QTZ5	EET CF	10/28/23 16:40
Total/NA	Prep	3005A			403141	KCK5	EET CF	10/20/23 09:10
Total/NA	Analysis	6020B		1	403509	A6US	EET CF	10/23/23 18:07
Total/NA	Prep	7470A			404221	NFT2	EET CF	10/30/23 11:08
Total/NA	Analysis	7470A		1	404376	NFT2	EET CF	10/31/23 11:56
Total/NA	Analysis	SM 2540C		1	403137	ENB7	EET CF	10/19/23 16:07
Total/NA	Analysis	SM 4500 H+ B		1	402993	ZJX4	EET CF	10/18/23 17:39

**Client Sample ID: MW-107**

**Lab Sample ID: 310-267521-7**

Date Collected: 10/17/23 15:14

Matrix: Water

Date Received: 10/18/23 16:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	404228	QTZ5	EET CF	10/28/23 16:53
Total/NA	Prep	3005A			403141	KCK5	EET CF	10/20/23 09:10
Total/NA	Analysis	6020B		1	403509	A6US	EET CF	10/23/23 18:09
Total/NA	Prep	7470A			404221	NFT2	EET CF	10/30/23 11:08
Total/NA	Analysis	7470A		1	404376	NFT2	EET CF	10/31/23 11:58
Total/NA	Analysis	SM 2540C		1	403137	ENB7	EET CF	10/19/23 16:07
Total/NA	Analysis	SM 4500 H+ B		1	402993	ZJX4	EET CF	10/18/23 17:45

# Lab Chronicle

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-267521-1

**Client Sample ID: MW-108**

**Lab Sample ID: 310-267521-8**

Date Collected: 10/17/23 15:55

Matrix: Water

Date Received: 10/18/23 16:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	404228	QTZ5	EET CF	10/28/23 17:18
Total/NA	Prep	3005A			403141	KCK5	EET CF	10/20/23 09:10
Total/NA	Analysis	6020B		1	403509	A6US	EET CF	10/23/23 18:11
Total/NA	Prep	7470A			404221	NFT2	EET CF	10/30/23 11:08
Total/NA	Analysis	7470A		1	404376	NFT2	EET CF	10/31/23 12:00
Total/NA	Analysis	SM 2540C		1	403137	ENB7	EET CF	10/19/23 16:07
Total/NA	Analysis	SM 4500 H+ B		1	402993	ZJX4	EET CF	10/18/23 17:47

**Client Sample ID: DUP-1**

**Lab Sample ID: 310-267521-9**

Date Collected: 10/17/23 13:37

Matrix: Water

Date Received: 10/18/23 16:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	404228	QTZ5	EET CF	10/28/23 17:31
Total/NA	Analysis	9056A		20	404228	QTZ5	EET CF	10/30/23 09:50
Total/NA	Prep	3005A			403141	KCK5	EET CF	10/20/23 09:10
Total/NA	Analysis	6020B		1	403509	A6US	EET CF	10/23/23 18:14
Total/NA	Prep	7470A			404221	NFT2	EET CF	10/30/23 11:08
Total/NA	Analysis	7470A		1	404376	NFT2	EET CF	10/31/23 12:02
Total/NA	Analysis	SM 2540C		1	403137	ENB7	EET CF	10/19/23 16:07
Total/NA	Analysis	SM 4500 H+ B		1	402993	ZJX4	EET CF	10/18/23 17:51

**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: Ames Inactive CCR Impoundment

Job ID: 310-267521-1

## Laboratory: Eurofins Cedar Falls

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

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

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

Analysis Method	Prep Method	Matrix	Analyte
6020B	3005A	Water	Lithium

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

# Method Summary

Client: SCS Engineers  
Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-267521-1

Method	Method Description	Protocol	Laboratory
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
7470A	Mercury (CVAA)	SW846	EET CF
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CF
SM 4500 H+ B	pH	SM	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
7470A	Preparation, Mercury	SW846	EET CF

**Protocol References:**

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

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

**Laboratory References:**

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





Environment Testing  
America



310-267521 Chain of Custody

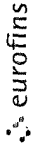
### Cooler/Sample Receipt and Temperature Log Form

<b>Client Information</b>			
Client: <u>SCS</u>			
City/State:	CITY	STATE	Project:
<b>Receipt Information</b>			
Date/Time Received:	DATE	TIME	Received By:
	<u>10/18/23</u>	<u>1625</u>	<u>EM</u>
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee			
<input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
<b>Condition of Cooler/Containers</b>			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____	
Multiple Coolers?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler # ____ of ____	
Cooler Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
<b>Temperature Record</b>			
Coolant:	<input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE		
Thermometer ID:	<u>R</u>	Correction Factor (°C):	<u>0</u>
• <b>Temp Blank Temperature</b> – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C):		Corrected Temp (°C):	
• <b>Sample Container Temperature</b>			
Container(s) used:	CONTAINER 1	CONTAINER 2	
	<u>250 mL PLASTIC</u>		
Uncorrected Temp (°C):	<u>1.5</u>		
Corrected Temp (°C):	<u>1.5</u>		
<b>Exceptions Noted</b>			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No			
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> 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?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE. If yes, contact PM before proceeding. If no, proceed with login			
<b>Additional Comments</b>			

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# Chain of Custody Record

TESTAME ICA Des Mo 1es SC  
 214



<b>Client Information</b> Client Contact: Sean Marczewski Company: SCS Engineers Address: 1690 All State Court, Suite 100 City: West Des Moines State, Zip: IA, 50265 Phone: 515-631-6160 (Tel) Email: SMarczewski@scsengineers.com Project Name: Ames Inactive CCR Impoundment Site:		Lab PM: Liechti, Meredith L E-Mail: meredith.liechti@et.eurofins.us.com Carrier Tracking No(s): 310-86173-24056 1 Page: Page 1 of 1 Job #:	
Due Date Requested: TAT Requested (days): Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No PO #: 27221400 00 Task 2 WO #:		Analysis Requested Total Number of Containers:	
Sample Identification Sample Date Sample Time Sample Type (C-comp, G-grab) Matrix (Water, Sludge, Other) Preservation Code:		Field Filtered Sample (Yes or No) Perform MS/MSD (Yes or No) 9056A_ORGFM_28D - Chloride, Fluoride, Sulfate 2540C_Calcd, SM4500_H+ 6020B - CCR Metals List Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4.5 Y - Trizma Z - other (specify)	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Empty Kit Relinquished by: Sean Marczewski Date/Time: 10-18-23 Relinquished by:		Method of Shipment:	
Relinquished by:		Date/Time:	
Relinquished by:		Date/Time:	
Relinquished by:		Date/Time:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No Custody Seal No:		Cooler Temperature(s) °C and Other Remarks:	





## Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-267521-1

**Login Number: 267521**

**List Source: Eurofins Cedar Falls**

**List Number: 1**

**Creator: Costello, Mackenzie K**

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



# ANALYTICAL REPORT

## PREPARED FOR

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

Generated 5/28/2024 12:11:48 PM

## JOB DESCRIPTION

Ames Inactive CCR Impoundment  
1st 2024 Semi-Annual GW Sampling

## JOB NUMBER

310-279724-2

# 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  
Mary Yang, Project Management Assistant I  
[Mary.Yang@ET.EurofinsUS.com](mailto:Mary.Yang@ET.EurofinsUS.com)  
(319)277-2401



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# Case Narrative

Client: SCS Engineers  
Project: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

Job ID: 310-279724-1

Eurofins Cedar Falls

## Job Narrative 310-279724-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

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

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

### Receipt

The samples were received on 4/24/2024 4:30 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.6°C and 3.7°C.

### HPLC/IC

Method 9056A\_ORGFM\_28D: The following samples were diluted due to the nature of the sample matrix: MW-101 (310-279724-1), MW-102 (310-279724-2), MW-103 (310-279724-3), MW-104 (310-279724-4), MW-105 (310-279724-5), MW-107 (310-279724-7), MW-108 (310-279724-8) and DUP-1 (310-279724-9). Elevated reporting limits (RLs) are provided.

Method 9056A\_ORGFM\_28D: The continuing calibration verification (CCV) associated with batch 310-420250 recovered above the upper control limit for fluoride. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: MW-101 (310-279724-1), MW-102 (310-279724-2), MW-103 (310-279724-3), MW-104 (310-279724-4), MW-105 (310-279724-5), MW-107 (310-279724-7), MW-108 (310-279724-8) and DUP-1 (310-279724-9).

Method 9056A\_ORGFM\_28D: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for analytical batch 310-420250 recovered outside control limits for the following analytes: fluoride. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.  
MW-101 (310-279724-1), MW-102 (310-279724-2), MW-103 (310-279724-3), MW-104 (310-279724-4), MW-105 (310-279724-5), MW-107 (310-279724-7), MW-108 (310-279724-8) and DUP-1 (310-279724-9)

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

### Metals

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

### General Chemistry

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

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# Case Narrative

Client: SCS Engineers  
Project: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

**Job ID: 310-279724-2**

**Eurofins Cedar Falls**

## Job Narrative 310-279724-2

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

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

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

### Receipt

The samples were received on 4/24/2024 4:30 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.6°C and 3.7°C.

### Gas Flow Proportional Counter

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

### Rad

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

Eurofins Cedar Falls

# Sample Summary

Client: SCS Engineers  
Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-279724-1	MW-101	Water	04/23/24 09:41	04/24/24 16:30
310-279724-2	MW-102	Water	04/23/24 10:44	04/24/24 16:30
310-279724-3	MW-103	Water	04/23/24 11:32	04/24/24 16:30
310-279724-4	MW-104	Water	04/23/24 12:20	04/24/24 16:30
310-279724-5	MW-105	Water	04/23/24 13:03	04/24/24 16:30
310-279724-6	MW-106	Water	04/23/24 13:51	04/24/24 16:30
310-279724-7	MW-107	Water	04/23/24 14:31	04/24/24 16:30
310-279724-8	MW-108	Water	04/23/24 15:17	04/24/24 16:30
310-279724-9	DUP-1	Water	04/23/24 15:17	04/24/24 16:30

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# Detection Summary

Client: SCS Engineers  
Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

## Client Sample ID: MW-101

## Lab Sample ID: 310-279724-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	34.1		5.00		mg/L	5		9056A	Total/NA
Sulfate	47.4		5.00		mg/L	5		9056A	Total/NA
Barium	0.117		0.00200		mg/L	1		6020B	Total/NA
Calcium	107		0.500		mg/L	1		6020B	Total/NA
Lithium	0.0102		0.0100		mg/L	1		6020B	Total/NA
Selenium	0.00620		0.00500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	384		50.0		mg/L	1		SM 2540C	Total/NA
pH	7.2	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-102

## Lab Sample ID: 310-279724-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	30.7		5.00		mg/L	5		9056A	Total/NA
Sulfate	48.2		5.00		mg/L	5		9056A	Total/NA
Barium	0.123		0.00200		mg/L	1		6020B	Total/NA
Calcium	103		0.500		mg/L	1		6020B	Total/NA
Lithium	0.0108		0.0100		mg/L	1		6020B	Total/NA
Selenium	0.00560		0.00500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	382		50.0		mg/L	1		SM 2540C	Total/NA
pH	7.3	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-103

## Lab Sample ID: 310-279724-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	32.7		5.00		mg/L	5		9056A	Total/NA
Sulfate	68.9		5.00		mg/L	5		9056A	Total/NA
Barium	0.132		0.00200		mg/L	1		6020B	Total/NA
Calcium	104		0.500		mg/L	1		6020B	Total/NA
Lithium	0.0133		0.0100		mg/L	1		6020B	Total/NA
Total Dissolved Solids	376		50.0		mg/L	1		SM 2540C	Total/NA
pH	7.3	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-104

## Lab Sample ID: 310-279724-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	24.9		5.00		mg/L	5		9056A	Total/NA
Sulfate	63.9		5.00		mg/L	5		9056A	Total/NA
Barium	0.0606		0.00200		mg/L	1		6020B	Total/NA
Calcium	111		0.500		mg/L	1		6020B	Total/NA
Lithium	0.0102		0.0100		mg/L	1		6020B	Total/NA
Molybdenum	0.0249		0.00200		mg/L	1		6020B	Total/NA
Selenium	0.00559		0.00500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	364		50.0		mg/L	1		SM 2540C	Total/NA
pH	7.2	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-105

## Lab Sample ID: 310-279724-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	223		5.00		mg/L	5		9056A	Total/NA
Sulfate	544		20.0		mg/L	20		9056A	Total/NA
Arsenic	0.00277		0.00200		mg/L	1		6020B	Total/NA
Barium	0.0411		0.00200		mg/L	1		6020B	Total/NA
Boron	0.731		0.100		mg/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

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# Detection Summary

Client: SCS Engineers  
Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

## Client Sample ID: MW-105 (Continued)

## Lab Sample ID: 310-279724-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	196		0.500		mg/L	1		6020B	Total/NA
Cobalt	0.000535		0.000500		mg/L	1		6020B	Total/NA
Lithium	0.0342		0.0100		mg/L	1		6020B	Total/NA
Molybdenum	0.0483		0.00200		mg/L	1		6020B	Total/NA
Total Dissolved Solids	1230		50.0		mg/L	1		SM 2540C	Total/NA
pH	7.6	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-106

## Lab Sample ID: 310-279724-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	559		20.0		mg/L	20		9056A	Total/NA
Fluoride	1.35		1.00		mg/L	5		9056A	Total/NA
Sulfate	93.2		5.00		mg/L	5		9056A	Total/NA
Arsenic	0.0178		0.00200		mg/L	1		6020B	Total/NA
Barium	0.0780		0.00200		mg/L	1		6020B	Total/NA
Boron	0.396		0.100		mg/L	1		6020B	Total/NA
Calcium	139		0.500		mg/L	1		6020B	Total/NA
Cobalt	0.0118		0.000500		mg/L	1		6020B	Total/NA
Lead	0.00140		0.000500		mg/L	1		6020B	Total/NA
Lithium	0.0184		0.0100		mg/L	1		6020B	Total/NA
Molybdenum	0.0994		0.00200		mg/L	1		6020B	Total/NA
Total Dissolved Solids	900		250		mg/L	1		SM 2540C	Total/NA
pH	7.2	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-107

## Lab Sample ID: 310-279724-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	218		5.00		mg/L	5		9056A	Total/NA
Sulfate	293		5.00		mg/L	5		9056A	Total/NA
Barium	0.0629		0.00200		mg/L	1		6020B	Total/NA
Boron	0.262		0.100		mg/L	1		6020B	Total/NA
Cadmium	0.000984		0.000200		mg/L	1		6020B	Total/NA
Calcium	192		0.500		mg/L	1		6020B	Total/NA
Cobalt	0.0161		0.000500		mg/L	1		6020B	Total/NA
Lead	0.00172		0.000500		mg/L	1		6020B	Total/NA
Lithium	0.0228		0.0100		mg/L	1		6020B	Total/NA
Molybdenum	0.0117		0.00200		mg/L	1		6020B	Total/NA
Total Dissolved Solids	800		250		mg/L	1		SM 2540C	Total/NA
pH	6.9	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

## Client Sample ID: MW-108

## Lab Sample ID: 310-279724-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	75.2		5.00		mg/L	5		9056A	Total/NA
Sulfate	80.2		5.00		mg/L	5		9056A	Total/NA
Barium	0.0585		0.00200		mg/L	1		6020B	Total/NA
Calcium	68.3		0.500		mg/L	1		6020B	Total/NA
Lithium	0.0305		0.0100		mg/L	1		6020B	Total/NA
Total Dissolved Solids	384		50.0		mg/L	1		SM 2540C	Total/NA
pH	7.7	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

# Detection Summary

Client: SCS Engineers  
Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

**Client Sample ID: DUP-1**

**Lab Sample ID: 310-279724-9**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	74.2		5.00		mg/L	5		9056A	Total/NA
Sulfate	76.8		5.00		mg/L	5		9056A	Total/NA
Barium	0.0596		0.00200		mg/L	1		6020B	Total/NA
Calcium	69.9		0.500		mg/L	1		6020B	Total/NA
Lithium	0.0305		0.0100		mg/L	1		6020B	Total/NA
Molybdenum	0.00211		0.00200		mg/L	1		6020B	Total/NA
Total Dissolved Solids	830		250		mg/L	1		SM 2540C	Total/NA
pH	7.7	HF	1.0		SU	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

**Client Sample ID: MW-101**

**Lab Sample ID: 310-279724-1**

Date Collected: 04/23/24 09:41

Matrix: Water

Date Received: 04/24/24 16:30

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>34.1</b>		5.00		mg/L			04/29/24 17:46	5
Fluoride	<1.00	*+	1.00		mg/L			04/29/24 17:46	5
<b>Sulfate</b>	<b>47.4</b>		5.00		mg/L			04/29/24 17:46	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		04/26/24 09:00	04/29/24 17:41	1
Arsenic	<0.00200		0.00200		mg/L		04/26/24 09:00	04/29/24 17:41	1
<b>Barium</b>	<b>0.117</b>		0.00200		mg/L		04/26/24 09:00	04/29/24 17:41	1
Beryllium	<0.00100		0.00100		mg/L		04/26/24 09:00	04/29/24 17:41	1
Boron	<0.100		0.100		mg/L		04/26/24 09:00	04/29/24 17:41	1
Cadmium	<0.000200		0.000200		mg/L		04/26/24 09:00	04/29/24 17:41	1
<b>Calcium</b>	<b>107</b>		0.500		mg/L		04/26/24 09:00	04/29/24 17:41	1
Chromium	<0.00500		0.00500		mg/L		04/26/24 09:00	04/29/24 17:41	1
Cobalt	<0.000500		0.000500		mg/L		04/26/24 09:00	04/29/24 17:41	1
Lead	<0.000500		0.000500		mg/L		04/26/24 09:00	04/29/24 17:41	1
<b>Lithium</b>	<b>0.0102</b>		0.0100		mg/L		04/26/24 09:00	04/29/24 17:41	1
Molybdenum	<0.00200		0.00200		mg/L		04/26/24 09:00	04/29/24 17:41	1
<b>Selenium</b>	<b>0.00620</b>		0.00500		mg/L		04/26/24 09:00	04/29/24 17:41	1
Thallium	<0.00100		0.00100		mg/L		04/26/24 09:00	04/29/24 17:41	1

**Method: SW846 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		04/30/24 12:01	05/02/24 14:38	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids (SM 2540C)</b>	<b>384</b>		50.0		mg/L			04/26/24 18:00	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>pH (SM 4500 H+ B)</b>	<b>7.2</b>	<b>HF</b>	1.0		SU			04/24/24 20:18	1

**Method: SW846 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Radium-226	0.154	U	0.139	0.140	1.00	0.208	pCi/L	05/01/24 08:42	05/23/24 22:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	83.5		30 - 110					05/01/24 08:42	05/23/24 22:47	1

**Method: SW846 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
<b>Radium-228</b>	<b>0.704</b>		0.434	0.438	1.00	0.633	pCi/L	05/01/24 08:46	05/22/24 16:28	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	83.5		30 - 110					05/01/24 08:46	05/22/24 16:28	1
Y Carrier	75.5		30 - 110					05/01/24 08:46	05/22/24 16:28	1

# Client Sample Results

Client: SCS Engineers  
Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

**Client Sample ID: MW-101**  
Date Collected: 04/23/24 09:41  
Date Received: 04/24/24 16:30

**Lab Sample ID: 310-279724-1**  
Matrix: Water

**Method: TAL-STL Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.858		0.456	0.460	5.00	0.633	pCi/L		05/28/24 09:39	1

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# Client Sample Results

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

**Client Sample ID: MW-102**

**Lab Sample ID: 310-279724-2**

Date Collected: 04/23/24 10:44

Matrix: Water

Date Received: 04/24/24 16:30

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>30.7</b>		5.00		mg/L			04/29/24 17:58	5
Fluoride	<1.00	*+	1.00		mg/L			04/29/24 17:58	5
<b>Sulfate</b>	<b>48.2</b>		5.00		mg/L			04/29/24 17:58	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		04/26/24 09:00	04/29/24 17:43	1
Arsenic	<0.00200		0.00200		mg/L		04/26/24 09:00	04/29/24 17:43	1
<b>Barium</b>	<b>0.123</b>		0.00200		mg/L		04/26/24 09:00	04/29/24 17:43	1
Beryllium	<0.00100		0.00100		mg/L		04/26/24 09:00	04/29/24 17:43	1
Boron	<0.100		0.100		mg/L		04/26/24 09:00	04/29/24 17:43	1
Cadmium	<0.000200		0.000200		mg/L		04/26/24 09:00	04/29/24 17:43	1
<b>Calcium</b>	<b>103</b>		0.500		mg/L		04/26/24 09:00	04/29/24 17:43	1
Chromium	<0.00500		0.00500		mg/L		04/26/24 09:00	04/29/24 17:43	1
Cobalt	<0.000500		0.000500		mg/L		04/26/24 09:00	04/29/24 17:43	1
Lead	<0.000500		0.000500		mg/L		04/26/24 09:00	04/29/24 17:43	1
<b>Lithium</b>	<b>0.0108</b>		0.0100		mg/L		04/26/24 09:00	04/29/24 17:43	1
Molybdenum	<0.00200		0.00200		mg/L		04/26/24 09:00	04/29/24 17:43	1
<b>Selenium</b>	<b>0.00560</b>		0.00500		mg/L		04/26/24 09:00	04/29/24 17:43	1
Thallium	<0.00100		0.00100		mg/L		04/26/24 09:00	04/29/24 17:43	1

**Method: SW846 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		04/30/24 12:01	05/02/24 14:40	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids (SM 2540C)</b>	<b>382</b>		50.0		mg/L			04/26/24 18:00	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>pH (SM 4500 H+ B)</b>	<b>7.3</b>	<b>HF</b>	1.0		SU			04/24/24 20:20	1

**Method: SW846 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.157	U	0.120	0.121	1.00	0.163	pCi/L	05/01/24 08:42	05/23/24 22:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.7		30 - 110					05/01/24 08:42	05/23/24 22:47	1

**Method: SW846 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.572	U	0.392	0.396	1.00	0.592	pCi/L	05/01/24 08:46	05/22/24 16:29	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.7		30 - 110					05/01/24 08:46	05/22/24 16:29	1
Y Carrier	75.5		30 - 110					05/01/24 08:46	05/22/24 16:29	1

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# Client Sample Results

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

**Client Sample ID: MW-102**

**Lab Sample ID: 310-279724-2**

Date Collected: 04/23/24 10:44

Matrix: Water

Date Received: 04/24/24 16:30

**Method: TAL-STL Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.729		0.410	0.414	5.00	0.592	pCi/L		05/28/24 09:39	1

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# Client Sample Results

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

**Client Sample ID: MW-103**

**Lab Sample ID: 310-279724-3**

Date Collected: 04/23/24 11:32

Matrix: Water

Date Received: 04/24/24 16:30

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>32.7</b>		5.00		mg/L			04/29/24 18:10	5
Fluoride	<1.00	*+	1.00		mg/L			04/29/24 18:10	5
<b>Sulfate</b>	<b>68.9</b>		5.00		mg/L			04/29/24 18:10	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		04/26/24 09:00	04/29/24 17:45	1
Arsenic	<0.00200		0.00200		mg/L		04/26/24 09:00	04/29/24 17:45	1
<b>Barium</b>	<b>0.132</b>		0.00200		mg/L		04/26/24 09:00	04/29/24 17:45	1
Beryllium	<0.00100		0.00100		mg/L		04/26/24 09:00	04/29/24 17:45	1
Boron	<0.100		0.100		mg/L		04/26/24 09:00	04/29/24 17:45	1
Cadmium	<0.000200		0.000200		mg/L		04/26/24 09:00	04/29/24 17:45	1
<b>Calcium</b>	<b>104</b>		0.500		mg/L		04/26/24 09:00	04/29/24 17:45	1
Chromium	<0.00500		0.00500		mg/L		04/26/24 09:00	04/29/24 17:45	1
Cobalt	<0.000500		0.000500		mg/L		04/26/24 09:00	04/29/24 17:45	1
Lead	<0.000500		0.000500		mg/L		04/26/24 09:00	04/29/24 17:45	1
<b>Lithium</b>	<b>0.0133</b>		0.0100		mg/L		04/26/24 09:00	04/29/24 17:45	1
Molybdenum	<0.00200		0.00200		mg/L		04/26/24 09:00	04/29/24 17:45	1
Selenium	<0.00500		0.00500		mg/L		04/26/24 09:00	04/29/24 17:45	1
Thallium	<0.00100		0.00100		mg/L		04/26/24 09:00	04/29/24 17:45	1

**Method: SW846 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		04/30/24 12:01	05/02/24 14:42	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids (SM 2540C)</b>	<b>376</b>		50.0		mg/L			04/26/24 18:00	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>pH (SM 4500 H+ B)</b>	<b>7.3</b>	<b>HF</b>	1.0		SU			04/24/24 20:21	1

**Method: SW846 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Radium-226	0.0178	U	0.0981	0.0981	1.00	0.197	pCi/L	05/01/24 08:42	05/23/24 22:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.7		30 - 110					05/01/24 08:42	05/23/24 22:47	1

**Method: SW846 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Radium-228	0.425	U	0.319	0.321	1.00	0.482	pCi/L	05/01/24 08:46	05/22/24 16:29	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.7		30 - 110					05/01/24 08:46	05/22/24 16:29	1
Y Carrier	78.5		30 - 110					05/01/24 08:46	05/22/24 16:29	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

**Client Sample ID: MW-103**  
**Date Collected: 04/23/24 11:32**  
**Date Received: 04/24/24 16:30**

**Lab Sample ID: 310-279724-3**  
**Matrix: Water**

**Method: TAL-STL Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.442	U	0.334	0.336	5.00	0.482	pCi/L		05/28/24 09:39	1

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# Client Sample Results

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

**Client Sample ID: MW-104**

**Lab Sample ID: 310-279724-4**

Date Collected: 04/23/24 12:20

Matrix: Water

Date Received: 04/24/24 16:30

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	24.9		5.00		mg/L			04/29/24 18:22	5
Fluoride	<1.00	*+	1.00		mg/L			04/29/24 18:22	5
Sulfate	63.9		5.00		mg/L			04/29/24 18:22	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		04/26/24 09:00	04/29/24 17:47	1
Arsenic	<0.00200		0.00200		mg/L		04/26/24 09:00	04/29/24 17:47	1
Barium	0.0606		0.00200		mg/L		04/26/24 09:00	04/29/24 17:47	1
Beryllium	<0.00100		0.00100		mg/L		04/26/24 09:00	04/29/24 17:47	1
Boron	<0.100		0.100		mg/L		04/26/24 09:00	04/29/24 17:47	1
Cadmium	<0.000200		0.000200		mg/L		04/26/24 09:00	04/29/24 17:47	1
Calcium	111		0.500		mg/L		04/26/24 09:00	04/29/24 17:47	1
Chromium	<0.00500		0.00500		mg/L		04/26/24 09:00	04/29/24 17:47	1
Cobalt	<0.000500		0.000500		mg/L		04/26/24 09:00	04/29/24 17:47	1
Lead	<0.000500		0.000500		mg/L		04/26/24 09:00	04/29/24 17:47	1
Lithium	0.0102		0.0100		mg/L		04/26/24 09:00	04/29/24 17:47	1
Molybdenum	0.0249		0.00200		mg/L		04/26/24 09:00	04/29/24 17:47	1
Selenium	0.00559		0.00500		mg/L		04/26/24 09:00	04/29/24 17:47	1
Thallium	<0.00100		0.00100		mg/L		04/26/24 09:00	04/29/24 17:47	1

**Method: SW846 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		04/30/24 12:01	05/02/24 14:45	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	364		50.0		mg/L			04/26/24 18:00	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.2	HF	1.0		SU			04/24/24 20:22	1

**Method: SW846 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.225		0.142	0.144	1.00	0.180	pCi/L	05/01/24 08:42	05/23/24 22:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.9		30 - 110					05/01/24 08:42	05/23/24 22:47	1

**Method: SW846 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.550		0.355	0.358	1.00	0.521	pCi/L	05/01/24 08:46	05/22/24 16:29	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.9		30 - 110					05/01/24 08:46	05/22/24 16:29	1
Y Carrier	79.3		30 - 110					05/01/24 08:46	05/22/24 16:29	1

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# Client Sample Results

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

**Client Sample ID: MW-104**

**Lab Sample ID: 310-279724-4**

Date Collected: 04/23/24 12:20

Matrix: Water

Date Received: 04/24/24 16:30

**Method: TAL-STL Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.775		0.382	0.386	5.00	0.521	pCi/L		05/28/24 09:39	1

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# Client Sample Results

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

**Client Sample ID: MW-105**

**Lab Sample ID: 310-279724-5**

Date Collected: 04/23/24 13:03

Matrix: Water

Date Received: 04/24/24 16:30

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>223</b>		5.00		mg/L			04/29/24 18:35	5
Fluoride	<1.00	*+	1.00		mg/L			04/29/24 18:35	5
<b>Sulfate</b>	<b>544</b>		20.0		mg/L			05/03/24 01:49	20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		04/26/24 09:00	04/29/24 17:49	1
<b>Arsenic</b>	<b>0.00277</b>		0.00200		mg/L		04/26/24 09:00	04/29/24 17:49	1
<b>Barium</b>	<b>0.0411</b>		0.00200		mg/L		04/26/24 09:00	04/29/24 17:49	1
Beryllium	<0.00100		0.00100		mg/L		04/26/24 09:00	04/29/24 17:49	1
<b>Boron</b>	<b>0.731</b>		0.100		mg/L		04/26/24 09:00	04/29/24 17:49	1
Cadmium	<0.000200		0.000200		mg/L		04/26/24 09:00	04/29/24 17:49	1
<b>Calcium</b>	<b>196</b>		0.500		mg/L		04/26/24 09:00	04/29/24 17:49	1
Chromium	<0.00500		0.00500		mg/L		04/26/24 09:00	04/29/24 17:49	1
<b>Cobalt</b>	<b>0.000535</b>		0.000500		mg/L		04/26/24 09:00	04/29/24 17:49	1
Lead	<0.000500		0.000500		mg/L		04/26/24 09:00	04/29/24 17:49	1
<b>Lithium</b>	<b>0.0342</b>		0.0100		mg/L		04/26/24 09:00	04/29/24 17:49	1
<b>Molybdenum</b>	<b>0.0483</b>		0.00200		mg/L		04/26/24 09:00	04/29/24 17:49	1
Selenium	<0.00500		0.00500		mg/L		04/26/24 09:00	04/29/24 17:49	1
Thallium	<0.00100		0.00100		mg/L		04/26/24 09:00	04/29/24 17:49	1

**Method: SW846 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		04/30/24 12:01	05/02/24 14:47	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids (SM 2540C)</b>	<b>1230</b>		50.0		mg/L			04/26/24 18:00	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>pH (SM 4500 H+ B)</b>	<b>7.6</b>	<b>HF</b>	1.0		SU			04/24/24 20:23	1

**Method: SW846 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Radium-226	0.142	U	0.135	0.136	1.00	0.208	pCi/L	05/01/24 08:42	05/23/24 22:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.5		30 - 110					05/01/24 08:42	05/23/24 22:48	1

**Method: SW846 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
<b>Radium-228</b>	<b>0.711</b>		0.366	0.372	1.00	0.507	pCi/L	05/01/24 08:46	05/22/24 16:29	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.5		30 - 110					05/01/24 08:46	05/22/24 16:29	1
Y Carrier	76.3		30 - 110					05/01/24 08:46	05/22/24 16:29	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

**Client Sample ID: MW-105**  
 Date Collected: 04/23/24 13:03  
 Date Received: 04/24/24 16:30

**Lab Sample ID: 310-279724-5**  
 Matrix: Water

**Method: TAL-STL Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.854		0.390	0.396	5.00	0.507	pCi/L		05/28/24 09:39	1

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# Client Sample Results

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

**Client Sample ID: MW-106**

**Lab Sample ID: 310-279724-6**

Date Collected: 04/23/24 13:51

Matrix: Water

Date Received: 04/24/24 16:30

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	559		20.0		mg/L			04/30/24 09:27	20
Fluoride	1.35		1.00		mg/L			05/03/24 02:01	5
Sulfate	93.2		5.00		mg/L			04/29/24 19:11	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		04/26/24 09:00	04/29/24 17:52	1
Arsenic	0.0178		0.00200		mg/L		04/26/24 09:00	04/29/24 17:52	1
Barium	0.0780		0.00200		mg/L		04/26/24 09:00	04/29/24 17:52	1
Beryllium	<0.00100		0.00100		mg/L		04/26/24 09:00	04/29/24 17:52	1
Boron	0.396		0.100		mg/L		04/26/24 09:00	04/29/24 17:52	1
Cadmium	<0.000200		0.000200		mg/L		04/26/24 09:00	04/29/24 17:52	1
Calcium	139		0.500		mg/L		04/26/24 09:00	04/29/24 17:52	1
Chromium	<0.00500		0.00500		mg/L		04/26/24 09:00	04/29/24 17:52	1
Cobalt	0.0118		0.000500		mg/L		04/26/24 09:00	04/29/24 17:52	1
Lead	0.00140		0.000500		mg/L		04/26/24 09:00	04/29/24 17:52	1
Lithium	0.0184		0.0100		mg/L		04/26/24 09:00	04/29/24 17:52	1
Molybdenum	0.0994		0.00200		mg/L		04/26/24 09:00	04/29/24 17:52	1
Selenium	<0.00500		0.00500		mg/L		04/26/24 09:00	04/29/24 17:52	1
Thallium	<0.00100		0.00100		mg/L		04/26/24 09:00	04/29/24 17:52	1

**Method: SW846 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		04/30/24 12:01	05/02/24 14:49	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	900		250		mg/L			04/26/24 18:00	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.2	HF	1.0		SU			04/24/24 20:24	1

**Method: SW846 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.310		0.160	0.163	1.00	0.176	pCi/L	05/01/24 08:42	05/23/24 22:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.4		30 - 110					05/01/24 08:42	05/23/24 22:48	1

**Method: SW846 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.18		0.451	0.464	1.00	0.570	pCi/L	05/01/24 08:46	05/22/24 16:29	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.4		30 - 110					05/01/24 08:46	05/22/24 16:29	1
Y Carrier	79.3		30 - 110					05/01/24 08:46	05/22/24 16:29	1

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# Client Sample Results

Client: SCS Engineers  
Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

**Client Sample ID: MW-106**

**Lab Sample ID: 310-279724-6**

Date Collected: 04/23/24 13:51

Matrix: Water

Date Received: 04/24/24 16:30

**Method: TAL-STL Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.49		0.479	0.492	5.00	0.570	pCi/L		05/28/24 09:39	1

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# Client Sample Results

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

**Client Sample ID: MW-107**

**Lab Sample ID: 310-279724-7**

Date Collected: 04/23/24 14:31

Matrix: Water

Date Received: 04/24/24 16:30

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	218		5.00		mg/L			04/29/24 19:23	5
Fluoride	<1.00	*+	1.00		mg/L			04/29/24 19:23	5
Sulfate	293		5.00		mg/L			04/29/24 19:23	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		04/26/24 09:00	04/29/24 17:54	1
Arsenic	<0.00200		0.00200		mg/L		04/26/24 09:00	04/29/24 17:54	1
Barium	0.0629		0.00200		mg/L		04/26/24 09:00	04/29/24 17:54	1
Beryllium	<0.00100		0.00100		mg/L		04/26/24 09:00	04/29/24 17:54	1
Boron	0.262		0.100		mg/L		04/26/24 09:00	04/29/24 17:54	1
Cadmium	0.000984		0.000200		mg/L		04/26/24 09:00	04/29/24 17:54	1
Calcium	192		0.500		mg/L		04/26/24 09:00	04/29/24 17:54	1
Chromium	<0.00500		0.00500		mg/L		04/26/24 09:00	04/29/24 17:54	1
Cobalt	0.0161		0.000500		mg/L		04/26/24 09:00	04/29/24 17:54	1
Lead	0.00172		0.000500		mg/L		04/26/24 09:00	04/29/24 17:54	1
Lithium	0.0228		0.0100		mg/L		04/26/24 09:00	04/29/24 17:54	1
Molybdenum	0.0117		0.00200		mg/L		04/26/24 09:00	04/29/24 17:54	1
Selenium	<0.00500		0.00500		mg/L		04/26/24 09:00	04/29/24 17:54	1
Thallium	<0.00100		0.00100		mg/L		04/26/24 09:00	04/29/24 17:54	1

**Method: SW846 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		04/30/24 12:01	05/02/24 14:51	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	800		250		mg/L			04/26/24 18:00	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	6.9	HF	1.0		SU			04/24/24 20:25	1

**Method: SW846 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Radium-226	0.0641	U	0.0875	0.0877	1.00	0.147	pCi/L	05/01/24 08:42	05/23/24 22:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.5		30 - 110					05/01/24 08:42	05/23/24 22:48	1

**Method: SW846 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Radium-228	0.778		0.368	0.375	1.00	0.493	pCi/L	05/01/24 08:46	05/22/24 16:29	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.5		30 - 110					05/01/24 08:46	05/22/24 16:29	1
Y Carrier	77.4		30 - 110					05/01/24 08:46	05/22/24 16:29	1

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# Client Sample Results

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

**Client Sample ID: MW-107**  
**Date Collected: 04/23/24 14:31**  
**Date Received: 04/24/24 16:30**

**Lab Sample ID: 310-279724-7**  
**Matrix: Water**

**Method: TAL-STL Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.842		0.378	0.385	5.00	0.493	pCi/L		05/28/24 09:39	1

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# Client Sample Results

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

**Client Sample ID: MW-108**

**Lab Sample ID: 310-279724-8**

Date Collected: 04/23/24 15:17

Matrix: Water

Date Received: 04/24/24 16:30

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>75.2</b>		5.00		mg/L			04/29/24 19:35	5
Fluoride	<1.00	*+	1.00		mg/L			04/29/24 19:35	5
<b>Sulfate</b>	<b>80.2</b>		5.00		mg/L			04/29/24 19:35	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		04/26/24 09:00	04/29/24 18:05	1
Arsenic	<0.00200		0.00200		mg/L		04/26/24 09:00	04/29/24 18:05	1
<b>Barium</b>	<b>0.0585</b>		0.00200		mg/L		04/26/24 09:00	04/29/24 18:05	1
Beryllium	<0.00100		0.00100		mg/L		04/26/24 09:00	04/29/24 18:05	1
Boron	<0.100		0.100		mg/L		04/26/24 09:00	04/29/24 18:05	1
Cadmium	<0.000200		0.000200		mg/L		04/26/24 09:00	04/29/24 18:05	1
<b>Calcium</b>	<b>68.3</b>		0.500		mg/L		04/26/24 09:00	04/29/24 18:05	1
Chromium	<0.00500		0.00500		mg/L		04/26/24 09:00	04/29/24 18:05	1
Cobalt	<0.000500		0.000500		mg/L		04/26/24 09:00	04/29/24 18:05	1
Lead	<0.000500		0.000500		mg/L		04/26/24 09:00	04/29/24 18:05	1
<b>Lithium</b>	<b>0.0305</b>		0.0100		mg/L		04/26/24 09:00	04/29/24 18:05	1
Molybdenum	<0.00200		0.00200		mg/L		04/26/24 09:00	04/29/24 18:05	1
Selenium	<0.00500		0.00500		mg/L		04/26/24 09:00	04/29/24 18:05	1
Thallium	<0.00100		0.00100		mg/L		04/26/24 09:00	04/29/24 18:05	1

**Method: SW846 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		04/30/24 12:01	05/02/24 14:58	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids (SM 2540C)</b>	<b>384</b>		50.0		mg/L			04/26/24 18:00	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>pH (SM 4500 H+ B)</b>	<b>7.7</b>	<b>HF</b>	1.0		SU			04/24/24 20:26	1

**Method: SW846 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
<b>Radium-226</b>	<b>0.243</b>		0.154	0.156	1.00	0.201	pCi/L	05/01/24 08:42	05/23/24 22:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
<i>Ba Carrier</i>	92.1		30 - 110					05/01/24 08:42	05/23/24 22:48	1

**Method: SW846 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.351	U	0.325	0.327	1.00	0.515	pCi/L	05/01/24 08:46	05/22/24 16:29	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
<i>Ba Carrier</i>	92.1		30 - 110					05/01/24 08:46	05/22/24 16:29	1
<i>Y Carrier</i>	77.8		30 - 110					05/01/24 08:46	05/22/24 16:29	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

**Client Sample ID: MW-108**

**Lab Sample ID: 310-279724-8**

Date Collected: 04/23/24 15:17

Matrix: Water

Date Received: 04/24/24 16:30

**Method: TAL-STL Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.594		0.360	0.362	5.00	0.515	pCi/L		05/28/24 09:39	1

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# Client Sample Results

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

**Client Sample ID: DUP-1**  
 Date Collected: 04/23/24 15:17  
 Date Received: 04/24/24 16:30

**Lab Sample ID: 310-279724-9**  
 Matrix: Water

**Method: SW846 9056A - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	74.2		5.00		mg/L			04/29/24 19:47	5
Fluoride	<1.00	*+	1.00		mg/L			04/29/24 19:47	5
Sulfate	76.8		5.00		mg/L			04/29/24 19:47	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		04/26/24 09:00	04/29/24 18:09	1
Arsenic	<0.00200		0.00200		mg/L		04/26/24 09:00	04/29/24 18:09	1
Barium	0.0596		0.00200		mg/L		04/26/24 09:00	04/29/24 18:09	1
Beryllium	<0.00100		0.00100		mg/L		04/26/24 09:00	04/29/24 18:09	1
Boron	<0.100		0.100		mg/L		04/26/24 09:00	04/29/24 18:09	1
Cadmium	<0.000200		0.000200		mg/L		04/26/24 09:00	04/29/24 18:09	1
Calcium	69.9		0.500		mg/L		04/26/24 09:00	04/29/24 18:09	1
Chromium	<0.00500		0.00500		mg/L		04/26/24 09:00	04/29/24 18:09	1
Cobalt	<0.000500		0.000500		mg/L		04/26/24 09:00	04/29/24 18:09	1
Lead	<0.000500		0.000500		mg/L		04/26/24 09:00	04/29/24 18:09	1
Lithium	0.0305		0.0100		mg/L		04/26/24 09:00	04/29/24 18:09	1
Molybdenum	0.00211		0.00200		mg/L		04/26/24 09:00	04/29/24 18:09	1
Selenium	<0.00500		0.00500		mg/L		04/26/24 09:00	04/29/24 18:09	1
Thallium	<0.00100		0.00100		mg/L		04/26/24 09:00	04/29/24 18:09	1

**Method: SW846 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		04/30/24 12:01	05/02/24 15:00	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	830		250		mg/L			04/26/24 18:00	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	7.7	HF	1.0		SU			04/24/24 20:27	1

**Method: SW846 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.240	U	0.176	0.178	1.00	0.252	pCi/L	05/01/24 08:42	05/23/24 22:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	84.5		30 - 110					05/01/24 08:42	05/23/24 22:48	1

**Method: SW846 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.787		0.429	0.435	1.00	0.602	pCi/L	05/01/24 08:46	05/22/24 16:30	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	84.5		30 - 110					05/01/24 08:46	05/22/24 16:30	1
Y Carrier	75.5		30 - 110					05/01/24 08:46	05/22/24 16:30	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

**Client Sample ID: DUP-1**

**Lab Sample ID: 310-279724-9**

Date Collected: 04/23/24 15:17

Matrix: Water

Date Received: 04/24/24 16:30

**Method: TAL-STL Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.03		0.464	0.470	5.00	0.602	pCi/L		05/28/24 09:39	1

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# Definitions/Glossary

Client: SCS Engineers  
Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

## Qualifiers

### HPLC/IC

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.

### General Chemistry

Qualifier	Qualifier Description
HF	Parameter with a holding time of 15 minutes. Test performed by laboratory at client's request. Sample was analyzed outside of hold time.

### Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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

# QC Sample Results

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

## Method: 9056A - Anions, Ion Chromatography

**Lab Sample ID: MB 310-420250/3**  
**Matrix: Water**  
**Analysis Batch: 420250**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			04/29/24 17:22	1
Fluoride	<0.200		0.200		mg/L			04/29/24 17:22	1
Sulfate	<1.00		1.00		mg/L			04/29/24 17:22	1

**Lab Sample ID: LCS 310-420250/4**  
**Matrix: Water**  
**Analysis Batch: 420250**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	10.60		mg/L		106	90 - 110
Fluoride	2.00	2.240	*+	mg/L		112	90 - 110
Sulfate	10.0	10.94		mg/L		109	90 - 110

**Lab Sample ID: MB 310-420631/3**  
**Matrix: Water**  
**Analysis Batch: 420631**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			05/02/24 12:40	1
Fluoride	<0.200		0.200		mg/L			05/02/24 12:40	1
Sulfate	<1.00		1.00		mg/L			05/02/24 12:40	1

**Lab Sample ID: LCS 310-420631/17**  
**Matrix: Water**  
**Analysis Batch: 420631**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	10.18		mg/L		102	90 - 110
Fluoride	2.00	2.129		mg/L		106	90 - 110
Sulfate	10.0	10.11		mg/L		101	90 - 110

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

**Lab Sample ID: MB 310-419898/1-A**  
**Matrix: Water**  
**Analysis Batch: 420191**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 419898**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		04/26/24 09:00	04/29/24 17:13	1
Arsenic	<0.00200		0.00200		mg/L		04/26/24 09:00	04/29/24 17:13	1
Barium	<0.00200		0.00200		mg/L		04/26/24 09:00	04/29/24 17:13	1
Beryllium	<0.00100		0.00100		mg/L		04/26/24 09:00	04/29/24 17:13	1
Boron	<0.100		0.100		mg/L		04/26/24 09:00	04/29/24 17:13	1
Cadmium	<0.000200		0.000200		mg/L		04/26/24 09:00	04/29/24 17:13	1
Calcium	<0.500		0.500		mg/L		04/26/24 09:00	04/29/24 17:13	1
Chromium	<0.00500		0.00500		mg/L		04/26/24 09:00	04/29/24 17:13	1
Cobalt	<0.000500		0.000500		mg/L		04/26/24 09:00	04/29/24 17:13	1
Lead	<0.000500		0.000500		mg/L		04/26/24 09:00	04/29/24 17:13	1
Lithium	<0.0100		0.0100		mg/L		04/26/24 09:00	04/29/24 17:13	1
Molybdenum	<0.00200		0.00200		mg/L		04/26/24 09:00	04/29/24 17:13	1

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# QC Sample Results

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

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

**Lab Sample ID: MB 310-419898/1-A**  
**Matrix: Water**  
**Analysis Batch: 420191**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 419898**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	<0.00500		0.00500		mg/L		04/26/24 09:00	04/29/24 17:13	1
Thallium	<0.00100		0.00100		mg/L		04/26/24 09:00	04/29/24 17:13	1

**Lab Sample ID: LCS 310-419898/2-A**  
**Matrix: Water**  
**Analysis Batch: 420191**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 419898**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.200	0.2120		mg/L		106	80 - 120
Arsenic	0.200	0.2093		mg/L		105	80 - 120
Barium	0.100	0.1049		mg/L		105	80 - 120
Beryllium	0.100	0.1019		mg/L		102	80 - 120
Boron	0.200	0.2007		mg/L		100	80 - 120
Cadmium	0.100	0.09902		mg/L		99	80 - 120
Calcium	2.00	1.859		mg/L		93	80 - 120
Chromium	0.100	0.09787		mg/L		98	80 - 120
Cobalt	0.100	0.1124		mg/L		112	80 - 120
Lead	0.200	0.2139		mg/L		107	80 - 120
Lithium	0.200	0.2150		mg/L		107	80 - 120
Molybdenum	0.200	0.1984		mg/L		99	80 - 120
Selenium	0.400	0.4009		mg/L		100	80 - 120
Thallium	0.100	0.1099		mg/L		110	80 - 120

**Lab Sample ID: 310-279724-8 DU**  
**Matrix: Water**  
**Analysis Batch: 420191**

**Client Sample ID: MW-108**  
**Prep Type: Total/NA**  
**Prep Batch: 419898**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Antimony	<0.00200		<0.00200		mg/L		NC	20
Arsenic	<0.00200		<0.00200		mg/L		NC	20
Barium	0.0585		0.06004		mg/L		3	20
Beryllium	<0.00100		<0.00100		mg/L		NC	20
Boron	<0.100		<0.100		mg/L		NC	20
Cadmium	<0.000200		<0.000200		mg/L		NC	20
Calcium	68.3		69.16		mg/L		1	20
Chromium	<0.00500		<0.00500		mg/L		NC	20
Cobalt	<0.000500		<0.000500		mg/L		NC	20
Lead	<0.000500		<0.000500		mg/L		NC	20
Lithium	0.0305		0.03078		mg/L		0.8	20
Molybdenum	<0.00200		0.002343		mg/L		NC	20
Selenium	<0.00500		<0.00500		mg/L		NC	20
Thallium	<0.00100		<0.00100		mg/L		NC	20

# QC Sample Results

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

## Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-420241/1-A  
 Matrix: Water  
 Analysis Batch: 420548

Client Sample ID: Method Blank  
 Prep Type: Total/NA  
 Prep Batch: 420241

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		04/30/24 12:01	05/02/24 13:57	1

Lab Sample ID: LCS 310-420241/2-A  
 Matrix: Water  
 Analysis Batch: 420548

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA  
 Prep Batch: 420241

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00167	0.001687		mg/L		101	80 - 120

## Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 310-420028/1  
 Matrix: Water  
 Analysis Batch: 420028

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<50.0		50.0		mg/L			04/26/24 18:00	1

Lab Sample ID: LCS 310-420028/2  
 Matrix: Water  
 Analysis Batch: 420028

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	904.0		mg/L		90	90 - 110

Lab Sample ID: 310-279724-1 DU  
 Matrix: Water  
 Analysis Batch: 420028

Client Sample ID: MW-101  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	384		368.0		mg/L		4	20

## Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-419784/1  
 Matrix: Water  
 Analysis Batch: 419784

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH	7.00	7.0		SU		100	98 - 102

Lab Sample ID: 310-279724-1 DU  
 Matrix: Water  
 Analysis Batch: 419784

Client Sample ID: MW-101  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.2	HF	7.2		SU		0.4	20



# QC Sample Results

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

## Method: 9315 - Radium-226 (GFPC)

**Lab Sample ID: MB 160-659462/1-A**  
**Matrix: Water**  
**Analysis Batch: 663009**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 659462**

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.2537	U	0.242	0.243	1.00	0.380	pCi/L	05/01/24 08:42	05/23/24 22:55	1
Carrier	MB %Yield	MB Qualifier	Limits				Prepared		Analyzed	Dil Fac
Ba Carrier	65.0		30 - 110				05/01/24 08:42		05/23/24 22:55	1

**Lab Sample ID: LCS 160-659462/2-A**  
**Matrix: Water**  
**Analysis Batch: 663009**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 659462**

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium-226	11.3	9.874		1.18	1.00	0.196	pCi/L	87	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	93.1		30 - 110						

## Method: 9320 - Radium-228 (GFPC)

**Lab Sample ID: MB 160-659463/1-A**  
**Matrix: Water**  
**Analysis Batch: 662786**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 659463**

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	0.006477	U	0.419	0.419	1.00	0.784	pCi/L	05/01/24 08:46	05/22/24 16:25	1
Carrier	MB %Yield	MB Qualifier	Limits				Prepared		Analyzed	Dil Fac
Ba Carrier	65.0		30 - 110				05/01/24 08:46		05/22/24 16:25	1
Y Carrier	79.3		30 - 110				05/01/24 08:46		05/22/24 16:25	1

**Lab Sample ID: LCS 160-659463/2-A**  
**Matrix: Water**  
**Analysis Batch: 662786**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 659463**

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium-228	8.92	10.59		1.40	1.00	0.482	pCi/L	119	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	93.1		30 - 110						
Y Carrier	79.6		30 - 110						

# QC Association Summary

Client: SCS Engineers  
Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

## HPLC/IC

### Analysis Batch: 420250

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279724-1	MW-101	Total/NA	Water	9056A	
310-279724-2	MW-102	Total/NA	Water	9056A	
310-279724-3	MW-103	Total/NA	Water	9056A	
310-279724-4	MW-104	Total/NA	Water	9056A	
310-279724-5	MW-105	Total/NA	Water	9056A	
310-279724-6	MW-106	Total/NA	Water	9056A	
310-279724-6	MW-106	Total/NA	Water	9056A	
310-279724-7	MW-107	Total/NA	Water	9056A	
310-279724-8	MW-108	Total/NA	Water	9056A	
310-279724-9	DUP-1	Total/NA	Water	9056A	
MB 310-420250/3	Method Blank	Total/NA	Water	9056A	
LCS 310-420250/4	Lab Control Sample	Total/NA	Water	9056A	

### Analysis Batch: 420631

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279724-5	MW-105	Total/NA	Water	9056A	
310-279724-6	MW-106	Total/NA	Water	9056A	
MB 310-420631/3	Method Blank	Total/NA	Water	9056A	
LCS 310-420631/17	Lab Control Sample	Total/NA	Water	9056A	

## Metals

### Prep Batch: 419898

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279724-1	MW-101	Total/NA	Water	3005A	
310-279724-2	MW-102	Total/NA	Water	3005A	
310-279724-3	MW-103	Total/NA	Water	3005A	
310-279724-4	MW-104	Total/NA	Water	3005A	
310-279724-5	MW-105	Total/NA	Water	3005A	
310-279724-6	MW-106	Total/NA	Water	3005A	
310-279724-7	MW-107	Total/NA	Water	3005A	
310-279724-8	MW-108	Total/NA	Water	3005A	
310-279724-9	DUP-1	Total/NA	Water	3005A	
MB 310-419898/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-419898/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-279724-8 DU	MW-108	Total/NA	Water	3005A	

### Analysis Batch: 420191

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279724-1	MW-101	Total/NA	Water	6020B	419898
310-279724-2	MW-102	Total/NA	Water	6020B	419898
310-279724-3	MW-103	Total/NA	Water	6020B	419898
310-279724-4	MW-104	Total/NA	Water	6020B	419898
310-279724-5	MW-105	Total/NA	Water	6020B	419898
310-279724-6	MW-106	Total/NA	Water	6020B	419898
310-279724-7	MW-107	Total/NA	Water	6020B	419898
310-279724-8	MW-108	Total/NA	Water	6020B	419898
310-279724-9	DUP-1	Total/NA	Water	6020B	419898
MB 310-419898/1-A	Method Blank	Total/NA	Water	6020B	419898
LCS 310-419898/2-A	Lab Control Sample	Total/NA	Water	6020B	419898
310-279724-8 DU	MW-108	Total/NA	Water	6020B	419898

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# QC Association Summary

Client: SCS Engineers  
Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

## Metals

### Prep Batch: 420241

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279724-1	MW-101	Total/NA	Water	7470A	
310-279724-2	MW-102	Total/NA	Water	7470A	
310-279724-3	MW-103	Total/NA	Water	7470A	
310-279724-4	MW-104	Total/NA	Water	7470A	
310-279724-5	MW-105	Total/NA	Water	7470A	
310-279724-6	MW-106	Total/NA	Water	7470A	
310-279724-7	MW-107	Total/NA	Water	7470A	
310-279724-8	MW-108	Total/NA	Water	7470A	
310-279724-9	DUP-1	Total/NA	Water	7470A	
MB 310-420241/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-420241/2-A	Lab Control Sample	Total/NA	Water	7470A	

### Analysis Batch: 420548

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279724-1	MW-101	Total/NA	Water	7470A	420241
310-279724-2	MW-102	Total/NA	Water	7470A	420241
310-279724-3	MW-103	Total/NA	Water	7470A	420241
310-279724-4	MW-104	Total/NA	Water	7470A	420241
310-279724-5	MW-105	Total/NA	Water	7470A	420241
310-279724-6	MW-106	Total/NA	Water	7470A	420241
310-279724-7	MW-107	Total/NA	Water	7470A	420241
310-279724-8	MW-108	Total/NA	Water	7470A	420241
310-279724-9	DUP-1	Total/NA	Water	7470A	420241
MB 310-420241/1-A	Method Blank	Total/NA	Water	7470A	420241
LCS 310-420241/2-A	Lab Control Sample	Total/NA	Water	7470A	420241

## General Chemistry

### Analysis Batch: 419784

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279724-1	MW-101	Total/NA	Water	SM 4500 H+ B	
310-279724-2	MW-102	Total/NA	Water	SM 4500 H+ B	
310-279724-3	MW-103	Total/NA	Water	SM 4500 H+ B	
310-279724-4	MW-104	Total/NA	Water	SM 4500 H+ B	
310-279724-5	MW-105	Total/NA	Water	SM 4500 H+ B	
310-279724-6	MW-106	Total/NA	Water	SM 4500 H+ B	
310-279724-7	MW-107	Total/NA	Water	SM 4500 H+ B	
310-279724-8	MW-108	Total/NA	Water	SM 4500 H+ B	
310-279724-9	DUP-1	Total/NA	Water	SM 4500 H+ B	
LCS 310-419784/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
310-279724-1 DU	MW-101	Total/NA	Water	SM 4500 H+ B	

### Analysis Batch: 420028

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279724-1	MW-101	Total/NA	Water	SM 2540C	
310-279724-2	MW-102	Total/NA	Water	SM 2540C	
310-279724-3	MW-103	Total/NA	Water	SM 2540C	
310-279724-4	MW-104	Total/NA	Water	SM 2540C	
310-279724-5	MW-105	Total/NA	Water	SM 2540C	
310-279724-6	MW-106	Total/NA	Water	SM 2540C	
310-279724-7	MW-107	Total/NA	Water	SM 2540C	

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# QC Association Summary

Client: SCS Engineers  
Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

## General Chemistry (Continued)

### Analysis Batch: 420028 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279724-8	MW-108	Total/NA	Water	SM 2540C	
310-279724-9	DUP-1	Total/NA	Water	SM 2540C	
MB 310-420028/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-420028/2	Lab Control Sample	Total/NA	Water	SM 2540C	
310-279724-1 DU	MW-101	Total/NA	Water	SM 2540C	

## Rad

### Prep Batch: 659462

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279724-1	MW-101	Total/NA	Water	PrecSep-21	
310-279724-2	MW-102	Total/NA	Water	PrecSep-21	
310-279724-3	MW-103	Total/NA	Water	PrecSep-21	
310-279724-4	MW-104	Total/NA	Water	PrecSep-21	
310-279724-5	MW-105	Total/NA	Water	PrecSep-21	
310-279724-6	MW-106	Total/NA	Water	PrecSep-21	
310-279724-7	MW-107	Total/NA	Water	PrecSep-21	
310-279724-8	MW-108	Total/NA	Water	PrecSep-21	
310-279724-9	DUP-1	Total/NA	Water	PrecSep-21	
MB 160-659462/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-659462/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

### Prep Batch: 659463

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279724-1	MW-101	Total/NA	Water	PrecSep_0	
310-279724-2	MW-102	Total/NA	Water	PrecSep_0	
310-279724-3	MW-103	Total/NA	Water	PrecSep_0	
310-279724-4	MW-104	Total/NA	Water	PrecSep_0	
310-279724-5	MW-105	Total/NA	Water	PrecSep_0	
310-279724-6	MW-106	Total/NA	Water	PrecSep_0	
310-279724-7	MW-107	Total/NA	Water	PrecSep_0	
310-279724-8	MW-108	Total/NA	Water	PrecSep_0	
310-279724-9	DUP-1	Total/NA	Water	PrecSep_0	
MB 160-659463/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-659463/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

# Lab Chronicle

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

**Client Sample ID: MW-101**  
**Date Collected: 04/23/24 09:41**  
**Date Received: 04/24/24 16:30**

**Lab Sample ID: 310-279724-1**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	420250	QTZ5	EET CF	04/29/24 17:46
Total/NA	Prep	3005A			419898	KM3E	EET CF	04/26/24 09:00
Total/NA	Analysis	6020B		1	420191	NFT2	EET CF	04/29/24 17:41
Total/NA	Prep	7470A			420241	A6US	EET CF	04/30/24 12:01
Total/NA	Analysis	7470A		1	420548	A6US	EET CF	05/02/24 14:38
Total/NA	Analysis	SM 2540C		1	420028	D7CP	EET CF	04/26/24 18:00
Total/NA	Analysis	SM 4500 H+ B		1	419784	D7CP	EET CF	04/24/24 20:18
Total/NA	Prep	PrecSep-21			659462	MLT	EET SL	05/01/24 08:42
Total/NA	Analysis	9315		1	662988	SCB	EET SL	05/23/24 22:47
Total/NA	Prep	PrecSep_0			659463	MLT	EET SL	05/01/24 08:46
Total/NA	Analysis	9320		1	662786	FLC	EET SL	05/22/24 16:28
Total/NA	Analysis	Ra226_Ra228		1	663514	FLC	EET SL	05/28/24 09:39

**Client Sample ID: MW-102**  
**Date Collected: 04/23/24 10:44**  
**Date Received: 04/24/24 16:30**

**Lab Sample ID: 310-279724-2**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	420250	QTZ5	EET CF	04/29/24 17:58
Total/NA	Prep	3005A			419898	KM3E	EET CF	04/26/24 09:00
Total/NA	Analysis	6020B		1	420191	NFT2	EET CF	04/29/24 17:43
Total/NA	Prep	7470A			420241	A6US	EET CF	04/30/24 12:01
Total/NA	Analysis	7470A		1	420548	A6US	EET CF	05/02/24 14:40
Total/NA	Analysis	SM 2540C		1	420028	D7CP	EET CF	04/26/24 18:00
Total/NA	Analysis	SM 4500 H+ B		1	419784	D7CP	EET CF	04/24/24 20:20
Total/NA	Prep	PrecSep-21			659462	MLT	EET SL	05/01/24 08:42
Total/NA	Analysis	9315		1	662988	SCB	EET SL	05/23/24 22:47
Total/NA	Prep	PrecSep_0			659463	MLT	EET SL	05/01/24 08:46
Total/NA	Analysis	9320		1	662786	FLC	EET SL	05/22/24 16:29
Total/NA	Analysis	Ra226_Ra228		1	663514	FLC	EET SL	05/28/24 09:39

**Client Sample ID: MW-103**  
**Date Collected: 04/23/24 11:32**  
**Date Received: 04/24/24 16:30**

**Lab Sample ID: 310-279724-3**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	420250	QTZ5	EET CF	04/29/24 18:10
Total/NA	Prep	3005A			419898	KM3E	EET CF	04/26/24 09:00
Total/NA	Analysis	6020B		1	420191	NFT2	EET CF	04/29/24 17:45
Total/NA	Prep	7470A			420241	A6US	EET CF	04/30/24 12:01
Total/NA	Analysis	7470A		1	420548	A6US	EET CF	05/02/24 14:42
Total/NA	Analysis	SM 2540C		1	420028	D7CP	EET CF	04/26/24 18:00
Total/NA	Analysis	SM 4500 H+ B		1	419784	D7CP	EET CF	04/24/24 20:21

# Lab Chronicle

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

## Client Sample ID: MW-103

## Lab Sample ID: 310-279724-3

Date Collected: 04/23/24 11:32

Matrix: Water

Date Received: 04/24/24 16:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	PrecSep-21			659462	MLT	EET SL	05/01/24 08:42
Total/NA	Analysis	9315		1	662988	SCB	EET SL	05/23/24 22:47
Total/NA	Prep	PrecSep_0			659463	MLT	EET SL	05/01/24 08:46
Total/NA	Analysis	9320		1	662786	FLC	EET SL	05/22/24 16:29
Total/NA	Analysis	Ra226_Ra228		1	663514	FLC	EET SL	05/28/24 09:39

## Client Sample ID: MW-104

## Lab Sample ID: 310-279724-4

Date Collected: 04/23/24 12:20

Matrix: Water

Date Received: 04/24/24 16:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	420250	QTZ5	EET CF	04/29/24 18:22
Total/NA	Prep	3005A			419898	KM3E	EET CF	04/26/24 09:00
Total/NA	Analysis	6020B		1	420191	NFT2	EET CF	04/29/24 17:47
Total/NA	Prep	7470A			420241	A6US	EET CF	04/30/24 12:01
Total/NA	Analysis	7470A		1	420548	A6US	EET CF	05/02/24 14:45
Total/NA	Analysis	SM 2540C		1	420028	D7CP	EET CF	04/26/24 18:00
Total/NA	Analysis	SM 4500 H+ B		1	419784	D7CP	EET CF	04/24/24 20:22
Total/NA	Prep	PrecSep-21			659462	MLT	EET SL	05/01/24 08:42
Total/NA	Analysis	9315		1	662988	SCB	EET SL	05/23/24 22:47
Total/NA	Prep	PrecSep_0			659463	MLT	EET SL	05/01/24 08:46
Total/NA	Analysis	9320		1	662786	FLC	EET SL	05/22/24 16:29
Total/NA	Analysis	Ra226_Ra228		1	663514	FLC	EET SL	05/28/24 09:39

## Client Sample ID: MW-105

## Lab Sample ID: 310-279724-5

Date Collected: 04/23/24 13:03

Matrix: Water

Date Received: 04/24/24 16:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	420250	QTZ5	EET CF	04/29/24 18:35
Total/NA	Analysis	9056A		20	420631	QTZ5	EET CF	05/03/24 01:49
Total/NA	Prep	3005A			419898	KM3E	EET CF	04/26/24 09:00
Total/NA	Analysis	6020B		1	420191	NFT2	EET CF	04/29/24 17:49
Total/NA	Prep	7470A			420241	A6US	EET CF	04/30/24 12:01
Total/NA	Analysis	7470A		1	420548	A6US	EET CF	05/02/24 14:47
Total/NA	Analysis	SM 2540C		1	420028	D7CP	EET CF	04/26/24 18:00
Total/NA	Analysis	SM 4500 H+ B		1	419784	D7CP	EET CF	04/24/24 20:23
Total/NA	Prep	PrecSep-21			659462	MLT	EET SL	05/01/24 08:42
Total/NA	Analysis	9315		1	662988	SCB	EET SL	05/23/24 22:48
Total/NA	Prep	PrecSep_0			659463	MLT	EET SL	05/01/24 08:46
Total/NA	Analysis	9320		1	662786	FLC	EET SL	05/22/24 16:29
Total/NA	Analysis	Ra226_Ra228		1	663514	FLC	EET SL	05/28/24 09:39

# Lab Chronicle

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

**Client Sample ID: MW-106**  
**Date Collected: 04/23/24 13:51**  
**Date Received: 04/24/24 16:30**

**Lab Sample ID: 310-279724-6**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	420250	QTZ5	EET CF	04/29/24 19:11
Total/NA	Analysis	9056A		20	420250	QTZ5	EET CF	04/30/24 09:27
Total/NA	Analysis	9056A		5	420631	QTZ5	EET CF	05/03/24 02:01
Total/NA	Prep	3005A			419898	KM3E	EET CF	04/26/24 09:00
Total/NA	Analysis	6020B		1	420191	NFT2	EET CF	04/29/24 17:52
Total/NA	Prep	7470A			420241	A6US	EET CF	04/30/24 12:01
Total/NA	Analysis	7470A		1	420548	A6US	EET CF	05/02/24 14:49
Total/NA	Analysis	SM 2540C		1	420028	D7CP	EET CF	04/26/24 18:00
Total/NA	Analysis	SM 4500 H+ B		1	419784	D7CP	EET CF	04/24/24 20:24
Total/NA	Prep	PrecSep-21			659462	MLT	EET SL	05/01/24 08:42
Total/NA	Analysis	9315		1	662988	SCB	EET SL	05/23/24 22:48
Total/NA	Prep	PrecSep_0			659463	MLT	EET SL	05/01/24 08:46
Total/NA	Analysis	9320		1	662786	FLC	EET SL	05/22/24 16:29
Total/NA	Analysis	Ra226_Ra228		1	663514	FLC	EET SL	05/28/24 09:39

**Client Sample ID: MW-107**  
**Date Collected: 04/23/24 14:31**  
**Date Received: 04/24/24 16:30**

**Lab Sample ID: 310-279724-7**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	420250	QTZ5	EET CF	04/29/24 19:23
Total/NA	Prep	3005A			419898	KM3E	EET CF	04/26/24 09:00
Total/NA	Analysis	6020B		1	420191	NFT2	EET CF	04/29/24 17:54
Total/NA	Prep	7470A			420241	A6US	EET CF	04/30/24 12:01
Total/NA	Analysis	7470A		1	420548	A6US	EET CF	05/02/24 14:51
Total/NA	Analysis	SM 2540C		1	420028	D7CP	EET CF	04/26/24 18:00
Total/NA	Analysis	SM 4500 H+ B		1	419784	D7CP	EET CF	04/24/24 20:25
Total/NA	Prep	PrecSep-21			659462	MLT	EET SL	05/01/24 08:42
Total/NA	Analysis	9315		1	662988	SCB	EET SL	05/23/24 22:48
Total/NA	Prep	PrecSep_0			659463	MLT	EET SL	05/01/24 08:46
Total/NA	Analysis	9320		1	662786	FLC	EET SL	05/22/24 16:29
Total/NA	Analysis	Ra226_Ra228		1	663514	FLC	EET SL	05/28/24 09:39

**Client Sample ID: MW-108**  
**Date Collected: 04/23/24 15:17**  
**Date Received: 04/24/24 16:30**

**Lab Sample ID: 310-279724-8**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	420250	QTZ5	EET CF	04/29/24 19:35
Total/NA	Prep	3005A			419898	KM3E	EET CF	04/26/24 09:00
Total/NA	Analysis	6020B		1	420191	NFT2	EET CF	04/29/24 18:05
Total/NA	Prep	7470A			420241	A6US	EET CF	04/30/24 12:01
Total/NA	Analysis	7470A		1	420548	A6US	EET CF	05/02/24 14:58
Total/NA	Analysis	SM 2540C		1	420028	D7CP	EET CF	04/26/24 18:00

Eurofins Cedar Falls

# Lab Chronicle

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

**Client Sample ID: MW-108**  
**Date Collected: 04/23/24 15:17**  
**Date Received: 04/24/24 16:30**

**Lab Sample ID: 310-279724-8**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	SM 4500 H+ B		1	419784	D7CP	EET CF	04/24/24 20:26
Total/NA	Prep	PrecSep-21			659462	MLT	EET SL	05/01/24 08:42
Total/NA	Analysis	9315		1	662988	SCB	EET SL	05/23/24 22:48
Total/NA	Prep	PrecSep_0			659463	MLT	EET SL	05/01/24 08:46
Total/NA	Analysis	9320		1	662786	FLC	EET SL	05/22/24 16:29
Total/NA	Analysis	Ra226_Ra228		1	663514	FLC	EET SL	05/28/24 09:39

**Client Sample ID: DUP-1**  
**Date Collected: 04/23/24 15:17**  
**Date Received: 04/24/24 16:30**

**Lab Sample ID: 310-279724-9**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	420250	QTZ5	EET CF	04/29/24 19:47
Total/NA	Prep	3005A			419898	KM3E	EET CF	04/26/24 09:00
Total/NA	Analysis	6020B		1	420191	NFT2	EET CF	04/29/24 18:09
Total/NA	Prep	7470A			420241	A6US	EET CF	04/30/24 12:01
Total/NA	Analysis	7470A		1	420548	A6US	EET CF	05/02/24 15:00
Total/NA	Analysis	SM 2540C		1	420028	D7CP	EET CF	04/26/24 18:00
Total/NA	Analysis	SM 4500 H+ B		1	419784	D7CP	EET CF	04/24/24 20:27
Total/NA	Prep	PrecSep-21			659462	MLT	EET SL	05/01/24 08:42
Total/NA	Analysis	9315		1	662988	SCB	EET SL	05/23/24 22:48
Total/NA	Prep	PrecSep_0			659463	MLT	EET SL	05/01/24 08:46
Total/NA	Analysis	9320		1	662786	FLC	EET SL	05/22/24 16:30
Total/NA	Analysis	Ra226_Ra228		1	663514	FLC	EET SL	05/28/24 09:39

**Laboratory References:**

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566



# Accreditation/Certification Summary

Client: SCS Engineers  
 Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

## Laboratory: Eurofins Cedar Falls

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Colorado	Petroleum Storage Tank Program	IA100001 (OR)	09-29-24
Georgia	State	IA100001 (OR)	09-29-24
Illinois	NELAP	200024	11-30-24
Iowa	State	007	12-01-25
Kansas	NELAP	E-10341	01-31-25
Minnesota	NELAP	019-999-319	12-31-24
Minnesota (Petrofund)	State	3349	01-18-26
North Dakota	State	R-186	09-29-24
Oregon	NELAP	IA100001	09-29-24

## Laboratory: Eurofins St. Louis

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	373	12-01-24

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

Analysis Method	Prep Method	Matrix	Analyte
9315	PrecSep-21	Water	Radium-226
9320	PrecSep_0	Water	Radium-228
Ra226_Ra228		Water	Combined Radium 226 + 228

# Method Summary

Client: SCS Engineers  
Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

Method	Method Description	Protocol	Laboratory
9315	Radium-226 (GFPC)	SW846	EET SL
9320	Radium-228 (GFPC)	SW846	EET SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL

#### Protocol References:

None = None

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

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

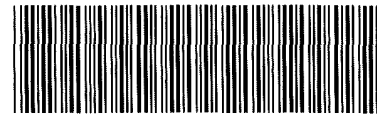
#### Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566





Environment Testing  
America



310-279724 Chain of Custody

### Cooler/Sample Receipt and Temperature Log Form

<b>Client Information</b>			
Client: <u>SCS Engineers</u>			
City/State:	CITY <u>Des Moines</u>	STATE <u>IA</u>	Project:
<b>Receipt Information</b>			
Date/Time Received:	DATE <u>4/24/24</u>	TIME <u>1630</u>	Received By: <u>SB</u>
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
<b>Condition of Cooler/Containers</b>			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID:	
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler # <u>1</u> of <u>2</u>	
Cooler Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
<b>Temperature Record</b>			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID: <u>P</u>		Correction Factor (°C): <u>0</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>1.6</u>		Corrected Temp (°C): <u>1.6</u>	
<b>• Sample Container Temperature</b>			
Container(s) used:	<u>CONTAINER 1</u>	<u>CONTAINER 2</u>	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
<b>Exceptions Noted</b>			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> 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?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE If yes, contact PM before proceeding. If no, proceed with login			
<b>Additional Comments</b>			





Environment Testing  
America

Place COC scanning label  
here

### Cooler/Sample Receipt and Temperature Log Form

<b>Client Information</b>			
Client: <u>SCS Engineers</u>			
City/State:	CITY <u>Des Moines</u>	STATE <u>IA</u>	Project:
<b>Receipt Information</b>			
Date/Time Received:	DATE <u>4/24/24</u>	TIME <u>1630</u>	Received By: <u>878</u>
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
<b>Condition of Cooler/Containers</b>			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID:	
Multiple Coolers?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler # <u>2</u> of <u>2</u>	
Cooler Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
<b>Temperature Record</b>			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID: <u>P</u>		Correction Factor (°C): <u>0</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>3.7</u>		Corrected Temp (°C): <u>3.7</u>	
• Sample Container Temperature			
Container(s) used:	CONTAINER 1	CONTAINER 2	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
<b>Exceptions Noted</b>			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> 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?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
<b>Additional Comments</b>			

Project Manager: Sean Marczewski  
Email: smarczewski@scsengineers.com  
Cell 712-661-9682

Site Contact: Sean Marczewski  
Lab Contact: Mary Yang  
Date: \_\_\_\_\_  
Carrier: \_\_\_\_\_

Client Contact: SCS Engineers  
1690 All-State Court, Suite 100  
West Des Moines, IA 50265  
515-631-6160

Project Name: 1st 2024 Semi-Annual GW Sampling  
Site: City of Ames Inactive CCR  
P O # 2722352.00

Analysis Turnaround Time  
 CALENDAR DAYS  WORKING DAYS

Other:  
 2 weeks  
 1 week  
 2 days  
 1 day

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	EPA CCR Appendix III	EPA CCR Appendix IV	COCs	Sample Specific Notes
MW-101	4/23/24	9:41	G	W				X	X		
MW-102	4/24/24	10:44	G	W				X	X		
MW-103	4/24/24	11:32	G	W				X	X		
MW-104	4/24/24	12:20	G	W				X	X		
MW-105	4/24/24	3:00	G	W				X	X		
MW-106	4/24/24	3:05	G	W				X	X		
MW-107	4/23/24	14:31	G	W				X	X		
MW-108	4/24/24	5:07	G	W				X	X		
DUP-1	4/23/24	5:07	G	W				X	X		

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

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

Special Instructions/QC Requirements & Comments: See attachments for EPA CCR Appendix III and Appendix IV constituent lists

Cooler Temp (°C) Obs'd \_\_\_\_\_ Cor'd \_\_\_\_\_ Therm ID No \_\_\_\_\_

Received by: \_\_\_\_\_ Company: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Received by: \_\_\_\_\_ Company: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Received in Laboratory by: \_\_\_\_\_ Company: \_\_\_\_\_ Date/Time: \_\_\_\_\_



Ames CCR Impoundment Bottle Order and Field Tasks - Spring 2024  
SCS Engineers

Constituents	Constituent List	Groundwater Monitoring Wells										QA/QC			
		MW-101	MW-102	MW-103	MW-104	MW-105	MW-106	MW-107	MW-108	DUP-1					
Boron	Appendix III	X	X	X	X	X	X	X	X	X	X	X	X	X	
Calcium	Appendix III	X	X	X	X	X	X	X	X	X	X	X	X	X	
Chloride	Appendix III	X	X	X	X	X	X	X	X	X	X	X	X	X	
Fluoride	Appendix III	X	X	X	X	X	X	X	X	X	X	X	X	X	
pH	Appendix III	X	X	X	X	X	X	X	X	X	X	X	X	X	
Sulfate	Appendix III	X	X	X	X	X	X	X	X	X	X	X	X	X	
Total Dissolved Solids (TDS)	Appendix III	X	X	X	X	X	X	X	X	X	X	X	X	X	
Antimony	Appendix IV	X	X	X	X	X	X	X	X	X	X	X	X	X	
Arsenic	Appendix IV	X	X	X	X	X	X	X	X	X	X	X	X	X	
Barium	Appendix IV	X	X	X	X	X	X	X	X	X	X	X	X	X	
Beryllium	Appendix IV	X	X	X	X	X	X	X	X	X	X	X	X	X	
Cadmium	Appendix IV	X	X	X	X	X	X	X	X	X	X	X	X	X	
Chromium	Appendix IV	X	X	X	X	X	X	X	X	X	X	X	X	X	
Cobalt	Appendix IV	X	X	X	X	X	X	X	X	X	X	X	X	X	
Fluoride	Appendix IV	X	X	X	X	X	X	X	X	X	X	X	X	X	
Lead	Appendix IV	X	X	X	X	X	X	X	X	X	X	X	X	X	
Lithium	Appendix IV	X	X	X	X	X	X	X	X	X	X	X	X	X	
Mercury	Appendix IV	X	X	X	X	X	X	X	X	X	X	X	X	X	
Molybdenum	Appendix IV	X	X	X	X	X	X	X	X	X	X	X	X	X	
Selenium	Appendix IV	X	X	X	X	X	X	X	X	X	X	X	X	X	
Thallium	Appendix IV	X	X	X	X	X	X	X	X	X	X	X	X	X	
Radium-226 & Radium-228, Combined	Appendix IV	X	X	X	X	X	X	X	X	X	X	X	X	X	
<b>Field Parameters</b>															
pH		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Specific Conductance		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Temperature		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Turbidity		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Dissolved Oxygen		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Oxidation Reduction Potential		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Depth to Water		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Well Depth		X	X	X	X	X	X	X	X	X	X	X	X	X	X

Notes.



# Chain of Custody Record



Environment Testing



<b>Client Information (Sub Contract Lab)</b>		Lab PM: Yang, Mary E	Carrier Tracking Note(s): 310-71678-1							
Client Contact: Shipping/Receiving		E-Mail: Mary.Yang@ET.EurofinsUS.com	Page: Page 1 of 1							
Company: TestAmerica Laboratories, Inc.		State of Origin: Iowa	Job #: 310-279724-2							
Address: 13715 Rider Trail North, City: Earth City State, Zip: MO, 63045 Phone: 314-298-8566(Tel) 314-298-8757(Fax) Email:		Accreditations Required (See note): State - Iowa; State Program - Iowa								
Due Date Requested: 5/29/2024 TAT Requested (days):		<b>Analysis Requested</b>								
PO #:	WO #:	Perform MS/MSD (Yes or No)	9315_Ra226/Precep_21 Standard Target List							
Project #: 31010331	SSOW#:	Field Filtered Sample (Yes or No)	9320_Ra226/Precep_0 Standard Target List							
Site: 310 - SCS City of Ames Inactive CCR		Matrix (W=Water, S=Solid, O=Organic, BT=Trace, AA=)	Other:							
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Preservation Code:	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226/Precep_21 Standard Target List	9320_Ra226/Precep_0 Standard Target List	Total Number of Containers	Special Instructions/Note:
MW-101 (310-279724-1)	4/23/24	09:41 Central		Water	X	X	X	X	2	
MW-102 (310-279724-2)	4/23/24	10:44 Central		Water	X	X	X	X	2	
MW-103 (310-279724-3)	4/23/24	11:32 Central		Water	X	X	X	X	2	
MW-104 (310-279724-4)	4/23/24	12:20 Central		Water	X	X	X	X	2	
MW-105 (310-279724-5)	4/23/24	13:03 Central		Water	X	X	X	X	2	
MW-106 (310-279724-6)	4/23/24	13:51 Central		Water	X	X	X	X	2	
MW-107 (310-279724-7)	4/23/24	14:31 Central		Water	X	X	X	X	2	
MW-108 (310-279724-8)	4/23/24	15:17 Central		Water	X	X	X	X	2	
DUP-1 (310-279724-9)	4/23/24	15:17 Central		Water	X	X	X	X	2	
<p>Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte &amp; accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC.</p>										
<b>Possible Hazard Identification</b>										
Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify) _____ Primary Deliverable Rank: 2 Empty Kit Relinquished by: _____ Date: _____ Relinquished by: _____ Date: 4/23/24 10:40 Relinquished by: _____ Date/Time: _____ Company: _____ Relinquished by: _____ Date/Time: _____ Company: _____ Custody Seals Intact: _____ Custody Seal No.: _____ Δ Yes Δ No										
Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month ) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Special Instructions/QC Requirements: _____ Method of Shipment: _____ Received by: _____ Date/Time: _____ Company: _____ Received by: <i>M. Pinette</i> Date/Time: APR 26 2024 08:40 Company: _____ Received by: _____ Date/Time: _____ Company: _____ Cooler Temperature(s) °C and Other Remarks: _____										

# Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-279724-2

**Login Number: 279724**

**List Source: Eurofins Cedar Falls**

**List Number: 1**

**Creator: Muehling, Angela C**

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





# Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-279724-2

**Login Number: 279724**

**List Number: 2**

**Creator: Pinette, Meadow L**

**List Source: Eurofins St. Louis**

**List Creation: 04/26/24 01:27 PM**

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



# Tracer/Carrier Summary

Client: SCS Engineers  
Project/Site: Ames Inactive CCR Impoundment

Job ID: 310-279724-2

## Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

### Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (30-110)
310-279724-1	MW-101	83.5
310-279724-2	MW-102	96.7
310-279724-3	MW-103	93.7
310-279724-4	MW-104	93.9
310-279724-5	MW-105	98.5
310-279724-6	MW-106	90.4
310-279724-7	MW-107	99.5
310-279724-8	MW-108	92.1
310-279724-9	DUP-1	84.5
LCS 160-659462/2-A	Lab Control Sample	93.1
MB 160-659462/1-A	Method Blank	65.0

#### Tracer/Carrier Legend

Ba = Ba Carrier

## Method: 9320 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

### Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (30-110)	Y (30-110)
310-279724-1	MW-101	83.5	75.5
310-279724-2	MW-102	96.7	75.5
310-279724-3	MW-103	93.7	78.5
310-279724-4	MW-104	93.9	79.3
310-279724-5	MW-105	98.5	76.3
310-279724-6	MW-106	90.4	79.3
310-279724-7	MW-107	99.5	77.4
310-279724-8	MW-108	92.1	77.8
310-279724-9	DUP-1	84.5	75.5
LCS 160-659463/2-A	Lab Control Sample	93.1	79.6
MB 160-659463/1-A	Method Blank	65.0	79.3

#### Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier

## Appendix C

### Data Validation Summary Reports

QA/QC Completed by: Sean Marczewski  
 Sample Date: 10/17/2023  
 Site Name: City of Ames Inactive CCR Ash Pond  
 Sample Delivery Group: N/A  
 Project Type: Groundwater Sampling Event  
 Laboratory: Eurofins TestAmerica, Cedar Falls  
 Lab Job ID: 310-267521-1  
 Lab Report Date: 10/31/2023

	OK	NO	N/A	NOTES
<b>Sample Collection and Sample Holding</b>				
Chain of Custody	X			
Temperature	X			
Preservation	X			
Condition	X			
Correct Constituents Analyzed	X			
Case Narrative	X			Method 9056A_ORGFM_28D: The following samples were diluted due to the nature of the sample matrix: MW-101 (310-267521-1), MW-102 (310-267521-2), MW-103 (310-267521-3), MW-104 (310-267521-4), MW-105 (310-267521-5), MW-106 (310-267521-6), MW-107 (310-267521-7), MW-108 (310-267521-8) and DUP-1 (310-267521-9). Elevated reporting limits (RLs) are provided.
Holding Times	X			
<b>Analytical Sensitivity and Blanks</b>				
Method Blank Detections	X			No detections.
Trip Blank Detections			X	
<b>Accuracy</b>				
ICV/CCV	X			
LCS/LCSD	X			
MS/MSD	X			
Surrogates (organics only)	X			
<b>Precision</b>				
QA/QC Sample RPDs	X			
Field Duplicates	X			Sample MW-105 and duplicate DUP-1 had less than 20% RPD for analyzed parameters.

QA/QC Completed by: Sean Marczewski  
 Sample Date: 4/23/2024  
 Site Name: City of Ames Inactive CCR Ash Pond  
 Sample Delivery Group: N/A  
 Project Type: Groundwater Sampling Event  
 Laboratory: Eurofins TestAmerica, Cedar Falls  
 Lab Job ID: 310-279724-2  
 Lab Report Date: 5/28/2024

	OK	NO	N/A	NOTES
<b>Sample Collection and Sample Holding</b>				
Chain of Custody	X			
Temperature	X			
Preservation	X			
Condition	X			
Correct Constituents Analyzed	X			
Case Narrative	X			
Holding Times	X			
<b>Analytical Sensitivity and Blanks</b>				
Method Blank Detections	X			No detections.
Trip Blank Detections			X	
<b>Accuracy</b>				
ICV/CCV		X		Method 9056A_ORGFM_28D: The continuing calibration verification (CCV) associated with batch 310-420250 recovered above the upper control limit for fluoride. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: MW-101 (310-279724-1), MW-102 (310-279724-2), MW-103 (310-279724-3), MW-104 (310-279724-4), MW-105 (310-279724-5), MW-107 (310-279724-7), MW-108 (310-279724-8) and DUP-1 (310-279724-9).
LCS/LCSD		X		Method 9056A_ORGFM_28D: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for analytical batch 310-420250 recovered outside control limits for the following analytes: fluoride. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported. MW-101 (310-279724-1), MW-102 (310-279724-2), MW-103 (310-279724-3), MW-104 (310-279724-4), MW-105 (310-279724-5), MW-107 (310-279724-7), MW-108 (310-279724-8) and DUP-1 (310-279724-9).
MS/MSD	X			
Surrogates (organics only)	X			
<b>Precision</b>				
QA/QC Sample RPDs	X			
Field Duplicates	X			Sample MW-108 and duplicate DUP-1 had less than 20% RPD for analyzed parameters except for total dissolved solids.