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Our ref.: 12575233-LTR-8

January 30, 2026

Mr. Brian L. Rath
Environmental Engineer Senior
Land Quality Bureau
Iowa Department of Natural Resources
6200 Park Avenue, Suite 200
Des Moines, Iowa 50321

2025 Annual Leachate Report
Louisa Generating Station Coal Combustion Residue East Monofill
Muscataine, Iowa
Permit No. 70-SDP-16-04P

Dear Mr. Rath:

On behalf of MidAmerican Energy Company (MidAmerican), GHD Services Inc. (GHD) has prepared this Leachate Report to document leachate management activities for the Louisa Generating Station Coal Combustion Residue (CCR) Monofill (East Monofill).

1. Current Operation

The East Monofill is equipped with a leachate collection and transfer system. Leachate from Cell 1, Cell 2, Cell 3, and Cell 4 is pumped by a lift station through buried pipe to the lined Leachate Lagoon.

Construction of Cell 1 was completed in 2018, with the initial CCR placed in the East Monofill on October 15, 2018. Cells 2 and 3 were permitted for use in 2020. CCR placement into Cell 2 and Cell 3 began in March 2020. Cell 4 was permitted for use in November 2025 and CCR placement into the cell began in December 2025.

1.1 Leachate Head

MidAmerican monitors the leachate depth in the East Monofill by obtaining monthly leachate head measurements at the Cell 1, Cell 2, Cell 3, and Cell 4 leachate sump locations. Table 1 presents monthly leachate head measurements for the Cell 1, Cell 2, Cell 3, and Cell 4 sumps for the reporting months of January 2025 to December 2025. Leachate head was maintained at less than 12 inches above the liner in all cells throughout the reporting period.

1.2 Leachate Volume

Between startup in November 2018 and December 31, 2025, the leachate totalizer recorded removal of 16,890,852 gallons. During the 2025 reporting period (readings collected January 31, 2025, through December 31, 2025), 1,564,028 gallons of leachate removal was recorded at the leachate totalizer. In April 2025, the flow meter for Lift Station 1 to the Leachate Lagoon stopped working and no measurements were collected. By May 2025, the meter was fixed and remained operational for the rest of 2025.

1.3 Leachate Sampling

Table 2 provides analytical results for the leachate samples collected from 2019 through 2025. The leachate analyte list provided in Table 2 is consistent with the Federal CCR rule groundwater monitoring constituents. The laboratory analytical report for the 2025 sample is provided in Attachment A.

1.4 Overall Operation

Overall, the East Monofill leachate system appears to be functioning properly and preventing the migration of leachate to groundwater.

2. Closing

Should you have any questions or require additional information regarding this submittal, please do not hesitate to contact Josh Love of MidAmerican at +1 712 277-6367 or Michael Alowitz of GHD.

Regards,



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KGA/jlf/8/S4



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Encl.: Table 1 - Leachate Head and Flow Measurements
Table 2 - Leachate Analytical Results (Appendix III and Appendix IV)
Attachment A - Laboratory Analytical Report

Copy to: Josh Love, MidAmerican
Jamie Murphy, MidAmerican
Kayla Swope, MidAmerican

Tables

Table 1

**Leachate Head and Flow Measurements
MidAmerican Energy Company
East Monofill - Muscatine, Iowa
Permit No. 70-SDP-16-04P**

Date	Cell 1 Leachate Head (inches above liner)	Cell 2 Leachate Head (inches above liner)	Cell 3 Leachate Head (inches above liner)	Cell 4 Leachate Head (inches above liner)	Lift Station 1 Flow to Leachate Lagoon (gallons)	Leachate from Lagoon Used for Dust Control (gallons)
1/31/2025	3.0	3.0	3.0	--	23,299	58,994
2/27/2025	3.0	3.0	3.0	--	115,234	46,276
3/31/2025	3.0	3.0	3.0	--	101,726	150,133
4/30/2025	N/A	N/A	N/A	--	N/A	300,613
5/30/2025	3.0	3.0	3.0	--	147,607	202,305
6/30/2025	3.0	3.0	3.0	--	596	260,522
7/31/2025	3.0	3.0	3.0	--	228,940	46,955
8/28/2025	3.0	3.0	3.0	--	501,873	15,870
9/30/2025	3.0	3.0	3.0	--	98,312	4,455
10/31/2025	3.0	3.0	3.0	--	93,964	0
11/26/2025	3.0	3.0	3.0	--	181,980	10,194
12/31/2025	3.0	3.0	3.0	0.0	70,497	6,966

Note:

Cell 4 was added in December 2025.

Table 2
Leachate Analytical Results (Appendix III and Appendix IV)
MidAmerican Energy Company
East Monofill - Muscatine, Iowa
Permit No. 70-SDP-16-04P

Analyte	Units	Leachate_19_09 9/12/2019	LMH34_20_09 9/16/2020	LMH34_21_09 9/14/2021	LMH34_22_09 09/28/2022	LMH34_23_09 09/26/2023	LMH34_24_08 8/26/2024	LMH34_25_10 10/6/2025
Appendix III								
Boron	mg/L	0.200 U	0.271	0.144	0.286	0.311	0.477	0.728
Calcium	mg/L	53.2	324	144	303	345	400	389
Chloride	mg/L	43.6	1250	465	795	1440	1960	2370
Fluoride	mg/L	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	1.00 U	1.00 U
pH, lab	s.u.	8.0 J	10.7 J	9.3 J	11.0 J	8.8 J	9.2 J	8.8 J
Sulfate	mg/L	87.4	2360	1060	1910	3430	2920	3590
Total dissolved solids (TDS)	mg/L	354	7360	1920	4700	7940	8100	10500
Appendix IV								
Antimony	mg/L	0.00100 U	0.00100 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Arsenic	mg/L	0.00200 U	0.00497	0.00216	0.0107	0.00288	0.00425	0.00778
Barium	mg/L	0.0915	0.0957	0.0945	0.128	0.0628	0.0619	0.0898
Beryllium	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Cadmium	mg/L	0.000100 U	0.000404	0.000201	0.000528	0.000230	0.000268	0.000737
Chromium	mg/L	0.00500 U	0.377	0.0133	0.0587	0.296	0.138	0.151
Cobalt	mg/L	0.000500 U	0.000500 U	0.000500 U	0.00392	0.000570	0.000500 U	0.00129
Lead	mg/L	0.000500 U	0.000500 U	0.000500 U	0.00353	0.000500 U	0.000500 U	0.00102
Lithium	mg/L	0.0100 U	0.0100 U	0.0100 U	0.0166	0.0139	0.0269	0.0189
Mercury	mg/L	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U
Molybdenum	mg/L	0.0287	1.43	0.434	0.798	1.22	1.33	1.63
Radium-226 & 228	pCi/L	0.689	1.06	0.867	5.17	1.48	0.576 U	0.440
Selenium	mg/L	0.00500 U	0.0914	0.0145	0.0895	0.0686	0.0923	0.135
Thallium	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U

Notes:

U - Not detected at the associated reporting limit.

J - Estimated.

s.u. - Standard Units.

mg/L - Milligrams per liter.

pCi/L - Picocuries per liter.

Attachment A

Laboratory Analytical Report

ANALYTICAL REPORT

PREPARED FOR

Attn: Kevin Armstrong
GHD Services Inc.
11228 Aurora Avenue
Des Moines, Iowa 50322-7905

Generated 11/5/2025 10:54:35 AM

JOB DESCRIPTION

MEC Louisa East CCR Monofill

JOB NUMBER

310-317356-1

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.

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Case Narrative

Client: GHD Services Inc.
Project: MEC Louisa East CCR Monofill

Job ID: 310-317356-1

Job ID: 310-317356-1

Eurofins Cedar Falls

Job Narrative 310-317356-1

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

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

Receipt

The sample was received on 10/7/2025 4:25 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.3°C.

HPLC/IC

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

Metals

Method 7470A: The continuing calibration verification (CCV) associated with batch 310-470410 recovered above the upper control limit for Mercury. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

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

General Chemistry

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

Eurofins Cedar Falls

Case Narrative

Client: GHD Services Inc.
Project: MEC Louisa East CCR Monofill

Job ID: 310-317356-1

Job ID: 310-317356-2

Eurofins Cedar Falls

Job Narrative 310-317356-2

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

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

Receipt

The sample was received on 10/7/2025 4:25 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.3°C.

Gas Flow Proportional Counter

Method 9320_Ra228: Radium 228 Batch 740093

The Radium-228 laboratory control sample (LCS) associated with the following samples recovered at 130%: (LCS 160-740093/2-A). The limits in our LIMS system at 75-125% reflect the requirements of a regulatory agency that represents a large amount of our work. However the samples associated with this LCS are not from this agency and are therefore held to our in-house statistical limits of 68-154%. The LCS is within criteria and no further action is required.

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: GHD Services Inc.
Project/Site: MEC Louisa East CCR Monofill

Job ID: 310-317356-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Sample Origin
310-317356-1	LMH34_25_10	Water	10/06/25 06:50	10/07/25 16:25	Iowa

1

2

3

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Detection Summary

Client: GHD Services Inc.
 Project/Site: MEC Louisa East CCR Monofill

Job ID: 310-317356-1

Client Sample ID: LMH34_25_10

Lab Sample ID: 310-317356-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	2370		50.0		mg/L	50		9056A	Total/NA
Sulfate	3590		50.0		mg/L	50		9056A	Total/NA
Arsenic	0.00778		0.00200		mg/L	1		6020B	Total/NA
Barium	0.0898		0.00200		mg/L	1		6020B	Total/NA
Boron	0.728		0.100		mg/L	1		6020B	Total/NA
Cadmium	0.000737		0.000200		mg/L	1		6020B	Total/NA
Calcium	389		0.500		mg/L	1		6020B	Total/NA
Chromium	0.151		0.00500		mg/L	1		6020B	Total/NA
Cobalt	0.00129		0.000500		mg/L	1		6020B	Total/NA
Lead	0.00102		0.000500		mg/L	1		6020B	Total/NA
Lithium	0.0189		0.0100		mg/L	1		6020B	Total/NA
Molybdenum	1.63		0.00200		mg/L	1		6020B	Total/NA
Selenium	0.135		0.00500		mg/L	1		6020B	Total/NA
Total Dissolved Solids	10500		500		mg/L	1		SM 2540C	Total/NA
pH	8.8	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: GHD Services Inc.
Project/Site: MEC Louisa East CCR Monofill

Job ID: 310-317356-1

Client Sample ID: LMH34_25_10

Lab Sample ID: 310-317356-1

Date Collected: 10/06/25 06:50

Matrix: Water

Date Received: 10/07/25 16:25

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2370		50.0		mg/L			10/20/25 09:36	50
Fluoride	<1.00	F1	1.00		mg/L			10/16/25 10:25	5
Sulfate	3590		50.0		mg/L			10/20/25 09:36	50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		10/14/25 08:30	10/22/25 14:41	1
Arsenic	0.00778		0.00200		mg/L		10/14/25 08:30	10/21/25 14:36	1
Barium	0.0898		0.00200		mg/L		10/14/25 08:30	10/21/25 14:36	1
Beryllium	<0.00100		0.00100		mg/L		10/14/25 08:30	10/18/25 17:43	1
Boron	0.728		0.100		mg/L		10/14/25 08:30	10/22/25 14:41	1
Cadmium	0.000737		0.000200		mg/L		10/14/25 08:30	10/21/25 14:36	1
Calcium	389		0.500		mg/L		10/14/25 08:30	10/21/25 14:36	1
Chromium	0.151		0.00500		mg/L		10/14/25 08:30	10/18/25 17:43	1
Cobalt	0.00129		0.000500		mg/L		10/14/25 08:30	10/18/25 17:43	1
Lead	0.00102		0.000500		mg/L		10/14/25 08:30	10/21/25 14:36	1
Lithium	0.0189		0.0100		mg/L		10/14/25 08:30	10/18/25 17:43	1
Molybdenum	1.63		0.00200		mg/L		10/14/25 08:30	10/21/25 14:36	1
Selenium	0.135		0.00500		mg/L		10/14/25 08:30	10/21/25 14:36	1
Thallium	<0.00100		0.00100		mg/L		10/14/25 08:30	10/22/25 14:41	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200	^+	0.000200		mg/L		10/15/25 14:45	10/16/25 14:23	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	10500		500		mg/L			10/08/25 14:16	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SM 4500 H+ B)	8.8	HF	1.0		SU			10/08/25 00:02	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	<0.442	U	0.234	0.234	1.00	0.442	pCi/L	10/10/25 08:16	11/04/25 19:09	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	90.8		30 - 110					10/10/25 08:16	11/04/25 19:09	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	<0.755	U	0.457	0.459	1.00	0.755	pCi/L	10/10/25 08:18	11/04/25 09:53	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	90.8		30 - 110					10/10/25 08:18	11/04/25 09:53	1
Y Carrier	75.1		30 - 110					10/10/25 08:18	11/04/25 09:53	1

Eurofins Cedar Falls

Client Sample Results

Client: GHD Services Inc.
 Project/Site: MEC Louisa East CCR Monofill

Job ID: 310-317356-1

Client Sample ID: LMH34_25_10

Lab Sample ID: 310-317356-1

Date Collected: 10/06/25 06:50

Matrix: Water

Date Received: 10/07/25 16:25

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Combined Radium 226 + 228	<0.755	U	0.513	0.515	5.00	0.755	pCi/L		11/05/25 09:47	1

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Definitions/Glossary

Client: GHD Services Inc.
Project/Site: MEC Louisa East CCR Monofill

Job ID: 310-317356-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
F1	MS and/or MSD recovery exceeds control limits.

Metals

Qualifier	Qualifier Description
^+	Continuing Calibration Verification (CCV) 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.
☼	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: GHD Services Inc.
Project/Site: MEC Louisa East CCR Monofill

Job ID: 310-317356-1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-470688/3
Matrix: Water
Analysis Batch: 470688

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			10/16/25 09:54	1
Fluoride	<0.200		0.200		mg/L			10/16/25 09:54	1
Sulfate	<1.00		1.00		mg/L			10/16/25 09:54	1

Lab Sample ID: LCS 310-470688/4
Matrix: Water
Analysis Batch: 470688

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec	%Rec Limits
Fluoride	2.00	2.116		mg/L		106	90 - 110	
Sulfate	10.0	10.03		mg/L		100	90 - 110	

Lab Sample ID: 310-317356-1 MS
Matrix: Water
Analysis Batch: 470688

Client Sample ID: LMH34_25_10
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits

Lab Sample ID: 310-317356-1 MSD
Matrix: Water
Analysis Batch: 470688

Client Sample ID: LMH34_25_10
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit

Lab Sample ID: 310-317356-1 MS
Matrix: Water
Analysis Batch: 470706

Client Sample ID: LMH34_25_10
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	3590		250	4272	4	mg/L		273	80 - 120

Lab Sample ID: 310-317356-1 MSD
Matrix: Water
Analysis Batch: 470706

Client Sample ID: LMH34_25_10
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	3590		250	4077	4	mg/L		195	80 - 120	5	15

QC Sample Results

Client: GHD Services Inc.
Project/Site: MEC Louisa East CCR Monofill

Job ID: 310-317356-1

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-469897/1-A
Matrix: Water
Analysis Batch: 470580

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 469897

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		10/14/25 08:30	10/18/25 17:17	1
Arsenic	<0.00200		0.00200		mg/L		10/14/25 08:30	10/18/25 17:17	1
Barium	<0.00200		0.00200		mg/L		10/14/25 08:30	10/18/25 17:17	1
Beryllium	<0.00100		0.00100		mg/L		10/14/25 08:30	10/18/25 17:17	1
Cadmium	<0.000200		0.000200		mg/L		10/14/25 08:30	10/18/25 17:17	1
Calcium	<0.500		0.500		mg/L		10/14/25 08:30	10/18/25 17:17	1
Chromium	<0.00500		0.00500		mg/L		10/14/25 08:30	10/18/25 17:17	1
Cobalt	<0.000500		0.000500		mg/L		10/14/25 08:30	10/18/25 17:17	1
Lead	<0.000500		0.000500		mg/L		10/14/25 08:30	10/18/25 17:17	1
Lithium	<0.0100		0.0100		mg/L		10/14/25 08:30	10/18/25 17:17	1
Molybdenum	<0.00200		0.00200		mg/L		10/14/25 08:30	10/18/25 17:17	1
Selenium	<0.00500		0.00500		mg/L		10/14/25 08:30	10/18/25 17:17	1
Thallium	<0.00100		0.00100		mg/L		10/14/25 08:30	10/18/25 17:17	1

Lab Sample ID: MB 310-469897/1-A
Matrix: Water
Analysis Batch: 471021

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 469897

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.100		0.100		mg/L		10/14/25 08:30	10/22/25 14:27	1

Lab Sample ID: LCS 310-469897/2-A
Matrix: Water
Analysis Batch: 470580

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 469897

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.200	0.2187		mg/L		109	80 - 120
Arsenic	0.200	0.1903		mg/L		95	80 - 120
Barium	0.100	0.1019		mg/L		102	80 - 120
Beryllium	0.100	0.09656		mg/L		97	80 - 120
Cadmium	0.100	0.09925		mg/L		99	80 - 120
Calcium	2.00	1.928		mg/L		96	80 - 120
Chromium	0.100	0.09809		mg/L		98	80 - 120
Cobalt	0.100	0.09561		mg/L		96	80 - 120
Lead	0.200	0.2127		mg/L		106	80 - 120
Lithium	0.200	0.1922		mg/L		96	80 - 120
Molybdenum	0.200	0.1986		mg/L		99	80 - 120
Selenium	0.400	0.3985		mg/L		100	80 - 120
Thallium	0.100	0.1156		mg/L		116	80 - 120

Lab Sample ID: LCS 310-469897/2-A
Matrix: Water
Analysis Batch: 471021

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 469897

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	0.200	0.2178		mg/L		109	80 - 120

QC Sample Results

Client: GHD Services Inc.
Project/Site: MEC Louisa East CCR Monofill

Job ID: 310-317356-1

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-470187/1-A
Matrix: Water
Analysis Batch: 470410

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 470187

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200	^+	0.000200		mg/L		10/15/25 14:45	10/16/25 13:04	1

Lab Sample ID: LCS 310-470187/2-A
Matrix: Water
Analysis Batch: 470410

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 470187

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00167	0.001697	^+	mg/L		102	80 - 120

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

Lab Sample ID: MB 310-469368/1
Matrix: Water
Analysis Batch: 469368

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			10/08/25 14:16	1

Lab Sample ID: LCS 310-469368/2
Matrix: Water
Analysis Batch: 469368

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	1048		mg/L		105	89 - 110

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 310-469241/28
Matrix: Water
Analysis Batch: 469241

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	7.1		SU		101	98 - 102

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-740092/1-A
Matrix: Water
Analysis Batch: 743689

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 740092

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	<0.367	U	0.195	0.195	1.00	0.367	pCi/L	10/10/25 08:16	11/04/25 17:05	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Barium	89.8		30 - 110					10/10/25 08:16	11/04/25 17:05	1

Eurofins Cedar Falls

QC Sample Results

Client: GHD Services Inc.
Project/Site: MEC Louisa East CCR Monofill

Job ID: 310-317356-1

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

Lab Sample ID: LCS 160-740092/2-A
Matrix: Water
Analysis Batch: 743689

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 740092

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
Radium-226	9.57	9.912		1.31	1.00	0.343	pCi/L	104	75 - 125	
Carrier	%Yield	LCS Qualifier	Limits							
Barium	85.3		30 - 110							

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-740093/1-A
Matrix: Water
Analysis Batch: 743678

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 740093

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	<0.551	U	0.347	0.349	1.00	0.551	pCi/L	10/10/25 08:18	11/04/25 09:53	1
Carrier	%Yield	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac		
Barium	89.8		30 - 110			10/10/25 08:18	11/04/25 09:53	1		
Y Carrier	80.7		30 - 110			10/10/25 08:18	11/04/25 09:53	1		

Lab Sample ID: LCS 160-740093/2-A
Matrix: Water
Analysis Batch: 743678

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 740093

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
Radium-228	7.96	10.38		1.42	1.00	0.656	pCi/L	130	75 - 125	
Carrier	%Yield	LCS Qualifier	Limits							
Barium	85.3		30 - 110							
Y Carrier	82.6		30 - 110							

QC Association Summary

Client: GHD Services Inc.
Project/Site: MEC Louisa East CCR Monofill

Job ID: 310-317356-1

HPLC/IC

Analysis Batch: 470688

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-317356-1	LMH34_25_10	Total/NA	Water	9056A	
MB 310-470688/3	Method Blank	Total/NA	Water	9056A	
LCS 310-470688/4	Lab Control Sample	Total/NA	Water	9056A	
310-317356-1 MS	LMH34_25_10	Total/NA	Water	9056A	
310-317356-1 MSD	LMH34_25_10	Total/NA	Water	9056A	

Analysis Batch: 470706

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-317356-1	LMH34_25_10	Total/NA	Water	9056A	
310-317356-1 MS	LMH34_25_10	Total/NA	Water	9056A	
310-317356-1 MSD	LMH34_25_10	Total/NA	Water	9056A	

Metals

Prep Batch: 469897

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-317356-1	LMH34_25_10	Total/NA	Water	3005A	
MB 310-469897/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-469897/2-A	Lab Control Sample	Total/NA	Water	3005A	

Prep Batch: 470187

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-317356-1	LMH34_25_10	Total/NA	Water	7470A	
MB 310-470187/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-470187/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 470410

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-317356-1	LMH34_25_10	Total/NA	Water	7470A	470187
MB 310-470187/1-A	Method Blank	Total/NA	Water	7470A	470187
LCS 310-470187/2-A	Lab Control Sample	Total/NA	Water	7470A	470187

Analysis Batch: 470580

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-317356-1	LMH34_25_10	Total/NA	Water	6020B	469897
MB 310-469897/1-A	Method Blank	Total/NA	Water	6020B	469897
LCS 310-469897/2-A	Lab Control Sample	Total/NA	Water	6020B	469897

Analysis Batch: 470866

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-317356-1	LMH34_25_10	Total/NA	Water	6020B	469897

Analysis Batch: 471021

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-317356-1	LMH34_25_10	Total/NA	Water	6020B	469897
MB 310-469897/1-A	Method Blank	Total/NA	Water	6020B	469897
LCS 310-469897/2-A	Lab Control Sample	Total/NA	Water	6020B	469897

Eurofins Cedar Falls

QC Association Summary

Client: GHD Services Inc.
Project/Site: MEC Louisa East CCR Monofill

Job ID: 310-317356-1

General Chemistry

Analysis Batch: 469241

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-317356-1	LMH34_25_10	Total/NA	Water	SM 4500 H+ B	
LCS 310-469241/28	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 469368

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-317356-1	LMH34_25_10	Total/NA	Water	SM 2540C	
MB 310-469368/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 310-469368/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Rad

Prep Batch: 740092

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-317356-1	LMH34_25_10	Total/NA	Water	PrecSep-21	
MB 160-740092/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-740092/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 740093

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-317356-1	LMH34_25_10	Total/NA	Water	PrecSep_0	
MB 160-740093/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-740093/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: GHD Services Inc.
Project/Site: MEC Louisa East CCR Monofill

Job ID: 310-317356-1

Client Sample ID: LMH34_25_10

Lab Sample ID: 310-317356-1

Date Collected: 10/06/25 06:50

Matrix: Water

Date Received: 10/07/25 16:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		5	470688	ZRI4	EET CF	10/16/25 10:25
Total/NA	Analysis	9056A		50	470706	ZRI4	EET CF	10/20/25 09:36
Total/NA	Prep	3005A			469897	QTZ5	EET CF	10/14/25 08:30
Total/NA	Analysis	6020B		1	470580	NFT2	EET CF	10/18/25 17:43
Total/NA	Prep	3005A			469897	QTZ5	EET CF	10/14/25 08:30
Total/NA	Analysis	6020B		1	470866	NFT2	EET CF	10/21/25 14:36
Total/NA	Prep	3005A			469897	QTZ5	EET CF	10/14/25 08:30
Total/NA	Analysis	6020B		1	471021	NFT2	EET CF	10/22/25 14:41
Total/NA	Prep	7470A			470187	RLT9	EET CF	10/15/25 14:45
Total/NA	Analysis	7470A		1	470410	RLT9	EET CF	10/16/25 14:23
Total/NA	Analysis	SM 2540C		1	469368	TGN5	EET CF	10/08/25 14:16
Total/NA	Analysis	SM 4500 H+ B		1	469241	ZJX4	EET CF	10/08/25 00:02
Total/NA	Prep	PrecSep-21			740092	AMS	EET SL	10/10/25 08:16
Total/NA	Analysis	9315		1	743685	SWS	EET SL	11/04/25 19:09
Total/NA	Prep	PrecSep_0			740093	AMS	EET SL	10/10/25 08:18
Total/NA	Analysis	9320		1	743689	SWS	EET SL	11/04/25 09:53
Total/NA	Analysis	Ra226_Ra228		1	743869	SCB	EET SL	11/05/25 09:47

Laboratory References:

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

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

Accreditation/Certification Summary

Client: GHD Services Inc.
Project/Site: MEC Louisa East CCR Monofill

Job ID: 310-317356-1

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	12-01-25

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

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

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	12-01-26

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: GHD Services Inc.
Project/Site: MEC Louisa East CCR Monofill

Job ID: 310-317356-1

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
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
3005A	Preparation, Total Metals	SW846	EET CF
7470A	Preparation, Mercury	SW846	EET CF
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL

Protocol References:

None = None

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

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

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

Laboratory References:

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

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



Environment Testing
America



310-317356 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: 640			
City/State:	CITY Des Moines	STATE IA	Project:
Receipt Information			
Date/Time Received.	DATE 10-7-25	TIME 1625	Received By PH
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 _____			
Condition of Cooler/Containers			
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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler custody seals intact? <input checked="" 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? ↓	
Temperature Record			
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	BB	Correction Factor (°C)	0
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C)	3.3	Corrected Temp (°C)	3.3
• Sample Container Temperature			
Container(s) used.	CONTAINER 1	CONTAINER 2	
Uncorrected Temp (°C)			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <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			
Additional Comments			



Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 310-317356-1

Login Number: 317356

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Hirsch, Preston

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	

This receipt checklist is generated for all samples received in this Login. It may not be applicable to all Jobs associated with this Login.

Tracer/Carrier Summary

Client: GHD Services Inc.
Project/Site: MEC Louisa East CCR Monofill

Job ID: 310-317356-1

Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (30-110)							
310-317356-1	LMH34_25_10	90.8							
LCS 160-740092/2-A	Lab Control Sample	85.3							
MB 160-740092/1-A	Method Blank	89.8							

Tracer/Carrier Legend

Ba = Barium

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)						
310-317356-1	LMH34_25_10	90.8	75.1						
LCS 160-740093/2-A	Lab Control Sample	85.3	82.6						
MB 160-740093/1-A	Method Blank	89.8	80.7						

Tracer/Carrier Legend

Ba = Barium

Y = Y Carrier